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EDITORIAL NOTICE

In this batch of *Minor Planet Circulars* a significant milestone in the history of astronomy of minor planets is reached: the numbering of object (10000). The Editorial Notice on *MPC* 33615–33616, dated Feb. 2, addressed the question of naming (10000), asking readers to propose possible names for (10000) and, specifically, to comment on a proposal that this number should be assigned to Pluto. This proposal had been under discussion, moderately favorably, in the Small Bodies Names Committee, which had a rather sudden change of heart following agitation by a group of planetary astronomers, mainly located in the U.S. Acting on this sudden decision, the IAU Secretariat announced on Feb. 3 that the Small Bodies Names Committee had “decided against assigning any Minor Planet number to Pluto”.

In opening the (10000) “contest”, the Editorial Notice, which was reprinted on *Minor Planet Electronic Circular* 1999-C03, initiated an e-mail opinion poll on the suitability of assigning (10000) to Pluto. It was felt that this matter was of sufficiently widespread interest that it was inappropriate to resolve it “by Committee”. Because of the action by the IAU Secretariat, the poll was terminated 24 hours after *MPEC* 1999-C03 appeared. Actually, a 24-hour poll was ideal for two reasons: (a) it permitted respondents from all longitudes, and (b) it was too short to inspire much in the way of organized campaigns. The outcome is therefore thought to be a reasonably reliable reading of the opinions of rather informed astronomers, both professional and amateur, around the world.

A more careful examination of the messages shows that the fraction of individual messages in favor of (10000) Pluto was 65 percent (not 63 percent as announced on *MPEC* 1999-C10). The in-favor fraction initially decreased from some 67 percent to 59 percent over the first 12 hours, with significant recovery during the second 12 hours. Further messages continued to arrive subsequently, and the fraction has leveled off around 60 percent. Although the initial messages received were from 22 different countries, some 57 percent of the vote originated in the U.S. Respondents from outside the U.S. voted overwhelmingly—82 percent—in favor of (10000) Pluto. Inside the U.S., the vote in favor of (10000) Pluto was 51 percent.

The most complete discussion of the problem in the general literature is contained in *The Economist*, Feb. 6–12, pp. 85–86.

Only a few of the other proposals received for the name of (10000) are considered appropriate, and the contest ended on Feb. 26. This point is now being considered by the SBNC, and it is expected that the final selection of the name will be announced at the end of April.

“Minor Planet Astrometry and Photometry Workshop 1999”, designed to encourage the collaboration of amateur and professional observers of minor planets,

will be held at the Lowell Observatory, Flagstaff, AZ, on Apr. 23 and 24. Further details can be obtained from <http://www.bitnik.com/mp/mpapw99.html>.

ERRATA

<i>MPC</i>	Line	
23136	26	For Yuriy M. Avsyuk read Yuriy N. Avsyuk
32095	–31	For Chester B. Rowe read Chester B. Roe
33486	14	Add Id. G. V. Williams; 1961 UH = 1961 VE (<i>MPC</i> 2324) is invalid
33615	1	For Giuseppe Piazzi read Giuseppe Piazzi
33795	–12	For F. Börngen read F. Börngen and L. D. Schmadel
33795	– 6	Add Name proposed and citation prepared by the first discoverer.

NEW OBSERVATORY CODE

The following listing is a continuation to that on *MPC* 33616. The longitude λ is 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	$\rho \cos \phi'$	$\rho \sin \phi'$	
719	253.0861	0.82938	+0.55720	Etsorn Observatory

CORRECTED OBSERVATIONS

The following observations correct those previously published.

Object	Date	UT	α_{2000}	δ_{2000}	Reference	Mag.	N Obs.
1988 XC ₄	1988 12 01.98041	05 51 44.96	+23 50 45.9	<i>MPC</i> 14834			1 054
1988 XC ₄	1988 12 01.99429	05 51 44.10	+23 50 26.7	<i>MPC</i> 14834			1 054
1999 BR ₉	1999 01 23.91067	08 05 28.65	+20 06 18.1	<i>MPS</i> 3699	16.6		2 126
1999 BR ₉	1999 01 23.91828	08 05 28.22	+20 06 21.1	<i>MPS</i> 3699	16.7		2 126

Note 1: observations interchanged. 2: time changed by –1 hour.

DELETED OBSERVATIONS

The following observations are to be deleted.

Object	Date	UT	α_{2000}	δ_{2000}	Reference	Obs.
1952 DK ₃	* 1952 02 26.54514	09 41 33.26	+23 06 29.2	<i>MPC</i> 4822	388	
1998 VW ₄₃	1998 11 19.49401	08 21 09.57	+18 43 07.4	<i>MPS</i> 3179	691	
2073 P-L	1991 05 15.33247	12 52 56.76	-06 05 24.6	<i>MPC</i> 27802	675	
(349)	1998 12 29.379745	11 21 33.514	+13 48 49.61	<i>MPS</i> 3725	673	
(349)	1998 12 29.384201	11 21 33.576	+13 48 49.76	<i>MPS</i> 3725	673	

IDENTIFICATION CHANGES

Continuation to *MPC* 33616.

Object	Date	UT	α_{2000}	δ_{2000}	Originally	Mag.	Obs.
1977 DL ₁₁	* 1977 02	19.65848	11 21 51.89	+03 01 04.9	1977 DJ ₅	17.6	381
1977 DL ₁₁	1977 02	19.69520	11 21 50.21	+03 01 15.3	1977 DJ ₅	17.6	381
1977 DM ₁₁	* 1977 02	19.65848	11 22 09.91	+03 00 12.3	1977 DK ₅	17.3	381
1977 DM ₁₁	1977 02	19.69520	11 22 08.21	+03 00 27.9	1977 DK ₅	17.3	381
1978 JZ ₃	* 1978 05	05.87200	13 43 13.16	−09 56 58.0	1978 GE ₄	16.9	095
1981 WL ₉	* 1981 11	28.90742	02 28 50.51	+13 03 40.6	1981 WZ ₁		046
1981 WL ₉	1981 11	28.92171	02 28 50.11	+13 03 39.3	1981 WZ ₁		046
1992 WW ₉	* 1992 11	21.49792	03 49 25.09	+20 54 42.4	1992 WM ₂	17.2	399
1992 WW ₉	1992 11	21.51262	03 49 24.28	+20 54 38.4	1992 WM ₂		399
1993 BR ₁₅	* 1993 01	22.64861	07 41 02.27	+20 21 46.5	1993 BQ ₃	17	372
1993 BR ₁₅	1993 01	22.65903	07 41 01.66	+20 21 51.4	1993 BQ ₃		372
1993 JR ₁	* 1993 05	15.12222	16 20 23.23	−23 48 19.1	1993 JO		809
1993 JR ₁	1993 05	15.13542	16 20 22.25	−23 48 19.3	1993 JO		809
1993 JR ₁	1993 05	15.14861	16 20 21.45	−23 48 20.0	1993 JO		809
1995 KW ₅	* 1995 05	23.84583	09 12 09.96	+21 10 50.5	1995 FR	19.1 V	104
1995 KW ₅	1995 05	23.85174	09 12 10.20	+21 10 47.6	1995 FR		104
1995 KW ₅	1995 05	23.85590	09 12 10.39	+21 10 46.6	1995 FR		104
1995 KW ₅	1995 05	23.86667	09 12 11.00	+21 10 42.3	1995 FR		104
1995 KW ₅	1995 05	23.87083	09 12 11.23	+21 10 40.3	1995 FR		104
1995 KX ₅	* 1995 05	23.01875	16 22 09.83	−15 32 33.5	1995 KQ ₂		010
1995 KX ₅	1995 05	23.02569	16 22 09.45	−15 32 32.3	1995 KQ ₂		010
1997 NO ₁₁	* 1997 07	05.75486	00 47 56.20	+06 38 18.6	1997 US ₄	19.0 V	360
1997 NO ₁₁	1997 07	05.75903	00 47 56.40	+06 38 19.5	1997 US ₄		360
1997 NO ₁₁	1997 07	05.76476	00 47 56.67	+06 38 20.5	1997 US ₄		360
1997 TX ₂₇	* 1997 10	08.58435	01 54 49.89	+09 32 33.1	1997 SL ₃₃		376
1997 TX ₂₇	1997 10	08.59248	01 54 49.56	+09 32 31.0	1997 SL ₃₃		376
1998 VF ₄₄	* 1998 11	01.76810	04 22 47.66	+20 25 53.7	1998 UE ₃₂	18.4	327
1998 VF ₄₄	1998 11	01.78081	04 22 47.21	+20 25 48.6	1998 UE ₃₂		327
1998 VF ₄₄	1998 11	01.79347	04 22 46.65	+20 25 42.0	1998 UE ₃₂		327
1999 AS ₃₄	* 1999 01	15.29979	08 21 27.85	+20 52 26.5	1999 AS ₁₅	21.3 V	691
1999 AS ₃₄	1999 01	15.32202	08 21 26.30	+20 52 29.7	1999 AS ₁₅	21.4 V	691
1999 AS ₃₄	1999 01	15.34433	08 21 24.74	+20 52 32.7	1999 AS ₁₅	21.3 V	691
1999 BR ₃₃	* 1999 01	22.95877	09 06 49.98	+17 48 21.7	1999 BG ₈	17.1 R	159
1999 BR ₃₃	1999 01	22.96084	09 06 49.85	+17 48 21.6	1999 BG ₈	17.3 R	159
1999 BR ₃₃	1999 01	22.96785	09 06 49.40	+17 48 20.9	1999 BG ₈	17.2 R	159
1999 BS ₃₃	* 1999 01	26.74271	10 37 19.57	+14 49 06.0	1999 BT ₁₄	17.0 V	372
1999 BS ₃₃	1999 01	26.75347	10 37 19.18	+14 49 10.0	1999 BT ₁₄	17.0 V	372

OBSERVATIONS OF COMETS

Observations are published here for the following observatory codes:

046	Kleř. 0.57-m $f/5.2$ reflector + CCD. Observers J. Tichá, M. Tichý and Z. Moravec.
056	Skalnaté Pleso. 0.3-m $f/5$ Zeiss astrograph. Observers G. Červák, J. Svorěn, P. Rychtarčík.
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. Boattini and M. Tombelli. Measured by G. Forti, L. Tesi, A. Boattini and M. Tombelli.
108	Montelupo. 0.30-m $f/5.7$ Schmidt-Cassegrain + CCD. Observers A. Boattini, M. Tombelli, D. Guidetti, G. Forti, E. Masotti and L. Tesi.
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.
120	Višnjan. 0.4-m $f/4.3$ reflector + CCD. Observers K. Korlević and M. Jurić. Measured by M. Jurić.
143	Gnosca. 0.20-m $f/6.3$ reflector + CCD. Observer S. Sposetti.
160	Castelmartini. 0.25-m $f/6.3$ Schmidt-Cassegrain + CCD. Observer E. Prosperi.
249	SOHO. SOHO-LASCO coronagraphs C3 and C2. Observers D. A. Biesecker, S. Stezelberger and K. Schenk. 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.
352	Konan. 0.25-m $f/6$ reflector + CCD. Observer M. Hotta.
355	Hadano. 0.28-m $f/5.0$ reflector + CCD. Observer A. Asami.
360	Kuma Kogen. 0.60-m $f/5.8$ Ritchey-Chrétien + CCD. Observer A. Nakamura.
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.
411	Oizumi. 0.41-m $f/4.3$ reflector + CCD. Observer T. Kobayashi.
422	Loomberah. 0.25-m $f/4.1$ reflector + CCD. Observer G. J. Garradd.
426	Woomera. 0.30-m $f/3.3$ Schmidt-Cassegrain + CCD. Observer F. B. Zoltowski.
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 and L. Šarounová.
568	Mauna Kea. 2.2-m University of Hawaii telescope + CCD. Observer J. Bauer. Measured by K. Meech.
610	Pianoro. 0.25-m $f/4$ Schmidt-Cassegrain. Observer V. Goretti.
613	Heisingen. 0.35-m $f/5.5$ reflector + CCD. Observer H. Denzau.
691	Kitt Peak. 0.91-m Spacewatch telescope. Observers J. V. Scotti, J. Larsen and J. Montani.
693	University of Arizona, Catalina Station. 1.5-m reflector + CCD. Observers S. M. Larson and C. W. Hergenrother. Measured by C. W. Hergenrother.
696	Mt. Hopkins. 1.2-m telescope + CCD. Observer O. Naranjo.

- 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. Vigghe and R. Sayer.
- 711 McDonald. 0.76-m reflector + CCD. Observers P. J. Shelus, J. G. Ries and J. L. Africano.
- 720 Monterrey. 0.18-m $f/15.0$ Maksutov + CCD. Observer P. V. Sada.
- 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.
- 844 Los Molinos. 0.35-m $f/6.4$ reflector + CCD. Observer R. Salvo.
- 859 Serra da Piedade. 0.30-m $f/3.3$ reflector + CCD. Observer C. Jacques.
- 871 Akou. 0.20-m $f/6.3$ Schmidt-Cassegrain + CCD. Observer K. Kawanishi.
- 896 Yatsugatake South Base Observatory. 0.21-m $f/8.0$ reflector + CCD. Observers M. Fukuda and I. Sato.
- 897 Chiyoda. 0.25-m $f/6.0$ reflector + CCD. Observer T. Kojima.
- 900 Moriyama. 0.25-m $f/6.3$ reflector + CCD. Observer Y. Ikari.

Object	Date	UT	α_{2000}	δ_{2000}	Mag.	N Obs.
C/1990 K1 (Levy)						
C/1990 K1	1991 03 04.87778	09 06 25.43	-06 16 18.4			056
C/1990 K1	1991 03 04.89861	09 06 22.00	-06 15 21.9			056
C/1990 K1	1991 03 13.82431	08 46 17.19	-00 11 12.0			056
C/1990 K1	1991 03 13.85081	08 46 14.12	-00 10 12.1			056
C/1990 K1	1991 03 14.81528	08 44 29.36	+00 24 07.0			056
C/1990 K1	1991 03 14.85000	08 44 25.64	+00 25 18.6			056
C/1990 K1	1991 03 15.81250	08 42 45.49	+00 58 38.6			056
C/1990 K1	1991 03 15.83056	08 42 43.57	+00 59 18.6			056
C/1990 K1	1991 03 17.83125	08 39 29.54	+02 05 31.1			056
C/1990 K1	1991 03 17.86389	08 39 26.44	+02 06 32.2			056
C/1991 A2 (Arai)						
C/1991 A2	1991 01 08.90556	08 49 24.81	+19 09 45.6			056
C/1991 A2	1991 01 08.94722	08 49 17.96	+19 15 15.8			056
C/1991 A2	1991 01 14.81806	08 32 10.72	+32 06 29.8			056
C/1991 A2	1991 01 14.83756	08 32 06.54	+32 08 58.6			056
C/1991 B1 (Shoemaker-Levy)						
C/1991 B1	1991 12 03.05486	14 59 39.92	+37 13 31.2			056
C/1991 B1	1991 12 03.08056	14 59 45.29	+37 13 41.7			056
P/1991 L3 (Levy)						
P/1991 L3	1991 07 19.01840	04 34 13.99	+33 19 43.7			056
P/1991 L3	1991 07 19.03299	04 34 18.29	+33 20 04.0			056
P/1991 L3	1991 08 08.00625	06 09 08.71	+36 43 07.9			056
P/1991 L3	1991 08 08.02153	06 09 12.66	+36 43 11.2			056
P/1991 L3	1991 09 11.09479	08 08 16.55	+34 38 10.1			056
P/1991 L3	1991 10 07.98889	09 05 17.34	+31 29 11.5			056
P/1991 L3	1991 10 08.03056	09 05 21.66	+31 28 52.5			056
P/1991 L3	1991 10 17.06597	09 18 34.95	+30 36 18.6			056
P/1991 V1 (Shoemaker-Levy 6)						
P/1991 V1	1991 11 27.71181	00 59 59.93	+24 54 18.8			056
P/1991 V1	1991 11 27.79792	01 00 11.97	+24 58 38.6	1		056
P/1991 V1	1991 11 29.78264	01 04 55.93	+26 27 59.1			056

P/1991 V1	1991 11 29.82292	01 05 01.84	+26 29 34.7			056
P/1991 V1	1991 12 03.74514	01 14 23.70	+29 03 15.9			056

C/1995 O1 (Hale-Bopp)

C/1995 O1	1999 01 18.10623	05 19 48.53	-73 06 11.9	11.5	T	859
C/1995 O1	1999 01 18.11146	05 19 47.99	-73 06 10.8	11.7	T	859
C/1995 O1	1999 01 18.11431	05 19 47.76	-73 06 09.8	12.1	T	859
C/1995 O1	1999 02 14.52065	04 51 31.34	-70 40 43.5	16.2	N	422
C/1995 O1	1999 02 14.52122	04 51 31.31	-70 40 43.4	16.1	N	422
C/1995 O1	1999 02 14.52178	04 51 31.28	-70 40 43.2	16.2	N	422

C/1996 Q2 (SOHO)

C/1996 Q2	1996 08 20.86817	09 34 28.91	+10 12 05.2			249
Geocentric position (AU)	-0.00574276	+0.00643732	+0.0033059			
C/1996 Q2	1996 08 20.93320	09 35 34.38	+10 15 27.2			249
Geocentric position (AU)	-0.00575304	+0.00642423	+0.0033019			
C/1996 Q2	1996 08 20.98618	09 36 23.99	+10 18 16.1			249
Geocentric position (AU)	-0.00576140	+0.00641356	+0.0032986			
C/1996 Q2	1996 08 21.07298	09 37 49.61	+10 22 36.5			249
Geocentric position (AU)	-0.00577508	+0.00639605	+0.0032932			
C/1996 Q2	1996 08 21.15978	09 39 20.42	+10 27 27.1			249
Geocentric position (AU)	-0.00578873	+0.00637850	+0.0032878			
C/1996 Q2	1996 08 21.20841	09 40 10.47	+10 30 01.2			249
Geocentric position (AU)	-0.00579637	+0.00636866	+0.0032847			
C/1996 Q2	1996 08 21.36019	09 42 56.43	+10 38 48.8			249
Geocentric position (AU)	-0.00582017	+0.00633787	+0.0032752			
C/1996 Q2	1996 08 21.42284	09 44 08.15	+10 42 26.2			249
Geocentric position (AU)	-0.00582997	+0.00632513	+0.0032712			
C/1996 Q2	1996 08 21.48520	09 45 22.62	+10 46 30.8			249
Geocentric position (AU)	-0.00583972	+0.00631243	+0.0032673			
C/1996 Q2	1996 08 21.52687	09 46 14.01	+10 49 12.6			249
Geocentric position (AU)	-0.00584623	+0.00630394	+0.0032646			
C/1996 Q2	1996 08 21.56643	09 47 01.32	+10 51 39.1			249
Geocentric position (AU)	-0.00585240	+0.00629587	+0.0032621			
C/1996 Q2	1996 08 21.61020	09 47 59.26	+10 54 43.9			249
Geocentric position (AU)	-0.00585922	+0.00628693	+0.0032593			
C/1996 Q2	1996 08 21.65250	09 48 53.73	+10 57 41.3			249
Geocentric position (AU)	-0.00586581	+0.00627829	+0.0032566			
C/1996 Q2	1996 08 21.87025	09 54 09.43	+11 13 42.1			249
Geocentric position (AU)	-0.00589963	+0.00623368	+0.0032426			
C/1996 Q2	1996 08 21.95060	09 56 23.72	+11 20 26.8			249
Geocentric position (AU)	-0.00591208	+0.00621715	+0.0032374			

C/1997 J1 (Mueller)

C/1997 J1	1999 01 14.23725	05 11 20.06	-01 38 06.7			693
C/1997 J1	1999 01 14.24479	05 11 19.72	-01 38 07.3			693
C/1997 J1	1999 01 14.25219	05 11 19.50	-01 38 07.2			693

C/1997 Q1 (SOHO)

C/1997 Q1	1997 08 31.39892	10 15 39.0	+07 11 39			249
Geocentric position (AU)	-0.00782014	+0.00282206	+0.0020244			
C/1997 Q1	1997 08 31.41842	10 16 02.4	+07 12 46			249
Geocentric position (AU)	-0.00782249	+0.00281685	+0.0020222			
C/1997 Q1	1997 08 31.44207	10 16 30.1	+07 13 20			249
Geocentric position (AU)	-0.00782533	+0.00281052	+0.0020195			

C/1997 Q1	1997 08 31.47241	10 17 06.4	+07 14 51	249
Geocentric position (AU)	-0.00782898	+0.00280240	+0.0020161	
C/1997 Q1	1997 08 31.52854	10 18 12.5	+07 17 57	249
Geocentric position (AU)	-0.00783570	+0.00278738	+0.0020097	
C/1997 Q1	1997 08 31.57507	10 19 08.6	+07 19 29	249
Geocentric position (AU)	-0.00784125	+0.00277492	+0.0020044	
C/1997 Q1	1997 08 31.61395	10 19 57.7	+07 21 56	249
Geocentric position (AU)	-0.00784588	+0.00276450	+0.0020000	
C/1997 Q1	1997 08 31.64522	10 20 37.9	+07 23 55	249
Geocentric position (AU)	-0.00784959	+0.00275612	+0.0019964	
C/1997 Q1	1997 08 31.66833	10 21 07.4	+07 25 10	249
Geocentric position (AU)	-0.00785233	+0.00274992	+0.0019938	
C/1997 Q1	1997 08 31.70563	10 21 55.6	+07 27 19	249
Geocentric position (AU)	-0.00785674	+0.00273992	+0.0019895	
C/1997 Q1	1997 08 31.75701	10 23 04.2	+07 30 02	249
Geocentric position (AU)	-0.00786280	+0.00272613	+0.0019837	
C/1997 Q1	1997 08 31.78897	10 23 48.6	+07 31 53	249
Geocentric position (AU)	-0.00786656	+0.00271755	+0.0019800	
C/1997 Q1	1997 08 31.81796	10 24 29.8	+07 33 44	249
Geocentric position (AU)	-0.00786996	+0.00270976	+0.0019767	
C/1997 Q1	1997 08 31.83762	10 24 56.9	+07 34 53	249
Geocentric position (AU)	-0.00787226	+0.00270448	+0.0019744	
C/1997 Q1	1997 08 31.85534	10 25 22.5	+07 35 57	249
Geocentric position (AU)	-0.00787433	+0.00269972	+0.0019724	
C/1997 Q1	1997 08 31.90857	10 26 40.7	+07 39 07	249
Geocentric position (AU)	-0.00788055	+0.00268541	+0.0019663	
C/1997 Q1	1997 08 31.93757	10 27 23.9	+07 41 05	249
Geocentric position (AU)	-0.00788392	+0.00267761	+0.0019630	

C/1997 R1 (SOHO)

C/1997 R1	1997 09 08.14912	10 47 34.2	+04 40 14	249
Geocentric position (AU)	-0.00849734	+0.00070021	+0.0010823	
C/1997 R1	1997 09 08.16813	10 47 56.8	+04 41 04	249
Geocentric position (AU)	-0.00849835	+0.00069500	+0.0010799	
C/1997 R1	1997 09 08.23341	10 49 27.3	+04 44 32	249
Geocentric position (AU)	-0.00850183	+0.00067713	+0.0010716	
C/1997 R1	1997 09 08.25090	10 49 51.2	+04 45 24	249
Geocentric position (AU)	-0.00850275	+0.00067234	+0.0010694	
C/1997 R1	1997 09 08.28688	10 50 38.6	+04 47 22	249
Geocentric position (AU)	-0.00850464	+0.00066250	+0.0010648	
C/1997 R1	1997 09 08.32368	10 51 34.9	+04 48 58	249
Geocentric position (AU)	-0.00850657	+0.00065243	+0.0010601	
C/1997 R1	1997 09 08.34782	10 52 08.8	+04 50 22	249
Geocentric position (AU)	-0.00850782	+0.00064582	+0.0010570	
C/1997 R1	1997 09 08.40839	10 53 41.6	+04 53 41	249
Geocentric position (AU)	-0.00851095	+0.00062926	+0.0010493	
C/1997 R1	1997 09 08.44483	10 54 38.6	+04 55 51	249
Geocentric position (AU)	-0.00851282	+0.00061930	+0.0010447	
C/1997 R1	1997 09 08.47229	10 55 20.7	+04 57 22	249
Geocentric position (AU)	-0.00851423	+0.00061179	+0.0010412	
C/1997 R1	1997 09 08.49314	10 55 54.9	+04 58 21	249
Geocentric position (AU)	-0.00851529	+0.00060609	+0.0010385	

C/1997 R1	1997 09 08.52854	10 56 53.7	+05 00 28	249
Geocentric position (AU)	-0.00851708	+0.00059642	+0.0010340	

C/1997 R2 (SOHO)

C/1997 R2	1997 09 14.84043	11 09 15.6	+02 01 58	249
Geocentric position (AU)	-0.00869032	-0.00107158	+0.0002251	
C/1997 R2	1997 09 14.88670	11 10 13.9	+02 03 11	249
Geocentric position (AU)	-0.00869067	-0.00108329	+0.0002192	
C/1997 R2	1997 09 14.94282	11 11 27.2	+02 05 18	249
Geocentric position (AU)	-0.00869108	-0.00109750	+0.0002120	
C/1997 R2	1997 09 14.98201	11 12 20.0	+02 07 17	249
Geocentric position (AU)	-0.00869135	-0.00110740	+0.0002070	
C/1997 R2	1997 09 15.01604	11 13 06.3	+02 08 42	249
Geocentric position (AU)	-0.00869158	-0.00111601	+0.0002027	
C/1997 R2	1997 09 15.03748	11 13 37.0	+02 09 38	249
Geocentric position (AU)	-0.00869173	-0.00112142	+0.0002000	
C/1997 R2	1997 09 15.06536	11 14 15.2	+02 10 57	249
Geocentric position (AU)	-0.00869191	-0.00112846	+0.0001964	
C/1997 R2	1997 09 15.10284	11 15 08.8	+02 12 49	249
Geocentric position (AU)	-0.00869215	-0.00113792	+0.0001916	
C/1997 R2	1997 09 15.16813	11 16 44.1	+02 15 37	249
Geocentric position (AU)	-0.00869255	-0.00115439	+0.0001833	
C/1997 R2	1997 09 15.21564	11 17 56.2	+02 18 13	249
Geocentric position (AU)	-0.00869282	-0.00116636	+0.0001773	
C/1997 R2	1997 09 15.25090	11 18 51.6	+02 20 06	249
Geocentric position (AU)	-0.00869302	-0.00117525	+0.0001728	
C/1997 R2	1997 09 15.28687	11 19 49.2	+02 22 05	249
Geocentric position (AU)	-0.00869322	-0.00118430	+0.0001682	
C/1997 R2	1997 09 15.32368	11 20 50.9	+02 24 21	249
Geocentric position (AU)	-0.00869341	-0.00119356	+0.0001635	
C/1997 R2	1997 09 15.34728	11 21 30.9	+02 25 51	249
Geocentric position (AU)	-0.00869353	-0.00119950	+0.0001605	
C/1997 R2	1997 09 15.40632	11 23 13.0	+02 29 41	249
Geocentric position (AU)	-0.00869382	-0.00121434	+0.0001530	
C/1997 R2	1997 09 15.45353	11 24 42.0	+02 32 36	249
Geocentric position (AU)	-0.00869404	-0.00122620	+0.0001469	
C/1997 R2	1997 09 15.46534	11 25 04.8	+02 33 24	249
Geocentric position (AU)	-0.00869410	-0.00122917	+0.0001454	
C/1997 R2	1997 09 15.48201	11 25 37.5	+02 34 42	249
Geocentric position (AU)	-0.00869417	-0.00123335	+0.0001433	

C/1997 R3 (SOHO)

C/1997 R3	1997 09 15.99798	11 10 13.9	+01 32 56	249
Geocentric position (AU)	-0.00869580	-0.00136239	+0.0000777	
C/1997 R3	1997 09 16.03618	11 11 01.1	+01 34 09	249
Geocentric position (AU)	-0.00869587	-0.00137186	+0.0000728	
C/1997 R3	1997 09 16.06534	11 11 36.9	+01 35 08	249
Geocentric position (AU)	-0.00869591	-0.00137912	+0.0000691	
C/1997 R3	1997 09 16.10076	11 12 20.2	+01 36 20	249
Geocentric position (AU)	-0.00869597	-0.00138793	+0.0000646	
C/1997 R3	1997 09 16.12506	11 12 51.5	+01 37 12	249
Geocentric position (AU)	-0.00869600	-0.00139397	+0.0000615	
C/1997 R3	1997 09 16.14798	11 13 20.9	+01 37 55	249
Geocentric position (AU)	-0.00869603	-0.00139967	+0.0000586	

C/1997 R3	1997 09 16.18464	11 14 07.2	+01 39 10	249
Geocentric position (AU)	-0.00869607	-0.00140878	+0.0000540	
C/1997 R3	1997 09 16.22858	11 15 05.0	+01 40 47	249
Geocentric position (AU)	-0.00869611	-0.00141970	+0.0000484	
C/1997 R3	1997 09 16.27784	11 16 10.9	+01 42 27	249
Geocentric position (AU)	-0.00869615	-0.00143192	+0.0000421	
C/1997 R3	1997 09 16.32368	11 17 12.0	+01 44 14	249
Geocentric position (AU)	-0.00869617	-0.00144329	+0.0000363	
C/1997 R3	1997 09 16.34729	11 17 44.9	+01 45 15	249
Geocentric position (AU)	-0.00869618	-0.00144914	+0.0000333	
C/1997 R3	1997 09 16.36465	11 18 08.7	+01 45 52	249
Geocentric position (AU)	-0.00869618	-0.00145345	+0.0000311	
C/1997 R3	1997 09 16.40632	11 19 07.5	+01 47 39	249
Geocentric position (AU)	-0.00869619	-0.00146377	+0.0000258	
C/1997 R3	1997 09 16.44173	11 19 58.5	+01 49 00	249
Geocentric position (AU)	-0.00869619	-0.00147254	+0.0000213	
C/1997 R3	1997 09 16.47715	11 20 50.8	+01 50 36	249
Geocentric position (AU)	-0.00869618	-0.00148130	+0.0000168	
C/1997 R3	1997 09 16.48965	11 21 09.5	+01 51 10	249
Geocentric position (AU)	-0.00869617	-0.00148440	+0.0000152	
C/1997 R3	1997 09 16.52855	11 22 07.9	+01 52 57	249
Geocentric position (AU)	-0.00869616	-0.00149402	+0.0000103	
C/1997 R3	1997 09 16.57507	11 23 20.0	+01 55 09	249
Geocentric position (AU)	-0.00869613	-0.00150551	+0.0000044	
C/1997 R3	1997 09 16.61212	11 24 19.8	+01 57 03	249
Geocentric position (AU)	-0.00869610	-0.00151466	-0.0000002	
C/1997 R3	1997 09 16.64419	11 25 12.6	+01 58 26	249
Geocentric position (AU)	-0.00869606	-0.00152258	-0.0000043	
C/1997 R3	1997 09 16.66187	11 25 42.8	+01 59 42	249
Geocentric position (AU)	-0.00869605	-0.00152695	-0.0000065	
C/1997 R3	1997 09 16.68756	11 26 25.2	+02 00 51	249
Geocentric position (AU)	-0.00869601	-0.00153329	-0.0000098	
C/1997 R3	1997 09 16.71395	11 27 10.7	+02 02 07	249
Geocentric position (AU)	-0.00869598	-0.00153979	-0.0000131	
C/1997 R3	1997 09 16.71746	11 27 17.0	+02 02 34	249
Geocentric position (AU)	-0.00869597	-0.00154066	-0.0000136	
C/1997 R3	1997 09 16.76045	11 28 36.0	+02 05 10	249
Geocentric position (AU)	-0.00869591	-0.00155126	-0.0000190	
C/1997 R3	1997 09 16.80230	11 29 56.2	+02 08 12	249
Geocentric position (AU)	-0.00869584	-0.00156158	-0.0000243	

P/1997 T3 (Lagerkvist-Carsenty)

P/1997 T3	1999 02 13.22891	04 22 45.82	+23 04 55.0	693
P/1997 T3	1999 02 13.23315	04 22 45.89	+23 04 55.3	693
P/1997 T3	1999 02 13.23721	04 22 45.96	+23 04 55.6	19.4 T 693

C/1997 U1 (SOHO)

C/1997 U1	1997 10 28.13346	13 53 27.5	-16 22 15	249
Geocentric position (AU)	-0.00599296	-0.00804554	-0.0040012	
C/1997 U1	1997 10 28.21564	13 55 08.4	-16 14 23	249
Geocentric position (AU)	-0.00598674	-0.00805119	-0.0040057	
C/1997 U1	1997 10 28.32369	13 57 24.9	-16 01 52	249
Geocentric position (AU)	-0.00597856	-0.00805858	-0.0040117	

C/1997 U1	1997 10 28.40634	13 59 08.6	-15 51 47	249
Geocentric position (AU)	-0.00597230	-0.00806421	-0.0040162	
C/1997 U1	1997 10 28.44393	13 59 57.9	-15 45 54	249
Geocentric position (AU)	-0.00596946	-0.00806676	-0.0040183	
C/1997 U1	1997 10 28.49312	14 01 02.7	-15 40 22	249
Geocentric position (AU)	-0.00596574	-0.00807009	-0.0040210	
C/1997 U1	1997 10 28.52910	14 01 50.2	-15 35 29	249
Geocentric position (AU)	-0.00596301	-0.00807252	-0.0040230	
C/1997 U1	1997 10 28.61119	14 03 42.3	-15 23 04	249
Geocentric position (AU)	-0.00595680	-0.00807806	-0.0040275	
C/1997 U1	1997 10 28.65631	14 04 41.8	-15 16 05	249
Geocentric position (AU)	-0.00595339	-0.00808109	-0.0040299	
C/1997 U1	1997 10 28.68062	14 05 20.0	-15 11 43	249
Geocentric position (AU)	-0.00595155	-0.00808272	-0.0040312	
C/1997 U1	1997 10 28.71535	14 06 09.0	-15 05 59	249
Geocentric position (AU)	-0.00594892	-0.00808504	-0.0040331	
C/1997 U1	1997 10 28.73965	14 06 42.1	-15 01 48	249
Geocentric position (AU)	-0.00594708	-0.00808666	-0.0040344	
C/1997 U1	1997 10 28.83397	14 08 57.6	-14 41 22	249
Geocentric position (AU)	-0.00594012	-0.00809280	-0.0040394	
C/1997 U1	1997 10 28.86655	14 09 49.3	-14 33 33	249
Geocentric position (AU)	-0.00593747	-0.00809511	-0.0040413	

C/1997 W2 (SOHO)

C/1997 W2	1997 11 19.35978	15 33 26.2	-21 53 37	249
Geocentric position (AU)	-0.00468215	-0.00878511	-0.0047390	
C/1997 W2	1997 11 19.41353	15 34 20.1	-21 45 35	249
Geocentric position (AU)	-0.00468021	-0.00878614	-0.0047400	
C/1997 W2	1997 11 19.44313	15 34 47.0	-21 41 37	249
Geocentric position (AU)	-0.00467915	-0.00878672	-0.0047405	
C/1997 W2	1997 11 19.48479	15 35 28.0	-21 35 03	249
Geocentric position (AU)	-0.00467765	-0.00878752	-0.0047412	
C/1997 W2	1997 11 19.52645	15 36 05.7	-21 27 02	249
Geocentric position (AU)	-0.00467616	-0.00878833	-0.0047419	

C/1998 F1 (SOHO)

C/1998 F1	1998 03 21.86097	00 15 20.3	-01 02 31	249
Geocentric position (AU)	+0.00859478	+0.00330455	+0.0018144	
C/1998 F1	1998 03 21.88200	00 15 02.1	-00 58 51	249
Geocentric position (AU)	+0.00859416	+0.00330944	+0.0018159	
C/1998 F1	1998 03 21.90176	00 14 42.2	-00 56 37	249
Geocentric position (AU)	+0.00859358	+0.00331403	+0.0018173	
C/1998 F1	1998 03 21.94484	00 13 58.0	-00 51 43	249
Geocentric position (AU)	+0.00859231	+0.00332403	+0.0018204	
C/1998 F1	1998 03 22.04890	00 12 06.8	-00 38 49	249
Geocentric position (AU)	+0.00858919	+0.00334818	+0.0018280	
C/1998 F1	1998 03 22.10320	00 11 04.1	-00 29 51	249
Geocentric position (AU)	+0.00858755	+0.00336077	+0.0018319	
C/1998 F1	1998 03 22.11576	00 10 47.2	-00 28 14	249
Geocentric position (AU)	+0.00858717	+0.00336368	+0.0018328	
C/1998 F1	1998 03 22.12892	00 10 32.5	-00 26 22	249
Geocentric position (AU)	+0.00858677	+0.00336673	+0.0018337	
C/1998 F1	1998 03 22.14455	00 10 15.0	-00 23 49	249
Geocentric position (AU)	+0.00858629	+0.00337035	+0.0018349	

C/1998 F1	1998 03 22.15660	00 09 59.9	-00 23 08	249
Geocentric position (AU)	+0.00858592	+0.00337314	+0.0018357	
C/1998 F1	1998 03 22.18717	00 09 19.4	-00 18 02	249
Geocentric position (AU)	+0.00858498	+0.00338021	+0.0018379	
C/1998 F1	1998 03 22.19972	00 09 00.7	-00 15 08	249
Geocentric position (AU)	+0.00858460	+0.00338312	+0.0018388	
C/1998 F1	1998 03 22.21296	00 08 42.5	-00 13 40	249
Geocentric position (AU)	+0.00858419	+0.00338618	+0.0018398	
C/1998 G2 (SOHO)				
C/1998 G2	1998 04 02.10238	00 51 28.4	+04 05 50	249
Geocentric position (AU)	+0.00798997	+0.00565456	+0.0024912	
C/1998 G2	1998 04 02.12620	00 50 58.8	+04 08 14	249
Geocentric position (AU)	+0.00798821	+0.00565878	+0.0024923	
C/1998 G2	1998 04 02.14247	00 50 43.3	+04 09 43	249
Geocentric position (AU)	+0.00798702	+0.00566166	+0.0024930	
C/1998 G2	1998 04 02.16560	00 50 14.2	+04 12 33	249
Geocentric position (AU)	+0.00798531	+0.00566575	+0.0024941	
C/1998 G2	1998 04 02.18500	00 49 49.0	+04 14 53	249
Geocentric position (AU)	+0.00798388	+0.00566918	+0.0024950	
C/1998 G4 (SOHO)				
C/1998 G4	1998 04 10.44242	01 29 48.9	+05 32 43	249
Geocentric position (AU)	+0.00736690	+0.00691572	+0.0027848	
C/1998 G4	1998 04 10.48409	01 29 23.5	+05 36 27	249
Geocentric position (AU)	+0.00736393	+0.00692105	+0.0027858	
C/1998 G4	1998 04 10.52576	01 28 56.9	+05 40 55	249
Geocentric position (AU)	+0.00736096	+0.00692638	+0.0027869	
C/1998 G4	1998 04 10.60910	01 28 02.6	+05 49 38	249
Geocentric position (AU)	+0.00735503	+0.00693702	+0.0027891	
C/1998 G4	1998 04 10.65076	01 27 33.6	+05 54 13	249
Geocentric position (AU)	+0.00735207	+0.00694232	+0.0027901	
C/1998 G4	1998 04 10.73861	01 26 31.8	+06 04 24	249
Geocentric position (AU)	+0.00734616	+0.00695291	+0.0027922	
C/1998 G4	1998 04 10.78850	01 25 55.4	+06 10 27	249
Geocentric position (AU)	+0.00734231	+0.00695980	+0.0027936	
C/1998 G4	1998 04 10.83754	01 25 18.2	+06 16 14	249
Geocentric position (AU)	+0.00733884	+0.00696601	+0.0027949	
C/1998 G4	1998 04 10.88271	01 24 43.4	+06 21 51	249
Geocentric position (AU)	+0.00733565	+0.00697171	+0.0027960	
C/1998 G4	1998 04 10.92912	01 24 05.8	+06 28 05	249
Geocentric position (AU)	+0.00733237	+0.00697756	+0.0027972	
C/1998 G4	1998 04 10.95831	01 23 42.7	+06 31 52	249
Geocentric position (AU)	+0.00733031	+0.00698124	+0.0027979	
C/1998 G4	1998 04 11.02793	01 22 42.9	+06 42 01	249
Geocentric position (AU)	+0.00732541	+0.00698999	+0.0027996	
C/1998 G4	1998 04 11.06953	01 22 06.2	+06 48 07	249
Geocentric position (AU)	+0.00732248	+0.00699521	+0.0028007	
C/1998 G4	1998 04 11.11117	01 21 27.2	+06 54 23	249
Geocentric position (AU)	+0.00731955	+0.00700042	+0.0028017	
C/1998 G4	1998 04 11.12159	01 21 18.7	+06 56 27	249
Geocentric position (AU)	+0.00731882	+0.00700173	+0.0028020	
C/1998 G4	1998 04 11.14381	01 20 56.7	+07 00 11	249
Geocentric position (AU)	+0.00731726	+0.00700451	+0.0028025	

C/1998 G4	1998 04 11.16326	01 20 37.5	+07 03 25	249
Geocentric position (AU)	+0.00731589	+0.00700694	+0.0028030	
C/1998 G4	1998 04 11.22719	01 19 32.7	+07 14 44	249
Geocentric position (AU)	+0.00731141	+0.00701492	+0.0028046	
C/1998 H2 (SOHO)				
C/1998 H2	1998 04 29.05920	02 44 55.6	+11 24 02	249
Geocentric position (AU)	+0.00618616	+0.00871842	+0.0030680	
C/1998 H2	1998 04 29.11327	02 44 35.1	+11 27 55	249
Geocentric position (AU)	+0.00618280	+0.00872186	+0.0030684	
C/1998 H2	1998 04 29.15423	02 44 18.5	+11 32 07	249
Geocentric position (AU)	+0.00618026	+0.00872445	+0.0030686	
C/1998 H2	1998 04 29.23849	02 43 46.2	+11 38 27	249
Geocentric position (AU)	+0.00617503	+0.00872976	+0.0030691	
C/1998 H2	1998 04 29.27871	02 43 29.7	+11 42 01	249
Geocentric position (AU)	+0.00617253	+0.00873228	+0.0030694	
C/1998 H2	1998 04 29.32030	02 43 12.9	+11 45 36	249
Geocentric position (AU)	+0.00616996	+0.00873488	+0.0030696	
C/1998 H2	1998 04 29.36198	02 42 55.8	+11 49 08	249
Geocentric position (AU)	+0.00616738	+0.00873748	+0.0030699	
C/1998 H2	1998 04 29.40287	02 42 38.5	+11 52 50	249
Geocentric position (AU)	+0.00616485	+0.00874002	+0.0030701	
C/1998 H2	1998 04 29.44908	02 42 18.9	+11 56 58	249
Geocentric position (AU)	+0.00616199	+0.00874288	+0.0030704	
C/1998 H2	1998 04 29.49192	02 42 00.9	+12 00 59	249
Geocentric position (AU)	+0.00615935	+0.00874553	+0.0030706	
C/1998 H2	1998 04 29.52958	02 41 43.9	+12 04 14	249
Geocentric position (AU)	+0.00615702	+0.00874785	+0.0030708	
C/1998 H2	1998 04 29.57396	02 41 24.4	+12 08 29	249
Geocentric position (AU)	+0.00615428	+0.00875057	+0.0030711	
C/1998 H2	1998 04 29.61365	02 41 06.1	+12 12 04	249
Geocentric position (AU)	+0.00615184	+0.00875300	+0.0030713	
C/1998 H2	1998 04 29.65434	02 40 48.1	+12 15 55	249
Geocentric position (AU)	+0.00614933	+0.00875548	+0.0030715	
C/1998 H2	1998 04 29.69539	02 40 27.1	+12 19 58	249
Geocentric position (AU)	+0.00614681	+0.00875798	+0.0030717	
C/1998 H2	1998 04 29.73696	02 40 08.0	+12 24 03	249
Geocentric position (AU)	+0.00614425	+0.00876050	+0.0030720	
C/1998 H2	1998 04 29.77869	02 39 47.9	+12 28 19	249
Geocentric position (AU)	+0.00614169	+0.00876302	+0.0030722	
C/1998 H2	1998 04 29.82316	02 39 25.5	+12 32 34	249
Geocentric position (AU)	+0.00613896	+0.00876570	+0.0030724	
C/1998 H2	1998 04 29.88565	02 38 52.1	+12 39 15	249
Geocentric position (AU)	+0.00613513	+0.00876945	+0.0030728	
C/1998 H2	1998 04 29.90284	02 38 42.8	+12 41 08	249
Geocentric position (AU)	+0.00613407	+0.00877048	+0.0030728	
C/1998 H2	1998 04 29.98649	02 37 57.7	+12 50 01	249
Geocentric position (AU)	+0.00612896	+0.00877546	+0.0030733	
C/1998 H2	1998 04 30.02784	02 37 34.5	+12 54 43	249
Geocentric position (AU)	+0.00612643	+0.00877791	+0.0030735	
C/1998 H2	1998 04 30.07260	02 37 08.6	+12 59 52	249
Geocentric position (AU)	+0.00612370	+0.00878056	+0.0030737	

C/1998 H2	1998 04 30.11331	02 36 44.3	+13 04 38	249
Geocentric position (AU)	+0.00612121	+0.00878296	+0.0030739	
C/1998 H2	1998 04 30.15482	02 36 19.1	+13 09 35	249
Geocentric position (AU)	+0.00611868	+0.00878539	+0.0030741	
C/1998 H2	1998 04 30.23868	02 35 26.5	+13 20 17	249
Geocentric position (AU)	+0.00611358	+0.00879030	+0.0030745	
C/1998 H2	1998 04 30.27872	02 34 58.8	+13 25 12	249
Geocentric position (AU)	+0.00611115	+0.00879262	+0.0030747	
C/1998 H2	1998 04 30.32312	02 34 28.6	+13 31 14	249
Geocentric position (AU)	+0.00610845	+0.00879520	+0.0030750	
C/1998 H2	1998 04 30.54620	02 31 45.0	+14 05 03	249
Geocentric position (AU)	+0.00609496	+0.00880800	+0.0030760	
C/1998 H2	1998 04 30.56871	02 31 24.9	+14 09 24	249
Geocentric position (AU)	+0.00609360	+0.00880928	+0.0030761	

C/1998 J2 (SOHO)

C/1998 J2	1998 05 10.27866	03 21 13.5	+14 32 23	249
Geocentric position (AU)	+0.00561845	+0.00920057	+0.0030887	
C/1998 J2	1998 05 10.40566	03 20 35.4	+14 44 50	249
Geocentric position (AU)	+0.00561384	+0.00920432	+0.0030887	
C/1998 J2	1998 05 10.44730	03 20 21.4	+14 48 57	249
Geocentric position (AU)	+0.00561233	+0.00920555	+0.0030887	
C/1998 J2	1998 05 10.49014	03 20 07.0	+14 53 18	249
Geocentric position (AU)	+0.00561079	+0.00920681	+0.0030888	
C/1998 J2	1998 05 10.57434	03 19 38.9	+15 02 50	249
Geocentric position (AU)	+0.00560777	+0.00920928	+0.0030888	
C/1998 J2	1998 05 10.61595	03 19 23.8	+15 06 17	249
Geocentric position (AU)	+0.00560628	+0.00921050	+0.0030888	
C/1998 J2	1998 05 10.65367	03 19 11.3	+15 10 01	249
Geocentric position (AU)	+0.00560493	+0.00921160	+0.0030888	
C/1998 J2	1998 05 10.69531	03 18 55.2	+15 14 51	249
Geocentric position (AU)	+0.00560345	+0.00921282	+0.0030888	
C/1998 J2	1998 05 10.73698	03 18 39.3	+15 19 28	249
Geocentric position (AU)	+0.00560197	+0.00921403	+0.0030889	
C/1998 J2	1998 05 10.82313	03 18 06.5	+15 29 15	249
Geocentric position (AU)	+0.00559892	+0.00921654	+0.0030889	
C/1998 J2	1998 05 10.86892	03 17 48.9	+15 34 33	249
Geocentric position (AU)	+0.00559731	+0.00921788	+0.0030889	
C/1998 J2	1998 05 10.90829	03 17 32.7	+15 39 26	249
Geocentric position (AU)	+0.00559593	+0.00921902	+0.0030890	
C/1998 J2	1998 05 10.98832	03 16 58.0	+15 49 22	249
Geocentric position (AU)	+0.00559313	+0.00922134	+0.0030890	
C/1998 J2	1998 05 11.02875	03 16 41.1	+15 54 43	249
Geocentric position (AU)	+0.00559172	+0.00922251	+0.0030890	
C/1998 J2	1998 05 11.07874	03 16 19.0	+16 01 23	249
Geocentric position (AU)	+0.00558998	+0.00922396	+0.0030891	
C/1998 J2	1998 05 11.11349	03 16 02.3	+16 05 58	249
Geocentric position (AU)	+0.00558877	+0.00922496	+0.0030891	
C/1998 J2	1998 05 11.14940	03 15 44.9	+16 11 04	249
Geocentric position (AU)	+0.00558753	+0.00922600	+0.0030891	
C/1998 J2	1998 05 11.22353	03 15 08.3	+16 21 56	249
Geocentric position (AU)	+0.00558497	+0.00922814	+0.0030892	

C/1998 J2	1998 05 11.25903	03 14 50.1	+16 27 20	249
Geocentric position (AU)	+0.00558375	+0.00922916	+0.0030892	
C/1998 J2	1998 05 11.27041	03 14 44.0	+16 28 30	249
Geocentric position (AU)	+0.00558336	+0.00922949	+0.0030892	
C/1998 J2	1998 05 11.28244	03 14 36.6	+16 31 18	249
Geocentric position (AU)	+0.00558294	+0.00922983	+0.0030892	
C/1998 J2	1998 05 11.31645	03 14 20.4	+16 36 23	249
Geocentric position (AU)	+0.00558178	+0.00923081	+0.0030892	
C/1998 J2	1998 05 11.32816	03 14 13.7	+16 38 20	249
Geocentric position (AU)	+0.00558138	+0.00923115	+0.0030892	
C/1998 J2	1998 05 11.35127	03 14 01.0	+16 42 17	249
Geocentric position (AU)	+0.00558059	+0.00923181	+0.0030892	
C/1998 J2	1998 05 11.36293	03 13 53.4	+16 44 05	249
Geocentric position (AU)	+0.00558019	+0.00923215	+0.0030892	
C/1998 J2	1998 05 11.38618	03 13 41.1	+16 48 19	249
Geocentric position (AU)	+0.00557939	+0.00923281	+0.0030893	
C/1998 J2	1998 05 11.39867	03 13 34.0	+16 50 34	249
Geocentric position (AU)	+0.00557897	+0.00923317	+0.0030893	
C/1998 J2	1998 05 11.42298	03 13 19.9	+16 54 54	249
Geocentric position (AU)	+0.00557814	+0.00923387	+0.0030893	
C/1998 J2	1998 05 11.43548	03 13 12.7	+16 57 21	249
Geocentric position (AU)	+0.00557771	+0.00923423	+0.0030893	
C/1998 J2	1998 05 11.45979	03 12 58.0	+17 02 11	249
Geocentric position (AU)	+0.00557689	+0.00923492	+0.0030893	
C/1998 J2	1998 05 11.47715	03 12 46.8	+17 05 45	249
Geocentric position (AU)	+0.00557630	+0.00923542	+0.0030893	

C/1998 K2 (LINEAR)

C/1998 K2	1999 01 18.98110	23 31 31.56	-60 31 41.5	15.2 T	859
C/1998 K2	1999 01 18.98667	23 31 32.69	-60 31 35.5	14.8 T	859
C/1998 K2	1999 01 18.99049	23 31 33.48	-60 31 30.3	14.8 T	859

C/1998 K5 (LINEAR)

C/1998 K5	1999 01 04.44531	02 32 34.12	+09 01 02.5	17.0 T	372
C/1998 K5	1999 01 14.13576	02 37 42.70	+09 28 36.1		693
C/1998 K5	1999 01 14.14324	02 37 42.93	+09 28 37.5		693
C/1998 K5	1999 01 14.15062	02 37 43.20	+09 28 39.0	17.3 T	693
C/1998 K5	1999 01 15.14302	02 38 19.28	+09 31 50.8		693
C/1998 K5	1999 01 15.15056	02 38 19.53	+09 31 52.1	17.3 T	693
C/1998 K5	1999 02 04.41858	02 53 06.08	+10 47 48.6	18.0 T	402
C/1998 K5	1999 02 04.42019	02 53 06.12	+10 47 49.5		402
C/1998 K5	1999 02 04.42181	02 53 06.19	+10 47 49.7		402
C/1998 K5	1999 02 05.42118	02 53 55.98	+10 51 56.3	18.0 T	372
C/1998 K5	1999 02 14.45521	03 01 47.28	+11 29 28.2	18.1 T	360
C/1998 K5	1999 02 14.45920	03 01 47.50	+11 29 29.0		360

C/1998 K8 (SOHO)

C/1998 K8	1998 05 19.27864	03 49 21.2	+17 13 40	249
Geocentric position (AU)	+0.00534102	+0.00945545	+0.0031168	
C/1998 K8	1998 05 19.40284	03 48 46.0	+17 29 29	249
Geocentric position (AU)	+0.00533720	+0.00945898	+0.0031176	
C/1998 K8	1998 05 19.44534	03 48 35.3	+17 35 06	249
Geocentric position (AU)	+0.00533590	+0.00946018	+0.0031179	

C/1998 K8	1998 05 19.61465	03 47 41.7	+17 58 53	249
Geocentric position (AU)	+0.00533066	+0.00946498	+0.0031191	
C/1998 K8	1998 05 19.66069	03 47 25.4	+18 05 25	249
Geocentric position (AU)	+0.00532923	+0.00946628	+0.0031194	
C/1998 K8	1998 05 19.70959	03 47 10.7	+18 13 31	249
Geocentric position (AU)	+0.00532771	+0.00946767	+0.0031197	
C/1998 K8	1998 05 19.72297	03 47 06.4	+18 15 22	249
Geocentric position (AU)	+0.00532729	+0.00946804	+0.0031198	
C/1998 K8	1998 05 19.77162	03 46 48.0	+18 23 20	249
Geocentric position (AU)	+0.00532577	+0.00946942	+0.0031202	

C/1998 M2 (LINEAR)

C/1998 M2	1998 10 09.40486	17 51 30.75	+20 32 26.7	16.5 T	372
C/1998 M2	1998 10 09.41458	17 51 31.21	+20 32 25.6	16.5 T	372
C/1998 M2	1998 10 24.45337	18 08 42.55	+21 07 12.0	16.5 T	372
C/1998 M2	1998 11 10.40816	18 31 36.97	+22 03 18.4	17.0 T	372

C/1998 M5 (LINEAR)

C/1998 M5	1998 10 09.50399	19 22 14.47	+38 56 51.3	12.6 T	372
C/1998 M5	1998 10 24.55573	19 00 18.55	+37 20 50.7	13.6 T	372
C/1998 M5	1998 11 08.43073	18 49 07.04	+36 15 47.9	12.9 T	372
C/1998 M5	1999 01 18.78328	19 07 20.94	+47 26 12.5	12.8 T	613
C/1998 M5	1999 01 18.78626	19 07 21.04	+47 26 16.5	12.9 T	613
C/1998 M5	1999 02 04.42604	19 19 26.94	+56 11 43.1	10.0 T	372
C/1998 M5	1999 02 05.40330	19 20 12.60	+56 48 53.6	09.1 T	372
C/1998 M5	1999 02 07.08273	19 21 32.95	+57 54 32.9	11.5 T	120
C/1998 M5	1999 02 07.09119	19 21 33.30	+57 54 54.6		120
C/1998 M5	1999 02 07.10117	19 21 33.79	+57 55 18.3		120
C/1998 M5	1999 02 13.74635	19 26 58.57	+62 37 12.7	08.9 T	372
C/1998 M5	1999 02 17.70139	19 30 19.81	+65 41 54.0	09.8 T	372
C/1998 M5	1999 02 19.17661	19 31 36.23	+66 53 56.8	14.9 T	750
C/1998 M5	1999 02 19.18268	19 31 36.54	+66 54 15.0	16.9 T	750
C/1998 M5	1999 02 19.80122	19 32 09.70	+67 25 04.3	08.6 T	372
C/1998 M5	1999 02 21.20144	19 33 23.68	+68 35 38.9	15.2 T	750
C/1998 M5	1999 02 21.20808	19 33 24.03	+68 35 59.5	15.3 T	750
C/1998 M5	1999 02 21.21476	19 33 24.27	+68 36 19.1	15.0 T	750
C/1998 M5	1999 02 21.82760	19 33 57.78	+69 07 50.5	08.7 T	372
C/1998 M5	1999 02 22.24426	19 34 19.97	+69 29 16.5	14.8 T	750
C/1998 M5	1999 02 22.25001	19 34 20.28	+69 29 34.2	15.0 T	750
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 26.88839	19 38 39.02	+73 37 35.7	11.2 T	504
C/1998 M5	1999 02 26.88941	19 38 39.17	+73 37 38.7	11.2 T	504
C/1998 M5	1999 02 26.89094	19 38 39.29	+73 37 44.4		504
C/1998 M5	1999 02 26.89275	19 38 39.32	+73 37 50.0		504
C/1998 M5	1999 02 26.89340	19 38 39.34	+73 37 52.2		504
C/1998 M5	1999 02 26.89487	19 38 39.54	+73 37 56.9		504
C/1998 M5	1999 02 26.90001	19 38 39.83	+73 38 14.1		504

C/1998 M7 (SOHO)

C/1998 M7	1998 06 16.40563	05 35 08.1	+20 29 44	249
Geocentric position (AU)	+0.00408054	+0.00984140	+0.0034961	

C/1998 M7	1998 06 16.44728	05 35 15.1	+20 36 13	249
Geocentric position (AU)	+0.00407764	+0.00984195	+0.0034971	
C/1998 M7	1998 06 16.48897	05 35 22.1	+20 41 50	249
Geocentric position (AU)	+0.00407473	+0.00984250	+0.0034981	
C/1998 M7	1998 06 16.53062	05 35 30.1	+20 48 24	249
Geocentric position (AU)	+0.00407181	+0.00984305	+0.0034991	
C/1998 M7	1998 06 16.61396	05 35 45.3	+21 00 12	249
Geocentric position (AU)	+0.00406595	+0.00984416	+0.0035012	
C/1998 M7	1998 06 16.65562	05 35 56.3	+21 06 57	249
Geocentric position (AU)	+0.00406301	+0.00984471	+0.0035022	
C/1998 M7	1998 06 16.78037	05 36 20.7	+21 28 00	249
Geocentric position (AU)	+0.00405416	+0.00984635	+0.0035052	
C/1998 M7	1998 06 16.81995	05 36 32.6	+21 35 35	249
Geocentric position (AU)	+0.00405133	+0.00984687	+0.0035062	
C/1998 M7	1998 06 16.96654	05 37 20.3	+22 05 06	249
Geocentric position (AU)	+0.00404080	+0.00984880	+0.0035098	

C/1998 P1 (Williams)

C/1998 P1	1999 01 09.67413	12 27 50.08	+01 36 26.6		372
C/1998 P1	1999 01 10.69837	12 24 58.94	+02 27 22.1		372
C/1998 P1	1999 01 11.39201	12 22 58.95	+03 02 43.0		720
C/1998 P1	1999 01 11.39479	12 22 58.44	+03 02 51.9		720
C/1998 P1	1999 01 11.39757	12 22 58.00	+03 03 00.3		720
C/1998 P1	1999 01 11.40035	12 22 57.46	+03 03 09.0		720
C/1998 P1	1999 01 11.40312	12 22 56.98	+03 03 17.2		720
C/1998 P1	1999 01 11.40868	12 22 56.00	+03 03 34.5		720
C/1998 P1	1999 01 11.41146	12 22 55.50	+03 03 43.3		720
C/1998 P1	1999 01 11.41424	12 22 55.02	+03 03 51.6		720
C/1998 P1	1999 01 11.42257	12 22 53.53	+03 04 17.1		720
C/1998 P1	1999 01 11.42535	12 22 53.03	+03 04 25.8		720
C/1998 P1	1999 01 11.42813	12 22 52.56	+03 04 34.4		720
C/1998 P1	1999 01 11.43090	12 22 52.06	+03 04 42.7		720
C/1998 P1	1999 01 13.71701	12 15 51.95	+05 06 09.7	10.2 T	372
C/1998 P1	1999 01 16.44965	12 06 38.10	+07 40 57.7		720
C/1998 P1	1999 01 16.45660	12 06 36.66	+07 41 23.0		720
C/1998 P1	1999 01 19.68672	11 54 26.45	+10 56 32.7		372
C/1998 P1	1999 01 21.73788	11 45 58.23	+13 06 13.3	8.7 T	372
C/1998 P1	1999 01 25.64826	11 28 14.31	+17 21 10.7		372
C/1998 P1	1999 01 26.72986	11 22 58.28	+18 32 29.1		372
C/1998 P1	1999 02 05.55920	10 29 21.96	+28 45 05.4	9.8 T	372
C/1998 P1	1999 02 05.63523	10 28 55.09	+28 49 18.8	11.6 T	355
C/1998 P1	1999 02 05.63807	10 28 54.11	+28 49 28.5		355
C/1998 P1	1999 02 05.64192	10 28 52.73	+28 49 41.1		355
C/1998 P1	1999 02 06.51110	10 23 47.71	+29 37 13.2	12.6 T	351
C/1998 P1	1999 02 06.51440	10 23 46.55	+29 37 23.5		351
C/1998 P1	1999 02 06.51800	10 23 45.28	+29 37 35.0		351
C/1998 P1	1999 02 07.54466	10 17 42.92	+30 31 46.0		352
C/1998 P1	1999 02 07.56054	10 17 37.24	+30 32 36.0		352
C/1998 P1	1999 02 08.59366	10 11 31.47	+31 24 54.1	10.7 T	900
C/1998 P1	1999 02 08.59929	10 11 29.46	+31 25 10.5		900
C/1998 P1	1999 02 08.62032	10 11 21.94	+31 26 10.9		352
C/1998 P1	1999 02 08.62380	10 11 20.70	+31 26 22.1		352
C/1998 P1	1999 02 08.67170	10 11 03.61	+31 28 45.4	11.2 T	402

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C/1998 P1	1999 02 08.67296	10 11 03.15	+31 28 49.0		402
C/1998 P1	1999 02 08.67422	10 11 02.70	+31 28 52.9		402
C/1998 P1	1999 02 08.89928	10 09 43.32	+31 39 53.2		160
C/1998 P1	1999 02 09.15877	10 08 10.75	+31 52 27.3	12.5 T	118
C/1998 P1	1999 02 09.16700	10 08 07.83	+31 52 50.9		118
C/1998 P1	1999 02 09.35655	10 07 00.90	+32 01 58.3	13.8 T	750
C/1998 P1	1999 02 09.35983	10 06 59.69	+32 02 07.0	13.8 T	750
C/1998 P1	1999 02 09.36443	10 06 58.04	+32 02 20.4	16.3 T	750
C/1998 P1	1999 02 09.36987	10 06 56.12	+32 02 36.3	13.8 T	750
C/1998 P1	1999 02 09.57522	10 05 43.86	+32 12 22.7		355
C/1998 P1	1999 02 09.57711	10 05 43.20	+32 12 28.1		355
C/1998 P1	1999 02 09.58024	10 05 42.09	+32 12 37.1		355
C/1998 P1	1999 02 09.59410	10 05 37.13	+32 13 17.2	10.5 T	372
C/1998 P1	1999 02 11.60174	09 53 48.76	+33 43 31.8	10.8 T	372
C/1998 P1	1999 02 13.20415	09 44 29.33	+34 48 50.6	15.0 T	750
C/1998 P1	1999 02 13.20785	09 44 28.03	+34 48 59.4	15.2 T	750
C/1998 P1	1999 02 13.63038	09 42 01.64	+35 05 15.5		372
C/1998 P1	1999 02 13.71128	09 41 33.58	+35 08 16.0	13.1 T	871
C/1998 P1	1999 02 13.71962	09 41 30.68	+35 08 34.6		871
C/1998 P1	1999 02 16.98355	09 23 09.31	+36 59 41.1	14.3 T	071
C/1998 P1	1999 02 16.98853	09 23 07.72	+36 59 48.7	13.7 T	071
C/1998 P1	1999 02 16.98904	09 23 07.54	+36 59 50.4	13.7 T	071
C/1998 P1	1999 02 16.98956	09 23 07.46	+36 59 51.5	13.6 T	071
C/1998 P1	1999 02 16.99008	09 23 07.10	+36 59 53.1	14.2 T	071
C/1998 P1	1999 02 17.63299	09 19 37.22	+37 18 59.5		372
C/1998 P1	1999 02 17.63594	09 19 36.09	+37 19 05.2	11.4 T	360
C/1998 P1	1999 02 17.63802	09 19 35.42	+37 19 08.8		360
C/1998 P1	1999 02 18.30669	09 15 59.42	+37 38 03.8	16.2 T	750
C/1998 P1	1999 02 18.31427	09 15 56.97	+37 38 16.5	16.1 T	750
C/1998 P1	1999 02 18.85876	09 13 03.80	+37 52 55.7		143
C/1998 P1	1999 02 18.86947	09 13 00.49	+37 53 15.2		143
C/1998 P1	1999 02 18.88100	09 12 56.78	+37 53 31.8		143
C/1998 P1	1999 02 19.31326	09 10 39.87	+38 04 49.0	15.9 T	750
C/1998 P1	1999 02 19.31518	09 10 39.27	+38 04 53.4	16.1 T	750
C/1998 P1	1999 02 19.74132	09 08 26.04	+38 15 36.5	11.0 T	372
C/1998 P1	1999 02 19.76910	09 08 17.43	+38 16 16.6	13.4 T	871
C/1998 P1	1999 02 19.77940	09 08 14.13	+38 16 30.1		871
C/1998 P1	1999 02 20.56627	09 04 12.50	+38 35 23.1		355
C/1998 P1	1999 02 20.56745	09 04 12.14	+38 35 24.7		355
C/1998 P1	1999 02 20.56862	09 04 11.77	+38 35 26.4		355
C/1998 P1	1999 02 21.61222	08 58 57.67	+38 58 38.5	11.1 T	372
C/1998 P1	1999 02 22.59722	08 54 09.17	+39 18 42.9		372
C/1998 P1	1999 02 24.70434	08 44 17.87	+39 56 15.2	11.5 T	372
C/1998 P1	1999 02 25.02685	08 42 51.03	+40 01 22.2	13.2 T	118
C/1998 P1	1999 02 25.03340	08 42 49.25	+40 01 27.9		118
C/1998 P1	1999 02 25.51639	08 40 40.90	+40 08 55.1	13.3 T	351
C/1998 P1	1999 02 25.51762	08 40 40.52	+40 08 55.0		355
C/1998 P1	1999 02 25.51892	08 40 40.15	+40 08 56.5		355
C/1998 P1	1999 02 25.51986	08 40 39.93	+40 08 57.0		351
C/1998 P1	1999 02 25.52128	08 40 39.54	+40 08 59.1		355
C/1998 P1	1999 02 25.52471	08 40 38.66	+40 09 00.8		351
C/1998 P1	1999 02 25.54325	08 40 33.65	+40 09 19.1	13.0 T	402
C/1998 P1	1999 02 25.54451	08 40 33.31	+40 09 20.1		402

C/1998 P1	1999 02 25.54579	08 40 32.98	+40 09 21.2		402
C/1998 P1	1999 02 26.92229	08 34 37.02	+40 28 36.2	13.6 T	504
C/1998 P1	1999 02 26.92306	08 34 36.85	+40 28 36.3	13.4 T	504
C/1998 P1	1999 02 26.92382	08 34 36.67	+40 28 36.5	13.4 T	504
C/1998 P1	1999 02 26.92728	08 34 35.73	+40 28 39.8	13.3 T	504
C/1998 P1	1999 02 26.92832	08 34 35.55	+40 28 41.1	13.3 T	504
C/1998 P1	1999 02 26.92963	08 34 35.10	+40 28 41.7	13.7 T	504

P/1998 QP₅₄ (LONEOS-Tucker)

P/1998 QP ₅₄	1999 02 14.12838	02 06 18.60	+31 26 54.8		693
P/1998 QP ₅₄	1999 02 14.13269	02 06 19.10	+31 26 56.4		693
P/1998 QP ₅₄	1999 02 14.14694	02 06 20.85	+31 27 01.3	19.6 T	693

P/1998 S1 (LINEAR-Mueller)

P/1998 S1	1999 02 04.40455	01 39 44.23	+19 06 33.3	17.4 T	402
P/1998 S1	1999 02 04.40616	01 39 44.34	+19 06 33.6		402
P/1998 S1	1999 02 04.40777	01 39 44.46	+19 06 34.6		402
P/1998 S1	1999 02 13.11564	01 52 10.02	+20 10 12.5		693
P/1998 S1	1999 02 13.11976	01 52 10.36	+20 10 14.1		693
P/1998 S1	1999 02 13.12383	01 52 10.72	+20 10 15.8	16.8 T	693
P/1998 S1	1999 02 14.43385	01 54 06.93	+20 19 58.5	17.0 T	360
P/1998 S1	1999 02 14.43767	01 54 07.24	+20 20 00.1		360

C/1998 T1 (LINEAR)

C/1998 T1	1999 01 01.07370	23 22 26.23	+02 25 14.8	17.3 T	699
C/1998 T1	1999 01 01.09667	23 22 25.55	+02 25 04.1		699
C/1998 T1	1999 01 01.11965	23 22 24.93	+02 24 53.9		699

P/1998 U2 (Mueller)

P/1998 U2	1999 02 14.15156	02 50 19.13	+18 41 54.6		693
P/1998 U2	1999 02 14.15571	02 50 19.57	+18 41 56.2		693
P/1998 U2	1999 02 14.15977	02 50 20.00	+18 41 58.0	19.9 T	693

P/1998 U3 (Jäger)

P/1998 U3	1999 01 11.26277	06 29 31.23	+35 49 53.4		720
P/1998 U3	1999 01 11.27388	06 29 30.65	+35 49 44.8		720
P/1998 U3	1999 01 11.27735	06 29 30.47	+35 49 42.0		720
P/1998 U3	1999 01 11.28290	06 29 30.18	+35 49 37.7		720
P/1998 U3	1999 01 11.28499	06 29 30.07	+35 49 36.0		720
P/1998 U3	1999 01 11.29054	06 29 29.78	+35 49 31.8		720
P/1998 U3	1999 01 18.81676	06 24 07.30	+34 08 03.4	12.7 T	613
P/1998 U3	1999 01 18.82301	06 24 07.12	+34 07 58.8	12.7 T	613
P/1998 U3	1999 02 04.55907	06 18 26.69	+30 05 50.6		355
P/1998 U3	1999 02 04.56510	06 18 26.64	+30 05 45.3		355
P/1998 U3	1999 02 04.56706	06 18 26.66	+30 05 43.5		355
P/1998 U3	1999 02 05.79212	06 18 25.61	+29 47 59.4	15.0 N	610
P/1998 U3	1999 02 05.79698	06 18 25.60	+29 47 55.3		610
P/1998 U3	1999 02 05.80079	06 18 25.59	+29 47 52.1		610
P/1998 U3	1999 02 05.80891	06 18 25.57	+29 47 45.3		610
P/1998 U3	1999 02 05.81725	06 18 25.55	+29 47 38.3		610
P/1998 U3	1999 02 06.40289	06 18 26.21	+29 39 11.4	11.5 T	402
P/1998 U3	1999 02 06.40567	06 18 26.22	+29 39 09.2		402
P/1998 U3	1999 02 06.47223	06 18 26.23	+29 38 11.7	12.2 T	351
P/1998 U3	1999 02 06.47684	06 18 26.27	+29 38 08.9		351
P/1998 U3	1999 02 06.48010	06 18 26.28	+29 38 06.7		351

P/1998 U3	1999 02 08.54407	06 18 34.34	+29 08 30.4		352
P/1998 U3	1999 02 08.54755	06 18 34.33	+29 08 27.4		352
P/1998 U3	1999 02 08.55066	06 18 34.20	+29 08 24.0	11.3 T	900
P/1998 U3	1999 02 08.55102	06 18 34.34	+29 08 24.3		352
P/1998 U3	1999 02 08.55982	06 18 34.27	+29 08 16.3		900
P/1998 U3	1999 02 08.89282	06 18 36.55	+29 03 29.3		160
P/1998 U3	1999 02 09.28974	06 18 39.33	+28 57 49.5	16.0 T	750
P/1998 U3	1999 02 09.29342	06 18 39.38	+28 57 46.8	14.7 T	750
P/1998 U3	1999 02 09.29587	06 18 39.33	+28 57 45.5	15.6 T	750
P/1998 U3	1999 02 09.55863	06 18 41.66	+28 54 02.6		355
P/1998 U3	1999 02 09.55955	06 18 41.65	+28 54 01.9		355
P/1998 U3	1999 02 09.56079	06 18 41.65	+28 54 00.8		355
P/1998 U3	1999 02 10.01848	06 18 46.23	+28 47 32.3	13.1 T	758
P/1998 U3	1999 02 10.05322	06 18 46.57	+28 47 03.5	12.6 T	758
P/1998 U3	1999 02 10.94419	06 18 55.47	+28 34 25.2	12.7 T	113
P/1998 U3	1999 02 10.96384	06 18 55.74	+28 34 07.7	12.7 T	113
P/1998 U3	1999 02 10.96720	06 18 55.78	+28 34 04.5	12.7 T	113
P/1998 U3	1999 02 11.79523	06 19 06.09	+28 22 27.7		108
P/1998 U3	1999 02 11.79630	06 19 06.18	+28 22 24.2	10.5 T	108
P/1998 U3	1999 02 12.21834	06 19 11.78	+28 16 32.6		693
P/1998 U3	1999 02 12.22287	06 19 11.83	+28 16 28.7		693
P/1998 U3	1999 02 12.22700	06 19 11.87	+28 16 25.4	11.5 T	693
P/1998 U3	1999 02 12.83140	06 19 21.13	+28 07 55.5	12.4 T	613
P/1998 U3	1999 02 12.85807	06 19 21.41	+28 07 35.0	12.5 T	613
P/1998 U3	1999 02 13.15998	06 19 26.15	+28 03 21.6	14.8 T	750
P/1998 U3	1999 02 13.17532	06 19 26.36	+28 03 08.7	15.0 T	750
P/1998 U3	1999 02 13.87894	06 19 38.40	+27 53 22.4	11.4 T	504
P/1998 U3	1999 02 13.88027	06 19 38.41	+27 53 22.0	11.3 T	504
P/1998 U3	1999 02 13.88377	06 19 38.45	+27 53 18.7	11.5 T	504
P/1998 U3	1999 02 13.88537	06 19 38.47	+27 53 17.1	11.6 T	504
P/1998 U3	1999 02 14.51753	06 19 50.10	+27 44 34.0	11.2 T	360
P/1998 U3	1999 02 14.51997	06 19 50.15	+27 44 31.9		360
P/1998 U3	1999 02 15.09681	06 20 01.60	+27 36 33.7	14.9 T	750
P/1998 U3	1999 02 15.10059	06 20 01.69	+27 36 30.9	15.1 T	750
P/1998 U3	1999 02 15.10411	06 20 01.74	+27 36 28.0	14.9 T	750
P/1998 U3	1999 02 18.13258	06 21 12.82	+26 55 15.7	15.3 T	750
P/1998 U3	1999 02 18.14103	06 21 13.04	+26 55 08.9	15.8 T	750
P/1998 U3	1999 02 18.17135	06 21 13.77	+26 54 43.8	15.6 T	750
P/1998 U3	1999 02 19.11321	06 21 39.94	+26 42 06.0	15.8 T	750
P/1998 U3	1999 02 19.11679	06 21 40.03	+26 42 03.4	15.9 T	750
P/1998 U3	1999 02 19.12336	06 21 40.17	+26 41 58.1	15.8 T	750
P/1998 U3	1999 02 19.13561	06 21 40.51	+26 41 48.3	16.2 T	750
P/1998 U3	1999 02 19.43415	06 21 49.30	+26 37 48.9	11.8 T	402
P/1998 U3	1999 02 19.43542	06 21 49.32	+26 37 47.8		402
P/1998 U3	1999 02 19.43668	06 21 49.34	+26 37 46.7		402
P/1998 U3	1999 02 22.04130	06 23 12.31	+26 03 24.6	14.9 T	750
P/1998 U3	1999 02 22.04973	06 23 12.59	+26 03 18.0	15.3 T	750
P/1998 U3	1999 02 25.47764	06 25 21.49	+25 19 10.1	13.0 T	351
P/1998 U3	1999 02 25.48156	06 25 21.72	+25 19 08.0		351
P/1998 U3	1999 02 25.48521	06 25 21.82	+25 19 04.2		351
P/1998 U3	1999 02 27.75770	06 26 59.41	+24 50 27.0	12.7 T	540
P/1998 U3	1999 02 27.75874	06 26 59.45	+24 50 26.3		540
P/1998 U3	1999 02 27.75972	06 26 59.61	+24 50 25.6		540

P/1998 U4 (Spahr)					
P/1998 U4	1999 02 04.43351	03 42 03.06	-12 04 12.4	18.1 T	402
P/1998 U4	1999 02 04.43512	03 42 03.05	-12 04 11.6		402
P/1998 U4	1999 02 04.43672	03 42 03.14	-12 04 10.9		402
P/1998 U4	1999 02 14.47344	03 46 32.79	-10 56 04.6	17.8 T	360
P/1998 U4	1999 02 14.47760	03 46 32.90	-10 56 02.7		360
P/1998 U4	1999 02 16.75522	03 47 46.36	-10 40 15.9	17.6 T	071
P/1998 U4	1999 02 16.76142	03 47 46.65	-10 40 13.4	17.4 T	071
P/1998 U4	1999 02 16.76554	03 47 46.78	-10 40 12.2	17.3 T	071
P/1998 U4	1999 02 16.76745	03 47 46.83	-10 40 11.3	17.5 T	071
P/1998 U4	1999 02 16.76936	03 47 46.93	-10 40 10.5	18.0 T	071
P/1998 U4	1999 02 16.77127	03 47 46.98	-10 40 09.2	17.4 T	071
P/1998 U4	1999 02 16.77318	03 47 47.02	-10 40 08.5	17.4 T	071
C/1998 U5 (LINEAR)					
C/1998 U5	1999 01 17.41893	21 07 59.66	+15 04 44.8	14.0 T	372
C/1998 U5	1999 01 18.39135	21 07 53.85	+14 58 28.0	14.9 T	372
C/1998 U5	1999 01 18.74815	21 07 52.06	+14 56 14.0	14.1 T	613
C/1998 U5	1999 01 18.75162	21 07 51.98	+14 56 11.8	14.2 T	613
P/1998 VS₂₄ (LINEAR)					
P/1998 VS ₂₄	1998 12 22.44184	02 35 28.60	+08 50 17.2	19.8 T	372
P/1998 VS ₂₄	1999 01 14.15981	02 38 23.79	+09 35 02.5		693
P/1998 VS ₂₄	1999 01 14.16740	02 38 23.93	+09 35 03.6		693
P/1998 VS ₂₄	1999 01 14.17477	02 38 24.07	+09 35 04.9	19.1 T	693
P/1998 W1 (Spahr)					
P/1998 W1	1999 02 02.23053	04 16 18.26	+18 11 46.2	17.0 T	699
P/1998 W1	1999 02 02.25597	04 16 19.91	+18 12 21.2		699
P/1998 W1	1999 02 02.28144	04 16 21.66	+18 12 55.7		699
P/1998 W1	1999 02 04.14497	04 18 32.51	+18 55 53.4	17.4 T	704
P/1998 W1	1999 02 04.15536	04 18 33.17	+18 56 08.7	17.2 T	704
P/1998 W1	1999 02 04.16568	04 18 33.88	+18 56 22.7	17.8 T	704
P/1998 W1	1999 02 04.17609	04 18 34.55	+18 56 36.1	17.6 T	704
P/1998 W1	1999 02 04.18647	04 18 35.32	+18 56 50.6	17.5 T	704
P/1998 W1	1999 02 04.44779	04 18 54.35	+19 02 48.1	16.4 T	402
P/1998 W1	1999 02 04.44918	04 18 54.44	+19 02 49.8		402
P/1998 W1	1999 02 04.45057	04 18 54.53	+19 02 52.1		402
P/1998 W1	1999 02 08.43924	04 24 01.04	+20 31 22.0	16.7 T	900
P/1998 W1	1999 02 08.45195	04 24 02.00	+20 31 39.3		900
P/1998 W1	1999 02 08.52222	04 24 07.49	+20 33 09.7		352
P/1998 W1	1999 02 08.52569	04 24 07.80	+20 33 13.7		352
P/1998 W1	1999 02 08.52917	04 24 08.10	+20 33 18.5		352
P/1998 W1	1999 02 14.48507	04 32 46.01	+22 37 14.6	16.4 T	360
P/1998 W1	1999 02 14.48767	04 32 46.27	+22 37 17.8		360
P/1998 W1	1999 02 19.46701	04 40 50.59	+24 13 11.6	17.2 T	402
P/1998 W1	1999 02 19.46828	04 40 50.72	+24 13 13.0		402
P/1998 W1	1999 02 19.46954	04 40 50.86	+24 13 14.5		402
P/1998 W1	1999 02 25.47804	04 51 32.22	+25 59 28.2	16.7 T	402
P/1998 W1	1999 02 25.47931	04 51 32.20	+25 59 28.5		402
P/1998 W1	1999 02 25.48057	04 51 32.52	+25 59 30.1		402
P/1998 W1	1999 02 25.77339	04 52 05.31	+26 04 24.4	16.7 T	046
P/1998 W1	1999 02 25.77530	04 52 05.48	+26 04 26.2		046
P/1998 W1	1999 02 25.77756	04 52 05.71	+26 04 27.9		046

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P/1998 W1	1999 02 25.77977	04 52 05.98	+26 04 30.2		046
P/1998 W1	1999 02 26.79296	04 54 00.28	+26 21 17.7	16.8 T	104
P/1998 W1	1999 02 26.79549	04 54 00.59	+26 21 20.3		104
P/1998 W1	1999 02 26.79774	04 54 00.96	+26 21 23.1		104
P/1998 W1	1999 02 26.80197	04 54 01.34	+26 21 26.4		104

P/1998 W2 (Hergenrother)

P/1998 W2	1999 01 14.07096	23 31 28.76	+11 33 46.6		693
P/1998 W2	1999 01 14.07229	23 31 28.96	+11 33 48.5		693
P/1998 W2	1999 01 14.07344	23 31 29.17	+11 33 50.3	18.1 T	693
P/1998 W2	1999 01 15.08545	23 34 12.50	+12 00 46.6		693
P/1998 W2	1999 01 15.08683	23 34 12.74	+12 00 49.5		693
P/1998 W2	1999 01 15.08814	23 34 12.93	+12 00 51.4	18.3 T	693
P/1998 W2	1999 02 13.10785	00 55 05.60	+23 36 06.8		693
P/1998 W2	1999 02 13.10914	00 55 05.85	+23 36 07.8		693
P/1998 W2	1999 02 13.11044	00 55 06.05	+23 36 08.9		693
P/1998 W2	1999 02 14.12166	00 58 01.04	+23 57 15.4		693
P/1998 W2	1999 02 14.12301	00 58 01.30	+23 57 18.0		693
P/1998 W2	1999 02 14.12429	00 58 01.53	+23 57 19.2	19.0 T	693

C/1998 W3 (LINEAR)

C/1998 W3	1999 01 15.35971	07 42 08.94	+40 24 13.9		693
C/1998 W3	1999 01 15.36858	07 42 08.07	+40 24 18.4		693
C/1998 W3	1999 01 15.37693	07 42 07.20	+40 24 23.4	16.5 T	693
C/1998 W3	1999 02 06.54450	07 05 01.40	+43 18 51.5	16.5 T	355
C/1998 W3	1999 02 06.54795	07 05 01.06	+43 18 51.8		355
C/1998 W3	1999 02 06.55446	07 05 00.46	+43 18 54.8		355
C/1998 W3	1999 02 06.56580	07 04 59.34	+43 18 58.9	16.4 T	402
C/1998 W3	1999 02 06.56809	07 04 59.17	+43 18 59.2		402
C/1998 W3	1999 02 06.57041	07 04 58.94	+43 19 00.5		402
C/1998 W3	1999 02 08.29448	07 02 18.06	+43 28 14.5	18.3 T	704
C/1998 W3	1999 02 08.30548	07 02 17.10	+43 28 18.0	18.8 T	704
C/1998 W3	1999 02 08.31826	07 02 16.00	+43 28 22.5	19.2 T	704
C/1998 W3	1999 02 08.34239	07 02 13.54	+43 28 28.0	18.7 T	704
C/1998 W3	1999 02 14.58507	06 52 59.18	+43 57 14.1	17.1 T	360
C/1998 W3	1999 02 14.58924	06 52 58.83	+43 57 15.1		360
C/1998 W3	1999 02 16.51870	06 50 17.24	+44 04 44.5	17.7 T	402
C/1998 W3	1999 02 16.52101	06 50 17.06	+44 04 44.8		402
C/1998 W3	1999 02 16.52331	06 50 16.85	+44 04 45.8		402
C/1998 W3	1999 02 16.93572	06 49 42.91	+44 06 16.8	16.9 T	071
C/1998 W3	1999 02 16.93881	06 49 42.51	+44 06 17.3	17.0 T	071
C/1998 W3	1999 02 16.94072	06 49 42.50	+44 06 18.8	16.9 T	071
C/1998 W3	1999 02 16.94263	06 49 42.32	+44 06 18.5	17.0 T	071
C/1998 W3	1999 02 16.94454	06 49 42.15	+44 06 19.3	17.0 T	071
C/1998 W3	1999 02 19.49272	06 46 18.03	+44 15 08.2	17.8 T	402
C/1998 W3	1999 02 19.49397	06 46 17.96	+44 15 08.4		402
C/1998 W3	1999 02 19.49523	06 46 17.85	+44 15 08.3		402
C/1998 W3	1999 02 22.49411	06 42 29.38	+44 24 18.5	17.5 T	402
C/1998 W3	1999 02 22.49572	06 42 29.21	+44 24 18.7		402
C/1998 W3	1999 02 22.49733	06 42 29.08	+44 24 19.3		402

P/1998 X1 (ODAS)

P/1998 X1	1999 01 13.36325	09 55 33.39	+14 15 01.1		693
P/1998 X1	1999 01 13.36749	09 55 33.24	+14 15 01.8		693

P/1998 X1	1999 01 13.37152	09 55 33.11	+14 15 02.4	18.4 T	693
P/1998 X1	1999 02 06.57506	09 36 55.10	+15 41 59.7	18.5 T	402
P/1998 X1	1999 02 06.57735	09 36 55.01	+15 42 00.7		402
P/1998 X1	1999 02 06.57968	09 36 54.91	+15 42 02.0		402
P/1998 X1	1999 02 08.63539	09 35 05.53	+15 49 48.8	18.6 T	402
P/1998 X1	1999 02 08.63768	09 35 05.41	+15 49 49.7		402
P/1998 X1	1999 02 08.63999	09 35 05.27	+15 49 49.9		402
P/1998 X1	1999 02 13.25356	09 31 03.03	+16 06 39.0	18.6 T	691
P/1998 X1	1999 02 13.28016	09 31 01.59	+16 06 44.6	18.0 T	691
P/1998 X1	1999 02 13.30180	09 31 00.48	+16 06 49.5	18.5 T	691
P/1998 X1	1999 02 13.36370	09 30 57.13	+16 07 02.1	18.5 T	691
P/1998 X1	1999 02 13.36965	09 30 56.78	+16 07 04.1	18.2 T	691
P/1998 X1	1999 02 13.37591	09 30 56.46	+16 07 04.4	18.4 T	691
P/1998 X1	1999 02 13.45307	09 30 52.33	+16 07 21.5	18.3 T	691
P/1998 X1	1999 02 13.45897	09 30 52.05	+16 07 21.7	18.5 T	691
P/1998 X1	1999 02 13.46519	09 30 51.78	+16 07 23.8	18.3 T	691
P/1998 X1	1999 02 14.35215	09 30 06.37	+16 10 28.0		693
P/1998 X1	1999 02 14.35624	09 30 06.16	+16 10 28.8		693
P/1998 X1	1999 02 14.36030	09 30 05.94	+16 10 29.6	17.6 T	693
P/1998 X1	1999 02 14.65243	09 29 51.09	+16 11 29.4	17.8 T	360
P/1998 X1	1999 02 14.65729	09 29 50.84	+16 11 30.6		360
P/1998 X1	1999 02 14.66215	09 29 50.57	+16 11 31.2		360
P/1998 X1	1999 02 15.98472	09 28 43.70	+16 15 57.6		118
P/1998 X1	1999 02 15.99309	09 28 43.24	+16 15 59.8	17.6 T	118
P/1998 X1	1999 02 16.27017	09 28 29.47	+16 16 55.6	18.6 T	691
P/1998 X1	1999 02 16.29187	09 28 28.38	+16 17 00.4	18.4 T	691
P/1998 X1	1999 02 16.31348	09 28 27.19	+16 17 04.4	18.2 T	691

D/1998 Y1 (LINEAR)

D/1998 Y1	1999 01 17.98017	06 52 49.68	+34 27 53.6		118
D/1998 Y1	1999 01 17.98248	06 52 49.67	+34 27 57.6		118
D/1998 Y1	1999 01 17.98711	06 52 49.50	+34 28 03.9	16.7 T	118
D/1998 Y1	1999 01 18.90509	06 52 34.75	+34 50 54.1		118
D/1998 Y1	1999 01 18.90793	06 52 34.69	+34 50 58.2	17 T	118
D/1998 Y1	1999 01 18.91235	06 52 34.66	+34 51 04.7		118
D/1998 Y1	1999 02 06.55778	06 52 53.80	+40 39 17.8	17.8 T	402
D/1998 Y1	1999 02 06.56008	06 52 53.92	+40 39 22.1		402
D/1998 Y1	1999 02 06.56238	06 52 53.96	+40 39 22.5		402
D/1998 Y1	1999 02 14.56892	06 56 41.54	+42 08 52.1	18.9 T	F 360
D/1998 Y1	1999 02 14.57344	06 56 41.65	+42 08 54.1		F 360
D/1998 Y1	1999 02 14.57830	06 56 41.93	+42 08 56.9		F 360
D/1998 Y1	1999 02 17.59219	06 58 42.64	+42 34 54.6	19.0 T	F 360
D/1998 Y1	1999 02 17.60330	06 58 42.91	+42 34 59.6		F 360
D/1998 Y1	1999 02 17.60903	06 58 43.19	+42 35 02.9		F 360
D/1998 Y1	1999 02 20.53770	07 00 58.48	+42 56 36.5	18.8 T	402
D/1998 Y1	1999 02 20.54369	07 00 58.61	+42 56 40.2		402
D/1998 Y1	1999 02 20.54669	07 00 58.74	+42 56 41.7		402

P/1998 Y2 (Li)

P/1998 Y2	1999 02 04.42604	03 02 11.08	+05 27 21.2	16.6 T	402
P/1998 Y2	1999 02 04.42765	03 02 11.18	+05 27 22.8		402
P/1998 Y2	1999 02 04.43087	03 02 11.36	+05 27 25.8		402
P/1998 Y2	1999 02 14.41747	03 12 26.73	+07 59 43.4	16.0 T	900
P/1998 Y2	1999 02 14.43443	03 12 28.02	+07 59 57.0		900

P/1998 Y2	1999 02 14.46510	03 12 29.83	+08 00 25.4	16.6 T	360
P/1998 Y2	1999 02 14.46771	03 12 30.01	+08 00 27.8		360
P/1998 Y2	1999 02 16.78620	03 15 06.15	+08 34 44.4	16.6 T	071
P/1998 Y2	1999 02 16.78901	03 15 06.36	+08 34 47.0	16.3 T	071
P/1998 Y2	1999 02 16.79091	03 15 06.45	+08 34 49.6	16.6 T	071
P/1998 Y2	1999 02 16.79282	03 15 06.58	+08 34 51.1	16.5 T	071
P/1998 Y2	1999 02 17.46024	03 15 52.38	+08 44 38.8	16.5 T	360
P/1998 Y2	1999 02 17.46267	03 15 52.57	+08 44 40.5		360
P/1998 Y2	1999 02 25.75356	03 25 52.01	+10 43 16.1	16.2 T	046
P/1998 Y2	1999 02 25.76409	03 25 52.81	+10 43 24.8		046
P/1998 Y2	1999 02 25.76810	03 25 53.10	+10 43 28.1		046
P/1998 Y2	1999 02 25.76994	03 25 53.23	+10 43 29.5		046
P/1998 Y2	1999 02 26.76043	03 27 08.42	+10 57 16.0	16.0 T	104
P/1998 Y2	1999 02 26.76447	03 27 08.69	+10 57 18.3		104
P/1998 Y2	1999 02 26.76644	03 27 08.82	+10 57 21.0		104
P/1998 Y2	1999 02 26.77025	03 27 09.15	+10 57 23.8		104

C/1999 A1 (Tilbrook)

C/1999 A1	1999 01 17.40972	23 41 23.85	-34 23 49.4	10.5 T	372
C/1999 A1	1999 01 17.96796	23 41 34.11	-34 57 23.4	12.4 T	859
C/1999 A1	1999 01 17.97295	23 41 34.15	-34 57 40.3	12.4 T	859
C/1999 A1	1999 01 17.97535	23 41 34.17	-34 57 49.2	12.5 T	859
C/1999 A1	1999 01 18.39759	23 41 40.8	-35 22 36	11 T	372
C/1999 A1	1999 01 18.94735	23 41 47.03	-35 53 35.3	13.1 T	859
C/1999 A1	1999 01 18.96302	23 41 47.14	-35 54 26.8	12.6 T	859
C/1999 A1	1999 01 18.96674	23 41 47.18	-35 54 39.0	12.7 T	859
C/1999 A1	1999 02 04.46373	23 32 05.80	-45 37 25.0		426
C/1999 A1	1999 02 04.46846	23 32 05.47	-45 37 30.5		426
C/1999 A1	1999 02 04.47295	23 32 05.16	-45 37 36.3	12.8 N	426
C/1999 A1	1999 02 12.02600	23 22 23.13	-47 45 14.0	9.5 T	844
C/1999 A1	1999 02 12.02774	23 22 23.08	-47 45 17.8	9.6 T	844
C/1999 A1	1999 02 12.04840	23 22 21.41	-47 45 31.8		844

P/1999 D1 (Hermann)

P/1999 D1	1999 02 15.68922	12 17 21.73	+05 27 20.6	18.5 T	2 411
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 20.94853	12 14 40.52	+03 05 28.0		557
P/1999 D1	1999 02 20.95084	12 14 40.40	+03 05 24.8		557
P/1999 D1	1999 02 20.95317	12 14 40.29	+03 05 19.8		557
P/1999 D1	1999 02 20.95551	12 14 40.17	+03 05 16.4		557
P/1999 D1	1999 02 20.95784	12 14 40.03	+03 05 13.2		557
P/1999 D1	1999 02 20.96249	12 14 39.90	+03 05 04.8		557
P/1999 D1	1999 02 21.50550	12 14 18.40	+02 50 13.0	20.2 N	691
P/1999 D1	1999 02 21.51114	12 14 18.13	+02 50 03.7	17.9 T	691
P/1999 D1	1999 02 21.51682	12 14 17.89	+02 49 54.1	17.9 T	691
P/1999 D1	1999 02 21.70847	12 14 10.74	+02 44 37.9		897
P/1999 D1	1999 02 21.71693	12 14 10.36	+02 44 24.7	17.3 T	897
P/1999 D1	1999 02 21.72318	12 14 10.06	+02 44 14.1		897
P/1999 D1	1999 02 21.72361	12 14 10.00	+02 44 12.8	19.1 T	372
P/1999 D1	1999 02 21.72999	12 14 09.80	+02 44 02.1	17.2 T	897
P/1999 D1	1999 02 21.74271	12 14 09.33	+02 43 44.8	19.1 T	372
P/1999 D1	1999 02 22.09322	12 13 55.80	+02 34 12.0	17.3 T	859

P/1999 D1	1999 02 22.10294	12 13 55.39	+02 33 56.2	17.4 T	859
P/1999 D1	1999 02 22.12682	12 13 54.35	+02 33 17.2	17.4 T	859
P/1999 D1	1999 02 22.38877	12 13 43.15	+02 25 53.1		711
P/1999 D1	1999 02 22.39421	12 13 42.90	+02 25 44.1		711
P/1999 D1	1999 02 22.39977	12 13 42.65	+02 25 34.8		711
P/1999 D1	1999 02 22.61012	12 13 34.43	+02 19 44.0	17.5 T	402
P/1999 D1	1999 02 22.63403	12 13 33.24	+02 19 05.5		402
P/1999 D1	1999 02 22.63536	12 13 33.09	+02 19 02.6	17.3 T	355
P/1999 D1	1999 02 22.63839	12 13 33.08	+02 18 57.8		402
P/1999 D1	1999 02 22.63905	12 13 33.00	+02 18 56.5		355
P/1999 D1	1999 02 22.64268	12 13 32.81	+02 18 50.1		355
P/1999 D1	1999 02 22.66111	12 13 32.06	+02 18 21.1	18.2 T	372
P/1999 D1	1999 02 22.74653	12 13 28.15	+02 15 58.6		372
P/1999 D1	1999 02 23.02413	12 13 16.53	+02 08 14.7	17.2 T	118
P/1999 D1	1999 02 23.02909	12 13 16.28	+02 08 06.9		118
P/1999 D1	1999 02 23.05532	12 13 14.98	+02 07 23.2		118
P/1999 D1	1999 02 23.58341	12 12 52.28	+01 52 46.2		411
P/1999 D1	1999 02 23.58929	12 12 52.10	+01 52 35.5		411
P/1999 D1	1999 02 23.59517	12 12 51.74	+01 52 25.2		411
P/1999 D1	1999 02 24.03354	12 12 31.72	+01 40 12.9	18.6 T	120
P/1999 D1	1999 02 24.03584	12 12 31.64	+01 40 08.9		120
P/1999 D1	1999 02 24.03833	12 12 31.49	+01 40 04.4		120
P/1999 D1	1999 02 24.04089	12 12 31.38	+01 40 00.5		120
P/1999 D1	1999 02 24.74931	12 11 58.47	+01 20 19.5	18.1 T	372
P/1999 D1	1999 02 24.76806	12 11 57.46	+01 19 47.1	18.1 T	372
P/1999 D1	1999 02 24.91112	12 11 51.41	+01 15 45.3	17.3 T	046
P/1999 D1	1999 02 24.91488	12 11 51.20	+01 15 38.6		046
P/1999 D1	1999 02 24.91672	12 11 51.13	+01 15 35.9		046
P/1999 D1	1999 02 24.92036	12 11 50.90	+01 15 30.6		046
P/1999 D1	1999 02 25.00519	12 11 46.59	+01 13 05.8		118
P/1999 D1	1999 02 25.00933	12 11 46.30	+01 12 59.3		118
P/1999 D1	1999 02 25.01190	12 11 46.12	+01 12 55.7		118
P/1999 D1	1999 02 25.57882	12 11 19.16	+00 57 06.2	18.0 T	402
P/1999 D1	1999 02 25.58134	12 11 18.99	+00 57 01.8		402
P/1999 D1	1999 02 25.58387	12 11 18.83	+00 56 57.6		402
P/1999 D1	1999 02 26.94738	12 10 09.85	+00 18 45.0		046
P/1999 D1	1999 02 26.95247	12 10 09.57	+00 18 35.8		046
P/1999 D1	1999 02 26.95407	12 10 09.49	+00 18 34.3		046
P/1999 D1	1999 02 26.98310	12 10 07.65	+00 17 44.1	18.1 T	120
P/1999 D1	1999 02 26.99729	12 10 06.99	+00 17 18.8		120
P/1999 D1	1999 02 27.00993	12 10 06.16	+00 16 57.1		120
P/1999 D1	1999 02 27.01973	12 10 05.74	+00 16 40.7		120

4P/Faye

4P	1991 08 06.93542	00 51 53.17	+13 35 47.1		056
4P	1991 08 06.96528	00 51 55.45	+13 35 58.9		056
4P	1991 08 10.96493	00 57 12.50	+13 58 35.5		056
4P	1991 08 16.86771	01 04 42.57	+14 26 03.2	1	056
4P	1991 09 03.86944	01 24 46.59	+14 55 39.2		056
4P	1991 09 03.90972	01 24 48.92	+14 55 38.6		056
4P	1991 09 04.86181	01 25 43.81	+14 54 25.2		056
4P	1991 09 04.90417	01 25 46.04	+14 54 23.9		056
4P	1991 09 08.85417	01 29 21.85	+14 46 07.3		056

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4P	1991 09 08.87535	01 29 22.89	+14 46 04.8		056	10P	1999 02 16.18484	16 11 27.23	−08 25 08.1		118
4P	1991 10 01.84028	01 43 46.03	+12 03 11.2		056	10P	1999 02 16.18703	16 11 27.43	−08 25 08.2		118
4P	1991 10 01.88125	01 43 46.85	+12 02 44.1		056	10P	1999 02 16.19620	16 11 28.22	−08 25 07.9		118
4P	1991 10 03.85417	01 44 29.57	+11 39 40.0		056		21P/Giacobini-Zinner				
4P	1991 10 03.89583	01 44 30.40	+11 39 10.2		056	21P	1999 01 18.71247	01 28 45.70	−21 53 29.9	13.6 T	613
4P	1991 10 04.76319	01 44 47.95	+11 28 37.2		056	21P	1999 01 18.72781	01 28 49.45	−21 53 19.6	13.6 T	613
4P	1991 10 04.79028	01 44 48.37	+11 28 16.8		056	21P	1999 01 18.73802	01 28 51.82	−21 53 12.8	13.5 T	613
4P	1991 10 06.98194	01 45 27.82	+11 00 38.8		056	21P	1999 02 07.42431	02 40 30.00	−17 35 53.4	12.4 T	360
4P	1991 10 07.00347	01 45 28.14	+11 00 21.8		056	21P	1999 02 07.42760	02 40 30.64	−17 35 50.4		360
4P	1991 10 07.78333	01 45 41.81	+10 50 08.1		056	21P	1999 02 07.45313	02 40 35.62	−17 35 28.1		900
4P	1991 10 07.87083	01 45 43.07	+10 48 59.7		056	21P	1999 02 07.46250	02 40 37.40	−17 35 20.2		900
4P	1991 10 16.99722	01 47 37.98	+08 39 52.5		056	21P	1999 02 08.76909	02 44 52.66	−17 16 32.7		160
4P	1991 10 17.04514	01 47 38.35	+08 39 08.6		056	21P	1999 02 17.45311	03 11 52.68	−15 10 43.5	14.4 N	896
4P	1991 10 29.76192	01 49 38.49	+05 30 07.3		056	21P	1999 02 25.41501	03 34 56.91	−13 17 20.1	14.4 T	351
4P	1991 10 29.77778	01 49 38.63	+05 29 53.4		056	21P	1999 02 25.42345	03 34 58.27	−13 17 12.8		351
4P	1991 10 31.84514	01 50 01.56	+05 00 48.1		056	21P	1999 02 25.44251	03 35 01.43	−13 16 57.8		351
4P	1991 10 31.90278	01 50 02.02	+05 00 00.0		056		28P/Neujmin 1				
4P	1991 11 01.80903	01 50 13.29	+04 47 35.4		056	28P	1997 12 30.50367	11 47 36.60	−00 00 43.5		568
4P	1991 11 01.86042	01 50 13.81	+04 46 54.4		056	28P	1997 12 30.54051	11 47 36.55	−00 00 43.7		568
4P	1991 11 03.74236	01 50 38.85	+04 21 48.2		056	28P	1999 02 13.38911	12 03 19.62	−03 46 56.7		693
4P	1991 11 03.78125	01 50 39.41	+04 21 18.1		056	28P	1999 02 13.40426	12 03 19.35	−03 46 56.0		693
4P	1991 11 29.73333	02 03 50.60	+00 54 06.0		056	28P	1999 02 13.41932	12 03 19.16	−03 46 54.3	21.7 T	693
4P	1991 11 29.80278	02 03 54.02	+00 53 58.6		056	28P	1999 02 14.45473	12 03 01.90	−03 45 38.9		693
4P	1991 12 01.69722	02 05 31.91	+00 50 23.7		056	28P	1999 02 14.46234	12 03 01.86	−03 45 38.3		693
4P	1991 12 01.80972	02 05 37.55	+00 50 11.6		056	28P	1999 02 14.46991	12 03 01.70	−03 45 37.9	21.9 T	693
4P	1991 12 02.71181	02 06 26.40	+00 49 03.1		056		44P/Reinmuth 2				
4P	1991 12 02.75208	02 06 28.55	+00 49 02.5		056	44P	1999 02 14.47914	13 18 19.43	−16 42 09.7		693
4P	1991 12 03.72500	02 07 22.64	+00 48 13.7		056	44P	1999 02 14.48668	13 18 19.35	−16 42 10.7		693
4P	1991 12 03.79236	02 07 26.17	+00 48 10.3		056	44P	1999 02 14.49420	13 18 19.21	−16 42 10.6	22.1 T	693
4P	1991 12 08.71111	02 12 22.44	+00 50 05.5		056		46P/Wirtanen				
4P	1991 12 08.74977	02 12 24.74	+00 50 07.9		056	46P	1991 10 05.10139	09 31 30.55	+16 43 00.1		056
4P	1991 12 12.89167	02 17 02.53	+00 58 53.3		056	46P	1991 10 05.12361	09 31 35.90	+16 42 46.5		056
4P	1991 12 12.93125	02 17 05.31	+00 59 01.0		056	46P	1991 10 08.13333	09 43 34.02	+16 16 09.4		056
6P	6P/d'Arrest				693	46P	1991 10 17.10208	10 17 31.54	+14 48 17.1		056
6P	1999 02 14.37865	09 35 44.23	+15 37 35.2		693	46P	1991 10 17.14583	10 17 41.16	+14 47 51.4		056
6P	1999 02 14.38627	09 35 43.96	+15 37 37.4	22.8 T	693		47P/Ashbrook-Jackson				
9P	9P/Tempel 1				704	47P	1999 02 13.53020	15 06 40.72	−25 27 46.2		693
9P	1999 02 10.19512	08 28 48.76	+32 30 12.4	19.2 T	704	47P	1999 02 13.53433	15 06 40.77	−25 27 47.1		693
9P	1999 02 10.21646	08 28 47.33	+32 30 17.2	19.7 T	704	47P	1999 02 13.53841	15 06 40.85	−25 27 48.3		693
9P	1999 02 10.25897	08 28 44.48	+32 30 24.5	20.1 T	704	47P	1999 02 14.52572	15 06 59.86	−25 31 49.5		693
9P	1999 02 10.28062	08 28 42.64	+32 30 30.9	20.1 T	704	47P	1999 02 14.53328	15 07 00.04	−25 31 51.9		693
9P	1999 02 12.31199	08 26 33.99	+32 37 26.9		693	47P	1999 02 14.54080	15 07 00.15	−25 31 53.3	21.4 T	693
9P	1999 02 12.31955	08 26 33.51	+32 37 28.4		693		48P/Johnson				
9P	1999 02 12.32708	08 26 33.03	+32 37 29.8	18.9 T	693	48P	1999 02 13.19712	03 56 19.91	+10 18 53.0		693
9P	1999 02 17.62153	08 21 10.43	+32 52 06.6	19.4 N	360	48P	1999 02 13.20531	03 56 20.12	+10 18 55.2		693
9P	1999 02 17.62622	08 21 10.11	+32 52 07.7		360	48P	1999 02 13.21341	03 56 20.30	+10 18 58.9	19.9 T	693
9P	1999 02 17.63073	08 21 09.90	+32 52 07.7		360		49P/Arend-Rigaux				
10P	10P/Tempel 2				693	49P	1999 02 12.51969	14 47 20.05	+06 13 32.2		693
10P	1999 02 14.54728	16 09 03.14	−08 24 10.6		693	49P	1999 02 12.52383	14 47 20.18	+06 13 33.1	18.4 T	693
10P	1999 02 14.55135	16 09 03.50	−08 24 10.6	18.7 T	693						

52P/Harrington-Abell													
52P	1999 01 09.66615	07 13 36.29	+40 03 01.7	12.8 T	372		59P	1991 01 17.93681	06 50 35.17	+30 16 05.5		056	
52P	1999 01 12.67700	07 11 38.33	+39 40 42.0	13.7 N	896		59P	1991 01 17.98264	06 50 33.37	+30 15 51.5		056	
52P	1999 01 19.52604	07 07 39.54	+38 38 48.6	12.4 T	372		59P	1991 01 19.83889	06 49 23.40	+30 05 19.5		056	
52P	1999 01 26.69774	07 04 44.35	+37 19 14.2	13.5 T	372		59P	1991 01 19.89097	06 49 21.36	+30 04 59.5		056	
52P	1999 02 05.78119	07 03 48.05	+35 09 56.2	14.4 N	610		59P	1991 01 20.96181	06 48 42.81	+29 58 44.9		056	
52P	1999 02 05.79329	07 03 48.07	+35 09 46.7		610		59P	1991 01 21.03889	06 48 40.48	+29 58 20.1		056	
52P	1999 02 05.80023	07 03 48.09	+35 09 41.2		610		60P/Tsuchinshan 2						
52P	1999 02 05.80732	07 03 48.10	+35 09 35.6		610		60P	1999 02 12.25328	06 19 41.58	+21 00 58.0		693	
52P	1999 02 05.82022	07 03 48.13	+35 09 25.5		610		60P	1999 02 12.25741	06 19 41.69	+21 00 56.6		693	
52P	1999 02 06.48711	07 03 52.93	+35 00 26.3	12.7 T	355		60P	1999 02 12.26159	06 19 41.81	+21 00 55.2		693	
52P	1999 02 06.48896	07 03 52.94	+35 00 24.7		355		60P	1999 02 14.52378	06 20 57.18	+20 47 59.5	17.2 T	360	
52P	1999 02 06.49219	07 03 52.95	+35 00 22.0		355		60P	1999 02 14.52656	06 20 57.29	+20 47 58.8		360	
52P	1999 02 06.49309	07 03 52.96	+35 00 21.9	12.9 T	351		65P/Gunn						
52P	1999 02 06.49749	07 03 52.97	+35 00 17.8		351		65P	1999 02 17.46753	03 03 11.10	+15 43 42.9	18.3 T	360	
52P	1999 02 06.50433	07 03 52.99	+35 00 12.1		351		65P	1999 02 17.47240	03 03 11.23	+15 43 43.4		360	
52P	1999 02 08.57304	07 04 14.72	+34 31 58.2		900		69P/Taylor						
52P	1999 02 08.57475	07 04 14.74	+34 31 56.7	12.2 T	402		69P	1999 02 13.51641	15 59 36.55	-00 30 03.3		693	
52P	1999 02 08.57543	07 04 14.73	+34 31 55.8		352		69P	1999 02 13.52050	15 59 36.69	-00 30 02.6		693	
52P	1999 02 08.57601	07 04 14.75	+34 31 55.7		402		69P	1999 02 13.52455	15 59 36.82	-00 30 02.2	19.6 T	693	
52P	1999 02 08.57727	07 04 14.76	+34 31 54.7		402		74P/Smirnova-Chernykh						
52P	1999 02 08.58220	07 04 14.76	+34 31 50.3		900		74P	1999 02 17.47986	03 20 21.51	+17 02 00.2	17.8 T	360	
52P	1999 02 08.58370	07 04 14.89	+34 31 48.3		352		74P	1999 02 17.48403	03 20 21.64	+17 02 00.9		360	
52P	1999 02 12.27082	07 05 20.13	+33 40 46.8		693		78P/Gehrels 2						
52P	1999 02 12.27941	07 05 20.29	+33 40 39.6		693		78P	1999 02 12.37219	11 50 01.27	-04 22 38.4		693	
52P	1999 02 12.28753	07 05 20.45	+33 40 32.6	10.4 T	693		78P	1999 02 12.37628	11 50 01.19	-04 22 37.4		693	
52P	1999 02 12.93071	07 05 35.52	+33 31 29.9	13.5 T	613		78P	1999 02 12.38034	11 50 01.07	-04 22 37.0	19.4 T	693	
52P	1999 02 13.00568	07 05 37.08	+33 30 26.8	13.4 T	613		81P/Wild 2						
52P	1999 02 13.58201	07 05 51.43	+33 22 27.8	14.2 T	372		81P	1991 01 20.15347	15 24 15.90	-15 51 12.0		056	
52P	1999 02 14.60104	07 06 18.48	+33 08 11.7	11.8 T	360		81P	1991 01 20.18333	15 24 20.31	-15 51 25.3		056	
52P	1999 02 14.60330	07 06 18.56	+33 08 09.7		360		81P	1991 01 21.14236	15 26 52.39	-15 59 19.5		056	
52P	1999 02 16.19929	07 07 06.83	+32 45 42.5	9.5 T	696		81P	1991 01 21.17014	15 26 56.91	-15 59 33.8	4	056	
52P	1999 02 16.28137	07 07 09.20	+32 44 31.3	9.5 T	696		81P	1991 01 22.15625	15 29 30.85	-16 07 17.3		056	
52P	1999 02 16.49865	07 07 16.05	+32 41 34.0	12.0 T	402		81P	1991 01 22.17986	15 29 34.80	-16 07 30.3		056	
52P	1999 02 16.49992	07 07 16.09	+32 41 33.0		402		81P	1991 06 13.00000	17 22 57.93	-18 23 49.8		056	
52P	1999 02 16.50117	07 07 16.12	+32 41 32.0		402		81P	1991 06 14.99097	17 21 00.75	-18 25 19.3		056	
52P	1999 02 17.19954	07 07 39.86	+32 31 38.9	9.5 T	696		81P	1991 06 15.90069	17 20 07.69	-18 26 01.6		056	
52P	1999 02 17.22699	07 07 40.57	+32 31 16.6	9.5 T	696		81P	1991 06 15.96944	17 20 03.69	-18 26 06.8		056	
52P	1999 02 17.50631	07 07 50.01	+32 27 21.6	14.8 N	896		93P/Lovas 1						
52P	1999 02 17.54699	07 07 51.21	+32 26 46.0		896		93P	1999 01 13.25317	06 09 49.80	+43 36 08.5		693	
52P	1999 02 18.21004	07 08 15.60	+32 17 26.2	9.5 T	696		93P	1999 01 13.26137	06 09 49.58	+43 36 02.4		693	
52P	1999 02 18.23728	07 08 15.93	+32 17 07.3	9.5 T	696		93P	1999 01 30.51834	06 09 16.02	+39 56 12.2	14.0 T	402	
52P	1999 02 25.49825	07 13 39.57	+30 35 21.5	13.8 T	351		93P	1999 01 30.51974	06 09 16.02	+39 56 11.4		402	
52P	1999 02 25.50516	07 13 39.92	+30 35 15.6		351		93P	1999 01 30.52113	06 09 16.04	+39 56 09.9		402	
52P	1999 02 25.50913	07 13 40.07	+30 35 12.2		351		93P	1999 02 06.47054	06 12 06.53	+38 29 21.8	15.7 T	355	
59P/Kearns-Kwee							93P	1999 02 06.47256	06 12 06.64	+38 29 20.7		355	
59P	1991 01 14.72118	06 52 47.74	+30 33 39.3		056		93P	1999 02 06.47522	06 12 06.73	+38 29 18.1		355	
59P	1991 01 14.78935	06 52 44.75	+30 33 18.1		056		93P	1999 02 08.48653	06 13 13.34	+38 04 50.7		900	
59P	1991 01 15.70451	06 52 06.07	+30 28 23.6		056		93P	1999 02 08.49924	06 13 13.75	+38 04 41.3	15.9 T	900	
59P	1991 01 15.78194	06 52 02.88	+30 27 58.7		056		93P	1999 02 10.05705	06 14 10.63	+37 45 59.4	15.3 T	758	
59P	1991 01 16.82708	06 51 19.88	+30 22 18.4		3 056		93P	1999 02 10.05917	06 14 10.69	+37 45 57.0	15.3 T	758	
59P	1991 01 16.92778	06 51 15.39	+30 21 43.3		3 056								

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93P	1999 02 10.06112	06 14 10.73	+37 45 55.4	15.4 T	758
93P	1999 02 10.06433	06 14 10.86	+37 45 53.9	16.7 T	758
93P	1999 02 10.07143	06 14 11.19	+37 45 48.3	15.4 T	758
93P	1999 02 12.23149	06 15 36.53	+37 20 11.2		693
93P	1999 02 12.23981	06 15 36.84	+37 20 05.6		693
93P	1999 02 12.24799	06 15 37.18	+37 19 59.6	15.3 T	693
93P	1999 02 14.51059	06 17 15.55	+36 53 36.9	15.2 T	360
93P	1999 02 14.51319	06 17 15.66	+36 53 35.2		360
93P	1999 02 19.44021	06 21 17.52	+35 57 46.5	16.5 T	402
93P	1999 02 19.44148	06 21 17.56	+35 57 45.7		402
93P	1999 02 19.44274	06 21 17.62	+35 57 45.1		402

97P/Metcalf-Brewington

97P	1991 02 02.73056	01 20 33.86	-00 37 46.6		056
97P	1991 02 02.75556	01 20 38.02	-00 37 29.0		056
97P	1991 02 03.73542	01 23 18.47	-00 24 51.5		056
97P	1991 02 03.75278	01 23 21.39	-00 24 37.8		056

103P/Hartley 2

103P	1991 08 07.95556	03 52 03.23	+30 12 21.0		056
103P	1991 08 07.98264	03 52 14.57	+30 12 31.5		056
103P	1991 08 10.94028	04 12 05.93	+30 25 24.1		056
103P	1991 08 10.98611	04 12 24.51	+30 25 35.7		056
103P	1991 09 11.06262	07 16 49.62	+23 18 28.0		056
103P	1991 09 11.08455	07 16 55.68	+23 17 57.5		056
103P	1991 10 08.05347	09 00 21.43	+12 19 10.0		056
103P	1991 10 08.11875	09 00 33.14	+12 17 38.8		056
103P	1999 01 13.45777	12 49 17.10	-15 00 22.0		693
103P	1999 01 13.46228	12 49 17.13	-15 00 22.7		693
103P	1999 01 13.46632	12 49 17.15	-15 00 23.3	19.3 T	693
103P	1999 01 14.49465	12 49 23.75	-15 02 28.8		693
103P	1999 01 14.50223	12 49 23.80	-15 02 30.3	19.1 T	693
103P	1999 02 12.43569	12 44 42.95	-15 10 42.4		693
103P	1999 02 12.43977	12 44 42.85	-15 10 42.0		693
103P	1999 02 12.44383	12 44 42.74	-15 10 41.7	18.8 T	693
103P	1999 02 13.47219	12 44 16.47	-15 08 59.6		693
103P	1999 02 13.47645	12 44 16.36	-15 08 59.1		693
103P	1999 02 13.48052	12 44 16.26	-15 08 58.7	18.7 T	693

128P/Shoemaker-Holt 1

128P-B	1999 01 14.36044	10 04 14.60	+06 08 32.4		693
128P-B	1999 01 14.36819	10 04 14.40	+06 08 32.9		693
128P-B	1999 01 14.37558	10 04 14.23	+06 08 34.0	19.6 T	693
128P-B	1999 02 14.39235	09 46 48.37	+07 35 50.3		693
128P-B	1999 02 14.39647	09 46 48.21	+07 35 51.3		693
128P-B	1999 02 14.40054	09 46 48.04	+07 35 52.1	19.3 T	693

129P/Shoemaker-Levy 3

129P	1999 02 12.48847	13 58 20.52	-18 03 02.9		693
129P	1999 02 12.49255	13 58 20.57	-18 03 03.7		693
129P	1999 02 12.49674	13 58 20.62	-18 03 04.9	18.4 T	693

130P/McNaught-Hughes

130P	1999 01 15.11693	01 57 08.10	+06 19 20.0		693
130P	1999 01 15.12461	01 57 08.39	+06 19 23.8	20.5 T	693

131P/Mueller 2

131P	1999 01 15.39913	09 14 01.08	+05 35 16.7		5 693
131P	1999 01 15.40674	09 14 00.77	+05 35 18.3	22.2 T	5 693
131P	1999 02 14.33785	08 52 19.37	+07 15 23.7		693
131P	1999 02 14.34547	08 52 18.98	+07 15 25.8	22.2 T	693

135P/Shoemaker-Levy 8

135P	1999 01 13.40204	11 48 44.76	-04 49 38.3		693
135P	1999 01 13.40611	11 48 44.93	-04 49 39.8		693
135P	1999 02 12.34913	11 47 19.07	-05 00 06.7		693
135P	1999 02 12.36512	11 47 18.72	-05 00 04.9	19.3 T	693

138P/Shoemaker-Levy 7

138P	1999 01 15.34684	07 31 12.59	+27 23 36.9		693
138P	1999 01 15.35102	07 31 12.31	+27 23 35.5		693
138P	1999 01 15.35509	07 31 12.04	+27 23 34.1	19.5 T	693
138P	1999 02 12.29207	07 11 33.50	+24 49 15.3		693
138P	1999 02 12.29625	07 11 33.42	+24 49 13.9		693
138P	1999 02 12.30041	07 11 33.35	+24 49 12.1		693

139P/Väisälä-Oterma

139P	1998 12 09.49653	03 26 59.87	+18 54 22.4	19.1 T	372
139P	1998 12 09.58889	03 26 56.81	+18 54 08.1	19.1 T	372
139P	1999 01 05.44306	03 19 08.21	+18 09 52.2	19.3 T	372
139P	1999 01 09.53472	03 19 11.19	+18 08 03.0	19.2 T	372
139P	1999 01 10.53299	03 19 14.99	+18 07 46.9		372
139P	1999 01 13.55833	03 19 34.21	+18 07 33.9	19.7 T	372
139P	1999 02 09.10117	03 29 54.02	+18 34 38.4	19.6 T	691
139P	1999 02 09.12510	03 29 54.85	+18 34 41.8	19.0 T	691
139P	1999 02 09.14685	03 29 55.70	+18 34 43.7	19.3 T	691
139P	1999 02 14.20890	03 33 16.73	+18 44 47.4		693
139P	1999 02 14.21330	03 33 16.92	+18 44 48.0		693
139P	1999 02 14.22900	03 33 17.55	+18 44 50.0	19.2 T	693
139P	1999 02 17.49132	03 35 39.65	+18 51 55.6	19.1 T	5 360
139P	1999 02 17.49549	03 35 39.90	+18 51 55.8		5 360
139P	1999 02 17.50000	03 35 40.03	+18 51 56.5		5 360

140P/Bowell-Skiff

140P	1999 01 09.55417	06 55 20.69	+28 29 14.8	17.0 T	372
140P	1999 01 10.55521	06 54 32.26	+28 29 12.9	17.0 T	372
140P	1999 01 13.29671	06 52 20.33	+28 28 38.7		693
140P	1999 01 13.30081	06 52 20.12	+28 28 38.6		693
140P	1999 01 13.30486	06 52 19.93	+28 28 38.6		693
140P	1999 01 15.52222	06 50 35.72	+28 27 38.3	17.2 T	372
140P	1999 02 05.50903	06 38 38.38	+27 54 52.3	17.1 T	372
140P	1999 02 06.50839	06 38 22.41	+27 52 23.7	15.9 T	355
140P	1999 02 06.51180	06 38 22.39	+27 52 22.7		355
140P	1999 02 06.52589	06 38 22.14	+27 52 20.6		355
140P	1999 02 07.50490	06 38 08.60	+27 49 50.1		900
140P	1999 02 07.52115	06 38 08.31	+27 49 48.3	16.1 T	900
140P	1999 02 11.55521	06 37 33.56	+27 38 56.2	17.4 T	372
140P	1999 02 12.20141	06 37 31.37	+27 37 05.6		693
140P	1999 02 12.20803	06 37 31.34	+27 37 04.6		693
140P	1999 02 12.21394	06 37 31.32	+27 37 03.6		693
140P	1999 02 13.59167	06 37 29.45	+27 33 04.4	17.0 T	372

140P	1999 02 14.53872	06 37 30.83	+27 30 16.9	16.5 T	360
140P	1999 02 14.54340	06 37 30.81	+27 30 16.2		360
140P	1999 02 16.46156	06 37 39.79	+27 24 27.2	16.2 T	402
140P	1999 02 16.46639	06 37 39.78	+27 24 26.6		402
140P	1999 02 22.48269	06 39 01.74	+27 05 06.3	15.9 T	402
140P	1999 02 22.48431	06 39 01.79	+27 05 05.7		402
140P	1999 02 22.48590	06 39 01.84	+27 05 05.5		402

Note 1: poor guiding. 2: predisccovery image. 3: bad seeing. 4: time uncertain.
5: faint image.

OBSERVATIONS OF MINOR PLANETS

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

012 Uccle

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 SG₈, 5, 1, 0; 1990 VW₆, 5, 1, 0; 1992 HG₄, 5, 1, 0; 1996 GR₁₇, 5, 1, 0; [20, 4, 0*, 1999/02/11–1999/02/25]

046 Kleť

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

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

Measurer M. Tichý

0.57-m $f/5.2$ reflector + CCD

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

1980 RE₁, 3, 1, 0; 1981 SN, 6, 2, 2; 1982 DC₂, 3, 1, 0; 1984 BQ, 6, 2, 2; 1984 SA₂, 4, 1, 0; 1985 UT, 5, 2, 2; 1986 TZ₃, 7, 2, 2; 1995 DA₁, 3, 1, 0; 1995 JD, 4, 1, 0; 1997 RC, 6, 2, 2; 1997 RK₇, 3, 1, 0; 1997 SE, 6, 2, 1; 1997 UK, 4, 1, 0; 1997 WU₃, 6, 2, 2; 1997 YB₈, 8, 2, 2; 1998 CH, 6, 2, 2; 1998 DP, 6, 2, 2; 1998 YP₁₁, 4, 1, 0; 1999 AN₁₀, 4, 1, 0; 1999 AP₁₀, 2, 1, 0; 1999 AQ₁₀, 6, 2, 9; 1999 AB₁₈, 12, 2, 1; 1999 BG₁, 8, 2, 3; 1999 BH₁, 4, 1, 0; 1999 BK₃, 4, 1, 0; 1999 BL₃, 4, 1, 0; 1999 BN₃, 10, 3, 16; 1999 BJ₅, 4, 1, 0; 1999 BK₅, 14, 4, 16; 1999 BK₇, 3, 1, 0; 1999 BJ₈, 19, 4, 3; 1999 BT₈, 13, 4, 16; 1999 BY₉, 5, 1, 0; 1999 BO₁₂, 5, 2, 1; 1999 CT₃, 3, 1, 0; 1999 CV₃, 7, 2, 2; 1999 CZ₃, 10, 2, 1; 1999 CW₇, 4, 1, 0; 1999 CW₈, 5, 1, 0; 1999 CE₉, 4, 1, 0; 1999 CF₉, 13, 3, 11; 1999 CG₉, 5, 1, 0; 1999 CL₁₀ *, 14, 4, 9; 1999 CM₁₀ *, 14, 4, 9; 1999 CZ₁₃, 8, 2, 1; 1999 CH₁₆ *, 16, 4, 10; 1999 CX₄₅, 5, 2, 2; 1999 CN₅₁, 3, 1, 0; 1999 DB₂, 4, 1, 0; 1999 DY₂, 5, 1, 0; 1999 DK₃, 9, 2, 6; 1999 DL₃ *, 9, 2, 6; 1999 DJ₄, 8, 2, 2; (2721), 3, 1, 0; (5145), 3, 1, 0; [359, 55, 4*, 1999/02/06–1999/02/27]

071 Bulgarian National Observatory

V. Radeva, Astronomical Observatory and Planetarium, Varna, Bulgaria

[astro@ms3.tu-varna.acad.bg]

Observers V. Radeva, G. Borisov

0.50-m $f/1.4$ Schmidt

GSC

1992 SK, 3, 1, 0; 1994 US₂, 5, 1, 0; 1998 WU₂₄, 3, 2, 1; 1998 XB₉, 4, 2, 1; 1998 XC₉, 10, 3, 3; 1998 XD₉, 2, 1, 0; 1998 XQ₁₆, 4, 2, 2; 1998 YN₁, 5, 1, 0; 1998 YB₈, 1, 1, 0; 1998 YR₁₁, 4, 2, 3; 1999 AF₄, 8, 2, 1; 1999 AM₁₀, 2, 1, 0; 1999 AN₁₀, 4, 2, 3; 1999 AP₁₀, 8, 4, 4; 1999 AQ₁₀, 4, 2, 1; 1999 AU₂₃, 2, 1, 0; 1999 BE₈, 3, 1, 0; [72, 17, 0*, 1999/01/21–1999/02/17]

097 Wise Observatory, Mitzpeh Ramon

I. Manulis, Wise Observatory, Tel-Aviv University, IL-69978 Tel-Aviv, Israel

[ilam@trendline.co.il]

Observer A. Gal-Yam, E. O. Ofek

Measurer I. Manulis, E. O. Ofek

1.0-m $f/7$ reflector + CCD

USNO-SA1.0, USNO-SA2.0, USNO-A1.0, USNO-A2.0

1999 CC₃₂, 2, 1, 0; 1999 CR₁₀₉, 2, 1, 0; [4, 2, 0*, 1999/02/20]

104 San Marcello Pistoiese

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

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

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

0.40-m $f/5$ reflector + CCD

GSC

1996 CW₇, 2, 1, 0; 1996 PJ₅, 3, 1, 0; 1996 VS, 6, 2, 8; 1997 PQ₄, 4, 1, 0; 1997 UJ₅, 2, 1, 0; 1998 UH₃₁, 3, 1, 0; 1998 VS₃₄, 3, 1, 0; 1998 XN₂, 14, 1, 0; 1998 XA₅, 7, 1, 0; 1998 YN₇, 1, 1, 0; 1999 AN₁₀, 1, 1, 0; 1999 AV₂₂, 7, 2, 10; 1999 AF₂₄, 4, 2, 2; 1999 BK₄, 6, 2, 9; 1999 BC₇, 3, 1, 0; 1999 BF₈, 6, 2, 12; 1999 BJ₈, 7, 1, 0; 1999 BY₉, 3, 1, 0; 1999 BS₂₄, 12, 3, 7; 1999 CX₂ *, 4, 2, 2; 1999 CY₂ *, 10, 4, 17; 1999 CZ₂ *, 7, 3, 12; 1999 CU₃, 3, 1, 0; 1999 CV₃, 2, 1, 0; 1999 CW₈, 3, 1, 0; 1999 CZ₈, 2, 1, 0; 1999 CF₉, 3, 1, 0; 1999 CG₁₆ *, 10, 3, 8; 1999 CJ₁₆, 3, 1, 0; 1999 CR₁₆ *, 8, 2, 3; 1999 CC₁₀₄, 7, 2, 5; 1999 CN₁₁₁, 3, 1, 0; (1073), 3, 1, 0; (2342), 5, 2, 2; [167, 34, 5*, 1998/12/23–1999/02/26]

106 Črni vrh

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

Observers H. Mikuž, S. Matičič, J. Skvarč, B. Dintinjana

Measurer 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

1981 EC₂₈, 4, 1, 0; 1999 AK₃₄, 6, 2, 5; 1999 BB₂, 3, 1, 0; 1999 BH₃, 3, 1, 0; 1999 BS₉, 3, 1, 0; 1999 BL₁₂, 6, 2, 2; 1999 BM₁₂, 3, 1, 0; 1999 BN₁₂, 3, 1, 0; 1999 BO₁₂, 3, 1, 0; 1999 BP₁₂, 3, 1, 0; 1999 BQ₁₂, 3, 1, 0; 1999 CA₂ *, 12, 4, 12; 1999 CY₇, 6, 2, 1; 1999 DC₂, 6, 2, 5; (10), 6, 2, 10; (101), 3, 1, 0; (271), 3, 1, 0; (349), 3, 1, 0; (501), 3, 1, 0; (558), 3, 1, 0; (620), 3, 1, 0; (689), 5, 2, 10; (820), 3, 1, 0; (932), 2, 1, 0; (967), 3, 1, 0; (1133), 3, 1, 0; (1150), 3, 1, 0; (1289), 3, 1, 0; (1758), 3, 1, 0; (2121), 3, 1, 0; (2391), 3, 1, 0; (2656), 3, 1, 0; (2807), 3, 1, 0; (3032), 2, 1, 0; (3118), 3, 1, 0; (3220), 3, 1, 0; (4222), 3, 1, 0; (4503), 3, 1, 0; (5291), 3, 1, 0; (6126), 3, 1, 0; [145, 40, 1*, 1999/02/06–1999/02/24]

107 Cavezzo

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

Observers P. Negrelli, F. Manenti, D. Calanca, M. Nicolini

Measurer M. Nicolini

0.40-m $f/5.5$ reflector + CCD

GSC

1999 CB₁ *, 17, 5, 16; [17, 1, 1*, 1999/02/06–1999/02/22]

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

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

1996 CW₇, 1, 1, 0; 1996 PJ₅, 2, 1, 0; 1997 CU₂₆, 2, 1, 0; 1997 XY₁₀, 4, 1, 0; 1998 YN₇, 1, 1, 0; 1999 BF₈, 4, 1, 0; 1999 CY₂, 8, 2, 10; 1999 CZ₂, 12, 3, 12; 1999 CR₃, 3, 1, 0; 1999 CV₃, 9, 3, 14; 1999 CF₉, 3, 1, 0; 1999 CJ₁₆ *, 7, 2, 10; 1999 CL₁₁₁, 6, 2, 2; 1999 DV₃ *, 9, 2, 2; 1999 DJ₄, 4, 1, 0; [75, 15, 2*, 1999/02/11–1999/02/26]

113 Volkssternwarte Drebach, Schönbrunn

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

[g.lehmann@abo.freiepresse.de]

Observers G. Lehmann, J. Kandler

0.50-m $f/4$ reflector + CCD, 0.18-m $f/9.0$ refractor + CCD
USNO-A1.0

1987 YC₁, 2, 1, 0; 1989 AL₆, 2, 1, 0; 1989 AV₆, 2, 1, 0; 1989 CD₆, 2, 1, 0; 1990 TE₉, 2, 1, 0; 1990 TG₁₁, 3, 1, 0; 1990 TG₁₃, 3, 1, 0; 1991 RP₂, 2, 1, 0; 1992 SJ₂, 2, 1, 0; 1992 SQ₂₄, 2, 1, 0; 1994 AL₁₆, 4, 1, 0; 1998 YH₂₇, 3, 1, 0; 1999 BW₃, 2, 1, 0; 1999 BE₇, 2, 1, 0; (635), 2, 1, 0; (8053), 2, 1, 0; [37, 16, 0*, 1999/02/10]

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

0.6-m $f/5.5$ reflector + CCD

GSC, USNO-SA1.0

1996 HO, 6, 2, 7; 1997 QA, 5, 2, 7; 1998 BT₂₆, 6, 2, 7; 1998 XB, 5, 2, 7; 1998 YP₁₁, 9, 4, 16; 1999 BN, 5, 2, 7; 1999 BE₈, 9, 3, 16; 1999 CT₃, 2, 1, 0; 1999 CU₃, 3, 1, 0; 1999 CV₃, 6, 2, 7; 1999 CV₈, 3, 1, 0; 1999 CW₈, 3, 1, 0; 1999 CZ₁₃, 3, 1, 0; 1999 DB₂, 3, 1, 0; 1999 DK₃, 3, 1, 0; 1999 DU₃ *, 9, 3, 3; 1999 DJ₄, 7, 2, 1; (189), 5, 2, 7; (815), 2, 1, 0; (1368), 2, 1, 0; (5870), 2, 1, 0; (6224), 5, 2, 7; [103, 22, 1*, 1999/02/09–1999/02/25]

120 Višnjan

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

Observers K. Korlević, P. Korlević, M. Dobrilović, M. Jurić

Measurers K. Korlević, M. Jurić

0.41-m $f/4.3$ reflector + CCD

USNO-SA1.0

1979 HW₆, 2, 1, 0; 1981 EC₂₇, 1, 1, 0; 1981 JM₂, 2, 1, 0; 1981 TH₃, 2, 1, 0; 1983 RV₃, 2, 1, 0; 1986 QK₂, 2, 1, 0; 1988 RJ₄, 2, 1, 0; 1990 RJ₃, 3, 1, 0; 1990 UN₁, 8, 3, 6; 1992 BM, 2, 1, 0; 1992 CJ₃, 5, 2, 2; 1992 LJ, 3, 1, 0; 1992 LS, 5, 2, 6; 1992 UO₃, 3, 1, 0; 1993 ST₄, 3, 1, 0; 1993 UC₃, 3, 1, 0; 1994 UO₁, 2, 1, 0; 1996 FJ₉, 2, 1, 0; 1996 TS, 4, 2, 5; 1997 NN₁, 2, 1, 0; 1997 QP₄, 4, 2, 7; 1997 RT₉, 4, 2, 10; 1997 SN₂, 2, 1, 0; 1997 SN₃, 4, 2, 2; 1997 UJ₃, 5, 2, 27; 1997 XV, 6, 2, 5; 1998 BE, 3, 1, 0; 1998 XW₉, 2, 1, 0; 1998 XN₁₀, 3, 1, 0; 1998 XM₇₄, 2, 1, 0; 1998 YP₂, 2, 1, 0; 1998 YV₉, 3, 1, 0; 1998 YX₉, 2, 1, 0; 1998 YZ₉, 3, 1, 0; 1998 YQ₁₂, 3, 1, 0; 1998 YT₂₇, 2, 1, 0; 1999 AJ, 3, 1, 0; 1999 AV₆, 2, 1, 0; 1999 AW₆, 3, 1, 0; 1999 AY₆, 2, 1, 0; 1999 AA₇, 2, 1, 0; 1999 AB₇, 2, 1, 0; 1999 AC₇, 2, 1, 0; 1999 AH₇, 2, 1, 0; 1999 AJ₇, 2, 1, 0; 1999 AK₇, 2, 1, 0; 1999 AM₇, 2, 1, 0; 1999 AO₇, 9, 2, 6; 1999 AB₁₀, 2, 1, 0; 1999 AE₁₀, 3, 1, 0; 1999 AG₁₀, 3, 1, 0; 1999 AG₁₇, 2, 1, 0; 1999 AF₂₁, 2, 1, 0; 1999 AG₂₁, 3, 1, 0; 1999 AH₂₁, 2, 1, 0; 1999 AJ₂₁, 2, 1, 0; 1999 AK₂₁, 3, 1, 0; 1999 AL₂₁, 3, 1, 0; 1999 AM₂₁, 2, 1, 0; 1999 AN₂₁, 2, 1, 0; 1999 AO₂₁, 2, 1, 0; 1999 AP₂₁, 2, 1, 0; 1999 AQ₂₁, 2, 1, 0; 1999 AX₂₁, 2, 1, 0; 1999 AY₂₁, 4, 2, 6; 1999 AM₂₄, 5, 2, 12; 1999 AF₂₅, 8, 3, 8; 1999 AY₂₅, 2, 1, 0; 1999 AZ₂₅, 3, 1, 0; 1999 AZ₂₆, 4, 2, 2; 1999 AJ₃₄, 5, 2, 11; 1999 BR, 2, 1, 0; 1999 BT, 2, 1, 0; 1999 BP₁, 3, 1, 0; 1999 BQ₁, 3, 1, 0; 1999 BS₁, 3, 1, 0; 1999 BV₁, 3, 1, 0; 1999 BW₁, 6, 2, 1; 1999 BS₃, 2, 1, 0; 1999 BT₃, 2, 1, 0; 1999 BU₃, 2, 1, 0; 1999 BZ₃, 3, 1, 0; 1999 BO₄, 2, 1, 0; 1999 BQ₄, 5, 2, 12; 1999 BP₅, 2, 1, 0; 1999 BQ₅, 2, 1, 0; 1999 BR₅, 2, 1, 0; 1999 BV₅, 2, 1, 0; 1999 BW₅, 2, 1, 0; 1999 BX₅, 5, 2, 2; 1999 BY₅, 4, 2, 7; 1999 BZ₅, 4, 2, 7; 1999 BA₆, 5, 2, 7; 1999 BE₆, 5, 2, 3; 1999 BP₇, 2, 1, 0; 1999 BR₇, 2, 1, 0; 1999 BU₇, 2, 1, 0; 1999 BV₇, 2, 1, 0; 1999 BX₇, 2, 1, 0; 1999 BY₇, 2, 1, 0; 1999 BZ₇, 3, 1, 0; 1999 BA₈, 2, 1, 0; 1999 BB₈, 2, 1, 0; 1999 BC₈, 3, 1, 0; 1999 BD₈, 4, 2, 10; 1999 BV₈, 2, 1, 0; 1999 BW₈, 2, 1, 0; 1999 BX₈, 5, 2, 11; 1999 BY₈, 2, 1, 0; 1999 BZ₈, 2, 1, 0; 1999 BA₉, 2, 1, 0; 1999 BB₉, 2, 1, 0; 1999 BC₉, 2, 1, 0; 1999 BD₉, 2, 1, 0; 1999 BF₉, 6, 3, 3; 1999 BG₉, 2, 1, 0; 1999 BJ₉, 2, 1, 0; 1999 BK₉, 4, 2, 7; 1999 BL₉, 3, 1, 0; 1999 BV₉, 2, 1, 0; 1999 BX₉, 2, 1, 0; 1999 BY₉, 17, 5, 21; 1999 BZ₉, 3, 1, 0; 1999 BA₁₀, 2, 1, 0; 1999 BB₁₀, 2, 1, 0; 1999 BD₁₀, 2, 1, 0; 1999 BH₁₀, 2, 1, 0; 1999 BM₁₀, 3, 1, 0; 1999 BT₁₂, 5, 2, 6; 1999 BU₁₂, 2, 1, 0; 1999 BV₁₂, 3, 1, 0;

1999 BW₁₂, 4, 2, 12; 1999 BX₁₂, 2, 1, 0; 1999 BY₁₂, 2, 1, 0; 1999 BZ₁₂, 2, 1, 0; 1999 BA₁₃, 6, 2, 4; 1999 BB₁₃, 4, 2, 4; 1999 BC₁₃, 8, 3, 10; 1999 BD₁₃, 3, 1, 0; 1999 BE₁₃, 3, 1, 0; 1999 BF₁₃, 4, 2, 6; 1999 BG₁₃, 2, 1, 0; 1999 BJ₁₃, 4, 2, 6; 1999 BK₁₃, 5, 2, 1; 1999 BL₁₃, 2, 1, 0; 1999 BM₁₃, 12, 2, 1; 1999 BN₁₃, 11, 1, 0; 1999 BO₁₃, 3, 1, 0; 1999 BP₁₃, 5, 2, 4; 1999 BQ₁₃, 7, 3, 6; 1999 BC₁₅, 5, 2, 7; 1999 BD₁₅, 4, 2, 12; 1999 BE₁₅, 2, 1, 0; 1999 BF₁₅, 3, 1, 0; 1999 BG₁₅, 4, 2, 3; 1999 BJ₁₅, 2, 1, 0; 1999 BK₁₅, 5, 2, 2; 1999 BM₁₅, 3, 1, 0; 1999 BN₁₅, 6, 3, 6; 1999 BS₂₄, 5, 2, 1; 1999 BC₂₆, 4, 2, 6; 1999 BD₂₆, 5, 2, 3; 1999 BE₂₆, 4, 2, 6; 1999 CY₁, 3, 1, 0; 1999 CE₂ *, 8, 3, 12; 1999 CO₄, 3, 1, 0; 1999 CP₄ *, 10, 4, 12; 1999 CQ₄ *, 8, 3, 10; 1999 CR₄ *, 6, 3, 7; 1999 CS₄ *, 10, 4, 6; 1999 CT₄ *, 6, 3, 6; 1999 CU₄ *, 7, 3, 4; 1999 CV₄ *, 8, 3, 7; 1999 CW₄ *, 7, 3, 4; 1999 CB₈ *, 8, 3, 6; 1999 CP₈ *, 13, 5, 11; 1999 CQ₈ *, 11, 5, 25; 1999 CR₈ *, 9, 4, 5; 1999 CF₁₄ *, 10, 3, 6; 1999 CG₁₄ *, 11, 4, 11; 1999 CH₁₄ *, 12, 4, 11; 1999 CJ₁₄ *, 13, 4, 11; 1999 CK₁₄ *, 6, 3, 3; 1999 CL₁₄ *, 4, 2, 2; 1999 CM₁₄ *, 4, 2, 2; 1999 CN₁₄ *, 4, 2, 2; 1999 CO₁₄ *, 5, 2, 2; 1999 CP₁₄ *, 5, 2, 2; 1999 CQ₁₄ *, 4, 2, 2; 1999 CR₁₄ *, 4, 2, 2; 1999 CS₁₄ *, 7, 3, 8; 1999 CT₁₄ *, 7, 3, 8; 1999 CU₁₄ *, 8, 3, 8; 1999 CV₁₄ *, 9, 3, 8; 1999 CW₁₄ *, 8, 3, 8; 1999 CX₁₄ *, 8, 3, 8; 1999 CY₁₄ *, 6, 3, 8; 1999 CK₁₆ *, 5, 2, 12; 1999 CL₁₆ *, 5, 2, 12; 1999 CM₁₆ *, 5, 2, 12; 1999 CN₁₆ *, 9, 3, 11; 1999 CO₁₆ *, 5, 2, 3; 1999 CP₁₆ *, 5, 2, 3; 1999 CQ₁₆ *, 5, 2, 3; 1999 DW *, 6, 3, 2; 1999 DX *, 6, 2, 1; 1999 DY *, 6, 2, 1; 1999 DZ *, 10, 3, 6; 1999 DA₁ *, 6, 2, 1; 1999 DM₃ *, 5, 2, 5; 1999 DN₃ *, 5, 2, 5; 1999 DO₃ *, 5, 2, 5; 1999 DL₄ *, 6, 2, 3; 1999 DM₄ *, 6, 2, 3; 2778 P-L, 2, 1, 0; 3553 P-L, 2, 1, 0; 4088 P-L, 4, 2, 1; 2116 T-2, 2, 1, 0; 4050 T-3, 3, 1, 0; (66), 3, 1, 0; (190), 5, 2, 5; (274), 2, 1, 0; (808), 4, 1, 0; (835), 2, 1, 0; (851), 3, 1, 0; (1112), 5, 2, 11; (1242), 3, 1, 0; (1332), 3, 1, 0; (1496), 2, 1, 0; (1541), 3, 1, 0; (1752), 5, 2, 4; (2067), 3, 1, 0; (2230), 3, 1, 0; (2250), 6, 3, 12; (2280), 3, 1, 0; (2417), 3, 1, 0; (2508), 2, 1, 0; (2540), 4, 2, 3; (2763), 3, 2, 7; (2799), 3, 1, 0; (3000), 7, 3, 7; (3175), 3, 1, 0; (3516), 2, 1, 0; (3530), 5, 2, 6; (3659), 2, 1, 0; (3660), 3, 1, 0; (3866), 3, 1, 0; (3975), 2, 1, 0; (4013), 3, 1, 0; (4109), 3, 1, 0; (4146), 2, 1, 0; (4172), 5, 2, 10; (4187), 8, 3, 8; (4216), 4, 2, 3; (4466), 8, 3, 8; (4516), 6, 2, 1; (4592), 6, 2, 3; (5044), 2, 1, 0; (5094), 3, 1, 0; (5151), 2, 1, 0; (5157), 10, 1, 0; (5166), 3, 1, 0; (5205), 4, 2, 3; (5217), 2, 1, 0; (5235), 3, 1, 0; (5326), 3, 1, 0; (5437), 3, 1, 0; (5643), 3, 1, 0; (5667), 3, 1, 0; (5796), 3, 1, 0; (5810), 1, 1, 0; (5812), 2, 1, 0; (5941), 8, 3, 6; (6108), 2, 1, 0; (6109), 3, 1, 0; (6181), 2, 1, 0; (6401), 2, 1, 0; (6402), 4, 1, 0; (6429), 4, 1, 0; (6442), 3, 1, 0; (6457), 3, 1, 0; (6949), 8, 3, 10; (7137), 2, 1, 0; (7190), 2, 1, 0; (7442), 7, 3, 8; (7974), 2, 1, 0; (8088), 5, 2, 2; (8387), 3, 1, 0; (9866), 2, 1, 0; (9920), 2, 1, 0; [1149, 290, 49*, 1999/01/19–1999/02/27]

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

1996 FG₃, 2, 1, 0; 1998 UT₁₈, 6, 2, 1; 1998 XB, 3, 1, 0; 1998 XA₅, 3, 1, 0; (2497), 4, 1, 0; [18, 5, 0*, 1998/11/23–1998/12/24]

126 Monte Viseggi

P. Pietrapiana, via Stefano Clemente 22, I-10143 Torino, Italy

[mc7316@mclink.it]

Observers P. Pietrapiana, L. Sannino, G. Scarfi, L. Zannoni, A. Bondielli

Measurers P. Pietrapiana, L. Zannoni

0.40-m $f/5$ reflector + CCD

GSC

1999 AD₃₃, 8, 2, 5; [8, 1, 0*, 1999/02/01–1999/02/06]

127 Bornheim

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

0.19-m $f/4$ FFC + CCD

GSC

1988 FB, 4, 2, 12; 1988 FS₂, 4, 2, 4; 1988 UO, 4, 2, 4; 1991 DK, 4, 2, 12; 1992 OO₁, 4, 2, 12; 1999 BB₂, 5, 2, 4; (1121), 6, 2, 12; (1373), 6, 2, 4; (5164), 6, 2, 4; (7019), 3, 1, 0; [46, 10, 0*, 1999/02/08–1999/02/24]

130 Lumezzane

S. Foglia, F. Bisleri 11, I-20418 Milan, Italy [md3576@mclink.it]

Observers G. Pizzetti, W. Marinello

Measurer G. Pizzetti

0.40-m $f/4$ reflector + CCD
USNO-A1.0

(5164), 4, 1, 0; [4, 1, 0*, 1999/02/06]

132 Bedoin

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

[Pierre.Antonini@wanadoo.fr]

0.16-m $f/3.3$ reflector + CCD
GSC

1990 TE₉, 2, 1, 0; 1993 OB, 2, 1, 0; 1997 XT₅, 2, 1, 0; 4838 P-L, 3, 1, 0; [9, 4, 0*, 1999/02/15–1999/02/16]

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 BJ₈, 16, 1, 0; [16, 1, 0*, 1999/02/20]

143 Gnosca

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

0.20-m $f/7.1$ reflector + CCD, 0.40-m $f/4$ reflector + CCD
GSC

1995 CF₁, 3, 1, 0; 1997 OY₁, 6, 2, 1; 1997 PF₁, 4, 2, 2; 1999 BD₄, 6, 2, 4; 1999 BM₁₄, 8, 3, 14; 1999 CA *, 11, 4, 10; 1999 CD, 6, 2, 3; 1999 CF, 6, 2, 1; 1999 CR₂ *, 10, 4, 6; 1999 CY₄ *, 5, 2, 2; (3452), 4, 1, 0; [69, 11, 3*, 1999/02/02–1999/02/20]

151 Eschenberg Observatory, Winterthur

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

[griesser@spectraweb.ch]

0.25-m $f/8.0$ reflector + CCD
GSC

1992 SK, 2, 1, 0; 1999 AP₁₀, 2, 1, 0; 1999 BJ₈, 9, 2, 1; 1999 CR₃, 4, 1, 0; 1999 CV₃, 13, 3, 4; 1999 CW₇, 4, 1, 0; 1999 CF₉, 4, 1, 0; 1999 CZ₁₃, 3, 1, 0; [41, 8, 0*, 1999/02/11–1999/02/15]

159 Monte Agliale

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

Italy [ilra@comune.lucca.it]

0.51-m $f/4.5$ Newtonian reflector + CCD
USNO-A1.0

1992 EG₁₄, 5, 1, 0; 1997 UK₇, 4, 1, 0; 1998 WL₉, 4, 1, 0; 1998 XS₁₀, 5, 1, 0; 1999 AV₂₉, 8, 2, 3; 1999 BH₁₂, 7, 2, 9; 1999 BJ₁₂, 6, 1, 0; 1999 BB₂₆, 4, 1, 0; 1999 CX₄ *, 11, 3, 15; 1999 CL₁₀, 13, 3, 3; 1999 CM₁₀, 9, 2, 2; 1999 CF₈₂ *, 9, 3, 8; 1999 CG₈₂ *, 13, 4, 4; (7940), 7, 2, 1; [105, 14, 3*, 1999/01/25–1999/02/23]

250 Hubble Space Telescope

M. McMaster, Space Telescope Science Institute, 3700 San Martin Drive,

Baltimore, MD 21218, U.S.A. [mcmaster@stsci.edu]

Observer S. Casertano

Measurers R. W. Evans, K. R. Stapelfeldt

2.4-m $f/12.9$ reflector + CCD

1999 CG₄₄, 20, 1, 0; [20, 1, 0*, 1999/02/02]

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

1988 RV₄, 5, 3, 2; 1989 VS₁, 5, 3, 2; 1998 XE₉₆ *, 5, 3, 2; 1998 XF₉₆ *, 3, 3, 2; 1998 XG₉₆ *, 4, 3, 2; 1998 XH₉₆ *, 5, 3, 2; 1998 XJ₉₆ *, 5, 3, 2; 1998 XK₉₆ *, 5, 3, 2; 1998 XL₉₆ *, 2, 2, 3; 1998 XM₉₆ *, 7, 4, 3; 1998 XN₉₆ *, 7, 4, 3; 1998 XO₉₆ *, 5, 4, 3; 1998 XP₉₆ *, 7, 4, 3; 1998 XQ₉₆ *, 7, 4, 3; 1999 AJ₇, 7, 4, 3; 1999 BC₄, 5, 3, 2; (1774), 4, 3, 2; (2615), 6, 3, 2; (7940), 3, 2, 1; (9780), 7, 4, 3; [104, 20, 12*, 1998/12/11–1998/12/14]

327 Peking Observatory, Xinglong Station

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

Zhongguancun, Peking 100101, Peoples Republic of China

[zj@bac.pku.edu.cn]

Observers X. S. Liu, X. M. Teng, J. Zhu, H. T. Zhang, X. Zhou, Y. J. Chen,

X. Y. Li

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

0.60-m Schmidt + CCD

1990 WX₁, 6, 2, 3; 1991 UN₃, 6, 2, 2; 1994 CK₂, 6, 2, 3; 1997 UK, 6, 2, 1; 1997 VN₁, 12, 4, 5; 1998 WN₁₆, 13, 4, 13; 1998 WZ₂₃, 6, 2, 9; 1998 XW₉, 6, 2, 1; 1998 XP₁₀, 6, 2, 4; 1998 XR₁₀, 6, 2, 3; 1998 XY₁₄, 6, 2, 2; 1998 XS₂₀, 6, 2, 1; 1998 YE₂, 9, 3, 5; 1998 YG₂, 6, 2, 1; 1998 YJ₂, 9, 2, 10; 1998 YO₅, 6, 2, 1; 1998 YJ₂₂, 6, 2, 1; 1999 AB₄, 6, 2, 2; 1999 AV₉, 6, 2, 5; 1999 AC₂₂, 6, 2, 5; 1999 AN₂₂, 3, 1, 0; 1999 AQ₂₂, 3, 1, 0; 1999 AZ₂₃, 3, 1, 0; 1999 AC₃₄, 6, 2, 1; 1999 BL₂₄, 6, 2, 1; 1999 BM₃₃ *, 6, 2, 5; 1999 CU₁, 6, 2, 4; 1999 CG₂ *, 7, 2, 6; 1999 CH₂ *, 7, 2, 4; 1999 CJ₂ *, 6, 2, 1; 1999 CK₂ *, 6, 2, 1; 1999 CL₂ *, 9, 3, 7; 1999 CM₂ *, 6, 2, 1; 1999 CN₂ *, 6, 2, 1; 1999 CO₂ *, 9, 3, 9; 1999 CY₃ *, 6, 2, 8; 1999 CZ₃ *, 6, 2, 4; 1999 CA₄ *, 9, 3, 9; 1999 CC₄ *, 9, 3, 4; 1999 CD₄ *, 9, 3, 6; 1999 CW₉ *, 6, 2, 1; 1999 CL₃₃ *, 6, 2, 3; 1999 CP₄₇ *, 6, 2, 2; 1999 CY₄₉, 6, 2, 5; 1999 CA₅₂, 6, 2, 5; 1999 CE₅₂, 6, 2, 2; 1999 CN₆₂, 6, 2, 5; 1999 CU₉₉, 6, 2, 2; 1999 CS₁₀₅, 6, 2, 5; 1999 CQ₁₁₈ *, 6, 2, 6; 1999 CR₁₁₈ *, 6, 2, 5; 1999 CS₁₁₈ *, 6, 2, 5; 1999 CT₁₁₈ *, 6, 2, 5; (424), 6, 2, 5; (1692), 6, 2, 3; (2515), 12, 4, 9; (4365), 6, 2, 3; (5919), 7, 2, 4; (6074), 6, 2, 2; (7023), 6, 2, 5; (8076), 6, 2, 3; (8352), 6, 2, 2; [406, 62, 21*, 1999/01/23–1999/02/19]

352 Konan

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

[mhotta@mx.biwa.or.jp]

0.28-m $f/5.0$ reflector + CCD

GSC

1999 AP₁₀, 2, 1, 0; [2, 1, 0*, 1999/02/08]

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

1998 XB, 3, 1, 0; 1998 YF₇, 8, 3, 25; 1999 AO₃, 3, 1, 0; 1999 BJ₈, 6, 2, 1; 1999 CV₃, 15, 5, 13; 1999 CW₈, 3, 1, 0; [38, 6, 0*, 1999/01/10–1999/02/25]

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

1994 AB₁, 3, 1, 0; 1995 BH₁, 3, 2, 5; 1995 BL₂, 3, 1, 0; 1995 GN, 5, 2, 22; 1995 OX, 3, 1, 0; 1996 NW, 2, 1, 0; 1997 CU₂₆, 3, 1, 0; 1997 SJ₁₆, 9, 3, 8; 1997 VP, 6, 2, 5; 1998 XM₄, 3, 1, 0; 1998 XC₉, 3, 1, 0; 1998 XD₉, 3, 1, 0; 1998 XS₁₆, 3, 1, 0; 1998 YC₁, 4, 2, 6; 1998 YP₅, 8, 3, 8; 1999 AF₄, 3, 1, 0; 1999 AR₇, 6, 2, 8; 1999 AN₁₀, 3, 1, 0; 1999 AP₁₀, 3, 1, 0; 1999 AQ₁₀, 3, 1, 0; 1999 BO, 3, 1, 0; 1999 BG₇, 3, 1, 0; 1999 BJ₈, 6, 2, 3; 1999 CT₃, 3, 1, 0; 1999 CU₃, 3, 1, 0; 1999 CV₃, 3, 1, 0; (3199), 2, 1, 0; (4503), 2, 1, 0; (5131), 2, 1, 0; (6884), 2, 1, 0; [108, 30, 0*, 1995/04/04–1999/02/17]

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 MAR. 2

M.P.C. 33835

1999 AR₂, 4, 2, 1; 1999 BC₁₂, 4, 2, 8; 1999 CC₂, 4, 2, 4; 1999 CL₃ *, 6, 3, 8; 1999 CM₃ *, 6, 3, 8; 1999 CY₅₄, 4, 2, 4; 1999 CZ₅₄, 4, 2, 4; 1999 CJ₅₆, 4, 2, 4; [36, 8, 2*, 1999/02/08–1999/02/23]

372 Geisei

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

0.60-m $f/3.5$ reflector

GSC

1998 WV₂₃, 3, 3, 8; (5825), 2, 2, 1; (5918), 1, 1, 0; (6364), 2, 2, 5; [8, 4, 0*, 1999/02/09–1999/02/22]

376 Uenohara

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

0.30-m reflector + CCD

GSC

1997 SG₂₁, 4, 2, 2; 1999 AG₂₄, 2, 1, 0; 1999 AU₃₂, 2, 1, 0; 1999 AT₃₄ *, 4, 2, 3; 1999 BV₁₄, 3, 1, 0; 1999 BW₁₄, 2, 1, 0; 1999 BX₁₄, 2, 1, 0; 1999 BH₃₁, 2, 1, 0; 1999 CH₉ *, 5, 2, 4; 1999 CJ₉ *, 8, 4, 8; 1999 CA₁₄ *, 7, 4, 12; 1999 CB₁₄ *, 8, 4, 8; 1999 CC₁₄ *, 10, 5, 12; 1999 CD₁₄ *, 10, 5, 12; [69, 14, 7*, 1999/01/13–1999/02/20]

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0.31-m $f/4.0$ reflector + CCD

GSC-1.1, USNO-A2.0

1990 SE₆, 2, 1, 0; 1995 AL, 3, 2, 6; 1995 FM, 3, 1, 0; 1995 FN, 2, 1, 0; 1997 QF₂, 3, 1, 0; 1997 RO₃, 2, 1, 0; 1997 TH₁₉, 2, 1, 0; 1997 UG₁, 1, 1, 0; 1997 UF₂, 3, 1, 0; 1997 UJ₂, 5, 3, 22; 1997 UY₁₄, 8, 4, 7; 1997 UC₁₅, 4, 2, 8; 1997 VF₁, 5, 3, 7; 1997 VJ₁, 2, 1, 0; 1997 WJ₇, 4, 2, 8; 1997 XR₁₁, 2, 1, 0; 1998 SS₂, 2, 1, 0; 1998 VG₆, 2, 1, 0; 1998 WZ₆, 2, 1, 0; 1998 WE₇, 2, 1, 0; 1998 WG₇, 2, 1, 0; 1998 XM₃, 3, 2, 15; 1998 YO₇, 2, 1, 0; 1999 AH₅, 2, 1, 0; 1999 AJ₅, 2, 1, 0; 1999 AZ₇, 1, 1, 0; 1999 BC₂, 2, 1, 0; 1999 BK₈, 2, 1, 0; 1999 BZ₂₅, 2, 1, 0; 1999 CH₃, 6, 3, 2; 1999 CZ₄ *, 6, 3, 7; 1999 CA₅ *, 4, 2, 1; 1999 CB₅ *, 12, 6, 9; 1999 CC₅ *, 11, 5, 9; 1999 CE₅ *, 8, 4, 7; 1999 CF₅ *, 4, 2, 1; 1999 CK₅ *, 6, 3, 7; 1999 CN₅ *, 6, 2, 1; 1999 CG₈ *, 7, 3, 3; 1999 CH₈, 2, 1, 0; 1999 CK₉ *, 10, 5, 7; 1999 CL₉ *, 8, 4, 7; 1999 CM₉ *, 8, 4, 6; 1999 DP₁, 5, 2, 6; 1999 DT₂ *, 3, 2, 1; 1999 DV₂ *, 5, 2, 1; 1999 DW₂ *, 8, 3, 5; 1999 DX₂ *, 4, 2, 1; 1999 DF₃, 3, 1, 0; 1999 DQ₃, 3, 1, 0; 1999 DR₃, 3, 1, 0; 1999 DS₃, 3, 1, 0; 1999 DT₃ *, 2, 1, 0; 1107 T-3, 2, 1, 0; (1118), 2, 1, 0; (5279), 2, 1, 0; (9954), 2, 1, 0; [222, 57, 17*, 1999/01/22–1999/02/25]

388 National Observatory, Mitaka

I. Sato, National Astronomical Observatory, Mitaka, Tokyo, 181 Japan

[satoois@cc.nao.ac.jp]

0.50-m $f/12$ reflector + CCD

HIP, ACT

(1437), 73, 2, 1; [73, 1, 0*, 1999/01/21–1999/01/22]

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

1991 VJ₄, 6, 2, 17; 1994 AB₁, 3, 1, 0; 1996 HC₂, 8, 3, 66; 1996 JO, 5, 2, 7; 1996 JY, 2, 1, 0; 1997 CU₂₆, 3, 1, 0; 1997 DF, 3, 1, 0; 1997 SL₁₆, 3, 1, 0; 1997 VE₅, 4, 1, 0; 1997 VY₅, 2, 1, 0; 1997 WM₁₆, 2, 1, 0; 1998 WU₂₄, 6, 2, 12; 1998 XB₉, 6, 2, 4; 1998 XC₉, 6, 2, 12; 1998 XD₉, 3, 1, 0; 1998 XT₁₇, 8, 3, 62; 1998 YB₈, 9, 3, 16; 1998 YM₈, 3, 1, 0; 1998 YP₁₁, 3, 1, 0; 1998 YF₂₇, 3, 1, 0; 1999 AF₄, 6, 2, 15; 1999 AR₇, 6, 2, 2; 1999 AN₁₀, 8, 3, 9; 1999 AP₁₀, 15, 5, 21; 1999 AQ₁₀, 12, 4, 15; 1999 BO, 3, 1, 0; 1999 BE₈, 3, 1, 0; 1999 BJ₈, 6, 2, 3; 1999 BE₉, 3, 1, 0; 1999 BY₉, 3, 1, 0; 1999 BB₂₂, 3, 1, 0; 1999 CD₁ *, 17, 5, 17; 1999 CL₁ *, 7, 3, 19; 1999 CS₉, 9, 3, 6; 1999 CT₃, 6, 2, 3; 1999 CU₃, 9, 3, 9; 1999 CV₃, 6, 2, 3; 1999 CV₈, 3, 1, 0; 1999 CW₈, 6, 2, 3; 1999 CE₉, 6, 2, 6; 1999 CF₉, 9, 3, 9; 1999 CZ₁₃, 4, 1, 0; 1999 CN₅₁, 4, 1, 0; 1999 DB₂, 5, 2, 5; 1999 DY₂, 3, 1, 0; 1999 DK₃, 3, 1, 0; 3398 T-3, 3, 1, 0; [256, 47, 2*, 1998/12/12–1999/02/25]

409 Kiyose

S. Suzuki, 3-15-302, Midorimachi 2 chome, Musashino, Tokyo, 180 Japan

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

GSC

1994 VB₇, 2, 1, 0; 1998 YR₂₇, 2, 1, 0; [4, 2, 0*, 1999/01/16]

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

1990 QT, 4, 2, 1; 1991 FK, 4, 2, 1; 1992 EC, 2, 1, 0; 1993 XQ₂, 4, 2, 1; 1994 UJ, 2, 1, 0; 1995 DD, 2, 1, 0; 1995 GC₂, 4, 2, 1; 1997 TJ₁₉, 2, 1, 0; 1997 VD₆, 4, 2, 1; 1997 VH₆, 2, 1, 0; 1998 CS₂, 4, 2, 1; 1998 WU₂₃, 2, 1, 0; 1998 WV₂₃, 2, 1, 0; 1998 XQ₄, 2, 1, 0; 1998 YR, 2, 1, 0; 1998 YU, 2, 1, 0; 1998 YW, 2, 1, 0; 1998 YX, 2, 1, 0; 1998 YB₃, 2, 1, 0; 1998 YD₃, 2, 1, 0; 1998 YF₃, 2, 1, 0; 1998 YJ₃, 2, 1, 0; 1998 YK₇, 2, 1, 0; 1998 YV₁₁, 2, 1, 0; 1998 YB₁₂, 2, 1, 0; 1998 YF₁₂, 2, 1, 0; 1999 AR, 2, 1, 0; 1999 AS, 2, 1, 0; 1999 AT, 2, 1, 0; 1999 AU, 2, 1, 0; 1999 AV, 2, 1, 0; 1999 AW, 2, 1, 0; 1999 AX, 2, 1, 0; 1999 AY, 2, 1, 0; 1999 AZ, 2, 1, 0; 1999 AD₂, 2, 1, 0; 1999 AE₂, 2, 1, 0; 1999 AF₂, 2, 1, 0; 1999 AG₂, 6, 3, 21; 1999 AH₂, 2, 1, 0; 1999 AJ₂, 2, 1, 0; 1999 AK₂, 2, 1, 0; 1999 AL₂, 2, 1, 0; 1999 AM₂, 2, 1, 0; 1999 AN₂, 2, 1, 0; 1999 AO₂, 2, 1, 0; 1999 AP₂, 2, 1, 0; 1999 AQ₂, 4, 2, 19; 1999 AR₂, 2, 1, 0; 1999 AS₂, 4, 2, 7; 1999 AT₂, 4, 2, 7; 1999 AU₂, 2, 1, 0; 1999 AP₃, 2, 1, 0; 1999 AQ₃, 2, 1, 0; 1999 AR₃, 4, 2, 9; 1999 AS₃, 2, 1, 0; 1999 AT₃, 2, 1, 0; 1999 AU₃, 2, 1, 0; 1999 AV₃, 2, 1, 0; 1999 AW₃, 2, 1, 0; 1999 AX₃, 2, 1, 0; 1999 AY₃, 2, 1, 0; 1999 AZ₃, 2, 1, 0; 1999 AA₄, 2, 1, 0; 1999 AB₄, 2, 1, 0; 1999 AM₄, 4, 2, 9; 1999 AN₄, 2, 1, 0; 1999 AO₄, 2, 1, 0; 1999 AP₄, 2, 1, 0; 1999 AQ₄, 2, 1, 0; 1999 AR₄, 2, 1, 0; 1999 AS₄, 2, 1, 0; 1999 AT₄, 2, 1, 0; 1999 AV₄, 2, 1, 0; 1999 AW₄, 2, 1, 0; 1999 AX₄, 2, 1, 0; 1999 AA₅, 2, 1, 0; 1999 AB₅, 2, 1, 0; 1999 AC₅, 2, 1, 0; 1999 AN₅, 2, 1, 0; 1999 AO₅, 2, 1, 0; 1999 AP₅, 2, 1, 0; 1999 AQ₅, 2, 1, 0; 1999 AR₅, 2, 1, 0; 1999 AS₅, 2, 1, 0; 1999 AT₅, 2, 1, 0; 1999 AU₅, 2, 1, 0; 1999 AV₅, 2, 1, 0; 1999 AW₅, 2, 1, 0; 1999 AX₅, 2, 1, 0; 1999 AY₅, 2, 1, 0; 1999 AW₇, 2, 1, 0; 1999 AX₇, 2, 1, 0; 1999 AY₇, 2, 1, 0; 1999 AZ₇, 2, 1, 0; 1999 AA₈, 2, 1, 0; 1999 AC₈, 4, 2, 5; 1999 AD₈, 4, 2, 13; 1999 AE₈, 4, 2, 13; 1999 AF₈, 4, 2, 13; 1999 AG₈, 4, 2, 13; 1999 AH₈, 4, 2, 13; 1999 AZ₂₂, 4, 2, 16; 1999 AA₂₃, 2, 1, 0; 1999 AB₂₃, 6, 3, 26; 1999 AE₂₄, 2, 1, 0; 1999 AE₃₄, 4, 2, 1; 1999 BC, 4, 2, 8; 1999 BD, 2, 1, 0; 1999 BE, 5, 2, 8; 1999 BF, 4, 2, 8; 1999 BG, 4, 2, 8; 1999 BH, 4, 2, 8; 1999 BJ, 4, 2, 8; 1999 BK, 4, 2, 8; 1999 BL, 3, 2, 8; 1999 BM, 2, 1, 0; 1999 BO₂, 2, 1, 0; 1999 BP₂, 5, 3, 25; 1999 BQ₂, 6, 3, 25; 1999 BR₂, 4, 2, 13; 1999 BS₂, 6, 3, 25; 1999 BT₂, 4, 2, 12; 1999 BU₂, 4, 2, 9; 1999 BV₂, 4, 2, 9; 1999 BW₂, 4, 2, 12; 1999 BX₂, 4, 2, 13; 1999 BY₂, 6, 3, 25; 1999 BZ₂, 4, 2, 13; 1999 BA₃, 4, 2, 13; 1999 BB₃, 4, 2, 13; 1999 BF₅, 4, 2, 11; 1999 BF₇, 5, 2, 20; 1999 BE₁₂, 5, 2, 7; 1999 BF₁₂, 4, 2, 7; 1999 CB *, 8, 4, 16; 1999 CC *, 8, 4, 16; 1999 CD *, 8, 4, 16; 1999 CE *, 6, 3, 8; 1999 CF *, 8, 4, 16; 1999 CG *, 7, 4, 16; 1999 CH *, 8, 4, 16; 1999 CJ *, 8, 4, 16; 1999 CK *, 8, 4, 16; 1999 CN *, 8, 4, 15; 1999 CO *, 8, 4, 15; 1999 CQ *, 8, 4, 15; 1999 CR *, 8, 4, 15; 1999 CS *, 8, 4, 15; 1999 CT *, 8, 4, 15; 1999 CU *, 8, 4, 15; 1999 CV *, 8, 4, 16; 1999 CW *, 6, 3, 8; 1999 CX *, 6, 3, 8; 1999 CY *, 11, 6, 17; 1999 CZ *, 8, 4, 15; 1999 CF₁ *, 9, 4, 14; 1999 CG₁ *, 10, 5, 15; 1999 CH₁ *, 8, 4, 15; 1999 CJ₁ *, 9, 4, 15; 1999 CM₁ *, 10, 5, 13; 1999 CN₁ *, 8, 4, 14; 1999 CO₁ *, 8, 4, 14; 1999 CP₁ *, 8, 4, 14; 1999 CQ₁ *, 8, 4, 14; 1999 CR₁ *, 9, 4, 14; 1999 CS₁ *, 8, 4, 14; 1999 CT₁ *, 8, 4, 14; 1999 CU₁ *, 4, 2, 1; 1999 CV₁ *, 8, 4, 14; 1999 CW₁ *, 8, 4, 14; 1999 CX₁ *, 8, 4, 14; 1999 CB₂ *, 8, 4, 14; 1999 CC₂ *, 8, 4, 14; 1999 CD₂ *, 6, 3, 8; 1999 CJ₄ *, 9, 4, 13; 1999 CD₅ *, 10, 4, 7; 1999 CJ₅ *, 9, 4, 10; 1999 CL₅ *, 8, 4, 10; 1999 CM₅ *, 8, 4, 10; 1999 CP₅ *, 8, 4, 10; 1999 CQ₅ *, 8, 4, 10; 1999 CR₅ *, 8, 4, 10; 1999 CS₅ *, 8, 4, 10; 1999 CT₅ *, 8, 4, 10; 1999 CU₅ *, 8, 4, 10; 1999 CV₅ *, 8, 4, 10; 1999 CW₅ *, 8, 4, 10; 1999 CH₈ *, 6, 3, 6; 1999 CJ₈ *, 6, 3, 8; 1999 CK₈ *, 6, 3, 8; 1999 CL₈ *, 6, 3, 8; 1999 CM₈ *, 6, 3, 8; 1999 CN₈ *, 6, 3, 8; 1999 CO₈ *, 6, 3, 7; 1999 CP₉ *, 6, 3, 7; 1999 CQ₉ *, 6, 3, 7; 1999 CG₁₀ *, 6, 3, 6; 1999 CH₁₀ *, 6, 3, 6; 1999 CJ₁₀ *, 6, 3, 6; 1999 CK₁₀ *, 6, 3, 6; 1999 DG₂ *, 6, 3, 3; 1999 DH₂ *, 6, 3, 3; 1999 DJ₂ *, 6, 3, 4; 1999 DK₂ *, 6, 3, 4; 1999 DL₂ *, 6, 3, 3; 1999 DM₂ *, 6, 3, 4; 1999 DN₂ *, 6, 3, 3; 1999 DO₂ *, 6, 3, 4; 1999 DP₂ *, 6, 3, 3; 1999 DQ₂ *, 6, 3, 3; 1999 DR₂ *, 6, 3, 3; 1999 DU₂ *, 6, 3, 2; 1999 DZ₂ *, 6, 3, 2; 1999 DA₃ *, 6, 3, 2; 1999 DB₃ *, 6, 3, 2; 1999 DC₃ *, 6, 3, 2; 4217 T-3, 4, 2, 1; [986, 220, 83*, 1999/01/09–1999/02/23]

413 Siding Spring

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

D. J. Asher, Armagh Observatory, College Hill, Armagh, BT61 9DG, U.K.

[dja@star.arm.ac.uk] (7)

Observers K. S. Russell, M. Hartley, A. Savage

Measurers G. V. Williams, D. J. Asher

1.2-m U.K. Schmidt

(6) 1998 VA₃₂, 2, 1, 0; [2, 1, 0*, 1979/05/20]

(7) 1991 RL₇, 2, 1, 0; 1993 DD₂, 4, 2, 1; 1998 QV₁₀₂, 4, 2, 1; 1998 TU₃, 4, 2, 1; (491), 1, 1, 0; (2321), 4, 2, 1; (7355), 4, 2, 1; (8214), 2, 1, 0; [25, 8, 0*, 1982/12/04–1987/05/10]

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, USNO-A2.0

1998 YQ₁₁, 3, 1, 0; 1999 BM₁₃, 4, 1, 0; 1999 CV₃, 5, 1, 0; 1999 CF₄, 4, 1, 0; 1999 CV₈, 10, 3, 2; 1999 CW₈, 7, 2, 1; 1999 CA₉, 6, 2, 1; 1999 CB₉, 3, 1, 0; 1999 CE₉, 11, 3, 2; 1999 CF₉, 10, 3, 2; 1999 CG₉, 2, 1, 0; 1999 CZ₁₃, 6, 2, 1; (9969), 2, 1, 0; [73, 13, 0*, 1999/02/11–1999/02/16]

423 North Ryde

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

[mcandrew@trinity.nsw.edu.au]

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

GSC

1981 YG, 6, 2, 1; 1985 HS₁, 6, 3, 9; 1999 BE₂, 4, 2, 6; (5378), 7, 4, 14; (5670), 4, 2, 1; [27, 5, 0*, 1999/02/05–1999/02/20]

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, GSC

1969 TQ₁, 5, 2, 2; 1981 FL, 6, 2, 2; 1997 PQ, 5, 2, 2; 1997 SE₃, 6, 2, 1; 1997 UQ₁₀, 5, 2, 1; 1997 UV₁₀, 6, 2, 2; 1997 UV₁₄, 6, 2, 1; 1998 WA₂₀, 5, 2, 6; 1998 XW₉, 5, 2, 2; 1998 XS₁₆, 3, 1, 0; 1998 XU₁₇, 5, 2, 6; 1998 YJ₄, 6, 2, 6; 1998 YO₈, 2, 1, 0; 1998 YP₁₁, 3, 1, 0; 1998 YQ₁₁, 3, 1, 0; 1999 AN₂₀, 4, 2, 2; 1999 AY₂₂, 9, 3, 19; 1999 BE₈, 3, 1, 0; 1999 BM₉, 5, 2, 5; 1999 BN₉, 5, 2, 1; 1999 BQ₁₄, 6, 2, 5; 1999 BR₁₄, 6, 2, 1; 1999 CS₃, 4, 1, 0; 1999 CV₃, 7, 2, 4; 1999 CE₄ *, 11, 4, 7; 1999 CF₄ *, 8, 3, 6; 1999 CG₄ *, 8, 3, 6; 1999 CH₄ *, 8, 3, 6; 1999 CV₈, 3, 1, 0; 1999 CW₈, 3, 1, 0; 1999 CE₉, 3, 1, 0; 1999 CF₉, 3, 1, 0; 1999 CZ₁₃, 3, 1, 0; (2748), 8, 3, 7; (9969), 4, 1, 0; [182, 35, 4*, 1999/01/22–1999/02/16]

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

1998 AM₁₀, 4, 2, 3; 1998 BS₁₃, 4, 2, 3; 1998 TU₃, 2, 1, 0; 1998 TQ₆, 2, 1, 0; 1998 VK₃₂, 2, 1, 0; 1998 WJ₈, 2, 1, 0; 1998 XA₅, 6, 3, 8; 1998 YP₇, 2, 1, 0; 1998 YP₁₁, 3, 1, 0; 1998 YQ₁₁, 4, 1, 0; 1999 AN₁₀, 2, 1, 0; 1999 BO₉, 12, 5, 13; 1999 CW₇, 2, 1, 0; 1999 CC₉ *, 8, 4, 7; 1999 CF₉, 4, 1, 0; 1999 CU₉ *, 7, 4, 8; 1999 CV₉ *, 10, 4, 8; 1999 CZ₁₃, 4, 2, 2; 1999 DE₂ *, 7, 4, 6; 1999 DF₂ *, 8, 4, 6; (1863), 2, 1, 0; (5732), 4, 2, 14; [101, 22, 5*, 1999/01/29–1999/02/23]

429 Hawker

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

[jbchild@dynamite.com.au]

0.32-m $f/4.8$ reflector + CCD

GSC-1.1

1995 CN, 2, 1, 0; 1998 MK₃₀, 2, 1, 0; (9984), 5, 2, 19; [9, 3, 0*, 1998/10/14–1999/02/05]

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

1998 XC₉, 2, 1, 0; 1999 CN₁₀ *, 5, 2, 3; 1999 CL₁₂ *, 8, 3, 6; (7480), 2, 1, 0; (7484), 2, 1, 0; [19, 5, 2*, 1999/02/06–1999/02/19]

493 Calar Alto

F. Lahulla, OAN Alfonso XII 3, E-28014 Madrid, Spain [Lahulla@nexo.es]

Observer F. Lahulla

Measurer A. Erikson

1.23-m reflector + CCD

GSC

(6687), 6, 6, 5; [6, 1, 0*, 1998/07/15–1998/07/20]

504 Le Creusot

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

[merlin@obspm.fr]

0.40-m $f/5.1$ reflector + CCD

GSC

1998 XZ₈, 2, 1, 0; [2, 1, 0*, 1999/02/13]

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, 3, 1, 0; 1999 BJ₈, 4, 1, 0; 1999 CV₃, 4, 1, 0; [11, 3, 0*, 1999/02/15]

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

1995 CL₁, 2, 1, 0; 1996 NS, 2, 1, 0; 1996 PF₅, 2, 1, 0; 1998 YQ₃, 4, 2, 2; 1998 YX₃, 4, 2, 2; 1998 YM₆, 7, 3, 24; 1999 BP₉, 3, 1, 0; 1999 CU₂ *, 7, 3, 7; 1999 CE₁₈, 2, 1, 0; 1999 CL₂₄, 7, 2, 3; 1999 CR₆₆, 2, 1, 0; (9958), 6, 2, 2; [48, 12, 1*, 1999/01/13–1999/02/23]

557 Ondřejov

P. Pravec, Astronomical Institute, Czech Academy of Sciences, CZ-25165 Ondřejov,

Czech Republic [ppravec@asu.cas.cz]

Observers P. Pravec, L. Šarounová

0.65-m $f/3.6$ reflector + CCD

USNO-SA1.0, GSC

1991 PG₅, 2, 1, 0; 1992 SK, 3, 1, 0; 1993 TG₁₉, 2, 1, 0; 1995 EA₈, 2, 1, 0; 1996 ER, 4, 1, 0; 1996 HQ, 4, 2, 1; 1996 HH₂₁, 2, 1, 0; 1997 PM₄, 4, 2, 6; 1997 QD₁, 6, 2, 1; 1997 RA₉, 2, 1, 0; 1997 SC₂, 2, 1, 0; 1997 SE₂, 4, 2, 6; 1997 SP₂₅, 4, 2, 30; 1997 TW₉, 3, 1, 0; 1997 TZ₉, 4, 2, 12; 1997 TG₁₀, 3, 1, 0; 1997 TJ₁₀, 4, 2, 1; 1997 TO₁₉, 2, 1, 0; 1997 UX₇, 3, 1, 0; 1997 UN₉, 8, 3, 42; 1997 UP₁₂, 3, 1, 0; 1997 VV₂, 4, 2, 5; 1997 VH₆, 2, 1, 0; 1997 VP₆, 3, 1, 0; 1997 WX, 3, 1, 0; 1997 XY₉, 3, 1, 0; 1998 DS₁, 3, 1, 0; 1998 FR₄₄, 3, 1, 0; 1998 HH₅, 2, 1, 0; 1998 HN₈₃, 2, 1, 0; 1998 HT₁₅₀, 3, 1, 0; 1998 QS₃₉, 2, 1, 0; 1998 RX₅₇, 4, 1, 0; 1998 RJ₆₆, 4, 1, 0; 1998 SA₁₃, 5, 2, 1; 1998 SR₄₉, 3, 1, 0; 1998 WX₅, 2, 1, 0; 1998 WC₁₇, 2, 1, 0; 1998 XK₃, 2, 1, 0; 1998 XJ₉, 5, 2, 4; 1998 XO₁₂, 2, 1, 0; 1998 XZ₁₆, 2, 1, 0; 1998 YH₁₂, 2, 1, 0; 1998 YJ₁₂, 2, 1, 0; 1999 AN, 5, 2, 8; 1999 AK₇, 4, 1, 0; 1999 AF₁₉, 3, 1, 0; 1999 BZ₅, 3, 1, 0; 1999 BJ₈, 4, 1, 0; 1999 CC₁, 3, 1, 0; 1999 CF₂ *, 10, 4, 8; 1999 CV₂ *, 4, 2, 1; 1999 CD₃ *, 6, 2, 1; 1999 CE₃ *, 9, 3, 6; 1999 CN₃ *, 10, 4, 7; 1999 CR₃, 7, 2, 1; 1999 CS₃, 7, 2, 1; 1999 CT₃, 7, 2, 1; 1999 CU₃, 6, 2, 1; 1999 CV₃, 9, 2, 1; 1999 CX₃ *, 14, 4, 12; 1999 CW₇, 3, 1, 0; 1999 CT₈, 3, 2, 1; 1999 CU₈, 6, 2, 1; 1999 CV₈, 4, 1, 0; 1999 CE₉, 3, 1, 0; 1999 CF₉, 3, 1, 0; 1999 CG₉, 4, 1, 0; 1999 CR₉ *, 8, 3, 9; 1999 CS₉ *, 5, 2, 4; 1999 CT₉ *, 6, 2, 4; 1999 CZ₁₃, 4, 2, 2; 1999 CC₃₂, 3, 1, 0; 1999 CX₄₀, 4, 2, 12; 1999 CN₅₁, 6, 2, 2; 1999 CJ₆₁, 4, 1, 0; 1999 CK₆₉, 5, 2, 1; 1999 CB₁₀₈, 2, 1, 0; 1999 CR₁₀₉, 7, 3, 3; 1999 CP₁₁₈ *, 6, 2, 5; 1999 DB₂, 6, 2, 2; 1999 DC₂, 3, 1, 0; 1999 DD₂, 3, 1, 0; 1999 DY₂,

1999 MAR. 2

M.P.C. 33837

7, 3, 4; 1999 DJ₃, 4, 1, 0; 1999 DK₃, 10, 3, 4; 1999 DK₄ *, 5, 2, 5; (1095), 2, 1, 0; (1866), 3, 1, 0; (6338), 2, 1, 0; (7137), 4, 2, 6; [382, 91, 11*, 1995/04/08–1999/02/23]

560 Madonna di Dossobuono

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

[astrofil@astbo1.bo.cnr.it]

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

0.40-m $f/3.5$ reflector + CCD

GSC

1978 RR₈, 7, 2, 4; 1990 QM₄, 3, 1, 0; 1995 BU₂, 3, 1, 0; 1997 PF₄, 3, 1, 0; 1997 ST₄, 6, 2, 19; 1998 WO₅, 3, 1, 0; [25, 6, 0*, 1998/12/07–1999/02/11]

561 Piskéttető

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-A1.0, USNO-A2.0

A908 SA, 3, 1, 0; 1951 SY, 3, 1, 0; 1968 OK, 3, 1, 0; 1969 TQ₁, 3, 1, 0; 1970 OF, 3, 1, 0; 1971 QO₁, 5, 1, 0; 1971 UD₁, 3, 1, 0; 1972 TC, 3, 1, 0; 1974 PC, 4, 1, 0; 1974 QF₁, 3, 1, 0; 1975 SR, 3, 1, 0; 1975 ST, 2, 1, 0; 1975 SM₁, 3, 1, 0; 1975 TQ₃, 3, 1, 0; 1984 LK, 3, 1, 0; 1987 QG₆, 3, 1, 0; 1988 JB₁, 3, 1, 0; 1988 RF₁₃, 9, 3, 3; 1991 PO₄, 6, 2, 3; 1992 DA₆, 6, 2, 1; 1992 GV₃, 6, 2, 1; 1992 OY₇, 8, 3, 3; 1992 SK₄, 1, 0; 1993 FP₇₃, 9, 3, 3; 1995 BL₂, 5, 1, 0; 1996 CY, 5, 2, 1; 1997 RY₈, 6, 2, 1; 1997 WS₃₂, 9, 3, 3; 1998 SR₄₉, 3, 1, 0; 1998 ST₄₉, 3, 1, 0; 1998 UP₆, 8, 3, 3; 1998 UW₁₉, 7, 3, 3; 1998 UM₃₂, 9, 3, 3; 1998 WY₆, 3, 1, 0; 6059 P-L, 6, 2, 1; 4157 T-3, 13, 4, 5; (1627), 8, 3, 3; (1812), 3, 1, 0; (5329), 3, 1, 0; (6922), 3, 1, 0; (7785), 3, 1, 0; [198, 41, 0*, 1999/01/17–1999/01/23]

565 Bassano Bresciano

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Observers U. Quadri, L. Strabla

0.40-m $f/2.5$ Schmidt + CCD

GSC

(3849), 2, 1, 0; (7215), 2, 1, 0; [4, 2, 0*, 1999/02/11]

566 Haleakala-NEAT/GEODSS

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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

1970 OF, 3, 1, 0; 1972 TE, 3, 1, 0; 1977 XZ₂, 6, 1, 0; 1979 KD, 3, 1, 0; 1979 MK₇, 3, 1, 0; 1979 WX₃, 3, 1, 0; 1980 FX₃, 3, 1, 0; 1981 EN₂₁, 3, 1, 0; 1981 ED₄₃, 3, 1, 0; 1982 FJ₃, 3, 1, 0; 1986 PM, 3, 1, 0; 1986 TR₁₁, 3, 1, 0; 1987 SQ₁₇, 9, 2, 1; 1988 BX₃, 3, 1, 0; 1988 EC, 3, 1, 0; 1988 FB, 3, 1, 0; 1988 FE, 3, 1, 0; 1988 RV₄, 3, 1, 0; 1988 RN₁₁, 3, 1, 0; 1988 TT, 3, 1, 0; 1988 VE₁, 3, 1, 0; 1989 CB₈, 3, 1, 0; 1989 SX, 3, 1, 0; 1989 SW₈, 3, 1, 0; 1989 TU₃, 3, 1, 0; 1989 VS₁, 3, 1, 0; 1990 QW, 3, 1, 0; 1990 QK₃, 3, 1, 0; 1990 QF₅, 6, 1, 0; 1990 QP₁₀, 3, 1, 0; 1990 SA₃, 3, 1, 0; 1990 SG₃, 3, 1, 0; 1990 UQ₂, 3, 1, 0; 1991 DK, 3, 1, 0; 1991 FZ, 3, 1, 0; 1991 PT₁₁, 3, 1, 0; 1991 PJ₁₂, 3, 1, 0; 1991 PP₁₃, 3, 1, 0; 1991 SN, 3, 1, 0; 1991 SC₁, 3, 1, 0; 1991 VX₂, 3, 1, 0; 1991 VB₉, 3, 1, 0; 1991 XH₁, 3, 1, 0; 1991 YX, 3, 1, 0; 1992 AQ, 3, 1, 0; 1992 BJ, 3, 1, 0; 1992 BM₂, 3, 1, 0; 1992 CK, 3, 1, 0; 1992 DL₄, 3, 1, 0; 1992 EP₁₀, 3, 1, 0; 1992 ED₁₃, 3, 1, 0; 1992 EM₁₇, 3, 1, 0; 1992 GV₃, 3, 1, 0; 1992 HM, 3, 1, 0; 1992 UK₁, 3, 1, 0; 1993 FE₂₃, 3, 1, 0; 1993 HG₁, 3, 1, 0; 1993 KO, 9, 1, 0; 1993 LZ₁, 3, 1, 0; 1993 OB, 3, 1, 0; 1993 PV₆, 3, 1, 0; 1993 PC₇, 3, 1, 0; 1993 RO₇, 3, 1, 0; 1993 RM₁₄, 3, 1, 0; 1993 SN₃, 6, 1, 0; 1993 ST₄, 3, 1, 0; 1993 SA₆, 3, 1, 0; 1993 SO₁₄, 3, 1, 0; 1993 TP₃₈, 3, 1, 0; 1993 TZ₃₈, 3, 1, 0; 1993 US, 6, 2, 1; 1993 UC₃, 3, 1, 0; 1993 VE, 3, 1, 0; 1994 SV₉, 3, 1, 0; 1994 UD₂, 3, 1, 0; 1994 UR₆, 6, 2, 1; 1994 VB₂, 3, 1, 0; 1994 VZ₂, 3, 1, 0; 1994 XK, 3, 1, 0; 1994 XS₄, 3, 1, 0; 1994 YQ₁, 3, 1, 0; 1994 YT₁, 3, 1, 0; 1995 AV₂, 3, 1, 0; 1995 BY, 3, 1, 0; 1995 CB₁, 6, 2, 1; 1995 DA₁, 3, 1, 0; 1995 FW₁₉, 3, 1, 0; 1995 GJ₇, 3, 1, 0; 1995 WL₄₂, 3, 1, 0; 1996 AY₃, 6,

1, 0; 1996 CZ₂, 3, 1, 0; 1996 DD, 3, 1, 0; 1996 DZ, 3, 1, 0; 1996 DH₂, 3, 1, 0; 1996 EW, 3, 1, 0; 1996 EB₁, 6, 2, 5; 1996 EJ₁, 3, 1, 0; 1996 EX₁, 3, 1, 0; 1996 ED₂, 3, 1, 0; 1996 EE₂, 3, 1, 0; 1996 ED₄, 3, 1, 0; 1996 FP₃, 3, 1, 0; 1996 FR₃, 6, 2, 4; 1996 FJ₅, 3, 1, 0; 1996 FJ₉, 3, 1, 0; 1996 GZ₂, 3, 1, 0; 1996 GU₈, 3, 1, 0; 1996 GA₁₈, 3, 1, 0; 1996 GO₁₈, 3, 1, 0; 1996 HP₁, 6, 2, 1; 1996 HC₁₉, 3, 1, 0; 1996 HN₂₄, 3, 1, 0; 1996 JN, 3, 1, 0; 1996 NN₄, 3, 1, 0; 1996 PJ₅, 3, 1, 0; 1996 SK, 2, 1, 0; 1997 MC₃, 3, 1, 0; 1997 PC₂, 3, 1, 0; 1997 RR₃, 3, 1, 0; 1997 RF₈, 3, 1, 0; 1997 SG₁, 3, 1, 0; 1997 SL₁, 3, 1, 0; 1997 SJ₂₃, 3, 1, 0; 1997 SN₃₁, 3, 1, 0; 1997 TO₁₉, 3, 1, 0; 1997 UB₁, 3, 1, 0; 1997 VQ₁, 3, 1, 0; 1997 VY₁, 3, 1, 0; 1997 VN₃, 3, 1, 0; 1997 VD₄, 3, 1, 0; 1997 WP₁₄, 3, 1, 0; 1997 WZ₂₉, 3, 1, 0; 1997 WB₃₇, 3, 1, 0; 1997 WP₄₄, 3, 1, 0; 1997 YL₁, 3, 1, 0; 1998 QJ₃₇, 3, 1, 0; 1998 QS₅₅, 6, 2, 1; 1998 QF₇₀, 6, 1, 0; 1998 RK₆, 3, 1, 0; 1998 RC₅₈, 3, 1, 0; 1998 RL₅₉, 3, 1, 0; 1998 RA₆₈, 3, 1, 0; 1998 RV₇₇, 6, 1, 0; 1998 SX₇, 3, 1, 0; 1998 SV₂₆, 3, 1, 0; 1998 SB₃₂, 3, 1, 0; 1998 SW₃₂, 3, 1, 0; 1998 SR₄₃, 12, 3, 5; 1998 SR₇₀, 6, 2, 1; 1998 SR₁₁₁, 3, 1, 0; 1998 SK₁₁₉, 3, 1, 0; 1998 ST₁₂₃, 3, 1, 0; 1998 SW₁₄₅, 6, 1, 0; 1998 UF₃₇, 3, 1, 0; 1998 VF₃₃, 9, 2, 1; 1998 WM₇, 6, 2, 4; 1998 WU₂₃, 3, 1, 0; 1998 WV₂₃, 3, 1, 0; 1998 XH₂₀, 3, 1, 0; 1998 XF₄₄, 3, 1, 0; 1998 XV₄₄, 3, 1, 0; 1998 XH₉₆, 3, 1, 0; 1998 YA₂, 3, 1, 0; 1998 YS₂, 3, 1, 0; 1998 YT₂, 3, 1, 0; 1998 YL₄, 3, 1, 0; 1998 YN₆, 3, 1, 0; 1998 YB₁₂, 3, 1, 0; 1998 YQ₁₂, 3, 1, 0; 1998 YR₂₉, 3, 1, 0; 1999 AK, 3, 1, 0; 1999 AE₂, 3, 1, 0; 1999 AG₂, 3, 1, 0; 1999 AL₂, 3, 1, 0; 1999 AO₂, 3, 1, 0; 1999 AR₃, 3, 1, 0; 1999 AS₃, 3, 1, 0; 1999 AU₃, 3, 1, 0; 1999 AW₃, 3, 1, 0; 1999 AZ₃, 3, 1, 0; 1999 AO₄, 3, 1, 0; 1999 AS₄, 3, 1, 0; 1999 AV₄, 3, 1, 0; 1999 AO₅, 3, 1, 0; 1999 AP₅, 6, 2, 1038; 1999 AR₅, 3, 1, 0; 1999 AS₅, 3, 1, 0; 1999 AT₅, 3, 1, 0; 1999 AD₆, 3, 1, 0; 1999 AD₈, 3, 1, 0; 1999 AF₈, 6, 1, 0; 1999 AA₁₀, 3, 1, 0; 1999 AV₁₁, 3, 1, 0; 1999 AW₁₆, 3, 1, 0; 1999 AH₁₈, 3, 1, 0; 1999 AF₁₉, 3, 1, 0; 1999 AR₂₁, 3, 1, 0; 1999 AU₂₁, 3, 1, 0; 1999 AV₂₁, 3, 1, 0; 1999 AW₂₁, 6, 2, 1; 1999 AX₂₁, 3, 1, 0; 1999 AQ₂₂, 3, 1, 0; 1999 AT₂₂, 3, 1, 0; 1999 AZ₂₂, 3, 1, 0; 1999 AA₂₃, 3, 1, 0; 1999 AB₂₄, 3, 1, 0; 1999 AE₂₄, 3, 1, 0; 1999 AM₂₄, 3, 1, 0; 1999 AN₂₅, 3, 1, 0; 1999 AG₃₄, 3, 1, 0; 1999 AJ₃₄, 3, 1, 0; 1999 BE₃, 3, 1, 0; 1999 BF₃, 3, 1, 0; 1999 BH₃, 3, 1, 0; 1999 BE₁, 3, 1, 0; 1999 BR₂, 3, 1, 0; 1999 BY₂, 3, 1, 0; 1999 BA₃, 3, 1, 0; 1999 BB₃, 3, 1, 0; 1999 BL₄, 3, 1, 0; 1999 BM₄, 3, 1, 0; 1999 BO₅, 3, 1, 0; 1999 BQ₅, 3, 1, 0; 1999 BV₆, 3, 1, 0; 1999 BE₇, 3, 1, 0; 1999 BK₇, 3, 1, 0; 1999 BX₈, 3, 1, 0; 1999 BZ₈, 3, 1, 0; 1999 BC₉, 3, 1, 0; 1999 BO₉, 3, 1, 0; 1999 BT₉, 3, 1, 0; 1999 BP₁₂, 3, 1, 0; 1999 BQ₁₂, 3, 1, 0; 1999 BU₁₂, 3, 1, 0; 1999 BZ₁₄, 3, 1, 0; 1999 BD₁₅, 3, 1, 0; 1999 BQ₂₄, 3, 1, 0; 1999 BD₂₆, 3, 1, 0; 1999 BK₂₉, 3, 1, 0; 1999 CC₃, 1, 0; 1999 CG₆, 6, 1, 0; 1999 CG₁, 3, 1, 0; 1999 CJ₁, 3, 1, 0; 1999 CT₁, 3, 1, 0; 1999 CA₂, 3, 1, 0; 1999 CB₂, 3, 1, 0; 1999 CE₃, 3, 1, 0; 1999 CU₃, 3, 1, 0; 1999 CY₄, 3, 1, 0; 1999 CN₅, 3, 1, 0; 1999 CZ₅, 3, 1, 0; 1999 CD₆, 3, 1, 0; 1999 CM₆, 6, 2, 1; 1999 CN₆, 3, 1, 0; 1999 CP₆, 3, 1, 0; 1999 CT₆, 3, 1, 0; 1999 CU₆, 3, 1, 0; 1999 CV₆, 3, 1, 0; 1999 CG₇, 3, 1, 0; 1999 CT₇, 3, 1, 0; 1999 CY₇, 6, 2, 1; 1999 CZ₇, 3, 1, 0; 1999 CB₈, 3, 1, 0; 1999 CD₈, 3, 1, 0; 1999 CG₈, 3, 1, 0; 1999 CO₈, 3, 1, 0; 1999 CQ₈, 3, 1, 0; 1999 CZ₈, 3, 1, 0; 1999 CM₁₀, 3, 1, 0; 1999 CN₁₀, 3, 1, 0; 1999 CO₁₂, 3, 1, 0; 1999 CU₁₂, 3, 1, 0; 1999 CV₁₂, 3, 1, 0; 1999 CO₁₆, 3, 1, 0; 1999 CQ₁₆, 3, 1, 0; 1999 CT₁₆, 3, 1, 0; 1999 CY₁₇, 3, 1, 0; 1999 CJ₁₈, 3, 1, 0; 1999 CA₁₉, 3, 1, 0; 1999 CC₁₉, 3, 1, 0; 1999 CH₁₉, 3, 1, 0; 1999 CQ₁₉, 3, 1, 0; 1999 CV₁₉, 3, 1, 0; 1999 CW₁₉, 3, 1, 0; 1999 CX₁₉, 3, 1, 0; 1999 CY₁₉, 3, 1, 0; 1999 CU₂₀, 3, 1, 0; 1999 CV₂₀, 3, 1, 0; 1999 CW₂₀, 3, 1, 0; 1999 CG₂₁, 3, 1, 0; 1999 CH₂₁, 3, 1, 0; 1999 CJ₂₁, 3, 1, 0; 1999 CR₂₂, 3, 1, 0; 1999 CO₂₄, 3, 1, 0; 1999 CQ₂₄, 3, 1, 0; 1999 CZ₂₄, 3, 1, 0; 1999 CU₂₅, 3, 1, 0; 1999 CU₂₅, 3, 1, 0; 1999 CV₂₅, 3, 1, 0; 1999 CX₂₅, 3, 1, 0; 1999 CY₂₅, 3, 1, 0; 1999 CR₂₆, 3, 1, 0; 1999 CS₂₆, 3, 1, 0; 1999 CT₂₆, 3, 1, 0; 1999 CE₂₇, 3, 1, 0; 1999 CJ₂₇, 3, 1, 0; 1999 CM₂₇, 3, 1, 0; 1999 CN₂₇, 3, 1, 0; 1999 CS₂₇, 3, 1, 0; 1999 CZ₂₇, 3, 1, 0; 1999 CK₂₈, 3, 1, 0; 1999 CO₂₈, 3, 1, 0; 1999 CP₂₈, 3, 1, 0; 1999 CR₂₈, 3, 1, 0; 1999 CT₂₈, 3, 1, 0; 1999 CU₂₈, 3, 1, 0; 1999 CV₂₈, 3, 1, 0; 1999 CS₃₀, 3, 1, 0; 1999 CD₃₁, 3, 1, 0; 1999 CE₃₁, 3, 1, 0; 1999 CJ₃₁, 3, 1, 0; 1999 CK₃₁, 3, 1, 0; 1999 CO₃₁, 3, 1, 0; 1999 CP₃₁, 3, 1, 0; 1999 CJ₃₂, 3, 1, 0; 1999 CK₃₂, 3, 1, 0; 1999 CM₃₂, 3, 1, 0; 1999 CN₃₂, 3, 1, 0; 1999 CO₃₂, 3, 1, 0; 1999 CQ₃₂, 3, 1, 0; 1999 CF₃₅, 3, 1, 0; 1999 CG₃₅, 3, 1, 0; 1999 CJ₃₅, 3, 1, 0; 1999 CN₃₅, 3, 1, 0; 1999 CP₃₅, 3, 1, 0; 1999 CB₃₆, 3, 1, 0; 1999 CC₃₆, 3, 1, 0; 1999 CE₃₆, 3, 1, 0; 1999 CL₃₆, 3, 1, 0; 1999 CH₄₀, 6, 1, 0; 1999 CJ₄₀, 3, 1, 0; 1999 CM₄₀, 6, 1, 0; 1999 CO₄₀, 3, 1, 0; 1999 CQ₄₀, 6, 2, 5; 1999 CT₄₀, 3, 1, 0; 1999 CB₄₂, 3, 1, 0; 1999 CD₄₂, 3, 1, 0; 1999 CE₄₂, 3, 1, 0; 1999 CF₄₂, 3, 1, 0; 1999 CG₄₂, 3, 1, 0; 1999 CJ₄₂, 3, 1, 0; 1999 CK₄₂, 3, 1, 0; 1999 CL₄₂, 3, 1, 0; 1999 CM₄₂, 3, 1, 0; 1999 CN₄₂, 3, 1, 0; 1999 CT₄₂, 3, 1, 0; 1999 CV₄₂, 3, 1, 0; 1999 CW₄₂, 3, 1, 0; 1999 CH₄₃, 3, 1, 0; 1999 CK₄₃, 3, 1, 0; 1999 CO₄₃, 3, 1, 0; 1999 CL₄₄, 3, 1, 0; 1999 CZ₄₄, 3, 1, 0; 1999 CA₄₅, 3, 1, 0; 1999 CB₄₅, 3, 1, 0; 1999 CN₄₅, 3, 1, 0; 1999 CS₄₅, 3, 1, 0; 1999 CZ₄₆, 3, 1, 0; 1999 CG₄₉, 3, 1, 0; 1999 CK₄₉, 3, 1, 0; 1999 CL₄₉, 3, 1, 0; 1999 CM₄₉, 3, 1, 0; 1999 CN₄₉, 3, 1, 0; 1999 CO₄₉, 3, 1, 0; 1999 CR₄₉, 3, 1, 0; 1999 CS₄₉, 3, 1, 0; 1999 CT₄₉, 3, 1, 0; 1999 CX₄₉, 3, 1, 0; 1999 CR₅₁, 3, 1, 0; 1999 CE₅₂, 3, 1, 0; 1999 CQ₅₃, 3, 1, 0; 1999 CR₅₃, 3, 1, 0; 1999 CY₅₃, 3, 1, 0; 1999 CC₅₄, 3, 1, 0; 1999 CD₅₄, 3, 1, 0; 1999 CE₅₄, 3, 1, 0; 1999 CH₅₄, 3, 1, 0; 1999 CO₅₄, 3, 1, 0; 1999 CP₅₄, 3, 1, 0; 1999 CV₅₄, 3, 1, 0; 1999 CW₅₄, 3, 1, 0; 1999 CX₅₄, 3, 1, 0; 1999 CC₅₅, 3, 1, 0; 1999 CD₅₅, 3, 1, 0; 1999 CE₅₅, 3, 1, 0; 1999 CF₅₅, 3, 1, 0; 1999 CG₅₅, 3, 1, 0; 1999 CH₅₅, 3, 1, 0; 1999 CJ₅₆, 3, 1, 0; 1999 CK₆₁, 3, 1, 0; 1999 CD₆₁, 3, 1, 0; 1999 CE₆₁, 3, 1, 0; 1999 CF₆₁, 3, 1, 0; 1999 CG₆₁, 3, 1, 0; 1999 CH₆₁, 3, 1, 0; 1999 CZ₆₁, 3, 1, 0; 1999 CA₆₂, 3, 1, 0; 1999 CB₆₂, 3, 1, 0; 1999 CV₆₃, 3, 1, 0; 1999 CX₆₃, 3, 1, 0; 1999 CT₆₄, 3, 1, 0; 1999 CU₆₄, 3, 1, 0; 1999 CA₆₅, 3, 1, 0; 1999 CC₆₅, 3, 1, 0; 1999 CH₆₅, 3, 1, 0; 1999 CF₆₅, 3, 1, 0; 1999 CG₆₅, 3, 1, 0; 1999 CV₆₅, 3, 1, 0; 1999 CW₆₅, 3, 1, 0; 1999 CF₆₆, 3, 1, 0; 1999 CK₆₆, 3, 1, 0; 1999 CL₆₆, 3, 1, 0; 1999 CM₆₆, 3, 1, 0; 1999 CA₆₇, 3, 1, 0; 1999 CN₆₇, 3, 1, 0; 1999 CW₆₇, 3, 1, 0; 1999 CC₆₉, 3, 1, 0; 1999 CX₇₂, 3, 1, 0; 1999 CA₇₃, 3, 1, 0; 1999 CB₇₃, 3,

1, 0; 1999 CK₇₄, 3, 1, 0; 1999 CM₇₄, 3, 1, 0; 1999 CR₇₄, 3, 1, 0; 1999 CY₇₄, 3, 1, 0; 1999 CX₇₅, 3, 1, 0; 1999 CY₇₅, 3, 1, 0; 1999 CA₇₆, 3, 1, 0; 1999 CC₇₆, 3, 1, 0; 1999 CK₇₆, 3, 1, 0; 1999 CU₈₀, 3, 1, 0; 1999 CZ₈₀, 3, 1, 0; 1999 CG₈₁, 3, 1, 0; 1999 CQ₈₁, 3, 1, 0; 1999 CM₈₂, 3, 1, 0; 1999 CF₈₂, 3, 1, 0; 1999 CQ₈₂, 3, 1, 0; 1999 CR₈₅, 3, 1, 0; 1999 CW₈₅, 3, 1, 0; 1999 CF₈₆, 3, 1, 0; 1999 CG₈₆, 3, 1, 0; 1999 CJ₈₆, 3, 1, 0; 1999 CL₈₆, 3, 1, 0; 1999 CO₈₆, 3, 1, 0; 1999 CK₈₇, 3, 1, 0; 1999 CV₈₉, 3, 1, 0; 1999 CB₉₀, 3, 1, 0; 1999 CM₉₀, 3, 1, 0; 1999 CF₉₁, 3, 1, 0; 1999 CJ₉₁, 3, 1, 0; 1999 CK₉₁, 3, 1, 0; 1999 CO₉₁, 3, 1, 0; 1999 CC₉₂, 3, 1, 0; 1999 CE₉₂, 3, 1, 0; 1999 CT₉₂, 3, 1, 0; 1999 CU₉₂, 3, 1, 0; 1999 CD₉₄, 3, 1, 0; 1999 CH₉₄, 3, 1, 0; 1999 CQ₉₄, 3, 1, 0; 1999 CV₉₆, 3, 1, 0; 1999 CX₉₆, 3, 1, 0; 1999 CA₉₇, 3, 1, 0; 1999 CB₉₇, 3, 1, 0; 1999 CC₉₇, 3, 1, 0; 1999 CD₉₇, 3, 1, 0; 1999 CE₉₇, 3, 1, 0; 1999 CF₉₇, 3, 1, 0; 1999 CJ₉₇, 3, 1, 0; 1999 CK₉₇, 3, 1, 0; 1999 CZ₉₇, 3, 1, 0; 1999 CV₉₈, 3, 1, 0; 1999 CU₉₉, 3, 1, 0; 1999 CG₁₀₀, 3, 1, 0; 1999 CH₁₀₀, 3, 1, 0; 1999 CJ₁₀₀, 3, 1, 0; 1999 CK₁₀₀, 3, 1, 0; 1999 CL₁₀₀, 3, 1, 0; 1999 CA₁₀₁, 3, 1, 0; 1999 CB₁₀₁, 3, 1, 0; 1999 CA₁₀₂, 3, 1, 0; 1999 CB₁₀₃, 3, 1, 0; 1999 CG₁₀₃, 3, 1, 0; 1999 CA₁₀₄, 3, 1, 0; 1999 CQ₁₀₄, 3, 1, 0; 1999 CM₁₀₅, 3, 1, 0; 1999 CM₁₀₇, 3, 1, 0; 1999 CP₁₀₇, 3, 1, 0; 1999 CY₁₀₇, 3, 1, 0; 1999 CC₁₀₈, 3, 1, 0; 1999 CK₁₀₉, 3, 1, 0; 1999 CE₁₁₂, 3, 1, 0; 1999 CO₁₁₂, 3, 1, 0; 1999 CX₁₁₂, 3, 1, 0; 1999 CY₁₁₂, 3, 1, 0; 1999 CE₁₁₄, 3, 1, 0; 1999 CT₁₁₆, 3, 1, 0; 1999 CC₁₁₈, 3, 1, 0; 1999 DW₁, 3, 1, 0; 1999 DB₁ *, 6, 2, 1; 1999 DC₁ *, 6, 2, 1; 1999 DQ₁ *, 6, 2, 1; 1999 DR₁ *, 6, 2, 1; 1999 DS₁ *, 6, 2, 1; 1999 DT₁ *, 6, 2, 1; 1999 DU₁ *, 6, 2, 1; 1999 DV₁ *, 6, 2, 1; 1999 DW₁ *, 6, 2, 1; 1999 DX₁ *, 6, 2, 1; 1999 DY₁ *, 6, 2, 1; 1999 DZ₁ *, 6, 2, 1; 1999 DA₂ *, 6, 2, 1; 2549 P-L, 3, 1, 0; 2808 P-L, 3, 1, 0; 4634 P-L, 3, 1, 0; 4658 P-L, 3, 1, 0; 6062 P-L, 3, 1, 0; 6691 P-L, 3, 1, 0; 9062 P-L, 3, 1, 0; 4290 T-1, 3, 1, 0; 5058 T-2, 3, 1, 0; 2173 T-3, 9, 2, 1; 4050 T-3, 3, 1, 0; 4094 T-3, 3, 1, 0; (68), 3, 1, 0; (77), 3, 1, 0; (89), 3, 1, 0; (94), 3, 1, 0; (109), 3, 1, 0; (196), 3, 1, 0; (220), 3, 1, 0; (274), 3, 1, 0; (291), 3, 1, 0; (294), 3, 1, 0; (309), 3, 1, 0; (323), 3, 1, 0; (340), 3, 1, 0; (349), 3, 1, 0; (357), 3, 1, 0; (382), 3, 1, 0; (421), 3, 1, 0; (430), 3, 1, 0; (447), 3, 1, 0; (510), 3, 1, 0; (515), 3, 1, 0; (590), 3, 1, 0; (620), 3, 1, 0; (739), 3, 1, 0; (891), 3, 1, 0; (894), 3, 1, 0; (909), 3, 1, 0; (937), 3, 1, 0; (949), 3, 1, 0; (996), 3, 1, 0; (1073), 3, 1, 0; (1083), 3, 1, 0; (1097), 3, 1, 0; (1112), 3, 1, 0; (1120), 3, 1, 0; (1121), 3, 1, 0; (1187), 3, 1, 0; (1196), 3, 1, 0; (1242), 3, 1, 0; (1268), 3, 1, 0; (1300), 6, 1, 0; (1332), 3, 1, 0; (1336), 3, 1, 0; (1418), 3, 1, 0; (1556), 3, 1, 0; (1609), 3, 1, 0; (1612), 3, 1, 0; (1699), 3, 1, 0; (1723), 3, 1, 0; (1741), 3, 1, 0; (1774), 3, 1, 0; (1800), 3, 1, 0; (1908), 3, 1, 0; (1948), 3, 1, 0; (1959), 3, 1, 0; (2037), 3, 1, 0; (2064), 3, 1, 0; (2090), 3, 1, 0; (2103), 3, 1, 0; (2195), 3, 1, 0; (2268), 3, 1, 0; (2295), 3, 1, 0; (2314), 3, 1, 0; (2338), 3, 1, 0; (2370), 3, 1, 0; (2413), 3, 1, 0; (2531), 3, 1, 0; (2538), 3, 1, 0; (2592), 3, 1, 0; (2605), 3, 1, 0; (2615), 3, 1, 0; (2732), 3, 1, 0; (2733), 3, 1, 0; (2878), 3, 1, 0; (2889), 3, 1, 0; (2933), 3, 1, 0; (3140), 3, 1, 0; (3199), 3, 1, 0; (3239), 3, 1, 0; (3281), 3, 1, 0; (3295), 3, 1, 0; (3330), 3, 1, 0; (3357), 3, 1, 0; (3414), 3, 1, 0; (3452), 3, 1, 0; (3488), 3, 1, 0; (3501), 3, 1, 0; (3505), 3, 1, 0; (3529), 3, 1, 0; (3594), 3, 1, 0; (3620), 3, 1, 0; (3726), 3, 1, 0; (3921), 3, 1, 0; (3932), 3, 1, 0; (3977), 3, 1, 0; (4016), 3, 1, 0; (4062), 3, 1, 0; (4116), 3, 1, 0; (4186), 3, 1, 0; (4225), 3, 1, 0; (4283), 3, 1, 0; (4342), 3, 1, 0; (4424), 3, 1, 0; (4432), 3, 1, 0; (4563), 3, 1, 0; (4775), 3, 1, 0; (4838), 3, 1, 0; (4879), 3, 1, 0; (4927), 3, 1, 0; (4960), 3, 1, 0; (5018), 3, 1, 0; (5044), 3, 1, 0; (5081), 3, 1, 0; (5096), 3, 1, 0; (5178), 3, 1, 0; (5228), 3, 1, 0; (5248), 3, 1, 0; (5342), 3, 1, 0; (5447), 3, 1, 0; (5449), 3, 1, 0; (5454), 3, 1, 0; (5457), 3, 1, 0; (5575), 3, 1, 0; (5583), 3, 1, 0; (5667), 3, 1, 0; (5675), 3, 1, 0; (5777), 3, 1, 0; (5881), 6, 2, 1; (5890), 3, 1, 0; (5927), 3, 1, 0; (5936), 3, 1, 0; (5940), 3, 1, 0; (5945), 3, 1, 0; (5950), 3, 1, 0; (6115), 6, 2, 1; (6247), 3, 1, 0; (6324), 3, 1, 0; (6349), 3, 1, 0; (6387), 3, 1, 0; (6465), 6, 1, 0; (6473), 3, 1, 0; (6646), 3, 1, 0; (6851), 3, 1, 0; (6942), 3, 1, 0; (6944), 3, 1, 0; (6963), 3, 1, 0; (6967), 3, 1, 0; (6974), 3, 1, 0; (7001), 3, 1, 0; (7010), 3, 1, 0; (7020), 3, 1, 0; (7033), 3, 1, 0; (7076), 3, 1, 0; (7106), 3, 1, 0; (7207), 3, 1, 0; (7215), 3, 1, 0; (7284), 3, 1, 0; (7367), 3, 1, 0; (7393), 3, 1, 0; (7462), 3, 1, 0; (7723), 3, 1, 0; (7832), 3, 1, 0; (7860), 3, 1, 0; (7916), 3, 1, 0; (7936), 3, 1, 0; (7980), 3, 1, 0; (7993), 3, 1, 0; (8020), 3, 1, 0; (8029), 3, 1, 0; (8092), 3, 1, 0; (8094), 6, 2, 1; (8105), 3, 1, 0; (8138), 3, 1, 0; (8155), 3, 1, 0; (8173), 6, 2, 1; (8182), 3, 1, 0; (8197), 3, 1, 0; (8199), 3, 1, 0; (8260), 3, 1, 0; (8552), 3, 1, 0; (9732), 3, 1, 0; (9897), 3, 1, 0; (9930), 3, 1, 0; (9946), 3, 1, 0; (9956), 3, 1, 0; (9958), 3, 1, 0; (9988), 3, 1, 0; [2324, 720, 13*, 1996/04/16–1999/02/23]

568 Mauna Kea

C. Trujillo, Institute for Astronomy, 2680 Woodlawn Drive, Honolulu, HI 96822, U.S.A. [jewitt@galileo.ifa.hawaii.edu] (1)

M. J. Holman, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, U.S.A. [mholman@cfa.harvard.edu] (6)

Observers B. Gladman, M. Holman, D. Jewitt, J. J. Kavelaars, J. Luu, C. Trujillo
Measurers B. Gladman, M. Holman, J. J. Kavelaars, C. Trujillo

3.6-m Canada-France-Hawaii Telescope + CCD

USNO-A1.0, USNO-SA1.0

(1) 1999 CV₁₁₈ *, 4, 2, 8; 1999 CW₁₁₈ *, 5, 2, 8; 1999 CX₁₁₈ *, 4, 2, 8; 1999 CY₁₁₈ *, 4, 2, 2; 1999 CZ₁₁₈ *, 4, 2, 2; 1999 CA₁₁₉ *, 4, 2, 2; [25, 6, 6*, 1999/02/10–1999/02/18]

(6) 1997 CV₂₉, 6, 2, 1; 1999 DA *, 9, 2, 1; [15, 2, 1*, 1999/02/16–1999/02/17]

587 Sormano

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

[sormano@tin.it]

Observers P. Sicoli, M. Cavagna, V. Giuliani, F. Manca, A. Testa, P. Chiavenna, P. Ghezzi

0.5-m reflector + CCD

GSC

1992 SK, 3, 1, 0; 1997 QH₁, 2, 1, 0; 1998 VS₃₃, 2, 2, 7; 1998 VT₃₃, 2, 1, 0; 1998 WM, 2, 1, 0; 1998 WD₂, 1, 1, 0; 1998 WQ₅, 2, 1, 0; 1998 WZ₆, 2, 1, 0; 1998 XB₉, 2, 1, 0; 1999 AN₁₀, 13, 4, 11; 1999 AP₁₀, 2, 1, 0; 1999 AQ₁₀, 9, 4, 18; 1999 BJ₈, 3, 1, 0; 1999 CC₁, 3, 1, 0; 1999 CU₃, 2, 1, 0; 1999 CV₃, 7, 2, 2; 1999 CT₈, 2, 1, 0; 1999 CV₈, 4, 2, 4; 1999 CW₈, 4, 2, 11; 1999 CE₉, 5, 2, 7; 1999 CF₉, 4, 2, 6; 1999 CG₉, 2, 1, 0; 1999 CN₅₁, 2, 1, 0; 1999 DB₂, 4, 1, 0; 1999 DY₂, 4, 2, 7; 1999 DJ₄, 3, 1, 0; [91, 26, 0*, 1999/02/07–1999/02/26]

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

1998 XP₂₇, 5, 2, 6; 1998 YX₅, 4, 2, 3; 1999 AQ₄, 2, 3; 1999 AE₂₆, 3, 2, 2; 1999 BB₇, 4, 2, 2; 1999 BT₉, 4, 2, 3; 1999 BK₁₂, 7, 3, 7; 1999 CA₁ *, 9, 4, 10; [40, 8, 1*, 1999/02/02–1999/02/15]

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

1999 BZ, 4, 1, 0; 1999 BL₇, 6, 2, 12; (8179), 3, 1, 0; [13, 3, 0*, 1999/01/23–1999/02/09]

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

1978 RR₈, 5, 1, 0; 1990 TG₁₃, 5, 1, 0; 1991 SN, 10, 2, 1; 1994 PF₂₂, 5, 1, 0; 1995 BS₁, 5, 1, 0; 1997 VD₄, 5, 1, 0; 1998 QT₆₀, 5, 1, 0; 1999 BE₈, 10, 2, 5; 1999 CV₃, 10, 2, 5; 1999 CZ₈ *, 20, 4, 12; (196), 5, 1, 0; (240), 5, 1, 0; (590), 15, 3, 9; (830), 5, 1, 0; (1214), 5, 1, 0; (1581), 5, 1, 0; (1774), 5, 1, 0; (2006), 5, 1, 0; (2144), 5, 1, 0; (2267), 5, 1, 0; (2610), 5, 1, 0; (2865), 5, 1, 0; (3199), 5, 1, 0; (3924), 5, 1, 0; (5044), 5, 1, 0; (5550), 5, 1, 0; (5876), 5, 1, 0; (6389), 5, 1, 0; (6896), 5, 1, 0; (6976), 5, 1, 0; (8197), 5, 1, 0; (8231), 5, 1, 0; (9827), 5, 1, 0; (9835), 5, 1, 0; (9916), 5, 1, 0; (9943), 5, 1, 0; [220, 36, 1*, 1999/01/21–1999/02/23]

611 Starkenburg Sternwarte, Heppenheim

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

Observers M. Busch, P. Geffert, S. Kluegl, A. Seib, K. Sonnenberg

Measurer M. Busch

0.45-m $f/4.4$ reflector + CCD

USNO-A2.0

1997 PK₂, 2, 1, 0; 1997 QE₅, 2, 1, 0; 1997 UK₇, 2, 1, 0; 1998 YG₂₂, 2, 1, 0; 1999 BJ₈, 9, 2, 2; [17, 5, 0*, 1999/02/12–1999/02/15]

615 St. Véran

J. Boussuge, 1 Sq. Malherbe, F-91450 Soisy sur Seine, France [jboussug@aol.com]

0.62-m $f/3$ reflector + CCD

GSC

1997 OY₁, 5, 2, 1; 1998 WZ₃₀, 6, 2, 1; 1998 XZ₈, 8, 3, 2; [19, 3, 0*, 1999/01/19–1999/01/21]

619 Sabadell

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

[astrosab@redestb.es]

0.50-m $f/4$ reflector + CCD

GSC

1999 BJ₈, 7, 2, 1; [7, 1, 0*, 1999/02/20–1999/02/21]**620 Observatorio Astronómico de Mallorca**

M. Blasco, Afueras s/n, E-07144 Costitx, Balears, Spain

[astroam@dinky.bitel.es]

Observers A. Lopez, R. Pacheco

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

GSC

1985 RJ₃, 3, 1, 0; 1997 PR₄, 6, 2, 12; 1997 WK₂₁, 5, 2, 2; 1999 AX₂₅, 6, 2, 12; 1999 BJ₈, 8, 1, 0; 1999 CB₈₂, 5, 2, 2; 1999 DY₂, 3, 1, 0; [36, 7, 0*, 1999/02/05–1999/02/20]**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

1998 WO₈, 3, 2, 1; 1999 CL₈, 4, 2, 1; 1999 CX₉ *, 10, 2, 1; 1999 CY₉ *, 8, 2, 1; [25, 4, 2*, 1999/02/11–1999/02/13]**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

1997 CU₂₆, 2, 1, 0; 1998 WZ₃₀, 3, 1, 0; 1998 XX₉, 3, 1, 0; 1999 CV₃, 18, 2, 1; [26, 4, 0*, 1999/02/13–1999/02/21]**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 WS, 2, 1, 0; 1999 AN₂₂, 6, 2, 1; 1999 BQ₉, 4, 1, 0; (7783), 7, 2, 1; [19, 4, 0*, 1999/02/11–1999/02/13]**631 Hamburg-Georgswerder**

M. Buck, Niedergeorgswerder Deich 96a, D-21109 Hamburg, Germany

[michael.buck@jovice.net]

0.15-m $f/8$ refractor + CCD

GSC

1998 QT₆₀, 3, 2, 1; 1999 BJ₈, 4, 1, 0; (2791), 3, 2, 1; [10, 3, 0*, 1999/02/12–1999/02/13]**635 Perpignan**

J.-M. Llapasset, 66 Cours De Lassus, F-66000 Perpignan, France [Jean-

Marie.Llapasset@wanadoo.fr]

0.28-m $f/6.3$ reflector + CCD

USNO-SA1.0

1999 BJ₈, 4, 1, 0; 1999 CV₃, 9, 2, 13; (815), 3, 1, 0; (1036), 3, 1, 0; (1612), 2, 1, 0; [21, 5, 0*, 1999/02/01–1999/02/25]**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

1988 SZ₂, 6, 2, 2; 1991 RE₇, 5, 2, 2; 1996 JC₅, 4, 2, 2; 1998 VV₆, 4, 2, 2; 1998 VH₃₂, 2, 1, 0; 1998 XR₃, 6, 2, 2; 1999 AG₁₆, 3, 1, 0; 1999 BN₅, 2, 1, 0; 1999 CE₁₀ *, 6, 2, 5; 1999 CF₁₀ *, 6, 2, 5; 3813 T-3, 2, 1, 0; (2162), 2, 1, 0; [48, 12, 2*, 1999/02/07–1999/02/14]**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

1999 AF₄, 3, 1, 0; 1999 AR₇, 3, 1, 0; 1999 AO₁₀, 3, 1, 0; 1999 AQ₁₀, 6, 2, 10; 1999 AU₂₃, 3, 1, 0; 1999 BG₃, 3, 1, 0; 1999 BJ₈, 2, 1, 0; 1999 BL₃₃, 3, 1, 0; 1999 CT₃, 3, 1, 0; 1999 CW₇, 3, 1, 0; 1999 CT₈, 3, 1, 0; 1999 CU₈, 3, 1, 0; 1999 CV₈, 3, 1, 0; 1999 CW₈, 6, 2, 11; 1999 CA₉, 6, 2, 1; 1999 CB₉, 6, 2, 1; 1999 CE₉, 6, 2, 1; 1999 CF₉, 6, 2, 1; 1999 CG₉, 6, 2, 1; 1999 CZ₁₃, 6, 2, 1; 1999 DW₃, 3, 1, 0; [86, 21, 0*, 1999/01/24–1999/02/25]**670 Camarillo**

J. E. Rogers, 441 Rowland Avenue, Camarillo, CA 93010, U.S.A.

[72401.3174@compuserve.com]

0.25-m Schmidt-Cassegrain + CCD

GSC

1999 BJ₈, 4, 1, 0; 1999 CR₃, 4, 1, 0; 1999 CV₃, 4, 1, 0; 1999 CW₈, 5, 1, 0; 1999 CF₉, 2, 1, 0; [19, 5, 0*, 1999/02/11–1999/02/15]**673 Table Mountain Observatory**

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

Observers J. A. Rosel, R. A. Kowalski, E. W. Hayne, W. M. Owen Jr

Measurer W. M. Owen Jr

0.61-m $f/16$ reflector + CCD

ACT

(3), 2, 1, 0; (11), 4, 2, 1; (12), 6, 2, 1; (15), 5, 2, 1; (17), 9, 4, 6; (19), 2, 1, 0; (20), 2, 1, 0; (27), 5, 2, 5; (41), 5, 2, 5; (42), 6, 2, 1; (44), 2, 1, 0; (46), 2, 1, 0; (51), 7, 3, 2; (52), 6, 2, 1; (69), 2, 1, 0; (77), 9, 4, 5; (88), 5, 2, 4; (89), 2, 1, 0; (106), 6, 2, 6; (113), 6, 2, 1; (120), 2, 1, 0; (132), 8, 4, 6; (192), 2, 1, 0; (196), 3, 1, 0; (203), 7, 3, 5; (324), 5, 2, 4; (349), 5, 2, 1; (389), 7, 3, 2; (404), 4, 1, 0; (580), 9, 4, 6; (702), 7, 3, 4; (1036), 10, 4, 6; (1284), 3, 1, 0; [165, 33, 0*, 1999/01/29–1999/02/04]

675 Palomar

A. Boattini, Istituto di Astrofisica Spaziale, Via Fosso del Cavaliere, I-00133 Rome, Italy [boattini@ias.rm.cnr.it] (0)

E. F. Helin, MS 183-501, Jet Propulsion Laboratory, Pasadena, CA 91109, U.S.A. [efh@alps.jpl.nasa.gov] (2)

C. S. Shoemaker, P.O. Box 984, Flagstaff, AZ 86002, U.S.A. [gshoemaker@iflag2.wr.usgs.gov] (3)

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

E. Bowell, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff, AZ 86001, U.S.A. [elgb@lowell.edu] (6)

9 = 6 + 3

Observers T. Gehrels (4, L), E. F. Helin (2, S), H. E. Holt (3, S), K. Lawrence (2, S), C. S. Shoemaker (3, S), E. M. Shoemaker (3, S), K. W. Zeigler (3, S)

M.P.C. 33840

Measurers A. Boattini (0), K. Lawrence (2), B. A. Skiff (6), C. J. van Houten (4),
I. van Houten-Groeneveld (4), A. Wisse (4)

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

(0) 1997 CU₂₆, 2, 2, 336; [2, 1, 0*, 1988/11/05–1989/10/07]

(2) 1998 OH, 2, 1, 0; [2, 1, 0*, 1991/10/10]

(4) 2077 P-L *, 6, 6, 30; 2138 P-L *, 8, 8, 32; 2154 P-L *, 5, 5, 32; 2545 P-L *, 11, 9, 32; 2675 P-L *, 6, 6, 30; 2691 P-L *, 6, 6, 32; 3106 P-L *, 12, 9, 32; 4189 P-L *, 5, 5, 32; 4623 P-L *, 8, 8, 32; 4649 P-L *, 9, 8, 32; 6182 P-L *, 3, 3, 2; 6538 P-L *, 9, 8, 32; 6623 P-L *, 6, 6, 32; 6844 P-L *, 6, 6, 28; 9547 P-L *, 4, 4, 9; 9567 P-L *, 4, 4, 9; 1051 T-1 *, 8, 4, 3; 1068 T-1 *, 4, 3, 2; 1139 T-1 *, 6, 4, 3; 1143 T-1 *, 6, 5, 9; 1149 T-1 *, 6, 5, 9; 1168 T-1 *, 6, 5, 9; 1176 T-1 *, 12, 9, 53; 1238 T-1 *, 6, 5, 9; 2024 T-1 *, 4, 3, 2; 2125 T-1 *, 6, 5, 9; 1080 T-2 *, 8, 3, 10; 1094 T-2 *, 8, 3, 11; 1144 T-2 *, 10, 5, 10; 1227 T-2 *, 19, 8, 16; 1286 T-2 *, 23, 8, 16; 2204 T-2 *, 15, 8, 16; 4093 T-2 *, 15, 8, 16; 4132 T-2 *, 19, 8, 16; 2494 T-3 *, 13, 7, 15; 4208 T-3 *, 13, 7, 15; 4297 T-3 *, 13, 7, 15; 5002 T-3 *, 6, 3, 5; 5030 T-3 *, 12, 6, 11; 5049 T-3 *, 10, 5, 10; 5112 T-3 *, 11, 6, 11; 5130 T-3 *, 11, 6, 11; 5167 T-3 *, 12, 6, 11; 5727 T-3 *, 10, 5, 10; [400, 44, 44*, 1960/09/24–1977/10/22]

(6) 1981 EF₇, 2, 1, 0; [2, 1, 0*, 1979/10/18]

(9) 1981 EQ₂, 2, 1, 0; 1982 UK₇, 2, 1, 0; 1993 FL₃₄, 2, 1, 0; 2494 T-3, 2, 1, 0; [8, 4, 0*, 1989/03/09–1993/10/09]

678 Fountain Hills

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

[cwjuels@futureone.com]

0.32-m $f/5.5$ reflector + CCD

GSC

1991 VT₁, 4, 2, 1; 1993 TS₃₆, 4, 2, 1; 1994 GT, 4, 2, 1; 1998 EG₉, 4, 2, 1; 1999 AR₂₃, 9, 2, 2; 1999 AT₂₃, 9, 3, 12; 1999 CA₃ *, 8, 3, 13; 1999 CE₅₃, 7, 2, 1; 1999 CL₁₀₀, 10, 3, 14; [59, 9, 1*, 1999/02/08–1999/02/23]

683 Goodricke-Pigott Observatory, Tucson

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

[tucker@noao.edu]

Observers R. A. Tucker, V. A. Tucker

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

GSC

1988 VJ₁, 8, 3, 14; 1997 LQ₂, 4, 2, 15; 1997 UG₇, 5, 2, 3; 1998 XG₅, 5, 2, 1; 1998 YK₁₂, 8, 3, 13; 1998 YF₂₇, 9, 3, 14; 1999 CK₄₇, 5, 2, 1; 1999 CO₄₈, 6, 2, 2; 1999 CG₉₈, 6, 2, 1; 1999 CU₁₁₈ *, 11, 4, 4; 1999 DX₃ *, 6, 2, 3; 1999 DY₃ *, 5, 2, 1; 1999 DZ₃ *, 5, 2, 1; 1999 DA₄ *, 6, 2, 1; 1999 DB₄ *, 5, 2, 1; 1999 DC₄ *, 5, 2, 1; 1999 DD₄ *, 4, 2, 1; 1999 DE₄ *, 6, 2, 1; 1999 DF₄ *, 5, 2, 1; 1999 DG₄ *, 6, 2, 1; 4311 T-2, 6, 2, 1; (1677), 4, 2, 1; [130, 22, 11*, 1999/01/22–1999/02/23]

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 FP₃, 4, 2, 1; 1996 KO, 4, 2, 1; 1996 RJ₃, 4, 2, 1; 1997 QJ, 3, 2, 1; 1997 RS₅, 2, 1, 0; 1997 SJ₁₁, 4, 2, 1; 1997 UE, 5, 2, 1; 1997 UJ₁, 4, 2, 2; 1997 UK₁, 4, 2, 1; 1997 UG₂, 4, 2, 2; 1997 UG₅, 4, 2, 2; 1997 UY₁₀, 4, 2, 1; 1997 VY₁, 4, 2, 1; 1997 WB₁, 4, 2, 2; 1997 XY₉, 4, 2, 1; 1998 YO₅, 4, 2, 1; 1998 YT₅, 4, 2, 2; 1998 YU₅, 5, 2, 2; 1998 YX₇, 5, 2, 1; 1998 YJ₁₀, 4, 2, 1; 1998 YK₁₀, 4, 2, 1; 1999 BJ₈, 9, 2, 1; 1999 CW₃ *, 4, 2, 2; 1999 CN₄ *, 4, 2, 1; 1999 CX₈ *, 8, 3, 2; 1999 CY₈ *, 4, 2, 2; 1999 CK₆₉, 4, 2, 1; 1999 CR₁₀₉, 4, 2, 1; 1999 DD₃ *, 4, 2, 2; 1999 DE₃ *, 5, 2, 1; 1999 DK₃, 2, 1, 0; 4101 T-2, 2, 1, 0; (3660), 2, 1, 0; (5789), 5, 2, 1; (8178), 4, 2, 1; [145, 35, 6*, 1999/02/07–1999/02/23]

691 Kitt Peak, Steward Observatory

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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, 12, 4, 10; 1951 SY, 6, 2, 1; 1974 ST₁, 3, 1, 0; 1978 SA₅, 3, 1, 0; 1979 OQ₅, 6, 2, 3; 1981 EX₂₇, 6, 2, 7; 1981 EM₃₈, 3, 1, 0; 1981 UA₂₃, 6, 2, 2; 1981 UU₂₉, 3, 1, 0; 1984 SA, 2, 1, 0; 1984 SN₄, 3, 1, 0; 1985 RJ₃, 3, 1, 0; 1985 UQ₄, 5, 2, 9; 1986 QK₂, 3, 1, 0; 1988 RV₄, 2, 1, 0; 1988 SX₂, 3, 1, 0; 1988 VM₅, 3, 1, 0; 1989 GF₁, 9, 3, 14; 1989 ML, 3, 1, 0; 1990 QX₁, 6, 2, 1; 1990 QC₃, 3, 1, 0; 1990 QX₇, 3, 1, 0; 1990 RQ₈, 6, 2, 9; 1990 SG₃, 3, 1, 0; 1990 SN₂₈, 3, 1, 0; 1991 VW₈, 6, 2, 6; 1991 YX, 3, 1, 0; 1992 BM, 6, 2, 1; 1992 CK, 3, 1, 0; 1992 DN₆, 3, 1, 0; 1992 EY₉, 3, 1, 0; 1992 EB₁₃, 5, 2, 3; 1993 FW₁₁, 6, 2, 9; 1993 FU₃₄, 3, 1, 0; 1993 NB, 3, 1, 0; 1993 OL₅, 9, 3, 14; 1993 PV₆, 6, 2, 7; 1993 QN, 3, 1, 0; 1993 RK₄, 3, 1, 0; 1993 SS₁, 6, 2, 6; 1993 ST₄, 3, 1, 0; 1993 TN₂₉, 5, 2, 6; 1993 TH₃₂, 6, 2, 6; 1994 AC₃, 2, 1, 0; 1994 PU, 9, 2, 3; 1994 RP₁₁, 6, 2, 5; 1995 DF₈, 5, 2, 1; 1996 BE₂, 6, 2, 2; 1996 GF₁, 3, 1, 0; 1996 GU₈, 2, 1, 0; 1996 HF₁₁, 8, 3, 13; 1996 PR₁, 6, 2, 8; 1996 RB, 3, 1, 0; 1996 UO, 9, 3, 10; 1997 MC₈, 5, 2, 8; 1997 NK₁, 3, 1, 0; 1997 NU₁, 3, 1, 0; 1997 NZ₂, 6, 2, 4; 1997 OZ, 3, 1, 0; 1997 OF₁, 6, 2, 7; 1997 PS, 3, 1, 0; 1997 PV₃, 3, 1, 0; 1997 PQ₄, 4, 2, 5; 1997 QP₄, 3, 1, 0; 1997 RS₅, 3, 1, 0; 1997 SN₃, 3, 1, 0; 1997 TG₂₆, 3, 1, 0; 1997 UW₈, 3, 1, 0; 1997 VG₄, 3, 1, 0; 1997 VS₅, 6, 2, 1; 1997 VU₆, 3, 1, 0; 1997 WA₂, 3, 1, 0; 1997 WP₁₄, 5, 1, 0; 1997 WL₄₄, 9, 3, 10; 1997 XX₅, 3, 1, 0; 1998 QJ₉₂, 3, 1, 0; 1998 QW₉₂, 6, 2, 7; 1998 SN₂, 2, 1, 0; 1998 UR₁₅, 2, 1, 0; 1998 UE₂₁, 6, 2, 2; 1998 UN₂₃, 3, 1, 0; 1998 UR₂₄, 2, 1, 0; 1998 VE, 9, 3, 5; 1998 VB₅, 3, 1, 0; 1998 VD₅, 3, 1, 0; 1998 VH₁₈, 3, 1, 0; 1998 VC₂₃, 3, 1, 0; 1998 VN₂₈, 3, 1, 0; 1998 VQ₂₉, 6, 2, 4; 1998 VR₃₄, 3, 1, 0; 1998 WB₇, 3, 1, 0; 1998 WH₇, 3, 1, 0; 1998 WW₁₀, 6, 2, 5; 1998 WR₁₂, 3, 1, 0; 1998 WZ₁₃, 3, 1, 0; 1998 WJ₁₄, 6, 2, 4; 1998 WM₁₅, 3, 1, 0; 1998 WC₁₆, 3, 1, 0; 1998 WE₁₆, 3, 1, 0; 1998 WC₁₇, 8, 3, 5; 1998 WG₁₇, 3, 1, 0; 1998 WA₂₂, 3, 1, 0; 1998 WO₂₂, 6, 2, 7; 1998 WS₂₂, 3, 1, 0; 1998 WF₂₄, 6, 2, 4; 1998 XE₁, 6, 2, 6; 1998 XP₆, 3, 1, 0; 1998 YA₂, 3, 1, 0; 1998 YB₁₁, 3, 1, 0; 1998 YY₁₅, 6, 2, 9; 1998 YG₁₇, 3, 1, 0; 1998 YJ₁₇, 3, 1, 0; 1999 AJ, 3, 1, 0; 1999 AH₁₀, 3, 1, 0; 1999 AG₂₀, 3, 1, 0; 1999 AP₂₀, 3, 1, 0; 1999 AM₂₁, 3, 1, 0; 1999 AS₃₄, 6, 2, 4; 1999 BE₁, 3, 1, 0; 1999 BT₂, 3, 1, 0; 1999 BS₃, 3, 1, 0; 1999 BE₉, 3, 1, 0; 1999 BF₁₀, 3, 1, 0; 1999 BL₃₃ *, 14, 5, 21; 1999 CQ₂ *, 16, 6, 6; 1999 CS₈ *, 6, 2, 1; 1999 CA₉ *, 6, 2, 1; 1999 CP₇₁, 3, 1, 0; 1999 DD₂ *, 9, 2, 1; 1999 DJ₃ *, 14, 4, 6; 1999 DW₃ *, 9, 3, 3; 2743 P-L, 3, 1, 0; 2778 P-L, 3, 1, 0; 3087 P-L, 3, 1, 0; 4088 P-L, 6, 2, 11; 4654 P-L, 5, 2, 11; 4722 P-L, 3, 1, 0; 4812 P-L, 6, 2, 4; 6128 P-L, 2, 1, 0; 6644 P-L, 3, 1, 0; 1176 T-2, 3, 1, 0; 2116 T-2, 3, 1, 0; 2216 T-2, 3, 1, 0; 2235 T-2, 3, 1, 0; 4224 T-2, 3, 1, 0; 1084 T-3, 3, 1, 0; (177), 3, 1, 0; (190), 3, 1, 0; (191), 3, 1, 0; (206), 3, 1, 0; (215), 6, 2, 6; (229), 3, 1, 0; (270), 3, 1, 0; (271), 3, 1, 0; (357), 6, 2, 3; (376), 3, 1, 0; (465), 3, 1, 0; (515), 6, 2, 12; (684), 6, 2, 1; (716), 4, 2, 6; (774), 2, 1, 0; (835), 6, 2, 11; (1066), 6, 2, 9; (1162), 3, 1, 0; (1163), 6, 2, 3; (1231), 3, 1, 0; (1242), 3, 1, 0; (1268), 3, 1, 0; (1289), 3, 1, 0; (1350), 3, 1, 0; (1381), 8, 3, 10; (1486), 3, 1, 0; (1496), 3, 1, 0; (1618), 3, 1, 0; (1645), 2, 1, 0; (1661), 2, 1, 0; (1788), 6, 2, 9; (1848), 3, 1, 0; (1869), 3, 1, 0; (1874), 3, 1, 0; (1911), 6, 2, 9; (1955), 3, 1, 0; (1968), 3, 1, 0; (2121), 3, 1, 0; (2295), 9, 3, 11; (2342), 6, 2, 6; (2496), 2, 1, 0; (2505), 7, 3, 11; (2528), 3, 1, 0; (2540), 3, 1, 0; (2610), 3, 1, 0; (2672), 3, 1, 0; (2694), 3, 1, 0; (2719), 3, 1, 0; (2763), 3, 1, 0; (2811), 6, 2, 9; (2886), 3, 1, 0; (3290), 2, 1, 0; (3386), 6, 2, 6; (3516), 6, 2, 1; (3832), 3, 1, 0; (3946), 6, 2, 6; (4016), 3, 1, 0; (4468), 3, 1, 0; (4592), 2, 1, 0; (4622), 6, 2, 1; (4656), 3, 1, 0; (4789), 3, 1, 0; (5166), 6, 2, 1; (5248), 3, 1, 0; (5269), 5, 2, 8; (5367), 6, 2, 5; (5400), 2, 1, 0; (5451), 3, 1, 0; (5519), 6, 2, 10; (5631), 3, 1, 0; (5941), 3, 1, 0; (5950), 3, 1, 0; (5974), 6, 2, 7; (6125), 6, 2, 4; (6208), 9, 3, 7; (6295), 9, 3, 14; (6301), 3, 1, 0; (6328), 6, 2, 4; (6401), 5, 2, 1; (6408), 3, 1, 0; (6432), 6, 2, 8; (6503), 12, 3, 14; (6851), 3, 1, 0; (6934), 3, 1, 0; (7076), 3, 1, 0; (7114), 3, 1, 0; (7115), 3, 1, 0; (7183), 3, 1, 0; (7358), 3, 1, 0; (7360), 9, 3, 11; (7442), 2, 1, 0; (7458), 3, 1, 0; (7789), 6, 2, 9; (7852), 3, 1, 0; (7854), 3, 1, 0; (7860), 3, 1, 0; (7876), 3, 1, 0; (7891), 6, 2, 6; (7948), 3, 1, 0; (7967), 2, 1, 0; (7974), 3, 1, 0; (7983), 3, 1, 0; (7988), 9, 3, 10; (7989), 6, 2, 7; (7994), 9, 3, 13; (8002), 3, 1, 0; (8062), 5, 2, 7; (8067), 9, 3, 13; (8084), 6, 2, 5; (8144), 3, 1, 0; (8220), 6, 2, 1; (8225), 3, 1, 0; (9766), 3, 1, 0; (9775), 3, 1, 0; (9776), 2, 1, 0; (9788), 3, 1, 0; (9789), 3, 1, 0; (9819), 3, 1, 0; (9833), 6, 2, 1; (9937), 3, 1, 0; (9941), 1, 1, 0; (9975), 6, 2, 9; [1151, 268, 7*, 1992/04/09–1999/02/24]

692 Steward Observatory, Tucson

C. Hergenrother, Lunar and Planetary Laboratory, University of Arizona, Tucson,
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Observers C. W. Hergenrother, A. Block

Measurer C. W. Hergenrother

0.53-m $f/15$ Cassegrain reflector + CCD

GSC

1998 TU₃, 3, 1, 0; [3, 1, 0*, 1995/11/21]

699 Lowell Observatory–LONEOS

E. Bowell, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff AZ 86001,
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1999 MAR. 2

M.P.C. 33841

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

Measurer B. W. Koehn

0.59-m LONEOS Schmidt + CCD

USNO-A1.0, USNO-A2.0

1940 AB, 3, 1, 0; 1971 FD, 3, 1, 0; 1971 UD₁, 3, 1, 0; 1975 VV₂, 3, 1, 0; 1976 YF₃, 3, 1, 0;
1977 EA₆, 6, 2, 21; 1978 QY₁, 3, 1, 0; 1978 RE₃, 6, 2, 21; 1978 SA₅, 3, 1, 0; 1978 SS₆, 3, 1,
0; 1978 UP₂, 3, 1, 0; 1978 VU₈, 3, 1, 0; 1979 KD, 3, 1, 0; 1979 MK₇, 3, 1, 0; 1979 WY₃, 6, 2,
46; 1980 PE₃, 3, 1, 0; 1980 UR₁, 9, 3, 43; 1981 ED₂₀, 3, 1, 0; 1981 RF₇, 3, 1, 0; 1981 TH₃, 3,
1, 0; 1981 WJ₉, 3, 1, 0; 1981 YG, 3, 1, 0; 1984 BZ₆, 3, 1, 0; 1984 QU, 6, 1, 0; 1984 SM₅, 3, 1,
0; 1985 RU, 3, 1, 0; 1985 RJ₃, 3, 1, 0; 1985 RL₄, 3, 1, 0; 1985 UA₅, 3, 1, 0; 1986 PE₁, 3, 1,
0; 1986 TQ, 3, 1, 0; 1986 TV₆, 3, 1, 0; 1986 TZ₁₁, 3, 1, 0; 1987 QM, 3, 1, 0; 1987 SB₃, 3, 1,
0; 1987 SO₅, 3, 1, 0; 1987 WP, 3, 1, 0; 1987 YC₁, 3, 1, 0; 1988 BN₅, 3, 1, 0; 1988 FB, 3, 1, 0;
1988 FN, 3, 1, 0; 1988 FS₂, 3, 1, 0; 1988 MH, 6, 2, 51; 1988 NW, 6, 2, 20; 1988 RJ₄, 6, 2, 21;
1988 RH₆, 6, 2, 30; 1988 RL₉, 3, 1, 0; 1988 RQ₁₂, 3, 1, 0; 1988 SL₁, 3, 1, 0; 1988 VJ₁, 3, 1, 0;
1989 AL₆, 3, 1, 0; 1989 EE₁, 3, 1, 0; 1989 GM₂, 3, 1, 0; 1989 GE₃, 3, 1, 0; 1989 GN₃, 3, 1, 0;
1989 OD, 3, 1, 0; 1989 RX, 3, 1, 0; 1989 SX₅, 3, 1, 0; 1989 TH₁, 3, 1, 0; 1989 TY₂, 6, 2, 79;
1989 US₄, 3, 1, 0; 1989 WD₃, 3, 1, 0; 1990 DV, 3, 1, 0; 1990 EN₁, 3, 1, 0; 1990 EN₄, 3, 1, 0;
1990 OK, 3, 1, 0; 1990 OW₁, 3, 1, 0; 1990 QT, 3, 1, 0; 1990 QW, 3, 1, 0; 1990 QE₂, 3, 1, 0;
1990 QU₃, 3, 1, 0; 1990 QB₅, 3, 1, 0; 1990 QC₅, 3, 1, 0; 1990 RW₄, 3, 1, 0; 1990 SQ₆, 2, 2, 33;
1990 SE₁, 3, 1, 0; 1990 SA₃, 6, 2, 29; 1990 SL₇, 3, 1, 0; 1990 SA₈, 3, 1, 0; 1990 SS₉, 3, 1, 0;
1990 SX₁₀, 6, 2, 21; 1990 TY₇, 6, 2, 58; 1990 TE₉, 3, 1, 0; 1990 TG₁₁, 3, 1, 0; 1990 TK₁₅, 3,
1, 0; 1990 UK₅, 3, 1, 0; 1990 VD₃, 3, 1, 0; 1990 VD₄, 6, 1, 0; 1990 VB₁₄, 2, 1, 0; 1990 XN, 3,
1, 0; 1991 CG₁, 3, 1, 0; 1991 KE, 3, 1, 0; 1991 PT₁₁, 3, 1, 0; 1991 PP₁₃, 3, 1, 0; 1991 RS₁₃, 3,
1, 0; 1991 RJ₂₂, 3, 1, 0; 1991 RK₂₆, 3, 1, 0; 1991 SN, 3, 1, 0; 1991 SC₂, 2, 1, 0; 1991 TQ₁, 3,
1, 0; 1991 UQ₁, 3, 1, 0; 1991 UN₃, 3, 1, 0; 1991 VE, 3, 1, 0; 1991 VQ₁, 6, 2, 11; 1991 VB₉, 3,
1, 0; 1991 YX, 3, 1, 0; 1992 AQ, 3, 1, 0; 1992 BJ, 3, 1, 0; 1992 BX, 9, 3, 99; 1992 CG₃, 3, 1,
0; 1992 DX₈, 3, 1, 0; 1992 DB₉, 3, 1, 0; 1992 DV₉, 3, 1, 0; 1992 EC, 3, 1, 0; 1992 EE, 3, 1, 0;
1992 EP, 3, 1, 0; 1992 EU₁₁, 3, 1, 0; 1992 EM₁₂, 6, 2, 25; 1992 EB₁₃, 2, 1, 0; 1992 EU₁₄, 3, 1,
0; 1992 EW₁₆, 3, 1, 0; 1992 EM₁₇, 12, 4, 57; 1992 ER₁₇, 3, 1, 0; 1992 FT₁, 12, 4, 85; 1992 JL₁,
3, 1, 0; 1992 LS, 3, 1, 0; 1992 PH₂, 3, 1, 0; 1992 RV₆, 3, 1, 0; 1992 SR₂₅, 3, 1, 0; 1992 TV, 6, 2,
80; 1992 WP₁, 6, 2, 65; 1992 WB₉, 3, 1, 0; 1992 YC₁, 3, 1, 0; 1993 BC₅, 3, 1, 0; 1993 FL₁, 3,
1, 0; 1993 FS₆, 3, 1, 0; 1993 FB₂₄, 3, 1, 0; 1993 FU₃₄, 3, 1, 0; 1993 HG₁, 3, 1, 0; 1993 KR, 3,
1, 0; 1993 NB, 3, 1, 0; 1993 OP₃, 3, 1, 0; 1993 OY₆, 3, 1, 0; 1993 OA₇, 3, 1, 0; 1993 PV₆, 3, 1,
0; 1993 QN, 3, 1, 0; 1993 RS, 5, 2, 19; 1993 RK₄, 3, 1, 0; 1993 SS₁, 3, 1, 0; 1993 SX₄, 3, 1, 0;
1993 TU₂₄, 3, 1, 0; 1993 TG₃₁, 3, 1, 0; 1993 TH₃₂, 3, 1, 0; 1993 TQ₃₆, 3, 1, 0; 1993 TZ₃₈, 3,
1, 0; 1993 TB₃₉, 3, 1, 0; 1993 UC₃, 3, 1, 0; 1993 VE, 3, 1, 0; 1993 VG₁, 3, 1, 0; 1993 VA₂, 9, 3,
75; 1993 VA₃, 6, 2, 23; 1994 AP₁, 3, 1, 0; 1994 PU, 3, 1, 0; 1994 PM₁, 6, 2, 56; 1994 PD₈, 3, 1,
0; 1994 PX₁₅, 3, 1, 0; 1994 PM₂₅, 3, 1, 0; 1994 PE₃₃, 3, 1, 0; 1994 RJ₁₁, 3, 1, 0; 1994 RW₁₁,
3, 1, 0; 1994 TJ, 3, 1, 0; 1994 TT, 3, 1, 0; 1994 TB₃, 3, 1, 0; 1994 UU₁, 3, 1, 0; 1994 UX₁, 3,
1, 0; 1994 UR₆, 3, 1, 0; 1994 VQ₁, 6, 2, 22; 1994 VE₄, 3, 1, 0; 1994 VQ₇, 6, 2, 49; 1994 WJ,
3, 1, 0; 1994 WF₂, 3, 1, 0; 1994 WR₃, 3, 1, 0; 1994 XF₁, 3, 1, 0; 1994 YZ₁, 3, 1, 0; 1995 AL,
3, 1, 0; 1995 AZ, 3, 1, 0; 1995 AD₁, 3, 1, 0; 1995 AK₁, 3, 1, 0; 1995 AV₂, 3, 1, 0; 1995 BC₁, 3,
1, 0; 1995 BP₁, 3, 1, 0; 1995 BP₃, 3, 1, 0; 1995 BL₄, 3, 1, 0; 1995 CF₁, 3, 1, 0; 1995 CE₂, 3, 1,
0; 1995 DC, 3, 1, 0; 1995 DY, 3, 1, 0; 1995 DN₁, 3, 1, 0; 1995 DS₁, 6, 2, 29; 1995 DP₂, 2, 1, 0;
1995 FZ₃, 6, 2, 57; 1995 FA₈, 3, 1, 0; 1995 FW₁₉, 3, 1, 0; 1995 GC₂, 6, 2, 30; 1995 GV₂, 2, 1, 0;
1995 GS₅, 3, 1, 0; 1995 SX₄₈, 3, 1, 0; 1995 US₄, 3, 1, 0; 1995 VW₁, 3, 1, 0; 1995 WU₅, 3, 1, 0;
1995 WT₈, 3, 1, 0; 1995 WA₄₂, 3, 1, 0; 1995 YK₂₀, 3, 1, 0; 1996 DD, 6, 2, 20; 1996 ER, 3, 1, 0;
1996 FM₁₆, 6, 2, 33; 1996 GF₁, 6, 2, 21; 1996 GG₁₈, 3, 1, 0; 1996 GV₂₀, 3, 1, 0; 1996 HM₂, 3,
1, 0; 1996 HP₁₈, 3, 1, 0; 1996 HM₂₂, 3, 1, 0; 1996 HS₂₂, 3, 1, 0; 1996 HP₂₃, 3, 1, 0; 1996 HD₂₄,
3, 1, 0; 1996 JE, 6, 2, 13; 1996 JN, 3, 1, 0; 1996 JO, 6, 2, 14; 1996 JV, 3, 1, 0; 1996 JF₁, 3, 1,
0; 1996 JC₅, 3, 1, 0; 1996 KX₂, 3, 1, 0; 1996 NC, 3, 1, 0; 1996 NE₅, 3, 1, 0; 1996 OQ₁, 3, 1, 0;
1996 QN₁, 3, 1, 0; 1996 TJ₁₅, 3, 1, 0; 1997 AP₁₅, 3, 1, 0; 1997 GG₇, 3, 1, 0; 1997 GV₇, 3, 1, 0;
1997 GT₁₄, 6, 2, 19; 1997 GZ₁₆, 3, 1, 0; 1997 GX₂₃, 3, 1, 0; 1997 GV₃₅, 3, 1, 0; 1997 HX₉, 3, 1,
0; 1997 KJ₂, 3, 1, 0; 1997 MZ₂, 3, 1, 0; 1997 MA₃, 9, 3, 79; 1997 MA₄, 3, 1, 0; 1997 MW₆, 3,
1, 0; 1997 MC₈, 3, 1, 0; 1997 NA₃, 3, 1, 0; 1997 OM, 3, 1, 0; 1997 PX, 3, 1, 0; 1997 PN₅, 6, 2,
15; 1997 QA, 3, 1, 0; 1997 QB₁, 3, 1, 0; 1997 QP₄, 3, 1, 0; 1997 RR₁, 3, 1, 0; 1997 RO₃, 3, 1,
0; 1997 SL₁, 3, 1, 0; 1997 SN₃, 3, 1, 0; 1997 SN₄, 3, 1, 0; 1997 SJ₂₃, 3, 1, 0; 1997 SE₃₀, 3, 1, 0;
1997 SR₃₁, 3, 1, 0; 1997 SX₃₃, 3, 1, 0; 1997 TY₁₇, 3, 1, 0; 1997 TH₁₉, 3, 1, 0; 1997 TJ₁₉, 3, 1, 0;
1997 TF₂₆, 3, 1, 0; 1997 UB₁, 3, 1, 0; 1997 UU₂, 3, 1, 0; 1997 UJ₃, 3, 1, 0; 1997 UG₇, 3, 1, 0;
1997 UV₁₀, 3, 1, 0; 1997 UY₁₀, 3, 1, 0; 1997 UC₁₅, 3, 1, 0; 1997 VQ₃, 3, 1, 0; 1997 VC₁, 3, 1, 0;
1997 VG₁, 9, 3, 37; 1997 VJ₁, 3, 1, 0; 1997 VN₁, 3, 1, 0; 1997 VQ₁, 3, 1, 0; 1997 VE₈, 3, 1, 0;
1997 VG₈, 3, 1, 0; 1997 VY₈, 3, 1, 0; 1997 WA₂, 3, 1, 0; 1997 WV₁₂, 3, 1, 0; 1997 WB₁₃, 3, 1, 0;
1997 WU₃₅, 3, 1, 0; 1997 WQ₃₇, 6, 2, 21; 1997 XQ₂, 3, 1, 0; 1998 BT₂₆, 6, 2, 21; 1998 EG₉, 3,
1, 0; 1998 FC₁₄₄, 6, 2, 33; 1998 NA, 3, 1, 0; 1998 OB₁₅, 6, 2, 29; 1998 QR₆, 3, 1, 0; 1998 QG₂₁,
3, 1, 0; 1998 QW₂₃, 3, 1, 0; 1998 QX₃₉, 3, 1, 0; 1998 QC₄₁, 6, 2, 23; 1998 QH₄₂, 3, 1, 0;

1998 QU₄₇, 3, 1, 0; 1998 QT₅₀, 3, 1, 0; 1998 QT₅₁, 3, 1, 0; 1998 QU₅₁, 3, 1, 0; 1998 QM₅₄, 3, 1,
0; 1998 QO₆₀, 3, 1, 0; 1998 QU₆₀, 6, 2, 81; 1998 QB₇₄, 3, 1, 0; 1998 QS₇₅, 3, 1, 0; 1998 QU₇₇, 3,
1, 0; 1998 QL₈₄, 3, 1, 0; 1998 QO₈₄, 3, 1, 0; 1998 QE₈₆, 3, 1, 0; 1998 QM₈₇, 3, 1, 0; 1998 QV₈₈, 3,
1, 0; 1998 QY₉₁, 9, 3, 81; 1998 QN₉₂, 3, 1, 0; 1998 QW₉₂, 3, 1, 0; 1998 QA₉₃, 3, 1, 0; 1998 QF₉₃,
3, 1, 0; 1998 QK₉₃, 3, 1, 0; 1998 QN₉₃, 3, 1, 0; 1998 QP₉₃, 3, 1, 0; 1998 QA₉₈, 3, 1, 0; 1998 QZ₉₉,
3, 1, 0; 1998 QF₁₀₁, 3, 1, 0; 1998 QP₁₀₂, 3, 1, 0; 1998 QO₁₀₄, 3, 1, 0; 1998 RX, 3, 1, 0; 1998 RM₃,
3, 1, 0; 1998 RT₄, 3, 1, 0; 1998 RQ₅, 3, 1, 0; 1998 RR₅, 3, 1, 0; 1998 RC₁₆, 3, 1, 0; 1998 RK₃₃,
6, 2, 37; 1998 RK₃₄, 3, 1, 0; 1998 RM₃₄, 3, 1, 0; 1998 RG₃₇, 6, 2, 42; 1998 RA₃₉, 3, 1, 0;
1998 RP₃₉, 3, 1, 0; 1998 RQ₃₉, 6, 2, 43; 1998 RV₃₉, 3, 1, 0; 1998 RY₄₀, 3, 1, 0; 1998 RJ₄₂, 3, 1, 0;
1998 RP₄₂, 6, 2, 25; 1998 RW₄₂, 3, 1, 0; 1998 RY₄₂, 3, 1, 0; 1998 RZ₄₂, 3, 1, 0; 1998 RO₄₄, 3, 1,
0; 1998 RS₄₄, 3, 1, 0; 1998 RE₄₆, 3, 1, 0; 1998 RF₄₆, 3, 1, 0; 1998 RK₄₆, 3, 1, 0; 1998 RN₄₆, 3, 1,
0; 1998 RP₄₆, 3, 1, 0; 1998 RQ₄₆, 3, 1, 0; 1998 RM₄₇, 3, 1, 0; 1998 RU₄₇, 6, 2, 20; 1998 RW₄₇, 3,
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3, 1, 0; 1998 RJ₅₂, 3, 1, 0; 1998 RL₅₃, 3, 1, 0; 1998 RN₅₃, 3, 1, 0; 1998 RF₅₄, 3, 1, 0; 1998 RZ₅₄,
6, 2, 22; 1998 RA₅₅, 3, 1, 0; 1998 RQ₅₆, 6, 2, 19; 1998 RA₅₈, 3, 1, 0; 1998 RN₅₈, 3, 1, 0;
1998 RF₅₉, 3, 1, 0; 1998 RG₆₁, 3, 1, 0; 1998 RN₆₁, 6, 2, 44; 1998 RC₆₂, 3, 1, 0; 1998 RD₆₂, 3, 1,
0; 1998 RF₆₃, 3, 1, 0; 1998 RQ₆₃, 6, 2, 44; 1998 RB₆₅, 3, 1, 0; 1998 RJ₆₆, 3, 1, 0; 1998 RT₆₆, 6,
2, 48; 1998 RM₆₇, 3, 1, 0; 1998 RA₆₈, 3, 1, 0; 1998 RK₆₈, 3, 1, 0; 1998 RW₆₈, 3, 1, 0; 1998 RC₆₉,
3, 1, 0; 1998 RX₇₁, 3, 1, 0; 1998 RU₇₃, 3, 1, 0; 1998 RH₇₄, 3, 1, 0; 1998 RW₇₄, 3, 1, 0; 1998 RB₇₅,
3, 1, 0; 1998 RV₇₇, 3, 1, 0; 1998 RF₇₉, 3, 1, 0; 1998 RV₇₉, 3, 1, 0; 1998 RC₈₀, 3, 1, 0; 1998 RF₈₀,
3, 1, 0; 1998 RP₈₀, 3, 1, 0; 1998 SQ, 3, 1, 0; 1998 SA₁, 6, 2, 44; 1998 SK₂, 3, 1, 0; 1998 SN₂, 3, 1,
0; 1998 SM₄, 3, 1, 0; 1998 SX₉, 3, 1, 0; 1998 SA₁₀, 3, 1, 0; 1998 SW₂₃, 3, 1, 0; 1998 SU₂₅, 3, 1, 0;
1998 SP₃₃, 3, 1, 0; 1998 SP₃₆, 3, 1, 0; 1998 SS₃₇, 3, 1, 0; 1998 SK₅₀, 3, 1, 0; 1998 SH₅₉, 3, 1, 0;
1998 SJ₆₂, 3, 1, 0; 1998 ST₆₃, 3, 1, 0; 1998 SH₆₄, 3, 1, 0; 1998 SJ₆₄, 3, 1, 0; 1998 SN₆₄, 3, 1, 0;
1998 SR₆₅, 9, 3, 66; 1998 SB₆₇, 6, 2, 23; 1998 SR₇₀, 3, 1, 0; 1998 SH₇₂, 3, 1, 0; 1998 SS₇₂, 3, 1,
0; 1998 SU₇₃, 3, 1, 0; 1998 SB₇₄, 3, 1, 0; 1998 SW₇₅, 3, 1, 0; 1998 SG₇₉, 3, 1, 0; 1998 SG₈₇, 6, 2,
29; 1998 SX₁₀₁, 3, 1, 0; 1998 SE₁₀₂, 3, 1, 0; 1998 SV₁₀₅, 3, 1, 0; 1998 SH₁₀₆, 3, 1, 0; 1998 SG₁₀₇,
6, 2, 29; 1998 SR₁₀₇, 3, 1, 0; 1998 SA₁₀₉, 6, 2, 24; 1998 SE₁₁₁, 6, 2, 25; 1998 SF₁₁₁, 3, 1, 0;
1998 SR₁₁₁, 3, 1, 0; 1998 SS₁₁₄, 3, 1, 0; 1998 SZ₁₁₄, 3, 1, 0; 1998 SB₁₁₆, 3, 1, 0; 1998 SH₁₁₆,
6, 2, 67; 1998 SM₁₁₆, 3, 1, 0; 1998 SZ₁₁₆, 3, 1, 0; 1998 SH₁₁₇, 6, 2, 42; 1998 SR₁₁₇, 3, 1, 0;
1998 SS₁₁₇, 3, 1, 0; 1998 SV₁₁₇, 3, 1, 0; 1998 SC₁₁₈, 3, 1, 0; 1998 SL₁₁₈, 3, 1, 0; 1998 SQ₁₁₈, 3, 1,
0; 1998 SR₁₁₈, 3, 1, 0; 1998 SU₁₁₉, 3, 1, 0; 1998 SC₁₂₂, 3, 1, 0; 1998 SH₁₂₂, 6, 2, 70; 1998 SJ₁₂₂,
3, 1, 0; 1998 SK₁₂₂, 6, 2, 27; 1998 SX₁₂₂, 3, 1, 0; 1998 SE₁₂₃, 9, 3, 72; 1998 SF₁₂₃, 6, 2, 66;
1998 SX₁₂₃, 6, 2, 22; 1998 SG₁₂₄, 3, 1, 0; 1998 SH₁₂₄, 9, 3, 66; 1998 SK₁₂₄, 6, 2, 22; 1998 SO₁₂₄,
6, 2, 22; 1998 SR₁₂₄, 6, 2, 22; 1998 SE₁₂₆, 6, 2, 30; 1998 SV₁₂₆, 3, 1, 0; 1998 SK₁₂₇, 3, 1, 0;
1998 SU₁₂₈, 9, 3, 68; 1998 SW₁₂₈, 6, 2, 32; 1998 SA₁₂₉, 3, 1, 0; 1998 SL₁₂₉, 3, 1, 0; 1998 SM₁₂₉,
3, 1, 0; 1998 SQ₁₂₉, 6, 2, 22; 1998 SA₁₃₀, 3, 1, 0; 1998 SG₁₃₀, 6, 2, 29; 1998 SN₁₃₀, 6, 2, 33;
1998 SR₁₃₀, 3, 1, 0; 1998 SS₁₃₀, 3, 1, 0; 1998 SB₁₃₁, 3, 1, 0; 1998 SZ₁₃₁, 3, 1, 0; 1998 SO₁₃₂, 3, 1,
0; 1998 SF₁₃₃, 3, 1, 0; 1998 SG₁₃₃, 3, 1, 0; 1998 SN₁₃₃, 3, 1, 0; 1998 SS₁₃₃, 3, 1, 0; 1998 SF₁₃₄,
3, 1, 0; 1998 SH₁₃₄, 6, 2, 29; 1998 SN₁₃₄, 3, 1, 0; 1998 SE₁₃₅, 6, 2, 23; 1998 SP₁₃₅, 3, 1, 0;
1998 SA₁₃₆, 3, 1, 0; 1998 SF₁₃₆, 6, 2, 25; 1998 SX₁₃₆, 3, 1, 0; 1998 SA₁₃₇, 6, 2, 25; 1998 SM₁₃₇,
6, 2, 26; 1998 SC₁₃₈, 3, 1, 0; 1998 SE₁₃₈, 3, 1, 0; 1998 SH₁₃₈, 3, 1, 0; 1998 SO₁₃₈, 3, 1, 0;
1998 SC₁₄₀, 3, 1, 0; 1998 SE₁₄₀, 3, 1, 0; 1998 SU₁₄₀, 3, 1, 0; 1998 SV₁₄₀, 3, 1, 0; 1998 SW₁₄₀,
3, 1, 0; 1998 SA₁₄₂, 3, 1, 0; 1998 SB₁₄₄, 3, 1, 0; 1998 SE₁₄₄, 3, 1, 0; 1998 SK₁₄₄, 3, 1, 0;
1998 SQ₁₄₄, 3, 1, 0; 1998 SX₁₄₄, 3, 1, 0; 1998 ST₁₄₅, 3, 1, 0; 1998 ST₁₄₅, 3, 1, 0; 1998 SE₁₄₆,
3, 1, 0; 1998 SO₁₄₆, 3, 1, 0; 1998 SX₁₄₆, 6, 2, 30; 1998 SP₁₄₇, 3, 1, 0; 1998 SU₁₄₇, 6, 2, 26;
1998 SX₁₄₇, 3, 1, 0; 1998 SS₁₅₆, 3, 1, 0; 1998 ST₁₆₀, 3, 1, 0; 1998 SE₁₆₁, 3, 1, 0; 1998 SQ₁₆₁, 3,
1, 0; 1998 SR₁₆₄, 6, 2, 21; 1998 TC, 3, 1, 0; 1998 TW₁, 3, 1, 0; 1998 TG₃, 3, 1, 0; 19

1998 VZ₂₉, 3, 1, 0; 1998 VG₃₁, 3, 1, 0; 1998 VO₃₁, 3, 1, 0; 1998 VP₃₁, 3, 1, 0; 1998 VM₃₂, 3, 1, 0; 1998 VV₃₂, 3, 1, 0; 1998 VX₃₂, 3, 1, 0; 1998 VH₃₃, 3, 1, 0; 1998 VO₃₃, 3, 1, 0; 1998 VT₃₃, 3, 1, 0; 1998 VV₃₄, 3, 1, 0; 1998 VW₃₄, 3, 1, 0; 1998 VY₃₄, 3, 1, 0; 1998 VD₃₆, 3, 1, 0; 1998 VF₃₆, 3, 1, 0; 1998 VX₃₇, 3, 1, 0; 1998 VZ₃₇, 3, 1, 0; 1998 VO₃₈, 3, 1, 0; 1998 VQ₃₈, 6, 2, 28; 1998 WU₄₁, 3, 1, 0; 1998 VW₄₃, 3, 1, 0; 1998 VD₄₄, 3, 1, 0; 1998 WH₃, 3, 1, 0; 1998 WL₃, 3, 1, 0; 1998 WY₃, 3, 1, 0; 1998 WK₁, 3, 1, 0; 1998 WN₂, 6, 2, 28; 1998 WB₃, 3, 1, 0; 1998 WC₃, 3, 1, 0; 1998 WR₃, 3, 1, 0; 1998 WS₃, 3, 1, 0; 1998 WX₃, 6, 2, 95; 1998 WZ₅, 3, 1, 0; 1998 WA₆, 3, 1, 0; 1998 WK₇, 3, 1, 0; 1998 WB₈, 3, 1, 0; 1998 WC₈, 3, 1, 0; 1998 WD₉, 6, 2, 24; 1998 WK₉, 3, 1, 0; 1998 WM₉, 9, 3, 37; 1998 WP₉, 3, 1, 0; 1998 WQ₉, 3, 1, 0; 1998 WS₉, 3, 1, 0; 1998 WB₁₀, 3, 1, 0; 1998 WL₁₀, 3, 1, 0; 1998 WM₁₀, 3, 1, 0; 1998 WU₁₀, 3, 1, 0; 1998 WW₁₀, 3, 1, 0; 1998 WN₁₁, 3, 1, 0; 1998 WA₁₂, 6, 2, 12; 1998 WP₁₂, 3, 1, 0; 1998 WR₁₂, 3, 1, 0; 1998 WV₁₂, 3, 1, 0; 1998 WQ₁₃, 3, 1, 0; 1998 WA₁₄, 3, 1, 0; 1998 WJ₁₄, 3, 1, 0; 1998 WQ₁₄, 3, 1, 0; 1998 WV₁₄, 3, 1, 0; 1998 WA₁₅, 3, 1, 0; 1998 WD₁₅, 3, 1, 0; 1998 WR₁₅, 6, 2, 12; 1998 WC₁₆, 3, 1, 0; 1998 WN₁₆, 3, 1, 0; 1998 WQ₁₆, 3, 1, 0; 1998 WA₁₇, 3, 1, 0; 1998 WC₁₇, 6, 2, 13; 1998 WK₁₇, 3, 1, 0; 1998 WW₁₈, 3, 1, 0; 1998 WB₁₉, 3, 1, 0; 1998 WM₁₉, 9, 3, 49; 1998 WN₁₉, 3, 1, 0; 1998 WR₁₉, 3, 1, 0; 1998 WW₁₉, 3, 1, 0; 1998 WG₂₀, 3, 1, 0; 1998 WT₂₀, 6, 2, 37; 1998 WU₂₀, 6, 2, 37; 1998 WZ₂₀, 3, 1, 0; 1998 WR₂₁, 3, 1, 0; 1998 WZ₂₁, 3, 1, 0; 1998 WA₂₂, 3, 1, 0; 1998 WH₂₂, 3, 1, 0; 1998 WO₂₂, 3, 1, 0; 1998 WP₂₂, 3, 1, 0; 1998 WF₂₃, 3, 1, 0; 1998 WS₂₃, 3, 1, 0; 1998 WT₂₃, 3, 1, 0; 1998 WU₂₃, 3, 1, 0; 1998 WV₂₃, 3, 1, 0; 1998 WZ₂₃, 3, 1, 0; 1998 WA₂₄, 3, 1, 0; 1998 WB₂₄, 6, 2, 21; 1998 WF₂₄, 6, 2, 15; 1998 WT₂₄, 3, 1, 0; 1998 WA₃₂, 3, 1, 0; 1998 XE₁, 3, 1, 0; 1998 XW₂, 6, 2, 14; 1998 XW₃, 3, 1, 0; 1998 XN₄, 3, 1, 0; 1998 XJ₅, 3, 1, 0; 1998 XM₆, 3, 1, 0; 1998 XD₇, 3, 1, 0; 1998 XN₇, 3, 1, 0; 1998 XK₉, 3, 1, 0; 1998 XN₁₀, 6, 2, 29; 1998 XP₁₀, 6, 2, 29; 1998 XQ₁₀, 6, 2, 28; 1998 XT₁₀, 3, 1, 0; 1998 XV₁₀, 6, 2, 30; 1998 XW₁₀, 3, 1, 0; 1998 XC₁₁, 6, 2, 21; 1998 XH₁₁, 3, 1, 0; 1998 XE₁₃, 3, 1, 0; 1998 XB₁₄, 3, 1, 0; 1998 XW₁₅, 3, 1, 0; 1998 XV₁₆, 3, 1, 0; 1998 XJ₁₉, 3, 1, 0; 1998 XG₂₄, 6, 2, 56; 1998 XC₂₆, 3, 1, 0; 1998 XJ₂₆, 3, 1, 0; 1998 XO₂₇, 3, 1, 0; 1998 XQ₂₇, 3, 1, 0; 1998 XK₂₈, 3, 1, 0; 1998 XN₂₈, 3, 1, 0; 1998 XO₂₈, 3, 1, 0; 1998 XP₂₈, 3, 1, 0; 1998 XR₂₈, 3, 1, 0; 1998 XU₂₈, 3, 1, 0; 1998 XA₂₉, 3, 1, 0; 1998 XC₂₉, 3, 1, 0; 1998 XD₂₉, 3, 1, 0; 1998 XS₃₀, 3, 1, 0; 1998 XT₃₀, 3, 1, 0; 1998 XO₃₅, 3, 1, 0; 1998 XD₅₁, 3, 1, 0; 1998 XF₅₁, 3, 1, 0; 1998 XT₅₁, 3, 1, 0; 1998 XU₅₁, 3, 1, 0; 1998 XH₅₂, 3, 1, 0; 1998 XL₅₂, 3, 1, 0; 1998 XB₅₃, 3, 1, 0; 1998 XE₅₃, 3, 1, 0; 1998 XG₅₃, 3, 1, 0; 1998 XJ₅₃, 3, 1, 0; 1998 XE₅₄, 3, 1, 0; 1998 XG₆₁, 3, 1, 0; 1998 XO₆₂, 3, 1, 0; 1998 XW₆₂, 3, 1, 0; 1998 XE₆₃, 3, 1, 0; 1998 XF₆₃, 3, 1, 0; 1998 XG₆₃, 3, 1, 0; 1998 XK₆₃, 3, 1, 0; 1998 XE₆₄, 3, 1, 0; 1998 XH₆₄, 3, 1, 0; 1998 XJ₆₄, 3, 1, 0; 1998 XG₆₄, 3, 1, 0; 1998 XM₆₅, 3, 1, 0; 1998 XU₆₅, 3, 1, 0; 1998 XV₆₅, 3, 1, 0; 1998 XW₆₅, 3, 1, 0; 1998 XB₆₆, 3, 1, 0; 1998 XH₇₄, 3, 1, 0; 1998 XL₇₇, 6, 2, 25; 1998 XM₇₇, 3, 1, 0; 1998 XO₇₇, 3, 1, 0; 1998 XQ₇₇, 3, 1, 0; 1998 XW₇₇, 3, 1, 0; 1998 XX₇₇, 3, 1, 0; 1998 XA₇₈, 3, 1, 0; 1998 XB₇₈, 3, 1, 0; 1998 XC₇₈, 3, 1, 0; 1998 XD₇₈, 3, 1, 0; 1998 XF₇₈, 3, 1, 0; 1998 XL₇₈, 3, 1, 0; 1998 XF₇₉, 3, 1, 0; 1998 XG₇₉, 3, 1, 0; 1998 XJ₇₉, 3, 1, 0; 1998 XL₇₉, 3, 1, 0; 1998 XM₇₉, 3, 1, 0; 1998 XO₇₉, 3, 1, 0; 1998 XP₇₉, 3, 1, 0; 1998 XD₈₀, 3, 1, 0; 1998 XE₈₀, 3, 1, 0; 1998 XG₈₀, 3, 1, 0; 1998 XZ₈₁, 3, 1, 0; 1998 XC₈₂, 3, 1, 0; 1998 XE₈₃, 3, 1, 0; 1998 XF₈₃, 3, 1, 0; 1998 XQ₈₃, 3, 1, 0; 1998 XD₉₆, 3, 1, 0; 1998 XF₉₆, 6, 2, 32; 1998 XG₉₆, 3, 1, 0; 1998 XH₉₆, 6, 2, 32; 1998 XN₉₆, 6, 2, 32; 1998 YG₁, 3, 1, 0; 1998 YR₁, 3, 1, 0; 1998 YT₁, 3, 1, 0; 1998 YU₁, 3, 1, 0; 1998 YD₂, 3, 1, 0; 1998 YE₂, 6, 2, 28; 1998 YF₂, 3, 1, 0; 1998 YL₂, 3, 1, 0; 1998 YM₂, 3, 1, 0; 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1999 AW₉, 3, 58; 1999 AX₃, 3, 1, 0; 1999 AY₃, 3, 1, 0; 1999 AZ₃, 3, 1, 0; 1999 AD₂, 3, 1, 0; 1999 AF₂, 6, 2, 25; 1999 AG₂, 3, 1, 0; 1999 AL₂, 3, 1, 0; 1999 AM₂, 3, 1, 0; 1999 AN₂, 6, 2, 58; 1999 AO₂, 3, 1, 0; 1999 AP₂, 3, 1, 0; 1999 AQ₂, 3, 1, 0; 1999 AR₂, 6, 2, 26; 1999 AS₂, 6, 2, 26; 1999 AU₂, 3, 1, 0; 1999 AL₃, 3, 1, 0; 1999 AP₃, 3, 1, 0; 1999 AR₃, 6, 1, 0; 1999 AS₃, 3, 1, 0; 1999 AT₃, 3, 1, 0; 1999 AU₃, 6, 2, 21; 1999 AW₃, 3, 1, 0; 1999 AX₃, 3, 1, 0; 1999 AY₃, 3, 1, 0; 1999 AZ₃, 3, 1, 0; 1999 AA₄, 3, 1, 0; 1999 AB₄, 3, 1, 0; 1999 AM₄, 3, 1, 0; 1999 AN₄, 3, 1, 0; 1999 AO₄, 6, 1, 0; 1999 AP₄, 3, 1, 0; 1999 AQ₄, 3, 1, 0; 1999 AR₄, 3, 1, 0; 1999 AS₄, 3, 1, 0; 1999 AT₄, 3, 1, 0; 1999 AV₄, 3, 1, 0; 1999 AW₄, 3, 1, 0; 1999 AB₅, 3, 1, 0; 1999 AC₅, 3, 1, 0; 1999 AN₅, 9, 3, 86; 1999 AR₅, 6, 2, 13; 1999 AT₅, 3, 1, 0; 1999 AV₅, 3, 1, 0; 1999 AZ₅, 3, 1, 0; 1999 AC₆, 3, 1, 0; 1999 AD₆, 6, 2, 30; 1999 AE₆, 3, 1, 0; 1999 AM₆, 3, 1, 0; 1999 AS₆, 3, 1, 0; 1999 AX₆, 3, 1, 0; 1999 AY₆, 3, 1, 0; 1999 AA₇, 3, 1, 0; 1999 AE₇, 3, 1, 0; 1999 AH₇, 3, 1, 0; 1999 AL₇, 3, 1, 0; 1999 AM₇, 3, 1, 0; 1999 AU₇, 3, 1, 0; 1999 AC₈, 3, 1, 0; 1999 AD₈, 6, 2, 57; 1999 AG₈, 3, 1, 0; 1999 AH₈, 3, 1, 0; 1999 AZ₈, 3, 1, 0; 1999 AM₉, 3, 1, 0; 1999 AA₁₀, 6, 2, 32; 1999 AB₁₀, 3, 1, 0; 1999 AC₁₀, 3, 1, 0; 1999 AA₁₁, 3, 1, 0; 1999 AE₁₃, 3, 1, 0; 1999 AL₁₃, 3, 1, 0; 1999 AN₁₅, 3, 1, 0; 1999 AW₁₆, 3, 1, 0; 1999 AF₁₉, 9, 3, 58; 1999 AQ₁₉, 3, 1, 0; 1999 AK₂₀, 3, 1, 0; 1999 AD₂₁, 3, 1, 0; 1999 AE₂₁, 6, 2, 29; 1999 AK₂₁, 3, 1, 0; 1999 AQ₂₁, 3, 1, 0; 1999 AR₂₁, 9,

3, 30; 1999 AS₂₁, 3, 1, 0; 1999 AT₂₁, 3, 1, 0; 1999 AU₂₁, 3, 1, 0; 1999 AX₂₁, 3, 1, 0; 1999 AZ₂₁, 3, 1, 0; 1999 AH₂₂, 3, 1, 0; 1999 AY₂₂, 3, 1, 0; 1999 AZ₂₂, 3, 1, 0; 1999 AA₂₃, 3, 1, 0; 1999 AO₂₃, 3, 1, 0; 1999 AR₂₃, 6, 2, 23; 1999 AS₂₃, 3, 1, 0; 1999 AN₂₄, 3, 1, 0; 1999 AP₂₄, 3, 1, 0; 1999 AT₂₄, 3, 1, 0; 1999 AX₂₄, 3, 1, 0; 1999 AA₂₅, 3, 1, 0; 1999 AO₂₅, 3, 1, 0; 1999 AQ₂₅, 3, 1, 0; 1999 AX₂₅, 6, 2, 32; 1999 AZ₂₅, 3, 1, 0; 1999 AZ₂₆, 3, 1, 0; 1999 AV₂₉, 6, 2, 29; 1999 AU₃₀, 3, 1, 0; 1999 AL₃₁, 3, 1, 0; 1999 AM₃₁, 3, 1, 0; 1999 AO₃₁, 3, 1, 0; 1999 AT₃₁, 3, 1, 0; 1999 AD₃₃, 3, 1, 0; 1999 AJ₃₃, 3, 1, 0; 1999 AE₃₄ *, 6, 2, 9; 1999 AF₃₄ *, 9, 3, 30; 1999 AG₃₄ *, 9, 3, 29; 1999 AH₃₄ *, 6, 2, 8; 1999 AJ₃₄ *, 9, 3, 29; 1999 AK₃₄ *, 6, 2, 8; 1999 AL₃₄ *, 9, 3, 29; 1999 AM₃₄ *, 6, 2, 8; 1999 AN₃₄ *, 6, 2, 7; 1999 AO₃₄ *, 9, 3, 28; 1999 AP₃₄ *, 6, 2, 7; 1999 AQ₃₄ *, 9, 3, 28; 1999 AR₃₄ *, 12, 4, 58; 1999 BB₉, 9, 3, 57; 1999 BF₉, 9, 3, 32; 1999 BH₃, 3, 1, 0; 1999 BJ₆, 6, 2, 20; 1999 BL₆, 6, 2, 20; 1999 BM₃, 3, 1, 0; 1999 BO₁, 6, 2, 21; 1999 BW₁, 6, 2, 28; 1999 BY₁, 6, 2, 56; 1999 BB₂, 3, 1, 0; 1999 BC₂, 3, 1, 0; 1999 BR₂, 3, 1, 0; 1999 BT₂, 3, 1, 0; 1999 BU₂, 3, 1, 0; 1999 BY₂, 3, 1, 0; 1999 BA₃, 3, 1, 0; 1999 BB₃, 3, 1, 0; 1999 BD₃, 3, 1, 0; 1999 BH₃, 3, 1, 0; 1999 BR₃, 3, 1, 0; 1999 BS₃, 3, 1, 0; 1999 BT₃, 3, 1, 0; 1999 BW₃, 3, 1, 0; 1999 BA₄, 6, 2, 13; 1999 BC₄, 3, 1, 0; 1999 BM₄, 3, 1, 0; 1999 BR₄, 3, 1, 0; 1999 BX₄, 3, 1, 0; 1999 BA₅, 3, 1, 0; 1999 BO₅, 3, 1, 0; 1999 BR₅, 3, 1, 0; 1999 BV₅, 3, 1, 0; 1999 BY₅, 6, 2, 21; 1999 BZ₅, 3, 1, 0; 1999 BA₆, 3, 1, 0; 1999 BZ₆, 3, 1, 0; 1999 BE₇, 6, 2, 28; 1999 BK₇, 3, 1, 0; 1999 BL₇, 3, 1, 0; 1999 BR₇, 3, 1, 0; 1999 BV₇, 3, 1, 0; 1999 BA₈, 6, 2, 28; 1999 BB₈, 3, 1, 0; 1999 BC₈, 6, 2, 28; 1999 BD₈, 3, 1, 0; 1999 BK₈, 3, 1, 0; 1999 BT₈, 3, 1, 0; 1999 BV₈, 3, 1, 0; 1999 BW₈, 6, 2, 21; 1999 BX₈, 6, 2, 8; 1999 BA₉, 3, 1, 0; 1999 BC₉, 6, 2, 9; 1999 BD₉, 3, 1, 0; 1999 BF₉, 6, 2, 30; 1999 BG₉, 3, 1, 0; 1999 BJ₉, 3, 1, 0; 1999 BK₉, 3, 1, 0; 1999 BM₉, 3, 1, 0; 1999 BO₉, 3, 1, 0; 1999 BS₉, 3, 1, 0; 1999 BV₉, 3, 1, 0; 1999 BA₁₀, 3, 1, 0; 1999 BB₁₀, 3, 1, 0; 1999 BD₁₀, 6, 2, 30; 1999 BE₁₀, 6, 2, 30; 1999 BF₁₀, 9, 3, 30; 1999 BG₁₀, 3, 1, 0; 1999 BJ₁₀, 3, 1, 0; 1999 BK₁₀, 6, 2, 30; 1999 BL₁₀, 3, 1, 0; 1999 BM₁₀, 6, 2, 9; 1999 BN₁₀, 6, 2, 30; 1999 BP₁₀, 3, 1, 0; 1999 BC₁₁, 3, 1, 0; 1999 BH₁₁, 3, 1, 0; 1999 BF₁₂, 3, 1, 0; 1999 BM₁₂, 6, 2, 27; 1999 BN₁₂, 3, 1, 0; 1999 BO₁₂, 3, 1, 0; 1999 BP₁₂, 3, 1, 0; 1999 BW₁₂, 3, 1, 0; 1999 BX₁₂, 3, 1, 0; 1999 BC₁₃, 3, 1, 0; 1999 BH₁₃, 6, 2, 30; 1999 BJ₁₃, 3, 1, 0; 1999 BQ₁₃, 3, 1, 0; 1999 BT₁₃, 3, 1, 0; 1999 BO₁₄, 3, 1, 0; 1999 BQ₁₄, 3, 1, 0; 1999 BF₁₅, 3, 1, 0; 1999 BK₁₅, 3, 1, 0; 1999 BP₁₅, 3, 1, 0; 1999 BC₂₀, 3, 1, 0; 1999 BE₂₀, 3, 1, 0; 1999 BG₂₀, 3, 1, 0; 1999 BM₂₀, 3, 1, 0; 1999 BU₂₀, 3, 1, 0; 1999 BJ₂₁, 3, 1, 0; 1999 BG₂₄, 3, 1, 0; 1999 BW₂₄, 3, 1, 0; 1999 BX₂₄, 3, 1, 0; 1999 BC₂₅, 6, 2, 25; 1999 BG₂₅, 3, 1, 0; 1999 BH₂₅, 3, 1, 0; 1999 BL₂₅, 3, 1, 0; 1999 BM₂₅, 3, 1, 0; 1999 BN₂₅, 3, 1, 0; 1999 BP₂₅, 3, 1, 0; 1999 BT₂₅, 3, 1, 0; 1999 BU₂₅, 6, 2, 32; 1999 BV₂₅, 6, 2, 55; 1999 BW₂₅, 3, 1, 0; 1999 BE₂₆, 3, 1, 0; 1999 BN₂₆, 3, 1, 0; 1999 BB₂₇, 6, 2, 45; 1999 BV₂₇, 3, 1, 0; 1999 BU₂₉, 3, 1, 0; 1999 BZ₂₉, 3, 1, 0; 1999 BN₃₀, 3, 1, 0; 1999 CC₃, 1, 0; 1999 CD₃, 3, 1, 0; 1999 CJ₃, 3, 1, 0; 1999 CN₃, 3, 1, 0; 1999 CO₆, 6, 2, 57; 1999 CP₃, 3, 1, 0; 1999 CQ₃, 3, 1, 0; 1999 CR₃, 3, 1, 0; 1999 CW₃, 3, 1, 0; 1999 CX₃, 3, 1, 0; 1999 CC₁ *, 3, 1, 0; 1999 CD₁, 3, 1, 0; 1999 CH₁, 3, 1, 0; 1999 CO₁, 3, 1, 0; 1999 CN₂, 3, 1, 0; 1999 CX₂, 3, 1, 0; 1999 CY₂, 3, 1, 0; 1999 CZ₂, 6, 2, 58; 1999 CA₃, 3, 1, 0; 1999 CE₃, 3, 1, 0; 1999 CL₃, 3, 1, 0; 1999 CN₃, 3, 1, 0; 1999 CZ₃, 3, 1, 0; 1999 CC₄, 3, 1, 0; 1999 CL₄, 3, 1, 0; 1999 CQ₄, 6, 2, 28; 1999 CR₄, 6, 2, 29; 1999 CZ₄, 3, 1, 0; 1999 CA₅, 5, 28; 1999 CC₅, 3, 1, 0; 1999 CX₅, 3, 1, 0; 1999 CK₆, 3, 1, 0; 1999 CM₆, 3, 1, 0; 1999 CP₆, 3, 1, 0; 1999 CS₆, 3, 1, 0; 1999 CT₆, 3, 1, 0; 1999 CV₆, 3, 1, 0; 1999 CD₇, 3, 1, 0;

1, 0; 1999 CY₃₂, 3, 1, 0; 1999 CA₃₃, 3, 1, 0; 1999 CC₃₃, 3, 1, 0; 1999 CD₃₃, 6, 2, 30; 1999 CE₃₃, 3, 1, 0; 1999 CG₃₃, 3, 1, 0; 1999 CK₃₃, 3, 1, 0; 1999 CP₃₃, 3, 1, 0; 1999 CR₃₃, 3, 1, 0; 1999 CT₃₃, 3, 1, 0; 1999 CX₃₃, 3, 1, 0; 1999 CH₃₄, 3, 1, 0; 1999 CK₃₄, 6, 2, 21; 1999 CM₃₄, 6, 2, 30; 1999 CN₃₄, 3, 1, 0; 1999 CU₃₄, 3, 1, 0; 1999 CY₃₄, 3, 1, 0; 1999 CE₃₅, 3, 1, 0; 1999 CF₃₅, 3, 1, 0; 1999 CO₃₆, 3, 1, 0; 1999 CP₃₆, 3, 1, 0; 1999 CQ₃₆, 3, 1, 0; 1999 CT₃₆, 3, 1, 0; 1999 CU₃₆, 3, 1, 0; 1999 CV₃₆, 3, 1, 0; 1999 CM₃₇, 6, 2, 21; 1999 CQ₃₇, 3, 1, 0; 1999 CS₃₇, 3, 1, 0; 1999 CX₃₇, 3, 1, 0; 1999 CB₃₈, 3, 1, 0; 1999 CE₃₈, 3, 1, 0; 1999 CN₃₈, 3, 1, 0; 1999 CS₃₈, 3, 1, 0; 1999 CU₃₈, 3, 1, 0; 1999 CV₃₈, 3, 1, 0; 1999 CZ₃₈, 6, 2, 21; 1999 CB₃₉, 3, 1, 0; 1999 CC₃₉, 3, 1, 0; 1999 CG₃₉, 3, 1, 0; 1999 CJ₃₉, 3, 1, 0; 1999 CK₃₉, 3, 1, 0; 1999 CM₄₁, 3, 1, 0; 1999 CB₄₂, 3, 1, 0; 1999 CD₄₂, 3, 1, 0; 1999 CE₄₂, 3, 1, 0; 1999 CH₄₂, 6, 2, 21; 1999 CK₄₂, 3, 1, 0; 1999 CN₄₂, 3, 1, 0; 1999 CO₄₂, 3, 1, 0; 1999 CX₄₂, 3, 1, 0; 1999 CD₄₃, 3, 1, 0; 1999 CH₄₃, 3, 1, 0; 1999 CJ₄₃, 3, 1, 0; 1999 CK₄₃, 3, 1, 0; 1999 CO₄₃, 3, 1, 0; 1999 CL₄₄, 3, 1, 0; 1999 CF₄₅, 3, 1, 0; 1999 CG₄₅, 3, 1, 0; 1999 CO₄₅, 3, 1, 0; 1999 CQ₄₅, 3, 1, 0; 1999 CT₄₅, 3, 1, 0; 1999 CZ₄₅, 3, 1, 0; 1999 CE₄₆, 3, 1, 0; 1999 CF₄₆, 3, 1, 0; 1999 CG₄₆, 3, 1, 0; 1999 CJ₄₆, 3, 1, 0; 1999 CL₄₆, 3, 1, 0; 1999 CR₄₆, 3, 1, 0; 1999 CS₄₆, 6, 2, 28; 1999 CY₄₆, 3, 1, 0; 1999 CD₄₇, 3, 1, 0; 1999 CM₄₇, 3, 1, 0; 1999 CN₄₇, 3, 1, 0; 1999 CO₄₇, 3, 1, 0; 1999 CQ₄₇, 3, 1, 0; 1999 CS₄₇, 3, 1, 0; 1999 CV₄₇, 3, 1, 0; 1999 CX₄₇, 3, 1, 0; 1999 CA₄₈, 3, 1, 0; 1999 CD₄₈, 3, 1, 0; 1999 CE₄₈, 3, 1, 0; 1999 CF₄₈, 3, 1, 0; 1999 CG₄₈, 3, 1, 0; 1999 CX₄₈, 3, 1, 0; 1999 CY₄₈, 3, 1, 0; 1999 CZ₄₈, 3, 1, 0; 1999 CE₄₉, 3, 1, 0; 1999 CD₄₉, 3, 1, 0; 1999 CE₄₉, 3, 1, 0; 1999 CL₅₀, 3, 1, 0; 1999 CO₅₀, 3, 1, 0; 1999 CR₅₀, 3, 1, 0; 1999 CT₅₀, 3, 1, 0; 1999 CU₅₀, 6, 2, 28; 1999 CV₅₀, 3, 1, 0; 1999 CW₅₀, 3, 1, 0; 1999 CA₅₁, 3, 1, 0; 1999 CC₅₁, 3, 1, 0; 1999 CF₅₁, 3, 1, 0; 1999 CN₅₁, 6, 2, 34; 1999 CQ₅₃, 3, 1, 0; 1999 CP₅₆, 3, 1, 0; 1999 CU₅₇, 3, 1, 0; 1999 CY₅₇, 3, 1, 0; 1999 CC₅₉, 3, 1, 0; 1999 CR₅₉, 3, 1, 0; 1999 CT₅₉, 3, 1, 0; 1999 CU₅₉, 3, 1, 0; 1999 CY₅₉, 3, 1, 0; 1999 CE₆₀, 3, 1, 0; 1999 CF₆₀, 3, 1, 0; 1999 CO₆₀, 3, 1, 0; 1999 CQ₆₀, 3, 1, 0; 1999 CR₆₀, 6, 2, 21; 1999 CT₆₀, 3, 1, 0; 1999 CY₆₀, 3, 1, 0; 1999 CH₆₁, 3, 1, 0; 1999 CB₆₂, 3, 1, 0; 1999 CJ₆₂, 3, 1, 0; 1999 CL₆₂, 3, 1, 0; 1999 CP₆₂, 9, 3, 47; 1999 CQ₆₂, 6, 2, 27; 1999 CS₆₂, 3, 1, 0; 1999 CW₆₂, 6, 1, 0; 1999 CX₆₂, 3, 1, 0; 1999 CV₆₃, 3, 1, 0; 1999 CT₆₅, 3, 1, 0; 1999 CV₆₅, 3, 1, 0; 1999 CX₆₅, 3, 1, 0; 1999 CA₆₆, 6, 2, 21; 1999 CC₆₆, 3, 1, 0; 1999 CD₆₆, 3, 1, 0; 1999 CM₆₈, 3, 1, 0; 1999 CD₆₉, 3, 1, 0; 1999 CH₆₉, 3, 1, 0; 1999 CK₆₉, 6, 2, 20; 1999 CE₇₁, 3, 1, 0; 1999 CG₇₁, 3, 1, 0; 1999 CJ₇₁, 3, 1, 0; 1999 CL₇₁, 3, 1, 0; 1999 CM₇₁, 3, 1, 0; 1999 CO₇₁, 3, 1, 0; 1999 CP₇₁, 3, 1, 0; 1999 CQ₇₁, 3, 1, 0; 1999 CR₇₁, 3, 1, 0; 1999 CK₇₃, 3, 1, 0; 1999 CN₇₃, 6, 2, 28; 1999 CO₇₃, 3, 1, 0; 1999 CP₇₃, 3, 1, 0; 1999 CR₇₃, 3, 1, 0; 1999 CS₇₃, 3, 1, 0; 1999 CU₇₃, 3, 1, 0; 1999 CV₇₃, 3, 1, 0; 1999 CX₇₃, 3, 1, 0; 1999 CY₇₃, 3, 1, 0; 1999 CC₇₄, 3, 1, 0; 1999 CE₇₄, 3, 1, 0; 1999 CF₇₄, 3, 1, 0; 1999 CK₇₄, 3, 1, 0; 1999 CM₇₄, 3, 1, 0; 1999 CO₇₄, 6, 2, 28; 1999 CU₇₅, 3, 1, 0; 1999 CW₇₅, 3, 1, 0; 1999 CY₇₅, 3, 1, 0; 1999 CA₇₆, 3, 1, 0; 1999 CC₇₆, 3, 1, 0; 1999 CE₇₆, 3, 1, 0; 1999 CG₇₆, 3, 1, 0; 1999 CH₇₆, 3, 1, 0; 1999 CK₇₆, 3, 1, 0; 1999 CL₇₆, 3, 1, 0; 1999 CN₇₆, 3, 1, 0; 1999 CQ₇₆, 3, 1, 0; 1999 CT₇₈, 3, 1, 0; 1999 CX₇₈, 3, 1, 0; 1999 CY₇₈, 3, 1, 0; 1999 CZ₇₈, 3, 1, 0; 1999 CC₇₉, 3, 1, 0; 1999 CD₇₉, 3, 1, 0; 1999 CE₇₉, 6, 1, 0; 1999 CG₇₉, 3, 1, 0; 1999 CH₇₉, 3, 1, 0; 1999 CJ₇₉, 3, 1, 0; 1999 CL₇₉, 3, 1, 0; 1999 CL₈₂, 9, 3, 60; 1999 CP₈₂, 3, 1, 0; 1999 CV₈₂, 3, 1, 0; 1999 CW₈₂, 3, 1, 0; 1999 CX₈₂, 6, 2, 21; 1999 CD₈₃, 3, 1, 0; 1999 CN₈₃, 3, 1, 0; 1999 CS₈₃, 3, 1, 0; 1999 CO₈₃, 3, 1, 0; 1999 CP₈₃, 3, 1, 0; 1999 CU₈₃, 3, 1, 0; 1999 CX₈₃, 3, 1, 0; 1999 CZ₈₃, 6, 2, 57; 1999 CB₈₄, 6, 2, 57; 1999 CF₈₄, 3, 1, 0; 1999 CO₈₄, 3, 1, 0; 1999 CZ₈₄, 6, 2, 39; 1999 CJ₈₅, 3, 1, 0; 1999 CK₈₅, 3, 1, 0; 1999 CW₈₅, 6, 2, 20; 1999 CG₈₆, 3, 1, 0; 1999 CH₈₆, 3, 1, 0; 1999 CO₈₆, 6, 2, 20; 1999 CZ₈₆, 3, 1, 0; 1999 CJ₈₇, 3, 1, 0; 1999 CL₈₇, 6, 2, 20; 1999 CP₈₇, 3, 1, 0; 1999 CU₈₇, 3, 1, 0; 1999 CC₈₉, 6, 2, 29; 1999 CG₈₉, 3, 1, 0; 1999 CK₈₉, 3, 1, 0; 1999 CL₈₉, 3, 1, 0; 1999 CM₈₉, 3, 1, 0; 1999 CQ₈₉, 3, 1, 0; 1999 CR₈₉, 3, 1, 0; 1999 CS₈₉, 3, 1, 0; 1999 CE₉₀, 3, 1, 0; 1999 CG₉₀, 3, 1, 0; 1999 CK₉₀, 3, 1, 0; 1999 CM₉₀, 3, 1, 0; 1999 CF₉₁, 3, 1, 0; 1999 CG₉₁, 3, 1, 0; 1999 CJ₉₁, 3, 1, 0; 1999 CK₉₁, 3, 1, 0; 1999 CM₉₁, 3, 1, 0; 1999 CO₉₁, 3, 1, 0; 1999 CG₉₂, 3, 1, 0; 1999 CL₉₂, 3, 1, 0; 1999 CT₉₂, 3, 1, 0; 1999 CU₉₂, 3, 1, 0; 1999 CW₉₂, 3, 1, 0; 1999 CX₉₂, 3, 1, 0; 1999 CF₉₃, 3, 1, 0; 1999 CP₉₃, 3, 1, 0; 1999 CT₉₃, 3, 1, 0; 1999 CU₉₃, 3, 1, 0; 1999 CV₉₃, 3, 1, 0; 1999 CX₉₃, 3, 1, 0; 1999 CA₉₄, 3, 1, 0; 1999 CX₉₄, 3, 1, 0; 1999 CY₉₄, 3, 1, 0; 1999 CB₉₅, 3, 1, 0; 1999 CM₉₅, 3, 1, 0; 1999 CO₉₅, 3, 1, 0; 1999 CS₉₅, 3, 1, 0; 1999 CT₉₅, 3, 1, 0; 1999 CU₉₅, 3, 1, 0; 1999 CS₉₆, 3, 1, 0; 1999 CD₉₇, 3, 1, 0; 1999 CG₉₇, 3, 1, 0; 1999 CJ₉₇, 3, 1, 0; 1999 CT₉₇, 3, 1, 0; 1999 CB₉₈, 3, 1, 0; 1999 CC₉₈, 3, 1, 0; 1999 CD₉₈, 3, 1, 0; 1999 CJ₉₈, 3, 1, 0; 1999 CM₉₈, 3, 1, 0; 1999 CO₉₈, 3, 1, 0; 1999 CR₉₈, 3, 1, 0; 1999 CS₉₈, 3, 1, 0; 1999 CJ₉₉, 3, 1, 0; 1999 CO₉₉, 3, 1, 0; 1999 CM₁₀₂, 3, 1, 0; 1999 CO₁₀₂, 3, 1, 0; 1999 CT₁₀₂, 3, 1, 0; 1999 CU₁₀₂, 3, 1, 0; 1999 CE₁₀₃, 3, 1, 0; 1999 CP₁₀₃, 3, 1, 0; 1999 CV₁₀₃, 3, 1, 0; 1999 CW₁₀₃, 3, 1, 0; 1999 CX₁₀₃, 3, 1, 0; 1999 CB₁₀₄, 3, 1, 0; 1999 CD₁₀₄, 3, 1, 0; 1999 CF₁₀₄, 3, 1, 0; 1999 CG₁₀₄, 3, 1, 0; 1999 CK₁₀₄, 6, 2, 21; 1999 CL₁₀₄, 3, 1, 0; 1999 CC₁₀₅, 3, 1, 0; 1999 CG₁₀₅, 3, 1, 0; 1999 CN₁₀₅, 6, 2, 28; 1999 CP₁₀₅, 3, 1, 0; 1999 CR₁₀₅, 3, 1, 0; 1999 CT₁₀₅, 3, 1, 0; 1999 CU₁₀₅, 3, 1, 0; 1999 CV₁₀₅, 3, 1, 0; 1999 CX₁₀₅, 3, 1, 0; 1999 CA₁₀₆, 3, 1, 0; 1999 CD₁₀₆, 3, 1, 0; 1999 CE₁₀₆, 3, 1, 0; 1999 CW₁₀₆, 3, 1, 0; 1999 CT₁₀₇, 3, 1, 0; 1999 CW₁₀₇, 3, 1, 0; 1999 CO₁₀₈, 3, 1, 0; 1999 CE₁₀₉, 3, 1, 0; 1999 CM₁₀₉, 3, 1, 0; 1999 CR₁₀₉, 3, 1, 0; 1999 CK₁₁₁, 3, 1, 0; 1999 CL₁₁₁, 3, 1, 0; 1999 CM₁₁₁, 3, 1, 0; 1999 CP₁₁₁, 3, 1, 0; 1999 CU₁₁₁, 3, 1, 0; 1999 CY₁₁₁, 3, 1, 0; 1999 CE₁₁₄, 3, 1, 0; 1999 CF₁₁₄, 3, 1, 0; 1999 CK₁₁₄, 3, 1, 0; 1999 CN₁₁₄, 3, 1, 0; 1999 CC₁₁₆, 3, 1, 0; 1999 CD₁₁₆, 3, 1, 0; 1999 CE₁₁₆, 3, 1, 0; 1999 CN₁₁₈, 3, 1, 0; 1999 DC, 3, 1, 0; 1999 DE, 3, 1, 0; 1999 DO, 3, 1, 0; 1999 DW, 3, 1, 0; 1999 DB₁, 3, 1, 0; 1999 DC₁, 3, 1, 0; 1999 DE₁, 3, 1, 0; 1999 DP₂, 3, 1, 0; 1999 DG₃, 3, 1, 0;

2743 P-L, 3, 1, 0; 2778 P-L, 3, 1, 0; 3553 P-L, 3, 1, 0; 4088 P-L, 3, 1, 0; 4648 P-L, 3, 1, 0; 4668 P-L, 3, 1, 0; 4812 P-L, 3, 1, 0; 4838 P-L, 3, 1, 0; 6691 P-L, 3, 1, 0; 1282 T-2, 3, 1, 0; 1353 T-2, 3, 1, 0; 2116 T-2, 3, 1, 0; 3044 T-2, 3, 1, 0; 3092 T-2, 3, 1, 0; 3222 T-2, 3, 1, 0; 4297 T-2, 3, 1, 0; 4311 T-2, 3, 1, 0; 2193 T-3, 3, 1, 0; 2219 T-3, 3, 1, 0; 2326 T-3, 3, 1, 0; 4050 T-3, 3, 1, 0; 4196 T-3, 3, 1, 0; 4205 T-3, 3, 1, 0; 5082 T-3, 3, 1, 0; (35), 3, 1, 0; (215), 6, 2, 21; (253), 3, 1, 0; (255), 3, 1, 0; (272), 3, 1, 0; (277), 3, 1, 0; (283), 3, 1, 0; (304), 3, 1, 0; (309), 3, 1, 0; (325), 6, 2, 40; (357), 3, 1, 0; (382), 3, 1, 0; (398), 3, 1, 0; (420), 3, 1, 0; (423), 3, 1, 0; (431), 3, 1, 0; (447), 3, 1, 0; (453), 3, 1, 0; (464), 3, 1, 0; (465), 3, 1, 0; (498), 3, 1, 0; (510), 3, 1, 0; (512), 3, 1, 0; (515), 3, 1, 0; (536), 3, 1, 0; (540), 3, 1, 0; (552), 3, 1, 0; (558), 3, 1, 0; (588), 3, 1, 0; (590), 3, 1, 0; (620), 3, 1, 0; (640), 3, 1, 0; (642), 3, 1, 0; (658), 3, 1, 0; 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703 Catalina Sky Survey

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

Observers T. B. Spahr, S. M. Larson, C. W. Hergenrother

Measurer T. B. Spahr

0.41-m $f/3$ Schmidt + CCD

GSC-1.0

1997 PA₄, 3, 1, 0; 1999 BK₁₅, 3, 1, 0; 1999 BN₃₃ *, 6, 2, 8; 1999 CT₁₅, 3, 1, 0; [15, 4, 1*, 1998/12/25-1999/01/23]

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

1951 RX₅, 5, 1, 0; 1968 OK₄, 4, 1, 0; 1969 TQ₁, 9, 2, 3; 1970 OF₅, 10, 2, 4; 1971 UD₁, 10, 2, 3; 1972 TC₅, 5, 1, 0; 1973 SB₂, 9, 2, 3; 1973 SX₂, 5, 1, 0; 1974 QF₁, 5, 1, 0; 1974 SE₁₀, 2, 4; 1974 ST₁, 4, 1, 0; 1975 SE₅, 4, 1, 0; 1975 VZ₈, 5, 1, 0; 1975 XD₉, 2, 3; 1976 SD₅, 10, 2, 4; 1976 SE₅, 5, 1, 0; 1976 UY₄, 4, 1, 0; 1976 UB₁, 3, 1, 0; 1976 YF₃, 8, 1, 0; 1977 DQ₃, 5, 1, 0; 1977 EL₅, 10, 2, 4; 1977 EM₅, 10, 2, 4; 1977 EA₆, 10, 2, 4; 1977 XZ₂, 10, 2, 3; 1978 PH₃, 9, 2, 6; 1978 QY₁, 10, 2, 4; 1978 RE₃, 9, 2, 3; 1978 SA₅, 10, 2, 4; 1978 SO₇, 10, 2, 3; 1978 SW₇, 5, 1, 0; 1978 UG₈, 8, 2, 3; 1978 UP₂, 10, 2, 3; 1978 UX₅, 4, 1, 0; 1978 UV₇, 7, 2, 1; 1978 VU₆, 2, 1, 0; 1978 VD₇, 8, 2, 3; 1978 YM₅, 5, 1, 0; 1979 EL₅, 5, 1, 0; 1979 HN₅, 10, 2, 3; 1979 KD₁₀, 2, 4; 1979 MM₁, 5, 1, 0; 1979 MW₁, 3, 1, 0; 1979 ML₂, 9, 2, 3; 1979 MU₂, 4, 1, 0; 1979 MG₄, 5, 1, 0; 1979 MR₅, 5, 1, 0; 1979 MK₇, 10, 2, 4; 1979 OQ₅, 5, 1, 0; 1979 QC₁, 5, 1, 0; 1979 SU₂, 10, 2, 4; 1979 WY₃, 14, 3, 51; 1979 XL₁₀, 10, 2, 3; 1980 BA₃, 3, 1, 0; 1980 EB₁₀, 2, 3; 1980 FX₃, 10, 2, 3; 1980 LC₁, 17, 4, 54; 1980 PC₃, 9, 2, 3; 1980 PE₃, 5, 1, 0; 1980 RE₁, 10, 2, 4; 1980 UN₁, 4, 1, 0; 1980 UR₁, 9, 2, 58; 1980 VW₂, 5, 1, 0; 1981 DM₉, 9, 2, 4; 1981 DY₅, 5, 1, 0; 1981 DJ₂, 5, 1, 0; 1981 DD₃, 4, 1, 0; 1981 EX₃, 10, 2, 4; 1981 EA₅, 2, 1, 0; 1981 EU₇, 5, 1, 0; 1981 EV₇, 5, 1, 0; 1981 EG₁₀, 5, 1, 0; 1981 EL₁₀, 5, 1, 0; 1981 EX₁₀, 5, 1, 0; 1981 EK₁₁, 5, 1, 0; 1981 EO₁₁, 5, 1, 0; 1981 EF₁₃, 8, 2, 3; 1981 EN₁₄, 5, 1, 0; 1981 EC₁₆, 5, 1, 0; 1981 EA₂₂, 5, 1, 0; 1981 EK₂₃, 5, 1, 0; 1981 EG₂₄, 4, 1, 0; 1981 EG₂₅, 5, 1, 0; 1981 EL₂₅, 5, 1, 0; 1981 ES₂₅, 4, 1, 0; 1981 EX₂₅, 10, 2, 4; 1981 EG₂₆, 10, 2, 3; 1981 EV₂₇, 5, 1, 0; 1981 EX₂₇, 10, 2, 3; 1981 EC₂₈, 9, 2, 22; 1981 EX₃₄, 5, 1, 0; 1981 EM₃₈, 4, 1, 0; 1981 ES₃₈, 7, 2, 4; 1981 EW₃₈, 5, 1, 0; 1981 EJ₄₀, 9, 2, 7; 1981 EO₄₁, 9, 2, 3; 1981 EY₄₁, 5, 1, 0; 1981 EF₄₂, 4, 1, 0; 1981 ET₄₂, 4, 1, 0; 1981 EA₄₃, 4, 1, 0; 1981 ED₄₃, 4, 1, 0; 1981 ED₄₅, 4, 1, 0; 1981 ET₄₆, 4, 1, 0; 1981 FL₁₀, 10, 2, 4; 1981 QF₆, 6, 2, 2; 1981 QJ₃, 3,

1, 0; 1981 RF₇, 5, 1, 0; 1981 SC₇, 9, 2, 3; 1981 TH₃, 5, 1, 0; 1981 UJ₂₃, 9, 2, 3; 1981 UC₂₆, 3, 1, 0; 1981 YG₅, 5, 1, 0; 1982 DC₂, 10, 2, 4; 1982 OF₃, 3, 1, 0; 1982 QX₁, 5, 1, 0; 1982 UF₇, 10, 2, 4; 1982 UK₇, 10, 2, 3; 1982 VP₃, 5, 1, 0; 1983 GU₁₀, 10, 2, 3; 1983 RW₃, 4, 1, 0; 1983 WN₅, 5, 1, 0; 1984 LK₃, 3, 1, 0; 1984 QB₁₀, 10, 2, 3; 1984 QS₈, 2, 3; 1984 RA₁₀, 10, 2, 3; 1984 SL₄, 1, 0; 1984 SA₂, 4, 1, 0; 1984 SN₄, 4, 1, 0; 1984 WJ₁, 5, 1, 0; 1984 YL₁, 10, 2, 3; 1985 CU₁, 5, 1, 0; 1985 HS₁, 10, 2, 2; 1985 PN₁₀, 10, 2, 3; 1985 PB₂, 5, 1, 0; 1985 QG₅, 8, 2, 3; 1985 RQ₂, 2, 1, 0; 1985 RU₅, 1, 0, 0; 1985 RD₂, 7, 2, 3; 1985 RB₃, 10, 2, 3; 1985 RJ₃, 9, 2, 4; 1985 SG₃, 5, 1, 0; 1985 UQ₄, 8, 2, 3; 1986 PM₉, 9, 2, 4; 1986 PE₁, 5, 1, 0; 1986 QN₁, 9, 2, 3; 1986 QT₁, 9, 2, 3; 1986 QK₂, 5, 1, 0; 1986 QO₃, 9, 2, 3; 1986 TQ₁₀, 2, 3; 1986 TU₆, 9, 2, 4; 1986 TR₁₁, 9, 2, 4; 1986 TZ₁₁, 8, 2, 4; 1986 VA₁₀, 10, 2, 4; 1986 XR₅, 7, 2, 3; 1987 BS₁, 4, 1, 0; 1987 MA₁, 5, 1, 0; 1987 OT₉, 2, 4; 1987 QM₈, 2, 3; 1987 QF₆, 9, 2, 4; 1987 QG₆, 5, 1, 0; 1987 RF₁, 15, 3, 29; 1987 SF₁₀, 10, 2, 7; 1987 SZ₂, 10, 2, 3; 1987 SB₃, 4, 1, 0; 1987 SO₅, 4, 1, 0; 1987 SE₇, 4, 1, 0; 1987 SQ₁₇, 10, 2, 3; 1987 SR₁₇, 5, 1, 0; 1987 UA₁, 4, 1, 0; 1987 YC₁, 10, 2, 3; 1988 AH₅, 5, 1, 0; 1988 BX₃, 9, 2, 4; 1988 BN₄, 9, 2, 4; 1988 BN₅, 13, 3, 25; 1988 CO₁, 10, 2, 3; 1988 CQ₁, 15, 3, 25; 1988 CV₄, 10, 2, 4; 1988 CF₆, 9, 2, 4; 1988 DD₅, 10, 2, 4; 1988 FB₁₀, 10, 2, 3; 1988 FE₁₀, 2, 3; 1988 FN₁₀, 10, 2, 2; 1988 FS₂, 10, 2, 3; 1988 RJ₄, 9, 2, 4; 1988 RV₄, 4, 1, 0; 1988 RQ₁₂, 10, 2, 3; 1988 SX₂, 4, 1, 0; 1988 UO₁₀, 10, 2, 3; 1988 VJ₁, 5, 1, 0; 1988 VR₂, 5, 1, 0; 1988 VS₃, 5, 1, 0; 1988 VM₅, 4, 1, 0; 1988 XV₂, 10, 2, 4; 1989 AL₆, 10, 2, 3; 1989 AV₆, 10, 2, 3; 1989 AD₇, 9, 2, 7; 1989 CD₆, 9, 2, 3; 1989 CB₈, 10, 2, 2; 1989 EE₁, 15, 3, 25; 1989 GF₁, 10, 2, 3; 1989 GZ₁, 10, 2, 4; 1989 GE₃, 10, 2, 3; 1989 GR₄, 5, 1, 0; 1989 JB₅, 5, 1, 0; 1989 SA₅, 5, 1, 0; 1989 SE₉, 9, 2, 3; 1989 SX₅, 5, 1, 0; 1989 SP₁, 5, 1, 0; 1989 ST₃, 5, 1, 0; 1989 SZ₃, 4, 1, 0; 1989 SV₅, 10, 2, 3; 1989 SX₅, 13, 3, 25; 1989 TT₈, 2, 4; 1989 TY₂, 9, 2, 3; 1989 TL₁₅, 10, 2, 3; 1989 UA₅, 5, 1, 0; 1989 UL₁, 9, 2, 3; 1989 US₁, 4, 1, 0; 1989 VK₁₀, 10, 2, 4; 1989 VS₁, 10, 2, 3; 1989 WS₁₀, 10, 2, 4; 1989 WN₂, 10, 2, 4; 1989 WH₃, 5, 1, 0; 1990 DV₈, 2, 4; 1990 EN₁, 9, 2, 55; 1990 OK₅, 5, 1, 0; 1990 OF₁, 9, 2, 4; 1990 OW₁, 10, 2, 3; 1990 OD₂, 4, 1, 0; 1990 OH₂, 5, 1, 0; 1990 OH₄, 4, 1, 0; 1990 QT₁₀, 10, 2, 3; 1990 QW₁₀, 10, 2, 3; 1990 QY₉, 9, 2, 4; 1990 QE₂, 10, 2, 3; 1990 QK₃, 10, 2, 3; 1990 QU₃, 14, 3, 51; 1990 QF₄, 4, 1, 0; 1990 QC₅, 10, 2, 3; 1990 QF₅, 10, 2, 3; 1990 QR₅, 5, 1, 0; 1990 QC₆, 10, 2, 3; 1990 QP₁₀, 15, 3, 25; 1990 QW₁₇, 4, 1, 0; 1990 RF₉, 9, 2, 4; 1990 RH₂, 8, 2, 3; 1990 RW₄, 8, 2, 4; 1990 RF₅, 4, 1, 0; 1990 RN₁₇, 4, 1, 0; 1990 SA₃, 10, 2, 3; 1990 SG₃, 10, 2, 3; 1990 SC₄, 5, 1, 0; 1990 SE₆, 8, 2, 4; 1990 SL₇, 9, 2, 3; 1990 SG₈, 10, 2, 3; 1990 SY₈, 5, 1, 0; 1990 SS₉, 10, 2, 3; 1990 SX₁₀, 10, 2, 4; 1990 SN₁₆, 3, 1, 0; 1990 SN₂₈, 8, 2, 3; 1990 TX₁₀, 10, 2, 3; 1990 TB₁, 10, 2, 3; 1990 TR₁, 5, 1, 0; 1990 TR₅, 4, 1, 0; 1990 TY₇, 9, 2, 3; 1990 TE₉, 9, 2, 3; 1990 TG₁₁, 5, 1, 0; 1990 TG₁₃, 5, 1, 0; 1990 TK₁₅, 10, 2, 3; 1990 UN₂, 9, 2, 3; 1990 UQ₂, 10, 2, 3; 1990 UQ₃, 4, 1, 0; 1990 UW₃, 8, 2, 3; 1990 VT₁, 4, 1, 0; 1990 VD₃, 10, 2, 4; 1990 VD₄, 15, 3, 6; 1990 VG₆, 4, 1, 0; 1990 VB₁₄, 10, 2, 4; 1990 WD₄, 4, 1, 0; 1990 WS₉, 9, 2, 4; 1990 WR₂, 5, 1, 0; 1990 WJ₄, 10, 2, 3; 1990 WQ₆, 4, 1, 0; 1990 XF₄, 4, 1, 0; 1990 XN₉, 9, 2, 3; 1990 XZ₁₀, 10, 2, 2; 1991 AS₁, 5, 1, 0; 1991 AL₂, 4, 1, 0; 1991 CG₁, 5, 1, 0; 1991 DK₁₀, 10, 2, 3; 1991 DW₁₀, 10, 2, 3; 1991 DH₁, 4, 1, 0; 1991 FZ₁₀, 10, 2, 3; 1991 GB₁, 10, 2, 7; 1991 GC₂, 5, 1, 0; 1991 GQ₃, 5, 1, 0; 1991 GV₆, 4, 1, 0; 1991 GM₈, 3, 1, 0; 1991 GS₁₀, 15, 3, 25; 1991 KE₈, 2, 3; 1991 PA₂, 10, 2, 32; 1991 PU₂, 13, 3, 25; 1991 PG₉, 4, 1, 0; 1991 PP₁₁, 4, 1, 0; 1991 PT₁₁, 10, 2, 4; 1991 PJ₁₂, 9, 2, 4; 1991 PP₁₃, 15, 3, 25; 1991 PT₁₆, 5, 1, 0; 1991 RO₁, 5, 1, 0; 1991 RR₁, 5, 1, 0; 1991 RF₂, 8, 2, 3; 1991 RP₂, 10, 2, 4; 1991 RX₄, 9, 2, 4; 1991 RK₅, 9, 2, 3; 1991 RB₇, 3, 1, 0; 1991 RQ₇, 3, 1, 0; 1991 RB₁₁, 5, 1, 0; 1991 RX₂₁, 4, 1, 0; 1991 RJ₂₂, 9, 2, 3; 1991 RX₂₅, 10, 2, 3; 1991 SN₁₅, 15, 3, 25; 1991 SC₁, 10, 2, 3; 1991 SC₂, 10, 2, 3; 1991 SK₂, 5, 1, 0; 1991 TQ₉, 9, 2, 3; 1991 TQ₁, 5, 1, 0; 1991 TL₃, 7, 2, 4; 1991 UO₂, 5, 1, 0; 1991 UN₃, 4, 1, 0; 1991 VF₁, 4, 1, 0; 1991 VT₁, 5, 1, 0; 1991 VX₂, 4, 1, 0; 1991 VD₅, 5, 1, 0; 1991 VW₈, 9, 2, 3; 1991 VB₉, 8, 2, 3; 1991 YX₅, 1, 0; 1992 AM₅, 5, 1, 0; 1992 AU₁, 5, 1, 0; 1992 BX₉, 9, 2, 59; 1992 BM₂, 9, 2, 4; 1992 CK₁₀, 2, 3; 1992 CA₃, 5, 1, 0; 1992 CE₃, 5, 1, 0; 1992 CG₃, 4, 1, 0; 1992 DY₈, 2, 3; 1992 DE₃, 9, 2, 3; 1992 DL₄, 10, 2, 3; 1992 DN₆, 9, 2, 3; 1992 DB₉, 5, 1, 0; 1992 DF₁₀, 5, 1, 0; 1992 DC₁₁, 10, 2, 3; 1992 EC₉, 9, 2, 3; 1992 EE₁₀, 10, 2, 3; 1992 EP₁₄, 3, 25; 1992 EA₆, 4, 1, 0; 1992 EF₆, 10, 2, 3; 1992 EL₈, 10, 2, 3; 1992 EY₉, 4, 1, 0; 1992 EB₁₃, 7, 2, 4; 1992 ED₁₃, 5, 1, 0; 1992 EG₁₄, 5, 1, 0; 1992 EV₁₅, 10, 2, 4; 1992 EM₁₇, 15, 3, 25; 1992 ER₁₇, 5, 1, 0; 1992 EC₁₈, 5, 1, 0; 1992 EE₂₂, 5, 1, 0; 1992 FS₁, 9, 2, 6; 1992 FT₁, 10, 2, 54; 1992 FW₁, 5, 1, 0; 1992 GO₄, 3, 1, 0; 1992 HM₂, 5, 1, 0; 1992 HG₄, 5, 1, 0; 1992 JL₄, 4, 1, 0; 1992 JC₁, 10, 2, 3; 1992 JB₂, 4, 1, 0; 1992 LK₃, 3, 1, 0; 1992 LS₉, 9, 2, 4; 1992 ME₅, 5, 1, 0; 1992 OE₈, 2, 3; 1992 OK₂, 2, 1, 0; 1992 PN₁, 4, 1, 0; 1992 PX₂, 10, 2, 4; 1992 PC₃, 8, 2, 1; 1992 QR₅, 5, 1, 0; 1992 RF₅, 4, 1, 0; 1992 RE₆, 9, 2, 3; 1992 SH₉, 2, 4; 1992 SJ₄, 4, 1, 0; 1992 SK₅, 1, 0; 1992 SW₁₆, 8, 2, 4; 1992 SA₂₂, 18, 4, 467; 1992 SS₂₄, 10, 2, 4; 1992 TV₁₀, 10, 2, 4; 1992 UK₁, 9, 2, 4; 1992 UJ₂, 4, 1, 0; 1992 UZ₃, 5, 1, 0; 1992 UP₆, 10, 2, 4; 1992 VQ₉, 9, 2, 23; 1992 WF₁, 4, 1, 0; 1992 WP₁, 15, 3, 25; 1992 WH₂, 10, 2, 4; 1992 WB₉, 8, 2, 3; 1992

1993 SS₁, 10, 2, 3; 1993 SA₂, 9, 2, 3; 1993 SX₄, 5, 1, 0; 1993 TL₁₃, 4, 1, 0; 1993 TO₁₇, 4, 1, 0; 1993 TG₁₉, 8, 2, 3; 1993 TG₃₁, 9, 2, 3; 1993 TH₃₂, 10, 2, 3; 1993 TL₃₂, 5, 1, 0; 1993 TS₃₆, 10, 2, 1; 1993 TU₃₆, 10, 2, 3; 1993 TY₃₈, 10, 2, 4; 1993 TZ₃₈, 5, 1, 0; 1993 TB₃₉, 10, 2, 4; 1993 UE, 9, 2, 3; 1993 UK, 4, 1, 0; 1993 UV, 10, 2, 4; 1993 UJ, 4, 1, 0; 1993 UC₃, 14, 3, 6; 1993 UT₆, 10, 2, 4; 1993 UM₈, 10, 2, 4; 1993 VE, 10, 2, 3; 1993 VT, 4, 1, 0; 1993 VG₁, 10, 2, 3; 1993 VV₇, 5, 1, 0; 1993 XG, 4, 1, 0; 1993 XJ, 7, 2, 3; 1994 AT₂, 5, 1, 0; 1994 AF₃, 5, 1, 0; 1994 AP₇, 4, 1, 0; 1994 AN₉, 4, 1, 0; 1994 AL₁₆, 4, 1, 0; 1994 BM₄, 5, 1, 0; 1994 CM₁, 5, 1, 0; 1994 CV₁₆, 5, 1, 0; 1994 GR₉, 10, 2, 3; 1994 NQ, 3, 1, 0; 1994 PU, 10, 2, 3; 1994 PB₁, 4, 1, 0; 1994 PM₁, 14, 3, 52; 1994 PA₂, 9, 2, 3; 1994 PL₁₃, 4, 1, 0; 1994 PX₁₅, 5, 1, 0; 1994 PF₂₂, 4, 1, 0; 1994 PE₃₃, 4, 1, 0; 1994 QA, 3, 1, 0; 1994 RJ₁₁, 3, 1, 0; 1994 TA₃, 9, 2, 3; 1994 TR₃, 4, 1, 0; 1994 UD, 9, 2, 3; 1994 UH, 10, 1, 0; 1994 UJ, 9, 2, 3; 1994 UX₁, 10, 2, 3; 1994 UC₂, 5, 1, 0; 1994 UD₂, 8, 2, 51; 1994 UR₆, 7, 2, 4; 1994 UP₁₁, 10, 2, 3; 1994 VD₁, 9, 2, 3; 1994 VB₂, 10, 2, 4; 1994 VE₂, 9, 2, 51; 1994 VZ₂, 9, 2, 3; 1994 VB₃, 4, 1, 0; 1994 VQ₇, 5, 1, 0; 1994 WE₁, 10, 2, 3; 1994 WF₂, 4, 1, 0; 1994 WL₃, 4, 1, 0; 1994 WP₃, 5, 1, 0; 1994 WR₃, 4, 1, 0; 1994 WW₇, 5, 1, 0; 1994 WJ₁₂, 4, 1, 0; 1994 XJ, 5, 1, 0; 1994 XK, 4, 1, 0; 1994 XP, 5, 1, 0; 1994 XF₁, 10, 2, 3; 1994 XS₄, 10, 2, 3; 1994 YN₁, 9, 2, 3; 1994 YQ₁, 9, 2, 3; 1994 YT₁, 10, 2, 3; 1994 YZ₁, 10, 2, 3; 1995 AL, 9, 2, 3; 1995 AD₁, 5, 1, 0; 1995 AV₂, 9, 2, 3; 1995 AZ₃, 5, 1, 0; 1995 BA, 10, 2, 3; 1995 BC₁, 5, 1, 0; 1995 BO₁, 4, 1, 0; 1995 BP₁, 10, 2, 3; 1995 BV₁, 5, 1, 0; 1995 BZ₁, 5, 1, 0; 1995 BL₂, 3, 1, 0; 1995 BN₃, 10, 2, 3; 1995 BP₃, 8, 2, 4; 1995 BL₄, 10, 2, 3; 1995 CB₁, 9, 2, 3; 1995 CF₁, 10, 2, 3; 1995 CL₁, 3, 1, 0; 1995 DC, 10, 2, 3; 1995 DD, 10, 2, 3; 1995 DE, 9, 2, 1; 1995 DH, 9, 2, 4; 1995 DX, 5, 1, 0; 1995 DA₁, 10, 2, 3; 1995 DS₁, 10, 2, 4; 1995 DP₂, 9, 2, 3; 1995 DZ₃, 5, 1, 0; 1995 DE₈, 9, 2, 4; 1995 EE₈, 9, 2, 3; 1995 EZ₈, 4, 1, 0; 1995 EA₉, 3, 1, 0; 1995 FD, 10, 2, 3; 1995 FM, 9, 2, 4; 1995 FN, 10, 2, 3; 1995 FQ, 5, 1, 0; 1995 FZ₃, 5, 1, 0; 1995 FQ₄, 5, 1, 0; 1995 FM₈, 5, 1, 0; 1995 FP₁₄, 4, 1, 0; 1995 FW₁₉, 10, 2, 3; 1995 GC₂, 10, 2, 3; 1995 GV₂, 8, 2, 3; 1995 GS₅, 9, 2, 3; 1995 GJ₇, 10, 2, 3; 1995 GA₈, 10, 2, 3; 1995 JD, 5, 1, 0; 1995 MC, 5, 1, 0; 1995 SX₄₈, 10, 2, 4; 1996 BA₂, 4, 1, 0; 1996 BE₂, 4, 1, 0; 1996 BL₂, 4, 1, 0; 1996 BU₄, 4, 1, 0; 1996 CR₁, 5, 1, 0; 1996 CL₇, 3, 1, 0; 1996 CW₇, 8, 2, 3; 1996 CG₉, 4, 1, 0; 1996 DD, 10, 2, 3; 1996 DE, 4, 1, 0; 1996 DS₁, 5, 1, 0; 1996 ER, 8, 2, 4; 1996 EK₁, 4, 1, 0; 1996 ED₂, 9, 2, 44; 1996 EH₂, 5, 1, 0; 1996 EK₂, 5, 1, 0; 1996 ES₂, 5, 1, 0; 1996 EK₁₅, 4, 1, 0; 1996 FA₂, 4, 1, 0; 1996 FP₃, 9, 2, 3; 1996 FJ₅, 5, 1, 0; 1996 FT₆, 9, 2, 4; 1996 FJ₉, 9, 2, 4; 1996 GF₁, 10, 2, 3; 1996 GP₂, 10, 2, 3; 1996 GG₅, 4, 1, 0; 1996 GR₁₇, 9, 2, 3; 1996 GV₁₈, 9, 2, 3; 1996 GA₁₉, 10, 2, 3; 1996 GV₂₀, 9, 2, 3; 1996 GD₂₁, 5, 1, 0; 1996 HO, 9, 2, 3; 1996 HQ, 9, 2, 3; 1996 HU, 5, 1, 0; 1996 HC₁, 8, 2, 3; 1996 HH₁, 4, 1, 0; 1996 HL₁, 10, 2, 2; 1996 HT₂, 4, 1, 0; 1996 HQ₉, 9, 2, 4; 1996 HP₁₈, 5, 1, 0; 1996 HR₁₈, 4, 1, 0; 1996 HC₁₉, 9, 2, 4; 1996 HM₂₂, 9, 2, 3; 1996 HQ₂₂, 4, 1, 0; 1996 HS₂₂, 5, 1, 0; 1996 HP₂₃, 10, 2, 3; 1996 HC₂₄, 9, 2, 3; 1996 HD₂₄, 9, 2, 4; 1996 HN₂₄, 15, 3, 54; 1996 JN, 15, 3, 54; 1996 JV, 9, 2, 3; 1996 JY, 10, 2, 4; 1996 JF₁, 5, 1, 0; 1996 JF₂, 10, 2, 4; 1996 JW₂, 9, 2, 4; 1996 JT₃, 4, 1, 0; 1996 JU₃, 4, 1, 0; 1996 JC₅, 13, 3, 53; 1996 KB, 7, 2, 7; 1996 KO, 5, 1, 0; 1996 KW, 9, 2, 3; 1996 KQ₁, 5, 1, 0; 1996 KX₂, 10, 2, 4; 1996 LL, 5, 1, 0; 1996 LV₁, 5, 1, 0; 1996 LV₃, 9, 2, 3; 1996 NC, 10, 2, 3; 1996 NU₁, 10, 2, 4; 1996 NF₄, 3, 1, 0; 1996 NN₄, 5, 1, 0; 1996 NE₅, 9, 2, 4; 1996 OQ, 5, 1, 0; 1996 OQ₁, 15, 3, 6; 1996 OS₂, 3, 1, 0; 1996 PF₅, 10, 2, 4; 1996 PJ₅, 5, 1, 0; 1996 PY₇, 5, 1, 0; 1996 QD, 9, 2, 4; 1996 QN₁, 10, 2, 3; 1996 RB, 4, 1, 0; 1996 RO₅, 5, 1, 0; 1996 SR₇, 5, 1, 0; 1996 TJ₁₅, 5, 1, 0; 1996 TT₃₈, 5, 1, 0; 1996 TD₄₀, 5, 1, 0; 1996 UO, 5, 1, 0; 1996 VS, 10, 2, 4; 1996 WV₁, 4, 1, 0; 1997 CU₂₆, 8, 2, 4; 1997 JR, 11, 3, 4; 1997 LD, 4, 1, 0; 1997 MA₃, 5, 1, 0; 1997 MB₉, 3, 1, 0; 1997 NN₁, 9, 2, 3; 1997 NG₃, 5, 1, 0; 1997 NE₁₁, 5, 1, 0; 1997 OU₂, 4, 1, 0; 1997 OW₂, 9, 2, 4; 1997 PS, 5, 1, 0; 1997 PX, 10, 2, 4; 1997 PK₂, 5, 1, 0; 1997 PY₂, 5, 1, 0; 1997 PA₄, 15, 3, 33; 1997 PF₄, 5, 1, 0; 1997 PL₄, 5, 1, 0; 1997 PM₄, 4, 1, 0; 1997 PQ₄, 4, 1, 0; 1997 PR₄, 18, 4, 57; 1997 PN₅, 5, 1, 0; 1997 QA, 10, 2, 4; 1997 QG, 5, 1, 0; 1997 QU, 9, 2, 4; 1997 QV, 4, 1, 0; 1997 QB₁, 11, 3, 25; 1997 QD₁, 5, 1, 0; 1997 QM₁, 4, 1, 0; 1997 QN₁, 10, 2, 4; 1997 QY₁, 10, 2, 3; 1997 QE₂, 9, 2, 3; 1997 QF₂, 4, 1, 0; 1997 QS₂, 3, 1, 0; 1997 QY₂, 4, 1, 0; 1997 QZ₂, 10, 2, 3; 1997 QN₃, 9, 2, 3; 1997 QP₃, 5, 1, 0; 1997 QV₃, 10, 2, 4; 1997 QB₄, 8, 2, 3; 1997 QN₄, 4, 1, 0; 1997 QP₄, 5, 1, 0; 1997 RC, 10, 2, 3; 1997 RZ, 5, 1, 0; 1997 RR₁, 9, 2, 3; 1997 RW₂, 5, 1, 0; 1997 RE₃, 5, 1, 0; 1997 RO₃, 10, 2, 4; 1997 RR₃, 9, 2, 4; 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1997 UU₂, 13, 3, 25; 1997 UV₂, 5, 1, 0; 1997 UJ₃, 10, 2, 4; 1997 UJ₅, 10, 2, 3; 1997 UK₇, 15, 3, 25; 1997 UZ₈, 5, 1, 0; 1997 UM₉, 10, 2, 3; 1997 UV₁₀, 10, 2, 4; 1997 UY₁₀, 10, 2, 4; 1997 UC₁₁, 4, 1, 0; 1997 UV₁₄, 9, 2, 4; 1997 UW₁₄, 5, 1, 0; 1997 UY₁₄, 10, 2, 3; 1997 UC₁₅, 4, 1, 0; 1997 UX₂₀, 9, 2, 3; 1997 UK₂₂, 10, 2, 3; 1997 UT₂₂, 10, 2, 3; 1997 UB₂₅, 4, 1, 0; 1997 UD₂₅, 10, 2, 3; 1997 VE, 8, 2, 3; 1997 VQ, 9, 2, 4; 1997 VC₁, 9, 2, 3; 1997 VF₁, 10, 2, 3; 1997 VJ₁, 5, 1, 0; 1997 VN₁, 5,

1, 0; 1997 VQ₁, 10, 2, 4; 1997 VY₁, 10, 2, 4; 1997 VD₄, 9, 2, 4; 1997 VZ₄, 10, 2, 3; 1997 VC₅, 4, 1, 0; 1997 VK₅, 5, 1, 0; 1997 VM₅, 5, 1, 0; 1997 VS₅, 4, 1, 0; 1997 VY₅, 5, 1, 0; 1997 VH₆, 10, 2, 3; 1997 VO₆, 9, 2, 4; 1997 VP₆, 5, 1, 0; 1997 VU₆, 5, 1, 0; 1997 VR₇, 10, 2, 3; 1997 VX₇, 10, 2, 3; 1997 VE₈, 4, 1, 0; 1997 VG₈, 9, 2, 3; 1997 VY₈, 9, 2, 4; 1997 WH, 9, 2, 4; 1997 WX, 9, 2, 3; 1997 WG₁, 4, 1, 0; 1997 WA₂, 10, 2, 3; 1997 WR₃, 10, 2, 3; 1997 WO₇, 15, 3, 74; 1997 WW₇, 5, 1, 0; 1997 WE₈, 9, 2, 4; 1997 WQ₁₁, 4, 1, 0; 1997 WV₁₂, 9, 2, 3; 1997 WB₁₃, 10, 2, 3; 1997 WP₁₄, 9, 2, 3; 1997 WD₁₅, 9, 2, 3; 1997 WQ₁₅, 3, 1, 0; 1997 WM₁₆, 10, 2, 3; 1997 WT₂₃, 5, 1, 0; 1997 WZ₂₉, 5, 1, 0; 1997 WB₃₃, 9, 2, 4; 1997 WQ₃₄, 5, 1, 0; 1997 WT₃₄, 9, 2, 3; 1997 WU₃₅, 10, 2, 3; 1997 WB₃₇, 15, 3, 25; 1997 WQ₃₇, 10, 2, 3; 1997 WN₃₈, 8, 2, 3; 1997 WL₄₄, 5, 1, 0; 1997 WP₄₄, 5, 1, 0; 1997 XQ₂, 10, 2, 4; 1997 XT₅, 5, 1, 0; 1997 XX₅, 4, 1, 0; 1997 XY₉, 5, 1, 0; 1997 XY₁₀, 7, 2, 3; 1997 XO₁₁, 9, 2, 4; 1997 XR₁₁, 5, 1, 0; 1997 XN₁₂, 4, 1, 0; 1997 YA, 10, 2, 3; 1997 YH₁, 10, 2, 3; 1997 YL₁, 10, 2, 4; 1997 YM₄, 10, 2, 4; 1997 YJ₅, 4, 1, 0; 1997 YD₁₀, 4, 1, 0; 1997 YO₁₄, 4, 1, 0; 1997 YQ₁₉, 9, 2, 4; 1997 YG₂₀, 9, 2, 4; 1998 BX₉, 8, 2, 3; 1998 BX₁₃, 5, 1, 0; 1998 BT₂₆, 8, 2, 3; 1998 CS₂, 9, 2, 3; 1998 HU₉₉, 9, 2, 21; 1998 QV₅₀, 4, 1, 0; 1998 QJ₅₄, 5, 1, 0; 1998 QU₆₀, 5, 1, 0; 1998 QV₈₈, 5, 1, 0; 1998 QV₈₉, 5, 1, 0; 1998 QA₉₁, 4, 1, 0; 1998 QL₉₂, 5, 1, 0; 1998 QO₉₂, 4, 1, 0; 1998 QS₉₂, 4, 1, 0; 1998 QW₉₂, 3, 1, 0; 1998 QX₉₂, 5, 1, 0; 1998 QA₉₃, 4, 1, 0; 1998 QB₉₃, 4, 1, 0; 1998 QH₉₃, 4, 1, 0; 1998 QO₉₃, 4, 1, 0; 1998 QO₉₃, 4, 1, 0; 1998 QP₉₃, 5, 1, 0; 1998 QQ₉₃, 5, 1, 0; 1998 QR₉₃, 4, 1, 0; 1998 RX₇₉, 5, 1, 0; 1998 SM₄, 5, 1, 0; 1998 SA₁₃, 5, 1, 0; 1998 ST₂₆, 4, 1, 0; 1998 SZ₃₅, 5, 1, 0; 1998 SK₅₀, 5, 1, 0; 1998 SJ₆₂, 10, 2, 26; 1998 SJ₆₃, 5, 1, 0; 1998 ST₆₃, 5, 1, 0; 1998 SG₈₇, 14, 1, 0; 1998 SK₁₀₀, 5, 1, 0; 1998 SQ₁₀₉, 5, 1, 0; 1998 SD₁₁₂, 4, 1, 0; 1998 SH₁₁₇, 5, 1, 0; 1998 SQ₁₃₅, 4, 1, 0; 1998 TC, 10, 2, 4; 1998 TV₁, 5, 1, 0; 1998 TO₃, 5, 1, 0; 1998 TR₃, 5, 1, 0; 1998 TR₃, 5, 1, 0; 1998 TA₃₄, 4, 1, 0; 1998 UG, 5, 1, 0; 1998 UH, 4, 1, 0; 1998 UX, 7, 2, 55; 1998 UW₁, 5, 1, 0; 1998 UA₇, 9, 2, 3; 1998 UK₆, 10, 2, 4; 1998 UL, 15, 3, 25; 1998 UG₆, 5, 1, 0; 1998 UA₇, 4, 1, 0; 1998 UY₇, 5, 1, 0; 1998 UT₁₅, 5, 1, 0; 1998 UJ₁₆, 10, 2, 3; 1998 UN₁₈, 5, 1, 0; 1998 UP₁₈, 4, 1, 0; 1998 UO₂₀, 4, 1, 0; 1998 UV₂₀, 4, 1, 0; 1998 UA₂₁, 5, 1, 0; 1998 UF₂₁, 5, 1, 0; 1998 UO₂₃, 9, 2, 52; 1998 UQ₃₂, 14, 3, 25; 1998 UT₃₉, 5, 1, 0; 1998 VA, 4, 1, 0; 1998 VW, 5, 1, 0; 1998 VA₅, 4, 1, 0; 1998 VH₅, 4, 1, 0; 1998 VT₅, 4, 1, 0; 1998 VT₆, 4, 1, 0; 1998 VV₆, 5, 1, 0; 1998 VF₇, 9, 2, 57; 1998 VG₇, 5, 1, 0; 1998 VL₁₄, 9, 2, 57; 1998 VN₂₄, 4, 1, 0; 1998 VQ₂₅, 5, 1, 0; 1998 VK₂₈, 5, 1, 0; 1998 VD₂₉, 5, 1, 0; 1998 VQ₂₉, 9, 2, 54; 1998 VU₂₉, 8, 2, 54; 1998 VV₂₉, 5, 1, 0; 1998 VO₃₁, 13, 3, 53; 1998 VA₃₂, 10, 2, 52; 1998 VS₃₂, 10, 2, 3; 1998 VV₃₂, 4, 1, 0; 1998 VX₃₂, 4, 1, 0; 1998 VE₃₃, 5, 1, 0; 1998 VT₃₃, 9, 2, 33; 1998 VO₃₈, 5, 1, 0; 1998 VU₄₁, 9, 2, 27; 1998 VV₄₁, 5, 1, 0; 1998 WM, 4, 1, 0; 1998 WP, 5, 1, 0; 1998 WQ, 5, 1, 0; 1998 WS, 5, 1, 0; 1998 WY, 5, 1, 0; 1998 WC₁, 4, 1, 0; 1998 WD₂, 4, 1, 0; 1998 WN₂, 10, 2, 4; 1998 WQ₂, 4, 1, 0; 1998 WA₃, 10, 2, 3; 1998 WB₃, 10, 2, 3; 1998 WC₃, 10, 2, 3; 1998 WG₃, 3, 1, 0; 1998 WQ₃, 5, 1, 0; 1998 WR₃, 5, 1, 0; 1998 WT₃, 5, 1, 0; 1998 WH₄, 4, 1, 0; 1998 WA₅, 3, 1, 0; 1998 WY₅, 5, 1, 0; 1998 WP₆, 5, 1, 0; 1998 WQ₆, 4, 1, 0; 1998 WM₇, 10, 2, 3; 1998 WC₈, 5, 1, 0; 1998 WJ₈, 3, 1, 0; 1998 WE₉, 5, 1, 0; 1998 WQ₈, 8, 2, 3; 1998 WJ₉, 4, 1, 0; 1998 WZ₁₃, 3, 1, 0; 1998 WA₁₄, 4, 1, 0; 1998 WN₁₆, 9, 2, 157; 1998 WM₁₉, 9, 2, 4; 1998 WN₁₉, 10, 2, 4; 1998 WO₁₉, 9, 2, 4; 1998 WP₁₉, 9, 2, 4; 1998 WR₁₉, 10, 2, 4; 1998 WS₁₉, 10, 2, 3; 1998 WT₁₉, 10, 2, 4; 1998 WU₂₀, 5, 1, 0; 1998 WZ₂₀, 5, 1, 0; 1998 WR₂₁, 5, 1, 0; 1998 WS₂₃, 10, 2, 3; 1998 WU₂₃, 10, 2, 3; 1998 WV₂₃, 10, 2, 3; 1998 WZ₂₃, 15, 3, 54; 1998 WA₂₄, 10, 2, 4; 1998 WB₂₄, 10, 2, 3; 1998 WC₂₄, 10, 2, 3; 1998 WD₂₄, 10, 2, 3; 1998 WE₂₄, 10, 2, 4; 1998 WX₂₆, 3, 1, 0; 1998 WZ₂₆, 7, 2, 3; 1998 WY₃₀, 4, 1, 0; 1998 XC, 5, 1, 0; 1998 XD, 9, 2, 3; 1998 XF, 10, 2, 3; 1998 XN₃, 5, 1, 0; 1998 XP₃, 4, 1, 0; 1998 XB₄, 5, 1, 0; 1998 XC₄, 4, 1, 0; 1998 XQ₄, 8, 1, 0; 1998 XB₅, 4, 1, 0; 1998 XH₅, 5, 1, 0; 1998 XN₈, 8, 2, 3; 1998 XY_{8</}

51; 1998 YK₁₇, 1, 1, 0; 1998 YS₁₇, 10, 2, 3; 1998 YU₁₉, 9, 2, 3; 1998 YT₂₀, 8, 2, 3; 1998 YJ₂₂, 9, 2, 2; 1998 YO₂₂, 5, 1, 0; 1998 YF₂₇, 5, 1, 0; 1998 YR₂₇, 5, 1, 0; 1998 YT₂₇, 9, 2, 4; 1998 YU₂₇, 19, 4, 55; 1998 YR₂₉, 10, 2, 3; 1998 YS₂₉, 14, 3, 3; 1998 YT₂₉, 10, 2, 3; 1998 YV₂₉, 9, 2, 3; 1998 YW₂₉, 9, 2, 3; 1998 YX₂₉, 11, 3, 3; 1998 YY₂₉, 19, 4, 85; 1998 YZ₂₉, 9, 2, 3; 1998 YE₃₀, 7, 2, 3; 1999 AD, 8, 2, 85; 1999 AE, 8, 2, 27; 1999 AJ, 4, 1, 0; 1999 AK, 10, 2, 51; 1999 AU, 10, 2, 3; 1999 AV, 9, 2, 3; 1999 AW, 10, 2, 3; 1999 AX, 9, 2, 3; 1999 AZ, 10, 2, 3; 1999 AV₁, 8, 2, 2; 1999 AA₂, 5, 1, 0; 1999 AC₂, 4, 1, 0; 1999 AD₂, 9, 2, 3; 1999 AE₂, 14, 3, 25; 1999 AF₂, 10, 2, 22; 1999 AG₂, 15, 3, 51; 1999 AJ₂, 8, 2, 3; 1999 AL₂, 10, 2, 3; 1999 AN₂, 10, 2, 3; 1999 AO₂, 9, 2, 3; 1999 AP₂, 8, 2, 3; 1999 AQ₂, 10, 2, 3; 1999 AR₂, 10, 2, 3; 1999 AS₂, 9, 2, 3; 1999 AT₂, 10, 2, 3; 1999 AU₂, 10, 2, 3; 1999 AP₃, 9, 2, 3; 1999 AQ₃, 9, 2, 3; 1999 AR₃, 15, 3, 25; 1999 AS₃, 10, 2, 3; 1999 AW₃, 14, 3, 25; 1999 AX₃, 15, 3, 25; 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1999 BB, 10, 2, 4; 1999 BC, 10, 2, 3; 1999 BD, 9, 2, 3; 1999 BF, 10, 2, 3; 1999 BG, 9, 2, 3; 1999 BH, 9, 2, 3; 1999 BJ, 10, 2, 3; 1999 BK, 10, 2, 6; 1999 BL, 10, 2, 3; 1999 BM, 10, 2, 3; 1999 BQ, 4, 1, 0; 1999 BW, 7, 2, 3; 1999 BE₁, 8, 2, 3; 1999 BO₁, 20, 4, 54; 1999 BP₁, 8, 2, 3; 1999 BV₁, 10, 2, 4; 1999 BW₁, 10, 2, 4; 1999 BY₁, 10, 2, 3; 1999 BB₂, 17, 4, 80; 1999 BC₂, 10, 2, 3; 1999 BM₂, 8, 2, 3; 1999 BO₂, 8, 2, 3; 1999 BF₂, 10, 2, 3; 1999 BQ₂, 9, 2, 3; 1999 BR₂, 10, 2, 3; 1999 BS₂, 8, 2, 3; 1999 BT₂, 15, 3, 6; 1999 BU₂, 15, 3, 59; 1999 BV₂, 9, 2, 3; 1999 BW₂, 5, 1, 0; 1999 BX₂, 10, 2, 3; 1999 BY₂, 10, 2, 3; 1999 BZ₂, 10, 2, 3; 1999 BA₃, 10, 2, 3; 1999 BB₃, 9, 2, 3; 1999 BC₃, 4, 1, 0; 1999 BD₃, 9, 2, 3; 1999 BF₃, 10, 2, 3; 1999 BG₃, 4, 1, 0; 1999 BH₃, 10, 2, 2; 1999 BO₃, 5, 1, 0; 1999 BR₃, 10, 2, 4; 1999 BS₃, 9, 2, 4; 1999 BU₃, 9, 2, 4; 1999 BX₃, 10, 2, 4; 1999 BZ₃, 10, 2, 3; 1999 BC₄, 10, 2, 3; 1999 BL₄, 10, 2, 3; 1999 BM₄, 10, 2, 4; 1999 BO₄, 8, 2, 4; 1999 BW₄, 9, 2, 3; 1999 BX₄, 8, 2, 3; 1999 BA₅, 9, 2, 3; 1999 BD₅, 10, 2, 3; 1999 BE₅, 10, 2, 3; 1999 BF₅, 8, 2, 3; 1999 BO₅, 9, 2, 3; 1999 BR₅, 10, 2, 4; 1999 BT₅, 9, 2, 4; 1999 BV₅, 10, 2, 3; 1999 BW₅, 8, 2, 4; 1999 BY₅, 10, 2, 4; 1999 BA₆, 10, 2, 4; 1999 BE₆, 9, 2, 3; 1999 BF₆, 9, 2, 3; 1999 BF₇, 10, 2, 3; 1999 BG₇, 10, 2, 3; 1999 BK₇, 10, 2, 3; 1999 BL₇, 8, 2, 3; 1999 BY₇, 8, 2, 1; 1999 BA₈, 9, 2, 4; 1999 BC₈, 9, 2, 4; 1999 BF₈, 10, 2, 3; 1999 BH₈, 10, 2, 3; 1999 BJ₈, 15, 3, 29; 1999 BK₈, 10, 2, 3; 1999 BV₈, 10, 2, 3; 1999 BW₈, 3, 1, 0; 1999 BX₈, 10, 2, 4; 1999 BY₈, 10, 2, 3; 1999 BZ₈, 10, 2, 3; 1999 BA₉, 10, 2, 3; 1999 BB₉, 9, 2, 3; 1999 BC₉, 10, 2, 3; 1999 BD₉, 8, 2, 4; 1999 BE₉, 7, 2, 3; 1999 BF₉, 10, 2, 4; 1999 BG₉, 10, 2, 4; 1999 BH₉, 9, 2, 4; 1999 BJ₉, 7, 2, 4; 1999 BK₉, 10, 2, 4; 1999 BO₉, 10, 2, 4; 1999 BQ₉, 5, 1, 0; 1999 BS₉, 10, 2, 3; 1999 BA₁₀, 10, 2, 3; 1999 BB₁₀, 8, 2, 3; 1999 BD₁₀, 10, 2, 3; 1999 BF₁₀, 10, 2, 3; 1999 BG₁₀, 10, 2, 3; 1999 BH₁₀, 8, 2, 4; 1999 BJ₁₀, 9, 2, 4; 1999 BL₁₀, 8, 2, 3; 1999 BM₁₀, 9, 2, 3; 1999 BN₁₀, 8, 2, 3; 1999 BP₁₀, 7, 2, 3; 1999 BW₁₀, 9, 2, 3; 1999 BY₁₀, 6, 2, 4; 1999 BC₁₁, 9, 2, 4; 1999 BE₁₁, 8, 2, 3; 1999 BG₁₁, 8, 2, 3; 1999 BH₁₁, 10, 2, 3; 1999 BN₁₁, 9, 2, 4; 1999 BQ₁₁, 9, 2, 3; 1999 BS₁₁, 10, 2, 4; 1999 BC₁₂, 10, 2, 3; 1999 BD₁₂, 9, 2, 3; 1999 BE₁₂, 8, 2, 3; 1999 BF₁₂, 10, 2, 3; 1999 BJ₁₂, 9, 2, 3; 1999 BJ₁₂, 8, 2, 3; 1999 BK₁₂, 9, 2, 3; 1999 BM₁₂, 9, 2, 3; 1999 BN₁₂, 10, 2, 3; 1999 BO₁₂, 10, 2, 3; 1999 BQ₁₂, 10, 2, 3; 1999 BT₁₂, 10, 2, 4; 1999 BU₁₂, 10, 2, 3; 1999 BV₁₂, 10, 2, 4; 1999 BW₁₂, 9, 2, 4;

1999 BF₁₃, 10, 2, 4; 1999 BG₁₃, 10, 2, 4; 1999 BH₁₃, 10, 2, 4; 1999 BJ₁₃, 10, 2, 4; 1999 BT₁₃, 7, 2, 3; 1999 BM₁₄, 10, 2, 3; 1999 BO₁₄, 10, 2, 3; 1999 BQ₁₄, 9, 2, 4; 1999 BR₁₄, 10, 2, 3; 1999 BZ₁₄, 10, 2, 4; 1999 BF₁₅, 10, 2, 4; 1999 BH₁₅, 10, 2, 4; 1999 BJ₁₅, 9, 2, 4; 1999 BP₁₅, 9, 2, 3; 1999 BM₂₅, 10, 2, 4; 1999 BN₂₅, 10, 2, 4; 1999 BT₂₅, 8, 2, 4; 1999 BU₂₅, 9, 2, 4; 1999 BV₂₅, 10, 2, 4; 1999 BW₂₅, 9, 2, 4; 1999 BY₂₅, 10, 2, 3; 1999 BA₂₆, 15, 3, 30; 1999 BB₂₆, 8, 2, 3; 1999 BD₂₆, 9, 2, 3; 1999 BE₂₆, 10, 2, 4; 1999 BB₂₇, 10, 2, 3; 1999 BP₂₇, 7, 2, 3; 1999 BK₂₉, 8, 2, 6; 1999 BU₂₉, 9, 2, 3; 1999 BZ₂₉, 9, 2, 3; 1999 BN₃₀, 9, 2, 3; 1999 BZ₃₃, 5, 1, 0; 1999 CA, 9, 2, 3; 1999 CB, 10, 2, 3; 1999 CC, 10, 2, 3; 1999 CD, 10, 2, 3; 1999 CE, 10, 2, 3; 1999 CG, 10, 2, 3; 1999 CH, 10, 2, 3; 1999 CJ, 10, 2, 3; 1999 CK, 10, 2, 3; 1999 CL *, 8, 2, 1; 1999 CM, 10, 2, 3; 1999 CN, 10, 2, 3; 1999 CO, 9, 2, 3; 1999 CP, 10, 2, 3; 1999 CQ, 9, 2, 3; 1999 CR, 10, 2, 3; 1999 CS, 10, 2, 3; 1999 CT, 9, 2, 3; 1999 CV, 8, 2, 3; 1999 CW, 9, 2, 3; 1999 CX, 8, 2, 3; 1999 CY, 9, 2, 3; 1999 CZ, 10, 2, 3; 1999 CA₁, 8, 2, 3; 1999 CE₁, 9, 2, 3; 1999 CG₁, 10, 2, 3; 1999 CJ₁, 9, 2, 3; 1999 CM₁, 10, 2, 3; 1999 CN₁, 8, 2, 3; 1999 CP₁, 7, 2, 3; 1999 CQ₁, 8, 2, 3; 1999 CR₁, 7, 2, 3; 1999 CS₁, 10, 2, 3; 1999 CT₁, 10, 2, 3; 1999 CU₁, 9, 2, 3; 1999 CV₁, 8, 2, 3; 1999 CW₁, 10, 2, 3; 1999 CX₁, 10, 2, 3; 1999 CY₁, 8, 2, 3; 1999 CZ₁, 18, 4, 80; 1999 CA₂, 5, 1, 0; 1999 CB₂, 10, 2, 3; 1999 CC₂, 9, 2, 3; 1999 CD₂, 10, 2, 3; 1999 CE₂, 10, 2, 3; 1999 CF₂, 9, 2, 3; 1999 CN₂, 10, 2, 3; 1999 CR₂, 9, 2, 4; 1999 CX₂, 9, 2, 4; 1999 CY₂, 10, 2, 4; 1999 CZ₂, 10, 2, 4; 1999 CA₃, 10, 2, 3; 1999 CE₃, 9, 2, 4; 1999 CG₃ *, 7, 2, 1; 1999 CH₃, 10, 2, 3; 1999 CJ₃, 10, 2, 4; 1999 CK₃, 10, 2, 4; 1999 CL₃, 10, 2, 3; 1999 CM₃, 8, 2, 3; 1999 CO₃ *, 9, 2, 3; 1999 CP₃ *, 20, 4, 35; 1999 CQ₃ *, 10, 2, 1; 1999 CR₃ *, 29, 4, 26; 1999 CS₃ *, 24, 3, 3; 1999 CT₃ *, 16, 2, 1; 1999 CU₃ *, 12, 3, 3; 1999 CV₃ *, 27, 4, 52; 1999 CX₃, 4, 1, 0; 1999 CA₄, 10, 2, 3; 1999 CG₄, 9, 2, 3; 1999 CJ₄, 8, 2, 3; 1999 CK₄ *, 8, 2, 1; 1999 CL₄ *, 9, 2, 2; 1999 CM₄ *, 19, 4, 7; 1999 CO₄, 9, 2, 4; 1999 CQ₄, 9, 2, 4; 1999 CR₄, 10, 2, 4; 1999 CC₅, 9, 2, 3; 1999 CD₅, 9, 2, 3; 1999 CF₅, 10, 2, 3; 1999 CH₅, 9, 2, 3; 1999 CX₅ *, 9, 2, 3; 1999 CY₅ *, 8, 2, 3; 1999 CZ₅ *, 9, 2, 3; 1999 CA₆ *, 10, 2, 3; 1999 CB₆ *, 9, 2, 3; 1999 CC₆ *, 8, 2, 3; 1999 CD₆ *, 9, 2, 3; 1999 CE₆ *, 9, 2, 3; 1999 CF₆ *, 10, 2, 3; 1999 CG₆ *, 10, 2, 3; 1999 CH₆ *, 9, 2, 3; 1999 CJ₆ *, 8, 2, 3; 1999 CK₆ *, 8, 2, 3; 1999 CL₆ *, 9, 2, 3; 1999 CM₆ *, 10, 2, 3; 1999 CN₆ *, 8, 2, 3; 1999 CO₆ *, 7, 2, 3; 1999 CP₆ *, 10, 2, 3; 1999 CQ₆ *, 9, 2, 3; 1999 CR₆ *, 7, 2, 3; 1999 CS₆ *, 10, 2, 3; 1999 CT₆ *, 10, 2, 3; 1999 CU₆ *, 7, 2, 3; 1999 CV₆ *, 8, 2, 3; 1999 CW₆ *, 8, 2, 3; 1999 CX₆ *, 6, 2, 3; 1999 CY₆ *, 9, 2, 3; 1999 CZ₆ *, 8, 2, 3; 1999 CA₇ *, 10, 2, 3; 1999 CB₇ *, 10, 2, 3; 1999 CC₇ *, 9, 2, 3; 1999 CD₇ *, 8, 2, 3; 1999 CE₇ *, 9, 2, 3; 1999 CF₇ *, 7, 2, 3; 1999 CG₇ *, 10, 2, 3; 1999 CH₇ *, 10, 2, 3; 1999 CJ₇ *, 8, 2, 3; 1999 CK₇ *, 8, 2, 3; 1999 CL₇ *, 9, 2, 3; 1999 CM₇ *, 8, 2, 3; 1999 CN₇ *, 10, 2, 3; 1999 CO₇ *, 8, 2, 3; 1999 CP₇ *, 10, 2, 3; 1999 CQ₇ *, 9, 2, 3; 1999 CR₇ *, 10, 2, 3; 1999 CS₇ *, 8, 2, 3; 1999 CT₇ *, 10, 2, 3; 1999 CU₇ *, 10, 2, 3; 1999 CV₇ *, 8, 2, 3; 1999 CW₇ *, 9, 2, 3; 1999 CX₇ *, 9, 2, 3; 1999 CY₇ *, 10, 2, 3; 1999 CZ₇ *, 9, 2, 2; 1999 CA₈ *, 14, 3, 4; 1999 CB₈, 9, 2, 4; 1999 CD₈, 8, 2, 4; 1999 CE₈, 8, 2, 4; 1999 CO₈, 10, 2, 3; 1999 CP₈, 10, 2, 4; 1999 CR₈, 9, 2, 4; 1999 CT₈ *, 8, 2, 4; 1999 CU₈ *, 14, 4, 3; 1999 CV₈ *, 19, 4, 7; 1999 CW₈ *, 14, 3, 4; 1999 CZ₈, 10, 2, 3; 1999 CB₉ *, 5, 1, 0; 1999 CD₉, 9, 2, 4; 1999 CE₉ *, 14, 3, 4; 1999 CF₉ *, 15, 3, 4; 1999 CG₉ *, 23, 3, 8; 1999 CH₉, 9, 2, 4; 1999 CJ₉, 10, 2, 3; 1999 CL₉, 10, 2, 3; 1999 CM₁₀, 10, 2, 3; 1999 CN₁₀, 10, 2, 3; 1999 CO₁₀ *, 8, 2, 4; 1999 CP₁₀ *, 8, 2, 4; 1999 CQ₁₀ *, 9, 2, 4; 1999 CR₁₀ *, 9, 2, 4; 1999 CS₁₀ *, 9, 2, 4; 1999 CT₁₀ *, 10, 2, 4; 1999 CU₁₀ *, 9, 2, 4; 1999 CV₁₀ *, 10, 2, 4; 1999 CW₁₀ *, 9, 2, 4; 1999 CX₁₀ *, 9, 2, 4; 1999 CY₁₀ *, 8, 2, 4; 1999 CZ₁₀ *, 10, 2, 4; 1999 CA₁₁ *, 8, 2, 4; 1999 CB₁₁ *, 8, 2, 4; 1999 CC₁₁ *, 9, 2, 4; 1999 CD₁₁ *, 9, 2, 4; 1999 CE₁₁ *, 7, 2, 4; 1999 CF₁₁ *, 10, 2, 4; 1999 CG₁₁ *, 7, 2, 4; 1999 CH₁₁ *, 6, 2, 4; 1999 CJ₁₁ *, 9, 2, 4; 1999 CK₁₁ *, 9, 2, 4; 1999 CL₁₁

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1999 CM₁₇ *, 9, 2, 3; 1999 CN₁₇ *, 9, 2, 3; 1999 CO₁₇ *, 9, 2, 3; 1999 CP₁₇ *, 9, 2, 3; 1999 CQ₁₇ *, 10, 2, 3; 1999 CR₁₇ *, 8, 2, 3; 1999 CS₁₇ *, 9, 2, 3; 1999 CT₁₇ *, 8, 2, 3; 1999 CU₁₇ *, 10, 2, 3; 1999 CV₁₇ *, 8, 2, 3; 1999 CW₁₇ *, 8, 2, 3; 1999 CX₁₇ *, 8, 2, 3; 1999 CY₁₇ *, 9, 2, 3; 1999 CZ₁₇ *, 8, 2, 3; 1999 CA₁₈ *, 10, 2, 3; 1999 CB₁₈ *, 10, 2, 3; 1999 CC₁₈ *, 10, 2, 3; 1999 CD₁₈ *, 10, 2, 3; 1999 CE₁₈ *, 9, 2, 3; 1999 CF₁₈ *, 8, 2, 3; 1999 CG₁₈ *, 9, 2, 3; 1999 CH₁₈ *, 10, 2, 3; 1999 CI₁₈ *, 10, 2, 3; 1999 CJ₁₈ *, 10, 2, 3; 1999 CK₁₈ *, 9, 2, 3; 1999 CL₁₈ *, 8, 2, 3; 1999 CM₁₈ *, 10, 2, 3; 1999 CN₁₈ *, 10, 2, 3; 1999 CO₁₈ *, 8, 2, 3; 1999 CP₁₈ *, 8, 2, 3; 1999 CQ₁₈ *, 7, 2, 3; 1999 CR₁₈ *, 7, 2, 3; 1999 CS₁₈ *, 9, 2, 3; 1999 CT₁₈ *, 6, 2, 3; 1999 CU₁₈ *, 7, 2, 3; 1999 CV₁₈ *, 10, 2, 3; 1999 CW₁₈ *, 10, 2, 3; 1999 CX₁₈ *, 9, 2, 3; 1999 CY₁₈ *, 9, 2, 3; 1999 CZ₁₈ *, 10, 2, 3; 1999 CA₁₉ *, 8, 2, 3; 1999 CB₁₉ *, 10, 2, 3; 1999 CC₁₉ *, 10, 2, 3; 1999 CD₁₉ *, 10, 2, 3; 1999 CE₁₉ *, 9, 2, 3; 1999 CF₁₉ *, 9, 2, 3; 1999 CG₁₉ *, 10, 2, 3; 1999 CH₁₉ *, 10, 2, 3; 1999 CI₁₉ *, 10, 2, 3; 1999 CJ₁₉ *, 9, 2, 3; 1999 CK₁₉ *, 9, 2, 3; 1999 CL₁₉ *, 9, 2, 3; 1999 CM₁₉ *, 8, 2, 3; 1999 CN₁₉ *, 10, 2, 3; 1999 CO₁₉ *, 9, 2, 3; 1999 CP₁₉ *, 10, 2, 3; 1999 CQ₁₉ *, 10, 2, 3; 1999 CR₁₉ *, 8, 2, 3; 1999 CS₁₉ *, 10, 2, 3; 1999 CT₁₉ *, 10, 2, 3; 1999 CU₁₉ *, 9, 2, 3; 1999 CV₁₉ *, 10, 2, 3; 1999 CW₁₉ *, 10, 2, 3; 1999 CX₁₉ *, 10, 2, 3; 1999 CY₁₉ *, 10, 2, 3; 1999 CZ₁₉ *, 8, 2, 3; 1999 CA₂₀ *, 8, 2, 3; 1999 CB₂₀ *, 10, 2, 3; 1999 CC₂₀ *, 9, 2, 3; 1999 CD₂₀ *, 10, 2, 3; 1999 CE₂₀ *, 9, 2, 3; 1999 CF₂₀ *, 10, 2, 3; 1999 CG₂₀ *, 10, 2, 3; 1999 CH₂₀ *, 9, 2, 3; 1999 CI₂₀ *, 10, 2, 3; 1999 CJ₂₀ *, 10, 2, 3; 1999 CK₂₀ *, 9, 2, 3; 1999 CL₂₀ *, 9, 2, 3; 1999 CM₂₀ *, 10, 2, 3; 1999 CN₂₀ *, 8, 2, 3; 1999 CO₂₀ *, 9, 2, 3; 1999 CP₂₀ *, 8, 2, 3; 1999 CQ₂₀ *, 9, 2, 3; 1999 CR₂₀ *, 10, 2, 3; 1999 CS₂₀ *, 10, 2, 3; 1999 CT₂₀ *, 8, 2, 3; 1999 CU₂₀ *, 10, 2, 3; 1999 CV₂₀ *, 10, 2, 3; 1999 CW₂₀ *, 9, 2, 3; 1999 CX₂₀ *, 10, 2, 3; 1999 CY₂₀ *, 10, 2, 3; 1999 CZ₂₀ *, 8, 2, 3; 1999 CA₂₁ *, 8, 2, 3; 1999 CB₂₁ *, 10, 2, 3; 1999 CC₂₁ *, 8, 2, 3; 1999 CD₂₁ *, 9, 2, 3; 1999 CE₂₁ *, 10, 2, 3; 1999 CF₂₁ *, 10, 2, 3; 1999 CG₂₁ *, 10, 2, 3; 1999 CH₂₁ *, 7, 2, 3; 1999 CI₂₁ *, 10, 2, 3; 1999 CJ₂₁ *, 10, 2, 3; 1999 CK₂₁ *, 10, 2, 3; 1999 CL₂₁ *, 10, 2, 3; 1999 CM₂₁ *, 10, 2, 3; 1999 CN₂₁ *, 10, 2, 3; 1999 CO₂₁ *, 9, 2, 3; 1999 CP₂₁ *, 9, 2, 3; 1999 CQ₂₁ *, 9, 2, 3; 1999 CR₂₁ *, 6, 2, 3; 1999 CS₂₁ *, 7, 2, 3; 1999 CT₂₁ *, 10, 2, 3; 1999 CU₂₁ *, 8, 2, 3; 1999 CV₂₁ *, 10, 2, 3; 1999 CW₂₁ *, 8, 2, 3; 1999 CX₂₁ *, 7, 2, 3; 1999 CY₂₁ *, 10, 2, 3; 1999 CZ₂₁ *, 8, 2, 3; 1999 CA₂₂ *, 10, 2, 3; 1999 CB₂₂ *, 10, 2, 3; 1999 CC₂₂ *, 10, 2, 3; 1999 CD₂₂ *, 10, 2, 3; 1999 CE₂₂ *, 10, 2, 3; 1999 CF₂₂ *, 10, 2, 3; 1999 CG₂₂ *, 8, 2, 3; 1999 CH₂₂ *, 7, 2, 3; 1999 CI₂₂ *, 9, 2, 3; 1999 CJ₂₂ *, 10, 2, 3; 1999 CK₂₂ *, 10, 2, 3; 1999 CL₂₂ *, 6, 2, 3; 1999 CM₂₂ *, 9, 2, 3; 1999 CN₂₂ *, 7, 2, 3; 1999 CO₂₂ *, 7, 2, 3; 1999 CP₂₂ *, 10, 2, 3; 1999 CQ₂₂ *, 8, 2, 3; 1999 CR₂₂ *, 8, 2, 3; 1999 CS₂₂ *, 9, 2, 3; 1999 CT₂₂ *, 9, 2, 3; 1999 CU₂₂ *, 10, 2, 3; 1999 CV₂₂ *, 8, 2, 3; 1999 CW₂₂ *, 10, 2, 3; 1999 CX₂₂ *, 9, 2, 3; 1999 CY₂₂ *, 9, 2, 3; 1999 CZ₂₂ *, 9, 2, 3; 1999 CA₂₃ *, 7, 2, 3; 1999 CB₂₃ *, 9, 2, 3; 1999 CC₂₃ *, 10, 2, 3; 1999 CD₂₃ *, 10, 2, 3; 1999 CE₂₃ *, 7, 2, 3; 1999 CF₂₃ *, 7, 2, 3; 1999 CG₂₃ *, 10, 2, 3; 1999 CH₂₃ *, 7, 2, 3; 1999 CI₂₃ *, 8, 2, 3; 1999 CJ₂₃ *, 7, 2, 3; 1999 CK₂₃ *, 9, 2, 3; 1999 CL₂₃ *, 9, 2, 3; 1999 CM₂₃ *, 10, 2, 3; 1999 CN₂₃ *, 7, 2, 3; 1999 CO₂₃ *, 9, 2, 3; 1999 CP₂₃ *, 9, 2, 3; 1999 CQ₂₃ *, 8, 2, 3; 1999 CR₂₃ *, 9, 2, 3; 1999 CS₂₃ *, 10, 2, 3; 1999 CT₂₃ *, 9, 2, 3; 1999 CU₂₃ *, 7, 2, 3; 1999 CV₂₃ *, 10, 2, 3; 1999 CW₂₃ *, 9, 2, 3; 1999 CX₂₃ *, 8, 2, 3; 1999 CY₂₃ *, 10, 2, 3; 1999 CZ₂₃ *, 9, 2, 3; 1999 CA₂₄ *, 8, 2, 3; 1999 CB₂₄ *, 7, 2, 3; 1999 CC₂₄ *, 10, 2, 3; 1999 CD₂₄ *, 10, 2, 3; 1999 CE₂₄ *, 8, 2, 3; 1999 CF₂₄ *, 6, 2, 3; 1999 CG₂₄ *, 9, 2, 3; 1999 CH₂₄ *, 8, 2, 3; 1999 CI₂₄ *, 9, 2, 3; 1999 CJ₂₄ *, 8, 2, 3; 1999 CK₂₄ *, 8, 2, 3; 1999 CL₂₄ *, 9, 2, 3; 1999 CM₂₄ *, 8, 2, 3; 1999 CN₂₄ *, 7, 2, 3; 1999 CO₂₄ *, 8, 2, 3; 1999 CP₂₄ *, 10, 2, 3; 1999 CQ₂₄ *, 10, 2, 3; 1999 CR₂₄ *, 10, 2, 3; 1999 CS₂₄ *, 10, 2, 3; 1999 CT₂₄ *, 10, 2, 3; 1999 CU₂₄ *, 8, 2, 3; 1999 CV₂₄ *, 10, 2, 3; 1999 CW₂₄ *, 8, 2, 3; 1999 CX₂₄ *, 8, 2, 3; 1999 CY₂₄ *, 10, 2, 3; 1999 CZ₂₄ *, 9, 2, 3; 1999 CA₂₅ *, 10, 2, 3; 1999 CB₂₅ *, 9, 2, 3; 1999 CC₂₅ *, 9, 2, 3; 1999 CD₂₅ *, 8, 2, 3; 1999 CE₂₅ *, 10, 2, 3; 1999 CF₂₅ *, 10, 2, 3; 1999 CG₂₅ *, 10, 2, 3; 1999 CH₂₅ *, 10, 2, 3; 1999 CI₂₅ *, 7, 2, 3; 1999 CJ₂₅ *, 7, 2, 3; 1999 CK₂₅ *, 10, 2, 3; 1999 CL₂₅ *, 8, 2, 3; 1999 CM₂₅ *, 10, 2, 3; 1999 CN₂₅ *, 8, 2, 3; 1999 CO₂₅ *, 10, 2, 3; 1999 CP₂₅ *, 9, 2, 3; 1999 CQ₂₅ *, 8, 2, 3; 1999 CR₂₅ *, 7, 2, 3; 1999 CS₂₅ *, 8, 2, 3; 1999 CT₂₅ *, 9, 2, 3; 1999 CU₂₅ *, 10, 2, 3; 1999 CV₂₅ *, 8, 2, 3; 1999 CW₂₅ *, 9, 2, 3; 1999 CX₂₅ *, 10, 2, 3; 1999 CY₂₅ *, 10, 2, 3; 1999 CZ₂₅ *, 7, 2, 3; 1999 CA₂₆ *, 9, 2, 3; 1999 CB₂₆ *, 10, 2, 3; 1999 CC₂₆ *, 8, 2, 3; 1999 CD₂₆ *, 8, 2, 3; 1999 CE₂₆ *, 7, 2, 3; 1999 CF₂₆ *, 9, 2, 3; 1999 CG₂₆ *, 10, 2, 3; 1999 CH₂₆ *, 10, 2, 3; 1999 CI₂₆ *, 8, 2, 3; 1999 CJ₂₆ *, 8, 2, 3; 1999 CK₂₆ *, 9, 2, 3; 1999 CL₂₆ *, 10, 2, 3; 1999 CM₂₆ *, 9, 2, 3; 1999 CN₂₆ *, 9, 2, 3; 1999 CO₂₆ *, 7, 2, 3; 1999 CP₂₆ *, 10, 2, 3; 1999 CQ₂₆ *, 9, 2, 3; 1999 CR₂₆ *, 8, 2, 3; 1999 CS₂₆ *, 10, 2, 3; 1999 CT₂₆ *, 10, 2, 3; 1999 CU₂₆ *, 10, 2, 3; 1999 CV₂₆ *, 10, 2, 3; 1999 CW₂₆ *, 9, 2, 3; 1999 CX₂₆ *, 8, 2, 3; 1999 CY₂₆ *, 8, 2, 3; 1999 CZ₂₆ *, 8, 2, 3; 1999 CA₂₇ *, 8, 2, 3; 1999 CB₂₇ *, 9, 2, 3; 1999 CC₂₇ *, 9, 2, 3; 1999 CD₂₇ *, 8, 2, 3; 1999 CE₂₇ *, 10, 2, 3; 1999 CF₂₇ *, 9, 2, 3; 1999 CG₂₇ *, 9, 2, 3; 1999 CH₂₇ *, 9, 2, 3; 1999 CI₂₇ *, 10, 2, 3; 1999 CJ₂₇ *, 8, 2, 3; 1999 CK₂₇ *, 10, 2, 3; 1999 CL₂₇ *, 10, 2, 3; 1999 CM₂₇ *, 9, 2, 3; 1999 CN₂₇ *, 10, 2, 3; 1999 CO₂₇ *, 10, 2, 3; 1999 CP₂₇ *, 8, 2, 3; 1999 CQ₂₇ *, 10, 2, 3; 1999 CR₂₇ *, 9, 2, 3; 1999 CS₂₇ *, 10, 2, 3; 1999 CT₂₇ *, 10, 2, 3; 1999 CU₂₇ *, 8, 2, 3; 1999 CV₂₇ *, 8, 2, 3; 1999 CW₂₇ *, 8, 2, 3; 1999 CX₂₇ *, 7, 2, 3; 1999 CY₂₇ *, 6, 2, 3; 1999 CZ₂₇ *, 10, 2, 3; 1999 CA₂₈ *, 6, 2, 3; 1999 CB₂₈ *, 8, 2, 3; 1999 CC₂₈ *, 9, 2, 3; 1999 CD₂₈ *, 10, 2, 3; 1999 CE₂₈ *, 10, 2, 3; 1999 CF₂₈ *, 7, 2, 3; 1999 CG₂₈ *, 9, 2, 3; 1999 CH₂₈ *, 8, 2, 3; 1999 CI₂₈ *, 8, 2, 3; 1999 CJ₂₈ *, 8, 2, 3; 1999 CK₂₈ *, 10, 2, 3; 1999 CL₂₈ *, 8, 2, 3; 1999 CM₂₈ *, 9, 2, 3; 1999 CN₂₈ *, 8, 2, 3; 1999 CO₂₈ *, 9, 2, 3; 1999 CP₂₈ *, 7, 2, 3; 1999 CQ₂₈ *, 10, 2, 3; 1999 CR₂₈ *, 9, 2, 3; 1999 CS₂₈ *, 9, 2, 3; 1999 CT₂₈ *, 8, 2, 3; 1999 CU₂₈ *, 10, 2, 3; 1999 CV₂₈ *, 9, 2, 3; 1999 CW₂₈ *, 8, 2, 3; 1999 CX₂₈ *, 9, 2, 3; 1999 CY₂₈ *, 8, 2, 3; 1999 CZ₂₈ *, 8, 2, 3; 1999 CA₂₉ *, 8, 2, 3; 1999 CB₂₉ *,

7, 2, 3; 1999 CC₂₉ *, 9, 2, 3; 1999 CD₂₉ *, 7, 2, 3; 1999 CE₂₉ *, 7, 2, 3; 1999 CF₂₉ *, 9, 2, 3; 1999 CG₂₉ *, 8, 2, 3; 1999 CH₂₉ *, 8, 2, 3; 1999 CI₂₉ *, 7, 2, 3; 1999 CJ₂₉ *, 7, 2, 3; 1999 CK₂₉ *, 8, 2, 3; 1999 CL₂₉ *, 8, 2, 3; 1999 CM₂₉ *, 10, 2, 3; 1999 CN₂₉ *, 8, 2, 3; 1999 CO₂₉ *, 9, 2, 3; 1999 CP₂₉ *, 10, 2, 3; 1999 CQ₂₉ *, 8, 2, 3; 1999 CR₂₉ *, 10, 2, 3; 1999 CS₂₉ *, 8, 2, 3; 1999 CT₂₉ *, 10, 2, 3; 1999 CU₂₉ *, 10, 2, 3; 1999 CV₂₉ *, 8, 2, 3; 1999 CW₂₉ *, 8, 2, 3; 1999 CX₂₉ *, 10, 2, 3; 1999 CY₂₉ *, 8, 2, 3; 1999 CZ₂₉ *, 7, 2, 3; 1999 CA₃₀ *, 8, 2, 3; 1999 CB₃₀ *, 10, 2, 3; 1999 CC₃₀ *, 10, 2, 3; 1999 CD₃₀ *, 8, 2, 3; 1999 CE₃₀ *, 10, 2, 3; 1999 CF₃₀ *, 9, 2, 3; 1999 CG₃₀ *, 7, 2, 3; 1999 CH₃₀ *, 9, 2, 3; 1999 CI₃₀ *, 10, 2, 3; 1999 CJ₃₀ *, 10, 2, 3; 1999 CK₃₀ *, 8, 2, 3; 1999 CL₃₀ *, 8, 2, 3; 1999 CM₃₀ *, 7, 2, 3; 1999 CN₃₀ *, 9, 2, 3; 1999 CO₃₀ *, 9, 2, 3; 1999 CP₃₀ *, 8, 2, 3; 1999 CQ₃₀ *, 8, 2, 3; 1999 CR₃₀ *, 9, 2, 3; 1999 CS₃₀ *, 9, 2, 3; 1999 CT₃₀ *, 10, 2, 3; 1999 CU₃₀ *, 8, 2, 3; 1999 CV₃₀ *, 8, 2, 3; 1999 CW₃₀ *, 6, 2, 3; 1999 CX₃₀ *, 8, 2, 3; 1999 CY₃₀ *, 7, 2, 3; 1999 CZ₃₀ *, 9, 2, 3; 1999 CA₃₁ *, 8, 2, 3; 1999 CB₃₁ *, 10, 2, 3; 1999 CC₃₁ *, 9, 2, 3; 1999 CD₃₁ *, 8, 2, 3; 1999 CE₃₁ *, 9, 2, 3; 1999 CF₃₁ *, 10, 2, 3; 1999 CG₃₁ *, 8, 2, 3; 1999 CH₃₁ *, 9, 2, 3; 1999 CI₃₁ *, 9, 2, 3; 1999 CJ₃₁ *, 9, 2, 3; 1999 CK₃₁ *, 9, 2, 3; 1999 CL₃₁ *, 7, 2, 3; 1999 CM₃₁ *, 8, 2, 3; 1999 CN₃₁ *, 8, 2, 3; 1999 CO₃₁ *, 10, 2, 3; 1999 CP₃₁ *, 10, 2, 3; 1999 CQ₃₁ *, 7, 2, 3; 1999 CR₃₁ *, 7, 2, 3; 1999 CS₃₁ *, 8, 2, 3; 1999 CT₃₁ *, 9, 2, 3; 1999 CU₃₁ *, 10, 2, 3; 1999 CV₃₁ *, 7, 2, 3; 1999 CW₃₁ *, 8, 2, 3; 1999 CX₃₁ *, 9, 2, 3; 1999 CY₃₁ *, 8, 2, 3; 1999 CZ₃₁ *, 9, 2, 3; 1999 CA₃₂ *, 10, 2, 3; 1999 CB₃₂ *, 10, 2, 3; 1999 CC₃₂ *, 10, 2, 3; 1999 CD₃₂ *, 8, 2, 3; 1999 CE₃₂ *, 6, 2, 3; 1999 CF₃₂ *, 9, 2, 3; 1999 CG₃₂ *, 8, 2, 3; 1999 CH₃₂ *, 9, 2, 3; 1999 CI₃₂ *, 10, 2, 3; 1999 CJ₃₂ *, 10, 2, 3; 1999 CK₃₂ *, 9, 2, 3; 1999 CL₃₂ *, 9, 2, 3; 1999 CM₃₂ *, 9, 2, 3; 1999 CN₃₂ *, 10, 2, 3; 1999 CO₃₂ *, 10, 2, 3; 1999 CP₃₂ *, 8, 2, 3; 1999 CQ₃₂ *, 10, 2, 3; 1999 CR₃₂ *, 10, 2, 3; 1999 CS₃₂ *, 10, 2, 3; 1999 CT₃₂ *, 8, 2, 3; 1999 CU₃₂ *, 8, 2, 3; 1999 CV₃₂ *, 10, 2, 3; 1999 CW₃₂ *, 9, 2, 3; 1999 CX₃₂ *, 10, 2, 3; 1999 CY₃₂ *, 9, 2, 3; 1999 CZ₃₂ *, 8, 2, 3; 1999 CA₃₃ *, 9, 2, 3; 1999 CB₃₃ *, 8, 2, 3; 1999 CC₃₃ *, 10, 2, 3; 1999 CD₃₃ *, 8, 2, 3; 1999 CE₃₃ *, 10, 2, 3; 1999 CF₃₃ *, 8, 2, 3; 1999 CG₃₃ *, 9, 2, 3; 1999 CH₃₃ *, 9, 2, 3; 1999 CI₃₃ *, 9, 2, 3; 1999 CJ₃₃ *, 10, 2, 3; 1999 CK₃₃ *, 10, 2, 3; 1999 CL₃₃ *, 6, 2, 3; 1999 CM₃₃ *, 10, 2, 3; 1999 CN₃₃ *, 9, 2, 3; 1999 CO₃₃ *, 9, 2, 3; 1999 CP₃₃ *, 10, 2, 3; 1999 CQ₃₃ *, 8, 2, 3; 1999 CR₃₃ *, 9, 2, 3; 1999 CS₃₃ *, 10, 2, 3; 1999 CT₃₃ *, 10, 2, 3; 1999 CU₃₃ *, 9, 2, 3; 1999 CV₃₃ *, 9, 2, 3; 1999 CW₃₃ *, 7, 2, 3; 1999 CX₃₃ *, 9, 2, 3; 1999 CY₃₃ *, 8, 2, 3; 1999 CZ₃₃ *, 8, 2, 3; 1999 CA₃₄ *, 7, 2, 3; 1999 CB₃₄ *, 10, 2, 3; 1999 CC₃₄ *, 8, 2, 3; 1999 CD₃₄ *, 7, 2, 3; 1999 CE₃₄ *, 8, 2, 3; 1999 CF₃₄ *, 7, 2, 3; 1999 CG₃₄ *, 8, 2, 3; 1999 CH₃₄ *, 10, 2, 3; 1999 CI₃₄ *, 10, 2, 3; 1999 CJ₃₄ *, 8, 2, 3; 1999 CK₃₄ *, 8, 2, 3; 1999 CL₃₄ *, 8, 2, 3; 1999 CM₃₄ *, 10, 2, 3; 1999 CN₃₄ *, 9, 2, 3; 1999 CO₃₄ *, 8, 2, 3; 1999 CP₃₄ *, 9, 2, 3; 1999 CQ₃₄ *, 9, 2, 3; 1999 CR₃₄ *, 9, 2, 3; 1999 CS₃₄ *, 8, 2, 3; 1999 CT₃₄ *, 7, 2, 3; 1999 CU₃₄ *, 10, 2, 3; 1999 CV₃₄ *, 9, 2, 3; 1999 CW₃₄ *, 8, 2, 3; 1999 CX₃₄ *, 7, 2, 3; 1999 CY₃₄ *, 8, 2, 3; 1999 CZ₃₄ *, 8, 2, 3; 1999 CA₃₅ *, 9, 2, 3; 1999 CB₃₅ *, 7, 2, 3; 1999 CC₃₅ *, 8, 2, 3; 1999 CD₃₅ *, 8, 2, 3; 1999 CE₃₅ *, 10, 2, 3; 1999 CF₃₅ *, 9, 2, 3; 1999 CG₃₅ *, 8, 2, 3; 1999 CH₃₅ *, 8, 2, 3; 1999 CI₃₅ *, 10, 2, 3; 1999 CJ₃₅ *, 9, 2, 3; 1999 CK₃₅ *, 10, 2, 3; 1999 CL₃₅ *, 10, 2, 3; 1999 CM₃₅ *, 9, 2, 3; 1999 CN₃₅ *, 9, 2, 3; 1999 CO₃₅ *, 10, 2, 3; 1999 CP₃₅ *, 8, 2, 3; 1999 CQ₃₅ *, 8, 2, 3; 1999 CR₃₅ *, 10, 2, 3; 1999 CS₃₅ *, 8, 2, 3; 1999 CT₃₅ *, 10, 2, 3; 1999 CU₃₅ *, 10, 2, 3; 1999 CV₃₅ *, 10, 2, 3; 1999 CW₃₅ *, 10, 2, 3; 1999 CX₃₅ *, 9, 2, 3; 1999 CY₃₅ *, 10, 2, 3; 1999 CZ₃₅ *, 8, 2, 3; 1999 CA₃₆ *, 8, 2, 3; 1999 CB₃₆ *, 10, 2, 3; 1999 CC₃₆ *, 9, 2, 3; 1999 CD₃₆ *, 8, 2, 3; 1999 CE₃₆ *, 10, 2, 3; 1999 CF₃₆ *, 9, 2, 3; 1999 CG₃₆ *, 9, 2, 3; 1999 CH₃₆ *, 8, 2, 3; 1999 CI₃₆ *, 10, 2, 3; 1999 CJ₃₆ *, 10, 2, 3; 1999 CK₃₆ *, 10, 2, 3; 1999 CL₃₆ *, 8, 2, 3; 1999 CM₃₆ *, 7, 2, 3; 1999 CN₃₆ *, 10, 2, 3; 1999 CO₃₆ *, 9, 2, 3; 1999 CP₃₆ *, 10, 2, 3; 1999 CQ₃₆ *, 9, 2, 3; 1999 CR₃₆ *, 9, 2, 3; 1999 CS₃₆ *, 9, 2, 3; 1999 CT₃₆ *, 10, 2, 3; 1

3; 1999 CT₄₀ *, 10, 2, 3; 1999 CU₄₀ *, 8, 2, 3; 1999 CV₄₀ *, 10, 2, 3; 1999 CW₄₀ *, 9, 2, 3; 1999 CX₄₀ *, 8, 2, 3; 1999 CY₄₀ *, 9, 2, 3; 1999 CZ₄₀ *, 9, 2, 3; 1999 CA₄₁ *, 8, 2, 3; 1999 CB₄₁ *, 10, 2, 3; 1999 CC₄₁ *, 10, 2, 3; 1999 CD₄₁ *, 6, 2, 3; 1999 CE₄₁ *, 10, 2, 3; 1999 CF₄₁ *, 10, 2, 3; 1999 CG₄₁ *, 8, 2, 3; 1999 CH₄₁ *, 8, 2, 3; 1999 CJ₄₁ *, 9, 2, 3; 1999 CK₄₁ *, 8, 2, 3; 1999 CL₄₁ *, 8, 2, 3; 1999 CM₄₁ *, 10, 2, 3; 1999 CN₄₁ *, 9, 2, 3; 1999 CO₄₁ *, 10, 2, 3; 1999 CP₄₁ *, 9, 2, 3; 1999 CQ₄₁ *, 9, 2, 3; 1999 CR₄₁ *, 8, 2, 3; 1999 CS₄₁ *, 10, 2, 3; 1999 CT₄₁ *, 9, 2, 3; 1999 CU₄₁ *, 7, 2, 3; 1999 CV₄₁ *, 9, 2, 3; 1999 CW₄₁ *, 9, 2, 3; 1999 CX₄₁ *, 9, 2, 3; 1999 CY₄₁ *, 10, 2, 3; 1999 CZ₄₁ *, 9, 2, 3; 1999 CA₄₂ *, 9, 2, 3; 1999 CB₄₂ *, 10, 2, 3; 1999 CC₄₂ *, 8, 2, 3; 1999 CD₄₂ *, 9, 2, 3; 1999 CE₄₂ *, 10, 2, 3; 1999 CF₄₂ *, 8, 2, 3; 1999 CG₄₂ *, 9, 2, 3; 1999 CH₄₂ *, 10, 2, 3; 1999 CJ₄₂ *, 8, 2, 3; 1999 CK₄₂ *, 10, 2, 3; 1999 CL₄₂ *, 8, 2, 3; 1999 CM₄₂ *, 10, 2, 3; 1999 CN₄₂ *, 10, 2, 3; 1999 CO₄₂ *, 10, 2, 3; 1999 CP₄₂ *, 8, 2, 3; 1999 CQ₄₂ *, 7, 2, 3; 1999 CR₄₂ *, 10, 2, 3; 1999 CS₄₂ *, 9, 2, 3; 1999 CT₄₂ *, 8, 2, 3; 1999 CU₄₂ *, 10, 2, 3; 1999 CV₄₂ *, 8, 2, 3; 1999 CW₄₂ *, 8, 2, 3; 1999 CX₄₂ *, 9, 2, 3; 1999 CY₄₂ *, 9, 2, 3; 1999 CZ₄₂ *, 9, 2, 3; 1999 CA₄₃ *, 8, 2, 3; 1999 CB₄₃ *, 10, 2, 3; 1999 CC₄₃ *, 8, 2, 3; 1999 CD₄₃ *, 10, 2, 3; 1999 CE₄₃ *, 9, 2, 3; 1999 CF₄₃ *, 9, 2, 3; 1999 CG₄₃ *, 9, 2, 3; 1999 CH₄₃ *, 9, 2, 3; 1999 CJ₄₃ *, 10, 2, 3; 1999 CK₄₃ *, 9, 2, 3; 1999 CL₄₃ *, 8, 2, 3; 1999 CM₄₃ *, 9, 2, 3; 1999 CN₄₃ *, 9, 2, 3; 1999 CO₄₃ *, 10, 2, 3; 1999 CP₄₃ *, 8, 2, 3; 1999 CQ₄₃ *, 10, 2, 3; 1999 CR₄₃ *, 10, 2, 3; 1999 CS₄₃ *, 10, 2, 3; 1999 CT₄₃ *, 8, 2, 3; 1999 CU₄₃ *, 10, 2, 3; 1999 CV₄₃ *, 7, 2, 3; 1999 CW₄₃ *, 10, 2, 3; 1999 CX₄₃ *, 7, 2, 3; 1999 CY₄₃ *, 9, 2, 3; 1999 CZ₄₃ *, 8, 2, 3; 1999 CA₄₄ *, 9, 2, 3; 1999 CB₄₄ *, 10, 2, 3; 1999 CC₄₄ *, 10, 2, 3; 1999 CD₄₄ *, 10, 2, 3; 1999 CE₄₄ *, 8, 2, 3; 1999 CF₄₄ *, 10, 2, 3; 1999 CG₄₄ *, 10, 2, 3; 1999 CH₄₄ *, 10, 2, 3; 1999 CJ₄₄ *, 9, 2, 3; 1999 CK₄₄ *, 10, 2, 3; 1999 CL₄₄ *, 9, 2, 3; 1999 CM₄₄ *, 8, 2, 3; 1999 CN₄₄ *, 9, 2, 3; 1999 CO₄₄ *, 7, 2, 3; 1999 CP₄₄ *, 9, 2, 3; 1999 CQ₄₄ *, 7, 2, 3; 1999 CR₄₄ *, 9, 2, 3; 1999 CS₄₄ *, 7, 2, 3; 1999 CT₄₄ *, 9, 2, 3; 1999 CU₄₄ *, 9, 2, 3; 1999 CV₄₄ *, 7, 2, 3; 1999 CW₄₄ *, 9, 2, 3; 1999 CX₄₄ *, 9, 2, 3; 1999 CY₄₄ *, 10, 2, 3; 1999 CZ₄₄ *, 10, 2, 3; 1999 CA₄₅ *, 10, 2, 3; 1999 CB₄₅ *, 9, 2, 3; 1999 CC₄₅ *, 10, 2, 3; 1999 CD₄₅ *, 9, 2, 3; 1999 CE₄₅ *, 8, 2, 3; 1999 CF₄₅ *, 10, 2, 3; 1999 CG₄₅ *, 10, 2, 3; 1999 CH₄₅ *, 9, 2, 3; 1999 CJ₄₅ *, 10, 2, 3; 1999 CK₄₅ *, 10, 2, 3; 1999 CL₄₅ *, 7, 2, 3; 1999 CM₄₅ *, 9, 2, 3; 1999 CN₄₅ *, 9, 2, 3; 1999 CO₄₅ *, 10, 2, 3; 1999 CP₄₅ *, 9, 2, 3; 1999 CQ₄₅ *, 10, 2, 3; 1999 CR₄₅ *, 8, 2, 3; 1999 CS₄₅ *, 9, 2, 3; 1999 CT₄₅ *, 9, 2, 3; 1999 CU₄₅ *, 7, 2, 3; 1999 CV₄₅ *, 9, 2, 3; 1999 CW₄₅ *, 8, 2, 3; 1999 CX₄₅ *, 9, 2, 3; 1999 CY₄₅ *, 10, 2, 3; 1999 CZ₄₅ *, 8, 2, 3; 1999 CA₄₆ *, 8, 2, 3; 1999 CB₄₆ *, 8, 2, 3; 1999 CC₄₆ *, 6, 2, 3; 1999 CD₄₆ *, 9, 2, 3; 1999 CE₄₆ *, 10, 2, 3; 1999 CF₄₆ *, 10, 2, 3; 1999 CG₄₆ *, 10, 2, 3; 1999 CH₄₆ *, 7, 2, 3; 1999 CJ₄₆ *, 8, 2, 3; 1999 CK₄₆ *, 10, 2, 3; 1999 CL₄₆ *, 9, 2, 3; 1999 CM₄₆ *, 6, 2, 3; 1999 CN₄₆ *, 10, 2, 3; 1999 CO₄₆ *, 9, 2, 3; 1999 CP₄₆ *, 8, 2, 3; 1999 CQ₄₆ *, 8, 2, 3; 1999 CR₄₆ *, 10, 2, 3; 1999 CS₄₆ *, 10, 2, 3; 1999 CT₄₆ *, 10, 2, 3; 1999 CU₄₆ *, 8, 2, 3; 1999 CV₄₆ *, 9, 2, 3; 1999 CW₄₆ *, 8, 2, 3; 1999 CX₄₆ *, 8, 2, 3; 1999 CY₄₆ *, 10, 2, 3; 1999 CZ₄₆ *, 9, 2, 3; 1999 CA₄₇ *, 10, 2, 3; 1999 CB₄₇ *, 9, 2, 3; 1999 CC₄₇ *, 7, 2, 3; 1999 CD₄₇ *, 10, 2, 3; 1999 CE₄₇ *, 9, 2, 3; 1999 CF₄₇ *, 8, 2, 3; 1999 CG₄₇ *, 9, 2, 3; 1999 CH₄₇ *, 9, 2, 3; 1999 CJ₄₇ *, 7, 2, 3; 1999 CK₄₇ *, 10, 2, 3; 1999 CL₄₇ *, 10, 2, 3; 1999 CM₄₇ *, 9, 2, 3; 1999 CN₄₇ *, 10, 2, 3; 1999 CO₄₇ *, 9, 2, 3; 1999 CQ₄₇ *, 7, 2, 3; 1999 CR₄₇ *, 7, 2, 3; 1999 CS₄₇ *, 10, 2, 3; 1999 CT₄₇ *, 10, 2, 3; 1999 CU₄₇ *, 9, 2, 3; 1999 CV₄₇ *, 9, 2, 3; 1999 CW₄₇ *, 9, 2, 3; 1999 CX₄₇ *, 7, 2, 3; 1999 CY₄₇ *, 8, 2, 3; 1999 CZ₄₇ *, 10, 2, 3; 1999 CA₄₈ *, 10, 2, 3; 1999 CB₄₈ *, 8, 2, 3; 1999 CC₄₈ *, 8, 2, 3; 1999 CD₄₈ *, 9, 2, 3; 1999 CE₄₈ *, 9, 2, 3; 1999 CF₄₈ *, 8, 2, 3; 1999 CG₄₈ *, 9, 2, 3; 1999 CH₄₈ *, 8, 2, 3; 1999 CJ₄₈ *, 10, 2, 3; 1999 CK₄₈ *, 9, 2, 3; 1999 CL₄₈ *, 9, 2, 3; 1999 CM₄₈ *, 8, 2, 3; 1999 CN₄₈ *, 8, 2, 3; 1999 CO₄₈ *, 9, 2, 3; 1999 CP₄₈ *, 10, 2, 3; 1999 CQ₄₈ *, 10, 2, 3; 1999 CR₄₈ *, 10, 2, 3; 1999 CS₄₈ *, 10, 2, 3; 1999 CT₄₈ *, 9, 2, 3; 1999 CU₄₈ *, 10, 2, 3; 1999 CV₄₈ *, 10, 2, 3; 1999 CW₄₈ *, 6, 2, 3; 1999 CX₄₈ *, 9, 2, 3; 1999 CY₄₈ *, 10, 2, 3; 1999 CZ₄₈ *, 9, 2, 3; 1999 CA₄₉ *, 9, 2, 3; 1999 CB₄₉ *, 8, 2, 3; 1999 CC₄₉ *, 9, 2, 3; 1999 CD₄₉ *, 10, 2, 3; 1999 CE₄₉ *, 10, 2, 3; 1999 CF₄₉ *, 8, 2, 3; 1999 CG₄₉ *, 10, 2, 3; 1999 CH₄₉ *, 8, 2, 3; 1999 CJ₄₉ *, 10, 2, 3; 1999 CK₄₉ *, 8, 2, 3; 1999 CL₄₉ *, 10, 2, 3; 1999 CM₄₉ *, 10, 2, 3; 1999 CN₄₉ *, 9, 2, 3; 1999 CO₄₉ *, 10, 2, 3; 1999 CP₄₉ *, 9, 2, 3; 1999 CQ₄₉ *, 10, 2, 3; 1999 CR₄₉ *, 9, 2, 3; 1999 CS₄₉ *, 10, 2, 3; 1999 CT₄₉ *, 10, 2, 3; 1999 CU₄₉ *, 9, 2, 3; 1999 CV₄₉ *, 9, 2, 3; 1999 CW₄₉ *, 10, 2, 3; 1999 CX₄₉ *, 10, 2, 3; 1999 CY₄₉ *, 10, 2, 3; 1999 CZ₄₉ *, 9, 2, 3; 1999 CA₅₀ *, 9, 2, 3; 1999 CB₅₀ *, 10, 2, 3; 1999 CC₅₀ *, 8, 2, 3; 1999 CD₅₀ *, 10, 2, 3; 1999 CE₅₀ *, 9, 2, 3; 1999 CF₅₀ *, 9, 2, 3; 1999 CG₅₀ *, 10, 2, 3; 1999 CH₅₀ *, 10, 2, 3; 1999 CJ₅₀ *, 10, 2, 3; 1999 CK₅₀ *, 7, 2, 3; 1999 CL₅₀ *, 10, 2, 3; 1999 CM₅₀ *, 10, 2, 3; 1999 CN₅₀ *, 10, 2, 3; 1999 CO₅₀ *, 10, 2, 3; 1999 CP₅₀ *, 10, 2, 3; 1999 CQ₅₀ *, 10, 2, 3; 1999 CR₅₀ *, 10, 2, 3; 1999 CS₅₀ *, 9, 2, 3; 1999 CT₅₀ *, 10, 2, 3; 1999 CU₅₀ *, 10, 2, 3; 1999 CV₅₀ *, 10, 2, 3; 1999 CW₅₀ *, 6, 2, 3; 1999 CX₅₀ *, 6, 2, 3; 1999 CY₅₀ *, 8, 2, 3; 1999 CZ₅₀ *, 10, 2, 3; 1999 CA₅₁ *, 10, 2, 3; 1999 CB₅₁ *, 7, 2, 3; 1999 CC₅₁ *, 7, 2, 3; 1999 CD₅₁ *, 9, 2, 3; 1999 CE₅₁ *, 7, 2, 3; 1999 CF₅₁ *, 10, 2, 3; 1999 CG₅₁ *, 8, 2, 3; 1999 CH₅₁ *, 9, 2, 3; 1999 CJ₅₁ *, 10, 2, 3; 1999 CK₅₁ *, 9, 2, 3; 1999 CL₅₁ *, 9, 2, 3; 1999 CM₅₁ *, 10, 2, 3; 1999 CN₅₁ *, 10, 2, 3; 1999 CO₅₁ *, 9, 2, 3; 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3; 1999 CL₅₂ *, 9, 2, 3; 1999 CM₅₂ *, 8, 2, 3; 1999 CN₅₂ *, 10, 2, 3; 1999 CO₅₂ *, 10, 2, 3; 1999 CP₅₂ *, 7, 2, 3; 1999 CQ₅₂ *, 7, 2, 3; 1999 CR₅₂ *, 9, 2, 3; 1999 CS₅₂ *, 10, 2, 3; 1999 CT₅₂ *, 10, 2, 3; 1999 CU₅₂ *, 9, 2, 3; 1999 CV₅₂ *, 10, 2, 3; 1999 CW₅₂ *, 10, 2, 3; 1999 CX₅₂ *, 10, 2, 3; 1999 CY₅₂ *, 10, 2, 3; 1999 CZ₅₂ *, 10, 2, 3; 1999 CA₅₃ *, 9, 2, 3; 1999 CB₅₃ *, 10, 2, 3; 1999 CC₅₃ *, 10, 2, 3; 1999 CD₅₃ *, 9, 2, 3; 1999 CE₅₃ *, 10, 2, 3; 1999 CF₅₃ *, 10, 2, 3; 1999 CG₅₃ *, 10, 2, 3; 1999 CH₅₃ *, 10, 2, 3; 1999 CJ₅₃ *, 8, 2, 3; 1999 CK₅₃ *, 9, 2, 3; 1999 CL₅₃ *, 8, 2, 3; 1999 CM₅₃ *, 9, 2, 3; 1999 CN₅₃ *, 10, 2, 3; 1999 CO₅₃ *, 7, 2, 3; 1999 CP₅₃ *, 10, 2, 3; 1999 CQ₅₃ *, 8, 2, 3; 1999 CR₅₃ *, 8, 2, 3; 1999 CS₅₃ *, 9, 2, 3; 1999 CT₅₃ *, 9, 2, 3; 1999 CU₅₃ *, 9, 2, 3; 1999 CV₅₃ *, 8, 2, 3; 1999 CW₅₃ *, 8, 2, 3; 1999 CX₅₃ *, 9, 2, 3; 1999 CY₅₃ *, 9, 2, 3; 1999 CZ₅₃ *, 9, 2, 3; 1999 CA₅₄ *, 7, 2, 3; 1999 CB₅₄ *, 10, 2, 3; 1999 CC₅₄ *, 9, 2, 3; 1999 CD₅₄ *, 10, 2, 3; 1999 CE₅₄ *, 9, 2, 3; 1999 CF₅₄ *, 7, 2, 3; 1999 CG₅₄ *, 9, 2, 3; 1999 CH₅₄ *, 10, 2, 3; 1999 CJ₅₄ *, 7, 2, 3; 1999 CK₅₄ *, 8, 2, 3; 1999 CL₅₄ *, 9, 2, 3; 1999 CM₅₄ *, 10, 2, 3; 1999 CN₅₄ *, 10, 2, 3; 1999 CO₅₄ *, 9, 2, 3; 1999 CP₅₄ *, 8, 2, 3; 1999 CQ₅₄ *, 8, 2, 3; 1999 CR₅₄ *, 8, 2, 3; 1999 CS₅₄ *, 9, 2, 3; 1999 CT₅₄ *, 10, 2, 3; 1999 CU₅₄ *, 9, 2, 3; 1999 CV₅₄ *, 10, 2, 3; 1999 CW₅₄ *, 10, 2, 3; 1999 CX₅₄ *, 10, 2, 3; 1999 CY₅₄ *, 8, 2, 3; 1999 CZ₅₄ *, 10, 2, 3; 1999 CA₅₅ *, 8, 2, 3; 1999 CB₅₅ *, 10, 2, 3; 1999 CC₅₅ *, 10, 2, 3; 1999 CD₅₅ *, 8, 2, 3; 1999 CE₅₅ *, 10, 2, 3; 1999 CF₅₅ *, 10, 2, 3; 1999 CG₅₅ *, 10, 2, 3; 1999 CH₅₅ *, 9, 2, 3; 1999 CJ₅₅ *, 8, 2, 3; 1999 CK₅₅ *, 10, 2, 3; 1999 CL₅₅ *, 9, 2, 3; 1999 CM₅₅ *, 9, 2, 3; 1999 CN₅₅ *, 9, 2, 3; 1999 CO₅₅ *, 10, 2, 3; 1999 CP₅₅ *, 9, 2, 3; 1999 CQ₅₅ *, 10, 2, 3; 1999 CR₅₅ *, 10, 2, 3; 1999 CS₅₅ *, 8, 2, 3; 1999 CT₅₅ *, 8, 2, 3; 1999 CU₅₅ *, 10, 2, 3; 1999 CV₅₅ *, 10, 2, 3; 1999 CW₅₅ *, 10, 2, 3; 1999 CX₅₅ *, 10, 2, 3; 1999 CY₅₅ *, 10, 2, 3; 1999 CZ₅₅ *, 8, 2, 3; 1999 CA₅₆ *, 9, 2, 3; 1999 CB₅₆ *, 10, 2, 3; 1999 CC₅₆ *, 10, 2, 3; 1999 CD₅₆ *, 10, 2, 3; 1999 CE₅₆ *, 9, 2, 3; 1999 CF₅₆ *, 10, 2, 3; 1999 CG₅₆ *, 10, 2, 3; 1999 CH₅₆ *, 9, 2, 3; 1999 CJ₅₆ *, 10, 2, 3; 1999 CK₅₆ *, 8, 2, 3; 1999 CL₅₆ *, 9, 2, 3; 1999 CM₅₆ *, 8, 2, 3; 1999 CN₅₆ *, 8, 2, 3; 1999 CO₅₆ *, 10, 2, 3; 1999 CP₅₆ *, 10, 2, 3; 1999 CQ₅₆ *, 10, 2, 3; 1999 CR₅₆ *, 10, 2, 3; 1999 CS₅₆ *, 10, 2, 3; 1999 CT₅₆ *, 10, 2, 3; 1999 CU₅₆ *, 10, 2, 3; 1999 CV₅₆ *, 10, 2, 3; 1999 CW₅₆ *, 10, 2, 3; 1999 CX₅₆ *, 10, 2, 3; 1999 CY₅₆ *, 10, 2, 3; 1999 CZ₅₆ *, 10, 2, 3; 1999 CA₅₇ *, 8, 2, 3; 1999 CB₅₇ *, 7, 2, 3; 1999 CC₅₇ *, 10, 2, 3; 1999 CD₅₇ *, 10, 2, 3; 1999 CE₅₇ *, 9, 2, 3; 1999 CF₅₇ *, 9, 2, 3; 1999 CG₅₇ *, 10, 2, 3; 1999 CH₅₇ *, 9, 2, 3; 1999 CJ₅₇ *, 7, 2, 3; 1999 CK₅₇ *, 7, 2, 3; 1999 CL₅₇ *, 8, 2, 3; 1999 CM₅₇ *, 9, 2, 3; 1999 CN₅₇ *, 10, 2, 3; 1999 CO₅₇ *, 10, 2, 3; 1999 CP₅₇ *, 9, 2, 3; 1999 CQ₅₇ *, 9, 2, 3; 1999 CR₅₇ *, 7, 2, 3; 1999 CS₅₇ *, 7, 2, 3; 1999 CT₅₇ *, 10, 2, 3; 1999 CU₅₇ *, 10, 2, 3; 1999 CV₅₇ *, 10, 2, 3; 1999 CW₅₇ *, 9, 2, 3; 1999 CX₅₇ *, 8, 2, 3; 1999 CY₅₇ *, 10, 2, 3; 1999 CZ₅₇ *, 9, 2, 3; 1999 CA₅₈ *, 10, 2, 3; 1999 CB₅₈ *, 10, 2, 3; 1999 CC₅₈ *, 10, 2, 3; 1999 CD₅₈ *, 8, 2, 3; 1999 CE₅₈ *, 9, 2, 3; 1999 CF₅₈ *, 9, 2, 3; 1999 CG₅₈ *, 8, 2, 3; 1999 CH₅₈ *, 10, 2, 3; 1999 CJ₅₈ *, 8, 2, 3; 1999 CK₅₈ *, 9, 2, 3; 1999 CL₅₈ *, 8, 2, 3; 1999 CM₅₈ *, 9, 2, 3; 1999 CN₅₈ *, 10, 2, 3; 1999 CO₅₈ *, 9, 2, 3; 1999 CP₅₈ *, 10, 2, 3; 1999 CQ₅₈ *, 10, 2, 3; 1999 CR₅₈ *, 10, 2, 3; 1999 CS₅₈ *, 8, 2, 3; 1999 CT₅₈ *, 8, 2, 3; 1999 CU₅₈ *, 10, 2, 3; 1999 CV₅₈ *, 8, 2, 3; 1999 CW₅₈ *, 7, 2, 3; 1999 CX₅₈ *, 9, 2, 3; 1999 CY₅₈ *, 10, 2, 3; 1999 CZ₅₈ *, 8, 2, 3; 1999 CA₅₉ *, 9, 2, 3; 1999 CB₅₉ *, 8, 2, 3; 1999 CC₅₉ *, 8, 2, 3; 1999 CD₅₉ *, 7, 2, 3; 1999 CE₅₉ *, 7, 2, 3; 1999 CF₅₉ *, 6, 2, 3; 1999 CG₅₉ *, 7, 2, 3; 1999 CH₅₉ *, 8, 2, 3; 1999 CJ₅₉ *, 7, 2, 3; 1999 CK₅₉ *, 8, 2, 3; 1999 CL₅₉ *, 7, 2, 3; 1999 CM₅₉ *, 7, 2, 3; 1999 CN₅₉ *, 7, 2, 3; 1999 CO₅₉ *, 9, 2, 4; 1999 CP₅₉ *, 8, 2, 4; 1999 CQ₅₉ *, 9, 2, 4; 1999 CR₅₉ *, 7, 2, 4; 1999 CS₅₉ *, 10, 2, 4; 1999 CT₅₉ *, 9, 2, 4; 1999 CU₅₉ *, 10, 2, 4; 1999 CV₅₉ *, 8, 2, 4; 1999 CW₅₉ *, 9, 2, 4; 1999 CX₅₉ *, 10, 2, 4; 1999 CY₅₉ *, 9, 2, 4; 1999 CZ₅₉ *, 8, 2, 4; 1999 CA₆₀ *, 9, 2, 4; 1999 CB₆₀ *, 9, 2, 4; 1999 CC₆₀ *, 9, 2, 4; 1999 CD₆₀ *, 8, 2, 4; 1999 CE₆₀ *, 10, 2, 4; 1999 CF₆₀ *, 10, 2, 4; 1999 CG₆₀ *, 9, 2, 4; 1999 CH₆₀ *, 10, 2, 4; 1999 CJ₆₀ *, 9, 2, 4; 1999 CK₆₀ *, 10, 2, 4; 1999 CL₆₀ *, 9, 2, 4; 1999 CM₆₀ *, 9, 2, 4; 1999 CN₆₀ *, 8, 2, 4; 1999 CO₆₀ *, 10, 2, 4; 1999 CP₆₀ *, 9, 2, 4; 1999 CQ₆₀ *, 9, 2, 4; 1999 CR₆₀ *, 10, 2, 4; 1999 CS₆₀ *, 10, 2, 4; 1999 CT₆₀ *, 10, 2, 4; 1999 CU₆₀

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2, 4; 1999 CZ₆₃ *, 10, 2, 4; 1999 CA₆₄ *, 10, 2, 4; 1999 CB₆₄ *, 8, 2, 4; 1999 CC₆₄ *, 10, 2, 4; 1999 CD₆₄ *, 10, 2, 4; 1999 CE₆₄ *, 10, 2, 4; 1999 CF₆₄ *, 8, 2, 4; 1999 CG₆₄ *, 10, 2, 4; 1999 CH₆₄ *, 10, 2, 4; 1999 CJ₆₄ *, 10, 2, 4; 1999 CK₆₄ *, 8, 2, 4; 1999 CL₆₄ *, 10, 2, 4; 1999 CM₆₄ *, 10, 2, 4; 1999 CN₆₄ *, 10, 2, 4; 1999 CO₆₄ *, 9, 2, 4; 1999 CP₆₄ *, 10, 2, 4; 1999 CQ₆₄ *, 9, 2, 4; 1999 CR₆₄ *, 10, 2, 4; 1999 CS₆₄ *, 10, 2, 4; 1999 CT₆₄ *, 10, 2, 4; 1999 CV₆₄ *, 10, 2, 4; 1999 CW₆₄ *, 10, 2, 4; 1999 CX₆₄ *, 10, 2, 4; 1999 CY₆₄ *, 10, 2, 4; 1999 CZ₆₄ *, 9, 2, 4; 1999 CA₆₅ *, 9, 2, 4; 1999 CB₆₅ *, 9, 2, 4; 1999 CC₆₅ *, 9, 2, 4; 1999 CD₆₅ *, 9, 2, 4; 1999 CE₆₅ *, 7, 2, 4; 1999 CF₆₅ *, 8, 2, 4; 1999 CG₆₅ *, 10, 2, 4; 1999 CH₆₅ *, 10, 2, 4; 1999 CJ₆₅ *, 8, 2, 4; 1999 CK₆₅ *, 10, 2, 4; 1999 CL₆₅ *, 9, 2, 4; 1999 CM₆₅ *, 10, 2, 4; 1999 CN₆₅ *, 10, 2, 4; 1999 CO₆₅ *, 9, 2, 4; 1999 CP₆₅ *, 10, 2, 4; 1999 CQ₆₅ *, 10, 2, 4; 1999 CR₆₅ *, 10, 2, 4; 1999 CS₆₅ *, 9, 2, 4; 1999 CT₆₅ *, 9, 2, 4; 1999 CV₆₅ *, 10, 2, 4; 1999 CW₆₅ *, 10, 2, 4; 1999 CX₆₅ *, 10, 2, 4; 1999 CY₆₅ *, 7, 2, 4; 1999 CZ₆₅ *, 7, 2, 4; 1999 CA₆₆ *, 9, 2, 4; 1999 CB₆₆ *, 9, 2, 4; 1999 CC₆₆ *, 9, 2, 4; 1999 CD₆₆ *, 10, 2, 4; 1999 CE₆₆ *, 9, 2, 4; 1999 CF₆₆ *, 10, 2, 4; 1999 CG₆₆ *, 10, 2, 4; 1999 CH₆₆ *, 10, 2, 4; 1999 CJ₆₆ *, 10, 2, 4; 1999 CK₆₆ *, 9, 2, 4; 1999 CL₆₆ *, 10, 2, 4; 1999 CM₆₆ *, 9, 2, 4; 1999 CN₆₆ *, 10, 2, 4; 1999 CO₆₆ *, 10, 2, 4; 1999 CP₆₆ *, 8, 2, 4; 1999 CQ₆₆ *, 10, 2, 4; 1999 CR₆₆ *, 10, 2, 4; 1999 CS₆₆ *, 10, 2, 4; 1999 CT₆₆ *, 10, 2, 4; 1999 CV₆₆ *, 10, 2, 4; 1999 CW₆₆ *, 10, 2, 4; 1999 CX₆₆ *, 10, 2, 4; 1999 CY₆₆ *, 10, 2, 4; 1999 CZ₆₆ *, 8, 2, 4; 1999 CA₆₇ *, 10, 2, 4; 1999 CB₆₇ *, 10, 2, 4; 1999 CC₆₇ *, 10, 2, 4; 1999 CD₆₇ *, 10, 2, 4; 1999 CE₆₇ *, 8, 2, 4; 1999 CF₆₇ *, 10, 2, 4; 1999 CG₆₇ *, 10, 2, 4; 1999 CH₆₇ *, 9, 2, 4; 1999 CJ₆₇ *, 10, 2, 4; 1999 CK₆₇ *, 10, 2, 4; 1999 CL₆₇ *, 9, 2, 4; 1999 CM₆₇ *, 10, 2, 4; 1999 CN₆₇ *, 10, 2, 4; 1999 CO₆₇ *, 10, 2, 4; 1999 CP₆₇ *, 9, 2, 4; 1999 CQ₆₇ *, 8, 2, 4; 1999 CR₆₇ *, 9, 2, 4; 1999 CS₆₇ *, 10, 2, 4; 1999 CT₆₇ *, 10, 2, 4; 1999 CV₆₇ *, 9, 2, 4; 1999 CW₆₇ *, 10, 2, 4; 1999 CX₆₇ *, 7, 2, 4; 1999 CY₆₇ *, 8, 2, 4; 1999 CZ₆₇ *, 9, 2, 4; 1999 CA₆₈ *, 8, 2, 4; 1999 CB₆₈ *, 8, 2, 4; 1999 CC₆₈ *, 9, 2, 4; 1999 CD₆₈ *, 8, 2, 4; 1999 CE₆₈ *, 9, 2, 4; 1999 CF₆₈ *, 8, 2, 4; 1999 CG₆₈ *, 8, 2, 4; 1999 CH₆₈ *, 10, 2, 4; 1999 CJ₆₈ *, 10, 2, 4; 1999 CK₆₈ *, 10, 2, 4; 1999 CL₆₈ *, 8, 2, 4; 1999 CM₆₈ *, 9, 2, 4; 1999 CN₆₈ *, 10, 2, 4; 1999 CO₆₈ *, 10, 2, 4; 1999 CP₆₈ *, 9, 2, 4; 1999 CQ₆₈ *, 10, 2, 4; 1999 CR₆₈ *, 8, 2, 4; 1999 CS₆₈ *, 8, 2, 4; 1999 CT₆₈ *, 8, 2, 4; 1999 CV₆₈ *, 10, 2, 4; 1999 CW₆₈ *, 10, 2, 4; 1999 CX₆₈ *, 8, 2, 4; 1999 CY₆₈ *, 10, 2, 4; 1999 CZ₆₈ *, 8, 2, 4; 1999 CA₆₉ *, 7, 2, 4; 1999 CB₆₉ *, 9, 2, 4; 1999 CC₆₉ *, 10, 2, 4; 1999 CD₆₉ *, 10, 2, 4; 1999 CE₆₉ *, 7, 2, 4; 1999 CF₆₉ *, 7, 2, 4; 1999 CG₆₉ *, 6, 2, 4; 1999 CH₆₉ *, 10, 2, 4; 1999 CJ₆₉ *, 9, 2, 4; 1999 CK₆₉ *, 10, 2, 4; 1999 CL₆₉ *, 10, 2, 4; 1999 CM₆₉ *, 10, 2, 4; 1999 CN₆₉ *, 9, 2, 4; 1999 CO₆₉ *, 6, 2, 4; 1999 CP₆₉ *, 10, 2, 4; 1999 CQ₆₉ *, 10, 2, 4; 1999 CR₆₉ *, 9, 2, 4; 1999 CS₆₉ *, 8, 2, 4; 1999 CT₆₉ *, 10, 2, 4; 1999 CV₆₉ *, 10, 2, 4; 1999 CW₆₉ *, 9, 2, 4; 1999 CX₆₉ *, 10, 2, 4; 1999 CY₆₉ *, 10, 2, 4; 1999 CZ₆₉ *, 8, 2, 4; 1999 CA₇₀ *, 8, 2, 4; 1999 CB₇₀ *, 9, 2, 4; 1999 CC₇₀ *, 7, 2, 4; 1999 CD₇₀ *, 9, 2, 4; 1999 CE₇₀ *, 8, 2, 4; 1999 CF₇₀ *, 9, 2, 4; 1999 CG₇₀ *, 10, 2, 4; 1999 CH₇₀ *, 10, 2, 4; 1999 CJ₇₀ *, 10, 2, 4; 1999 CK₇₀ *, 7, 2, 4; 1999 CL₇₀ *, 7, 2, 4; 1999 CM₇₀ *, 9, 2, 4; 1999 CN₇₀ *, 10, 2, 4; 1999 CO₇₀ *, 9, 2, 4; 1999 CP₇₀ *, 7, 2, 4; 1999 CQ₇₀ *, 9, 2, 4; 1999 CR₇₀ *, 10, 2, 4; 1999 CS₇₀ *, 9, 2, 4; 1999 CT₇₀ *, 10, 2, 4; 1999 CU₇₀ *, 10, 2, 4; 1999 CV₇₀ *, 9, 2, 4; 1999 CW₇

0, 2, 4; 1999 CP75 *, 8, 2, 4; 1999 CQ75 *, 10, 2, 4; 1999 CR75 *, 9, 2, 4; 1999 CS75 *, 10, 2, 4; 1999 CT75 *, 9, 2, 4; 1999 CU75 *, 10, 2, 4; 1999 CV75 *, 8, 2, 4; 1999 CW75 *, 10, 2, 4; 1999 CX75 *, 10, 2, 4; 1999 CY75 *, 10, 2, 4; 1999 CZ75 *, 10, 2, 4; 1999 CA76 *, 10, 2, 4; 1999 CB76 *, 9, 2, 4; 1999 CC76 *, 10, 2, 4; 1999 CD76 *, 9, 2, 4; 1999 CE76 *, 10, 2, 4; 1999 CF76 *, 12, 2, 4; 1999 CG76 *, 10, 2, 4; 1999 CH76 *, 10, 2, 4; 1999 CJ76 *, 10, 2, 4; 1999 CK76 *, 10, 2, 4; 1999 CL76 *, 10, 2, 4; 1999 CM76 *, 10, 2, 4; 1999 CN76 *, 10, 2, 4; 1999 CO76 *, 8, 2, 4; 1999 CP76 *, 10, 2, 4; 1999 CQ76 *, 10, 2, 4; 1999 CR76 *, 10, 2, 4; 1999 CS76 *, 9, 2, 4; 1999 CT76 *, 10, 2, 4; 1999 CU76 *, 8, 2, 4; 1999 CV76 *, 10, 2, 4; 1999 CW76 *, 10, 2, 4; 1999 CX76 *, 10, 2, 4; 1999 CY76 *, 10, 2, 4; 1999 CZ76 *, 10, 2, 4; 1999 CA77 *, 10, 2, 4; 1999 CB77 *, 9, 2, 4; 1999 CC77 *, 10, 2, 4; 1999 CD77 *, 10, 2, 4; 1999 CE77 *, 10, 2, 4; 1999 CF77 *, 9, 2, 4; 1999 CG77 *, 10, 2, 4; 1999 CH77 *, 8, 2, 4; 1999 CJ77 *, 10, 2, 4; 1999 CK77 *, 10, 2, 4; 1999 CL77 *, 10, 2, 4; 1999 CM77 *, 10, 2, 4; 1999 CN77 *, 10, 2, 4; 1999 CO77 *, 10, 2, 4; 1999 CP77 *, 10, 2, 4; 1999 CQ77 *, 9, 2, 4; 1999 CR77 *, 8, 2, 4; 1999 CS77 *, 9, 2, 4; 1999 CT77 *, 10, 2, 4; 1999 CU77 *, 9, 2, 4; 1999 CV77 *, 8, 2, 4; 1999 CW77 *, 10, 2, 4; 1999 CX77 *, 10, 2, 4; 1999 CY77 *, 10, 2, 4; 1999 CZ77 *, 10, 2, 4; 1999 CA78 *, 10, 2, 4; 1999 CB78 *, 8, 2, 4; 1999 CC78 *, 10, 2, 4; 1999 CD78 *, 10, 2, 4; 1999 CE78 *, 9, 2, 4; 1999 CF78 *, 10, 2, 4; 1999 CG78 *, 10, 2, 4; 1999 CH78 *, 7, 2, 4; 1999 CJ78 *, 10, 2, 4; 1999 CK78 *, 8, 2, 4; 1999 CL78 *, 8, 2, 4; 1999 CM78 *, 8, 2, 4; 1999 CN78 *, 10, 2, 4; 1999 CO78 *, 9, 2, 4; 1999 CP78 *, 9, 2, 4; 1999 CQ78 *, 10, 2, 4; 1999 CR78 *, 9, 2, 4; 1999 CS78 *, 10, 2, 4; 1999 CT78 *, 9, 2, 4; 1999 CU78 *, 9, 2, 4; 1999 CV78 *, 9, 2, 4; 1999 CW78 *, 8, 2, 4; 1999 CX78 *, 10, 2, 4; 1999 CY78 *, 10, 2, 4; 1999 CZ78 *, 10, 2, 4; 1999 CA79 *, 8, 2, 4; 1999 CB79 *, 9, 2, 4; 1999 CC79 *, 10, 2, 4; 1999 CD79 *, 10, 2, 4; 1999 CE79 *, 10, 2, 4; 1999 CF79 *, 9, 2, 4; 1999 CG79 *, 9, 2, 4; 1999 CH79 *, 10, 2, 4; 1999 CJ79 *, 10, 2, 4; 1999 CK79 *, 9, 2, 4; 1999 CL79 *, 9, 2, 4; 1999 CM79 *, 9, 2, 4; 1999 CN79 *, 7, 2, 4; 1999 CO79 *, 8, 2, 4; 1999 CP79 *, 10, 2, 4; 1999 CQ79 *, 9, 2, 4; 1999 CR79 *, 10, 2, 4; 1999 CS79 *, 9, 2, 4; 1999 CT79 *, 10, 2, 4; 1999 CU79 *, 10, 2, 4; 1999 CV79 *, 10, 2, 4; 1999 CW79 *, 9, 2, 4; 1999 CX79 *, 8, 2, 4; 1999 CY79 *, 10, 2, 4; 1999 CZ79 *, 9, 2, 4; 1999 CA80 *, 9, 2, 4; 1999 CB80 *, 10, 2, 4; 1999 CC80 *, 10, 2, 4; 1999 CD80 *, 8, 2, 4; 1999 CE80 *, 10, 2, 4; 1999 CF80 *, 10, 2, 4; 1999 CG80 *, 9, 2, 4; 1999 CH80 *, 10, 2, 4; 1999 CJ80 *, 10, 2, 4; 1999 CK80 *, 10, 2, 4; 1999 CL80 *, 9, 2, 4; 1999 CM80 *, 10, 2, 4; 1999 CN80 *, 8, 2, 4; 1999 CO80 *, 10, 2, 4; 1999 CP80 *, 9, 2, 4; 1999 CQ80 *, 7, 2, 4; 1999 CR80 *, 7, 2, 4; 1999 CS80 *, 6, 2, 4; 1999 CT80 *, 7, 2, 4; 1999 CU80 *, 9, 2, 4; 1999 CV80 *, 9, 2, 4; 1999 CW80 *, 8, 2, 4; 1999 CX80 *, 9, 2, 4; 1999 CY80 *, 9, 2, 4; 1999 CZ80 *, 9, 2, 4; 1999 CA81 *, 9, 2, 4; 1999 CB81 *, 9, 2, 4; 1999 CC81 *, 9, 2, 4; 1999 CD81 *, 9, 2, 4; 1999 CE81 *, 9, 2, 4; 1999 CF81 *, 9, 2, 4; 1999 CG81 *, 8, 2, 4; 1999 CH81 *, 8, 2, 4; 1999 CJ81 *, 9, 2, 4; 1999 CK81 *, 9, 2, 4; 1999 CL81 *, 8, 2, 4; 1999 CM81 *, 9, 2, 4; 1999 CN81 *, 9, 2, 4; 1999 CO81 *, 9, 2, 4; 1999 CP81 *, 9, 2, 4; 1999 CQ81 *, 8, 2, 4; 1999 CR81 *, 8, 2, 4; 1999 CS81 *, 9, 2, 4; 1999 CT81 *, 9, 2, 4; 1999 CU81 *, 9, 2, 4; 1999 CV81 *, 9, 2, 4; 1999 CW81 *, 9, 2, 4; 1999 CX81 *, 9, 2, 4; 1999 CY81 *, 9, 2, 4; 1999 CZ81 *, 8, 2, 4; 1999 CA82 *, 9, 2, 4; 1999 CB82 *, 9, 2, 4; 1999 CC82 *, 9, 2, 4; 1999 CD82 *, 8, 2, 4; 1999 CE82 *, 9, 2, 4; 1999 CF82 *, 10, 2, 3; 1999 CG82 *, 10, 2, 3; 1999 CH82 *, 10, 2, 3; 1999 CJ82 *, 9, 2, 3; 1999 CK82 *, 7, 2, 3; 1999 CL82 *, 9, 2, 3; 1999 CM82 *, 10, 2, 3; 1999 CN82 *, 9, 2, 3; 1999 CO82 *, 10, 2, 3; 1999 CP82 *, 10, 2, 3; 1999 CQ82 *, 10, 2, 3; 1999 CR82 *, 7, 2, 3; 1999 CS82 *, 8, 2, 3; 1999 CT82 *, 8, 2, 3; 1999 CU82 *, 10, 2, 3; 1999 CV82 *, 10, 2, 3; 1999 CW82 *, 9, 2, 3; 1999 CX82 *, 8, 2, 3; 1999 CY82 *, 7, 2, 3; 1999 CZ82 *, 8, 2, 3; 1999 CA83 *, 8, 2, 3; 1999 CB83 *, 9, 2, 3; 1999 CC83 *, 10, 2, 3; 1999 CD83 *, 10, 2, 3; 1999 CE83 *, 10, 2, 3; 1999 CF83 *, 10, 2, 3; 1999 CG83 *, 9, 2, 3; 1999 CH83 *, 9, 2, 3; 1999 CJ83 *, 9, 2, 3; 1999 CK83 *, 8, 2, 3; 1999 CL83 *, 10, 2, 3; 1999 CM83 *, 8, 2, 3; 1999 CN83 *, 9, 2, 3; 1999 CO83 *, 10, 2, 3; 1999 CP83 *, 10, 2, 3; 1999 CQ83 *, 9, 2, 3; 1999 CR83 *, 7, 2, 3; 1999 CS83 *, 9, 2, 3; 1999 CT83 *, 10, 2, 3; 1999 CU83 *, 9, 2, 3; 1999 CV83 *, 9, 2, 3; 1999 CW83 *, 9, 2, 3; 1999 CX83 *, 10, 2, 3; 1999 CY83 *, 9, 2, 3; 1999 CZ83 *, 9, 2, 3; 1999 CA84 *, 7, 2, 3; 1999 CB84 *, 9, 2, 3; 1999 CC84 *, 10, 2, 3; 1999 CD84 *, 9, 2, 3; 1999 CE84 *, 9, 2, 3; 1999 CF84 *, 9, 2, 3; 1999 CG84 *, 8, 2, 3; 1999 CH84 *, 9, 2, 3; 1999 CJ84 *, 9, 2, 3; 1999 CK84 *, 9, 2, 3; 199

10, 2, 3; 1999 CH₈₇ *, 7, 2, 3; 1999 CJ₈₇ *, 8, 2, 3; 1999 CK₈₇ *, 10, 2, 3; 1999 CL₈₇ *, 8, 2, 3; 1999 CM₈₇ *, 10, 2, 3; 1999 CN₈₇ *, 9, 2, 3; 1999 CO₈₇ *, 9, 2, 3; 1999 CP₈₇ *, 10, 2, 2; 1999 CQ₈₇ *, 8, 2, 3; 1999 CR₈₇ *, 9, 2, 3; 1999 CS₈₇ *, 9, 2, 3; 1999 CT₈₇ *, 7, 2, 3; 1999 CU₈₇ *, 9, 2, 3; 1999 CV₈₇ *, 8, 2, 3; 1999 CW₈₇ *, 9, 2, 3; 1999 CX₈₇ *, 10, 2, 3; 1999 CY₈₇ *, 8, 2, 3; 1999 CZ₈₇ *, 9, 2, 3; 1999 CA₈₈ *, 9, 2, 3; 1999 CB₈₈ *, 10, 2, 3; 1999 CC₈₈ *, 9, 2, 3; 1999 CD₈₈ *, 8, 2, 3; 1999 CE₈₈ *, 8, 2, 3; 1999 CF₈₈ *, 9, 2, 3; 1999 CG₈₈ *, 9, 2, 3; 1999 CH₈₈ *, 9, 2, 3; 1999 CJ₈₈ *, 8, 2, 3; 1999 CK₈₈ *, 10, 2, 3; 1999 CL₈₈ *, 10, 2, 3; 1999 CM₈₈ *, 9, 2, 3; 1999 CN₈₈ *, 9, 2, 3; 1999 CO₈₈ *, 8, 2, 3; 1999 CP₈₈ *, 10, 2, 3; 1999 CQ₈₈ *, 10, 2, 3; 1999 CR₈₈ *, 8, 2, 3; 1999 CS₈₈ *, 8, 2, 3; 1999 CT₈₈ *, 8, 2, 3; 1999 CU₈₈ *, 10, 2, 3; 1999 CV₈₈ *, 7, 2, 3; 1999 CW₈₈ *, 9, 2, 3; 1999 CX₈₈ *, 8, 2, 3; 1999 CY₈₈ *, 7, 2, 3; 1999 CZ₈₈ *, 10, 2, 3; 1999 CA₈₉ *, 7, 2, 3; 1999 CB₈₉ *, 8, 2, 3; 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1999 CR₉₄ *, 9, 2, 3; 1999 CS₉₄ *, 7, 2, 3; 1999 CT₉₄ *, 7, 2, 3; 1999 CU₉₄ *, 8, 2, 3; 1999 CV₉₄ *, 8, 2, 3; 1999 CW₉₄ *, 9, 2, 3; 1999 CX₉₄ *, 9, 2, 3; 1999 CY₉₄ *, 9, 2, 3; 1999 CZ₉₄ *, 8, 2, 3; 1999 CA₉₅ *, 8, 2, 3; 1999 CB₉₅ *, 8, 2, 3; 1999 CC₉₅ *, 7, 2, 3; 1999 CD₉₅ *, 7, 2, 3; 1999 CE₉₅ *, 9, 2, 3; 1999 CF₉₅ *, 8, 2, 3; 1999 CG₉₅ *, 7, 2, 3; 1999 CH₉₅ *, 8, 2, 3; 1999 CJ₉₅ *, 8, 2, 3; 1999 CK₉₅ *, 6, 2, 3; 1999 CL₉₅ *, 8, 2, 3; 1999 CM₉₅ *, 9, 2, 3; 1999 CN₉₅ *, 8, 2, 3; 1999 CO₉₅ *, 9, 2, 3; 1999 CP₉₅ *, 9, 2, 3; 1999 CQ₉₅ *, 10, 2, 3; 1999 CR₉₅ *, 8, 2, 3; 1999 CS₉₅ *, 10, 2, 3; 1999 CT₉₅ *, 10, 2, 3; 1999 CU₉₅ *, 10, 2, 3; 1999 CV₉₅ *, 8, 2, 3; 1999 CW₉₅ *, 9, 2, 3; 1999 CX₉₅ *, 8, 2, 3; 1999 CY₉₅ *, 8, 2, 3; 1999 CZ₉₅ *, 9, 2, 3; 1999 CA₉₆ *, 8, 2, 3; 1999 CB₉₆ *, 7, 2, 3; 1999 CC₉₆ *, 8, 2, 3; 1999 CD₉₆ *, 10, 2, 3; 1999 CE₉₆ *, 8, 2, 3; 1999 CF₉₆ *, 10, 2, 3; 1999 CG₉₆ *, 9, 2, 3; 1999 CH₉₆ *, 7, 2, 3; 1999 CJ₉₆ *, 7, 2, 3; 1999 CK₉₆ *, 10, 2, 3; 1999 CL₉₆ *, 8, 2, 3; 1999 CM₉₆ *, 8, 2, 3; 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1999 CL₉₉ *, 9, 2, 3; 1999 CM₉₉ *, 8, 2, 3; 1999 CN₉₉ *, 7, 2, 3; 1999 CO₉₉ *, 10, 2, 3; 1999 CP₉₉ *, 9, 2, 3; 1999 CQ₉₉ *, 7, 2, 3; 1999 CR₉₉ *, 10, 2, 3; 1999 CS₉₉ *, 8, 2, 3; 1999 CT₉₉ *, 8, 2, 3; 1999 CU₉₉ *, 9, 2, 3; 1999 CV₉₉ *, 10, 2, 3; 1999 CW₉₉ *, 8, 2, 3; 1999 CX₉₉ *, 8, 2, 3; 1999 CY₉₉ *, 9, 2, 3; 1999 CZ₉₉ *, 8, 2, 3; 1999 CA₁₀₀ *, 8, 2, 3; 1999 CB₁₀₀ *, 9, 2, 3; 1999 CC₁₀₀ *, 10, 2, 3; 1999 CD₁₀₀ *, 9, 2, 3; 1999 CE₁₀₀ *, 9, 2, 3; 1999 CF₁₀₀ *, 9, 2, 3; 1999 CG₁₀₀ *, 9, 2, 3; 1999 CH₁₀₀ *, 9, 2, 3; 1999 CJ₁₀₀ *, 10, 2, 3; 1999 CK₁₀₀ *, 10, 2, 3; 1999 CL₁₀₀ *, 10, 2, 3; 1999 CM₁₀₀ *, 8, 2, 3; 1999 CN₁₀₀ *, 7, 2, 3; 1999 CO₁₀₀ *, 7, 2, 3; 1999 CP₁₀₀ *, 10, 2, 3; 1999 CQ₁₀₀ *, 10, 2, 3; 1999 CR₁₀₀ *, 8, 2, 3; 1999 CS₁₀₀ *, 10, 2, 3; 1999 CT₁₀₀ *, 7, 2, 3; 1999 CU₁₀₀ *, 8, 2, 3; 1999 CV₁₀₀ *, 9, 2, 3; 1999 CW₁₀₀ *, 9, 2, 3; 1999 CX₁₀₀ *, 10, 2, 3; 1999 CY₁₀₀ *, 7, 2, 3; 1999 CZ₁₀₀ *, 9, 2, 3; 1999 CA₁₀₁ *, 10, 2, 3; 1999 CB₁₀₁ *, 8, 2, 3; 1999 CC₁₀₁ *, 10, 2, 3; 1999 CD₁₀₁ *, 8, 2, 3; 1999 CE₁₀₁ *, 10, 2, 3; 1999 CF₁₀₁ *, 8, 2, 3; 1999 CG₁₀₁ *, 8, 2, 3; 1999 CH₁₀₁ *, 9, 2, 3; 1999 CJ₁₀₁ *, 9, 2, 3; 1999 CK₁₀₁ *, 7, 2, 3; 1999 CL₁₀₁ *, 9, 2, 3; 1999 CM₁₀₁ *, 8, 2, 3; 1999 CN₁₀₁ *, 9, 2, 3; 1999 CO₁₀₁ *, 8, 2, 3; 1999 CP₁₀₁ *, 7, 2, 3; 1999 CQ₁₀₁ *, 10, 2, 3; 1999 CR₁₀₁ *, 7, 2, 3; 1999 CS₁₀₁ *, 9, 2, 3; 1999 CT₁₀₁ *, 10, 2, 3; 1999 CU₁₀₁ *, 7, 2, 3; 1999 CV₁₀₁ *, 8, 2, 3; 1999 CW₁₀₁ *, 7, 2, 3; 1999 CX₁₀₁ *, 10, 2, 3; 1999 CY₁₀₁ *, 7, 2, 3; 1999 CZ₁₀₁ *, 8, 2, 3; 1999 CA₁₀₂ *, 7, 2, 3; 1999 CB₁₀₂ *, 8, 2, 3; 1999 CC₁₀₂ *, 7, 2, 3; 1999 CD₁₀₂ *, 8, 2, 3; 1999 CE₁₀₂ *, 7, 2, 3; 1999 CF₁₀₂ *, 7, 2, 3; 1999 CG₁₀₂ *, 7, 2, 3; 1999 CH₁₀₂ *, 8, 2, 3; 1999 CJ₁₀₂ *, 8, 2, 3; 1999 CK₁₀₂ *, 7, 2, 3; 1999 CL₁₀₂ *, 8, 2, 3; 1999 CM₁₀₂ *, 7, 2, 4; 1999 CN₁₀₂ *, 10, 2, 4; 1999 CO₁₀₂ *, 8, 2, 4; 1999 CP₁₀₂ *, 9, 2, 4; 1999 CQ₁₀₂ *, 9, 2, 4; 1999 CR₁₀₂ *, 7, 2, 4; 1999 CS₁₀₂ *, 9, 2, 4; 1999 CT₁₀₂ *, 7, 2, 4; 1999 CU₁₀₂ *, 9, 2, 4; 1999 CV₁₀₂ *, 10, 2, 4; 1999 CW₁₀₂ *, 9, 2, 4; 1999 CX₁₀₂ *, 9, 2, 4; 1999 CY₁₀₂ *, 9, 2, 4; 1999 CZ₁₀₂ *, 9, 2, 4; 1999 CA₁₀₃ *, 9, 2, 4; 1999 CB₁₀₃ *, 10, 2, 4; 1999 CC₁₀₃ *, 9, 2, 4; 1999 CD₁₀₃ *, 10, 2, 4; 1999 CE₁₀₃ *, 10, 2, 4; 1999 CF₁₀₃ *, 10, 2, 4; 1999 CG₁₀₃ *, 9, 2, 4; 1999 CH₁₀₃ *, 10, 2, 4; 1999 CJ₁₀₃ *, 10, 2, 4; 1999 CK₁₀₃ *, 9, 2, 4; 1999 CL₁₀₃ *, 9, 2, 4; 1999 CM₁₀₃ *, 9, 2, 4; 1999 CN₁₀₃ *, 9, 2, 4; 1999 CO₁₀₃ *, 9, 2, 4; 1999 CP₁₀₃ *, 9, 2, 4; 1999 CQ₁₀₃ *, 9, 2, 4; 1999 CR₁₀₃ *, 8, 2, 4; 1999 CS₁₀₃ *, 9, 2, 4; 1999 CT₁₀₃ *, 10, 2, 4; 1999 CU₁₀₃ *, 9, 2, 4; 1999 CV₁₀₃ *, 10, 2, 1; 1999 CW₁₀₃ *, 9, 2, 4; 1999 CX₁₀₃ *, 9, 2, 4; 1999 CY₁₀₃ *, 9, 2, 4; 1999 CZ₁₀₃ *, 10, 2, 4; 1999 CA₁₀₄ *, 8, 2, 4; 1999 CB₁₀₄ *, 7, 2, 4; 1999 CC₁₀₄ *, 8, 2, 4; 1999 CD₁₀₄ *, 9, 2, 4; 1999 CE₁₀₄ *, 8, 2, 4; 1999 CF₁₀₄ *, 10, 2, 4; 1999 CG₁₀₄ *, 10, 2, 4; 1999 CH₁₀₄ *, 9, 2, 4; 1999 CJ₁₀₄ *, 9, 2, 4; 1999 CK₁₀₄ *, 8, 2, 4; 1999 CL₁₀₄ *, 10, 2, 4; 1999 CM₁₀₄ *, 10, 2, 4; 1999 CN₁₀₄ *, 8, 2, 4; 1999 CO₁₀₄ *, 8, 2, 4; 1999 CP₁₀₄ *, 9, 2, 4; 1999 CQ₁₀₄ *, 10, 2, 4; 1999 CR₁₀₄ *, 8, 2, 4; 1999 CS₁₀₄ *, 10, 2, 4; 1999 CT₁₀₄ *, 8, 2, 4; 1999 CU₁₀₄ *, 7, 2, 4; 1999 CV₁₀₄ *, 8, 2, 4; 1999 CW₁₀₄ *, 9, 2, 4; 1999 CX₁₀₄ *, 10, 2, 4; 1999 CY₁₀₄ *, 10, 2, 4; 1999 CZ₁₀₄ *, 8, 2, 4; 1999 CA₁₀₅ *, 9, 2, 4; 1999 CB₁₀₅ *, 10, 2, 4; 1999 CC₁₀₅ *, 8, 2, 4; 1999 CD₁₀₅ *, 7, 2, 4; 1999 CE₁₀₅ *, 10, 2, 4; 1999 CF₁₀₅ *, 8, 2, 4; 1999 CG₁₀₅ *, 9, 2, 4; 1999 CH₁₀₅ *, 10, 2, 4; 1999 CJ₁₀₅ *, 9, 2, 4; 1999 CK₁₀₅ *, 9, 2, 4; 1999 CL₁₀₅ *, 8, 2, 4; 1999 CM₁₀₅ *, 9, 2, 4; 1999 CN₁₀₅ *, 10, 2, 4; 1999 CO₁₀₅ *, 10, 2, 4; 1999 CP₁₀₅ *, 10, 2, 4; 1999 CQ₁₀₅ *, 8, 2, 4; 1999 CR₁₀₅ *, 10, 2, 4; 1999 CS₁₀₅ *, 9, 2, 4; 1999 CT₁₀₅ *, 8, 2, 4; 1999 CU₁₀₅ *, 8, 2, 4; 1999 CV₁₀₅ *, 9, 2, 4; 1999 CW₁₀₅ *, 8, 2, 4; 1999 CX₁₀₅ *, 9, 2, 4; 1999 CY₁₀₅ *, 8, 2, 4; 1999 CZ₁₀₅ *, 8, 2, 4; 1999 CA₁₀₆ *, 7, 2, 4; 1999 CB₁₀₆ *, 8, 2, 4; 1999 CC₁₀₆ *, 9, 2, 4; 1999 CD₁₀₆ *, 8, 2, 4; 1999 CE₁₀₆ *, 10, 2, 4; 1999 CF₁₀₆ *, 10, 2, 4; 1999 CG₁₀₆ *, 9, 2, 4; 1999 CH₁₀₆ *, 8, 2, 4; 1999 CJ₁₀₆ *, 10, 2, 4; 1999 CK₁₀₆ *, 10, 2, 4; 1999 CL₁₀₆ *, 9, 2, 4; 1999 CM₁₀₆ *, 10, 2, 4; 1999 CN₁₀₆ *, 8, 2, 4; 1999 CO₁₀₆ *, 10, 2, 4; 1999 CP₁₀₆ *, 10, 2, 4; 1999 CQ₁₀₆ *, 8, 2, 4; 1999 CR₁₀₆ *, 10, 2, 4; 1999 CS₁₀₆ *, 10, 2, 4; 1999 CT₁₀₆ *, 10, 2, 4; 1999 CU₁₀₆ *, 8, 2, 4; 1999 CV₁₀₆ *, 10, 2, 4; 1999 CW₁₀₆ *, 10, 2, 4; 1999 CX₁₀₆ *, 7, 2, 4; 1999 CY₁₀₆ *, 8, 2, 4; 1999 CZ₁₀₆ *, 10, 2, 4; 1999 CA₁₀₇ *, 9, 2, 4; 1999 CB₁₀₇ *, 10, 2, 4; 1999 CC₁₀₇ *, 8, 2, 4; 1999 CD₁₀₇ *, 9, 2, 4;

4; 1999 CF₁₁₀ *, 10, 2, 4; 1999 CG₁₁₀ *, 8, 2, 4; 1999 CH₁₁₀ *, 9, 2, 4; 1999 CJ₁₁₀ *, 9, 2, 4; 1999 CK₁₁₀ *, 9, 2, 4; 1999 CL₁₁₀ *, 8, 2, 4; 1999 CM₁₁₀ *, 7, 2, 4; 1999 CN₁₁₀ *, 6, 2, 4; 1999 CO₁₁₀ *, 9, 2, 4; 1999 CP₁₁₀ *, 8, 2, 4; 1999 CQ₁₁₀ *, 10, 2, 4; 1999 CR₁₁₀ *, 10, 2, 4; 1999 CS₁₁₀ *, 10, 2, 4; 1999 CT₁₁₀ *, 8, 2, 4; 1999 CU₁₁₀ *, 9, 2, 4; 1999 CV₁₁₀ *, 10, 2, 4; 1999 CW₁₁₀ *, 9, 2, 4; 1999 CX₁₁₀ *, 9, 2, 4; 1999 CY₁₁₀ *, 9, 2, 4; 1999 CZ₁₁₀ *, 8, 2, 4; 1999 CA₁₁₁ *, 7, 2, 4; 1999 CB₁₁₁ *, 7, 2, 4; 1999 CC₁₁₁ *, 10, 2, 4; 1999 CD₁₁₁ *, 8, 2, 4; 1999 CE₁₁₁ *, 7, 2, 4; 1999 CF₁₁₁ *, 8, 2, 4; 1999 CG₁₁₁ *, 7, 2, 4; 1999 CH₁₁₁ *, 8, 2, 4; 1999 CJ₁₁₁ *, 7, 2, 4; 1999 CK₁₁₁ *, 8, 2, 4; 1999 CL₁₁₁ *, 8, 2, 4; 1999 CM₁₁₁ *, 10, 2, 4; 1999 CN₁₁₁ *, 8, 2, 4; 1999 CO₁₁₁ *, 8, 2, 4; 1999 CP₁₁₁ *, 8, 2, 4; 1999 CQ₁₁₁ *, 8, 2, 4; 1999 CR₁₁₁ *, 10, 2, 4; 1999 CS₁₁₁ *, 8, 2, 4; 1999 CT₁₁₁ *, 8, 2, 4; 1999 CU₁₁₁ *, 8, 2, 4; 1999 CV₁₁₁ *, 9, 2, 4; 1999 CW₁₁₁ *, 10, 2, 4; 1999 CX₁₁₁ *, 9, 2, 4; 1999 CY₁₁₁ *, 10, 2, 4; 1999 CZ₁₁₁ *, 9, 2, 4; 1999 CA₁₁₂ *, 8, 2, 4; 1999 CB₁₁₂ *, 7, 2, 4; 1999 CC₁₁₂ *, 8, 2, 4; 1999 CD₁₁₂ *, 9, 2, 4; 1999 CE₁₁₂ *, 10, 2, 4; 1999 CF₁₁₂ *, 9, 2, 4; 1999 CG₁₁₂ *, 9, 2, 4; 1999 CH₁₁₂ *, 10, 2, 4; 1999 CJ₁₁₂ *, 9, 2, 4; 1999 CK₁₁₂ *, 10, 2, 4; 1999 CL₁₁₂ *, 10, 2, 4; 1999 CM₁₁₂ *, 8, 2, 4; 1999 CN₁₁₂ *, 8, 2, 4; 1999 CO₁₁₂ *, 10, 2, 4; 1999 CP₁₁₂ *, 9, 2, 4; 1999 CQ₁₁₂ *, 8, 2, 4; 1999 CR₁₁₂ *, 10, 2, 4; 1999 CS₁₁₂ *, 9, 2, 4; 1999 CT₁₁₂ *, 8, 2, 4; 1999 CU₁₁₂ *, 9, 2, 4; 1999 CV₁₁₂ *, 8, 2, 4; 1999 CW₁₁₂ *, 7, 2, 4; 1999 CX₁₁₂ *, 9, 2, 4; 1999 CY₁₁₂ *, 9, 2, 4; 1999 CZ₁₁₂ *, 7, 2, 4; 1999 CA₁₁₃ *, 9, 2, 4; 1999 CB₁₁₃ *, 8, 2, 4; 1999 CC₁₁₃ *, 7, 2, 4; 1999 CD₁₁₃ *, 9, 2, 4; 1999 CE₁₁₃ *, 9, 2, 4; 1999 CF₁₁₃ *, 9, 2, 4; 1999 CG₁₁₃ *, 10, 2, 4; 1999 CH₁₁₃ *, 7, 2, 4; 1999 CJ₁₁₃ *, 10, 2, 4; 1999 CK₁₁₃ *, 9, 2, 4; 1999 CL₁₁₃ *, 10, 2, 4; 1999 CM₁₁₃ *, 10, 2, 4; 1999 CN₁₁₃ *, 9, 2, 4; 1999 CO₁₁₃ *, 9, 2, 4; 1999 CP₁₁₃ *, 10, 2, 4; 1999 CQ₁₁₃ *, 10, 2, 4; 1999 CR₁₁₃ *, 9, 2, 4; 1999 CS₁₁₃ *, 8, 2, 4; 1999 CT₁₁₃ *, 10, 2, 4; 1999 CU₁₁₃ *, 9, 2, 4; 1999 CV₁₁₃ *, 7, 2, 4; 1999 CW₁₁₃ *, 8, 2, 4; 1999 CX₁₁₃ *, 10, 2, 4; 1999 CY₁₁₃ *, 9, 2, 4; 1999 CZ₁₁₃ *, 10, 2, 4; 1999 CA₁₁₄ *, 9, 2, 4; 1999 CB₁₁₄ *, 8, 2, 4; 1999 CC₁₁₄ *, 8, 2, 4; 1999 CD₁₁₄ *, 8, 2, 4; 1999 CE₁₁₄ *, 9, 2, 4; 1999 CF₁₁₄ *, 10, 2, 4; 1999 CG₁₁₄ *, 9, 2, 4; 1999 CH₁₁₄ *, 7, 2, 4; 1999 CJ₁₁₄ *, 9, 2, 4; 1999 CK₁₁₄ *, 8, 2, 4; 1999 CL₁₁₄ *, 7, 2, 4; 1999 CM₁₁₄ *, 6, 2, 4; 1999 CN₁₁₄ *, 10, 2, 4; 1999 CO₁₁₄ *, 9, 2, 4; 1999 CP₁₁₄ *, 9, 2, 4; 1999 CQ₁₁₄ *, 8, 2, 4; 1999 CR₁₁₄ *, 9, 2, 4; 1999 CS₁₁₄ *, 6, 2, 4; 1999 CT₁₁₄ *, 8, 2, 4; 1999 CV₁₁₄ *, 9, 2, 4; 1999 CW₁₁₄ *, 10, 2, 4; 1999 CX₁₁₄ *, 9, 2, 4; 1999 CY₁₁₄ *, 8, 2, 4; 1999 CZ₁₁₄ *, 9, 2, 4; 1999 CA₁₁₅ *, 10, 2, 4; 1999 CB₁₁₅ *, 9, 2, 4; 1999 CC₁₁₅ *, 8, 2, 4; 1999 CD₁₁₅ *, 9, 2, 4; 1999 CE₁₁₅ *, 9, 2, 4; 1999 CF₁₁₅ *, 9, 2, 4; 1999 CG₁₁₅ *, 8, 2, 4; 1999 CH₁₁₅ *, 9, 2, 4; 1999 CJ₁₁₅ *, 10, 2, 4; 1999 CK₁₁₅ *, 8, 2, 4; 1999 CL₁₁₅ *, 8, 2, 4; 1999 CM₁₁₅ *, 6, 2, 4; 1999 CN₁₁₅ *, 8, 2, 4; 1999 CO₁₁₅ *, 6, 2, 4; 1999 CP₁₁₅ *, 6, 2, 4; 1999 CQ₁₁₅ *, 7, 2, 4; 1999 CR₁₁₅ *, 9, 2, 4; 1999 CS₁₁₅ *, 7, 2, 4; 1999 CT₁₁₅ *, 9, 2, 4; 1999 CU₁₁₅ *, 9, 2, 4; 1999 CV₁₁₅ *, 10, 2, 4; 1999 CW₁₁₅ *, 7, 2, 4; 1999 CX₁₁₅ *, 9, 2, 4; 1999 CY₁₁₅ *, 9, 2, 4; 1999 CZ₁₁₅ *, 10, 2, 4; 1999 CA₁₁₆ *, 8, 2, 4; 1999 CB₁₁₆ *, 8, 2, 4; 1999 CC₁₁₆ *, 10, 2, 4; 1999 CD₁₁₆ *, 10, 2, 4; 1999 CE₁₁₆ *, 10, 2, 4; 1999 CF₁₁₆ *, 8, 2, 4; 1999 CG₁₁₆ *, 10, 2, 4; 1999 CH₁₁₆ *, 8, 2, 4; 1999 CJ₁₁₆ *, 7, 2, 4; 1999 CK₁₁₆ *, 9, 2, 4; 1999 CL₁₁₆ *, 9, 2, 4; 1999 CM₁₁₆ *, 9, 2, 4; 1999 CN₁₁₆ *, 7, 2, 4; 1999 CO₁₁₆ *, 10, 2, 4; 1999 CP₁₁₆ *, 9, 2, 4; 1999 CQ₁₁₆ *, 9, 2, 4; 1999 CR₁₁₆ *, 7, 2, 4; 1999 CS₁₁₆ *, 8, 2, 4; 1999 CT₁₁₆ *, 10, 2, 4; 1999 CU₁₁₆ *, 7, 2, 4; 1999 CV₁₁₆ *, 7, 2, 4; 1999 CW₁₁₆ *, 8, 2, 4; 1999 CX₁₁₆ *, 9, 2, 4; 1999 CY₁₁₆ *, 8, 2, 4; 1999 CZ₁₁₆ *, 8, 2, 4; 1999 CA₁₁₇ *, 8, 2, 4; 1999 CB₁₁₇ *, 8, 2, 4; 1999 CC₁₁₇ *, 9, 2, 4; 1999 CD₁₁₇ *, 9, 2, 4; 1999 CE₁₁₇ *, 9, 2, 4; 1999 CF₁₁₇ *, 9, 2, 4; 1999 CG₁₁₇ *, 8, 2, 4; 1999 CH₁₁₇ *, 7, 2, 4; 1999 CJ₁₁₇ *, 9, 2, 4; 1999 CK₁₁₇ *, 8, 2, 4; 1999 CL₁₁₇ *, 9, 2, 4; 1999 CM₁₁₇ *, 9, 2, 4; 1999 CN₁₁₇ *, 9, 2, 4; 1999 CO₁₁₇ *, 9, 2, 4; 1999 CP₁₁₇ *, 9, 2, 4; 1999 CQ₁₁₇ *, 8, 2, 4; 1999 CR₁₁₇ *, 9, 2, 4; 1999 CS₁₁₇ *, 8, 2, 4; 1999 CT₁₁₇ *, 9, 2, 4; 1999 CU₁₁₇ *, 9, 2, 4; 1999 CV₁₁₇ *, 9, 2, 4; 1999 CW₁₁₇ *, 8, 2, 4; 1999 CX₁₁₇ *, 8, 2, 4; 1999 CY₁₁₇ *, 9, 2, 4; 1999 CZ₁₁₇ *, 8, 2, 4; 1999 CA₁₁₈ *, 9, 2, 4; 1999 CB₁₁₈ *, 8, 2, 4; 1999 CC₁₁₈ *, 9, 2, 4; 1999 CD₁₁₈ *, 9, 2, 4; 1999 CE₁₁₈ *, 9, 2, 4; 1999 CF₁₁₈ *, 9, 2, 4; 1999 CG₁₁₈ *, 8, 2, 4; 1999 CH₁₁₈ *, 8, 2, 4; 1999 CJ₁₁₈ *, 9, 2, 4; 1999 CK₁₁₈ *, 9, 2, 4; 1999 CL₁₁₈ *, 8, 2, 4; 1999 CM₁₁₈ *, 10, 2, 4; 1999 CN₁₁₈ *, 10, 2, 3; 1999 CO₁₁₈ *, 10, 2, 3; 1999 CP₁₁₈ *, 10, 2, 4; 1999 DE₁₀ *, 2, 4; 1999 DK₈ *, 2, 4; 1999 DN₉ *, 9, 2, 4; 1999 DO₁₀ *, 10, 2, 4; 1999 DQ₈ *, 10, 2, 4; 1999 DW₁₀ *, 10, 2, 4; 1999 DB₁₀ *, 10, 2, 4; 1999 DC₁₀ *, 10, 2, 4; 1999 DD₁₉ *, 9, 2, 4; 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4164 T-1, 9, 2, 2; 4264 T-1, 4, 1, 0; 4342 T-1, 4, 1, 0; 1045 T-2, 4, 1, 0; 1176 T-2, 5, 1, 0; 1282 T-2, 5, 1, 0; 1353 T-2, 10, 2, 3; 2116 T-2, 9, 2, 3; 2216 T-2, 4, 1, 0; 2314 T-2, 10, 2, 6; 2330 T-2, 9, 2, 3; 3044 T-2, 15, 3, 25; 3211 T-2, 10, 2, 3; 3281 T-2, 4, 1, 0; 4101 T-2, 5, 1, 0; 4234 T-2, 10, 2, 3; 4311 T-2, 10, 2, 3; 5058 T-2, 5, 1, 0; 5211 T-2, 5, 1, 0; 1083 T-3, 9, 2, 3; 1107 T-3, 5, 1, 0; 2182 T-3, 8, 2, 4; 2189 T-3, 4, 1, 0; 2193 T-3, 10, 2, 3; 2219 T-3, 9, 2, 3; 2326 T-3, 7, 2, 4; 3357 T-3, 5, 1, 0; 3398 T-3, 5, 1, 0; 3423 T-3, 5, 1, 0; 4050 T-3, 13, 3, 51; 4094 T-3, 9, 2, 3; 4217 T-3, 9, 2, 3; 4333 T-3, 9, 2, 3; 5082 T-3, 4, 1, 0; 5083 T-3, 10, 2, 3; (41), 2, 1, 0; (46), 2, 1, 0; (51), 1, 1, 0; (56), 3, 1, 0; (77), 1, 1, 0; (101), 2, 2, 3; (104), 2, 1, 0; (105), 4, 1, 0; (109), 3, 2, 3; (136), 5, 1, 0; (144), 1, 1, 0; (177), 2, 1, 0; (189), 2, 1, 0; (191), 1, 1, 0; (203), 2, 1, 0; (206), 2, 1, 0; (208), 3, 2, 3; (220), 8, 2, 4; (225), 9, 2, 4; (229), 6, 2, 3; (230), 2, 1, 0; 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709 W & B Observatory, Cloudcroft

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

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Observer W. Offutt

Measurers W. Offutt, B. Ford

0.60-m *f*/7 Ritchey-Chrétien + CCD

USNO-SA1.0

1999 BO₇, 17, 3, 2; 1999 CP₂ *, 30, 4, 11; 1999 CF₃ *, 10, 2, 1; 1999 CS₈, 5, 1, 0; 1999 CB₁₀ *, 8, 2, 2; 1999 CL₁₀, 7, 1, 0; 1999 CM₁₀, 3, 1, 0; [80, 7, 3*, 1999/02/07-1999/02/18]

711 McDonald Observatory

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Observers P. J. Shelus, J. G. Ries, J. L. Africano

0.76-m $f/3.0$ reflector + CCD

GSC

1992 SK, 2, 1, 0; 1994 CK₁, 4, 2, 1; 1994 PN, 3, 2, 2; 1996 FG₃, 3, 1, 0; 1998 QC₁, 4, 2, 1; 1998 QK₅₆, 4, 2, 1; 1998 SU₂₇, 4, 2, 2; 1998 SR₄₉, 4, 2, 1; 1998 ST₄₉, 4, 2, 1; 1998 XC₉, 4, 2, 1; 1998 XS₁₆, 4, 2, 1; 1998 YN₁, 4, 2, 2; 1998 YW₃, 2, 1, 0; 1998 YB₈, 4, 2, 1; 1998 YP₁₁, 2, 1, 0; 1999 AF₄, 4, 2, 1; 1999 CF₉, 2, 1, 0; 1999 CC₃₂, 3, 1, 0; 1999 CN₅₁, 6, 2, 1; 1999 CR₁₀₉, 6, 2, 1; 1999 DB₂, 6, 2, 1; 1999 DC₂, 3, 1, 0; 1999 DD₂, 6, 2, 1; 1999 DY₂, 9, 3, 2; 1999 DK₃, 12, 4, 3; (1368), 2, 1, 0; (3103), 2, 1, 0; (3352), 2, 1, 0; (3838), 2, 1, 0; (4596), 2, 1, 0; (4775), 2, 1, 0; (5131), 2, 1, 0; (5646), 2, 1, 0; (5693), 4, 2, 1; (6053), 2, 1, 0; (6318), 2, 1, 0; (6446), 2, 1, 0; (9172), 2, 1, 0; (9671), 4, 2, 1; (9950), 4, 2, 3; [145, 40, 0*, 1999/02/19–1999/02/22]

713 Thornton

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

USNO-A2.0

1999 BJ₈, 6, 1, 0; 1999 CW₈, 2, 1, 0; 1999 CZ₁₃, 3, 1, 0; 1999 DC₂, 3, 1, 0; 1999 DJ₄, 2, 1, 0; [16, 5, 0*, 1999/02/12–1999/02/26]

714 Bagdad

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[jbruton1@juno.com]

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

GSC-1.1

1991 DK, 5, 2, 2; 1994 VB₂, 6, 2, 2; 1997 WB₃₇, 5, 2, 2; 1999 BE₈, 6, 2, 1; 1999 CV₃, 9, 3, 2; (587), 6, 2, 1; (1981), 7, 2, 3; (2938), 3, 1, 0; (3040), 6, 2, 3; (3199), 6, 2, 3; (4503), 6, 2, 1; (5131), 6, 2, 1; (5164), 6, 2, 1; (5402), 6, 2, 1; (5469), 3, 1, 0; (6411), 6, 2, 1; (7480), 6, 2, 1; (9671), 6, 2, 9; [104, 18, 0*, 1999/01/23–1999/02/23]

715 Las Cruces

D. Dixon, 3208 Jupiter Rd., Las Cruces, NM 88012, U.S.A.

[ddixon@lascruces.com]

0.2-m $f/3.9$ Schmidt-Cassegrain + CCD

GSC, USNO-A2.0

1998 YP₁₂, 14, 4, 11; 1999 CY₁ *, 12, 4, 11; (357), 3, 1, 0; [29, 3, 1*, 1999/02/07–1999/02/18]

716 Palmer Divide Observatory

B. D. Warner, 17995 Bakers Farm Rd., Colorado Springs, CO 80908, U.S.A.

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

GSC, USNO-SA1.0, USNO-A2.0

1999 CZ₁ *, 16, 7, 18; [16, 1, 1*, 1999/02/07–1999/02/25]

718 University of Utah Hansen Planetarium, Tooele

P. Wiggins, University of Utah Hansen Planetarium, 15 South State Street, Salt

Lake City, UT 84111-1590, U.S.A. [p.wiggins@m.cc.utah.edu]

Observers P. Wiggins, H. Phaneuf

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

(2791), 6, 2, 2; (5382), 5, 1, 0; [11, 2, 0*, 1999/02/04–1999/02/06]

719 Etscorn Observatory

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

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0.355-m Schmidt-Cassegrain + CCD

GSC

1999 BJ₈, 2, 1, 0; 1999 CV₈, 2, 1, 0; 1999 CW₈, 1, 1, 0; 1999 CF₉, 4, 2, 3; 1999 CZ₁₃, 2, 1, 0; 1999 CC₃₂, 3, 1, 0; 1999 CN₅₁, 5, 2, 1; 1999 CK₆₉, 2, 1, 0; 1999 CR₁₀₉, 2, 1, 0; 1999 DC₂, 1, 1, 0; (1615), 2, 1, 0; (4150), 2, 1, 0; (5945), 2, 1, 0; [30, 13, 0*, 1999/01/23–1999/02/22]

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Leon, Mexico [psada@ix.netcom.com]

0.18-m $f/15.0$ Maksutov + focal reducer + CCD

USNO-A2.0

(40), 7, 2, 1; (77), 11, 2, 1; (120), 8, 2, 1; (587), 4, 2, 1; (702), 9, 2, 1; (815), 4, 2, 1; (1368), 4, 2, 1; [47, 7, 0*, 1999/02/16–1999/02/17]

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, 3, 1, 0; [3, 1, 0*, 1999/02/17]

726 Brainerd

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

[jimw@brainerd.net]

0.280-m Schmidt-Cassgrain + CCD

GSC-1.1

1998 XB₉, 2, 1, 0; 1999 AP₁₀, 10, 4, 15; 1999 AQ₁₀, 2, 1, 0; 1999 BJ₈, 12, 3, 4; 1999 CA, 2, 1, 0; 1999 CD, 4, 2, 6; 1999 CZ₁, 2, 1, 0; 1999 CR₃, 2, 1, 0; 1999 CV₃, 36, 5, 10; 1999 CF₉, 7, 2, 1; (9671), 4, 2, 3; [83, 11, 0*, 1999/01/31–1999/02/25]

727 Zeno Observatory, Edmond

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

[tstaffor@agnetplex.com]

0.15-m $f/6$ refractor + CCD

GSC

1985 PN, 3, 1, 0; 1988 CO₁, 3, 1, 0; 1993 HG₁, 5, 2, 1; 1997 SG₁, 3, 1, 0; 1997 SD₁₁, 6, 2, 5; 1997 VA₃, 3, 1, 0; 1998 WD₂₄, 6, 2, 2; 1998 YB₁₂, 3, 1, 0; 1999 CY₅₆, 5, 2, 1; 1999 DS₂ *, 8, 3, 3; (2378), 3, 1, 0; (4186), 3, 1, 0; (4424), 5, 2, 1; (5702), 3, 1, 0; (6126), 3, 1, 0; [62, 15, 1*, 1999/01/14–1999/02/24]

732 Oaxaca

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

0.25-m $f/3.4$ reflector + CCD

GSC

1981 JM₂, 7, 2, 1; 1981 QF, 4, 2, 1; 1990 OF₂, 3, 2, 1; 1998 XU₅₁, 10, 4, 17; 1999 AR₂₁, 4, 2, 1; 1999 BR, 5, 2, 1; 1999 BR₃, 5, 2, 1; 1999 BX₃, 4, 2, 1; 1999 BF₅, 4, 2, 1; 1999 BY₅, 5, 2, 1; 1999 BV₇, 4, 2, 1; 1999 BJ₈, 18, 3, 2; 1999 BW₈, 6, 2, 1; 1999 BX₈, 6, 2, 1; 1999 BC₉, 5, 2, 1; 1999 BD₉, 5, 2, 1; 1999 BT₁₂, 6, 2, 1; 1999 BC₂₆, 6, 2, 1; 1999 BE₂₆, 6, 2, 1; 1999 CC₁, 7, 2, 1; 1999 CK₁ *, 10, 4, 9; 1999 CS₂ *, 6, 2, 1; 1999 CW₂ *, 11, 4, 8; 1999 CB₃ *, 6, 2, 2; 1999 CO₄ *, 6, 2, 1; 1999 CW₇, 3, 1, 0; 1999 CB₉, 3, 1, 0; 1999 CF₉, 3, 1, 0; 1999 CZ₁₃, 6, 2, 1; (1112), 6, 2, 1; (6819), 3, 1, 0; (7729), 3, 1, 0; [186, 32, 5*, 1999/01/17–1999/02/18]

734 Farpoint Observatory, Eskridge

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

Observers G. Hug, G. Bell

Measurer G. Hug

0.30-m Schmidt-Cassegrain + CCD

GSC

1997 UH, 6, 2, 1; 1997 WU₃₅, 4, 2, 1; 1998 VZ₅, 4, 2, 4; 1998 YL₄, 5, 2, 5; 1999 BJ₈, 3, 1, 0; 1999 CC₈ *, 12, 3, 4; 1999 CD₈ *, 7, 3, 4; 1999 CE₈ *, 8, 3, 4; 1999 CB₉, 2, 1, 0; 1999 CD₉ *,

10, 3, 3; 1999 CF₉, 2, 1, 0; 1999 CZ₁₃, 3, 1, 0; 1999 DP₃ *, 6, 2, 7; 6071 P-L, 2, 1, 0; [74, 14, 5*, 1999/02/08–1999/02/24]

735 George Observatory, Needville

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

[bdillon@houston.geoquest.slb.com]

Observers M. Carney, W. G. Dillon, R. Pepper, L. Robinson, K. Rivich

Measurers W. G. Dillon, L. Robinson, K. Rivich

0.46-m reflector + CCD

USNO-A2.0, GSC 1.1

1998 AA, 5, 2, 8; 1999 BC₃, 7, 3, 14; (1095), 2, 1, 0; [14, 3, 0*, 1999/02/08–1999/02/22]

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

1999 BJ₈, 6, 1, 0; (10), 3, 1, 0; (11), 2, 1, 0; (19), 4, 2, 3; (89), 2, 1, 0; (196), 4, 2, 2; (209), 2, 1, 0; (274), 2, 1, 0; (349), 2, 1, 0; (389), 3, 1, 0; (446), 3, 1, 0; (489), 3, 1, 0; (498), 2, 1, 0; (512), 2, 1, 0; (581), 2, 1, 0; (716), 1, 1, 0; (729), 2, 1, 0; (859), 2, 1, 0; (906), 2, 1, 0; (1268), 3, 1, 0; (4283), 2, 1, 0; (4503), 2, 1, 0; (4512), 4, 2, 1; (5647), 2, 1, 0; (6411), 2, 1, 0; (6505), 2, 1, 0; [66, 26, 0*, 1999/02/14–1999/02/17]

744 Doyan Rose Observatory, Indianapolis

J. Ruthroff, 5229 Telford Court, Indianapolis, IN 46254, U.S.A.

[jruthroff@sprintmail.com]

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

GSC-1.1

1990 XF, 2, 1, 0; 1998 WX₄, 5, 2, 11; 1999 BJ₈, 3, 1, 0; 1999 CF₉, 3, 1, 0; [13, 4, 0*, 1999/02/05–1999/02/16]

747 Baton Rouge Observatory

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

[walt@sprintmail.com]

Observers W. R. Cooney, E. Kandler, P. Motl, G. Clayton, M. Collier

Measurer W. R. Cooney

0.51-m $f/8.4$ reflector + CCD

USNO-A2.0

1977 EM₅, 6, 2, 2; 1981 QY₂, 7, 2, 2; 1985 SR, 5, 2, 2; 1986 PM, 6, 2, 2; 1989 GR₄, 6, 2, 2; 1990 QN₉, 7, 2, 2; 1990 TR₁, 6, 2, 2; 1992 HG₄, 7, 2, 2; 1993 BU₅, 4, 2, 2; 1993 BD₁₃, 6, 2, 2; 1998 YH₂₂, 11, 4, 18; 1999 AC₃, 5, 2, 2; 1999 AE₃, 3, 1, 0; 1999 BC₃, 7, 2, 7; 1999 BE₅, 3, 1, 0; 1999 BR₁₂, 5, 2, 1; 1999 BS₁₂, 9, 3, 10; 1999 BV₁₂, 2, 1, 0; 1999 BY₁₂, 3, 1, 0; 1999 CA, 3, 1, 0; 1999 CT₂ *, 11, 3, 7; 1999 CC₃ *, 8, 3, 3; 1999 CW₇, 3, 1, 0; 1999 CF₈ *, 12, 4, 6; 1999 CB₉, 2, 1, 0; 1999 CZ₉ *, 12, 4, 8; 1999 CA₁₀ *, 10, 3, 4; 1999 CZ₁₃, 2, 1, 0; 1999 CN₅₁, 3, 1, 0; 1999 DB₂, 3, 1, 0; 6615 P-L, 6, 2, 2; 4314 T-3, 8, 3, 3; (9966), 8, 3, 13; [199, 33, 5*, 1999/01/12–1999/02/23]

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

1988 FB, 10, 3, 4; 1990 XF, 2, 1, 0; 1992 SK, 6, 2, 1; 1999 BJ₈, 11, 2, 2; 1999 CV₃, 13, 4, 9; (581), 3, 1, 0; (815), 2, 1, 0; (1036), 2, 1, 0; (1240), 2, 1, 0; (2791), 4, 2, 10; (4503), 2, 1, 0; (4808), 2, 1, 0; (4931), 2, 1, 0; [61, 13, 0*, 1999/01/30–1999/02/22]

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-SA1.0, GSC-1.1, USNO-SA2.0, USNO-A2.0

1995 EE₈, 2, 1, 0; 1998 WP, 2, 1, 0; 1998 XH₅, 2, 1, 0; 1998 XZ₁₂, 2, 1, 0; 1999 AC₄, 2, 1, 0; 1999 BE₅, 4, 2, 10; 1999 BK₈, 2, 1, 0; 1999 BN₁₄, 6, 3, 17; 1999 BO₁₄, 4, 2, 10; 1999 BP₁₅, 4, 2, 10; 1999 BB₂₇, 2, 1, 0; 1999 CO₈ *, 6, 3, 2; 1999 CC₁₀ *, 6, 3, 7; 1999 CD₁₀ *, 6, 3, 7; 1999 CL₅₁, 4, 2, 1; [54, 15, 3*, 1999/01/25–1999/02/23]

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

1981 EC₁₆, 2, 1, 0; 1981 EG₂₆, 8, 2, 1; 1984 BQ, 6, 2, 1; 1989 VS₁, 3, 1, 0; 1990 QC₅, 3, 1, 0; 1992 BM₂, 6, 2, 1; 1993 TY₃₈, 6, 2, 1; 1993 XN₁, 3, 1, 0; 1997 YY₅, 3, 1, 0; 1998 BU₂₅, 13, 3, 2; 1999 AD₅, 15, 4, 12; 1999 BC₄, 3, 1, 0; 1999 BJ₈, 26, 3, 3; 1999 CR₃, 5, 1, 0; 1999 CV₃, 6, 1, 0; 1999 CW₈, 2, 1, 0; 1999 CB₉, 3, 1, 0; 1999 CF₉, 5, 1, 0; 1999 CZ₁₃, 3, 1, 0; 1999 CC₃₂, 3, 1, 0; 1999 DH₄ *, 11, 3, 2; 1999 DJ₄, 18, 2, 1; [153, 22, 1*, 1999/02/09–1999/02/26]

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

1999 CW₇, 2, 1, 0; 1999 CF₉, 3, 1, 0; 1999 CZ₁₃, 3, 1, 0; 1999 DC₂, 4, 1, 0; [12, 4, 0*, 1999/02/14–1999/02/20]

809 European Southern Observatory

E. W. Elst, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180 Brussels, Belgium [ericelst@helios.oma.be] (4)

R. M. West, European Southern Observatory, European Southern Observatory, Karl-Schwarzschild-Strasse 2, D-85748 Garching bei München, Germany

[rwest@eso.org] (5)

Observers G. Pizarro, O. Pizarro, F. Comeron

Measurer E. W. Elst, F. Comeron

1.0-m Schmidt

(4) 1996 KY₈, 3, 1, 0; [3, 1, 0*, 1996/05/19]

(5) 1999 BO₃₃ *, 3, 3, 3; 1999 BP₃₃ *, 6, 4, 5; 1999 BQ₃₃ *, 6, 2, 2; [15, 3, 3*, 1999/01/28–1999/02/02]

832 Etters

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

[jfetter@mindspring.com]

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

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

1999 AG₂, 4, 2, 5; (4775), 4, 2, 5; [8, 2, 0*, 1999/02/15–1999/02/20]

844 Los Molinos

T. Gallardo, Departamento de Astronomia, Facultad de Ciencias, Montevideo, Uruguay [gallardo@fisica.edu.uy]

Observers R. Salvo, J. Garcia

Measurer R. Salvo

0.35-m $f/6.4$ reflector + CCD

USNO-A1.0

1999 CF₉, 5, 1, 0; [5, 1, 0*, 1999/02/14]

1999 MAR. 2

M.P.C. 33855

859 Serra da Piedade

C. Jacques, P.O. Box 1084, Belo Horizonte, Minas Gerais, BR-30000 Brazil
[cjacques@unix.horizontes.com.br]

0.30-m $f/3.3$ reflector + CCD

1998 BC₃₅, 3, 1, 0; 1998 XO₅₃, 4, 1, 0; 1998 YQ₁₁, 3, 1, 0; 1999 AD₅, 3, 1, 0; 1999 CZ₁₃, 4, 1, 0; 1999 CC₃₂, 3, 1, 0; 1999 CN₅₁, 3, 1, 0; 1999 CK₆₉, 6, 2, 1; 1999 CR₁₀₉, 6, 2, 1; 1999 DB₂, 3, 1, 0; (587), 3, 1, 0; (1368), 3, 1, 0; [44, 12, 0*, 1999/01/18–1999/02/22]

871 Akou

K. Kawanishi, 2045-1, Kariya, Akou, Hyogo-Ken 678-02, Japan

0.33-m $f/3.3$ reflector + CCD

GSC

1999 BJ₈, 2, 1, 0; 1999 CV₃, 4, 2, 6; [6, 2, 0*, 1999/02/13–1999/02/19]

886 Susono

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

0.25-m $f/6.3$ reflector + CCD

GSC

1987 UR, 2, 1, 0; 1989 SX₅, 4, 2, 14; 1990 SS₉, 4, 2, 1; 1995 BU₂, 2, 1, 0; 1997 PN₅, 4, 2, 15; 1997 RR₃, 2, 1, 0; 1997 RZ₇, 2, 1, 0; 1997 TJ₁₉, 2, 1, 0; 1997 UG₁, 2, 1, 0; 1997 UU₂, 2, 1, 0; 1997 VJ₁, 2, 1, 0; 1997 VO₆, 2, 1, 0; 1998 YE₁, 2, 1, 0; 1999 AM₃, 2, 1, 0; 1999 AN₃, 2, 1, 0; 1999 AH₅, 4, 2, 8; 1999 AJ₅, 6, 3, 30; 1999 AK₅, 2, 1, 0; 1999 AU₇, 2, 1, 0; 1999 AA₂₁, 4, 2, 25; 1999 BC₂, 2, 1, 0; 1999 BA₄, 2, 1, 0; 1999 BC₄, 2, 1, 0; 1999 BK₈, 2, 1, 0; 1999 BP₁₅, 2, 1, 0; 1999 BA₂₆, 2, 1, 0; 1999 CP *, 17, 7, 12; 1999 CH₃, 4, 2, 3; 1999 CC₅, 2, 1, 0; 1999 CH₅, 2, 1, 0; 1999 CO₅, 2, 1, 0; 1999 CD₁₂, 4, 2, 3; [97, 32, 1*, 1999/01/08–1999/02/20]

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

1987 UR, 2, 1, 0; 1988 EC, 4, 2, 6; 1988 XK, 2, 1, 0; 1988 XE₂, 2, 1, 0; 1989 WD₃, 4, 2, 9; 1991 VT₁, 2, 1, 0; 1994 AT₁, 2, 1, 0; 1994 UZ, 2, 1, 0; 1994 UC₁, 2, 1, 0; 1994 WP₃, 2, 1, 0; 1995 FM, 2, 1, 0; 1995 OV, 2, 1, 0; 1997 QD₂, 2, 1, 0; 1997 QE₂, 2, 1, 0; 1997 QF₂, 1, 1, 0; 1997 SF₂₅, 5, 2, 1; 1997 SK₂₅, 2, 1, 0; 1997 TH₁₉, 2, 1, 0; 1997 TJ₁₉, 4, 2, 11; 1997 UV₂, 2, 1, 0; 1997 UB₁₁, 2, 1, 0; 1997 UD₁₁, 2, 1, 0; 1997 VW₄, 2, 1, 0; 1997 VO₆, 2, 1, 0; 1997 WK₇, 4, 2, 1; 1997 WO₇, 2, 1, 0; 1997 WE₈, 3, 1, 0; 1997 WJ₁₃, 4, 2, 1; 1997 WO₁₃, 4, 2, 9; 1997 XR₁₁, 2, 1, 0; 1998 BW₂, 2, 1, 0; 1998 TB, 2, 1, 0; 1998 UU₆, 2, 1, 0; 1998 VN₅, 4, 2, 13; 1998 VQ₅, 2, 1, 0; 1998 VU₅, 2, 1, 0; 1998 VO₆, 2, 1, 0; 1998 WV₅, 2, 1, 0; 1998 WX₅, 2, 1, 0; 1998 WS₂₃, 3, 1, 0; 1998 WT₂₃, 2, 1, 0; 1998 XM₃, 1, 1, 0; 1998 YB₁, 4, 2, 10; 1998 YE₁, 8, 4, 35; 1998 YG₁, 5, 2, 9; 1998 YH₁, 3, 2, 13; 1998 YY₃, 5, 2, 7; 1998 YM₁₂, 5, 2, 9; 1999 AM₃, 4, 2, 11; 1999 AN₃, 3, 1, 0; 1999 AK₅, 4, 2, 15; 1999 AL₅, 4, 2, 15; 1999 AM₅, 4, 2, 14; 1999 AT₇, 4, 2, 9; 1999 AU₇, 2, 1, 0; 1999 AA₂₁, 2, 1, 0; 1999 AC₂₁, 7, 3, 16; 1999 AD₂₁, 6, 3, 16; 1999 AE₂₁, 4, 2, 15; 1999 BW, 2, 1, 0; 1999 BC₂, 5, 2, 19; 1999 BA₄, 6, 3, 16; 1999 BC₄, 4, 2, 17; 1999 BK₈, 2, 1, 0; 1999 BL₁₀, 2, 1, 0; 1999 BZ₁₄, 1, 1, 0; 1999 BP₁₅, 5, 2, 1; 1999 BY₂₅, 2, 1, 0; 1999 BZ₂₅, 2, 1, 0; 1999 BA₂₆, 7, 3, 18; 1999 CM *, 15, 6, 18; 1999 CP *, 2, 1, 0; 1999 CE₁ *, 11, 5, 15; 1999 CH₃, 4, 2, 3; 1999 CJ₃ *, 6, 3, 2; 1999 CK₃ *, 11, 6, 16; 1999 CZ₄, 2, 1, 0; 1999 CB₅, 2, 1, 0; 1999 CC₅, 7, 3, 8; 1999 CG₅ *, 11, 5, 10; 1999 CH₅ *, 11, 5, 10; 1999 CK₅, 2, 1, 0; 1999 CO₅ *, 11, 5, 10; 1999 CK₉, 3, 1, 0; 1999 CL₉, 2, 1, 0; 1999 CM₉, 2, 1, 0; 1999 CE₁₄ *, 6, 3, 3; 1999 CE₇₄, 6, 3, 2; 1999 CY₉₄, 6, 3, 2; 1999 DV *, 9, 3, 4; 1999 DP₁, 2, 1, 0; 1999 DW₂, 2, 1, 0; 1999 DX₂, 7, 3, 2; 1999 DF₃, 2, 1, 0; 1999 DG₃ *, 6, 3, 2; 1999 DT₃, 2, 1, 0; [363, 96, 10*, 1999/01/11–1999/02/23]

896 Yatsugatake South Base Observatory

O. Muramatsu, 8-119-1, Sakura-zutsumi 2 Chome, Musashino, Tokyo, 180 Japan

Observers Y. Kushida, R. Kushida

Measurer Y. Kushida

0.40-m $f/4.1$ reflector + CCD

GSC

1999 CV₃, 2, 2, 2; [2, 1, 0*, 1999/02/15–1999/02/17]

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

1996 JN, 4, 2, 17; 1997 WM₁₆, 2, 1, 0; 1999 AO₃, 2, 1, 0; 1999 AN₁₀, 2, 1, 0; 1999 AP₁₀, 2, 1, 0; 1999 BX₂, 2, 1, 0; 1999 BB₃, 2, 1, 0; 1999 BE₈, 2, 1, 0; 1999 CL₁, 4, 2, 14; 1999 CV₃, 2, 1, 0; 1999 CW₈, 2, 1, 0; 1999 CB₉, 2, 1, 0; 1999 CF₉, 4, 2, 11; 1999 DJ₄, 2, 1, 0; (5732), 2, 1, 0; [36, 15, 0*, 1999/02/07–1999/02/25]

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

1995 FN, 1, 1, 0; 1997 WO₇, 2, 1, 0; 1998 WS₂₃, 2, 1, 0; 1998 WT₂₃, 2, 1, 0; 1999 CH₃ *, 5, 2, 1; 1999 CH₈, 2, 1, 0; 1999 DP₁ *, 3, 2, 3; 1999 DF₃ *, 2, 1, 0; 1999 DQ₃ *, 4, 2, 1; 1999 DR₃ *, 3, 2, 1; 1999 DS₃ *, 4, 2, 1; [30, 11, 6*, 1999/02/07–1999/02/21]

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, F. Colas, M. Gastineau

Measurers A. Maury, G. Hahn

0.90-m Schmidt + CCD

GSC

1974 SE, 3, 1, 0; 1978 SO₇, 3, 1, 0; 1981 EO₃₂, 6, 2, 1; 1987 VR, 3, 1, 0; 1988 ER₁, 3, 1, 0; 1989 GZ₁, 3, 1, 0; 1989 LH, 3, 1, 0; 1990 SA₃, 6, 1, 0; 1990 TG₁₁, 3, 1, 0; 1993 FA₄₀, 3, 1, 0; 1996 EK₂, 3, 1, 0; 1996 FO₂, 3, 1, 0; 1996 GS₉, 3, 1, 0; 1996 JN, 3, 1, 0; 1997 ED₂₇, 3, 1, 0; 1997 GF₃₁, 3, 1, 0; 1997 GV₃₅, 3, 1, 0; 1997 QL₂, 3, 1, 0; 1997 ST₁, 3, 1, 0; 1997 SA₂, 3, 1, 0; 1997 SR₂₅, 3, 1, 0; 1998 BY₂₈, 3, 1, 0; 1998 BE₂₉, 3, 1, 0; 1998 BK₂₉, 3, 1, 0; 1998 BR₃₅, 3, 1, 0; 1998 FF₄₉, 3, 1, 0; 1998 HZ₇₄, 3, 1, 0; 1998 HN₈₀, 3, 1, 0; 1998 RN₂₂, 3, 1, 0; 1998 SM₂₁, 3, 1, 0; 1998 SJ₄₈, 3, 1, 0; 1998 SK₄₈, 3, 1, 0; 1998 SQ₄₈, 3, 1, 0; 1998 SH₆₄, 3, 1, 0; 1998 SJ₈₁, 3, 1, 0; 1998 SG₁₄₁, 3, 1, 0; 1998 SU₁₆₄, 3, 1, 0; 1998 SV₁₆₄, 3, 1, 0; 1998 TP₂, 3, 1, 0; 1998 TW₂, 3, 1, 0; 1998 TZ₂, 3, 1, 0; 1998 TD₇, 3, 1, 0; 1998 TF₇, 3, 1, 0; 1998 TG₇, 3, 1, 0; 1998 TU₈, 3, 1, 0; 1998 TK₉, 3, 1, 0; 1998 TM₉, 3, 1, 0; 1998 TW₉, 3, 1, 0; 1998 TK₁₂, 3, 1, 0; 1998 TS₁₂, 3, 1, 0; 1998 TA₁₈, 3, 1, 0; 1998 TD₂₁, 3, 1, 0; 1998 TP₂₆, 3, 1, 0; 1998 UK₁, 3, 1, 0; 1998 UB₂₀, 3, 1, 0; 1998 UZ₂₀, 3, 1, 0; 1998 UA₂₈, 3, 1, 0; 1998 UF₄₁, 3, 1, 0; 1998 VC₂, 3, 1, 0; 1998 WO₁₆, 3, 1, 0; 1998 WA₂₄, 6, 2, 1; 1998 XC₂, 3, 1, 0; 1998 XN₃, 3, 1, 0; 1998 XT₅, 3, 1, 0; 1998 XY₉, 3, 1, 0; 1998 XC₂₅, 6, 1, 0; 1998 XM₂₅, 3, 1, 0; 1998 XJ₆₄, 3, 1, 0; 1998 XF₇₉, 3, 1, 0; 1998 XG₈₀, 6, 2, 2; 1998 YC₁₉, 3, 1, 0; 1999 AU₆, 6, 2, 28; 1999 AE₂₁, 6, 2, 10; 1999 BA₃, 3, 1, 0; 1999 BB₃, 3, 1, 0; 1999 BC₈, 6, 2, 1; 1999 BY₈, 3, 1, 0; 1999 BL₉, 6, 2, 1; 1999 BO₉, 3, 1, 0; 1999 BX₉, 3, 1, 0; 1999 BI₁₀, 3, 1, 0; 1999 BN₁₁, 3, 1, 0; 1999 CX₃, 6, 2, 1; 1999 CM₁₂ *, 6, 2, 1; 1999 CN₁₂ *, 6, 2, 1; 1999 CO₁₂ *, 6, 2, 1; 1999 CP₁₂ *, 9, 2, 1; 1999 CQ₁₂ *, 6, 2, 1; 1999 CR₁₂ *, 6, 2, 1; 1999 CS₁₂ *, 6, 2, 1; 1999 CT₁₂ *, 9, 2, 1; 1999 CU₁₂ *, 6, 2, 1; 1999 CV₁₂ *, 9, 3, 3; 1999 CW₁₂ *, 6, 2, 1; 1999 CY₁₂ *, 6, 2, 1; 1999 CZ₁₂ *, 6, 2, 1; 1999 CA₁₃ *, 6, 2, 1; 1999 CB₁₃ *, 6, 2, 1; 1999 CC₁₃ *, 9, 3, 2; 1999 CD₁₃ *, 6, 2, 1; 1999 CE₁₃ *, 6, 2, 1; 1999 CF₁₃ *, 6, 2, 1; 1999 CG₁₃ *, 6, 2, 1; 1999 CH₁₃ *, 6, 2, 1; 1999 CI₁₃ *, 9, 2, 1; 1999 CK₁₃ *, 6, 2, 1; 1999 CL₁₃ *, 6, 2, 2; 1999 CM₁₃ *, 6, 2, 1; 1999 CN₁₃ *, 6, 2, 1; 1999 CO₁₃ *, 6, 2, 1; 1999 CP₁₃ *, 9, 3, 2; 1999 CQ₁₃ *, 6, 2, 1; 1999 CR₁₃ *, 6, 2, 1; 1999 CS₁₃ *, 6, 2, 1; 1999 CT₁₃ *, 6, 2, 1; 1999 CU₁₃ *, 6, 2, 1; 1999 CV₁₃ *, 6, 2, 1; 1999 CW₁₃ *, 6, 2, 1; 1999 CX₁₃ *, 6, 2, 1; 1999 CY₁₃ *, 6, 2, 1; 1999 DB *, 6, 2, 1; 1999 DC *, 6, 2, 1; 1999 DD *, 9, 3, 2; 1999 DE *, 6, 2, 1; 1999 DF *, 6, 2, 1; 1999 DG *, 4, 2, 1; 1999 DH *, 6, 2, 1; 1999 DJ *, 6, 2, 1; 1999 DK *, 9, 3, 3; 1999 DL *, 6, 2, 1; 1999 DM *, 6, 2, 1; 1999 DN *, 6, 2, 1; 1999 DO *, 9, 3, 2; 1999 DP *, 6, 2, 1; 1999 DQ *, 9, 3, 3; 1999 DR *, 6, 2, 2; 1999 DS *, 6, 2, 2; 1999 DT *, 6, 2, 1; 1999 DU *, 6, 2, 1; 1999 DD₁ *, 6, 2, 1; 1999 DE₁ *, 6, 2, 1; 1999 DM₄, 3, 1, 0; 3273 T-1, 3, 1, 0; 2112 T-2, 3, 1, 0; (178), 3, 1, 0; (1393), 3, 1, 0; (2697), 12, 3, 2; (2785), 3, 1, 0; (3088), 3, 1, 0; (3113), 6, 2, 1; (3254), 3, 1, 0; (3469), 3, 1, 0; (4273), 3, 1, 0; (4384), 3, 1, 0; (4760), 3, 1, 0; (4942), 3, 1,

0; (5022), 3, 1, 0; (5345), 6, 2, 1; (5919), 3, 1, 0; (6004), 3, 1, 0; (6291), 6, 2, 1; (7857), 3, 1, 0; (8092), 6, 2, 1; (9962), 3, 1, 0; [754, 165, 59*, 1997/02/10–1999/02/19]

950 La Palma

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Observers K. Aksnes, T. Grav, M. J. Holman, B. Gladman, O. Lopez-Cruz,
H. Dahle

Measurer M. J. Holman
2.5-m Nordic Optical Telescope + CCD
GSC

1997 CV₂₉, 2, 2, 1; 1998 YE₃₀ *, 6, 2, 1; [8, 2, 1*, 1998/12/18–1998/12/19]

951 Highworth

J. W. Rock, 2 Spa Close, Highworth, Swindon, Wiltshire SN6 7PJ, England
[0C34@dial.pipex.com]

0.30-m Newtonian reflector + CCD
GSC

(1014), 4, 2, 2; (1102), 4, 2, 2; (1562), 4, 2, 2; (1615), 4, 2, 2; [16, 4, 0*, 1999/02/07–1999/02/09]

955 Sasseoires

R. Goncalves, Rua Augusto Jose Vieira, 10-3, P-1170 Lisbon, Portugal
[m13406@correio.cc.fc.ul.pt]

0.25-m $f/8.0$ Schmidt-Cassegrain + CCD
USNO-A2.0

(676), 8, 1, 0; (1069), 10, 1, 0; [18, 2, 0*, 1999/02/20]

970 Chelmsford

N. D. James, 11 Tavistock Road, Chelmsford, Essex CM1 6JL, England
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0.30-m $f/5.25$ reflector + CCD
GSC

1999 CV₃, 6, 1, 0; [6, 1, 0*, 1999/02/13]

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C/1996 Q2 (SOHO)

T 1996 Aug. 22.21 TT

q 0.0052 (2000.0)
 ω 83.94

Ω 4.70

e 1.0 i 144.40

From 15 observations 1996 Aug. 20–21.

C/1997 Q1 (SOHO)

T 1997 Sept. 1.40 TT

q 0.0078 (2000.0)
 ω 73.48

Ω 356.40

e 1.0 i 144.13

From 17 observations 1997 Aug. 31.

C/1997 R1 (SOHO)

T 1997 Sept. 8.89 TT

q 0.0063 (2000.0)
 ω 76.18

Ω 356.27

e 1.0 i 144.03

From 12 observations 1997 Sept. 8.

C/1997 R2 (SOHO)

T 1997 Sept. 15.69 TT

q 0.0054 (2000.0)
 ω 76.57

Ω 358.49

e 1.0 i 144.01

From 18 observations 1997 Sept. 14–15.

C/1997 R3 (SOHO)

T 1997 Sept. 17.03 TT

q 0.0054 (2000.0)
 ω 81.89

Ω 4.00

e 1.0 i 144.45

From 26 observations 1997 Sept. 15–16.

C/1997 U1 (SOHO)

T 1997 Oct. 29.05 TT

q 0.0052 (2000.0)
 ω 48.51

Ω 317.55

e 1.0 i 130.65

From 14 observations 1997 Oct. 28.

C/1997 W2 (SOHO)

T 1997 Nov. 20.05 TT

q 0.0050 (2000.0)
 ω 92.18

Ω 12.75

e 1.0 i 142.35

From 5 observations 1997 Nov. 19.

Marsden

P	Q
+0.17157	−0.98402
−0.96166	−0.17780
+0.21395	−0.01007

Marsden

P	Q
+0.23502	−0.97129
−0.95123	−0.22205
+0.19981	+0.08534

Marsden

P	Q
+0.18723	−0.98157
−0.96066	−0.17485
+0.20511	+0.07708

Marsden

P	Q
+0.21151	−0.97725
−0.95476	−0.20320
+0.20904	+0.06069

Marsden

P	Q
+0.19692	−0.97958
−0.95714	−0.20104
+0.21236	+0.00224

Marsden

P	Q
+0.15949	−0.84401
−0.96666	−0.02825
+0.20034	+0.53559

Marsden

P	Q
+0.13755	−0.98128
−0.95850	−0.16618
+0.24972	−0.09737

1999 MAR. 2

M.P.C. 33857

C/1998 F1 (SOHO)

<i>T</i>	1998 Mar. 22.43 TT		Marsden	
<i>q</i>	0.0095	(2000.0)	P	Q
	<i>ω</i>	60.14	+0.24289	−0.94286
	<i>Ω</i>	339.82	−0.94595	−0.17812
<i>e</i>	1.0	<i>i</i> 138.61	+0.21492	+0.28159
From 13 observations 1998 Mar. 21–22.				

C/1998 G2 (SOHO)

<i>T</i>	1998 Apr. 2.42 TT		Marsden	
<i>q</i>	0.0049	(2000.0)	P	Q
	<i>ω</i>	79.41	+0.10622	−0.99295
	<i>Ω</i>	354.60	−0.97912	−0.09524
<i>e</i>	1.0	<i>i</i> 146.08	+0.17335	+0.07053
From 5 observations 1998 Apr. 2.				

C/1998 G4 (SOHO)

<i>T</i>	1998 Apr. 11.46 TT		Marsden	
<i>q</i>	0.0092	(2000.0)	P	Q
	<i>ω</i>	62.75	+0.17908	−0.95492
	<i>Ω</i>	338.58	−0.96080	−0.11798
<i>e</i>	1.0	<i>i</i> 139.59	+0.21163	+0.27240
From 18 observations 1998 Apr. 10–11.				

C/1998 H2 (SOHO)

<i>T</i>	1998 Apr. 30.78 TT		Marsden	
<i>q</i>	0.0067	(2000.0)	P	Q
	<i>ω</i>	85.93	+0.20507	−0.97369
	<i>Ω</i>	9.67	−0.95122	−0.22218
<i>e</i>	1.0	<i>i</i> 143.75	+0.23050	−0.05061
From 30 observations 1998 Apr. 29–30.				

C/1998 J2 (SOHO)

<i>T</i>	1998 May 11.68 TT		Marsden	
<i>q</i>	0.0055	(2000.0)	P	Q
	<i>ω</i>	83.49	+0.17370	−0.98385
	<i>Ω</i>	4.29	−0.96235	−0.17891
<i>e</i>	1.0	<i>i</i> 144.66	+0.20908	−0.00608
From 31 observations 1998 May 10–11.				

C/1998 K5 (LINEAR)

Epoch 1998 July 6.0 TT = JDT 2451000.5				
<i>T</i>	1998 July 17.4463 TT		Nakano	
<i>q</i>	0.963547	(2000.0)	P	Q
<i>z</i>	+0.013809	<i>ω</i> 99.4587	+0.6428495	+0.7607932
	±0.000004	<i>Ω</i> 211.1192	−0.7528896	+0.6061424
<i>e</i>	0.986695	<i>i</i> 9.9270	−0.1410736	+0.2319161
From 547 observations 1998 May 26–1999 Feb. 14, mean residual 0″6.				

C/1998 K8 (SOHO)

<i>T</i>	1998 May 20.22 TT		Marsden	
<i>q</i>	0.0064	(2000.0)	P	Q
	<i>ω</i>	87.90	+0.19851	−0.97252
	<i>Ω</i>	11.73	−0.95022	−0.22139
<i>e</i>	1.0	<i>i</i> 143.22	+0.24016	−0.07210
From 8 observations 1998 May 19.				

C/1998 M7 (SOHO)

<i>T</i>	1998 June 17.23 TT		Marsden	
<i>q</i>	0.0054	(2000.0)	P	Q
	<i>ω</i>	63.51	+0.18691	−0.96437
	<i>Ω</i>	341.17	−0.97167	−0.15343
<i>e</i>	1.0	<i>i</i> 144.54	+0.14465	+0.21550
From 9 observations 1998 June 16.				

P/1998 U4 (Spahr)

Epoch 1999 Mar. 3.0 TT = JDT 2451240.5				
<i>T</i>	1999 Feb. 26.6512 TT		Marsden	
<i>q</i>	3.843154	(2000.0)	P	Q
<i>n</i>	0.0749656	<i>ω</i> 251.7736	+0.2884012	−0.9573819
<i>a</i>	5.570506	<i>Ω</i> 181.7149	+0.9486563	+0.2834796
<i>e</i>	0.310089	<i>i</i> 31.5182	−0.1299073	−0.0553107
<i>P</i>	13.1			
From 93 observations 1998 Oct. 27–1999 Feb. 16, mean residual 0″6.				

P/1998 W1 (Spahr)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5				
<i>T</i>	1999 Jan. 17.9542 TT		Marsden	
<i>q</i>	1.725755	(2000.0)	P	Q
<i>n</i>	0.1490854	<i>ω</i> 346.6783	+0.0071687	−0.9306480
<i>a</i>	3.522459	<i>Ω</i> 101.9737	+0.9483230	−0.1097345
<i>e</i>	0.510071	<i>i</i> 21.9614	+0.3172256	+0.3490741
<i>P</i>	6.61			
From 226 observations 1998 Nov. 16–1999 Feb. 26, mean residual 0″6.				

P/1998 W2 (Hergenrother)

Epoch 1998 Dec. 13.0 TT = JDT 2451160.5				
<i>T</i>	1998 Dec. 5.9478 TT		Marsden	
<i>q</i>	1.420218	(2000.0)	P	Q
<i>n</i>	0.1426492	<i>ω</i> 13.8898	+0.9825398	−0.1846513
<i>a</i>	3.627632	<i>Ω</i> 356.5012	+0.1139141	+0.6939018
<i>e</i>	0.608500	<i>i</i> 21.9293	+0.1471025	+0.6959915
<i>P</i>	6.91			
From 60 observations 1998 Nov. 21–1999 Feb. 14, mean residual 0″7.				

C/1998 W3 (LINEAR)

Epoch 1998 Sept. 24.0 TT = JDT 2451080.5				
<i>T</i>	1998 Oct. 6.7184 TT		Nakano	
<i>q</i>	4.914840	(2000.0)	P	Q
<i>z</i>	−0.000400	<i>ω</i> 6.8873	−0.4911304	+0.5875513
	±0.000050	<i>Ω</i> 123.9206	+0.7576773	−0.0761155
<i>e</i>	1.001968	<i>i</i> 129.1957	+0.4297861	+0.8055991
From 116 observations 1998 Nov. 25–1999 Feb. 22, mean residual 0″5.				

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P/1998 X1 (ODAS)

<i>T</i>	1998 July 20.9059 TT			Nakano	
<i>q</i>	1.975024	(2000.0)		P	Q
<i>n</i>	0.1457560	ω	68.8237	+0.3801497	−0.9249248
<i>a</i>	3.575899	Ω	358.8330	+0.8396075	+0.3453017
<i>e</i>	0.447685	<i>i</i>	1.3524	+0.3880018	+0.1589993
<i>P</i>	6.76				

From 130 observations 1998 Dec. 15–1999 Feb. 16.

C/1999 A1 (Tilbrook)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>T</i>	1999 Jan. 29.6563 TT			Marsden	
<i>q</i>	0.730750	(2000.0)		P	Q
<i>z</i>	+0.005551	ω	232.6684	+0.1073985	−0.1554385
	±0.000093	Ω	259.1216	+0.8639062	−0.4742549
<i>e</i>	0.995944	<i>i</i>	89.4827	−0.4920687	−0.8665571

From 66 observations 1999 Jan. 13–Feb. 12, mean residual 0''.6.

P/1999 D1 (Hermann)

<i>T</i>	1999 Feb. 18.060 TT			Marsden	
<i>q</i>	1.65129	(2000.0)		P	Q
<i>n</i>	0.073581	ω	173.109	−0.955023	−0.288736
<i>a</i>	5.64016	Ω	349.348	+0.251633	−0.668620
<i>e</i>	0.70723	<i>i</i>	21.432	+0.156879	−0.685259
<i>P</i>	13.4				

From 59 observations 1999 Feb. 15–27.

(10000)* 1951 SY = 1980 TS₂

Discovered 1951 Sept. 30 by A. G. Wilson at Palomar.

Id. G. V. Williams (*MPC* 20803)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	139.69918	(2000.0)		Williams	
<i>n</i>	0.23652614	ω	199.84046	+0.98231914	−0.17633296
<i>a</i>	2.5895042	Ω	169.69127	+0.17983335	+0.98215024
<i>e</i>	0.3013624	<i>i</i>	20.57682	−0.05204866	+0.06547966
<i>P</i>	4.17	<i>H</i>	15.3	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1951 09 30	675	0.5−	0.4−	1980 10 05	809	0.1−	0.1+	1998 02 27	561	0.5−	0.2+
1951 09 30	675	0.3−	0.0	1984 10 12	413	0.2+	0.3+	1998 02 27	561	0.7−	0.3+
1951 10 02	675	0.2+	0.9−	1984 10 12	413	0.1−	0.7−	1999 01 23	561	0.6+	0.6+
1951 10 04	675	0.3−	1.1−	1992 08 21	413	0.1−	0.4−	1999 01 23	561	0.7+	0.9+
1951 10 05	675	1.3+	0.5+	1992 08 21	413	0.2−	0.6−	1999 01 23	561	1.6+	1.1+
1951 10 07	675	0.1−	1.0+	1995 03 24	691	0.6−	0.1−	1999 02 13	691	0.3−	0.7−
1951 12 21	672	(0.9−	3.1+)	1995 03 24	691	0.7−	0.7−	1999 02 13	691	0.1−	0.6−
1951 12 22	672	0.1−	0.6+	1996 06 25	658	0.1+	0.7+	1999 02 13	691	0.4−	0.4−
1951 12 22	672	1.1−	0.2+	1996 06 25	658	0.2−	0.6+	1999 02 14	691	0.4+	0.7−
1976 11 16	413	0.6+	0.4+	1996 06 25	658	0.1−	0.4+	1999 02 14	691	0.1+	0.8−
1976 11 16	413	0.9+	0.5−	1998 02 27	561	1.0−	0.1−	1999 02 14	691	0.2+	0.2−

(10001)* 1969 TM₁ = 1991 RS₂₇

Discovered 1969 Oct. 8 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Id. T. Kobayashi (*MPC* 21096)

1999 MAR. 2

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	344.50810	(2000.0)		Williams	
<i>n</i>	0.26885553	ω	357.59009	+0.78809617	−0.60983636
<i>a</i>	2.3775158	Ω	40.38071	+0.56689668	+0.66608399
<i>e</i>	0.1340403	<i>i</i>	7.42213	+0.23985949	+0.42945517
<i>P</i>	3.67	<i>H</i>	13.9	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1954 07 29	675	0.6+	1.4−	1993 03 23	675	0.8+	0.4−	1998 09 21	704	0.6−	0.6+
1954 07 29	675	0.6+	0.8−	1993 03 23	675	1.0−	0.7+	1998 09 21	704	0.1+	1.0+
1969 10 08	095	1.2+	1.5+	1993 04 14	675	0.6+	0.3−	1998 09 21	704	0.4−	1.2+
1969 10 16	095	(2.7+	6.6−)	1993 04 14	675	0.9+	0.3−	1998 12 08	704	0.9+	0.2−
1969 11 11	095	2.2−	0.2−	1997 05 07	566	0.3−	0.5+	1998 12 08	704	0.3+	0.9+
1991 09 12	675	0.7+	1.4−	1997 05 07	566	0.1−	0.4+	1998 12 08	704	0.2−	1.8+
1991 09 12	675	0.1+	1.2−	1997 05 07	566	0.3−	0.7+	1998 12 08	704	(0.1−	2.9+)
1991 09 14	675	0.0	0.5−	1998 09 21	704	0.8−	0.2+	1998 12 08	704	0.4+	1.1+
1991 09 14	675	0.2−	0.2−	1998 09 21	704	0.1+	0.2−				

(10002)* 1969 TQ₁ = 1980 TN₁₅ = 1986 WD₂

Discovered 1969 Oct. 8 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Id. H. Oishi (*JAM* 2056, *MPC* 19854)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	82.41859	(2000.0)		Williams	
<i>n</i>	0.17635208	ω	330.72807	+0.77186805	−0.63393680
<i>a</i>	3.1493118	Ω	68.69450	+0.59296017	+0.69031593
<i>e</i>	0.1626757	<i>i</i>	2.97870	+0.22938604	+0.34869478
<i>P</i>	5.59	<i>H</i>	13.3	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1969 10 08	095	0.2+	1.3−	1997 10 25	587	0.2+	0.3+	1998 11 25	561	0.9−	0.5+
1969 10 13	095	1.0+	0.6−	1997 10 26	816	0.7+	0.0	1998 11 25	561	0.4−	0.0
1969 10 16	095	(0.0	2.9−)	1997 10 26	816	0.6+	0.5+	1999 01 13	699	1.2−	0.2−
1969 11 04	095	(8.0−	0.2−)	1997 10 26	816	0.8+	0.6+	1999 01 13	699	0.4+	0.6−
1980 10 05	046	0.7−	1.5+	1997 10 26	816	0.9+	0.2+	1999 01 13	699	0.1+	0.1+
1980 10 05	046	0.2−	0.9−	1997 10 26	816	1.0+	0.6+	1999 01 22	561	0.4−	0.5−
1986 11 30	046	(4.1−	2.9+)	1997 10 29	704	(2.6−	2.3+)	1999 01 22	561	0.2−	0.4−
1986 11 30	046	(4.5−	2.7+)	1997 10 29	704	0.7−	0.9+	1999 01 22	561	0.2+	0.5−
1986 12 01	046	(5.2−	1.0−)	1997 10 29	704	1.7−	0.7+	1999 02 10	704	0.3+	0.2+
1986 12 01	046	(4.4−	0.4+)	1997 10 29	704	1.5−	0.1+	1999 02 10	704	0.2+	0.0
1986 12 03	046	(3.5−	3.3+)	1997 10 30	704	0.6−	0.1+	1999 02 10	704	0.2+	0.1+
1986 12 03	046	(5.6−	1.0+)	1997 10 31	704	1.0+	0.8−	1999 02 10	704	1.3+	1.1−
1988 03 17	675	0.4−	0.3−	1997 10 31	704	0.5−	0.6+	1999 02 10	426	0.1+	0.1+
1991 09 11	675	0.2−	1.1−	1997 10 31	704	0.1−	1.4+	1999 02 10	426	0.3−	0.5−
1991 09 14	675	1.2+	1.2−	1997 10 31	704	(0.0	3.0+)	1999 02 10	426	0.2−	0.0
1991 09 14	675	0.1−	0.6−	1997 10 31	704	1.3−	0.5+	1999 02 12	426	0.2−	0.1−
1991 09 15	675	0.0	0.8+	1997 11 03	587	0.4−	0.8−	1999 02 12	426	0.4−	0.5−
1991 09 15	675	0.3+	0.7+	1997 11 03	587	0.0	0.4−	1999 02 13	704	0.9+	0.1−
1991 09 15	675	0.1−	0.8−	1997 11 11	658	1.5−	0.7−	1999 02 13	704	0.5+	0.0
1991 09 15	675	0.4+	0.3−	1997 11 11	658	0.8−	0.2−	1999 02 13	704	0.3−	0.4+
1991 09 16	675	0.3+	1.4−	1997 12 06	910	1.1+	0.1−	1999 02 13	704	0.3−	0.1+
1991 09 16	675	0.2+	1.0−	1997 12 06	910	1.2+	0.1−	1999 02 13	704	0.5−	0.2+
1994 03 14	675	0.0	1.7−	1997 12 06	910	1.3+	0.2−				
1997 10 25	587	0.0	0.1+	1998 11 25	561	0.8−	0.4+				

(10003)* 1971 UD₁ = 1984 SU₄

Discovered 1971 Oct. 26 by L. Kohoutek at Bergedorf.

Id. C. M. Bardwell (*MPC* 9465)

1999 MAR. 2

M.P.C. 33859

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Bardwell

M	113.40646		(2000.0)	P	Q
n	0.29947338	ω	277.95136	+0.95292738	-0.30198207
a	2.2125711	Ω	99.62843	+0.28789508	+0.87312678
e	0.1288966	i	1.57706	+0.09510955	+0.38269629
P	3.29	H	14.6	G 0.15	U 2

Residuals in seconds of arc

1971 10 26	029	0.9-	0.7-	1993 04 17	675	0.8-	0.6+	1999 02 10	704	0.0	0.1-
1971 10 27	029	0.6-	1.1-	1993 05 21	675	0.9-	0.7+	1999 02 10	704	0.3+	0.1-
1971 10 30	029	0.3+	0.2-	1993 05 21	675	0.3-	1.5-	1999 02 10	704	0.8+	0.4+
1971 11 10	029	0.8+	0.8-	1993 05 24	675	0.2+	0.9-	1999 02 10	704	0.8+	1.1+
1971 11 10	029	1.8+	0.1-	1993 05 24	675	0.9+	0.6+	1999 02 10	704	0.3-	0.5+
1971 11 19	029	0.9+	0.8-	1994 10 01	801	0.5-	0.6+	1999 02 12	699	0.0	0.7+
1979 01 27	675	1.6-	0.6+	1994 10 01	801	0.4-	0.5+	1999 02 12	699	0.5+	0.6-
1979 01 29	675	0.1+	0.5-	1994 10 03	801	1.1-	0.3+	1999 02 12	699	0.3+	0.5-
1984 09 19	071	0.6+	0.5-	1996 03 16	566	0.5-	1.6-	1999 02 13	704	0.0	0.2-
1984 09 19	071	(9.2-	0.1-)	1996 03 16	566	0.5+	1.3-	1999 02 13	704	0.2+	0.2+
1984 09 23	071	0.7+	0.7+	1996 03 16	566	0.2-	1.4-	1999 02 13	704	0.5+	0.1-
1984 09 24	071	0.4-	0.1-	1999 01 22	561	0.6+	0.8+	1999 02 13	704	0.4-	0.4-
1986 03 12	809	1.7-	0.3-	1999 01 22	561	0.5+	0.6+	1999 02 13	704	0.7-	0.0
1993 04 17	675	0.3-	0.8+	1999 01 22	561	0.6+	0.6+				

(10004)* 1975 VV₂ = 1980 PD₃

Discovered 1975 Nov. 2 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Id. H. Kaneda (*MPC* 16421)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	124.46485		(2000.0)	P	Q
n	0.18029157	ω	292.97533	+0.87263850	+0.45019404
a	3.1032667	Ω	40.96566	-0.27015244	+0.76787000
e	0.1869316	i	16.78084	-0.40684114	+0.45574224
P	5.47	H	12.8	G 0.15	U 1

Residuals in seconds of arc

1975 10 29	033	1.0-	0.2+	1997 11 03	704	1.7+	0.2-	1998 12 12	704	0.5+	0.4-
1975 10 30	033	1.3+	0.5-	1997 11 03	704	0.4-	0.4-	1998 12 12	704	1.1-	0.3+
1975 10 31	033	0.1+	0.4+	1997 11 03	704	0.3+	0.2-	1998 12 12	704	(2.2-	0.4+)
1975 11 02	095	0.8+	1.9-	1997 11 03	704	0.9-	1.0-	1998 12 24	699	0.3+	0.3+
1980 07 19	413	0.4-	0.2+	1998 01 26	327	0.3+	0.8+	1998 12 24	699	0.4+	0.3-
1980 07 19	413	0.5+	0.2+	1998 01 26	327	0.2+	0.9+	1998 12 24	699	0.7-	1.0+
1980 08 15	413	(6.5+	7.1+)	1998 01 26	327	0.3+	1.1+	1999 01 14	704	0.2-	0.6-
1980 08 16	413	(2.1+	5.9+)	1998 01 26	327	0.6+	1.2+	1999 01 14	704	1.0-	0.0
1980 08 17	413	(1.6+	4.7+)	1998 02 09	327	0.1-	0.0	1999 01 14	704	0.4+	1.1-
1980 08 18	413	(3.3+	6.7+)	1998 02 09	327	0.2-	0.4+	1999 01 14	704	(0.1+	3.2-)
1980 08 22	413	(1.5+	3.5+)	1998 02 09	327	0.3-	0.3+	1999 01 14	704	0.9+	1.1-
1997 10 27	688	0.7-	0.2+	1998 02 09	327	0.1-	0.5+	1999 01 22	561	0.0	0.3-
1997 10 27	688	0.7-	0.2+	1998 11 24	561	0.5-	0.2+	1999 01 22	561	0.1+	0.1-
1997 10 28	688	0.5-	0.0	1998 11 24	561	0.5+	0.5+	1999 01 22	561	0.1+	0.2-
1997 10 28	688	0.7-	0.3+	1998 11 24	561	0.1+	0.1+				
1997 11 03	704	0.3+	0.3-	1998 12 12	704	0.3-	0.8+				

(10005)* 1976 SS₂ = 1983 RH₇ = 1994 UN

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

Id. T. Kobayashi (*MPC* 24383)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	108.43562		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$		
n	0.27661190	ω	321.87432	+0.95685501	+0.28976373		
a	2.3328607	Ω	21.31204	-0.24988158	+0.85849942		
e	0.2119926	i	3.40318	-0.14828247	+0.42310251		
P	3.56	H	14.1	G	0.15	U	2

Residuals in seconds of arc

1976 09 24	095	0.9+	0.0	1994 11 07	675	0.7-	0.3-	1998 12 14	699	0.2-	0.1-
1976 09 29	095	1.2+	2.0-	1994 11 07	675	0.7-	0.2+	1998 12 14	699	0.1-	0.5+
1976 10 25	095	(3.6+	0.7-)	1994 11 08	893	1.0-	0.2+	1999 01 16	704	0.4+	0.1+
1983 09 10	095	0.5-	0.1-	1994 11 08	893	0.6-	0.1+	1999 01 16	704	0.9+	0.6-
1993 03 24	675	0.0	0.7+	1994 11 08	896	(2.6-	1.0+)	1999 01 16	704	1.2+	0.2-
1993 03 24	675	0.9+	0.9+	1994 11 12	896	0.7-	0.2-	1999 01 16	704	1.2+	0.5+
1994 10 31	403	1.5+	0.2-	1994 11 12	896	1.0-	0.4+	1999 01 16	426	0.5-	0.5-
1994 10 31	403	0.3-	0.3+	1994 11 30	675	0.7-	0.2+	1999 01 16	426	0.3+	0.4-
1994 10 31	391	1.3+	0.6-	1994 11 30	675	0.6-	0.2-	1999 01 16	426	0.2+	0.1+
1994 10 31	391	0.6-	1.5+	1994 12 02	675	0.7-	0.8+	1999 01 17	426	0.5+	0.2+
1994 11 01	886(22.3+	2.9+)	Y	1994 12 02	675	0.0	1.0+	1999 01 17	426	0.1-	0.8-
1994 11 01	886(22.9+	0.0	)Y	1996 03 12	691	1.7-	0.3-	1999 01 17	426	0.5-	0.4+
1994 11 02	886	0.7-	1.5-	1996 03 12	691	1.7-	0.2-	1999 01 19	704	1.8+	0.6+
1994 11 02	886	1.1-	1.6-	1996 03 12	691	1.4-	0.1-	1999 01 19	704	0.9+	0.1-
1994 11 03	896	1.1+	0.0	1996 03 17	691	0.9-	0.1+	1999 01 19	704	0.4+	0.4+
1994 11 03	896	0.7+	1.5+	1996 03 17	691	0.8-	0.2-	1999 01 19	704	1.1+	0.2-
1994 11 04	391	0.9+	0.4+	1996 03 17	691	0.8-	0.4-				
1994 11 04	391	0.6-	0.8-	1997 06 23	689	1.5+	0.8+				

(10006)* 1976 UR₁₅ = 1989 VU

Discovered 1976 Oct. 22 by H. Kosai and K. Hurukawa at the Kiso Station of the Tokyo Astronomical Observatory.

Id. H. Oishi (*MPC* 15551)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	70.20900		(2000.0)	P	Q
n	0.23045538	ω	339.19524	+0.87258381	-0.47060252
a	2.6347828	Ω	49.56859	+0.46893420	+0.73205249
e	0.0559962	i	9.90115	+0.13674136	+0.49257731
P	4.28	H	13.5	G 0.15	U 1

Residuals in seconds of arc

1976 10 22	381	0.1-	0.1+	1993 10 10	675	0.6-	0.6-	1998 12 17	704	0.1+	1.3-
1976 10 22	381	0.7+	0.1-	1993 10 12	675	0.5+	1.1+	1998 12 17	704	0.4-	0.2-
1976 10 24	381	0.2-	0.6+	1993 10 12	675	0.6+	0.5+	1998 12 17	704	0.5-	0.9+
1976 10 24	381	0.1-	0.3-	1996 04 20	809	0.3-	0.2-	1998 12 17	704	0.7-	0.7-
1976 11 18	381	0.4+	0.5-	1996 04 20	809	1.3-	0.2-	1999 01 15	732	0.4-	0.6+
1976 11 18	381	0.2+	1.0-	1996 04 20	809	0.9-	0.6-	1999 01 15	732	0.5+	0.8+
1989 10 23	033	1.0+	0.1-	1996 05 21	104	0.5-	1.5-	1999 01 15	732	1.3-	0.2+
1989 10 23	033	0.5+	0.2+	1996 05 21	104	0.0	1.2-	1999 01 16	732	0.2+	0.2-
1989 10 25	033	1.1+	1.5-	1996 05 21	104	0.4+	1.0-	1999 01 16	732	0.2-	0.2+
1989 10 25	033	0.9+	0.6-	1997 09 02	566	0.4+	0.2+	1999 01 16	732	0.1+	0.1+
1989 10 27	033	0.2+	0.7-	1997 09 02	566	0.2+	0.3+	1999 01 16	704	0.1+	1.1-
1989 11 04	385	1.7-	0.3+	1997 09 02	566	0.2-	0.4+	1999 01 16	704	0.4+	0.4-
1989 11 04	385	0.9+	0.2-	1997 11 29	566	0.4-	0.6+	1999 01 16	704	0.7+	1.0+
1989 11 17	883	(3.4-	0.4+)	1997 11 29	566	0.3-	0.7+	1999 01 16	704	0.3+	0.9+
1989 11 17	883	1.9-	0.1+	1997 11 29	566	0.7-	0.4+	1999 01 16	704	0.9+	0.4-
1993 09 18	675	0.4-	0.3-	1998 12 14	704	0.1+	0.3-	1999 01 19	704	0.6-	1.0-
1993 09 18	675	0.4+	0.9-	1998 12 14	704	0.5+	1.1-	1999 01 19	704	0.3+	0.2+
1993 09 23	675	0.5+	1.1-	1998 12 14	704	0.6+	0.9-	1999 01 19	704	1.4-	1.7+
1993 10 10	675	0.4-	0.5-	1998 12 14	704	0.3+	1.1-	1999 01 19	704	0.1+	1.3+

(10007)* 1976 YF₃ = 1981 WC₅ = 1990 MG₁

Discovered 1976 Dec. 16 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Id. T. B. Spahr (*MPC* 30648)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	302.73051		(2000.0)	P	Q
n	0.17641072	ω	243.36633	-0.67567660	-0.70394737
a	3.1486139	Ω	250.95220	+0.73149614	-0.60334929
e	0.1030886	i	13.39038	+0.09151245	-0.37473689
P	5.59	H	11.6	G 0.15	U 2

Residuals in seconds of arc

1976 12 16	095	0.5−	0.0	1998 10 25	681	0.3−	0.1+	1998 11 19	689	0.1−	1.7−
1976 12 20	095	1.3−	0.2−	1998 10 27	681	0.5−	0.2+	1998 11 20	689	0.3−	0.7−
1976 12 21	381	0.8+	0.3−	1998 10 27	681	0.4−	0.1−	1998 11 21	704	0.5+	0.0
1976 12 21	381	0.8−	0.5+	1998 10 29	704	0.2+	0.0	1998 11 21	704	1.2+	0.0
1977 01 13	095	2.0+	1.8−	1998 10 29	704	0.6+	0.2−	1998 11 21	704	0.3+	0.7−
1977 01 20	095	(0.8+	3.4−)	1998 10 29	704	0.7+	0.9+	1998 11 21	704	1.0+	0.2−
1981 11 24	095	1.3−	2.0+	1998 10 29	704	0.7−	0.0	1998 11 21	704	0.5+	0.7+
1981 11 24	095	(2.7−	3.4+)	1998 10 29	704	0.0	0.4+	1998 12 16	699	0.6−	0.4+
1990 06 24	046	0.3−	1.5−	1998 11 10	704	0.3−	0.7−	1998 12 16	699	0.7−	0.4+
1990 06 24	046	0.3+	0.1+	1998 11 10	704	0.1−	0.5+	1998 12 16	699	0.6−	0.5+
1998 08 31	704	0.1+	1.0−	1998 11 10	704	0.1+	0.5−	1999 02 02	699	1.0−	1.0+
1998 08 31	704	0.8+	0.4+	1998 11 10	704	0.1−	0.5−	1999 02 02	699	1.0−	0.1−
1998 08 31	704	1.0+	0.7−	1998 11 10	704	0.0	0.7+	1999 02 02	699	0.8−	0.8+
1998 08 31	704	1.3+	1.1−	1998 11 11	704	0.4−	0.2−	1999 02 06	704	1.2−	0.2+
1998 10 02	689	0.3−	0.3−	1998 11 11	704	0.6+	0.5−	1999 02 06	704	(1.5+	2.1−)
1998 10 11	761	0.8+	0.6+	1998 11 11	704	0.2−	0.7−	1999 02 06	704	0.6−	0.5+
1998 10 11	761	0.2+	0.1−	1998 11 18	704	(0.0	2.2+)	1999 02 06	704	0.2−	0.1−
1998 10 12	761	0.5−	0.0	1998 11 18	704	0.9+	0.2−	1999 02 06	704	1.2−	1.8−
1998 10 12	761	1.2−	1.0+	1998 11 18	704	(3.1+	1.3−)	1999 02 06	704	0.0	0.7+
1998 10 20	689	0.3−	0.4−	1998 11 18	704	(3.7+	2.5−)	1999 02 06	704	0.0	1.8+
1998 10 25	681	0.4−	0.0	1998 11 18	704	1.4+	0.9−	1999 02 06	704	1.6+	0.1−

(10008)* 1977 DT₂ = 1995 BY₁₂

Discovered 1977 Feb. 18 by H. Kosai and K. Hurukawa at the Kiso Station of the Tokyo Astronomical Observatory.

Id. T. Kobayashi (*MPC* 25060)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	187.01727	(2000.0)	P	Q	
<i>n</i>	0.21749800	ω	210.37924	−0.04658821	+0.99868626
<i>a</i>	2.7384146	Ω	56.95836	−0.91128930	−0.03374317
<i>e</i>	0.0359884	<i>i</i>	1.45856	−0.40912265	−0.03856352
<i>P</i>	4.53	<i>H</i>	13.7	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1977 02 18	381	1.8+	0.1+	1995 02 07	691	0.7−	0.0	1998 12 16	704	1.3+	0.5−
1977 02 18	381	0.1+	0.9+	1995 02 07	691	0.1−	0.3+	1998 12 16	704	0.1+	0.5−
1977 02 18	381	0.9−	1.4+	1997 08 05	327	0.2−	0.3−	1998 12 16	704	0.3−	1.1−
1977 02 18	381	1.0+	0.0	1997 08 05	327	0.6−	0.4−	1998 12 16	704	0.3−	0.7−
1977 02 19	381	0.3−	0.2+	1997 08 05	327	0.5−	0.4−	1998 12 17	704	0.7+	0.4+
1977 02 19	381	0.4−	0.4+	1997 08 10	327	0.3−	0.3−	1998 12 17	704	1.5−	0.2+
1977 02 19	381	0.4−	0.1+	1997 08 10	327	0.3−	0.4−	1998 12 17	704	0.0	0.3−
1977 02 19	381	0.7+	0.2+	1997 08 10	327	0.4−	0.5−	1998 12 17	704	0.3+	0.6+
1977 03 12	381	0.2−	0.2+	1997 09 01	327	0.1+	0.8+	1999 01 16	704	0.7+	1.1+
1977 03 12	381	0.3−	0.8−	1997 09 01	327	0.1+	0.5+	1999 01 16	704	0.3−	0.5+
1995 01 31	691	0.5+	0.5−	1997 09 01	327	0.2+	0.5+	1999 01 16	704	0.1+	0.4+
1995 01 31	691	0.5+	0.1−	1997 09 04	327	0.3+	0.8+	1999 01 16	704	0.8−	1.4−
1995 01 31	691	0.3+	0.1+	1997 09 04	327	0.1−	1.1+	1999 01 16	704	(3.0−	2.9−)
1995 02 07	691	0.4−	0.3+	1997 09 04	327	0.1+	1.1+				

(10009)* 1977 EA₆ = 1979 VC₂ = 1990 VG₈

Discovered 1977 Mar. 12 by H. Kosai and K. Hurukawa at the Kiso Station of the Tokyo Astronomical Observatory.

Id. H. Kaneda (*MPC* 19012)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	63.95678	(2000.0)	P	Q	
<i>n</i>	0.26541407	ω	111.64554	+0.50979032	−0.85842440
<i>a</i>	2.3980235	Ω	307.57854	+0.76046378	+0.48049676
<i>e</i>	0.1043348	<i>i</i>	4.10683	+0.40225449	+0.17952831
<i>P</i>	3.71	<i>H</i>	14.3	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1977 03 12	381	0.2−	0.6+	1993 07 20	809	(1.6−	2.2−)	1999 01 23	120	0.2+	0.2−
1977 03 12	381	0.1−	0.7+	1993 07 20	809	(2.2−	2.6−)	1999 01 23	120	0.2+	0.3−

1977 03 14	381	0.4+	0.1+	1993 07 24	809	(1.3−	2.7−)	1999 01 24	120	0.0	0.2−
1977 03 14	381	1.1+	0.2+	1997 08 31	610	0.7+	0.6+	1999 02 12	699	0.7+	1.3+
1977 03 15	381	0.0	0.3−	1997 08 31	610	0.3+	0.5+	1999 02 12	699	0.3+	0.1+
1977 03 15	381	0.5+	1.1−	1997 08 31	610	0.0	0.3+	1999 02 12	699	0.7+	0.1+
1979 11 14	095	1.3−	0.8+	1999 01 13	699	0.3+	0.1+	1999 02 12	704	0.6−	0.5−
1990 10 22	675	0.1+	0.1+	1999 01 13	699	1.6+	0.9−	1999 02 12	704	0.6−	0.1−
1990 10 22	675	0.3+	0.5+	1999 01 13	699	0.3+	0.0	1999 02 12	704	0.6+	0.7+
1990 11 11	675	(1.1−	2.1−)	1999 01 13	691	1.8−	0.9−	1999 02 12	704	0.4−	0.3+
1990 11 11	675	(0.1+	2.1−)	1999 01 13	691	1.7−	0.7−	1999 02 12	704	0.5+	0.2−
1990 11 13	675	0.8+	0.5−	1999 01 15	691	1.7−	0.7−	1999 02 16	704	0.0	0.1−
1990 11 13	675	0.0	1.3−	1999 01 15	691	1.8−	0.8−	1999 02 16	704	0.2−	0.1−
1993 07 13	809	0.1+	1.6−	1999 01 15	691	1.3−	0.7−	1999 02 16	704	0.4+	0.3+
1993 07 13	809	0.4−	1.7−	1999 01 22	699	0.6+	0.1−	1999 02 16	704	0.4+	0.1−
1993 07 13	809	0.3−	1.5−	1999 01 22	699	0.8+	0.1+	1999 02 16	704	0.1+	0.7−
1993 07 20	809	(2.1−	2.4−)	1999 01 22	699	0.3−	0.7+				

(10010)* 1978 PW₃ = 1986 TU₃

Discovered 1978 Aug. 9 by N. S. Chernykh and L. I. Chernykh at the Crimean Astrophysical Observatory.

Id. T. Kobayashi (*MPC* 12948)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	117.27984	(2000.0)	P	Q	
<i>n</i>	0.25518286	ω	139.78814	+0.63229161	+0.77445579
<i>a</i>	2.4616996	Ω	169.37600	−0.73643977	+0.60909534
<i>e</i>	0.1480604	<i>i</i>	6.42443	−0.24054891	+0.17094181
<i>P</i>	3.86	<i>H</i>	14.3	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1978 08 09	095	1.2−	0.3+	1997 06 23	610	0.2−	0.8+	1997 07 22	540	0.2−	0.0
1978 08 31	095	0.9−	1.0+	1997 06 23	610	0.6+	0.2+	1998 12 16	699	1.0+	0.1−
1978 09 05	095	0.2+	0.0	1997 06 23	610	1.7+	0.5−	1998 12 16	699	0.5+	0.3+
1982 08 19	675	1.9+	0.3−	1997 06 27	610	1.4+	0.5+	1998 12 16	699	(3.1+	0.9−)
1982 08 19	675	1.7+	1.1+	1997 06 27	610	1.0+	0.2+	1998 12 16	426	0.4+	0.2−
1986 10 04	046	2.0−	2.2−	1997 06 27	610	0.8+	0.0	1998 12 16	426	0.1+	0.2−
1986 10 05	046	1.6+	2.1+	1997 07 03	610	0.3+	0.2−	1998 12 16	426	0.0	0.1+
1986 10 05	046	2.0−	2.1−	1997 07 03	610	0.2+	0.2+	1998 12 18	426	0.7+	0.0
1986 10 05	046	1.1+	0.7−	1997 07 03	610	0.0	0.6+	1998 12 18	426	0.7−	0.1−
1993 06 24	801	0.0	1.0−	1997 07 09	540	1.8−	0.6+	1998 12 18	426	0.1−	0.4+
1993 06 24	801	0.4+	0.1+	1997 07 09	540	1.5−	0.3+	1999 01 10	699	0.8−	0.9+
1997 06 14	610	1.8−	1.3−	1997 07 09	540	1.5−	0.9+	1999 01 10	699	1.0−	0.5+
1997 06 14	610	0.1−	1.1−	1997 07 22	540	0.8−	0.4+	1999 01 10	699	0.4−	0.4+
1997 06 14	610	1.4+	0.9−	1997 07 22	540	0.1−	0.2+				

(10011)* 1978 QY₁ = 1978 QL₃ = 1990 WS₃

Discovered 1978 Aug. 31 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. H. Oishi (d, *JAM* 1860), R. Nagata (*MPC* 17815)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	80.51001	(2000.0)	P	Q	
<i>n</i>	0.25767766	ω	223.85658	+0.84433467	−0.53556956
<i>a</i>	2.4457846	Ω	168.49352	+0.51132265	+0.79629998
<i>e</i>	0.1005906	<i>i</i>	4.67394	+0.16015030	+0.28119671
<i>P</i>	3.82	<i>H</i>	14.0	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1954 05 23	675	2.0+	0.6−	1997 08 07	956	0.1−	0.3+	1999 01 18	704	0.2+	0.8+
1954 05 23	675	0.4−	0.4−	1997 08 07	956	(0.7+	2.2−)	1999 01 18	704	0.5−	0.0
1978 08 26	414	1.4+	0.1+	1997 08 12	956	1.4−	0.5−	1999 01 18	704	0.3+	0.0
1978 08 26	414	1.4−	0.4+	1997 08 12	956	0.3−	0.5−	1999 01 18	704	1.8−	1.7−
1978 08 31	095	1.2−	0.6−	1997 08 22	367	0.7−	0.3−	1999 02 11	699	0.4+	0.9+
1978 09 05	095	2.2−	0.7+	1997 08 22	367	0.1+	0.1+	1999 02 11	699	0.2−	0.2+
1990 11 16	675	0.6−	0.8+	1997 08 31	610	1.0+	0.5+	1999 02 11	699	0.1−	0.6+
1990 11 16	675	0.9−	0.7+	1997 08 31	610	1.1+	0.5+	1999 02 12	704	0.6−	0.0
1990 11 21	809	1.0+	1.5−	1997 08 31	610	1.1+	0.5+	1999 02 12	704	0.4+	0.8+
1990 11 21	809	1.2+	0.6−	1997 09 09	610	0.3+	0.8+	1999 02 12	704	1.2+	1.5+

1990 11 21	809	0.3+	0.3-	1997 09 09	610	0.4+	0.5+	1999 02 12	704	0.1+	1.9+
1990 11 22	809	0.0	1.7-	1997 09 09	610	0.5+	0.2+	1999 02 12	704	0.0	0.2+
1990 11 22	809	(0.6+	2.2-)	1998 11 23	699	0.0	0.0	1999 02 16	704	1.0-	0.7+
1990 11 22	809	0.8+	1.3-	1998 11 23	699	0.2-	0.2+	1999 02 16	704	0.7+	0.9-
1996 04 17	691	0.7-	0.6-	1998 11 23	699	0.0	0.3-	1999 02 16	704	0.4+	0.3-
1996 04 17	691	0.8-	0.2-	1998 12 25	120	0.6-	0.4+	1999 02 16	704	0.8+	0.7+
1996 04 17	691	0.6-	0.1-	1998 12 26	120	0.1+	0.5+	1999 02 16	704	0.3+	0.7-

(10012)* 1978 RE₃ = 1986 WQ₁₀

Discovered 1978 Sept. 3 by N. S. Chernykh and L. G. Karachkina at the Crimean Astrophysical Observatory.

Id. K. Hurukawa (*MPC* 12452)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		Williams		<i>P</i>		<i>Q</i>	
<i>n</i>	92.26141	ω	81.89016	+0.91146839	-0.41072697				
<i>a</i>	2.4425944	Ω	302.35758	+0.36589447	+0.83498705				
<i>e</i>	0.1873423	<i>i</i>	1.55983	+0.18800693	+0.36619663				
<i>P</i>	3.82	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	1		

Residuals in seconds of arc

1978 09 02	809	0.8+	0.3-	1993 07 12	809	0.9-	0.3+	1999 01 10	691	0.6-	0.2-
1978 09 02	809	0.6+	0.6-	1993 07 12	809	1.1-	0.1+	1999 01 22	699	1.6-	0.6-
1978 09 02	809	0.5+	0.7-	1993 07 19	809	0.7-	0.7-	1999 01 22	699	0.7+	0.8-
1978 09 02	809	0.5+	0.8-	1993 07 19	809	0.4-	0.5-	1999 01 22	699	0.3+	0.1+
1978 09 02	809	0.4+	0.2-	1993 07 19	809	1.1-	0.5-	1999 02 12	699	0.9+	0.3+
1978 09 03	095	1.7-	1.2+	1993 07 23	809	(2.9+	1.2+)	1999 02 12	699	0.7+	1.2+
1978 09 06	809	0.5+	0.1-	1993 07 23	809	(3.2+	0.3+)	1999 02 12	699	0.5+	0.3-
1978 09 10	809	0.0	1.2+	1993 07 23	809	(3.2+	1.2+)	1999 02 13	704	(2.4+	1.3-)
1978 09 10	809	0.8+	0.7-	1993 07 26	809	(0.0	3.8-)	1999 02 13	704	1.7+	1.4-
1978 09 10	809	0.8+	0.7+	1993 07 26	809	(1.5-	2.5-)	1999 02 13	704	0.5+	0.4-
1978 09 10	809	0.4+	1.2-	1993 07 26	809	(2.0-	3.6-)	1999 02 13	704	0.2+	0.1-
1986 11 30	381	1.4-	0.1+	1997 10 05	910	1.1+	0.5+	1999 02 13	704	1.2+	0.1+
1986 11 30	381	0.2-	0.2+	1997 10 05	910	1.1+	0.4+	1999 02 16	704	1.0-	0.3-
1986 12 01	381	1.0-	0.1-	1997 10 05	910	1.0+	0.6+	1999 02 16	704	0.8-	0.6+
1986 12 01	381	0.9-	0.3+	1999 01 10	691	0.8-	0.3-	1999 02 16	704	0.2+	0.8-
1993 07 12	809	0.6-	0.4+	1999 01 10	691	0.6-	0.4-	1999 02 16	704	0.3+	0.4-

(10013)* 1978 RR₈ = 1990 TQ₄

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

Id. R. Nagata (*MPC* 17625)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		Williams		<i>P</i>		<i>Q</i>	
<i>n</i>	352.19471	ω	325.34664	-0.64373246	-0.76351674				
<i>a</i>	2.4384626	Ω	164.51111	+0.73846793	-0.63743869				
<i>e</i>	0.2349051	<i>i</i>	11.11569	+0.20068294	-0.10350895				
<i>P</i>	3.81	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	1		

Residuals in seconds of arc

1978 09 02	809	0.3-	0.9-	1993 08 14	010	1.7-	1.0-	1999 01 18	704	0.2+	0.2+
1978 09 02	809	0.3-	0.7-	1993 08 15	010	0.4-	1.7+	1999 01 18	704	(1.4+	2.6+)
1978 09 02	809	1.3-	1.3-	1997 09 01	557	0.1-	0.2+	1999 01 18	704	0.2-	0.8-
1978 09 02	809	0.4+	0.2-	1997 09 01	557	0.1-	0.2-	1999 01 18	704	0.1-	1.2-
1978 09 02	809	1.3-	0.9-	1997 09 02	557	0.3-	0.0	1999 01 20	704	1.4-	0.6-
1978 09 06	809	0.7+	0.5-	1997 09 02	557	0.7-	0.1+	1999 01 20	704	0.2+	0.9+
1978 09 10	809	0.4-	2.0+	1997 09 03	557	0.5-	0.2+	1999 01 20	704	0.1+	1.0+
1978 09 10	809	0.4+	1.5-	1997 09 03	910	1.0+	0.5+	1999 01 20	704	0.3-	0.8+
1978 09 10	809	1.4+	0.3+	1997 09 03	910	1.0+	0.5+	1999 01 23	682	(2.9-	2.8+)
1978 09 10	809	1.2+	0.2-	1997 09 03	910	1.0+	0.6+	1999 01 23	682	(3.3-	2.6+)
1989 07 29	675	0.0	0.6+	1998 11 23	704	1.8-	1.6+	1999 01 29	560	0.6+	0.2+
1989 07 29	675	0.4+	0.1-	1998 11 23	704	0.7-	1.0-	1999 01 29	560	0.1+	0.1-
1990 10 09	413	0.8+	0.5+	1998 11 23	704	1.3+	0.6+	1999 01 29	560	0.3+	0.1+
1990 10 09	413	(1.0+	2.1+)	1998 11 23	704	0.5-	0.0	1999 02 02	560	0.2-	0.9+
1990 10 20	413	0.1-	1.0-	1998 11 23	704	0.7+	0.5-	1999 02 02	560	0.2-	0.2+
1990 10 20	413	(2.2+	0.6+)	1998 12 22	704	0.7+	0.4-	1999 02 02	560	0.9+	0.5+

1992 04 30	801	0.0	0.2-	1998 12 22	704	(0.3-	2.4-)	1999 02 02	560	0.1-	0.3-
1992 04 30	801	0.2-	0.0	1998 12 22	704	0.2-	0.4+	1999 02 06	610	0.1-	0.1+
1992 05 06	801	0.3+	1.0-	1998 12 22	704	1.0-	1.3-	1999 02 06	610	0.2+	0.1+
1992 05 06	801	0.6-	0.4-	1998 12 22	704	1.7-	2.0-	1999 02 06	610	0.4+	0.1+
1992 05 30	801	0.1-	0.7-	1999 01 16	423	0.2+	0.6+	1999 02 06	610	0.8+	0.0
1992 05 30	801	0.1+	0.9-	1999 01 17	423	0.3+	0.4-	1999 02 06	610	0.9+	0.0
1993 08 14	010	(2.5-	0.2+)	1999 01 17	423	0.1-	0.6-				
1993 08 14	010	(2.2-	0.1+)	1999 01 18	704	0.0	0.3-				

(10014)* 1978 SE₃ = 1981 JY₂

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

Id. H. Oishi (*MPC* 10516), E. Bowell (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		Williams		<i>P</i>		<i>Q</i>	
<i>n</i>	169.30468	ω	97.24486	+0.60754611	+0.79383828				
<i>a</i>	2.4332130	Ω	210.21784	-0.74801965	+0.56056684				
<i>e</i>	0.1127177	<i>i</i>	3.03164	-0.26712230	+0.23576597				
<i>P</i>	3.80	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1		

Residuals in seconds of arc

1978 09 26	095	1.8-	0.5-	1996 04 21	566	0.6-	0.6+	1998 12 16	699	0.6+	0.2+
1978 10 02	095	0.1+	0.9+	1996 04 21	566	0.4-	1.0+	1998 12 23	120	1.9-	0.2-
1978 10 05	095	0.1-	0.4-	1997 09 25	560	0.8-	0.5+	1998 12 23	120	1.0-	0.1+
1978 10 08	095	0.3+	1.3-	1997 09 25	560	0.3-	0.8-	1998 12 24	120	0.0	0.2+
1981 05 05	675	0.1-	1.2+	1997 09 25	560	0.3-	0.6-	1998 12 25	120	1.4-	0.9-
1981 05 05	675	2.1+	0.5-	1997 09 25	610	0.9+	1.0+	1998 12 25	120	0.4+	0.0
1981 05 06	675	2.2-	0.3-	1997 09 25	610	0.8+	0.6+	1998 12 30	327	0.5+	0.3+
1981 05 10	675	1.2+	2.4-	1997 09 25	610	0.8+	0.1+	1998 12 30	327	0.1-	0.1+
1988 03 17	675	0.2+	0.6+	1997 09 26	560	0.9-	0.3-	1998 12 30	327	0.3+	0.5+
1988 03 17	675	2.3+	1.6+	1997 09 26	560	1.2-	0.5-	1999 01 06	327	0.1-	0.4+
1990 11 16	675	0.3+	0.1-	1997 09 26	560	0.6-	0.9+	1999 01 06	327	0.1+	0.2-
1990 11 16	675	1.1+	0.0	1997 10 05	610	0.4+	0.9+	1999 01 06	327	1.2-	1.3-
1992 04 07	691	0.7+	0.1-	1997 10 05	610	0.5+	0.8+	1999 01 18	704	0.6+	0.3-
1992 04 07	691	0.1-	0.2+	1997 10 05	610	0.8+	0.7+	1999 01 18	704	0.8+	0.2+
1992 04 07	691	0.4-	0.1+	1998 12 16	699	0.8+	0.6-	1999 01 18	704	0.9-	1.1-
1996 04 21	566	0.3-	0.8+	1998 12 16	699	0.4+	0.8-	1999 01 18	704	0.4-	2.0+

(10015)* 1978 SA₅ = 1991 RZ₁₂

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

Id. T. Kobayashi (*MPC* 21099)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		Williams		<i>P</i>		<i>Q</i>	
<i>n</i>	51.94485	ω	215.39691	+0.61712663	-0.78685352				
<i>a</i>	2.2031475	Ω	196.49769	+0.72516567	+0.57071927				
<i>e</i>	0.2003686	<i>i</i>	0.81359	+0.30543327	+0.23482133				
<i>P</i>	3.27	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	2		

Residuals in seconds of arc

1978 09 27	095	1.4-	1.9+	1996 03 19	566	0.7+	0.4+	1999 01 18	704	1.2+	0.8+
1978 10 03	095	0.1+	0.9+	1998 10 28	691	0.3-	0.2-	1999 01 18	704	0.2+	0.8+
1978 10 07	095	0.2-	1.4+	1998 10 28	691	0.4-	0.4-	1999 01 18	704	0.0	0.6-
1991 09 10	675	1.7+	0.3-	1998 10 28	691	0.4-	0.4-	1999 01 18	704	1.8-	0.8-
1991 09 10	675	1.4-	0.2-	1998 12 23	704	0.9+	0.5-	1999 02 11	699	1.3+	0.4+
1991 09 11	675	1.2+	1.9-	1998 12 23	704	(2.7+	0.4-)	1999 02 11	691	0.6+	0.5-
1991 09 11	675	(1.5-	4.2-)	1998 12 23	704	0.5-	0.1-	1999 02 11	699	0.4+	0.6-
1991 09 15	675	0.1+	1.3-	1998 12 29	732	0.0	0.5+	1999 02 11	691	0.6+	0.4-
1991 09 15	675	0.5+	1.3-	1998 12 29	732	0.1-	0.3-	1999 02 11	699	0.7+	0.6+
1996 02 26	596	0.5+	0.0	1998 12 29	732	0.0	0.4-	1999 02 11	691	0.6+	0.5-
1996 02 26	596	0.3+	0.3+	1999 01 09	120	0.5+	0.6+	1999 02 12	704	0.2+	0.3+
1996 02 26	596	0.3+	0.2+	1999 01 10	120	1.0+	0.5+	1999 02 12	704	0.6+	0.6+
1996 03 11	691	0.3-	0.1-	1999 01 10	699	1.1+	0.1+	1999 02 12	704	0.2+	0.8-
1996 03 11	691	0.3-	0.2-	1999 01 10	699	0.5+	0.2+	1999 02 12	704	0.9-	1.0-
1996 03 11	691	0.3-	0.2-	1999 01 10	699	0.8+	0.1+	1999 02 12	704	1.1-	0.2+

1996 03 18	691	0.8–	0.2–	1999 01 13	120	0.1+	0.2+	1999 02 16	704	1.2–	2.0–
1996 03 18	691	0.7–	0.2–	1999 01 15	120	0.2+	0.1–	1999 02 16	704	0.7+	0.5–
1996 03 18	691	0.8–	0.1–	1999 01 15	120	0.4–	0.3–	1999 02 16	704	0.1+	0.3+
1996 03 19	566	0.6+	0.1–	1999 01 17	691	2.0–	0.0	1999 02 16	704	0.3+	0.2+
1996 03 19	566	0.7+	0.3+	1999 01 17	691	1.9–	0.0	1999 02 16	704	1.2–	1.0+

(10016)* 1978 SW₇ = 1974 RT₁ = 1997 UO₄

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

Id. G. V. Williams (*MPC* 30867)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25597313	<i>ω</i>	47.68728	+0.93435448		−0.35452080	
<i>a</i>	2.4566303	<i>Ω</i>	333.01777	+0.29912949		+0.83523582	
<i>e</i>	0.1395534	<i>i</i>	4.55218	+0.19365758		+0.42035239	
<i>P</i>	3.85	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1974 09 14	095	0.1+	0.2–	1997 10 17	327	0.7–	0.1+	1999 01 19	704	0.6+	0.9–
1978 09 26	095	0.5–	0.4+	1997 10 18	327	0.3–	0.4+	1999 01 19	704	0.5+	0.1–
1978 10 02	095	0.9+	0.6+	1997 10 18	327	0.2–	0.3+	1999 01 19	704	0.0	0.8+
1978 10 08	095	0.4+	0.7–	1997 10 18	327	0.2–	0.1+	1999 01 19	704	0.5–	1.7+
1978 10 27	675	0.3–	0.5–	1997 10 18	327	0.5+	0.6+	1999 01 19	704	0.7–	0.4+
1978 10 28	675	0.1+	0.1–	1997 10 19	327	0.1+	0.2+	1999 02 10	704	0.3–	0.6–
1978 11 28	675	0.6–	0.6–	1997 10 19	327	0.2+	0.2+	1999 02 10	704	0.3+	0.1+
1978 11 29	675	0.4+	0.4–	1997 10 19	327	0.2+	0.3+	1999 02 10	704	0.5+	0.2+
1997 10 17	327	0.5+	0.3+	1999 01 10	699	0.5–	0.1+	1999 02 10	704	0.2–	0.0
1997 10 17	327	1.0–	0.2–	1999 01 10	699	0.2–	0.3–	1999 02 10	704	0.1–	0.6+
1997 10 17	327	0.2–	0.0	1999 01 10	699	0.9+	0.6–				

(10017)* 1978 UP₂ = 1975 XJ₃ = 1987 KK = 1996 CD₃

Discovered 1978 Oct. 30 at the Purple Mountain Observatory.

Id. K. Kinoshita (*MPC* 27102)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30501665	<i>ω</i>	272.72341	+0.59276097		+0.80048197	
<i>a</i>	2.1856822	<i>Ω</i>	34.13245	−0.66179688		+0.54686912	
<i>e</i>	0.1469457	<i>i</i>	9.09277	−0.45897639		+0.24528102	
<i>P</i>	3.23	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1975 12 02	095	1.4–	1.8+	1996 02 12	399	1.1–	0.9–	1999 01 09	699	0.8+	0.9+
1978 10 28	675	0.1–	1.8–	1996 02 16	399	(3.6–	1.6–)	1999 02 10	704	0.5+	0.0
1978 10 29	675	1.7+	1.1–	1996 02 16	399	(3.3–	1.6–)	1999 02 10	704	1.1+	0.2–
1978 10 30	330	0.8+	0.3+	1996 02 22	399	1.4–	0.9+	1999 02 10	704	0.7+	0.7–
1987 05 22	675	2.5+	1.0+	1996 02 22	399	(3.3–	1.1+)	1999 02 10	704	0.2+	0.0
1987 05 23	675	(3.5+	2.6+)	1996 02 24	399	0.2–	1.7+	1999 02 10	704	0.5+	0.8–
1990 04 22	675	(2.7–	0.6–)	1996 02 24	399	1.2–	0.4–	1999 02 12	699	0.2+	0.5+
1993 03 24	675	1.7–	0.5+	1998 12 21	704	0.5+	0.1+	1999 02 12	699	1.2+	0.5+
1993 03 24	675	0.8–	0.7+	1998 12 21	704	0.3–	0.5–	1999 02 12	699	0.1–	0.5+
1994 09 11	675	1.0–	0.6+	1998 12 21	704	0.9+	0.6–	1999 02 13	704	0.7+	0.6–
1994 09 11	675	1.0–	0.8+	1998 12 21	704	0.9+	0.9–	1999 02 13	704	0.3+	0.2+
1994 11 04	675	1.1–	0.9+	1998 12 21	704	0.3–	0.1–	1999 02 13	704	0.1–	0.2+
1994 11 04	675	0.9–	0.2+	1999 01 09	699	0.1+	1.2+	1999 02 13	704	0.4–	1.0–
1996 02 12	399	0.1–	1.7+	1999 01 09	699	0.4+	0.9+	1999 02 13	704	0.2+	0.1–

(10018)* 1979 MG₄ = 1996 RJ₇

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

Id. G. V. Williams (*MPC* 27908)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18102476	<i>ω</i>	81.75126	−0.43518724		+0.90029736	
<i>a</i>	3.0948818	<i>Ω</i>	162.44352	−0.83705662		−0.40099634	
<i>e</i>	0.1408524	<i>i</i>	1.66408	−0.33158450		−0.16931214	
<i>P</i>	5.44	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1979 06 23	413	0.9+	0.3–	1996 10 07	809	(2.9+	2.1+)	1999 01 13	691	0.5–	0.0
1979 06 24	413	0.9–	0.6–	1996 10 07	809	(3.2+	2.2+)	1999 01 13	691	0.6–	0.1–
1979 06 25	413	1.4–	0.1–	1996 10 07	809	(2.1+	2.8+)	1999 01 13	691	0.6–	0.1+
1979 06 29	413	1.7–	0.1+	1997 12 05	704	0.2+	0.3+	1999 01 18	704	1.6+	1.1+
1979 07 24	675	1.6+	0.7+	1997 12 05	704	1.9–	0.0	1999 01 18	704	0.8+	1.4+
1979 07 24	413	0.6+	0.9–	1997 12 05	704	0.3+	1.9–	1999 01 18	704	0.9–	1.3–
1979 07 25	675	0.6+	0.2+	1997 12 05	704	0.0	0.6+	1999 01 18	704	(3.3–	0.4–)
1979 07 27	675	1.7+	1.4–	1997 12 05	704	0.1+	1.1–	1999 01 20	704	1.2+	0.7+
1979 08 23	675	1.2–	0.4–	1998 02 27	327	0.4+	0.6–	1999 01 20	704	1.2+	0.5+
1996 09 05	691	0.3–	0.1+	1998 02 27	327	1.1+	0.0	1999 01 20	704	0.5–	0.6–
1996 09 05	691	0.2–	0.2+	1998 02 27	327	1.0+	0.8+	1999 01 20	704	0.1+	1.4+
1996 09 05	691	0.3–	0.1–	1998 12 13	691	1.1–	0.0	1999 01 22	691	0.6–	0.1+
1996 09 08	691	0.2+	0.3–	1998 12 13	691	1.1–	0.2–	1999 01 22	691	0.6–	0.2–
1996 09 08	691	0.3+	0.0	1998 12 13	691	1.1–	0.1+	1999 01 22	691	0.6–	0.2–
1996 09 19	691	0.4–	0.1+	1998 12 22	691	0.6–	0.8–	1999 02 12	704	0.0	0.8+
1996 09 19	691	0.5–	0.4+	1998 12 22	691	0.5–	0.8–	1999 02 12	704	0.5+	1.8–
1996 09 19	691	0.3–	0.1–	1998 12 22	691	0.5–	0.4–	1999 02 12	704	1.2+	0.1+
1996 10 06	809	(2.8+	3.0+)	1998 12 28	691	0.0	0.1–	1999 02 12	704	1.3+	0.1+
1996 10 06	809	(2.1+	2.7+)	1998 12 28	691	0.0	0.3–	1999 02 12	704	1.2+	0.4–
1996 10 06	809	1.0+	1.8+	1998 12 28	691	0.1+	0.1+				

(10019)* 1979 MK₇ = 1978 JQ₃

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

Id. S. J. Bus (*MPC* 13164)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18169555	<i>ω</i>	280.07846	−0.83492746		−0.54918558	
<i>a</i>	3.0872599	<i>Ω</i>	226.62105	+0.52232949		−0.77014063	
<i>e</i>	0.1080115	<i>i</i>	2.83392	+0.17340136		−0.32446666	
<i>P</i>	5.42	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1978 05 09	675	0.4–	1.4+	1997 12 04	704	0.4+	1.8+	1999 02 12	704	0.3–	0.1–
1978 05 10	675	0.1–	1.2+	1997 12 04	704	1.2+	1.0+	1999 02 12	699	0.4+	0.4+
1979 06 23	413	(7.5–	0.4+)	1997 12 04	704	0.4–	0.3+	1999 02 12	704	0.1+	0.2+
1979 06 24	413	1.0–	0.6+	1999 01 13	426	0.1+	0.2+	1999 02 12	704	0.8+	0.9+
1979 06 25	413	1.7+	1.1+	1999 01 13	426	1.1–	0.1–	1999 02 12	699	0.3+	0.2+
1979 06 29	413	1.6+	1.2+	1999 01 13	426	0.9+	0.6–	1999 02 12	704	0.4+	0.5–
1979 07 24	675	(4.8+	0.1+)	1999 01 14	426	0.4–	0.3+	1999 02 12	699	0.7+	0.2–
1979 07 24	413	(2.9+	0.3+)	1999 01 14	426	0.2–	0.3+	1999 02 12	704	0.0	1.2+
1979 07 25	675	0.9+	0.7+	1999 01 14	426	0.7+	0.2+	1999 02 16	704	0.3–	0.0
1979 08 23	675	0.9–	0.4+	1999 01 15	699	0.0	0.1+	1999 02 16	704	0.1+	0.8+
1991 10 08	691	1.8–	0.7–	1999 01 15	699	0.2+	0.4–	1999 02 16	704	0.4–	0.1–
1991 10 08	691	1.3–	0.2–	1999 01 15	699	0.2–	0.2+	1999 02 16	704	0.4–	0.2+
1991 10 08	691	1.0–	0.4–	1999 01 18	704	1.5+	0.1+	1999 02 16	704	0.3–	0.2+
1996 09 16	566	0.1+	0.0	1999 01 18	704	0.1+	0.3–	1999 02 18	566	0.6–	0.4–
1996 09 16	566	0.8–	0.0	1999 01 18	704	1.1–	0.6–	1999 02 18	566	0.6–	0.5–
1996 09 16	566	0.0	0.0	1999 01 18	704	0.5+	1.3+	1999 02 18	566	0.5–	0.3–
1997 12 04	704	1.3+	1.2+	1999 01 18	704	0.3+	0.0				

1999 MAR. 2

M.P.C. 33863

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5						Williams					
<i>M</i>	223.59881	(2000.0)		P		Q					
<i>n</i>	0.17867743	ω	323.57303	−0.07236618		+0.99480569					
<i>a</i>	3.1219282	Ω	302.17361	−0.89393926		−0.09652409					
<i>e</i>	0.0769029	<i>i</i>	4.85158	−0.44230730		+0.03232230					
<i>P</i>	5.52 <th><i>H</i></th> <td>12.6<th><i>G</i></th><td>0.15<th><i>U</i></th><td>1<td colspan="4"></td></td></td></td>	<i>H</i>	12.6 <th><i>G</i></th> <td>0.15<th><i>U</i></th><td>1<td colspan="4"></td></td></td>	<i>G</i>	0.15 <th><i>U</i></th> <td>1<td colspan="4"></td></td>	<i>U</i>	1 <td colspan="4"></td>				
Residuals in seconds of arc											
1979 07 24	675	0.7−	1.2+	1997 12 06	704	0.7+	0.2−	1999 01 19	704	1.4+	0.5−
1979 07 25	675	1.1−	1.4+	1997 12 06	704	1.2−	0.0	1999 01 22	691	0.2+	0.0
1986 11 30	381	0.1−	0.2+	1997 12 06	704	1.5+	0.6+	1999 01 22	691	0.0	0.3−
1986 11 30	381	0.4−	0.6+	1997 12 27	691	1.3−	0.4+	1999 02 09	691	0.1+	0.6−
1986 12 01	381	1.2+	1.2+	1997 12 27	691	1.3−	0.2+	1999 02 09	691	0.4+	0.6−
1986 12 01	381	0.2+	0.6−	1997 12 27	691	1.5−	0.3+	1999 02 09	691	0.4+	1.2−
1990 04 27	413	(2.7+	0.3−)	1998 01 01	691	(2.4−	0.5+)	1999 02 12	691	0.6+	0.3−
1990 04 27	413	0.6+	0.6−	1998 01 01	691	(2.2−	0.3+)	1999 02 12	691	0.7+	0.2−
1990 04 30	413	(3.2+	0.3+)	1998 01 01	691	(2.4−	0.5+)	1999 02 12	691	0.5+	0.1−
1990 04 30	413	0.8+	0.1+	1999 01 14	691	0.8−	0.2−	1999 02 13	704	0.6+	0.4+
1991 09 13	675	1.8+	0.1−	1999 01 14	691	0.9−	0.2−	1999 02 13	704	0.4−	1.9+
1991 09 13	675	1.0+	0.1+	1999 01 14	691	0.7−	0.5−	1999 02 13	704	(0.6+	2.4+)
1991 09 14	675	0.5−	0.9−	1999 01 19	704	(3.0+	1.2−)	1999 02 13	704	1.6−	2.0+
1991 09 14	675	0.8−	1.5−	1999 01 19	704	0.2+	0.8+	1999 02 13	704	(2.8−	0.5−)
1997 12 06	704	0.8+	0.0	1999 01 19	704	0.6−	0.2+				

(10021)* 1979 QC₁ = 1954 SH

Discovered 1979 Aug. 22 by C.-I. Lagerkvist at the European Southern Observatory.

Id. C. M. Bardwell (*MPC* 11518)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5						Bardwell					
M	100.93630			(2000.0)		P			Q		
n	0.27408405			ω 60.54659		+0.88096586			−0.45976115		
a	2.3471826			Ω 326.46251		+0.33271387			+0.77001324		
e	0.1733977			i 11.68424		+0.33645303			+0.44237913		
P	3.60			H 14.4		G 0.15			U 2		
Residuals in seconds of arc											
1954 09 23	760	1.5+	1.3+	1997 08 10	691	0.3−	0.2−	1997 09 25	426	0.6+	0.3+
1954 09 27	760	0.6+	0.4+	1997 08 10	691	0.3−	0.3+	1997 09 25	426	0.5+	0.3+
1954 09 27	760	0.1−	0.9+	1997 08 10	691	0.0	0.2+	1997 10 31	566	0.7+	0.4−
1979 08 22	809	1.5−	0.4−	1997 08 27	886	1.1+	0.0	1997 10 31	566	0.4−	0.6−
1979 08 22	809	0.2+	0.4+	1997 08 27	886	0.8+	0.4+	1997 10 31	566	0.0	0.2+
1979 08 22	809	0.9−	0.0	1997 08 31	610	(2.8+	0.9+)	1998 12 17	699	0.0	0.4+
1979 08 23	809	1.8−	0.8−	1997 08 31	610	(2.7+	0.7+)	1998 12 17	699	0.2−	0.3+
1979 08 23	809	0.9−	0.7−	1997 08 31	610	(2.7+	0.5+)	1998 12 17	699	0.1−	1.1+
1979 08 26	809	1.5+	0.1+	1997 09 03	886	1.9+	0.4−	1999 01 15	699	0.4+	0.5+
1979 08 26	809	1.7−	0.0	1997 09 03	886	0.9+	0.0	1999 01 15	699	0.1−	0.7+
1979 08 26	809	(3.3−	0.2+)	1997 09 06	610	(2.7+	0.9+)	1999 01 15	699	0.6+	0.2−
1979 08 30	809	1.8−	0.6+	1997 09 06	610	(2.3+	0.6+)	1999 02 16	704	0.3−	1.0−
1979 08 30	809	1.6−	0.6+	1997 09 06	610	(2.1+	0.5+)	1999 02 16	704	0.4−	0.1+
1990 09 22	657	1.5−	1.0−	1997 09 21	426	0.5+	0.1+	1999 02 16	704	0.1+	0.1−
1990 09 22	657	0.6−	0.7−	1997 09 21	426	0.7+	0.1+	1999 02 16	704	0.4+	0.3+
1990 11 15	801	0.2−	0.1−	1997 09 21	426	0.9+	0.2+	1999 02 16	704	0.8+	0.1−
1990 11 15	801	0.1−	0.1+	1997 09 25	426	0.7+	0.2+				

(10022)* 1979 SU₂ = 1990 SL₄

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

Id. G. V. Williams (*MPC* 17198)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5						Williams					
M	89.34960		(2000.0)		P		Q				
n	0.27029837		ω	154.27952	+0.84313660		−0.53174240				
a	2.3690475		Ω	238.07328	+0.47567201		+0.80682494				
e	0.1319004		i	5.39624	+0.25071262		+0.25745588				
P	3.65		H	13.8	G	0.15	U	1			
Residuals in seconds of arc											
1979 09 18	675	0.3+	0.2−	1997 08 08	589	0.3−	0.2−	1997 09 29	402	0.6−	0.1−
1979 09 19	675	0.1+	0.3−	1997 08 08	589	0.5−	0.0	1997 09 29	402	0.6−	0.1−
1979 09 22	049	0.5−	0.2+	1997 08 08	589	0.3−	0.1−	1997 09 29	402	0.6−	0.1−
1979 09 22	049	0.8−	0.4−	1997 08 12	355	0.4+	0.1+	1997 11 30	566	0.0	0.3+
1979 09 22	049	0.4+	1.0+	1997 08 12	355	0.2+	0.2−	1997 11 30	566	0.4−	0.3+
1979 09 22	095	0.8+	0.3+	1997 08 12	355	0.5+	0.2+	1997 11 30	566	0.4−	0.7+
1979 09 28	095	0.5−	0.5−	1997 08 12	355	0.4+	0.9−	1999 01 18	704	1.7+	1.8−
1990 09 26	372	0.3−	0.5−	1997 08 12	355	0.2+	0.1+	1999 01 18	704	0.6−	0.3−
1990 09 26	372	0.4+	0.1+	1997 08 30	589	0.5−	0.4−	1999 01 18	704	0.4−	0.3−
1990 10 08	372	(4.2−	1.0−)	1997 08 30	589	0.7−	0.1+	1999 01 18	704	1.3−	0.1−
1990 10 08	372	(2.6−	0.5+)	1997 08 30	589	0.4−	0.7−	1999 01 18	704	0.6−	0.2−
1990 10 10	033	0.2+	0.1−	1997 08 30	589	0.0	0.8−	1999 02 12	704	0.1+	0.0
1990 10 11	033	0.0	0.4+	1997 08 31	610	0.0	0.5+	1999 02 12	704	1.0+	0.2−
1990 10 11	033	0.4+	0.1−	1997 08 31	610	0.3+	0.3+	1999 02 12	704	0.4+	0.3−
1990 10 12	033	0.6+	0.5+	1997 08 31	610	0.5+	0.1+	1999 02 12	704	0.5−	1.4+
1990 10 13	033	0.7+	0.6−	1997 09 06	610	1.4+	0.9+	1999 02 12	704	0.4+	1.4+
1990 10 14	033	0.3−	0.3+	1997 09 06	610	1.1+	1.1+	1999 02 16	704	0.2−	0.4+
1990 10 15	372	(3.3−	0.8−)	1997 09 06	610	0.8+	1.3+	1999 02 16	704	0.3−	0.1+
1990 10 15	372	1.3−	0.3−	1997 09 28	402	0.3−	0.5−	1999 02 16	704	0.2+	0.0
1990 10 15	095	(0.7−	4.1+)	1997 09 28	402	0.6−	0.5−	1999 02 16	704	0.4+	0.0
1990 10 15	095	(0.0	6.0+)	1997 09 28	402	0.4−	0.2−	1999 02 16	704	0.4−	0.0

(10023)* 1979 WX₃ = 1975 VQ₃

Discovered 1979 Nov. 17 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Id. T. Furuta (*JAM* 1873)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5							Williams				
M	44.23637		(2000.0)		P		Q				
n	0.25950239		ω	266.77123	+0.85266230		−0.52172635				
a	2.4343058		Ω	124.67513	+0.49174250		+0.78346911				
e	0.1771532		i	1.93188	+0.17651150		+0.33760594				
P	3.80 <th>H</th> <td>14.0<th>G</th><td>0.15<th>U</th><td>1<td colspan="3"></td></td></td></td>		H	14.0 <th>G</th> <td>0.15<th>U</th><td>1<td colspan="3"></td></td></td>	G	0.15 <th>U</th> <td>1<td colspan="3"></td></td>	U	1 <td colspan="3"></td>			
Residuals in seconds of arc											
1950 03 22	675	0.1+	0.1−	1992 03 11	691	1.2−	0.0	1998 12 02	744	0.4−	0.4+
1950 03 22	675	0.1+	0.1+	1992 03 11	691	0.6−	0.2−	1998 12 02	744	0.1+	0.1−
1954 02 10	675	0.2−	0.9−	1992 03 11	691	0.8−	0.2−	1998 12 08	631	0.3+	0.5−
1954 02 10	675	1.3+	0.5+	1992 04 06	809	0.5−	0.0	1998 12 08	631	0.2+	0.5+
1975 11 02	095	(0.0	4.0−)	1993 05 14	809	(2.3−	2.2−)	1998 12 10	631	0.0	0.1+
1975 11 07	095	(2.9+	1.6−)	1993 05 14	809	(2.3−	1.8−)	1998 12 10	631	0.0	0.5+
1979 11 17	095	(7.6−	1.6+)	1993 05 14	809	(5.0−	2.0−)	1998 12 15	704	0.0	0.1+
1979 12 14	095	1.0+	0.5−	1993 05 15	809	(1.7−	2.7−)	1998 12 15	704	0.1+	0.8−
1979 12 18	095	1.4−	2.4+	1993 05 15	809	(1.9−	2.0−)	1998 12 15	704	0.1+	0.6−
1990 08 29	675	1.3−	1.8−	1993 05 15	809	(4.5−	1.4−)	1998 12 15	704	0.1−	0.4−
1990 08 29	675	(2.2+	0.4+)	1993 05 23	809	1.4+	0.3−	1998 12 15	704	0.4−	0.0
1990 09 14	675	0.4−	0.4+	1993 05 23	809	1.2+	1.2−	1998 12 16	704	0.5+	0.3+
1990 09 14	675	0.1−	0.6+	1993 05 23	809	1.5+	0.9−	1998 12 16	704	1.0−	0.6−
1990 09 18	809	0.2−	0.5−	1994 10 04	801	(0.6+	2.4+)	1998 12 16	704	0.7+	0.8−
1990 09 18	809	0.3+	0.5−	1994 10 07	801	0.2+	0.3+	1998 12 16	704	0.7+	0.8−
1990 09 18	809	0.7+	0.4−	1994 10 07	801	0.3+	0.8+	1998 12 16	704	1.6+	1.4−
1990 09 20	675	0.2−	0.4+	1996 03 17	566	0.1+	0.2−	1998 12 16	426	0.1−	0.2−
1990 09 20	675	0.2+	0.0	1996 03 17	566	0.1−	0.4−	1998 12 16	426	0.2−	0.3−
1990 09 21	809	1.6−	0.7+	1996 03 17	566	0.0	0.2−	1998 12 16	426	0.1−	0.3−
1990 09 21	809	1.0−	0.6+	1996 03 19	566	0.1−	0.8+	1998 12 18	426	0.3−	0.2+
1990 09 21	809	0.4−	0.5+	1996 03 19	566	0.3+	0.6+	1998 12 18	426	0.2+	0.1−
1990 10 16	801	0.0	0.1+	1996 03 19	566	0.3−	0.5+	1998 12 18	426	0.4+	0.1+
1990 10 16	801	0.1−	0.1+	1996 04 19	566	0.5−	0.0	1998 12 22	704	0.2+	0.0

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1990 10 17	801	0.1+	0.2-	1996 04 17	566	0.3-	0.7+	1998 12 22	704	1.1+	0.6+
1990 10 17	801	0.2+	0.1+	1996 04 17	566	1.0-	0.4-	1998 12 22	704	0.7+	0.8-
1992 03 06	809	0.4-	1.3+	1998 11 28	744	0.2-	0.1+	1998 12 22	704	0.8-	0.9+
1992 03 08	809	0.5+	1.2+	1998 11 28	744	0.2-	0.2-				
1992 03 09	809	0.0	1.5+	1998 11 28	744	0.3+	0.2+				

(10024)* 1980 EB = 1978 UG₄ = 1984 GP

Discovered 1980 Mar. 10 at the Agassiz Station of the Harvard College Observatory.

Id. C. M. Bardwell (*MPC* 12714), S. J. Bus (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25710863	ω	210.73927	-0.83444339	+0.55109112		
<i>a</i>	2.4493919	Ω	2.70439	-0.49811135	-0.75291331		
<i>e</i>	0.0941774	<i>i</i>	2.03844	-0.23577388	-0.35975008		
<i>P</i>	3.83	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1954 07 01	675	0.7-	0.1+	1997 10 04	691	0.8-	0.5-	1998 12 17	910	0.3-	0.3+
1954 07 01	675	1.6+	0.8+	1997 10 04	691	0.7-	0.9-	1998 12 18	910	0.4-	0.3+
1978 10 28	675	(0.2-	5.5+)	1997 10 04	691	0.4-	0.6-	1998 12 18	910	0.0	0.2+
1978 10 29	675	(1.4+	5.0+)	1997 10 10	691	0.4-	0.5-	1998 12 18	910	0.1+	0.3+
1980 03 10	801	0.3-	1.1+	1997 10 10	691	0.4-	0.6-	1999 01 13	699	0.8+	0.2+
1980 03 12	801	1.2+	0.6-	1997 10 10	691	0.2-	0.9-	1999 01 13	699	0.3+	0.5-
1980 03 13	801	2.0-	0.3-	1997 11 03	704	1.6+	1.5+	1999 01 13	699	0.6+	0.2-
1980 04 20	801	0.2-	0.1-	1997 11 03	704	0.9+	0.8+	1999 02 10	704	0.6+	0.1-
1980 05 16	801	(1.1+	5.3+)	1997 11 03	704	(3.4+	2.2+)	1999 02 10	704	0.8+	0.5-
1980 05 17	801	(2.6+	7.4+)	1997 11 03	704	1.7-	1.1+	1999 02 10	704	0.5+	0.8-
1984 04 04	071	1.1-	0.1-	1998 01 11	557	0.8+	0.4+	1999 02 10	704	0.0	0.4-
1984 04 04	071	1.3-	0.1+	1998 01 11	557	1.3+	0.1-	1999 02 10	704	1.3-	0.3-
1984 04 05	071	1.5+	0.1+	1998 01 11	557	1.6+	0.6+	1999 02 13	704	0.8+	0.2-
1989 09 29	675	1.4-	0.5+	1998 12 16	910	0.6-	0.4+	1999 02 13	704	0.6+	0.4+
1989 09 29	675	0.5+	0.5+	1998 12 16	910	0.7-	0.5+	1999 02 13	704	0.4+	0.4+
1997 09 29	691	0.2-	0.7-	1998 12 16	910	0.6-	0.4+	1999 02 13	704	0.6+	0.1-
1997 09 29	691	0.2-	0.5-	1998 12 17	910	0.7-	0.4+	1999 02 13	704	0.4+	0.3+
1997 09 29	691	0.1-	0.6-	1998 12 17	910	0.1-	0.3+				

(10025)* 1980 FO₁ = 1973 YB₂ = 1987 SM₁₁ = 1990 DN₃

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

Id. R. Nagata (*MPC* 17427)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19894176	ω	90.93198	+0.70389211	-0.71013634		
<i>a</i>	2.9061548	Ω	314.31425	+0.64273610	+0.64610693		
<i>e</i>	0.0646071	<i>i</i>	1.24651	+0.30236766	+0.27973597		
<i>P</i>	4.95	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1973 12 20	095	1.9+	1.3-	1990 02 27	809	1.1+	0.8+	1998 12 14	704	0.3+	0.4-
1980 03 16	809	0.7-	0.5+	1992 08 02	801	1.2+	0.5-	1998 12 14	704	0.4+	0.3-
1980 03 16	809	0.3+	0.2+	1992 08 02	801	1.2-	1.7-	1998 12 17	704	0.1+	0.2-
1980 03 16	809	0.4-	0.4+	1992 08 24	801	0.1-	0.8+	1998 12 17	704	0.2+	0.1-
1980 03 16	809	0.2-	0.3-	1992 08 24	801	0.1+	0.8+	1998 12 17	704	1.2+	0.4+
1980 03 17	809	0.3+	0.1-	1992 09 03	894	0.7+	1.4-	1998 12 17	704	1.0+	0.1+
1980 03 17	809	0.4-	0.6-	1992 09 03	894	1.2+	0.8-	1998 12 17	704	0.1+	1.0-
1980 03 17	809	0.1-	0.6-	1992 09 05	894	(3.3+	2.3-)	1999 01 05	716	0.5-	0.4-
1980 03 17	809	0.3-	0.2-	1992 09 05	894	(2.0+	0.1+)	1999 01 05	716	0.4+	0.7-
1980 03 23	809	0.1-	0.1+	1993 12 13	801	0.2-	0.7-	1999 01 06	716	0.2-	0.4-
1987 09 16	809	1.7-	0.8+	1993 12 13	801	0.8-	0.6-	1999 01 06	716	0.7-	0.2+
1987 09 16	809	1.3-	0.6+	1993 12 18	801	0.7-	0.5-	1999 01 16	704	0.3-	0.4+
1987 09 16	809	0.0	0.3+	1993 12 18	801	0.6-	0.5-	1999 01 16	704	0.1+	0.8+
1990 02 24	809	0.1-	0.1+	1996 06 19	689	1.6+	0.0	1999 01 16	704	0.3+	0.9+
1990 02 24	809	0.1+	0.1-	1998 10 20	689	0.7-	0.2-	1999 01 16	704	0.9-	1.0+
1990 02 24	809	0.2+	0.1-	1998 12 03	758	0.1-	0.3+	1999 01 16	704	(2.3-	3.5+)

1999 MAR. 2

1990 02 26	809	1.2-	0.9-	1998 12 03	758	0.2+	0.4+	1999 01 19	704	0.1-	0.6+
1990 02 26	809	0.8-	1.0-	1998 12 03	758	0.1-	0.2+	1999 01 19	704	0.3-	1.1+
1990 02 26	809	0.4-	1.0-	1998 12 14	704	0.2+	0.0	1999 01 19	704	0.3+	0.6+
1990 02 27	809	0.4+	0.9+	1998 12 14	704	0.2+	0.1-	1999 01 19	704	0.4+	1.5+
1990 02 27	809	0.7+	0.8+	1998 12 14	704	0.1-	0.5-	1999 01 19	704	(3.4-	3.0+)

(10026)* 1980 RE₁ = 1976 SX₇ = 1976 SW₈ = 1996 JO₁

Discovered 1980 Sept. 3 by A. Mrkos at Klet.

Id. S. Nakano (*MPC* 27302)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23919579	ω	133.25309	+0.72129477	+0.69258465		
<i>a</i>	2.5702006	Ω	182.94402	-0.67120975	+0.69617773		
<i>e</i>	0.1735508	<i>i</i>	8.70109	-0.17091324	+0.18884670		
<i>P</i>	4.12	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1976 09 25	095	1.8+	2.0+	1996 06 19	046	0.7-	0.2+	1999 01 22	046	0.1+	0.2-
1976 09 28	095	(4.6+	2.5+)	1996 06 19	046	0.6-	0.0	1999 01 22	046	0.0	0.2+
1980 09 03	046	0.6+	2.3-	1997 10 23	046	0.2+	0.1+	1999 02 12	704	0.5+	1.5-
1980 09 03	046	0.1+	2.0-	1997 10 23	046	0.1+	0.2+	1999 02 12	704	1.4-	1.2-
1980 09 06	046	(2.7-	2.0-)	1997 10 23	046	0.0	0.1+	1999 02 12	704	0.1-	0.6-
1980 09 06	046	0.3-	0.6-	1997 11 01	046	0.0	0.0	1999 02 12	704	0.3-	0.2-
1980 09 08	046	0.6-	1.2+	1997 11 01	046	0.1+	0.1+	1999 02 12	704	0.6+	0.1+
1980 09 08	046	1.6-	0.2-	1997 11 01	046	0.1-	0.1-	1999 02 16	704	0.7+	1.2-
1996 05 13	358	0.7+	0.4+	1999 01 15	699	0.4-	0.9+	1999 02 16	704	0.7-	0.5-
1996 05 13	358	1.8+	0.2+	1999 01 15	699	0.0	1.9+	1999 02 16	704	0.1-	0.4+
1996 05 14	358	1.4+	0.8-	1999 01 15	699	(0.6-	2.7+)	1999 02 16	704	1.0-	1.3-
1996 05 14	358	0.4+	1.2+	1999 01 21	046	0.2-	0.1-	1999 02 16	704	0.8-	0.1+
1996 05 19	358	0.6-	0.1-	1999 01 21	046	0.2+	0.3+	1999 02 25	046	0.6+	0.0
1996 05 19	358	0.8-	0.4-	1999 01 21	046	0.0	0.1-	1999 02 25	046	0.3+	0.4+
1996 06 19	046	0.5-	0.1-	1999 01 22	046	0.1-	0.2+	1999 02 25	046	0.6+	0.3+

(10027)* 1981 FL = 1970 GM₁ = 1990 UV₇ = 1990 UC₈ = 1990 UD₉

Discovered 1981 Mar. 30 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. S. Nakano (d, *MPC* 19057; *MPC* 20922)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27031070	ω	357.38754	-0.99962583	+0.02551286		
<i>a</i>	2.3689754	Ω	184.11340	-0.02193523	-0.96312312		
<i>e</i>	0.1882061	<i>i</i>	7.90349	-0.01634127	-0.26784874		
<i>P</i>	3.65	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1953 10 01	675	2.6-	0.3+	1992 04 27	691	0.6-	0.4+	1998 11 25	704	0.3-	0.5+
1970 04 11	805	0.1+	1.3+	1993 09 14	691	1.0-	0.5-	1998 11 25	704	0.2-	0.6+
1970 04 11	805	1.3+	0.3+	1993 09 14	691	1.8-	0.2-	1999 02 10	426	0.1-	0.4+
1970 04 11	805	0.9+	1.0+	1993 09 14	691	1.2-	0.2-	1999 02 10	426	0.2-	0.6+
1981 03 30	688	1.7+	1.4-	1993 09 20	675	0.3+	2.3+	1999 02 10	426	0.1-	0.6+
1981 03 30	688	0.0	1.7-	1993 09 20	675	1.2+	1.1-	1999 02 12	704	0.2-	0.1-
1981 04 05	688	0.6+	1.4-	1996 06 17	596	0.2-	0.7+	1999 02 12	704	0.5+	0.9-
1981 04 05	688	0.6-	1.2-	1996 06 17	596	0.4-	1.3+	1999 02 12	704	0.3+	0.5-
1981 04 10	688	2.3-	0.1-	1996 06 17	596	0.1+	0.8+	1999 02 12	704	2.3+	0.5-
1981 04 10	688	1.1-	1.0-	1996 06 23	327	0.9+	0.7+	1999 02 12	704	1.1-	1.3+
1990 10 19	809	0.1+	1.5+	1996 06 23	327	1.0+	0.9+	1999 02 12	426	0.0	0.4+
1990 10 19	809	0.6-	1.3+	1996 06 23	327	1.0+	0.2+	1999 02 12	426	0.1-	0.6+
1990 10 19	809	0.1+	1.1+	1997 10 30	688	0.0	0.2-	1999 02 12	426	0.1+	0.5+
1990 10 24	809	1.7+	0.9-	1997 10 30	688	0.4+	0.4-	1999 02 16	704	0.6-	0.1-
1990 10 24	809	0.9+	2.1-	1997 10 31	688	1.0+	0.3-	1999 02 16	704	0.1-	0.7+
1990 10 24	809	(1.9-	3.0-)	1997 10 31	688	0.3+	0.0	1999 02 16	704	0.1+	0.5+
1992 04 27	691	0.5-	0.7+	1998 11 25	704	0.9-	0.0	1999 02 16	704	0.5+	0.3+
1992 04 27	691	0.5-	0.7+	1998 11 25	704	0.5-	0.2+	1999 02 16	704	0.0	0.8+

(10028)* 1981 JM₂ = 1978 UL₅

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

Id. E. Bowell (*MPC* 20811)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 203.90094		(2000.0)		P		Q	
<i>n</i>	0.26020165	ω	66.32529	+0.19972559	+0.97971121		
<i>a</i>	2.4299426	Ω	215.20842	−0.90916114	+0.17897097		
<i>e</i>	0.1788107	<i>i</i>	1.65010	−0.36542539	+0.09019610		
<i>P</i>	3.79	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 1		

Residuals in seconds of arc

1978 10 27	675	0.5+	0.2−	1993 09 19	675	0.1+	0.6+	1997 10 30	566	0.1+	0.1−
1978 10 28	675	0.2−	0.4−	1993 09 19	675	0.5−	1.1+	1997 10 30	566	0.0	0.1−
1978 10 29	675	0.0	0.0	1993 09 22	809	(0.7+ 2.3+)		1997 10 30	566	0.0	0.1−
1981 04 11	675	1.3+	0.8+	1993 09 22	809	(1.5+ 2.7+)		1998 10 20	691	0.2−	0.4−
1981 04 11	675	0.6+	2.5−	1993 09 22	809	0.4+	0.9+	1998 10 20	691	0.5−	0.2+
1981 05 05	675	(0.6+ 3.0−)		1993 09 23	675	0.8+	0.3−	1998 10 20	691	0.4−	0.0
1981 05 05	675	1.4+	0.1+	1993 09 23	675	0.7+	0.4−	1999 02 05	732	0.4+	0.5+
1981 05 06	675	(1.3+ 4.6−)		1993 10 10	675	1.0−	0.4−	1999 02 05	732	1.2−	0.3−
1981 05 06	675	0.6−	0.2−	1993 10 10	675	0.1+	0.1+	1999 02 06	732	0.3−	0.3−
1981 05 08	675	1.4−	0.1−	1996 03 21	566	0.3+	0.1+	1999 02 06	732	0.5−	0.0
1981 05 09	675	1.6−	0.7−	1996 03 21	566	0.3−	0.1+	1999 02 06	732	0.0	0.4+
1981 05 11	675	0.1+	0.7+	1996 03 21	566	0.3+	0.3+	1999 02 06	732	0.3−	0.1−
1989 08 01	675	0.8−	0.3−	1997 10 30	704	0.3+	0.3−	1999 02 06	732	0.1−	0.3−
1989 08 01	675	0.3+	0.4−	1997 10 30	704	0.0	0.4−	1999 02 06	120	1.6+	0.3−
1993 09 15	809	0.0	0.1+	1997 10 30	704	0.3−	0.5−	1999 02 06	120	0.7+	0.1−
1993 09 15	809	0.1−	0.2−	1997 10 30	704	0.3+	0.1+				
1993 09 15	809	0.2−	0.2+	1997 10 30	704	0.0	0.2−				

(10029)* 1981 QF = 1981 SS = 1976 JQ₈

Discovered 1981 Aug. 30 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. F. N. Bowman (d, *MPC* 6630), H. Oishi (*JAM* 2082)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 85.09983		(2000.0)		P		Q	
<i>n</i>	0.24128592	ω	19.57868	+0.99941911	−0.02782644		
<i>a</i>	2.5553363	Ω	341.98203	+0.01591756	+0.89163682		
<i>e</i>	0.2473062	<i>i</i>	3.64711	+0.03013440	+0.45189543		
<i>P</i>	4.08	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1976 05 02	809	0.7+	0.0	1981 08 30	688	0.7−	0.7−	1997 06 23	689	0.5−	1.0+
1977 10 07	675	0.2+	0.3−	1981 09 03	688	1.9+	2.0−	1998 12 14	699	1.1+	0.9−
1977 10 11	675	1.9−	1.6+	1981 09 03	688	0.7+	1.5−	1998 12 14	699	0.6−	0.6+
1977 10 11	675	1.9−	1.3+	1981 09 25	688	(1.2− 3.0−)		1998 12 14	699	0.4+	0.2+
1977 10 12	675	1.1−	0.2−	1981 09 25	688	(1.9+ 3.2−)		1999 02 06	732	1.1+	1.1−
1977 10 12	675	0.5−	0.0	1981 09 25	046	0.5−	0.5+	1999 02 06	732	1.6−	1.1−
1977 10 16	675	0.6+	1.1−	1981 09 25	046	(1.3− 2.8−)		1999 02 07	732	1.4+	0.7−
1977 10 16	675	0.6+	1.0−	1981 09 25	095	1.9+	0.3−	1999 02 07	732	0.6+	0.3−
1977 10 17	675	0.3−	1.7+	1981 10 05	688	(0.2− 3.1−)		1999 02 10	704	0.3−	0.1+
1977 10 17	675	1.5−	0.7+	1985 08 20	688	0.3−	0.5−	1999 02 10	704	1.7+	0.8+
1977 10 21	675	1.0+	0.4+	1985 08 20	688	0.7−	0.8−	1999 02 10	704	1.7−	0.3−
1977 10 21	675	0.8+	0.3+	1991 01 22	675	0.8−	0.0	1999 02 12	704	0.0	1.4−
1977 10 22	675	0.6+	0.7+	1991 01 22	675	0.5−	2.0+	1999 02 12	704	0.5−	0.8+
1977 10 22	675	1.0+	0.4−	1993 07 24	675	0.4+	0.4+	1999 02 12	704	0.9−	0.6+
1981 08 30	688	0.4+	1.0+	1993 07 24	675	0.2−	0.6+				

(10030)* 1981 QG = 1981 SJ₃ = 1992 UN₁₀ = 1995 EG₉ = 1996 JV₁₆

Discovered 1981 Aug. 30 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. L. D. Schmadel (d, *MPC* 7767), E. Bowell (*MPC* 28294), G. V. Williams*(ibid.)*

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i> 105.82122		(2000.0)		P		Q	
<i>n</i>	0.18442622	ω	341.63473	+0.88155109	+0.47207529		
<i>a</i>	3.0567102	Ω	350.19389	−0.43047871	+0.80074164		
<i>e</i>	0.1906736	<i>i</i>	1.19430	−0.19379307	+0.36872449		
<i>P</i>	5.34	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 1		

Residuals in seconds of arc

1981 08 30	688	1.1+	0.0	1992 10 20	675	0.9−	1.0−	1996 06 15	566	0.0	0.6−
1981 08 30	688	(3.4+ 1.1−)		1992 10 22	675	0.4−	0.2−	1998 12 14	704	0.5−	0.5−
1981 09 03	688	2.3+	1.9−	1992 10 22	675	0.5−	1.2+	1998 12 14	704	1.3+	1.5−
1981 09 03	688	0.5−	0.6+	1995 03 09	691	1.1−	0.9−	1998 12 14	704	(2.3− 2.1+)	
1981 09 25	688	1.4+	2.1−	1995 03 09	691	0.9−	0.7−	1998 12 14	704	0.4+	0.4+
1981 09 25	688	(1.3+ 2.8−)		1995 03 09	691	1.2−	1.1−	1998 12 17	704	(2.1− 2.3−)	
1981 09 25	046	1.2−	0.2−	1995 03 27	691	0.4+	1.4−	1998 12 17	704	(1.8− 2.2−)	
1981 09 25	095	(3.2+ 0.9+)		1995 03 27	691	0.4−	0.9−	1998 12 17	704	1.2+	1.7−
1981 09 25	046	0.0	1.7−	1995 03 27	691	0.9−	0.7−	1998 12 17	704	0.6−	0.3+
1981 10 05	688	0.9−	1.3−	1996 05 14	566	0.0	0.4−	1999 01 16	704	1.9−	0.0
1981 10 05	688	2.1+	1.2+	1996 05 14	566	0.1−	0.7−	1999 01 16	704	(2.7− 0.5+)	
1981 10 05	688	(5.7+ 1.3−)		1996 05 14	566	0.3−	0.6−	1999 01 16	704	1.3+	1.0−
1981 10 05	688	0.2−	1.8−	1996 06 15	566	0.0	0.2−	1999 01 16	704	0.5+	1.3+
1992 10 20	675	0.1−	0.4+	1996 06 15	566	0.0	0.7−	1999 01 16	704	(3.8− 0.8+)	

(10031)* 1981 RB₂ = 1993 ME

Discovered 1981 Sept. 7 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Id. G. V. Williams (*MPC* 22399)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i> 92.44151		(2000.0)		P		Q	
<i>n</i>	0.23681077	ω	47.27116	+0.52681739	+0.82186310		
<i>a</i>	2.5874289	Ω	255.74385	−0.83049118	+0.44340707		
<i>e</i>	0.2012588	<i>i</i>	12.92609	−0.18096362	+0.35767473		
<i>P</i>	4.16	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1981 09 07	095	0.9−	0.1+	1998 10 02	704	0.9−	0.3+	1998 11 14	704	0.1−	0.5−
1981 09 27	095	0.4+	1.3−	1998 10 02	704	0.1+	1.1+	1998 11 15	758	0.1+	0.5+
1981 10 03	095	0.5+	1.5+	1998 10 15	761	0.5+	0.5−	1998 11 15	758	0.2+	0.3+
1993 06 15	675	0.2−	0.2−	1998 10 15	761	1.4+	0.3+	1998 11 15	758	0.1+	0.6+
1993 06 15	675	0.7−	0.7−	1998 10 17	761	0.2−	1.4−	1998 11 16	704	0.2+	0.6+
1993 06 19	675	0.5+	0.7−	1998 10 17	761	0.4−	0.9−	1998 11 16	704	0.2−	0.3+
1993 06 20	675	0.4+	0.1+	1998 10 18	704	0.5−	0.3−	1998 11 16	704	(2.1+ 0.3−)	
1993 06 20	675	0.0	0.8+	1998 10 18	704	0.6−	0.2−	1998 11 16	704	0.9+	0.0
1994 11 27	292	(0.6+ 2.8−)		1998 10 18	704	0.1−	1.0+	1998 12 09	704	0.6−	1.1+
1994 11 27	292	(1.9+ 2.4−)		1998 10 18	704	0.5+	0.1+	1998 12 09	704	(2.8− 1.1+)	
1994 12 27	292	0.0	0.4+	1998 10 18	704	0.9−	0.2+	1998 12 09	704	0.1+	0.5−
1994 12 27	292	(1.8− 2.0−)		1998 11 14	704	1.3−	0.0	1998 12 09	704	0.9−	1.4−
1998 10 02	704	(0.7− 2.1−)		1998 11 14	704	0.5+	0.4−	1999 01 08	699	0.0	0.5−
1998 10 02	704	1.6+	0.5+	1998 11 14	704	0.4+	0.1−	1999 01 08	699	0.4−	0.2−
1998 10 02	704	0.0	0.0	1998 11 14	704	0.2+	0.2−	1999 01 08	699	0.3+	0.3−

(10032)* 1981 RF₇ = 1981 QS₁ = 1992 UA₂

Discovered 1981 Sept. 3 by S. J. Bus at Palomar.

Id. S. Nakano (d, *MPC* 20606; *MPC* 21254)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

<i>M</i> 67.34058		(2000.0)		P		Q	
<i>n</i>	0.18321255	ω	28.04832	+0.94516425	−0.32564642		
<i>a</i>	3.0701946	Ω	350.85171	+0.26267392	+0.80323490		
<i>e</i>	0.3267480	<i>i</i>	9.00259	+0.19407975	+0.49876659		
<i>P</i>	5.38	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 1		

Residuals in seconds of arc

1954 08 27	675	0.1−	0.0	1992 10 31	896	2.1+	0.4−	1999 01 19	704	0.5+	0.1−
1954 08 27	675	1.2+	0.1−	1992 11 21	896	0.9+	0.8+	1999 01 19	704	0.1−	0.2+

1981 08 30	688	(1.0+ 3.2-)	1992 11 21	896	0.7- 0.3+	1999 01 22	699	0.3+ 0.4-
1981 09 03	675	1.6- 0.8+	1997 07 08	688	0.4+ 0.5-	1999 01 22	699	0.7+ 0.5+
1981 09 04	675	1.9- 0.4+	1997 07 08	688	0.6- 0.1-	1999 01 22	699	0.8+ 0.5+
1992 09 30	675	1.6- 0.0	1997 09 03	124	0.2+ 0.6+	1999 02 10	704	1.3- 0.0
1992 09 30	675	1.0- 0.1+	1997 09 03	124	1.0+ 0.8+	1999 02 10	704	0.2- 0.5+
1992 10 21	896	0.6- 1.4+ Y	1997 09 03	124	0.0 0.4+	1999 02 10	704	0.1- 1.1+
1992 10 21	896	0.0 0.1- Y	1997 09 08	124	0.5- 0.4+	1999 02 10	704	0.2- 0.5+
1992 10 24	896	0.4+ 1.1-	1999 01 17	725	(2.8- 1.2+)	1999 02 10	704	(2.6- 1.6+)
1992 10 24	896	0.4+ 0.8-	1999 01 19	704	0.2+ 0.6+			
1992 10 31	896	1.2+ 1.6- Y	1999 01 19	704	0.3+ 0.4+			

(10033)* 1981 UJ₂₃ = 1981 WY₃ = 1979 HO₆ = 1997 WF₃₈

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

Id. S. Nakano (d, *MPC* 20606), G. V. Williams (*MPC* 31096)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		<i>P</i>		<i>Q</i>	
237.58980		(2000.0)			
<i>n</i>	0.18768722	ω	195.93320	-0.11047244	+0.97751153
<i>a</i>	3.0212007	Ω	68.00218	-0.88940477	-0.01656859
<i>e</i>	0.0734461	<i>i</i>	11.17081	-0.44357074	-0.21023007
<i>P</i>	5.25	<i>H</i>	12.6	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1979 04 30	095	(4.1+ 2.4+)	1997 12 04	704	1.3+ 0.4+	1999 01 09	699	0.5+ 0.6+
1981 10 24	675	0.3- 0.4+	1997 12 04	704	1.5+ 0.4-	1999 01 09	699	1.2+ 0.3+
1981 10 25	675	0.1- 0.9+	1997 12 04	704	0.4+ 0.6-	1999 01 09	699	0.6+ 0.5+
1981 11 24	033	0.1+ 0.6+	1997 12 04	704	0.8+ 0.7-	1999 02 10	704	0.0 0.1-
1981 11 24	033	0.3- 0.1-	1997 12 04	704	1.6+ 0.7-	1999 02 10	704	0.1- 0.3-
1991 09 07	691	0.8- 1.1+	1997 12 31	704	0.3+ 0.1-	1999 02 10	704	0.5+ 0.7+
1991 09 07	691	0.7- 0.8+	1997 12 31	704	0.1+ 0.5-	1999 02 10	704	0.5+ 0.0
1991 09 07	691	0.8- 1.1+	1997 12 31	704	0.0 0.0	1999 02 13	704	0.4- 0.4+
1997 11 29	704	(2.5- 0.1+)	1997 12 31	704	0.2+ 0.2-	1999 02 13	704	0.3+ 1.6+
1997 11 29	704	1.8- 1.1-	1998 01 02	704	0.4+ 0.5+	1999 02 13	704	1.1- 0.9-
1997 11 29	704	1.0- 0.6-	1998 01 02	704	1.1+ 0.4-	1999 02 13	704	0.9- 0.4+
1997 11 29	704	1.6- 0.1+	1998 01 02	704	0.2+ 0.1-	1999 02 13	704	0.1+ 0.7+
1997 11 29	704	1.1- 0.2-	1998 01 02	704	0.2+ 0.2+			

(10034)* 1981 YG = 1988 PE₅ = 1989 VP₆

Discovered 1981 Dec. 30 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. E. Bowell (*MPC* 28294)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		<i>P</i>		<i>Q</i>	
5.11136		(2000.0)			
<i>n</i>	0.23743881	ω	216.48354	-0.67586652	-0.69198605
<i>a</i>	2.5828642	Ω	277.58322	+0.72216734	-0.55301032
<i>e</i>	0.1313855	<i>i</i>	14.82873	+0.14723716	-0.46404191
<i>P</i>	4.15	<i>H</i>	13.4	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1981 12 20	688	2.1- 0.4-	1997 09 02	557	0.3- 0.3+	1999 02 05	423	0.7+ 0.6+
1981 12 20	688	0.2- 0.5-	1997 09 02	557	0.1- 0.3-	1999 02 05	423	1.2- 0.6+
1981 12 30	688	0.2- 1.5-	1998 11 25	704	1.0- 0.4-	1999 02 05	423	0.6+ 0.4-
1981 12 30	688	0.1- 0.4-	1998 11 25	704	0.1- 0.4+	1999 02 06	423	1.4- 0.2+
1982 01 20	095	1.3+ 1.5-	1998 11 25	704	0.1+ 0.2-	1999 02 06	423	0.6- 0.1+
1988 08 13	675	0.7+ 0.1-	1998 12 23	704	0.6- 0.1-	1999 02 06	423	0.3+ 0.6+
1988 08 13	675	0.3- 0.2-	1998 12 23	704	0.8- 0.2+	1999 02 12	704	0.6- 0.2+
1989 11 04	675	0.4+ 1.2+	1998 12 23	704	0.5+ 0.4+	1999 02 12	704	0.1+ 0.1+
1989 11 04	675	0.0 1.7+	1998 12 23	704	0.1- 0.1-	1999 02 12	704	0.3+ 0.5+
1997 08 30	557	0.1- 0.1-	1998 12 23	704	0.1- 0.1-	1999 02 12	704	1.6+ 0.0
1997 08 30	557	0.5- 0.2+	1998 12 26	699	1.3+ 1.1+	1999 02 12	704	0.4+ 0.9-
1997 09 02	557	0.0 0.6+	1998 12 26	699	1.1+ 0.4+			
1997 09 02	557	0.0 0.0	1998 12 26	699	1.1+ 0.6+			

(10035)* 1982 DC₂ = 1989 GF₅

Discovered 1982 Feb. 16 by L. Brožek at Kleť.

Id. R. Nagata (*MPC* 17432)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		<i>P</i>		<i>Q</i>	
345.49057		(2000.0)			
<i>n</i>	0.28861596	ω	344.28151	-0.85373623	-0.52021463
<i>a</i>	2.2677186	Ω	164.31067	+0.48629582	-0.81208921
<i>e</i>	0.1440089	<i>i</i>	4.79603	+0.18614733	-0.26436309
<i>P</i>	3.41	<i>H</i>	15.1	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1982 02 16	046	0.0 0.8-	1996 05 22	046	0.6- 0.1-	1999 01 14	699	0.2+ 0.3+
1982 02 16	046	(4.3- 2.3+)	1996 05 22	046	0.8- 0.2-	1999 01 17	046	0.2+ 0.4+
1982 02 20	046	1.4- 1.0-	1996 05 22	046	0.8- 0.1-	1999 01 17	046	0.2- 0.4+
1982 02 20	046	0.5- 0.9+	1997 08 07	046	0.3+ 0.5+	1999 01 17	046	0.2+ 0.4+
1982 02 21	046	1.1+ 0.5-	1997 08 07	046	0.4+ 0.2-	1999 01 19	046	0.0 0.2+
1982 02 21	046	0.2+ 0.5-	1997 08 07	046	0.3+ 0.6+	1999 01 19	046	0.1- 0.2+
1989 04 11	372	1.9- 1.7+ Y	1997 08 08	046	0.5- 0.3+	1999 01 19	046	0.0 0.1+
1989 04 11	372	1.1+ 0.2+ Y	1997 08 08	046	0.0 0.5+	1999 02 12	704	0.1+ 0.2+
1989 04 12	372	0.6+ 1.4- Y	1997 08 08	046	0.5+ 0.6+	1999 02 12	704	0.7+ 0.3-
1989 04 12	372	0.0 1.5- Y	1997 08 11	691	0.8- 0.0	1999 02 12	704	0.8+ 2.2-
1996 04 19	046	0.4- 0.2+	1997 08 11	691	0.6- 0.3-	1999 02 12	704	1.4- 0.8+
1996 04 19	046	0.4- 0.3+	1997 08 11	691	0.7- 0.3+	1999 02 12	704	0.1- 0.6+
1996 04 19	046	0.7- 0.5+	1997 08 24	046	0.3+ 0.1+	1999 02 16	704	0.6+ 0.5-
1996 04 19	046	0.2+ 0.1+	1997 08 24	046	0.6- 0.2+	1999 02 16	704	0.9+ 2.6+
1996 04 19	046	0.2- 0.0	1997 08 24	046	0.3+ 0.6+	1999 02 16	704	0.2+ 0.3-
1996 04 19	046	0.0 0.1-	1997 08 25	046	0.3- 0.1-	1999 02 16	704	0.2+ 0.3-
1996 05 06	046	0.4+ 0.1-	1997 08 25	046	0.1+ 0.2+	1999 02 16	704	0.8- 0.0
1996 05 06	046	0.5+ 0.0	1997 08 25	046	0.1+ 0.2-	1999 02 24	046	0.0 0.4+
1996 05 06	046	0.6+ 0.2+	1999 01 07	120	0.1- 0.1+	1999 02 24	046	0.1+ 0.3+
1996 05 16	046	0.7+ 0.4+	1999 01 07	120	0.6- 0.5+	1999 02 24	046	0.1+ 0.3+
1996 05 16	046	1.1+ 0.9+	1999 01 14	699	0.1+ 0.3+			
1996 05 16	046	1.2+ 0.8+	1999 01 14	699	0.1- 0.6+			

(10036)* 1982 OF = 1986 TE₂ = 1986 VZ₈

Discovered 1982 July 24 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. H. Kaneda (*MPC* 15882), T. Kobayashi (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		<i>P</i>		<i>Q</i>	
102.58735		(2000.0)			
<i>n</i>	0.25948678	ω	46.30404	+0.98295965	+0.17522520
<i>a</i>	2.4344035	Ω	303.52968	-0.18192261	+0.88398481
<i>e</i>	0.2285958	<i>i</i>	3.82136	-0.02635331	+0.43343625
<i>P</i>	3.80	<i>H</i>	13.7	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1982 07 24	688	0.8+ 1.3-	1990 11 12	675	0.4+ 1.2-	1998 12 12	691	0.4- 0.3-
1982 07 24	688	0.7+ 1.5-	1990 11 13	675	0.2- 0.4-	1998 12 25	691	1.2- 0.4-
1982 08 13	095	1.4- 0.0	1990 11 15	801	0.4- 1.4+	1998 12 25	691	1.1- 0.1+
1982 08 15	095	(3.8- 2.2+)	1990 11 15	801	0.5+ 1.8+	1998 12 28	691	0.5- 0.0
1982 09 11	095	0.5- 0.8+	1990 11 19	801	0.4+ 0.5+	1998 12 28	691	0.9- 0.4+
1982 09 19	095	(3.1- 1.1-)	1990 11 19	801	0.4+ 0.3+	1998 12 28	691	0.9- 0.2+
1986 10 07	688	0.9+ 0.5+	1992 03 02	809	0.9+ 0.0	1999 01 19	704	0.3- 1.1-
1986 10 07	688	0.9- 0.5+	1992 03 05	809	0.8+ 0.6-	1999 01 19	704	0.8- 1.3+
1986 11 04	095	1.0+ 0.4-	1992 03 09	809	(2.8+ 2.2-)	1999 01 19	704	0.4- 0.1+
1990 10 20	801	0.4- 0.0	1997 10 31	688	0.2+ 0.7+	1999 01 19	704	1.4+ 1.7+
1990 10 20	801	0.6- 0.3+	1997 10 31	688	0.1+ 0.5+	1999 02 10	704	0.6+ 0.4-
1990 11 11	675	0.7+ 1.2-	1998 12 12	691	0.4- 0.4-	1999 02 10	704	1.9+ 1.6-
1990 11 11	675	0.4- 1.6-	1998 12 12	691	0.3+ 0.2-	1999 02 10	704	(2.9+ 1.6-)

(10037)* 1984 BQ

Discovered 1984 Jan. 26 by A. Mrkos at Kleť.

1999 MAR. 2

M.P.C. 33867

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5									
<i>M</i>	333.04994		(2000.0)		P		Q		
<i>n</i>	0.26702161	ω	133.07595		−0.98947799		+0.09637776		
<i>a</i>	2.3883893	Ω	52.74366		−0.13616846		−0.87241894		
<i>e</i>	0.0654291	<i>i</i>	7.79197		+0.04890256		−0.47916232		
<i>P</i>	3.69	<i>H</i>	13.1		<i>G</i>	0.15	<i>U</i>	2	
Residuals in seconds of arc									
1984 01 26	046	(2.6+	1.3−)	1997 10 22	704	0.4−	1.1+	1998 01 13	046 0.1− 0.0
1984 01 26	046	0.4+	0.9−	1997 10 22	704	(0.4−	3.6+)	1998 01 25	566 0.5− 0.1+
1984 01 27	046	0.5+	0.9−	1997 10 27	894	1.9−	0.5+	1998 01 25	566 0.1− 0.1+
1984 01 28	046	0.4−	0.4+	1997 10 27	894	0.1+	0.5+	1998 01 25	566 0.3− 0.2+
1984 01 29	046	0.4−	0.7−	1997 10 29	894	0.9−	0.2+	1998 11 25	699 0.6− 0.3+
1984 01 29	046	1.9+	1.4−	1997 10 29	894	1.7−	0.9−	1998 11 25	699 0.2+ 0.6−
1984 02 01	046	(2.1−	3.3−)	1997 11 03	704	1.0+	0.4+	1998 11 25	699 0.0 0.3−
1984 02 01	046	0.6−	2.0−	1997 11 03	704	0.1+	0.9+	1999 02 21	758 0.3− 0.6+
1984 02 04	046	2.3−	0.8−	1997 11 03	704	1.4+	0.4+	1999 02 21	758 0.7− 0.8+
1984 02 04	046	1.6−	2.3−	1997 11 03	704	0.7+	0.3+	1999 02 21	758 0.2+ 1.2+
1989 08 29	675	0.3+	1.0−	1997 11 03	704	1.0+	0.7+	1999 02 22	758 0.3+ 1.0+
1989 08 29	675	0.4+	0.7−	1997 12 06	046	0.1+	0.1+	1999 02 22	758 0.5+ 0.8+
1993 09 19	675	0.5−	0.7+	1997 12 06	046	0.4+	0.4+	1999 02 22	758 0.2+ 0.7+
1993 09 19	675	0.3+	0.8−	1997 12 06	046	0.0	0.0	1999 02 25	046 0.4+ 0.8+
1993 09 23	675	0.0	0.8−	1998 01 12	046	0.4−	0.3+	1999 02 25	046 0.7+ 0.7+
1993 09 23	675	0.4+	0.3−	1998 01 12	046	0.3−	0.1+	1999 02 25	046 0.7+ 0.7+
1993 10 10	675	0.2−	0.2−	1998 01 12	046	0.3−	0.0	1999 02 26	046 0.7+ 0.4+
1993 10 10	675	0.2−	0.7+	1998 01 13	046	0.2+	0.0	1999 02 26	046 0.9+ 0.2+
1997 10 22	704	0.9−	0.3+	1998 01 13	046	0.3−	0.0	1999 02 26	046 1.0+ 0.3+

(10038)* 1984 HO₁ = 1987 FV = 1991 RH₁₇

Discovered 1984 Apr. 28 by W. Ferreri and V. Zappalà at the European Southern Observatory.

Id. T. Kobayashi (*MPC* 21104)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5									
<i>M</i>	208.28265		(2000.0)		P		Q		
<i>n</i>	0.31304722	ω	232.78190		−0.24663319		+0.96883250		
<i>a</i>	2.1481412	Ω	22.97206		−0.86929913		−0.21061286		
<i>e</i>	0.1023885	<i>i</i>	3.39971		−0.42835860		−0.13040632		
<i>P</i>	3.15	<i>H</i>	14.5		<i>G</i>	0.15	<i>U</i>	1	
Residuals in seconds of arc									
1984 04 28	809	0.2+	0.1+	1988 10 13	675	0.4+	0.9+	1998 12 17	704 0.0 0.7−
1984 04 28	809	0.4−	0.1+	1991 09 11	675	1.4+	0.4+	1998 12 17	704 0.1− 1.1−
1984 04 30	809	1.3+	0.9−	1991 09 11	675	1.1−	1.2−	1998 12 17	704 0.7− 0.4−
1984 04 30	809	0.4+	0.0	1991 09 14	675	0.5+	0.1−	1998 12 17	704 0.8− 0.2+
1984 05 05	809	0.2−	2.0−	1991 09 14	675	0.3−	0.1−	1999 01 16	704 1.2− 1.3−
1984 05 05	809	0.5−	0.6−	1991 09 16	675	0.5−	1.3−	1999 01 16	704 0.3+ 0.1−
1984 05 06	809	1.1−	0.6+	1991 09 16	675	0.6+	1.0−	1999 01 16	704 1.1− 0.5+
1984 05 06	809	0.2−	0.4−	1994 09 09	675	(2.0+	2.0+)	1999 01 16	704 0.5+ 0.2−
1984 05 07	809	0.5−	0.8−	1994 09 09	675	(2.0+	2.4+)	1999 01 16	704 1.8− 0.7−
1984 05 07	809	1.5−	0.0	1997 07 08	689	0.2+	0.5+	1999 01 19	704 0.4+ 1.6+
1984 05 07	809	0.8−	0.6−	1998 12 14	704	0.2−	0.7−	1999 01 19	704 0.7+ 0.2+
1987 03 21	046	1.0+	0.6−	1998 12 14	704	1.8+	0.2−	1999 01 19	704 (0.7+ 2.9−)
1987 03 21	046	0.9+	1.9+	1998 12 14	704	1.6+	0.3−	1999 01 19	704 0.9+ 1.2−
1988 10 07	675	0.6+	0.8−	1998 12 14	704	(1.0+	3.0+)		
1988 10 13	675	0.2−	0.4+	1998 12 17	704	0.7−	0.7+		

(10039)* 1984 LK = 1968 QF = 1990 SO₁ = 1996 WD₃

Discovered 1984 June 2 by B. A. Skiff at the Anderson Mesa Station of the Lowell Observatory.

Id. T. Urata (*MPC* 28582)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5									
<i>M</i>	208.54041		(2000.0)		P		Q		
<i>n</i>	0.17928824	ω	76.54573		+0.69797943		+0.70952571		
<i>a</i>	3.1148336	Ω	238.15285		−0.69323560		+0.63550950		
<i>e</i>	0.3856307	<i>i</i>	6.55307		−0.17958041		+0.30446829		
<i>P</i>	5.50	<i>H</i>	12.8		<i>G</i>	0.15	<i>U</i>	1	
Residuals in seconds of arc									
1968 08 25	095	0.2−	0.7+	1990 09 17	675	0.7−	0.2+	1996 12 14	385 0.1+ 0.5+
1984 05 24	071	1.0−	0.0	1990 09 17	675	0.6−	0.4+	1996 12 14	385 0.1+ 0.9+
1984 05 24	071	1.1+	0.5−	1990 09 18	675	(0.8+	3.3−)	1998 02 02	691 0.6− 0.3−
1984 05 24	071	0.6−	0.4−	1990 09 18	675	0.7+	2.0−	1998 02 02	691 0.8− 0.3−
1984 05 24	071	0.3−	0.4−	1990 09 20	675	0.0	0.2−	1998 02 02	691 0.7− 0.3−
1984 05 24	071	0.1−	0.1−	1990 09 20	675	1.1+	1.6−	1998 02 27	561 0.2+ 0.4−
1984 05 24	071	1.5−	0.0	1990 09 20	675	0.4−	0.1−	1998 02 27	561 0.1− 0.5−
1984 05 24	071	(1.2+	6.3+)	1990 09 20	675	0.3+	1.3−	1998 11 25	561 0.3− 1.0−
1984 05 24	071	0.5−	0.8+	1996 11 15	905	0.1−	0.5−	1998 11 25	561 0.1+ 0.6−
1984 05 25	071	1.0+	1.2−	1996 11 15	905	0.6−	0.4+	1998 11 25	561 0.3+ 0.3−
1984 05 25	071	2.2+	1.2−	1996 11 18	905	0.2+	0.8+	1999 01 23	561 1.1+ 0.2−
1984 05 25	071	1.0−	1.1+	1996 11 18	905	0.0	1.1+	1999 01 23	561 0.8+ 0.5−
1984 05 25	071	2.0+	0.0	1996 12 02	905	0.8+	0.6+	1999 01 23	561 0.7+ 0.7−
1984 05 25	071	0.1+	0.2−	1996 12 02	905	0.4+	0.4+	1999 02 16	704 2.3− 0.6−
1984 05 25	071	1.0−	0.5−	1996 12 08	385	0.5+	0.0	1999 02 16	704 2.0− 0.7+
1984 05 25	071	0.9+	0.5−	1996 12 08	385	0.5+	0.1+	1999 02 16	704 0.1+ 0.3+
1984 06 02	688	2.3−	2.2+	1996 12 08	385	0.4+	0.4−		
1984 06 02	688	1.3+	0.5+	1996 12 14	385	0.3+	0.2+		

(10040)* 1984 QM = 1970 EA₃ = 1981 TK₁ = 1996 DJ₃

Discovered 1984 Aug. 24 by Z. Vávrová at Kletř.

Id. K. Ichikawa (*MPC* 27305)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5									
<i>M</i>	167.33475		(2000.0)		P		Q		
<i>n</i>	0.30100131	ω	343.10077		+0.56836825		+0.82200858		
<i>a</i>	2.2050772	Ω	321.51525		−0.74813337		+0.49837469		
<i>e</i>	0.1785810	<i>i</i>	3.26920		−0.34242369		+0.27554414		
<i>P</i>	3.27	<i>H</i>	14.5		<i>G</i>	0.15	<i>U</i>	2	
Residuals in seconds of arc									
1970 03 10	805	0.2+	0.3+	1996 02 17	010	(0.3−	2.3+)	1997 10 21	046 0.6− 0.3+
1970 03 10	805	1.0+	0.9−	1996 02 17	010	(0.1+	2.3+)	1997 10 21	046 0.3− 0.7+
1970 03 10	805	0.1−	1.2−	1996 02 20	566	0.8−	0.7−	1997 10 21	046 1.4− 0.2+
1981 10 02	095	1.5+	0.3−	1996 02 20	566	0.6−	0.4−	1998 12 30	046 0.3+ 0.3+
1984 08 24	046	0.3−	2.1−	1996 02 20	566	1.0−	0.3−	1998 12 30	046 0.1− 0.3−
1984 08 24	046	(1.3+	2.7−)	1997 07 27	610	0.6+	0.3+	1998 12 30	046 0.3− 0.5−
1984 08 27	046	(3.6+	0.3−)	1997 07 27	610	0.1+	0.2+	1998 12 30	046 0.2− 0.1−
1984 08 27	046	2.2+	1.9−	1997 07 27	610	0.3−	0.0	1999 01 18	046 0.3+ 0.4−
1984 08 28	046	0.6−	1.4−	1997 07 31	610	0.7+	0.4+	1999 01 18	046 0.2+ 0.2−
1984 08 28	046	1.0−	0.8−	1997 07 31	610	0.5+	0.4+	1999 01 18	046 0.1+ 0.1−
1996 01 18	327	0.1−	0.1−	1997 07 31	610	0.4+	0.2+	1999 01 19	704 0.5+ 1.2+
1996 01 18	327	0.0	0.9−	1997 09 01	566	(2.6−	1.3+)	1999 01 19	704 0.7+ 0.6−
1996 01 18	327	0.9−	0.9−	1997 09 01	566	(2.7−	1.5+)	1999 01 19	704 0.7+ 1.8+
1996 02 16	010	1.2−	0.2+	1997 09 01	566	(2.4−	1.1+)	1999 01 19	704 0.7+ 1.9+
1996 02 16	010	(2.3−	0.1+)	1997 10 20	046	0.5−	1.0+	1999 01 20	046 0.2+ 0.1−
1996 02 16	010	1.8−	0.1+	1997 10 20	046	0.3−	0.5+	1999 01 20	046 0.2+ 0.2−
1996 02 17	010	(0.2−	2.6+)	1997 10 20	046	0.1−	0.4+	1999 01 20	046 0.0 0.3−

(10041)* 1985 HS₁ = 1992 FK

Discovered 1985 Apr. 24 by C. S. Shoemaker at Palomar.

Id. H. Kaneda (*MPC* 20012)

M.P.C. 33868

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	304.53871		(2000.0)	P		Q					
<i>n</i>	0.27830384	ω	31.43902	−0.84079535	+0.54126098						
<i>a</i>	2.3233961	Ω	181.44999	−0.54125512	−0.84085108						
<i>e</i>	0.1988952	<i>i</i>	23.24454	−0.01029970	+0.00244994						
<i>P</i>	3.54	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	1				
Residuals in seconds of arc											
1985 04 11	675	(2.1−	2.8+)	1996 06 16	801	0.6+	0.1−	1999 01 23	704	0.5+	0.5−
1985 04 15	675	1.6+	0.5−	1996 06 16	801	0.6+	0.5−	1999 01 23	704	0.5+	0.5+
1985 04 24	675	0.9−	0.3−	1996 07 12	801	0.2−	0.3+	1999 01 23	704	0.2+	0.4−
1985 04 25	675	(0.4−	2.7+)	1996 07 12	801	0.4−	0.1+	1999 01 23	704	0.1−	0.7−
1985 06 22	801	0.5+	0.2+	1996 07 18	801	0.2−	0.0	1999 01 23	704	0.5−	0.8−
1992 02 04	675	0.2+	1.9−	1996 07 18	801	0.2−	0.4−	1999 02 11	423	0.3+	0.2−
1992 02 08	675	0.9−	0.9−	1996 07 20	563	0.4+	1.6+	1999 02 11	423	0.0	0.8−
1992 02 08	675	1.4−	0.1−	1996 07 20	563	1.1−	1.1+	1999 02 17	704	0.8−	0.3+
1992 02 25	675	0.1−	1.5−	1996 07 20	563	0.4+	0.2+	1999 02 17	704	0.6−	0.1+
1992 02 25	675	0.5+	0.8−	1996 07 30	560	0.2+	1.3−	1999 02 17	704	0.0	0.9+
1992 02 27	675	0.7+	0.2−	1996 07 30	560	0.3−	1.7−	1999 02 17	704	0.0	1.3+
1992 02 27	675	1.4+	0.2+	1996 07 30	560	0.2+	1.4−	1999 02 17	704	0.3+	1.4+
1992 03 22	399	1.1−	0.4−	1997 10 11	557	0.0	0.7−	1999 02 19	704	0.2+	0.7−
1992 03 22	399	(2.4−	1.3−)	1997 10 19	557	0.0	0.3−	1999 02 19	704	1.0+	0.0
1992 03 23	399	1.6−	0.0	1997 10 19	557	0.1+	0.1−	1999 02 19	704	0.3−	0.4+
1992 04 05	675	0.2−	0.1−	1997 10 22	557	0.2−	0.2−	1999 02 19	704	0.1+	0.9+
1992 04 05	675	0.1+	0.5−	1997 10 22	557	0.1+	0.3−	1999 02 19	704	0.3+	0.2+
1992 04 07	809	(2.2−	0.5+)	1999 01 18	703	0.8+	0.1+	1999 02 19	423	0.1−	0.9+
1996 05 15	801	0.5+	1.0+	1999 01 18	703	0.5+	0.2+	1999 02 19	423	0.5−	0.6+
1996 05 15	801	0.3+	1.5+	1999 01 18	703	0.1+	0.2+	1999 02 20	423	0.8+	0.2+
1996 05 20	801	0.3−	0.2−	1999 01 19	703	0.1+	0.0	1999 02 20	423	0.8−	0.8+
1996 05 20	801	0.5−	0.4−	1999 01 19	703	0.1−	0.4+				

(10042)* 1985 PL = 1977 UQ₂

Discovered 1985 Aug. 14 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. K. Hurukawa (*MPC* 10152), W. Landgraf (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	76.76519		(2000.0)	P		Q					
<i>n</i>	0.23901043	ω	31.45543	+0.98200819	+0.12587794						
<i>a</i>	2.5715293	Ω	320.53482	−0.18299183	+0.81838015						
<i>e</i>	0.2250743	<i>i</i>	12.79503	+0.04662513	+0.56072157						
<i>P</i>	4.12	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	2				
Residuals in seconds of arc											
1950 03 22	675	1.3−	0.6−	1985 09 12	801	0.6−	1.6−	1998 12 09	689	0.2+	0.4+
1950 03 22	675	1.1+	1.2−	1985 09 12	801	0.4+	1.9+	1998 12 09	327	0.5+	1.2−
1977 10 18	033	0.3+	0.5−	1985 09 13	801	1.5−	0.9−	1998 12 09	327	1.3+	1.1−
1977 10 18	033	0.2−	0.6−	1985 09 14	688	0.4+	1.3+	1998 12 09	327	0.3+	0.7+
1977 10 18	033	0.1+	0.5−	1985 09 14	688	1.4+	1.3+	1998 12 14	704	0.5+	1.0+
1977 10 19	033	0.0	0.0	1987 01 29	801	0.5+	0.2+	1998 12 14	704	0.3+	0.1+
1977 10 19	033	0.1+	0.0	1987 02 25	801	0.4−	0.7+	1998 12 14	704	0.1−	1.6−
1977 10 20	033	0.1+	0.0	1991 01 19	675	0.9−	0.5+	1998 12 14	704	0.5+	0.1+
1985 08 14	688	1.3−	0.6−	1995 01 09	596	0.0	0.4+	1998 12 14	704	0.2−	0.1−
1985 08 14	688	0.4+	0.2+	1995 01 09	596	0.1−	0.1+	1998 12 29	689	0.2−	0.2+
1985 08 20	688	1.9−	0.1+	1998 11 01	689	0.4−	0.5−	1999 01 16	704	0.4−	0.5+
1985 08 20	688	0.0	0.6−	1998 12 08	327	0.1+	0.7+	1999 01 16	704	0.3−	0.6+
1985 08 22	688	0.2+	0.2+	1998 12 08	327	0.3+	0.5+	1999 01 16	704	1.2−	1.5−
1985 08 22	688	2.0+	0.5−	1998 12 08	327	0.3+	0.8+	1999 01 16	704	0.9−	0.9+

(10043)* 1985 PN = 1988 FS = 1991 RH₂₆

Discovered 1985 Aug. 14 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. K. Kinoshita (*MPC* 25637)

1999 MAR. 2

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	79.61042		(2000.0)	P		Q					
<i>n</i>	0.17796294	ω	264.84645	+0.52403886		−0.84018788					
<i>a</i>	3.1302786	Ω	152.11197	+0.85050839		+0.50759686					
<i>e</i>	0.1183782	<i>i</i>	17.35526	+0.04493060		+0.19086583					
<i>P</i>	5.54	<i>H</i>	11.9	<i>G</i>	0.15	<i>U</i>	1				
Residuals in seconds of arc											
1985 08 14	688	(2.3−	3.7−)	1997 10 28	688	0.0	0.0	1999 01 18	704	0.6+	1.3+
1985 08 14	688	0.0	0.3+	1997 10 28	688	0.0	0.0	1999 01 18	704	0.2+	0.6+
1985 08 17	675	(4.9−	2.2+)	1997 10 29	688	0.1−	0.0	1999 01 18	704	0.7−	0.4−
1985 08 20	688	0.4+	0.4+	1997 10 29	688	0.1−	0.1+	1999 01 20	120	0.2−	0.1+
1985 08 20	688	0.2−	0.4+	1998 11 25	704	0.1+	0.1−	1999 01 20	120	0.4+	0.4−
1985 08 22	688	0.7+	0.7+	1998 11 25	704	0.9+	0.5−	1999 01 21	120	0.3−	0.3−
1985 08 22	688	0.8−	1.5−	1998 11 25	704	0.1+	0.8+	1999 01 22	120	0.5+	0.5−
1988 02 16	675	0.7−	0.0	1998 11 25	704	0.6+	0.2−	1999 01 22	120	0.2+	0.3−
1988 02 16	675	1.9−	0.2+	1998 11 25	704	1.2+	1.1−	1999 01 22	120	0.1+	0.3−
1988 03 17	033	0.3+	0.1+	1998 12 16	327	0.2+	0.5+	1999 01 23	120	0.2−	0.3−
1988 03 18	033	1.2+	0.1+	1998 12 16	327	0.2+	0.0	1999 01 23	120	0.4−	0.2−
1988 03 18	033	1.0+	0.3−	1998 12 16	327	0.3+	0.3+	1999 01 25	120	0.5−	0.1−
1991 09 12	675	(2.9−	0.0)	1999 01 10	120	0.3+	0.2+	1999 01 25	120	0.4−	0.1−
1991 09 12	675	0.0	0.3−	1999 01 10	120	0.0	0.1−	1999 02 10	704	0.7+	0.3+
1991 09 15	675	0.3−	0.8−	1999 01 14	120	0.4−	0.2−	1999 02 10	704	0.6+	1.0−
1991 09 15	675	0.5+	1.1−	1999 01 14	120	0.2−	0.3−	1999 02 10	704	1.5+	0.2+
1997 10 24	327	0.1−	0.1+	1999 01 14	699	0.3−	0.3−	1999 02 10	704	0.8+	0.5−
1997 10 24	327	0.2−	0.1−	1999 01 14	699	0.0	0.5−	1999 02 10	704	0.0	0.3−
1997 10 24	327	0.1−	0.1+	1999 01 14	699	0.0	0.1+	1999 02 12	727	0.3−	0.3+
1997 10 25	327	0.0	0.1+	1999 01 15	120	0.4−	0.2−	1999 02 12	727	0.2−	0.0
1997 10 25	327	0.1+	0.4+	1999 01 15	120	0.1+	0.1−	1999 02 12	727	0.8−	0.4+
1997 10 25	327	0.0	0.1+	1999 01 15	699	0.5+	0.0	1999 02 13	704	0.0	0.0
1997 10 25	327	0.4−	0.2+	1999 01 15	699	0.5−	0.4−	1999 02 13	704	0.7−	0.7+
1997 10 27	327	0.3+	0.5+	1999 01 15	699	0.2−	0.2+	1999 02 13	704	1.2−	0.8+
1997 10 27	327	0.2+	0.0	1999 01 18	704	0.4−	1.4−	1999 02 13	704	0.4−	0.5+
1997 10 27	327	0.0	0.2+	1999 01 18	704	0.6+	0.0	1999 02 13	704	0.8−	1.2+

(10044)* 1985 RU = 1989 PD

Discovered 1985 Sept. 15 by C. S. Shoemaker at Palomar.

Id. T. Furuta (*MPC* 15066), S. Nakano (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	94.51793		(2000.0)	P		Q					
<i>n</i>	0.24024511	ω	31.07822	+0.96901456	+0.15870855						
<i>a</i>	2.5627113	Ω	318.41734	−0.24053375	+0.78054705						
<i>e</i>	0.3340231	<i>i</i>	16.56907	+0.05616313	+0.60461384						
<i>P</i>	4.10	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	2				
Residuals in seconds of arc											
1985 09 15	675	0.4+	0.3−	1989 08 10	403	1.3−	0.2+	1998 12 21	704	1.5+	1.0−
1985 09 15	675	0.8+	0.6−	1991 01 22	675	0.3+	1.2−	1998 12 21	704	0.5−	0.6+
1985 09 21	675	0.4−	0.1+	1991 01 22	675	1.1−	0.7+	1999 02 10	704	0.6+	0.2−
1985 10 12	675	0.0	0.3+	1993 07 21	675	0.3−	0.1+	1999 02 10	704	0.0	1.1+
1985 10 12	675	0.7+	1.1−	1993 07 23	675	2.0−	0.6+	1999 02 10	704	0.7+	0.7+
1985 10 13	675	0.0	0.2+	1993 07 25	675	1.9+	1.0−	1999 02 10	704	0.7−	0.3+
1985 10 14	675	0.1+	0.2+	1993 07 25	675	1.3+	0.9−	1999 02 10	704	0.5−	0.8+
1989 08 04	886	0.2−	0.1+	1998 12 21	704	1.2+	0.3+	1999 02 12	699	0.6−	1.5+
1989 08 04	886	1.1−	1.1+	1998 12 21	704	0.8+	0.0	1999 02 12	699	0.1+	0.1+
1989 08 10	403	0.5−	1.7+	1998 12 21	704	1.2−	0.6−	1999 02 12	699	0.7+	0.4−

(10045)* 1985 RJ₃ = 1969 VP = 1996 RW

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	228.50603		(2000.0)		P		Q
<i>n</i>	0.17974891	ω	92.83677	−0.05373417	+0.99854978		
<i>a</i>	3.1095094	Ω	174.07995	−0.92844947	−0.04873969		
<i>e</i>	0.1368157	<i>i</i>	1.84142	−0.36755166	−0.02286457		
<i>P</i>	5.48	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1969 11 11	095	0.6−	1.1+	1996 09 19	691	0.4−	0.1−	1998 02 27	327	0.2+	0.4+
1985 08 23	095	1.2+	0.1−	1996 09 19	691	0.4−	0.1−	1998 02 27	327	0.4−	0.2+
1985 09 06	809	1.2−	0.1+	1996 09 22	691	0.9−	0.0	1998 12 26	120	0.3+	0.2−
1985 09 06	809	1.0−	0.1+	1996 09 22	691	0.8−	0.3+	1998 12 26	120	0.8+	0.3−
1985 09 06	809	0.9−	0.0	1996 09 22	691	1.1−	0.0	1998 12 26	120	1.1+	0.4+
1985 09 08	809	1.0−	0.3−	1996 10 07	809	(1.6+	2.2+)	1999 01 14	691	0.6−	0.0
1985 09 08	809	0.8−	0.3−	1996 10 07	809	(2.8+	2.3+)	1999 01 14	691	0.5−	0.3+
1985 09 08	809	0.9−	0.8−	1996 10 07	809	(2.7+	2.9+)	1999 01 14	691	0.6−	0.2−
1985 09 10	809	0.3−	0.2−	1997 11 26	704	(2.3+	0.1−)	1999 02 05	620	0.4+	0.7−
1985 09 10	809	0.2−	0.1−	1997 11 26	704	1.2+	0.4+	1999 02 06	620	0.4−	0.5−
1985 09 10	809	0.1+	0.2−	1997 11 26	704	1.2+	1.0+	1999 02 06	620	1.0−	0.4−
1985 09 14	809	0.7+	0.1+	1997 11 30	566	0.2−	0.5−	1999 02 11	699	1.5+	0.2−
1985 09 14	809	0.9+	0.1+	1997 11 30	566	0.0	0.8−	1999 02 11	699	0.7+	0.1+
1985 09 14	809	1.1+	0.1+	1997 11 30	566	0.2−	1.0−	1999 02 11	699	0.1+	0.6+
1985 09 15	809	0.5+	0.7+	1997 12 04	704	1.0+	1.0−	1999 02 12	704	0.1+	0.5+
1985 09 15	809	0.5+	0.6+	1997 12 04	704	0.2−	0.1+	1999 02 12	704	0.8−	0.5+
1985 09 15	809	0.6+	0.7+	1997 12 04	704	0.3+	0.8−	1999 02 12	704	0.6+	0.1−
1985 09 15	095	(0.8−	5.4−)	1997 12 04	704	0.4+	0.2+	1999 02 12	704	0.9−	0.7+
1985 09 20	095	0.6+	0.7+	1997 12 04	704	0.2−	1.1−	1999 02 12	704	0.0	1.4+
1996 09 07	358	1.5+	0.5+	1998 01 03	910	0.3−	0.2+	1999 02 16	704	1.4−	0.8+
1996 09 07	358	1.8+	0.7−	1998 01 03	910	0.1+	0.1+	1999 02 16	704	2.0+	1.4−
1996 09 10	358	0.6+	0.9−	1998 01 03	910	0.4−	0.1+	1999 02 16	704	0.1−	0.5+
1996 09 10	358	1.5+	0.2−	1998 02 27	327	0.8−	0.7+	1999 02 16	704	1.3−	0.8−
1996 09 15	691	0.4−	0.0	1998 02 27	327	1.0−	0.3+	1999 02 19	691	0.0	0.3−
1996 09 15	691	0.2−	0.3+	1998 02 27	327	0.9−	0.0	1999 02 19	691	0.1+	0.2−
1996 09 15	691	0.5−	0.2−	1998 02 27	327	0.3−	0.5+	1999 02 19	691	0.2+	0.0
1996 09 19	691	0.5−	0.0	1998 02 27	327	0.0	0.4+				

(10046)* 1986 JC = 1986 LD = 1990 KH₂ = 1990 SJ₁₀

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

Id. S. Singer-Brewster (d, *MPC* 10936), H. Kaneda (*MPC* 17819), G. V. Williams (d, *MPC* 18427)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	170.12140		(2000.0)		P		Q
<i>n</i>	0.27570602	ω	176.19752	+0.14008987	+0.97994682		
<i>a</i>	2.3379679	Ω	101.81596	−0.91221078	+0.18338652		
<i>e</i>	0.2403658	<i>i</i>	8.32386	−0.38502769	−0.07793345		
<i>P</i>	3.57	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1954 07 01	675	0.0	0.7+	1990 09 20	675	(1.2−	2.7+)	1998 11 23	704	1.3−	0.4−
1954 07 01	675	0.2+	0.5+	1990 09 24	413	0.2−	0.4−	1998 12 15	704	0.4−	1.1+
1986 05 02	675	1.4−	0.2+	1990 09 24	413	0.1−	0.5+	1998 12 15	704	1.5−	0.1+
1986 05 03	675	0.9−	1.3−	1993 05 18	675	1.5+	0.5−	1998 12 15	704	0.6−	1.3−
1986 05 03	675	1.2−	1.1−	1993 05 18	675	(0.1−	2.5−)	1998 12 15	704	0.5+	0.3+
1986 06 03	675	(17.2+	0.9−)	1993 05 19	675	(1.1+	2.4−)	1998 12 16	704	0.0	0.0
1986 06 03	675	(14.7+	0.7−)	1996 02 20	608	0.5+	0.3−	1998 12 16	704	0.4+	0.8−
1986 06 08	675	(8.9−	0.9+)	1996 02 20	608	0.2+	0.5−	1998 12 16	704	0.3+	0.9−
1986 06 08	675	(9.8−	2.7+)	1996 02 29	608	0.0	1.3−	1998 12 16	704	0.4+	1.1−
1990 05 29	413	(5.8+	0.9+)	1996 02 29	608	0.3+	1.2−	1998 12 16	704	0.7−	0.2−
1990 05 29	413	(3.5+	1.5+)	1996 03 10	608	1.5+	0.2−	1998 12 22	704	0.2+	0.0
1990 09 17	675	0.6+	1.2−	1996 03 10	608	1.4+	0.3−	1998 12 22	704	0.5−	0.6−
1990 09 17	675	0.3+	1.4−	1997 09 07	689	1.0+	0.7+	1998 12 22	704	0.9−	1.2+
1990 09 19	675	0.1−	1.1−	1998 11 23	704	0.5+	1.8+	1998 12 22	704	1.0−	0.2−
1990 09 19	675	0.7+	0.4−	1998 11 23	704	1.3−	1.1+	1998 12 22	704	0.2+	0.9−
1990 09 20	675	1.1+	0.5−	1998 11 23	704	1.0+	0.3+				

(10047)* 1986 QK₂ = 1992 ET₈ = 1993 OH

Discovered 1986 Aug. 28 by H. Debehogne at the European Southern Observatory.

Id. K. Kinoshita (*MPC* 24560)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	177.78739		(2000.0)		P		Q
<i>n</i>	0.27449992	ω	174.28949	+0.71126578	+0.68564838		
<i>a</i>	2.3448113	Ω	140.89211	−0.65424790	+0.72630840		
<i>e</i>	0.0509507	<i>i</i>	14.21337	−0.25702272	+0.04860458		
<i>P</i>	3.59	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1986 08 28	809	0.3−	0.4+	1993 07 20	675	0.2−	0.5−	1999 01 14	699	0.7+	0.2+
1986 08 28	809	0.2−	0.7+	1996 05 22	801	0.2−	1.1+	1999 01 20	120	0.5−	0.2−
1986 08 28	809	0.1+	0.9+	1996 05 22	801	0.7−	1.0+	1999 01 20	120	0.2+	0.8−
1986 08 30	809	1.5−	0.2+	1996 05 23	801	0.2+	0.9+	1999 02 10	691	0.3−	0.2−
1986 08 30	809	1.4−	0.3+	1998 11 25	704	1.8−	0.9−	1999 02 10	691	0.1−	0.1+
1986 08 30	809	1.2−	0.4+	1998 11 25	704	0.6+	0.1−	1999 02 10	691	0.0	2.4−
1986 09 03	809	1.3+	1.8+	1998 11 25	704	(5.8−	0.3+)	1999 02 12	704	0.6+	0.6+
1986 09 03	809	1.1+	1.8+	1999 01 12	758	0.5−	0.9+	1999 02 12	704	0.8+	1.0+
1986 09 03	809	1.0+	1.6+	1999 01 12	758	0.6−	0.9+	1999 02 12	704	0.3+	1.1+
1992 03 02	809	1.1+	0.3+	1999 01 12	758	0.4−	0.4+	1999 02 12	704	0.4+	0.9+
1992 03 05	809	0.0	1.2+	1999 01 13	758	0.4+	0.3+	1999 02 12	704	0.3+	1.2+
1992 03 07	809	0.0	1.0+	1999 01 13	758	0.1+	0.2+	1999 02 15	120	0.5−	0.8−
1993 07 16	675	1.8−	1.3−	1999 01 13	758	0.3+	0.8+	1999 02 15	120	0.3−	0.6−
1993 07 16	675	1.0+	1.3−	1999 01 14	699	0.1−	0.1−				
1993 07 20	675	1.6+	0.6−	1999 01 14	699	0.3+	0.7−				

(10048)* 1986 TQ = 1991 PY₁₇

Discovered 1986 Oct. 3 by P. Jensen at Brorfelde.

Id. H. Kaneda (*MPC* 20144)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	131.34941		(2000.0)		P		Q
<i>n</i>	0.18179365	ω	351.51403	+0.94829595	+0.31333675		
<i>a</i>	3.0861492	Ω	349.78599	−0.27189681	+0.71985606		
<i>e</i>	0.0739845	<i>i</i>	16.56155	−0.16372819	+0.61937657		
<i>P</i>	5.42	<i>H</i>	12.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1986 10 02	095	1.0+	1.5−	1991 09 16	675	1.6+	1.5−	1999 01 19	704	0.3−	0.6+
1986 10 03	054	1.7+	0.6−	1991 09 16	675	0.0	1.1+	1999 01 19	704	0.5+	0.3−
1986 10 04	054	0.6−	0.5+	1991 09 16	675	0.9+	1.2−	1999 01 19	704	1.8−	0.6−
1986 10 11	054	1.7−	1.1+	1997 11 29	688	0.1−	0.0	1999 01 19	704	1.2−	0.4−
1991 08 07	675	0.2−	0.2+	1997 11 29	688	0.0	0.2−	1999 01 19	704	(0.5−	2.0−)
1991 08 07	675	0.4−	0.7+	1997 12 27	688	0.5+	0.2−	1999 02 10	704	1.3+	0.2+
1991 09 09	808	0.5+	0.8−	1997 12 27	688	0.5+	0.3−	1999 02 10	704	0.9+	0.5+
1991 09 09	808	1.1−	0.6+	1998 12 24	699	0.7+	1.0+	1999 02 10	704	1.3+	0.1+
1991 09 10	675	0.1+	1.2+	1998 12 24	699	1.1+	0.0	1999 02 10	704	0.5+	0.6−
1991 09 10	675	1.8−	0.7+	1998 12 24	699	1.2+	0.3−	1999 02 10	704	0.2−	0.7−
1991 09 12	808	0.3+	0.5−	1999 01 14	704	0.8−	0.2+	1999 02 13	704	1.0+	0.9−
1991 09 12	808	0.5+	0.4−	1999 01 14	704	0.0	0.1−	1999 02 13	704	0.1+	0.2+
1991 09 12	675	0.7−	1.0+	1999 01 14	704	1.0−	0.7+	1999 02 13	704	0.2−	0.1−
1991 09 12	675	0.4−	0.4−	1999 01 14	704	1.1−	0.9+	1999 02 13	704	0.2+	0.7+
1991 09 16	675	0.7−	0.7+	1999 01 14	704	1.3−	1.4+	1999 02 13	704	0.2+	0.6−

(10049)* 1986 TZ₁₁ = 1991 RX₆

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

Id. G. V. Williams (*MPC* 19019)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	102.13981		(2000.0)	P		Q	
<i>n</i>	0.18002720	ω	81.58659	+0.98430459		-0.15586521	
<i>a</i>	3.1063041	Ω	287.34987	+0.10738015		+0.90114739	
<i>e</i>	0.1513457	<i>i</i>	4.97454	+0.14004990		+0.40452369	
<i>P</i>	5.47	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1954 12 22	675	1.2-	1.4+	1996 07 14	566	1.1-	1.3+	1999 01 18	704	(4.2-	1.4-)
1954 12 22	675	1.6+	1.0-	1998 10 22	910	(0.8-	2.4+)	1999 02 11	699	1.0+	0.1+
1986 10 03	095	0.5-	0.1+	1998 10 22	910	1.2-	1.4+	1999 02 11	699	1.6+	0.6+
1986 10 07	095	0.5-	0.2+	1998 10 22	910	0.9-	1.6+	1999 02 11	699	0.9-	0.1+
1986 10 11	095	0.9-	1.6-	1998 10 23	910	0.3-	0.6+	1999 02 12	704	0.5+	0.2+
1991 09 03	413	1.2+	0.8+	1998 10 23	910	0.5-	0.2+	1999 02 12	704	0.4+	0.5+
1991 09 03	413	1.6+	1.2+	1998 10 23	910	1.1-	0.1+	1999 02 12	704	1.1+	0.5-
1991 09 04	413	0.7-	1.3+	1999 01 14	120	1.0+	0.0	1999 02 12	704	0.3+	0.9-
1991 09 14	675	0.0	0.0	1999 01 15	120	1.4-	0.2-	1999 02 12	704	0.3+	1.1+
1991 09 14	675	0.2-	0.9+	1999 01 18	704	(2.8+	1.1+)	1999 02 16	704	0.9+	0.8+
1996 07 14	566	1.0-	1.0+	1999 01 18	704	0.6-	0.1+	1999 02 16	704	1.1+	1.2-
1996 07 14	566	1.0-	1.0+	1999 01 18	704	0.8+	1.3+	1999 02 16	704	0.5-	1.2+

(10050)* 1987 MA₁ = 1991 GG₁₂ = 1995 DX₁₂

Discovered 1987 June 28 by E. F. Helin at Palomar.

Id. B. G. Marsden (*MPC* 25212), G. V. Williams (*MPC* 27710)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	219.61248		(2000.0)	P		Q	
<i>n</i>	0.22426263	ω	131.77544	+0.25435109		+0.96217264	
<i>a</i>	2.6830665	Ω	152.49908	-0.93815065		+0.26999093	
<i>e</i>	0.2705778	<i>i</i>	12.20462	-0.23490186		-0.03645142	
<i>P</i>	4.39	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1987 06 20	675	0.8-	0.5-	1996 08 09	552	0.1-	0.5-	1997 11 27	426	0.3+	0.6+
1987 06 20	675	1.0+	1.6-	1996 08 09	552	0.0	0.4-	1997 11 27	426	0.1+	0.7-
1987 06 28	675	0.5-	1.3+	1996 08 12	552	0.0	0.0	1999 01 14	699	0.7+	0.7+
1987 06 30	675	(0.6-	3.1+)	1996 08 12	552	0.1+	0.2-	1999 01 14	699	0.3-	0.7-
1987 07 26	675	(13.3+	0.1-)	1996 08 17	552	0.1-	1.0+	1999 01 14	699	0.4+	0.6-
1987 07 28	675	(12.0+	0.2+)	1996 08 17	552	0.5-	0.6+	1999 02 12	704	0.1-	0.0
1991 04 14	400	1.0+	0.9+	1996 08 17	552	0.5-	0.6+	1999 02 12	704	0.2+	1.1-
1991 04 14	400	0.1-	0.4-	1996 08 20	587	0.2+	0.5-	1999 02 12	704	0.5-	0.4+
1995 02 22	033	0.1-	0.1+	1996 08 20	587	0.3+	0.9-	1999 02 12	704	0.6-	0.4-
1995 02 23	033	0.5-	0.2-	1996 08 20	587	0.1+	0.6+	1999 02 12	704	0.2+	1.7+
1995 02 24	033	0.6-	0.5-	1996 10 13	689	1.1+	0.0				
1996 08 09	552	0.1-	0.2-	1997 11 27	426	0.1-	0.4-				

(10051)* 1987 QG₆ = 1992 EB₂₈ = 1994 QK

Discovered 1987 Aug. 23 by E. F. Helin at Palomar.

Id. K. Kinoshita (*MPC* 24386)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	75.08066		(2000.0)	P		Q	
<i>n</i>	0.28389948	ω	242.47120	+0.72392248		-0.67711039	
<i>a</i>	2.2927655	Ω	159.23460	+0.68706048		+0.72491800	
<i>e</i>	0.3439468	<i>i</i>	21.88047	-0.06232286		+0.12655197	
<i>P</i>	3.47	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1987 08 23	675	(0.5+	2.7-)	1992 04 04	809	0.9-	0.3-	1997 07 14	696	0.1-	0.7+
1987 08 23	675	0.6+	1.0-	1994 08 30	413	1.2-	1.3+	1997 07 14	696	0.2+	2.0+
1987 09 18	010	2.2-	0.7+	1994 08 30	413	1.5-	2.0+	1999 01 13	699	0.2-	1.3+
1987 09 18	010	0.4-	1.2+	1994 08 31	413	0.8-	0.5-	1999 01 13	699	0.5+	0.5+
1987 09 18	010	0.4+	0.0	1994 09 04	413	0.4-	0.2+	1999 01 13	699	0.7+	0.7-
1987 09 18	010	0.9+	1.2+	1994 09 17	413	0.2+	0.1-	1999 01 22	561	0.2+	0.8+
1987 09 19	010	0.8+	0.0	1994 09 17	413	0.2+	0.2-	1999 01 22	561	0.1+	0.7+
1987 09 19	010	0.9+	1.4+	1994 09 18	413	0.5+	0.3-	1999 01 22	561	0.1-	0.7+

1992 02 25	675	1.0-	0.3-	1994 09 18	413	0.3+	0.4-	1999 02 13	704	0.4+	1.7+
1992 02 25	675	0.0	1.0+	1994 12 04	413	1.2+	1.0+	1999 02 13	704	2.6+	0.5-
1992 03 06	691	1.0-	1.0+	1994 12 04	413	0.0	0.4-	1999 02 13	704	0.0	1.4+
1992 03 06	691	0.8+	1.1+	1994 12 06	422	0.1-	0.5+	1999 02 13	704	1.0+	2.8+
1992 03 06	691	1.6-	0.7+	1994 12 06	422	0.2-	0.7+	1999 02 13	704	0.2-	0.7-
1992 03 08	809	(0.5-	2.3+)	1997 07 14	696	0.4-	1.0+				
1992 03 09	809	(1.6-	4.1+)	1997 07 14	696	0.1+	1.6+				

(10052)* 1987 SM₁₂ = 1980 FG

Discovered 1987 Sept. 16 by H. Debehogne at the European Southern Observatory.

Id. T. Kobayashi (*MPC* 13692)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	77.06402		(2000.0)	P		Q	
<i>n</i>	0.19935809	ω	42.71252	+0.91600789		-0.40109831	
<i>a</i>	2.9021073	Ω	340.93084	+0.36199013		+0.83401316	
<i>e</i>	0.0755047	<i>i</i>	1.23642	+0.17289506		+0.37886962	
<i>P</i>	4.94	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1980 03 16	809	0.0	0.4+	1987 09 24	809	0.7+	0.8+	1998 12 14	704	0.3+	0.2+
1980 03 16	809	0.2+	0.3+	1987 09 25	809	0.4+	0.6+	1998 12 14	704	0.9+	1.4-
1980 03 16	809	0.7+	0.1+	1987 09 25	809	0.7+	0.4+	1998 12 14	704	1.1-	1.3-
1980 03 16	809	0.5-	0.5+	1987 09 25	809	0.7+	0.6+	1998 12 14	704	(2.8-	0.6-)
1980 03 17	809	0.6+	0.4+	1987 09 27	809	0.7-	0.4+	1998 12 17	704	0.3+	0.2+
1980 03 17	809	0.3-	0.9+	1987 09 27	809	0.6-	0.3+	1998 12 17	704	0.1-	0.3-
1980 03 17	809	0.0	0.0	1987 09 27	809	0.8-	0.2+	1998 12 17	704	0.4-	0.6-
1980 03 17	809	0.7+	0.0	1992 08 25	801	0.2+	0.4-	1998 12 17	704	0.1-	0.2+
1987 09 16	809	0.0	0.7-	1992 08 25	801	0.3+	0.4-	1998 12 17	704	0.1+	0.6-
1987 09 16	809	0.0	0.7-	1992 08 30	801	0.4-	0.5-	1999 01 16	704	0.8+	0.1+
1987 09 16	809	0.1-	0.6-	1992 08 30	801	0.4-	0.7-	1999 01 16	704	0.4+	0.4+
1987 09 18	809	0.3-	0.2-	1992 09 23	691	1.0-	0.2+	1999 01 16	704	1.4-	0.6-
1987 09 18	809	0.3-	0.2-	1992 09 23	691	1.1-	0.7+	1999 01 19	704	0.0	0.3+
1987 09 18	809	0.1+	0.2-	1992 09 23	691	1.3-	0.3+	1999 01 19	704	0.3-	1.0+
1987 09 19	809	0.1+	0.5-	1997 10 22	012	0.6+	1.0+	1999 01 19	704	1.1+	0.1+
1987 09 19	809	0.5+	0.6-	1997 10 22	012	0.5+	0.4+	1999 01 19	704	0.3+	0.8+
1987 09 24	809	0.4+	0.9+	1997 10 22	012	0.2+	0.8+	1999 01 19	704	1.1-	0.7+
1987 09 24	809	0.4+	0.7+	1998 12 14	704	0.2-	0.2+				

(10053)* 1987 SR₁₂ = 1976 GM₃ = 1980 RB₃

Discovered 1987 Sept. 16 by H. Debehogne at the European Southern Observatory.

Id. H. Kaneda (*MPC* 15888)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	152.28940		(2000.0)	P		Q	
<i>n</i>	0.28662943	ω	116.30882	+0.40512745		+0.91425480	
<i>a</i>	2.2781844	Ω	177.58368	-0.86319121		+0.38363015	
<i>e</i>	0.1565732	<i>i</i>	4.28217	-0.30128507		+0.13025387	
<i>P</i>	3.44	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1976 04 01	095	1.0+	0.7+	1987 09 27	809	0.3+	0.8+	1998 11 23	704	1.1-	0.2+
1980 09 04	095	(3.5-	4.6-)	1987 09 27	809	0.3+	0.7+	1998 11 23	704	1.2+	1.1+
1987 08 28	095	0.0	2.1-	1987 09 27	809	0.2+	0.8+	1998 12 15	704	0.5-	0.4+
1987 09 16	809	0.4-	0.5+	1987 09 28	809	0.7+	1.0+	1998 12 15	704	0.5+	0.6-
1987 09 16	809	0.1-	0.2+	1987 09 28	809	0.8+	1.0+	1998 12 15	704	0.1+	0.8-
1987 09 16	809	0.1+	0.3+	1987 09 28	809	0.9+	1.0+	1998 12 15	704	0.2+	0.9-
1987 09 16	095	(0.2+	3.3-)	1990 05 28	801	0.2-	0.1+	1998 12 15	704	1.0-	0.1-
1987 09 18	809	0.5-	0.1+	1990 05 28	801	0.2-	0.0	1998 12 16	704	(2.7+	0.4+)
1987 09 18	809	0.5-	0.1+	1990 06 25	801	1.3-	0.1-	1998 12 16	704	0.6+	0.5-
1987 09 18	809	0.4-	0.1+	1990 06 25	801	1.1-	0.1-	1998 12 16	704	0.3+	0.6-
1987 09 19	809	0.2-	0.5-	1994 10 01	675	1.5-	0.4-	1998 12 16	704	0.4-	0.1+
1987 09 19	809	0.1-	0.6-	1994 10 01	675	0.5-	0.1-	1998 12 16	704	0.1+	0.4-
1987 09 19	809	0.1-	0.6-	1997 07 11	962	1.2+	0.3-	1998 12 22	704	0.1-	0.9+
1987 09 20	095	(6.5+	0.8+)	1997 07 12	962	0.8+	1.0-	1998 12 22	704	0.5-	0.1+

1999 MAR. 2

1987 09 24	809	0.1−	0.4−	1998 11 23	704	0.7+	0.3+	1998 12 22	704	0.1−	0.2+
1987 09 24	809	0.0	0.6−	1998 11 23	704	0.8+	1.6−	1998 12 22	704	(1.3+	2.6+)
1987 09 24	809	0.1+	0.4−	1998 11 23	704	1.2+	0.3+	1998 12 22	704	0.9−	0.5−

(10054)* 1987 SQ₁₇ = 1943 UD

Discovered 1987 Sept. 17 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Id. T. Kobayashi (*MPC* 16026)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	134.30852	(2000.0)	P		Q	
<i>n</i>	0.29052258	ω	0.77842	+0.97044427	+0.24013118	
<i>a</i>	2.2577861	Ω	345.26045	−0.22191784	+0.84894633	
<i>e</i>	0.2045035	<i>i</i>	5.40775	−0.09481765	+0.47077292	
<i>P</i>	3.39	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i> 2

Residuals in seconds of arc

1943 10 30	024	(6.4−	1.0−)	1996 04 22	566	1.3+	0.8−	1998 11 25	704	0.4−	0.8−
1943 11 03	024	0.2+	0.5−	1996 04 23	566	0.7+	0.7+	1999 01 19	704	0.1+	0.5+
1987 09 17	095	0.3+	0.7+	1996 04 23	566	0.5+	0.3+	1999 01 19	704	0.9+	0.4+
1987 09 23	095	(3.4+	0.8−)	1996 04 23	566	0.0	0.6+	1999 01 19	704	1.0+	0.3+
1987 10 23	095	1.1−	0.9+	1997 09 01	566	0.5+	1.0+	1999 01 19	704	0.4−	0.2+
1996 02 24	566	0.2+	0.9+	1997 09 01	566	0.7+	0.8+	1999 01 19	704	0.3−	0.5−
1996 02 24	566	0.6−	0.4+	1997 09 01	566	0.7+	0.9+	1999 02 10	704	0.1+	0.3+
1996 02 24	566	0.6−	0.6+	1997 09 23	691	0.6−	0.9+	1999 02 10	704	0.1+	0.7−
1996 03 18	566	0.4−	1.5+	1997 09 23	691	1.3−	0.1−	1999 02 10	704	0.2−	0.1−
1996 03 18	566	0.1−	0.6+	1997 09 23	691	0.7−	0.1+	1999 02 10	704	1.4+	1.1+
1996 03 18	566	0.1+	0.9+	1997 09 27	691	0.3−	0.5+	1999 02 10	704	0.8+	0.8+
1996 04 22	566	(2.7+	2.3−)	1997 09 27	691	0.6−	1.5+	1999 02 13	704	1.1+	0.3−
1996 04 22	566	1.9+	0.4−	1997 09 27	691	1.3−	0.1−	1999 02 13	704	0.5−	0.3−
1996 04 22	566	(2.7+	2.1−)	1998 11 25	704	0.8−	1.8+	1999 02 13	704	0.7−	0.4−
1996 04 22	566	(2.5+	0.4−)	1998 11 25	704	0.5+	1.1+	1999 02 13	704	0.2−	0.5+
1996 04 22	566	(3.5+	1.9−)	1998 11 25	704	(0.8+	2.4−)	1999 02 13	704	0.7−	0.1+

(10055)* 1987 YC₁ = 1996 QK

Discovered 1987 Dec. 22 at Tautenburg.

Id. K. Ichikawa (*MPC* 29095)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	139.61686	(2000.0)	P		Q	
<i>n</i>	0.19344820	ω	242.96499	+0.99108694	−0.13305190	
<i>a</i>	2.9609172	Ω	124.68030	+0.12490001	+0.91077471	
<i>e</i>	0.0536398	<i>i</i>	0.46144	+0.04633203	+0.39087929	
<i>P</i>	5.09	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1987 12 22	033	0.6−	0.1−	1997 12 04	704	(2.4+	1.8+)	1999 02 10	704	0.0	0.7−
1987 12 25	033	0.1+	0.7−	1997 12 04	704	(0.8+	3.0+)	1999 02 10	704	1.3+	1.2+
1987 12 25	033	0.4+	1.0−	1997 12 04	704	(2.6+	2.1+)	1999 02 10	704	0.6−	0.4+
1988 01 11	033	0.1−	0.2+	1997 12 31	704	0.1−	0.6+	1999 02 10	704	0.4+	0.4−
1988 01 11	033	0.2+	0.5+	1997 12 31	704	0.0	0.3−	1999 02 10	704	0.8−	1.1−
1996 08 17	566	0.2−	0.3−	1997 12 31	704	0.1+	0.0	1999 02 10	113	0.7−	0.4−
1996 08 17	566	0.2−	0.4−	1997 12 31	704	1.0−	0.4+	1999 02 10	113	1.1−	0.2+
1996 08 17	566	0.1−	0.3−	1998 01 02	704	0.3+	0.2−	1999 02 12	699	1.2+	0.2+
1996 08 19	566	0.2+	0.3+	1998 01 02	704	0.2+	0.6−	1999 02 12	699	0.1+	0.3−
1996 08 19	566	0.7+	0.3+	1998 01 02	704	1.4+	0.7+	1999 02 12	699	1.7+	0.6+
1996 08 19	566	1.2+	0.5+	1998 01 02	704	1.1−	0.6+	1999 02 13	704	0.8−	0.8+
1996 09 13	566	0.8−	0.1+	1999 01 21	113	0.5−	0.0	1999 02 13	704	0.9+	0.0
1996 09 13	566	0.4−	0.1+	1999 01 21	113	0.7−	0.3−	1999 02 13	704	(2.3−	0.5−)
1996 09 13	566	0.4−	0.0	1999 01 21	113	0.0	0.7−	1999 02 13	704	0.4+	0.4+
1997 12 04	704	(1.4+	3.1+)	1999 01 21	113	0.4−	0.1−	1999 02 13	704	0.4−	0.7+

(10056)* 1988 BX₃ = 1974 HW

Discovered 1988 Jan. 19 by H. Debehogne at the European Southern Observatory.

Id. C. M. Bardwell (*MPC* 13468)

M.P.C. 33871

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	284.00691	(2000.0)	P		Q	
<i>n</i>	0.27385636	ω	359.69254	−0.60855094	+0.78950533	
<i>a</i>	2.3484834	Ω	232.82112	−0.72782200	−0.59534939	
<i>e</i>	0.0685567	<i>i</i>	5.73869	−0.31613429	−0.14913227	
<i>P</i>	3.60	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1974 04 22	805	0.1−	0.0	1988 01 28	809	0.2+	0.1−	1999 02 12	704	0.7+	0.5−
1974 04 24	805	0.2−	0.2+	1988 01 28	809	0.3+	0.0	1999 02 12	704	1.8+	0.3−
1988 01 19	809	0.1−	0.3−	1993 09 20	675	1.0+	0.3+	1999 02 12	704	0.5−	0.7+
1988 01 19	809	0.2+	0.1−	1993 09 20	675	0.1−	1.7−	1999 02 12	704	(1.2+	2.8+)
1988 01 19	809	0.3+	0.1−	1997 10 30	566	0.0	0.1−	1999 02 16	704	0.6−	0.4−
1988 01 20	809	0.1+	0.3+	1997 10 30	566	0.1−	0.1−	1999 02 16	704	0.0	0.5−
1988 01 20	809	0.1+	0.6+	1997 10 30	566	0.0	0.1−	1999 02 16	704	0.5−	0.1−
1988 01 22	809	0.1−	0.3+	1997 11 03	704	0.1−	0.5+	1999 02 16	704	0.3−	0.6−
1988 01 22	809	0.0	0.1+	1997 11 03	704	0.2−	0.4+	1999 02 16	704	0.4+	1.2+
1988 01 22	809	0.0	0.0	1997 11 03	704	0.3+	0.6+	1999 02 18	566	0.2+	0.4+
1988 01 24	809	0.1−	0.4+	1997 11 03	704	0.5−	0.1−	1999 02 18	566	0.2−	0.0
1988 01 24	809	0.0	0.0	1998 11 25	704	0.8−	1.9−	1999 02 18	566	0.3−	0.3+
1988 01 26	809	0.1+	0.3−	1998 11 25	704	1.6−	1.0−				
1988 01 26	809	0.0	0.2−	1998 11 25	704	0.2−	0.1−				

(10057)* 1988 CO₁ = 1994 VW

Discovered 1988 Feb. 11 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 24228)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	32.83140	(2000.0)	P		Q	
<i>n</i>	0.26993110	ω	315.27081	+0.14160791	−0.98835231	
<i>a</i>	2.3711959	Ω	126.50946	+0.92654535	+0.11250804	
<i>e</i>	0.1394360	<i>i</i>	3.97658	+0.34851244	+0.10247758	
<i>P</i>	3.65	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i> 2

Residuals in seconds of arc

1988 01 18	071	(5.8+	5.1−)	1996 04 17	691	1.5−	0.4+	1999 01 09	120	0.3−	0.2+
1988 01 18	071	0.5+	1.8−	1996 04 17	691	0.9−	1.1−	1999 01 10	120	0.0	0.2+
1988 01 18	071	0.4−	1.4−	1996 06 08	809	1.1+	0.7+	1999 01 14	727	0.1+	0.2−
1988 01 19	071	(0.1+	4.0−)	1996 06 08	809	0.6+	0.8+	1999 01 14	727	0.4−	0.7+
1988 02 11	809	1.5+	0.6+	1996 06 08	809	1.6+	1.8+	1999 01 14	727	0.3−	0.5+
1988 02 15	809	1.5+	2.1−	1996 06 10	809	1.3+	1.9+	1999 01 17	691	1.0−	0.2−
1988 02 16	809	0.9+	0.3+	1996 06 10	809	1.1+	1.6+	1999 01 17	691	0.9−	0.3−
1988 02 16	809	0.5+	0.3+	1996 06 10	809	(2.2+	3.0+)	1999 01 17	691	1.0−	0.6−
1988 02 16	809	0.3−	0.2−	1998 11 23	704	1.9+	0.7+	1999 01 19	704	0.2+	0.8+
1988 02 17	809	0.3+	0.4+	1998 11 23	704	0.8−	0.3+	1999 01 19	704	0.7−	2.1+
1988 02 17	809	0.0	0.4−	1998 11 23	704	0.8−	1.5−	1999 01 19	704	(0.5+	2.9+)
1988 02 17	809	0.4−	0.1−	1998 11 23	704	(2.4+	1.7+)	1999 01 19	704	0.1+	1.8+
1988 02 21	809	0.7−	1.2+	1998 11 23	699	1.3+	0.7+	1999 01 19	704	1.1+	2.0+
1988 02 21	809	1.0−	1.7+	1998 11 23	699	0.6+	1.1+	1999 02 10	704	0.2+	1.4−
1988 02 21	809	2.0−	1.5+	1998 11 23	699	0.7+	0.4−	1999 02 10	704	0.1−	0.1−
1988 02 23	809	0.2−	0.8+	1998 11 25	704	0.7−	0.2−	1999 02 10	704	0.3+	0.9−
1988 02 23	809	0.2−	0.6−	1998 11 25	704	1.5+	0.1−	1999 02 10	704	0.4+	0.9−
1988 02 23	809	0.4−	0.7−	1998 11 25	704	0.1+	0.9+	1999 02 10	704	1.4+	0.7−
1994 11 05	670	0.2−	1.1+	1998 11 25	704	(2.8+	0.2+)	1999 02 13	704	1.2+	0.8−
1994 11 05	670	0.6−	1.5+	1998 11 25	704	0.8+	1.6−	1999 02 13	704	0.7−	0.4+
1994 11 06	670	0.1+	0.7+	1999 01 08	691	0.7−	0.1−	1999 02 13	704	0.3−	0.1−
1994 11 06	670	0.6−	0.5+	1999 01 08	691	0.5−	0.1−	1999 02 13	704	0.1−	0.5−
1996 04 17	691	0.7−	0.6−	1999 01 08	691	0.5−	0.1−	1999 02 13	704	0.0	1.1−

(10058)* 1988 DD₅

Discovered 1988 Feb. 25 by R. H. McNaught at Siding Spring.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	271.64101		(2000.0)	P			Q				
<i>n</i>	0.26557601	ω	328.11220	−0.32452693			+0.93149194				
<i>a</i>	2.3970485	Ω	282.50454	−0.82861164			−0.36375683				
<i>e</i>	0.2280427	<i>i</i>	9.69044	−0.45616337			−0.00193150				
<i>P</i>	3.71	<i>H</i>	14.7	<i>G</i>	0.15		<i>U</i>	2			
Residuals in seconds of arc											
1988 02 23	413	0.0	1.8−	1992 04 23	413	0.5+	0.4+	1999 01 15	699	0.4+	0.4−
1988 02 25	413	1.0−	0.3−	1992 04 23	413	0.1−	1.1+	1999 01 15	699	0.6−	0.0
1988 02 25	413	0.0	0.4−	1992 06 19	413	0.3−	0.4+	1999 01 15	699	0.5−	0.2+
1988 03 10	413	0.8−	0.3−	1992 06 19	413	0.3−	0.3+	1999 02 12	704	0.2−	0.1+
1988 03 10	413	0.3−	0.2−	1992 07 04	413	0.9+	0.2−	1999 02 12	704	0.0	0.4+
1988 04 20	413	0.2+	1.4−	1992 07 04	413	0.9+	0.3−	1999 02 12	704	0.7+	0.2−
1988 04 20	413	0.9−	1.1+	1995 01 08	596	0.3−	2.0−	1999 02 12	704	0.3+	0.1+
1992 03 09	413	0.2+	0.6−	1995 01 08	596	0.1−	1.1−	1999 02 12	704	0.2−	1.2+
1992 03 09	413	0.3−	0.3+	1995 01 08	596	0.7+	0.8+	1999 02 16	704	0.2+	0.5−
1992 03 13	413	0.1−	0.8−	1996 07 12	801	0.3+	0.4−	1999 02 16	704	0.4−	0.5+
1992 03 13	413	0.5−	1.0+	1996 07 12	801	0.4+	0.1−	1999 02 16	704	0.0	0.3+
1992 04 22	413	0.3+	0.0	1996 07 20	801	0.8−	1.4−	1999 02 16	704	0.8+	0.2+
1992 04 22	413	0.2+	0.1−	1996 07 20	801	0.8+	1.2−	1999 02 16	704	0.2−	0.2−

(10059)* 1988 FS₂ = 1992 JS₁

Discovered 1988 Mar. 21 at Smolyan.

Id. G. V. Williams (*MPC* 21569)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	300.84446		(2000.0)	P		Q					
n	0.26347280	ω	202.32743	-0.86206522		+0.50675864					
a	2.4097881	Ω	8.12928	-0.45802604		-0.77375426					
e	0.1370827	i	2.53924	-0.21692328		-0.38013159					
P	3.74	H	14.1	G	0.15	U	1				
Residuals in seconds of arc											
1988 03 15	809	0.2-	0.0	1993 09 15	809	0.2+	1.0+	1997 10 31	910	1.3+	0.1-
1988 03 15	809	1.2-	0.3-	1993 09 15	809	0.2-	0.2+	1997 10 31	910	1.3+	0.2-
1988 03 16	809	0.2+	0.0	1993 09 17	809	(2.1-	0.9+)	1998 11 25	699	0.8-	0.2+
1988 03 16	809	0.5-	0.2+	1993 09 17	809	1.0-	0.9+	1998 11 25	699	0.6-	0.7+
1988 03 21	071	(3.1-	1.4-)	1993 09 17	809	1.6-	0.8+	1998 11 25	699	1.4-	0.4-
1988 03 21	071	(0.3-	3.0-)	1993 09 17	809	1.2+	0.3+	1999 02 08	127	0.2+	0.1-
1988 03 22	809	1.0+	0.1-	1993 09 17	809	0.6+	0.1-	1999 02 08	127	0.2+	0.5-
1988 03 22	809	0.1+	0.3+	1993 09 17	809	0.6-	0.7-	1999 02 10	704	0.2+	0.1-
1988 03 22	809	0.1+	0.7+	1993 09 18	809	0.5-	0.3-	1999 02 10	704	0.1-	0.9+
1988 04 10	808	0.3-	0.7+	1993 09 18	809	0.7-	0.4-	1999 02 10	704	1.0-	0.9+
1988 04 10	808	0.7-	0.5+	1993 09 18	809	1.1-	0.3+	1999 02 10	704	0.2+	0.1+
1988 04 12	808	1.3+	0.9-	1993 09 18	675	0.1+	0.4-	1999 02 10	704	0.3+	0.4+
1988 04 12	808	1.4+	0.3+	1993 09 18	675	0.8-	0.5+	1999 02 12	699	0.1+	0.3+
1992 05 01	809	0.7+	0.1+	1993 09 22	809	(1.5+	3.2+)	1999 02 12	699	0.4+	0.3+
1992 05 01	809	0.4+	0.2+	1993 09 22	809	(0.8-	3.0+)	1999 02 12	699	0.1+	0.4+
1992 05 01	809	0.5+	0.1+	1993 09 22	809	(0.2-	3.7+)	1999 02 12	127	1.0-	0.2+
1992 05 07	809	(3.2-	0.9+)	1993 09 22	675	0.4-	1.1-	1999 02 12	127	0.7-	0.0
1992 05 07	809	(2.6-	0.8+)	1993 09 22	675	1.2-	0.4-	1999 02 13	704	0.8+	0.9-
1992 05 07	809	1.7-	1.1+	1993 09 24	809	1.7+	0.6+	1999 02 13	704	0.5+	0.4-
1992 05 12	809	0.5-	1.3-	1993 09 24	809	0.7+	0.6-	1999 02 13	704	0.6+	0.1-
1992 05 12	809	0.3+	1.8-	1993 09 24	809	0.6-	0.5-	1999 02 13	704	0.0	0.9-
1993 09 15	809	0.8+	0.7+	1997 10 31	910	1.2+	0.2-	1999 02 13	704	0.2-	1.0-

(10060)* 1988 GL = 1992 JJ

Discovered 1988 Apr. 12 by C. S. Shoemaker at Palomar.

Id. T. Urata (*MPC* 20146)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	269.75360		(2000.0)	P		Q					
<i>n</i>	0.25792803	ω	149.11847	-0.78104251	+0.57496053						
<i>a</i>	2.4442016	Ω	67.96286	-0.61308819	-0.63180013						
<i>e</i>	0.1910721	<i>i</i>	15.24311	-0.11872434	-0.51985477						
<i>P</i>	3.82	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	1				
Residuals in seconds of arc											
1988 04 12	675	0.7-	0.0	1993 09 03	413	0.0	0.5-	1998 12 14	704	0.0	0.6-
1988 04 14	675	1.0+	0.9+	1993 09 19	675	1.2+	1.0-	1998 12 14	704	0.4+	0.1+
1988 05 09	675	1.3-	1.8-	1993 09 19	675	0.6+	1.2-	1998 12 14	704	0.9+	1.0-
1988 05 10	675	0.5+	1.5-	1993 10 10	675	0.8+	1.3-	1998 12 14	704	(1.0-	2.5-)
1988 05 13	675	0.6+	1.4-	1996 03 17	801	0.2+	0.8+	1998 12 17	704	0.2-	1.1-
1992 04 03	675	0.1+	0.5+	1996 03 17	801	0.1+	0.1+	1998 12 17	704	0.9-	0.6-
1992 04 03	675	1.5+	0.3+	1996 03 23	801	0.8+	0.3+	1998 12 17	704	0.6+	0.4-
1992 04 05	675	1.7+	1.0+	1996 03 23	801	0.7+	0.2-	1998 12 17	704	0.0	0.8-
1992 04 08	675	0.0	1.0+	1996 04 15	801	0.2+	0.2+	1998 12 17	704	0.5-	0.5-
1992 04 08	675	0.1+	0.1+	1996 04 18	801	0.0	0.1-	1999 01 16	704	0.5-	0.3+
1992 04 26	675	1.2-	1.4-	1996 04 18	801	0.1-	0.6-	1999 01 16	704	0.2+	0.6+
1992 04 26	675	0.1-	1.5-	1996 05 06	596	0.9-	1.2-	1999 01 16	704	0.4-	0.5+
1992 04 29	675	1.9-	1.3-	1996 05 15	801	0.1+	0.8+	1999 01 16	704	0.3+	0.5+
1992 05 04	385	1.5-	0.5-	1996 05 15	801	0.2+	0.6+	1999 01 16	704	0.2-	0.3+
1992 05 04	385	1.5-	1.2+	1996 05 20	801	0.3+	0.4-	1999 01 19	704	0.1+	0.3-
1992 05 05	385	(2.2+	0.9+)	1996 05 20	801	0.4-	0.5-	1999 01 19	704	0.3+	0.7+
1992 05 05	385	0.4+	1.6+	1996 05 21	610	0.6+	0.8-	1999 01 19	704	0.8+	1.3-
1992 05 29	801	0.0	0.2-	1996 05 21	610	0.1-	0.7-	1999 01 19	704	0.4-	0.4-
1992 05 29	801	0.4+	0.4-	1996 05 22	610	0.9-	0.6-				
1993 09 03	413	0.1-	0.5-	1998 12 14	704	0.2-	0.6-				

(10061)* 1988 PG₁ = 1970 PY = 1979 OV₁₆

Discovered 1988 Aug. 11 by A. J. Noymer at Siding Spring.

Id. G. V. Williams (*MPC* 18289)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

$\dot{M}$	117.15780		(2000.0)	P		Q					
n	0.22061386	ω	20.89773	+0.90888637	+0.38962553						
a	2.7125694	Ω	315.24458	-0.40630431	+0.74685945						
e	0.2003566	i	12.19414	-0.09403395	+0.53888117						
P	4.47	H	13.5	G	0.15	U	2				
Residuals in seconds of arc											
1955 03 24	675	0.4+	0.1+	1988 08 20	413	1.8+	1.3-	1997 08 29	127	(0.0	2.2-)
1970 08 11	095	0.4+	1.6-	1988 10 10	413	0.4-	0.2+	1997 08 29	127	0.3-	1.8-
1979 07 30	095	(2.6-	0.1+)	1988 10 11	413	0.0	0.3+	1998 12 17	704	0.8+	0.0
1988 08 08	095	(0.8+	4.1+)	1991 02 10	675	0.1-	0.3+	1998 12 17	704	0.0	0.9-
1988 08 09	095	0.2+	0.6+	1991 02 10	675	0.2-	1.8-	1998 12 17	704	0.2-	0.5-
1988 08 09	095	(3.7-	4.7+)	1991 04 12	413	0.8-	1.3-	1998 12 17	704	0.9-	0.0
1988 08 09	095	(8.7-	9.9+)	1991 04 12	413	1.0-	0.4-	1999 01 19	704	0.1-	0.8-
1988 08 11	413	1.0-	0.4-	1991 05 06	413	0.2-	0.2+	1999 01 19	704	1.0+	1.0-
1988 08 11	413	1.3+	0.2-	1997 08 13	127	0.6+	0.2-	1999 01 19	704	0.1-	1.4+
1988 08 19	413	1.4-	0.9+	1997 08 13	127	0.5+	0.4-	1999 01 19	704	1.4-	0.7-
1988 08 19	413	1.8+	0.9-	1997 08 26	367	0.2-	0.4+				
1988 08 20	413	1.0-	0.2+	1997 08 26	367	0.4-	0.9+				

(10062)* 1988 RV₄ = 1997 UY₂₄

Discovered 1988 Sept. 1 by H. Debehogne at the European Southern Observatory.

Id. G. V. Williams (*MPC* 30974)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	156.19344		(2000.0)	P		Q		Williams	
<i>n</i>	0.22725797	ω	22.14498	+0.82464235	+0.56514920				
<i>a</i>	2.6594386	Ω	303.42034	-0.52317752	+0.74596941				
<i>e</i>	0.1790713	<i>i</i>	1.64112	-0.21505878	+0.35232942				
<i>P</i>	4.34	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	1		

1999 MAR. 2

M.P.C. 33873

Residuals in seconds of arc

1988 09 01	809	1.6−	0.1+	1988 09 18	809	0.3−	0.1−	1997 11 26	566	0.1+	0.1−
1988 09 01	809	1.5−	0.2−	1988 09 18	809	0.6−	0.2−	1997 12 05	691	1.4−	0.1+
1988 09 01	809	1.5−	0.1−	1988 09 19	809	0.5−	0.3+	1997 12 05	691	1.3−	0.1−
1988 09 03	809	0.2−	0.2−	1988 09 19	809	0.4−	0.1+	1997 12 05	691	1.3−	0.2−
1988 09 03	809	0.1+	0.5−	1988 09 19	809	0.2−	0.1+	1998 11 18	691	(3.1−	0.8−)
1988 09 03	809	0.3+	0.5−	1988 09 20	809	0.9−	0.6+	1998 11 18	691	1.7−	0.1−
1988 09 05	809	0.4+	0.3+	1988 09 20	809	1.0−	0.2+	1998 11 18	691	1.6−	0.9+
1988 09 05	809	0.6+	0.4+	1988 09 20	809	1.0−	0.2−	1998 11 22	691	0.3−	0.5−
1988 09 05	809	0.7+	0.4+	1988 10 05	807	1.8+	0.1+	1998 11 22	691	0.2−	0.3−
1988 09 07	809	0.5−	0.2+	1988 10 07	675	0.3−	1.2−	1998 11 22	691	0.5−	0.3−
1988 09 07	809	0.4−	0.2+	1988 10 07	675	0.5+	2.4−	1998 12 11	303	0.3+	0.3+
1988 09 07	809	0.3−	0.0	1988 10 09	675	0.3−	1.0−	1998 12 12	303	0.2+	0.1−
1988 09 08	809	0.6+	1.4+	1988 10 09	675	0.7+	1.1−	1998 12 12	303	0.2−	0.1−
1988 09 08	809	0.8+	1.4+	1988 11 03	807	1.1+	0.7−	1998 12 13	303	0.1−	0.6+
1988 09 08	809	0.9+	1.3+	1988 11 05	807	0.1+	0.3−	1998 12 13	303	0.7+	0.2+
1988 09 09	809	0.4+	0.2−	1996 06 12	566	0.3−	1.3−	1999 01 07	691	0.9−	0.0
1988 09 09	809	0.5+	0.2−	1996 06 12	566	0.4−	1.1−	1999 01 07	691	1.0−	0.1−
1988 09 09	809	0.9+	0.2−	1996 06 12	566	0.4−	1.6−	1999 01 07	691	1.0−	0.3−
1988 09 11	675	0.3+	0.2−	1997 10 29	704	0.4−	1.2−	1999 01 17	691	0.9−	0.2−
1988 09 11	675	1.3+	0.1+	1997 10 29	704	0.4−	0.2−	1999 01 17	691	0.9−	0.1−
1988 09 11	675	0.3+	0.3−	1997 10 29	704	0.8+	0.4−	1999 02 12	704	0.0	0.5−
1988 09 11	809	0.2−	0.5+	1997 10 29	704	0.0	1.6−	1999 02 12	704	0.7+	1.7−
1988 09 11	809	0.2−	0.6+	1997 10 29	704	0.0	1.2−	1999 02 12	704	0.0	0.1−
1988 09 11	809	0.6+	0.2−	1997 11 03	704	0.2+	1.1+	1999 02 12	704	1.7+	1.4+
1988 09 14	809	0.0	0.3−	1997 11 03	704	0.7−	1.0+	1999 02 18	566	0.4+	0.4−
1988 09 14	809	0.1−	0.3−	1997 11 03	704	1.4+	0.6+	1999 02 18	566	0.7+	0.3−
1988 09 14	809	0.2+	0.3−	1997 11 03	704	1.2+	0.5+	1999 02 18	566	0.5+	0.4−
1988 09 16	675	0.5+	0.8+	1997 11 03	704	0.7+	0.5+	1999 02 19	691	1.3+	0.2−
1988 09 16	675	0.1+	0.0	1997 11 26	566	0.5+	0.6−	1999 02 19	691	1.3+	0.2−
1988 09 18	809	0.5−	0.1−	1997 11 26	566	0.7+	0.1+				

(10063)* 1988 SZ₂ = 1981 UD₂₇

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

Id. S. J. Bus (*MPC* 20503)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	261.00952	(2000.0)	P	Q
<i>n</i>	0.12424730	ω	79.84587	−0.91028790
<i>a</i>	3.9775112	Ω	124.45529	−0.39732021
<i>e</i>	0.0351961	<i>i</i>	2.99284	−0.11624368
<i>P</i>	7.93	<i>H</i>	12.8	<i>G</i> 0.15
				<i>U</i> 1

Residuals in seconds of arc

1981 10 24	675	1.9−	0.7−	1996 10 07	809	0.2−	0.3−	1997 11 01	691	0.2+	0.1+
1981 10 25	675	0.2−	0.8−	1996 10 07	809	1.5−	0.0	1997 11 06	704	0.9−	1.3+
1981 10 26	675	0.5−	0.1+	1996 10 07	809	(2.1−	0.8+)	1997 11 06	704	0.3+	0.0
1988 09 10	675	0.9+	0.4−	1996 10 08	809	(1.2+	4.4+)	1997 11 06	704	0.4−	1.3−
1988 09 10	675	0.8+	2.0−	1996 10 08	809	(2.3+	3.8+)	1997 11 06	704	1.3−	1.9+
1988 09 15	675	0.3+	0.7−	1996 10 08	809	(3.3+	4.3+)	1997 11 06	704	1.7−	0.6+
1988 09 15	675	0.8−	0.3+	1996 10 10	809	(2.2+	2.1+)	1998 12 15	704	1.9+	0.0
1988 09 16	807	1.7+	0.9+	1996 10 10	809	(2.0+	3.2+)	1998 12 15	704	1.1+	0.8−
1988 09 18	807	1.6+	0.3+	1996 10 10	809	0.0	1.6+	1998 12 15	704	0.6−	0.0
1988 10 04	807	1.3+	0.6+	1996 10 13	566	0.5−	0.6−	1998 12 22	704	0.3−	1.6−
1988 10 05	807	1.4+	0.0	1996 10 13	566	0.3−	1.0−	1998 12 22	704	0.1+	0.4−
1988 10 08	807	1.1+	0.9−	1996 10 13	566	0.8−	0.6−	1999 02 07	651	(3.9+	3.2+)
1988 11 05	807	0.3+	0.6−	1997 10 25	691	0.6−	0.6+	1999 02 07	651	0.3+	0.2+
1988 11 07	807	0.1−	0.0	1997 10 25	691	0.9−	0.3+	1999 02 07	651	0.6+	0.2+
1992 03 11	691	1.0−	0.3−	1997 10 25	691	0.8−	0.1−	1999 02 09	651	(2.4+	0.2−)
1992 03 11	691	0.9−	0.1−	1997 11 01	691	0.0	0.4+	1999 02 09	651	1.4+	0.5−
1992 03 11	691	0.8−	0.1−	1997 11 01	691	0.2+	0.3+	1999 02 09	651	1.3+	0.5−

(10064)* 1988 UO = 1995 GY₆

Discovered 1988 Oct. 31 by T. Kojima at YGCO Chiyoda Station.

Id. B. G. Marsden (*MPC* 25212)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	142.68875	(2000.0)	P	Q
<i>n</i>	0.21860933	ω	309.49178	+0.93896274
<i>a</i>	2.7291260	Ω	31.36990	−0.24028974
<i>e</i>	0.1868542	<i>i</i>	9.72017	−0.24619059
<i>P</i>	4.51	<i>H</i>	12.1	<i>G</i> 0.15
				<i>U</i> 2

Residuals in seconds of arc

1988 10 09	888	(3.0+	0.8+)	1997 10 27	688	0.6−	0.3+	1997 11 30	691	0.9−	0.2−
1988 10 09	888	(4.9+	2.0−)	1997 10 27	688	0.7−	0.3+	1998 11 25	704	(2.3−	0.2+)
1988 10 31	897	0.5+	0.4+	1997 10 28	688	0.6−	0.3+	1998 11 25	704	0.1+	1.1+
1988 10 31	897	0.9−	0.0	1997 10 28	688	0.6−	0.0	1998 11 25	704	0.2+	0.5+
1988 11 02	897	0.6−	0.5+	1997 10 29	704	(2.3+	0.5−)	1998 12 27	699	0.1−	0.3−
1988 11 02	897	0.0	0.2−	1997 10 29	704	0.6+	0.4−	1998 12 27	699	0.2−	0.0
1988 11 05	894	1.2+	0.5+	1997 10 29	704	1.0+	0.2+	1998 12 27	699	0.2+	0.2+
1988 11 05	894	0.5−	0.3−	1997 10 29	704	1.1+	0.3+	1999 02 08	127	0.7+	0.6−
1988 11 07	897	0.9+	1.0−	1997 10 29	704	0.7+	0.3+	1999 02 08	127	0.8+	0.5−
1988 11 07	897	1.0−	0.1+	1997 10 30	704	(2.2+	0.5−)	1999 02 10	704	0.6+	0.7+
1988 11 10	894	1.1+	1.6−	1997 10 30	704	(2.6+	0.7−)	1999 02 10	704	1.7+	0.2+
1988 11 10	894	0.3+	0.7−	1997 10 30	704	1.7+	0.6−	1999 02 10	704	0.6+	0.2−
1988 11 14	894	1.3−	0.4−	1997 10 30	704	1.7+	0.2+	1999 02 10	704	0.3−	0.0
1988 11 14	894	1.5+	0.6+	1997 10 30	566	0.8−	0.1+	1999 02 10	704	0.1+	0.5+
1995 03 27	675	0.2+	0.2−	1997 10 30	566	0.9−	0.0	1999 02 12	127	1.2−	0.7−
1995 04 04	327	0.5−	0.6−	1997 10 30	566	0.9−	0.1+	1999 02 12	127	1.0−	0.6−
1995 04 04	327	0.4−	0.5−	1997 11 02	138	0.3+	0.5−	1999 02 13	704	0.0	0.2+
1995 04 04	327	0.1−	0.6−	1997 11 02	138	0.0	0.0	1999 02 13	704	0.1+	0.5+
1995 04 04	327	0.1−	0.5−	1997 11 02	138	0.2+	0.0	1999 02 13	704	0.6−	0.2+
1995 04 05	327	0.7−	0.3−	1997 11 02	138	0.4+	0.2+	1999 02 13	704	0.3−	0.9+
1995 04 05	327	0.0	0.2−	1997 11 30	691	1.1−	0.2−	1999 02 13	704	0.2−	0.9+
1995 04 05	327	0.3−	0.3−	1997 11 30	691	1.0−	0.4−				

(10065)* 1988 XK = 1953 XL = 1978 WJ₁₅ = 1990 HS₃

Discovered 1988 Dec. 3 by Y. Oshima at the Gekko Observatory.

Id. G. V. Williams (*MPC* 19024)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	321.04727	(2000.0)	P	Q
<i>n</i>	0.19870594	ω	262.71592	−0.75673355
<i>a</i>	2.9084537	Ω	236.99344	+0.63716731
<i>e</i>	0.1767789	<i>i</i>	6.90900	+0.14619215
<i>P</i>	4.96	<i>H</i>	12.6	<i>G</i> 0.15
				<i>U</i> 1

Residuals in seconds of arc

1953 12 02	024	1.6+	0.6−	1990 04 17	046	1.0−	0.9−	1998 12 15	704	0.5+	1.2+
1955 04 18	675	0.2+	1.2+	1990 04 17	046	0.5+	0.6−	1998 12 21	888	0.1−	0.1+
1955 04 18	675	0.4+	0.0	1998 12 09	886	0.1−	0.1−	1998 12 21	888	0.1+	0.2+
1978 11 30	675	1.0−	0.8+	1998 12 09	886	0.0	0.2−	1998 12 22	704	0.3+	0.2+
1978 12 01	675	1.0−	1.2+	1998 12 10	744	0.2−	0.2+	1998 12 22	704	0.7−	0.5−
1988 12 03	888	1.4+	0.6−	1998 12 10	744	0.0	0.1+	1998 12 22	704	0.4−	0.0
1988 12 03	888	1.4+	0.9−	1998 12 11	888	0.1−	0.2+	1998 12 22	704	0.9+	0.3−
1988 12 05	888	1.2−	0.4−	1998 12 11	888	0.1−	0.2+	1998 12 22	704	0.7−	0.3+
1988 12 06	888	1.1−	0.7−	1998 12 15	744	0.2−	0.2+	1999 01 11	888	0.7+	0.5+
1988 12 06	888	0.8−	0.9−	1998 12 15	744	0.4−	0.1+	1999 01 11	888	0.3+	0.2+
1988 12 14	888	0.2+	0.2−	1998 12 15	704	0.3+	0.6+	1999 02 08	888	0.2+	0.5−
1988 12 14	888	0.0	0.1−	1998 12 15	704	1.0+	0.0	1999 02 08	888	0.5+	0.6−
1989 01 01	888	(3.2−	2.1+)	1998 12 15	704	0.4+	0.3+				
1989 01 01	888	2.3−	1.5−	1998 12 15	704	0.7+	0.8+				

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	57.61504	(2000.0)	P		Q	
<i>n</i>	0.30275331	ω	127.03420	+0.59560965	-0.80112690	
<i>a</i>	2.1965619	Ω	286.30735	+0.71620901	+0.56271809	
<i>e</i>	0.2026902	<i>i</i>	3.50599	+0.36372214	+0.20382358	
<i>P</i>	3.26	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1952 12 11	675	0.6+	0.8+	1991 10 04	033	0.1+	0.5+	1997 06 29	704	1.0+	0.5+
1952 12 11	675	1.4-	0.9+	1991 10 04	033	0.8+	0.9+	1999 01 22	120	0.7-	0.1-
1978 11 01	095	(4.4+	0.7-)	1991 10 04	033	0.3+	0.1+	1999 02 12	704	0.1+	0.4-
1988 12 01	054	0.3-	0.4+	1991 10 05	033	0.3-	0.2+	1999 02 12	704	1.0+	0.0
1988 12 12	054	1.2+	0.4-	1991 10 07	033	0.1+	0.3+	1999 02 12	704	0.1-	0.5-
1988 12 13	054	0.1-	0.6+	1991 10 07	033	1.1+	0.0	1999 02 12	704	0.3+	0.0
1991 09 12	675	0.6+	0.9-	1997 06 28	704	0.1-	0.5+	1999 02 12	704	0.2-	0.6+
1991 09 12	675	1.4-	0.1-	1997 06 28	704	0.5+	0.8+	1999 02 16	704	0.4+	0.4+
1991 09 14	675	0.8+	0.9-	1997 06 28	704	0.1-	0.9+	1999 02 16	704	0.2+	0.4+
1991 09 14	675	0.3+	0.1-	1997 06 29	704	0.3-	0.1-	1999 02 16	704	0.4-	0.4-
1991 10 03	033	1.5-	0.3-	1997 06 29	704	0.7-	0.1-	1999 02 16	704	0.5-	0.3+
1991 10 03	033	0.8-	1.1-	1997 06 29	704	0.1-	0.3-	1999 02 16	704	0.6-	0.0

(10067)* 1989 AL₆ = 1986 EZ₃ = 1997 PK

Discovered 1989 Jan. 11 by F. Börngen at Tautenburg.

Id. G. V. Williams (*MPC* 30447)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	112.77729	(2000.0)	P		Q	
<i>n</i>	0.29416168	ω	247.05539	+0.99958650	+0.00075877	
<i>a</i>	2.2391266	Ω	112.89112	+0.01041288	+0.92225242	
<i>e</i>	0.0890672	<i>i</i>	1.78804	-0.02680314	+0.38658751	
<i>P</i>	3.35	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1986 03 12	809	1.0-	0.3+	1998 10 23	691	1.5-	0.0	1999 01 20	113	0.7-	0.7-
1989 01 08	675	0.1+	0.6-	1998 10 29	691	0.5-	0.1-	1999 01 20	113	0.9-	0.8-
1989 01 08	675	0.8-	2.0+	1998 10 29	691	0.5-	0.0	1999 01 20	113	0.2-	1.1-
1989 01 11	033	0.4+	0.5+	1998 10 29	691	0.5-	0.0	1999 01 21	113	0.2-	1.5-
1989 01 11	033	0.0	0.4+	1998 12 14	691	1.0-	0.2+	1999 02 10	704	0.8-	0.3-
1989 01 14	033	1.3+	0.7+	1998 12 14	691	0.9-	0.1+	1999 02 10	704	1.5+	0.1-
1989 02 02	033	0.8+	0.2+	1998 12 14	691	0.8-	0.1+	1999 02 10	704	1.1+	0.1-
1989 02 03	033	0.4+	0.2+	1999 01 08	691	0.8-	0.3+	1999 02 10	704	1.4+	0.1-
1996 03 26	566	0.5-	0.2-	1999 01 08	691	0.9-	0.2+	1999 02 10	704	0.8+	0.2-
1996 03 26	566	0.1-	0.4-	1999 01 08	691	1.0-	0.2+	1999 02 10	113	0.2-	0.4+
1996 03 26	566	0.0	0.4-	1999 01 18	113	0.4-	0.2-	1999 02 10	113	0.0	0.6+
1997 08 01	566	0.6-	0.4+	1999 01 18	113	0.5-	0.3-	1999 02 11	699	1.2+	1.5+
1997 08 01	566	0.7-	0.2+	1999 01 18	113	0.1-	0.3-	1999 02 11	699	1.4+	0.8+
1997 08 01	566	0.5-	0.2+	1999 01 19	704	1.3+	0.0	1999 02 11	699	0.2+	0.1+
1997 08 03	566	1.0+	0.9-	1999 01 19	704	1.0+	0.6-	1999 02 13	704	(0.9+	2.4+)
1997 08 03	566	0.4+	0.8-	1999 01 19	704	1.3+	0.4-	1999 02 13	704	0.9+	0.9-
1997 08 03	566	0.9+	1.0-	1999 01 19	691	0.2+	0.1+	1999 02 13	704	0.1+	1.4-
1998 10 23	691	1.3-	0.2+	1999 01 19	704	1.3-	0.2-	1999 02 13	704	(3.5-	0.6-)
1998 10 23	691	1.3-	0.0	1999 01 19	691	0.2+	0.1+				

(10068)* 1989 CT₂ = 1983 RY₅ = 1994 TK₁₇ = 1997 HG₁₈

Discovered 1989 Feb. 4 by E. W. Elst at the European Southern Observatory.

Id. T. B. Spahr (*MPC* 30652), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	103.36379	(2000.0)	P		Q	
<i>n</i>	0.26969645	ω	72.95940	+0.46882692	+0.88037925	
<i>a</i>	2.3725711	Ω	225.22385	-0.84393836	+0.42252169	
<i>e</i>	0.1080761	<i>i</i>	5.79299	-0.26070935	+0.21542468	
<i>P</i>	3.65	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1983 09 03	095	0.7+	0.2+	1998 09 26	704	1.1+	0.1-	1998 10 29	704	0.4-	0.4+
1989 02 04	809	0.5-	0.9+	1998 09 26	704	0.6+	0.0	1998 10 29	704	0.1-	0.3-
1989 02 04	809	0.4-	1.3+	1998 10 14	704	0.0	0.3-	1998 10 29	704	0.1-	0.4+
1989 02 04	809	0.3-	1.5+	1998 10 14	704	1.1-	0.0	1998 11 10	704	0.7+	0.1+
1989 02 07	809	1.7+	2.0+	1998 10 14	704	0.2-	1.0+	1998 11 10	704	0.0	1.2-
1989 02 07	809	1.7+	1.1+	1998 10 14	704	(2.4-	0.7-)	1998 11 10	704	0.2-	1.1-
1989 02 07	809	(5.1+	0.2-)	1998 10 15	704	0.0	0.2+	1998 11 10	704	0.1+	1.2-
1989 03 02	809	0.7-	0.6-	1998 10 15	704	1.0+	1.6+	1998 11 11	704	1.0+	0.1+
1989 03 02	809	0.3-	0.8-	1998 10 15	704	0.2+	0.3+	1998 11 11	704	0.4-	0.7+
1989 03 02	809	0.3+	1.6-	1998 10 15	704	0.0	0.4+	1998 11 11	704	0.1+	0.8-
1989 03 03	809	0.4-	0.4-	1998 10 15	704	0.6-	0.6-	1998 11 11	704	0.1+	1.3-
1989 03 03	809	0.5-	1.0-	1998 10 21	910	0.7+	0.6+	1998 11 11	704	0.7+	1.6-
1989 03 03	809	0.7-	1.0-	1998 10 21	910	0.8+	0.6+	1998 11 23	699	0.5-	0.3-
1994 10 10	033	1.5-	0.3+	1998 10 22	910	0.6+	0.6+	1998 11 23	699	0.1-	0.4-
1994 10 10	033	1.5-	0.2+	1998 10 28	704	0.3+	0.6+	1998 11 23	699	0.3-	0.1+
1997 04 30	704	0.4+	0.1-	1998 10 28	704	0.6-	0.6+	1999 01 09	691	1.3-	0.7-
1997 04 30	704	0.1+	0.3+	1998 10 28	704	0.2+	0.8+	1999 01 09	691	1.2-	0.4-
1997 04 30	704	0.2+	0.2+	1998 10 28	704	0.2-	0.3+	1999 01 09	691	1.4-	0.9-
1997 04 30	704	0.0	0.3+	1998 10 28	691	0.1-	0.4+	1999 01 19	691	1.2-	0.2-
1997 04 30	704	0.0	0.3+	1998 10 28	691	0.2+	0.6+	1999 01 19	691	1.2-	0.1-
1998 09 26	704	0.2+	0.5+	1998 10 28	691	0.5+	0.5+	1999 01 19	691	1.2-	0.0
1998 09 26	704	1.3+	0.0	1998 10 29	704	0.1-	0.7-				
1998 09 26	704	0.7+	0.1-	1998 10 29	704	0.2-	0.2+				

(10069)* 1989 CW₂ = 1991 NR₁

Discovered 1989 Feb. 4 by E. W. Elst at the European Southern Observatory.

Id. E. Bowell (*MPC* 18631)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	173.93121	(2000.0)	P		Q	
<i>n</i>	0.18990174	ω	39.19403	+0.44071194	+0.88450557	
<i>a</i>	2.9976672	Ω	257.44329	-0.85795801	+0.36492019	
<i>e</i>	0.0654897	<i>i</i>	9.02096	-0.26397168	+0.29065984	
<i>P</i>	5.19	<i>H</i>	12.1	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1989 02 04	809	(4.9-	0.9+)	1991 07 13	675	0.4-	0.7-	1998 12 22	704	1.5+	0.4-
1989 02 04	809	(4.7-	0.6+)	1991 07 19	675	0.1-	1.1-	1999 01 18	704	(1.0+	2.3+)
1989 02 04	809	(3.8-	0.3+)	1991 07 19	675	1.1+	1.1-	1999 01 18	704	0.3+	0.1+
1989 02 07	809	2.3-	0.6-	1991 08 05	675	0.7+	1.2-	1999 01 18	704	0.7-	0.1-
1989 02 07	809	2.1-	0.8+	1991 08 05	675	0.5+	1.8-	1999 01 20	704	0.2-	0.0
1989 02 07	809	(3.3-	0.8+)	1991 08 09	675	0.9+	1.0-	1999 01 20	704	0.2-	0.3+
1989 03 02	809	0.9+	1.6-	1991 08 09	675	1.2+	1.6-	1999 01 20	704	0.5+	0.1-
1989 03 02	809	0.9+	1.6-	1996 07 06	292	0.1+	0.4+	1999 01 20	704	0.3+	0.2+
1989 03 02	809	1.1-	1.7-	1996 07 06	292	0.2+	1.0+	1999 01 20	704	0.3-	0.3-
1989 03 03	809	0.5+	0.9-	1996 07 07	292	0.6-	1.2+	1999 01 23	732	0.8-	0.6+
1989 03 03	809	0.2+	0.9-	1996 07 07	292	1.4-	0.1+	1999 01 23	732	0.8-	0.5+
1989 03 03	809	0.4-	1.3-	1998 12 22	704	0.8+	0.5-				
1991 07 13	675	0.6+	1.0-	1998 12 22	704	0.1+	0.5-				

(10070)* 1989 CB₈ = 1955 EK = 1990 KC₂

Discovered 1989 Feb. 7 by H. Debehogne at the European Southern Observatory.

Id. T. B. Spahr (*MPC* 30652)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	291.29427	(2000.0)	P		Q	
<i>n</i>	0.28987804	ω	207.99046	-0.96497544	+0.26219332	
<i>a</i>	2.2611316	Ω	347.20067	-0.23268978	-0.87088446	
<i>e</i>	0.0955248	<i>i</i>	2.27086	-0.12115223	-0.41571014	
<i>P</i>	3.40	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1955 03 14	760	0.8-	1.2+	1989 03 02	809	0.1+	0.6+	1998 12 16	699	0.4-	0.7-
1955 03 14	760	1.3+	0.6-	1989 03 02	809	0.1+	0.6+	1998 12 16	699	0.4+	0.8-
1989 02 07	809	0.1-	0.1+	1989 03 03	809	0.7-	0.4-	1999 01 10	699	0.5+	1.1-

1989 02 07	809	0.1−	0.0	1989 03 03	809	0.8−	0.7−	1999 01 10	699	0.1+	1.1−
1989 02 07	809	0.2−	0.0	1989 03 03	809	0.4−	1.0−	1999 01 10	699	0.2+	1.0−
1989 02 12	809	0.2+	0.3−	1990 05 29	413	(2.7+	1.2−)	1999 01 15	732	0.3−	0.1−
1989 02 12	809	0.4+	0.4−	1990 05 29	413	(1.0+	2.9+)	1999 01 15	732	0.0	0.2−
1989 02 12	809	0.4+	0.5−	1994 10 28	691	0.2+	0.6−	1999 01 16	732	0.0	0.1+
1989 02 13	809	0.1−	0.0	1994 10 28	691	0.0	0.5−	1999 01 16	732	0.6−	0.5−
1989 02 13	809	0.4+	0.2−	1994 10 28	691	0.3+	0.5−	1999 01 16	732	0.3−	0.0
1989 02 13	809	0.6+	0.2−	1996 03 17	566	0.7+	1.1+	1999 01 19	704	0.7+	0.2−
1989 02 14	809	0.4−	0.4−	1996 03 17	566	0.8+	1.1+	1999 01 19	704	0.5+	0.6+
1989 02 14	809	0.3+	0.3−	1996 03 17	566	0.5+	1.1+	1999 01 19	704	0.7−	0.8+
1989 02 17	809	0.2−	0.2−	1996 04 19	566	0.9−	1.3−	1999 01 19	704	0.5−	0.6+
1989 02 17	809	0.4−	0.1−	1996 04 19	566	0.7−	1.6−	1999 01 19	704	0.0	1.0+
1989 02 17	809	0.1−	0.1+	1996 04 19	566	0.7−	1.7−	1999 02 10	704	0.3+	0.4−
1989 02 26	809	0.6+	0.2+	1997 08 12	691	0.0	1.2+	1999 02 10	704	0.5+	1.0+
1989 02 26	809	0.7+	0.3+	1997 08 12	691	0.8−	0.7+	1999 02 10	704	0.2−	0.7+
1989 02 26	809	1.0+	0.5+	1997 08 12	691	1.0−	0.6+	1999 02 10	704	1.0+	0.3+
1989 02 27	809	0.8−	0.5+	1997 09 23	691	0.1−	0.3+	1999 02 10	704	(3.1+	0.3+)
1989 02 27	809	0.7−	0.5+	1997 09 23	691	0.1−	0.3+	1999 02 12	704	0.2+	0.2−
1989 02 27	809	0.5−	0.6+	1997 09 23	691	0.0	0.3+	1999 02 12	704	0.1+	0.5−
1989 02 28	809	0.1−	0.5+	1997 09 29	691	0.2+	0.3−	1999 02 12	704	0.1+	0.2+
1989 02 28	809	0.1−	0.5+	1997 09 29	691	0.1+	0.1−	1999 02 12	704	0.6−	0.2+
1989 02 28	809	0.3+	0.5+	1997 09 29	691	0.0	0.1+	1999 02 12	704	0.4−	2.0+
1989 03 02	809	0.2−	0.6+	1998 12 16	699	0.1−	0.5−				

(10071)* 1989 EZ₂ = 1980 RE₈ = 1995 WC₈

Discovered 1989 Mar. 2 by E. W. Elst at the European Southern Observatory.

Id. S. J. Bus (*MPC* 26900), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	264.50647	(2000.0)	P	Q	
<i>n</i>	0.27935647	ω	264.45216	−0.98939552	−0.08426744
<i>a</i>	2.3175560	Ω	270.67490	+0.12485323	−0.90960876
<i>e</i>	0.1151581	<i>i</i>	6.79462	−0.07421710	−0.40683031
<i>P</i>	3.53	<i>H</i>	14.6	<i>G</i>	0.15

Residuals in seconds of arc

1980 09 13	675	1.8+	0.6−	1995 11 24	327	1.0+	0.0	1998 10 29	704	0.6−	1.6+
1980 09 14	675	(6.6+	0.3+)	1995 11 24	327	1.2+	0.1+	1998 10 29	704	(2.2−	1.5−)
1989 02 04	809	(2.9+	1.0−)	1995 11 24	327	1.3+	0.2+	1998 11 11	704	0.5+	0.7−
1989 02 04	809	1.9+	0.8−	1995 11 25	327	0.8+	0.9+	1998 11 11	704	0.0	0.9−
1989 02 04	809	1.6+	0.6−	1995 11 25	327	1.0+	0.2−	1998 11 11	704	0.8−	0.9−
1989 03 02	809	0.3−	0.1−	1995 11 25	327	0.7+	1.0+	1998 11 11	704	1.3−	1.1−
1989 03 02	809	1.9−	0.1−	1997 07 15	104	0.2−	0.1+	1999 01 06	725	0.5+	0.3+
1989 03 02	809	1.6−	0.0	1997 07 15	104	0.2−	0.1−	1999 01 10	725	0.1−	0.6+
1989 03 03	809	0.9−	0.1+	1997 07 15	104	0.3+	0.2−	1999 01 10	725	0.1+	0.0
1989 03 03	809	1.1−	0.2−	1998 10 29	704	0.4+	0.9−				
1989 03 03	809	1.6−	0.9−	1998 10 29	704	0.3−	0.3+				

(10072)* 1989 GF₁ = 1992 AK

Discovered 1989 Apr. 3 by E. W. Elst at the European Southern Observatory.

Id. H. Kaneda (*MPC* 19864)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	7.32749	(2000.0)	P	Q	
<i>n</i>	0.28669640	ω	151.04472	−0.63575238	−0.77151914
<i>a</i>	2.2778296	Ω	338.40290	+0.69503553	−0.55863458
<i>e</i>	0.1048213	<i>i</i>	3.74222	+0.33577450	−0.30444314
<i>P</i>	3.44	<i>H</i>	14.5	<i>G</i>	0.15

Residuals in seconds of arc

1989 04 03	809	0.3−	0.9−	1994 12 02	675	0.5+	0.1−	1999 01 26	426	0.1−	0.4+
1989 04 03	809	0.3−	1.0−	1997 08 11	691	0.5−	0.1+	1999 01 26	426	0.3+	0.5+
1989 04 03	809	0.4−	0.7−	1997 08 11	691	0.7−	0.3+	1999 02 07	691	0.9−	0.4−
1989 04 05	809	1.3+	0.3+	1997 08 11	691	0.8−	0.2+	1999 02 07	691	0.8−	0.3−
1989 04 05	809	0.8+	0.2+	1997 09 26	557	0.4+	0.5+	1999 02 07	691	1.0−	0.2−
1989 04 05	809	0.6+	0.4+	1997 09 26	557	0.6+	0.3+	1999 02 10	704	0.2−	0.2+
1989 04 08	809	0.1−	0.3+	1997 09 26	557	0.3+	0.1+	1999 02 10	704	0.2−	0.2+

1989 04 08	809	0.5−	0.6+	1997 09 27	557	0.2+	0.3+	1999 02 10	704	0.8−	0.5+
1989 04 08	809	0.3−	0.3+	1997 09 27	557	0.6+	0.1−	1999 02 10	704	0.4+	0.6+
1989 04 10	809	0.2−	0.1−	1998 11 25	704	(2.3+	0.4−)	1999 02 10	704	0.6+	1.4+
1989 04 10	809	0.5−	0.5−	1998 11 25	704	0.3+	0.8−	1999 02 12	691	0.1−	0.2−
1989 04 10	809	1.3−	0.7−	1998 11 25	704	(2.7+	1.5−)	1999 02 12	691	0.1−	0.4−
1992 01 03	877	1.3+	0.5−	1998 11 25	704	0.7+	1.2−	1999 02 12	691	0.1−	0.1−
1992 01 03	877	(0.8−	2.8−)	1998 11 25	699	0.7−	0.5+	1999 02 13	704	1.2+	0.2+
1992 01 04	877	0.6−	0.6−	1998 11 25	699	0.1+	0.4+	1999 02 13	704	1.0+	0.6−
1992 01 04	877	(4.0−	0.4+)	1998 11 25	699	0.1−	0.5+	1999 02 13	704	1.0+	0.1+
1994 11 06	675	0.3+	0.4−	1998 12 21	704	0.9−	0.1−	1999 02 13	704	1.2+	0.4+
1994 11 06	675	0.0	1.3−	1998 12 21	704	0.1+	1.1−	1999 02 13	704	0.8+	0.1−
1994 11 07	675	0.2−	0.2+	1998 12 21	704	(1.9−	2.4−)	1999 02 21	691	0.5−	0.1−
1994 11 07	675	0.4−	0.3−	1999 01 24	426	0.2−	0.6+	1999 02 21	691	0.2−	0.3−
1994 11 30	675	0.1+	0.1−	1999 01 24	426	0.3−	0.6+	1999 02 21	691	0.2−	0.2−
1994 11 30	675	0.7−	0.0	1999 01 24	426	0.4+	0.7+				
1994 12 02	675	0.1−	0.2+	1999 01 26	426	0.2+	0.6+				

(10073)* 1989 GJ₂ = 1976 YE₄ = 1994 TX₁₄

Discovered 1989 Apr. 3 by E. W. Elst at the European Southern Observatory.

Id. K. Ichikawa (*MPC* 24387), K. Kinoshita (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	57.16367	(2000.0)	P	Q	
<i>n</i>	0.27156447	ω	166.29770	+0.80656425	−0.58336976
<i>a</i>	2.3616784	Ω	229.80267	+0.52989464	+0.78514566
<i>e</i>	0.1115981	<i>i</i>	7.18778	+0.26204155	+0.20790867
<i>P</i>	3.63	<i>H</i>	13.9	<i>G</i>	0.15

Residuals in seconds of arc

1976 12 18	095	0.9−	0.8−	1994 10 05	400	1.4+	1.2−	1998 12 15	704	0.4+	0.3−
1989 04 03	809	0.7−	1.0−	1994 10 05	400	1.1+	1.2−	1998 12 15	704	0.4+	0.2−
1989 04 03	809	0.4−	0.5−	1994 10 06	400	0.3−	1.2−	1998 12 22	704	0.6−	0.9−
1989 04 03	809	0.7−	1.0−	1994 10 06	400	(0.4+	2.2−)	1998 12 22	704	1.1−	1.0+
1989 04 05	809	0.0	0.3−	1994 10 28	400	(0.3+	3.9−)	1998 12 22	704	0.5+	1.7−
1989 04 05	809	0.0	0.8−	1994 10 28	400	(1.9−	2.7−)	1998 12 22	704	1.1−	1.1+
1989 04 05	809	0.5+	1.4−	1997 05 31	327	0.2+	0.1−	1998 12 22	704	0.5−	1.1−
1989 04 08	809	1.1+	0.6−	1997 05 31	327	0.0	0.1+	1999 01 18	704	0.2+	0.4+
1989 04 08	809	1.2+	0.7−	1997 05 31	327	0.1−	0.0	1999 01 18	704	1.2+	0.7+
1989 04 08	809	0.8+	0.7−	1997 06 10	689	0.5−	1.5+	1999 01 18	704	0.4−	0.2+
1989 04 10	809	0.3−	0.9−	1997 06 11	327	0.1−	0.3−	1999 01 18	704	0.1+	0.1−
1989 04 10	809	0.2−	0.7−	1997 06 11	327	0.1−	0.3−	1999 01 18	704	0.2−	0.9+
1989 04 10	809	0.0	0.6−	1997 06 11	327	0.9−	0.4−	1999 01 20	704	0.1+	0.1−
1993 05 23	809	(3.2−	2.6+)	1998 12 08	120	0.5+	0.6−	1999 01 20	704	1.1−	1.9+
1993 05 23	809	1.9−	2.0+	1998 12 08	120	0.3−	0.5−	1999 01 20	704	0.1+	0.5+
1993 05 23	809	(2.2−	1.2+)	1998 12 15	704	0.9+	0.4−	1999 01 20	704	0.0	0.9+
1994 10 03	675	0.7+	0.4−	1998 12 15	704	0.4+	0.2+	1999 01 20	704	0.4−	0.6+
1994 10 03	675	0.6+	0.8−	1998 12 15	704	0.2−	0.2+				

(10074)* 1989 GH₄ = 1976 SW₂ = 1990 QS₈

Discovered 1989 Apr. 3 by E. W. Elst at the European Southern Observatory.

Id. H. Kaneda (*MPC* 17637)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	159.07432		(2000.0)	P	Q
n	0.27790691	ω	318.79090	+0.64259673	+0.76609045
a	2.3256078	Ω	351.16672	−0.67848246	+0.56092299
e	0.0218912	i	4.94006	−0.35599296	+0.31380060
P	3.55	H	14.4	G 0.15	U 1

M.P.C. 33876

1989 04 05	809	0.9–	0.7+	1990 08 26	809	0.1+	0.2–	1998 12 17	704	0.8–	0.5–
1989 04 05	809	0.6+	0.4+	1990 08 26	809	0.0	0.0	1998 12 17	704	0.6–	0.4+
1989 04 06	809	1.1–	0.4+	1990 09 16	675	(1.5+	2.8–)	1998 12 17	704	0.8–	0.6+
1989 04 06	809	0.7–	0.2+	1990 09 16	675	(0.3–	2.4–)	1998 12 17	704	0.3–	0.9+
1989 04 06	809	1.2+	0.0	1990 09 18	675	0.6–	1.3+	1999 01 16	704	0.3–	0.6–
1989 04 09	809	1.9+	0.7–	1990 09 18	675	1.4+	1.5+	1999 01 16	704	0.3–	1.0–
1989 04 09	809	(3.9–	1.4–)	1994 11 06	675	1.5+	0.3–	1999 01 16	704	0.0	0.7–
1989 04 09	809	(5.1–	2.5–)	1994 11 06	675	0.4+	0.4+	1999 01 19	704	0.3+	1.0–
1990 08 16	809	0.4+	1.9–	1994 11 30	675	0.0	1.2–	1999 01 19	704	0.4+	1.0–
1990 08 16	809	(0.3+	2.2–)	1994 11 30	675	0.4+	1.1+	1999 01 19	704	0.9–	0.5–
1990 08 16	809	0.3–	2.0–	1994 12 02	675	0.1–	1.0+	1999 01 19	704	(0.1+	2.3–)

(10075)* 1989 GR₄ = 1992 CV₂

Discovered 1989 Apr. 3 by E. W. Elst at the European Southern Observatory.

Id. S. Nakano (*MPC* 20334)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28887192	ω	303.09748	–0.63926679	–0.76894048		
<i>a</i>	2.2663788	Ω	186.65816	+0.72718331	–0.60098075		
<i>e</i>	0.1136423	<i>i</i>	4.09398	+0.25008479	–0.21806577		
<i>P</i>	3.41	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1989 04 03	809	0.9–	0.6+	1996 04 20	809	(2.2+	2.7+)	1997 10 08	426	0.6+	0.1+
1989 04 03	809	0.0	0.4–	1996 04 20	809	(2.0+	2.6+)	1997 10 08	426	0.6+	0.3+
1989 04 03	809	1.1+	0.0	1996 04 21	809	1.2+	0.6+	1997 10 08	426	0.6+	0.3+
1989 04 05	809	0.4–	1.0+	1996 04 21	809	0.9+	0.7+	1997 10 09	691	0.8–	0.6+
1989 04 05	809	0.5–	1.9+	1996 04 21	809	0.4–	0.2+	1997 10 09	691	0.9–	0.2+
1989 04 05	809	1.4+	0.3+	1996 05 22	809	(3.9+	2.0+)	1997 10 09	691	0.7–	0.5+
1989 04 09	809	0.6–	0.0	1996 05 22	809	(3.7+	1.5+)	1998 11 25	704	0.1+	0.7+
1989 04 09	809	1.0+	0.6–	1996 05 22	809	(3.8+	1.7+)	1998 11 25	704	0.0	0.3–
1989 04 09	809	0.2+	0.1–	1996 05 22	566	0.7+	0.9–	1998 11 25	704	1.1–	0.4+
1989 04 11	809	1.5–	0.2–	1996 05 22	566	1.1+	1.0–	1998 11 25	704	0.2+	1.2–
1989 04 11	809	1.1–	0.1+	1996 05 22	566	0.9+	1.1–	1998 11 25	704	1.1–	0.5–
1989 04 12	809	1.9–	0.2–	1996 05 24	809	0.2+	1.2+	1998 12 23	704	1.2+	0.8+
1989 04 12	809	0.6–	0.9–	1996 05 24	809	0.6–	0.9+	1998 12 23	704	0.4–	0.6+
1989 04 12	809	0.3–	0.6–	1996 05 24	809	0.1–	0.4+	1998 12 23	704	1.6+	0.9+
1992 01 30	809	0.1+	1.1–	1996 06 13	566	0.8+	0.7–	1998 12 23	704	0.3–	0.7–
1992 01 30	809	0.1–	0.5–	1996 06 13	566	0.2+	0.7–	1998 12 23	704	0.5–	0.8+
1992 01 30	809	0.7–	0.1+	1996 06 13	566	0.5+	0.6–	1999 02 13	747	0.5+	0.7+
1992 02 02	809	1.2+	0.5–	1997 08 30	358	(0.4+	2.5+)	1999 02 13	747	0.5+	0.7+
1992 02 02	809	1.1+	0.8–	1997 10 03	691	0.1–	0.9–	1999 02 13	747	0.5+	0.7+
1992 02 02	809	0.5+	0.5–	1997 10 03	691	0.4–	0.3+	1999 02 15	747	0.4+	0.7+
1992 02 06	809	0.4+	1.6–	1997 10 03	691	0.3–	0.3+	1999 02 15	747	0.3+	0.6+
1992 02 06	809	0.8+	0.7–	1997 10 07	691	0.3–	0.3+	1999 02 15	747	0.4+	0.6+
1992 02 06	809	0.1–	0.8–	1997 10 07	691	0.2–	0.4+	1999 02 16	704	0.5–	0.0
1992 02 12	809	0.7+	0.7+	1997 10 07	691	0.3–	0.6+	1999 02 16	704	0.1–	0.3+
1992 02 12	809	0.3+	0.5+	1997 10 08	691	0.5–	0.5+	1999 02 16	704	0.8–	1.1+
1992 02 12	809	1.2–	1.0+	1997 10 08	691	0.2–	0.3–	1999 02 16	704	1.2–	0.3+
1996 04 20	809	(1.9+	2.5+)	1997 10 08	691	0.3–	0.2+	1999 02 16	704	0.8–	0.0

(10076)* 1989 PK = 1993 QQ

Discovered 1989 Aug. 9 by E. F. Helin at Palomar.

Id. G. V. Williams (*MPC* 22591)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23551509	ω	5.70370	+0.89468261	+0.40760845		
<i>a</i>	2.5969100	Ω	328.18377	–0.42232471	+0.63852811		
<i>e</i>	0.3180333	<i>i</i>	20.28250	–0.14555021	+0.65279185		
<i>P</i>	4.18	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1989 08 09	675	0.2–	0.3–	1993 09 16	675	0.4–	1.1+	1998 12 12	704	0.4–	0.1–
1989 08 09	675	0.3–	0.3–	1993 10 12	801	0.3–	0.3+	1998 12 12	704	0.2+	0.1–
1989 08 10	675	0.0	0.1–	1993 10 12	801	0.5–	0.2+	1998 12 12	704	1.2–	0.7+

1999 MAR. 2

1989 09 05	675	1.4+	1.5–	1993 10 14	801	1.1–	0.6+	1998 12 27	699	0.4+	0.6–
1989 09 05	675	1.0+	1.6–	1996 03 15	608	0.5–	0.8–	1998 12 27	699	1.1+	0.4–
1989 09 07	675	(4.4–	5.0+)	1996 03 15	608	0.4–	0.4–	1998 12 27	699	1.2+	0.6+
1989 09 07	675	1.0+	0.7–	1996 03 16	608	0.5–	0.4–	1999 01 14	704	0.3–	0.0
1993 08 20	675	0.2–	1.7–	1996 03 16	608	0.5–	0.2–	1999 01 14	704	1.1–	0.1–
1993 08 22	675	1.1+	0.8+	1996 03 17	608	0.8–	1.0–	1999 01 14	704	0.9+	0.6+
1993 08 22	675	0.3–	0.3+	1996 03 17	608	0.7–	0.9–	1999 01 14	704	0.2–	0.1+
1993 09 15	675	(2.2–	0.9+)	1998 12 12	704	0.4+	0.4–	1999 01 14	704	(2.3+	1.0–)
1993 09 15	675	(2.6–	0.6+)	1998 12 12	704	0.6–	1.0+				

(10077)* 1989 UL₁ = 4867 T-1

Discovered 1989 Oct. 26 by S. Ueda and H. Kaneda at Kushiro.

Id. G. V. Williams (*MPC* 19303)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24062507	ω	293.91477	+0.92021388	+0.37090920		
<i>a</i>	2.5600128	Ω	44.59394	–0.26182376	+0.82074235		
<i>e</i>	0.1121274	<i>i</i>	10.25837	–0.29095486	+0.43452084		
<i>P</i>	4.10	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1971 05 13	675	1.1–	1.4–	1993 10 15	400	1.5+	0.6+	1998 12 21	704	0.6–	0.9–
1971 05 14	675	(0.6–	3.1–)	1993 10 16	400	0.2–	0.3+	1998 12 21	704	1.0–	0.0
1971 05 16	675	0.2–	1.2–	1993 10 16	400	(2.7+	0.8–)	1998 12 21	704	0.3+	0.8+
1989 10 26	399	0.0	0.3–	1993 10 19	801	0.2+	0.1+	1998 12 21	704	(1.4–	2.4+)
1989 10 26	399	1.1+	0.1–	1993 10 19	801	0.0	0.2+	1998 12 27	699	0.0	0.3+
1989 10 26	399	2.3+	0.4–	1993 10 19	403	(2.3–	0.2+)	1998 12 27	699	0.2+	0.1–
1989 10 27	017	1.4–	1.9–	1993 10 19	403	(2.5–	0.1–)	1998 12 27	699	0.5+	0.1–
1989 10 28	017	(3.2+	2.7–)	1993 10 20	399	1.0–	1.4+	1999 01 09	699	1.3+	0.1–
1989 10 29	399	0.2–	0.4–	1993 10 20	399	0.6+	1.4+	1999 01 09	699	0.6+	0.3+
1989 10 29	399	0.7–	0.6–	1996 05 11	399	0.5+	0.5+	1999 01 09	699	0.5+	0.4+
1989 10 29	399	2.0+	0.3–	1996 05 11	399	(2.6+	0.6–)	1999 01 19	704	0.2–	1.0–
1989 11 19	399	0.0	1.3–	1996 05 14	566	0.6–	0.7–	1999 01 19	704	0.9+	0.3–
1989 11 19	399	0.5+	0.5–	1996 05 14	566	0.6–	0.4–	1999 01 19	704	0.0	0.4+
1989 11 19	399	0.7+	1.2–	1996 05 14	566	0.4–	0.6–	1999 01 19	704	0.4–	1.5+
1989 12 01	399	0.1–	2.0–	1997 10 30	566	0.2–	0.3+	1999 01 19	704	0.2–	0.1+
1989 12 01	399	0.5–	1.8–	1997 10 30	566	0.3–	0.2+	1999 02 10	704	0.2–	0.1+
1989 12 01	399	0.1–	1.3–	1997 10 30	566	0.5–	0.3+	1999 02 10	704	0.0	0.1+
1993 09 14	801	0.1+	0.6+	1997 12 05	689	0.6–	1.1–	1999 02 10	704	0.5+	0.9+
1993 09 14	801	0.2–	0.7+	1997 12 30	566	1.0–	0.5+	1999 02 10	704	0.8–	1.5+
1993 09 20	801	0.2+	0.4+	1997 12 30	566	0.7–	0.5+	1999 02 13	704	0.5+	0.1+
1993 09 20	801	0.0	0.9+	1997 12 30	566	1.1–	0.6+	1999 02 13	704	0.4+	0.4–
1993 10 12	801	0.6–	0.3–	1998 01 08	699	0.5–	0.4+	1999 02 13	704	0.4–	0.1+
1993 10 12	801	0.3–	0.3–	1998 01 08	699	1.1+	0.2–	1999 02 13	704	0.2+	0.0
1993 10 15	400	0.3+	0.5+	1998 01 08	699	0.2–	1.0+	1999 02 13	704	0.6–	0.4–

(10078)* 1989 UJ₃ = 1993 SD₆

Discovered 1989 Oct. 30 by T. Seki at Geisei.

Id. G. V. Williams (*MPC* 23973)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24105089	ω	291.20320	+0.35651792	+0.93428760		
<i>a</i>	2.5569970	Ω	359.67485	–0.75089230	+0.28571557		
<i>e</i>	0.1835276	<i>i</i>	13.10367	–0.55592781	+0.21324469		

1999 MAR. 2

M.P.C. 33877

1993 09 18	809	(2.4+ 1.1+)	1996 03 23	566	0.0	0.2+	1999 01 16	704	1.4-	1.0+
1993 09 18	809	(2.9+ 1.5+)	1996 03 23	566	0.0	0.4+	1999 01 20	704	1.2+	0.9+
1993 09 18	809	(2.9+ 0.8+)	1997 09 28	566	0.2-	0.3-	1999 01 20	704	1.6-	1.0+
1993 09 22	809	(2.7- 1.6-)	1997 09 28	566	0.4-	0.3-	1999 01 20	704	0.7+	0.8-
1993 09 22	809	(3.5- 2.5-)	1997 09 28	566	0.3-	0.2-	1999 01 20	704	0.1-	0.1-
1993 09 22	809	(3.2- 2.4-)	1997 10 01	566	0.2+	0.0				

(10079)* 1989 XD₂ = 1982 BU₁₂

Discovered 1989 Dec. 2 by E. W. Elst at the European Southern Observatory.

Id. S. J. Bus (*MPC* 20017)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23020007	ω	260.01457	+0.90298892	-0.41725913		
<i>a</i>	2.6367306	Ω	124.57709	+0.42658785	+0.84214735		
<i>e</i>	0.2299919	<i>i</i>	7.15112	+0.05132068	+0.34158842		
<i>P</i>	4.28	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1982 01 30	675	0.1-	0.1-	1989 12 03	809	0.5-	0.5-	1998 12 16	699	0.8-	1.0+
1982 01 31	675	0.2-	0.0	1997 07 01	688	0.6-	0.8+	1998 12 16	426	1.0-	0.7+
1982 01 31	675	0.4+	0.3+	1997 07 01	688	0.1-	0.8+	1998 12 18	426	0.8-	0.3+
1989 11 06	809	0.9+	0.1-	1997 07 01	688	0.1-	0.6+	1998 12 18	426	0.3+	0.4+
1989 11 06	809	0.4+	0.3-	1997 08 03	566	0.0	0.0	1998 12 18	426	0.3-	0.1+
1989 11 06	809	0.4+	0.6+	1997 08 03	566	0.5+	0.4+	1999 01 18	704	0.0	0.3+
1989 12 02	809	0.2-	0.1-	1997 08 03	566	0.0	0.0	1999 01 18	704	(2.2+ 0.0)	)
1989 12 02	809	0.7-	0.7+	1998 12 15	426	0.2+	0.2-	1999 01 18	704	1.3+	0.3-
1989 12 02	809	1.4-	0.1-	1998 12 15	426	0.4+	0.5-	1999 01 18	704	0.0	1.6+
1989 12 03	809	0.8+	0.0	1998 12 16	699	0.2+	0.2+	1999 01 18	704	0.1+	0.1-
1989 12 03	809	0.1+	0.4-	1998 12 16	699	0.7+	0.8-				

(10080)* 1990 OF₁

Discovered 1990 July 18 by E. F. Helin at Palomar.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17984175	ω	139.54583	+0.50502135	+0.85906778		
<i>a</i>	3.1084391	Ω	160.33575	-0.84198640	+0.51160377		
<i>e</i>	0.1975559	<i>i</i>	14.35016	-0.18976917	+0.01625213		
<i>P</i>	5.48	<i>H</i>	12.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1990 07 18	675	0.2-	0.8-	1995 03 28	801	0.4+	0.4-	1995 06 28	608	0.1+	0.6-
1990 07 18	675	0.8-	0.8+	1995 03 28	801	0.5+	0.3-	1995 06 28	608	0.5+	0.9-
1990 07 21	675	0.1+	1.1-	1995 04 03	801	0.2-	0.3-	1995 07 07	608	0.2-	0.2-
1990 07 21	675	0.1-	1.0-	1995 04 03	801	0.2-	0.2+	1995 07 07	608	0.1+	0.1-
1990 08 16	675	0.7+	0.3+	1995 05 02	801	0.2-	0.3-	1996 08 22	608	0.2+	0.0
1990 08 16	675	0.1-	0.7+	1995 05 02	801	0.1-	0.3-	1996 08 22	608	0.1+	0.0
1990 08 19	675	0.9+	1.2+	1995 05 19	608	0.7+	0.6-	1996 08 28	608	0.5-	0.5-
1990 08 19	675	0.5+	1.6+	1995 05 19	608	0.5+	0.6-	1996 08 28	608	0.5-	0.2+
1990 10 16	801	0.6+	0.3-	1995 05 23	608	(0.2- 2.3+)		1999 01 15	699	0.4-	0.0
1990 10 16	801	0.2+	0.4+	1995 05 23	608	0.5-	1.8+	1999 01 15	699	0.2+	0.4+
1990 10 17	801	0.1-	0.4+	1995 05 25	563	0.3+	0.7-	1999 01 15	699	0.3-	0.3+
1990 10 17	801	0.5-	1.2-	1995 05 25	563	1.0-	1.0-	1999 02 12	704	0.3+	0.4+
1990 10 19	801	0.3+	0.4+	1995 05 31	608	0.4+	0.7+	1999 02 12	704	0.1+	0.7-
1990 10 19	801	0.4-	0.1+	1995 05 31	608	0.4+	0.8+	1999 02 12	704	0.7+	0.5+
1990 10 20	801	0.4-	0.4+	1995 06 08	608	0.9+	0.8+	1999 02 12	704	0.2+	0.2+
1990 10 20	801	(2.1- 1.0-)		1995 06 08	608	0.7+	0.6+	1999 02 12	704	0.1-	0.6-
1994 03 09	675	1.7-	0.3-	1995 06 14	608	0.5+	0.3-	1999 02 16	704	0.7+	0.1+
1994 03 09	675	(0.5+ 3.2+)		1995 06 14	608	0.1+	0.2+	1999 02 16	704	0.2-	0.3+
1995 03 04	801	1.5-	0.9-	1995 06 15	608	0.5+	0.2+	1999 02 16	704	0.5+	0.7+
1995 03 04	801	1.7-	0.0	1995 06 15	608	0.6-	0.3-	1999 02 16	704	0.8+	0.8+
1995 03 05	801	0.5-	1.8+	1995 06 21	608	0.4-	0.1+				
1995 03 05	801	0.7-	0.7+	1995 06 21	608	0.3-	0.3+				

(10081)* 1990 OW₁ = 1986 EX₅ = 1987 UK₁ = 1996 FA₁₅

Discovered 1990 July 29 by H. E. Holt at Palomar.

Id. G. V. Williams (*MPC* 27103)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29960251	ω	248.16961	+0.32087044	+0.94594499		
<i>a</i>	2.2119353	Ω	40.64226	-0.83999860	+0.30725917		
<i>e</i>	0.1794379	<i>i</i>	4.15792	-0.43754373	+0.10382620		
<i>P</i>	3.29	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1986 03 12	809	0.4+	0.2+	1990 09 20	675	0.4+	0.0	1999 02 10	704	0.7-	0.3-
1987 10 19	552	(6.1+ 0.4+)		1990 09 20	675	1.0+	0.5-	1999 02 10	704	0.6-	0.3-
1987 10 19	552	0.9-	0.4-	1996 03 22	691	0.8-	0.3-	1999 02 10	704	1.7-	1.2+
1989 02 02	675	0.1-	0.6-	1996 03 22	691	0.8-	0.2-	1999 02 12	699	0.7+	1.4+
1990 07 29	675	0.5-	0.4-	1996 03 26	691	0.3+	0.1+	1999 02 12	699	1.7+	0.5-
1990 07 29	675	0.6-	1.1+	1996 03 26	691	0.1+	0.1+	1999 02 12	699	0.1+	1.2+
1990 07 30	675	0.4-	0.3+	1996 03 26	691	0.1-	0.2-	1999 02 13	704	0.3-	0.2-
1990 07 30	675	0.6-	0.7+	1999 01 10	327	0.1+	0.6-	1999 02 13	704	1.7-	0.5+
1990 09 16	675	0.2-	0.1+	1999 01 10	327	0.1+	0.6-	1999 02 13	704	0.3+	0.4+
1990 09 16	675	0.0	0.0	1999 01 10	327	0.7+	0.6-	1999 02 13	704	0.2-	0.2+
1990 09 17	675	0.5+	0.1-	1999 02 10	704	1.8+	0.4-	1999 02 13	704	0.2+	0.2-
1990 09 17	675	0.6+	0.6-	1999 02 10	704	1.0+	0.3+				

(10082)* 1990 OF₂ = 1972 TC₅

Discovered 1990 July 29 by H. E. Holt at Palomar.

Id. G. V. Williams (*MPC* 20018)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27197235	ω	349.99942	+0.96129277	+0.27537704		
<i>a</i>	2.3593166	Ω	353.99258	-0.24637077	+0.84422346		
<i>e</i>	0.2414912	<i>i</i>	5.01472	-0.12335982	+0.45984153		
<i>P</i>	3.62	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1971 03 26	675	0.2+	1.3-	1990 07 30	675	0.5+	0.2+	1996 03 26	691	1.3-	0.1+
1971 03 26	675	1.2-	0.7-	1990 07 30	675	0.4-	0.5-	1998 12 17	704	1.1+	1.1-
1971 03 27	675	0.9+	1.3-	1990 09 15	675	1.7-	0.5+	1998 12 17	704	0.3+	0.7-
1972 10 06	095	0.2+	1.3-	1990 09 15	675	(1.1- 2.8+)		1998 12 17	704	0.7+	1.7-
1990 07 26	675	0.6+	0.0	1990 09 15	675	0.8+	1.4-	1998 12 17	704	(2.3- 3.5-)	
1990 07 26	675	0.3+	0.3-	1990 09 15	675	1.4+	1.0-	1999 02 06	732	0.1+	1.1+
1990 07 29	675	0.2+	0.1+	1996 03 26	691	0.8-	0.0	1999 02 07	732	1.0-	0.1-
1990 07 29	675	0.1+	0.1-	1996 03 26	691	0.9-	0.5-	1999 02 07	732	0.8-	0.3+

(10083)* 1990 QE₂ = 1980 RU₄ = 1996 BS₁₇

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

Id. G. V. Williams (*MPC* 29298)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29602650	ω	310.55570	+0.27686099	+0.96022207		
<i>a</i>	2.2297131	Ω	335.44508	-0.85306817	+0.22819966		
<i>e</i>	0.1596149	<i>i</i>	5.01860	-0.44229254	+0.16093007		
<i>P</i>	3.33	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1980 09 08	095	0.9-	1.9+	1996 01 31	809	1.1+	1.4+	1999 01 23	910	0.4+	0.5-
1990 08 22	675	0.0	1.3-	1996 02 28	809	0.4+	0.2+	1999 02 10	704	0.4-	0.4-
1990 08 22	675	0.4-	1.8-	1996 02 29	809	0.1-	0.9-	1999 02 10	704	0.3+	0.2-
1990 08 28	675	0.2+	2.1-	1997 10 30	566	0.1-	0.8+	1999 02 10	704	1.2-	0.4-
1990 08 28	675	0.4+	1.3-	1997 10 30	566	0.0	0.6+	1999 02 10	704	0.0	1.9-
1990 09 14	675	0.5+	0.2+	1997 10 30	566	0.1+	0.8+	1999 02 10	704	1.1-	0.8-
1990 09 14	675	0.4+	0.5+	1999 01 14	699	1.5-	0.6+	1999 02 12	699	0.2-	0.4+
1990 09 16	675	0.4+	1.0+	1999 01 14	699	0.6+	0.2-	1999 02 12	699	0.0	0.1+
1990 09 16	675	0.5+	0.4+	1999 01 14	699	0.8-	0.9-	1999 02 12	699	0.3-	0

M.P.C. 33878

1990 09 19	675	1.1+	1.2-	1999 01 20	910	0.2+	0.0	1999 02 13	704	0.7-	0.7+
1990 09 19	675	(1.4+	4.9-)	1999 01 23	910	0.2+	0.3-	1999 02 13	704	0.3+	0.0
1996 01 30	809	(5.6-	5.8-)	1999 01 23	910	0.5+	0.4-	1999 02 13	704	0.1+	0.0

(10084)* 1990 QC₅ = 1980 RL = 1996 GX₁

Discovered 1990 Aug. 25 by H. E. Holt at Palomar.

Id. S. Nakano (*MPC* 27103)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

M	248.95322		(2000.0)	P	Q
n	0.29713144	ω	252.62711	-0.07792053	+0.99686506
a	2.2241819	Ω	12.92697	-0.88981831	-0.06333037
e	0.1615205	i	3.51797	-0.44961291	-0.04742685
P	3.32	H	13.8	G 0.15	U 1

Residuals in seconds of arc

1980 09 02	688	0.1+	0.0	1996 04 13	399	1.2-	1.2-	1999 02 10	704	0.1-	0.3-
1989 02 02	675	0.1-	0.2-	1996 04 14	399	1.6-	0.9-	1999 02 10	704	0.3+	0.2-
1990 08 23	675	0.4-	0.0	1996 04 14	399	1.9-	0.0	1999 02 10	704	0.6-	1.6+
1990 08 23	675	0.5-	1.0-	1996 04 22	566	0.0	0.1-	1999 02 10	704	0.5-	0.0
1990 08 25	675	0.5+	0.6+	1996 04 22	566	0.1-	0.0	1999 02 10	704	0.8-	0.6+
1990 08 25	675	1.1-	2.2-	1996 04 22	566	0.2+	0.1+	1999 02 12	699	1.2+	0.5-
1990 08 26	675	0.1-	0.3-	1996 04 23	566	0.1+	0.1-	1999 02 12	699	1.6+	0.1-
1990 08 26	675	0.2+	0.1+	1996 04 23	566	0.0	0.2-	1999 02 12	699	1.0+	0.6+
1990 08 27	675	0.3+	2.0-	1996 04 23	566	0.0	0.5-	1999 02 13	704	0.2-	0.1-
1990 08 27	675	0.0	0.4+	1997 11 20	426	0.1+	0.4-	1999 02 13	704	0.1+	0.6-
1990 09 13	675	0.5+	0.6+	1997 11 20	426	0.0	0.6-	1999 02 13	704	1.3-	0.2-
1990 09 13	675	0.1+	0.6+	1997 11 20	426	0.4+	0.6-	1999 02 13	704	1.1-	0.3-
1990 09 18	675	0.7+	0.3+	1997 11 21	426	0.4+	0.5-	1999 02 13	704	1.0-	0.5-
1990 09 18	675	0.8+	0.1+	1997 11 21	426	0.8+	0.8-	1999 02 21	758	0.4+	0.0
1996 03 18	566	1.1+	0.9-	1997 11 21	426	0.5+	0.6-	1999 02 21	758	0.6+	0.2+
1996 03 18	566	0.7+	0.7-	1999 01 13	699	0.0	0.1-	1999 02 21	758	0.0	0.2+
1996 03 18	566	0.8+	0.5-	1999 01 13	699	0.1-	0.5-				
1996 04 13	399	(3.2-	0.8+)	1999 01 13	699	0.3-	0.2-				

(10085)* 1990 QF₅ = 1036 T-1

Discovered 1990 Aug. 25 by H. E. Holt at Palomar.

Id. G. V. Williams (*MPC* 19304)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	261.23575		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.17250047	ω	250.47119	-0.45374560	+0.89044569
a	3.1960178	Ω	352.26447	-0.68882653	-0.37534753
e	0.0664471	i	15.04903	-0.56536089	-0.25733382
P	5.71	H	12.5	G 0.15	U 1

Residuals in seconds of arc

1971 03 24	675	(0.8+	2.9-)	1990 09 12	809	0.2+	0.4-	1999 01 24	595	0.1-	0.7+
1971 03 25	675	1.5-	0.9-	1990 09 14	809	0.5+	0.8-	1999 01 24	595	0.0	0.6+
1971 03 25	675	0.8-	1.3-	1990 09 14	809	0.6+	0.9-	1999 02 10	704	0.2-	0.7-
1971 03 26	675	0.5-	1.4-	1990 09 14	809	0.7+	0.9-	1999 02 10	704	0.0	0.1-
1971 03 27	675	0.8-	0.9-	1990 09 15	809	0.6+	0.4-	1999 02 10	704	0.2-	0.5-
1990 08 23	675	0.2-	0.6-	1990 09 15	809	0.5+	0.4-	1999 02 10	704	0.4-	0.7-
1990 08 23	675	0.1-	1.1-	1990 09 15	809	0.9+	0.5-	1999 02 10	704	0.3-	0.6-
1990 08 25	675	0.3+	0.0	1990 09 18	675	0.3-	0.6-	1999 02 13	704	0.7-	0.1-
1990 08 25	675	0.5-	0.3+	1990 09 18	675	0.3+	0.1-	1999 02 13	704	0.5+	0.3+
1990 08 26	809	(0.7+	2.8+)	1990 09 21	095	0.4-	0.9+	1999 02 13	704	0.4-	0.1+
1990 08 26	809	(0.2+	2.7+)	1996 09 15	292	0.3-	0.8-	1999 02 13	704	0.1-	0.1+
1990 08 26	809	0.6+	1.5+	1996 09 15	292	0.1+	0.6+	1999 02 13	704	0.3-	0.2-
1990 08 26	675	0.3+	0.6+	1996 09 20	292	1.3-	0.2-	1999 02 18	566	0.3-	0.1-
1990 08 26	675	0.1-	0.3-	1996 09 20	292	1.0-	0.3+	1999 02 18	566	0.5+	0.6-
1990 08 27	675	0.5+	1.7-	1996 10 04	809	1.1+	0.8-	1999 02 18	566	0.6-	0.0
1990 08 27	675	0.1-	0.5+	1996 10 04	809	1.3+	0.4+	1999 02 18	566	0.3+	0.6-
1990 08 28	095	(0.5-	2.1-)	1996 10 04	809	0.3+	0.4-	1999 02 18	566	0.2-	0.2-
1990 08 28	095	1.3+	1.0-	1996 10 05	809	(2.2+	2.0+)	1999 02 18	566	0.6+	0.9-
1990 09 12	809	0.3-	0.5-	1996 10 05	809	(2.6+	1.7+)				
1990 09 12	809	0.1+	0.3-	1996 10 05	809	(2.1+	1.2+)				

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(10086)* 1990 SZ = 1986 RB₁₁ = 1986 RR₁₇ = 1994 RW

Discovered 1990 Sept. 16 by H. E. Holt at Palomar.

Id. T. Kobayashi (*MPC* 24103)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	342.81674		(2000.0)	P	Q
n	0.24331430	ω	72.81918	+0.49925914	-0.86546622
a	2.5411148	Ω	346.98778	+0.70873328	+0.43535755
e	0.1753579	i	10.57830	+0.49843500	+0.24785485
P	4.05	H	13.8	G 0.15	U 2

Residuals in seconds of arc

1986 09 09	095	(1.2-	3.5-)	1996 02 19	411	1.2+	0.3+	1998 09 27	704	(2.4-	0.0)
1986 09 12	095	0.5+	0.2+	1998 08 23	704	1.4+	0.3-	1998 09 27	704	0.6+	0.8+
1990 09 16	675	1.0+	0.5-	1998 08 23	704	0.1+	0.6-	1998 09 27	704	(2.2-	0.4-)
1990 09 16	675	0.8+	0.9-	1998 08 23	704	0.8-	1.5+	1998 09 27	704	0.8+	0.5-
1990 09 17	675	1.4+	0.7-	1998 08 23	704	0.7-	0.3-	1998 09 27	704	0.1-	0.3+
1990 09 17	675	0.8+	1.4-	1998 08 23	704	0.8-	0.7-	1998 10 12	704	0.6+	0.2-
1990 09 18	675	0.0	1.9-	1998 09 18	704	0.3+	0.3+	1998 10 12	704	1.1-	0.8+
1990 09 18	675	(0.9+	2.1-)	1998 09 18	704	0.2+	0.7-	1998 10 12	704	0.8+	0.1+
1990 09 20	675	0.8+	1.5-	1998 09 18	704	0.0	0.2+	1998 10 12	704	0.9+	0.1+
1990 09 20	675	0.2-	0.2-	1998 09 18	704	0.6+	0.0	1998 10 12	704	0.6+	0.4-
1990 09 21	657	1.0-	0.6+	1998 09 18	704	0.1+	0.4-	1998 10 20	689	0.6-	0.2+
1992 02 27	691	1.7-	0.4-	1998 09 18	610	(2.2+	0.7-)	1998 11 10	699	0.8+	0.4+
1992 02 27	691	0.9-	0.4-	1998 09 18	610	(2.3+	0.7-)	1998 11 10	699	0.4+	0.5+
1992 02 27	691	1.2-	0.8-	1998 09 18	610	(2.3+	0.7-)	1998 11 10	699	0.5+	0.1+
1994 09 01	400	(3.0+	0.6+)	1998 09 20	636	(2.9+	0.8-)	1998 12 09	704	0.1+	0.2-
1994 09 01	400	(3.8+	2.7-)	1998 09 20	636	(2.7+	0.0)	1998 12 09	704	0.0	0.4-
1994 09 06	400	1.1-	0.0	1998 09 23	636	0.1+	0.5-	1998 12 09	704	0.9+	0.2-
1994 09 06	400	0.3-	0.1-	1998 09 23	636	0.3+	0.3-	1998 12 09	704	0.0	1.0+
1994 10 31	801	0.4-	0.8+	1998 09 25	704	1.9-	0.4+	1998 12 09	704	0.7+	0.1-
1994 10 31	801	0.4+	0.5+	1998 09 25	704	1.3-	0.7+	1998 12 30	699	0.3-	0.4-
1994 11 08	801	0.6+	0.6+	1998 09 25	699	0.4+	1.1+	1998 12 30	699	0.5-	1.1+
1994 11 08	801	0.6+	0.7+	1998 09 25	704	1.7-	0.0	1998 12 30	699	0.5-	0.4-
1996 02 14	691	0.5+	0.1-	1998 09 25	699	0.3+	0.8+	1999 02 01	699	1.0-	0.4+
1996 02 14	691	0.4+	0.1-	1998 09 25	704	1.8-	0.6-	1999 02 01	699	0.7-	0.1+
1996 02 14	691	0.5+	0.2-	1998 09 25	699	1.0+	0.9+	1999 02 01	699	1.7-	0.8-
1996 02 19	411	0.8+	0.8+	1998 09 25	704	1.8-	0.2-				

(10087)* 1990 SG₃ = 1983 RP₄ = 1990 SU₂₆ = 1996 GH₃

Discovered 1990 Sept. 18 by H. E. Holt at Palomar.

Id. S. Nakano (d, *MPC* 20913), T. Spahr (*MPC* 30654)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

M	173.86823		(2000.0)	P	Q
n	0.28478042	ω	197.54751	+0.85422660	+0.51718396
a	2.2880348	Ω	131.18922	-0.46814111	+0.80957351
e	0.1903801	i	4.04483	-0.22614337	+0.27768954
P	3.46	H	14.0	G 0.15	U 2

Residuals in seconds of arc

1983 09 10	688	0.0	0.8+	1996 04 15	691	1.1-	1.4-	1999 01 22	046	0.6+	0.5+
1983 09 10	688	0.4+	1.5+	1996 04 15	691	1.0-	1.2-	1999 02 10	704	0.9+	0.1+
1990 09 18	675	0.2-	1.8-	1996 04 15	691	0.9-	1.2-	1999 02 10	704	0.5+	0.1+
1990 09 18	675	0.4+	0.5-	1997 11 10	758	0.8-	0.7+	1999 02 10	704	0.7+	0.4+
1990 09 20	675	0.4+	1.2-	1997 11 10	758	0.7-	0.1+	1999 02 10	704	0.7+	0.5-
1990 09 20	675	0.8+	1.2-	1997 11 12	758	(0.1-	3.3+)	1999 02 10	704	0.4+	0.5-
1990 09 21	374(42.6+	25.6+)		1997 11 12	758	(0.8+	2.5+)	1999 02 13	704	0.3+	0.6+
1990 09 21	374(30.9+	21.4+)		1997 11 21	758	(1.0-	3.6+)	1999 02 13	704	0.7+	0.5+
1990 09 22	095	(0.7+	2.9-)	1997 11 21	758	(0.6+	2.8+)	1999 02 13	704	0.0	0.6+
1990 09 22	095	(0.5-	2.6-)	1997 12 25	566	1.4+	1.4-	1999 02 13	704	0.5+	0.3+
1990 09 28	675	0.1+	0.8-	1997 12 25	566	1.4+	1.5-	1999 02 13	704	0.2-	0.2-
1992 02 26	691	2.0-	0.2+	1997 12 25	566	1.1+	1.1-	1999 02 18	566	0.4+	0.4-
1992 02 26	691	1.5-	0.3+	1998 01 24	566	0.7-	0.5-	1999 02 18	566	0.6+	0.3-
1992 02 26	691	1.5-	0.0	1998 01 24	566	1.0-	0.5-	1999 02 18	566	0.7+	0.3-
1996 04 09	691	0.7-	1.2-	1998 01 24	566	0.9-	0.2-	1999 02 21	691	0.1+	0.2-

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M.P.C. 33879

1996 04 09 691 0.4- 1.0- 1999 01 22 046 0.9+ 0.5+ 1999 02 21 691 0.0 0.1-
 1996 04 09 691 0.5- 1.4- 1999 01 22 046 0.5+ 0.3+ 1999 02 21 691 0.2- 0.1+

(10088)* 1990 SG₈ = 1951 WP₁ = 1981 EL₄₈ = 1992 FH₁

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

Id. T. Kobayashi (*MPC* 23974)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	21.98393	(2000.0)	P	Q	
<i>n</i>	0.27512404	ω	24.31950	-0.43032367	-0.90067302
<i>a</i>	2.3412638	Ω	91.21584	+0.81803223	-0.41724774
<i>e</i>	0.1825633	<i>i</i>	3.44521	+0.38163440	-0.12121237
<i>P</i>	3.58	<i>H</i>	13.9	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1951 11 29	711	(0.4- 6.2-)	Y	1994 11 30	596	(2.7+ 0.1-)	1998 12 01	704	0.2+ 0.9+
1981 03 01	095	0.3+ 0.4+		1994 11 30	596	(3.4+ 0.2-)	1998 12 01	704	0.6+ 0.6+
1990 09 14	809	1.0- 0.0		1994 12 01	046	(4.1+ 1.0-)	1998 12 21	704	0.0 0.4-
1990 09 14	809	0.4+ 0.3+		1994 12 01	046	(2.2+ 1.2-)	1998 12 21	704	0.6- 0.6+
1990 09 14	809	0.5- 0.2-		1994 12 02	596	0.4- 0.1-	1998 12 21	704	0.6+ 0.8-
1990 09 22	809	1.1+ 0.6-		1994 12 02	596	0.2- 0.3-	1998 12 21	704	0.0 0.7-
1990 09 22	809	1.2+ 0.1-		1994 12 03	046	0.3- 0.6+	1998 12 21	704	0.9+ 0.9+
1990 09 22	809	0.5+ 0.1+		1994 12 03	046	0.4- 0.6+	1999 01 14	699	0.3- 0.8+
1990 09 25	809	1.0+ 2.1+		1994 12 03	046	0.3- 0.5+	1999 01 14	699	0.6+ 0.4+
1990 09 25	809	(0.5+ 2.4+)		1995 02 03	801	0.1- 0.3-	1999 01 14	699	0.3+ 0.6+
1990 09 25	809	0.2+ 1.7+		1995 02 03	801	0.4- 0.4-	1999 02 10	704	0.2- 0.7-
1992 03 24	400	0.9- 0.4-		1996 05 16	801	0.7- 0.3+	1999 02 10	704	0.1+ 0.2-
1992 03 24	400	0.4+ 0.7-		1996 05 16	801	0.4- 0.4-	1999 02 10	704	0.2+ 0.2-
1992 03 28	400	(35.1- 12.2+)		1996 05 23	801	1.1+ 0.3-	1999 02 10	704	0.8- 0.2-
1992 03 28	400	(36.2- 13.5+)		1996 06 12	566	0.2- 1.5+	1999 02 10	704	1.3+ 0.5+
1992 04 25	400	(3.0+ 4.5-)		1996 06 12	566	0.8- 1.8+	1999 02 12	012	0.1+ 0.2-
1992 04 25	400	(3.3+ 3.6-)		1996 06 12	566	1.0- 1.1+	1999 02 12	012	0.3+ 0.2-
1992 04 27	691	0.9- 1.4-		1996 06 15	801	0.2- 0.8-	1999 02 12	012	0.2+ 0.1-
1992 04 27	691	0.9- 1.3-		1998 11 25	704	0.3+ 0.8+	1999 02 12	012	0.1+ 0.3-
1992 04 27	691	0.7- 1.4-		1998 11 25	704	0.5- 0.8+	1999 02 12	012	0.4+ 0.5-
1994 11 21	596	0.3- 1.7-		1998 11 25	704	0.4+ 0.5+	1999 02 13	704	0.2+ 0.3-
1994 11 21	596	0.8- 1.5-		1998 11 25	704	1.1- 0.2+	1999 02 13	704	0.4+ 0.7+
1994 11 22	596	1.1- 1.2-		1998 11 25	704	0.5+ 0.4+	1999 02 13	704	0.1- 0.6+
1994 11 22	596	0.1- 0.8-		1998 12 01	704	(1.5+ 2.0+)	1999 02 13	704	0.9+ 0.4+
1994 11 22	596	1.3+ 0.3-		1998 12 01	704	0.1+ 0.1-	1999 02 13	704	0.3- 0.6+
1994 11 30	596	0.1+ 0.0		1998 12 01	704	1.1+ 0.7+			

(10089)* 1990 SS₉ = 1979 SA₁₃ = 1988 CH₁

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

Id. T. Kobayashi (*MPC* 23974)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	56.50710	(2000.0)	P	Q	
<i>n</i>	0.26881254	ω	326.16748	+0.51021319	-0.85809685
<i>a</i>	2.3777692	Ω	93.09215	+0.80136402	+0.44987986
<i>e</i>	0.1995860	<i>i</i>	3.32407	+0.31224701	+0.24754375
<i>P</i>	3.67	<i>H</i>	14.6	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1979 09 20	675	0.9- 0.6+		1996 06 08	809	0.3- 1.2+	1999 02 06	886	1.9- 0.8+
1979 09 21	675	0.8- 0.8+		1996 06 10	809	0.4- 0.6+	1999 02 10	704	0.4+ 0.8+
1988 02 13	054	1.4+ 0.2-		1996 06 10	809	0.0 1.5+	1999 02 10	704	0.3+ 0.2-
1988 02 13	054	1.4+ 1.4-		1996 06 10	809	0.5- 1.7+	1999 02 10	704	0.2- 0.3-
1990 09 14	809	1.2+ 1.1+		1997 08 03	566	1.4+ 0.2-	1999 02 10	704	0.5+ 0.3-
1990 09 14	809	0.6+ 0.1+		1997 08 03	566	0.9+ 0.4-	1999 02 10	704	0.1- 0.8-
1990 09 14	809	0.5- 0.6+		1997 08 03	566	0.9+ 0.3+	1999 02 12	699	1.1+ 0.4+
1990 09 22	809	0.2+ 0.4+		1998 11 25	699	0.3- 1.3+	1999 02 12	699	0.6+ 0.7+
1990 09 22	809	0.4- 0.1+		1998 11 25	699	0.8+ 1.3+	1999 02 12	699	0.6+ 0.5+
1990 09 22	809	0.6- 0.6-		1999 01 13	699	0.2+ 0.9+	1999 02 13	704	0.7- 1.5-
1990 09 25	809	0.6- 0.8+		1999 01 13	699	0.7- 1.4+	1999 02 13	704	0.1+ 0.6+

1990 09 25 809 1.1- 0.6+ 1999 01 13 699 0.2- 0.8+ 1999 02 13 704 0.1- 0.6+
 1990 09 25 809 1.6- 0.9+ 1999 02 05 886 0.3- 1.0- 1999 02 13 704 0.4+ 0.2+
 1996 06 08 809 0.6+ 1.4+ 1999 02 05 886 1.0- 1.1- 1999 02 13 704 0.3+ 0.3+
 1996 06 08 809 0.1- 1.6+ 1999 02 06 886 0.5+ 1.1+

(10090)* 1990 TK₁₅ = 1950 XD₁ = 1979 SJ₁₂ = 1988 CD

Discovered 1990 Oct. 13 by G. R. Kastel' at the Crimean Astrophysical
 Observatory.

Id. E. Bowell (*MPC* 30448), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	100.34941	(2000.0)	P	Q	
<i>n</i>	0.27023508	ω	38.80629	+0.93054260	-0.36469154
<i>a</i>	2.3694174	Ω	342.49514	+0.30261420	+0.81664738
<i>e</i>	0.1278262	<i>i</i>	6.30322	+0.20619194	+0.44731101
<i>P</i>	3.65	<i>H</i>	13.5	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1950 12 09	675	0.1+ 0.8+		1997 07 07	688	0.1+ 0.1+	1998 11 25	704	(0.7+ 2.3+)
1950 12 09	675	0.2- 0.5+		1997 07 07	688	0.1+ 0.4+	1998 11 25	704	0.5- 0.4-
1979 09 20	049	0.3- 0.5-		1997 09 02	566	0.6- 0.3+	1999 01 13	699	0.5+ 0.5+
1979 09 20	049	0.2- 0.4-		1997 09 02	566	0.6- 0.1+	1999 01 13	699	0.5+ 0.5+
1988 02 08	372	(0.8- 5.6-)		1997 09 02	566	0.5- 0.3+	1999 01 13	699	0.2+ 1.1+
1988 02 08	372	(1.1- 5.3-)		1997 09 08	689	0.8- 1.1+	1999 02 10	704	0.7+ 0.0
1990 10 13	095	0.8- 0.5-		1997 10 19	327	0.3- 0.3+	1999 02 10	704	0.6+ 0.6-
1990 10 13	095	1.5+ 1.5-		1997 10 19	327	0.0 0.1+	1999 02 10	704	0.5+ 0.1-
1990 10 17	095	0.5+ 0.0		1997 10 19	327	0.1- 0.2+	1999 02 10	704	0.2- 0.1+
1990 10 17	095	(3.3+ 0.6+)		1997 11 02	327	0.3+ 0.9+	1999 02 10	704	0.8+ 0.8+
1990 11 14	095	(1.0- 3.2+)		1997 11 02	327	0.5+ 0.3+	1999 02 12	699	0.3+ 0.5+
1990 11 14	095	(4.7- 4.1+)		1997 11 02	327	0.3+ 0.5+	1999 02 12	699	0.2- 1.0+
1997 07 06	688	0.1- 0.3+		1997 11 29	566	0.0 0.2-	1999 02 12	699	0.5+ 0.4+
1997 07 06	688	0.4- 0.3+		1997 11 29	566	0.2+ 0.2-	1999 02 13	704	0.1- 0.3-
1997 07 06	688	0.7- 0.5+		1997 11 29	566	0.5+ 0.2+	1999 02 13	704	0.8- 0.2+
1997 07 06	688	0.3+ 0.2+		1998 11 25	704	0.2+ 1.4+	1999 02 13	704	0.1- 0.3-
1997 07 07	688	0.2- 0.4+		1998 11 25	704	2.0+ 0.5+	1999 02 13	704	0.9- 0.2+
1997 07 07	688	0.1+ 0.4+		1998 11 25	704	0.1- 1.5-	1999 02 13	704	1.2- 0.4+

(10091)* 1990 VD₃ = 1992 HU₄

Discovered 1990 Nov. 11 by T. Seki at Geisei.

Id. G. V. Williams (*MPC* 21575)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	354.96685	(2000.0)	P	Q	
<i>n</i>	0.26964962	ω	228.13390	-0.82436421	-0.56329123
<i>a</i>	2.3728458	Ω	277.50932	+0.53462524	-0.74231755
<i>e</i>	0.0617941	<i>i</i>	3.23320	+0.18600938	-0.36286035
<i>P</i>	3.66	<i>H</i>	14.4	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1990 10 22	675	0.7- 0.9+		1992 04 24	809	0.1- 1.1+	1999 02 12	704	1.0+ 0.2-
1990 10 22	675	1.0- 0.7+		1997 10 28	704	1.2+ 1.0-	1999 02 12	699	0.3+ 0.0
1990 11 11	372	0.9- 1.5+		1997 10 28	704	0.4- 2.0-	1999 02 12	704	0.7+ 0.1+
1990 11 13	675	1.1- 0.5+		1997 10 30	704	0.5+ 0.4-	1999 02 12	699	1.6+ 0.2-
1990 11 13	675	1.5- 0.1-		1997 10 30	704	0.1+ 0.3-	1999 02 12	704	0.7+ 0.3+
1990 11 13	372	0.6+ 1.6-		1997 10 30	704	0.6+ 0.2+	1999 02 12	704	1.2+ 1.2+
1990 11 17	372	1.4+ 0.1-		1997 10 30	704	1.5- 0.7+	1999 02 12	699	0.4+ 0.1+
1990 11 17	372	(2.6+ 1.3+)		1997 10 30	704	0.5- 0.1-	1999 02 16	704	0.7- 0.5-
1990 11 24	402	1.6+ 0.4+		1997 12 27	688	1.1+ 0.2+	1999 02 16	704	1.2- 0.8-
1990 11 24	402	0.9+ 0.8+		1997 12 27	688	0.5+ 1.0+	1999 02 16	704	0.7- 0.4-
1992 04 23	809	0.1- 0.5-		1998 12 16	699	0.7- 0.4+	1999 02 16	704	1.1- 0.7-
1992 04 23	809	0.3+ 0.1-		1998 12 16	699	0.4- 0.3-	1999 02 16	704	0.9- 0.3-
1992 04 23	809	0.7+ 0.3+		1998 12 16	699	1.8- 0.2+			
1992 04 24	809	0.3- 0.4+		1999 02 12	704	0.2+ 0.1-			

(10094)* 1991 DK = 1951 PQ = 1972 TD₅
Discovered 1991 Feb. 20 by T. Seki at Geisei

Id. S. Nakano (*MPC* 22814)
Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	113.24485		(2000.0)		P		Q				
n	0.23791306	ω	19.65227			+0.95652443	-0.29135095				
a	2.5794307	Ω	357.18389			+0.21822569	+0.74511658				
e	0.1429724	i	15.64922			+0.19349047	+0.59992991				
P	4.14	H	11.8		G	0.15	U	2			
Residuals in seconds of arc											
1951 08 01	078 (22.9+	23.3-)	Y	1997 09 24	758	0.5-	0.4+	1998 11 25	704	0.8+	0.9-
1972 10 06	095	0.5+	0.5-	1997 09 24	758	0.1-	0.5+	1998 11 28	327	0.2-	0.1+
1991 02 11	675	0.9+	0.4-	1997 09 25	758	0.1-	0.3+	1998 11 28	327	0.2-	0.3+
1991 02 11	675	1.2+	0.2-	1997 09 25	758	0.1+	0.4+	1998 11 28	327	0.3-	0.2+
1991 02 12	372	1.5-	1.3+	1997 09 25	758	0.0	0.4+	1998 11 28	327	0.3-	0.0
1991 02 12	372	0.7-	1.4-	1997 09 29	758	0.8-	0.7+	1998 12 01	704	0.2+	0.0
1991 02 20	372 (2.2-	2.0-)		1997 09 29	758	0.5-	0.7+	1998 12 01	704	0.1+	0.7+
1991 02 20	372	0.7-	0.2-	1997 09 29	758	0.4-	0.5+	1998 12 01	704	0.0	0.2+
1991 02 22	372	0.3-	0.4+	1997 10 05	127	0.1+	0.4-	1998 12 01	704	0.4+	0.1-
1991 02 22	372	0.8-	0.4+	1997 10 05	127	0.1+	0.6-	1998 12 01	704	0.9+	0.6-
1991 03 09	675	0.0	1.1-	1997 10 05	127	0.0	0.3-	1999 02 10	704	0.4-	0.5-
1991 03 09	372 (2.3-	1.3-)		1997 10 07	689	0.0	0.1+	1999 02 10	704	0.3-	0.5+
1991 03 09	372	1.6-	0.5-	1997 10 18	138	1.3+	1.3-	1999 02 10	704	1.3-	0.5+
1991 04 15	675	0.1-	0.1+	1997 10 18	138	1.7+	0.9-	1999 02 10	704	0.1+	0.7+
1991 04 15	675	0.2-	0.7+	1997 10 18	138	1.5+	0.3+	1999 02 10	704	0.4+	1.1+
1993 11 18	372	0.0	0.1+	1997 10 26	566	0.1-	0.6+	1999 02 12	127	0.3+	0.1+
1993 11 18	372	0.8+	0.3-	1997 10 26	566	0.1+	0.3+	1999 02 12	127	0.3+	0.0
1995 01 26	801	0.6+	0.8+	1997 10 26	566	0.1-	0.5+	1999 02 13	704	0.2-	0.4+
1995 01 26	801	0.9+	1.5-	1997 10 27	127	0.2-	0.4-	1999 02 13	704	0.1+	0.1+
1995 03 08	372	1.2+	0.2-	1997 10 27	127	0.3-	0.4-	1999 02 13	704	0.1-	0.1+
1995 03 08	372	0.2-	0.8+	1997 10 27	127	0.2-	0.5-	1999 02 13	704	0.5-	0.9+
1995 03 30	801	0.2+	0.1-	1997 10 28	127	0.3-	0.5-	1999 02 13	704	0.5-	0.7-
1995 03 30	801	0.3+	0.1-	1997 10 28	127	0.3-	0.4-	1999 02 18	566	0.3+	0.2-
1995 04 01	801	0.0	0.2-	1997 10 28	127	0.3-	0.5-	1999 02 18	566	0.3+	0.2-
1995 04 01	801	0.0	0.2-	1997 10 30	127	0.1-	0.4-	1999 02 18	566	0.3+	0.1-
1997 08 17	544	0.1-	0.1+	1997 10 30	127	0.1-	0.4-	1999 02 21	714	0.2+	0.3+
1997 08 17	544	0.2+	0.0	1997 10 30	127	0.3-	0.4-	1999 02 21	714	0.2+	0.0
1997 09 23	689	0.1-	0.1-	1997 11 01	138	0.2-	0.7-	1999 02 21	714	0.5+	0.1-
1997 09 24	758	0.0	0.7+	1							

(10095)* 1991 RP₂ = 1989 EH₁₂ = 1992 YL₅

Discovered 1991 Sept. 9 by F. Börngen and L. D. Schmadel at Tautenburg.
Id. E. Bowell (*MPC* 28846), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0	TT = JDT 2451200.5				Williams						
M	244.69130		(2000.0)		P			Q			
n	0.18942060		ω 47.67195		−0.16587787			+0.98210457			
a	3.0027413		Ω 213.09469		−0.94599852			−0.18401668			
e	0.0550012		i 9.40124		−0.27851630			+0.04010571			
P	5.20		H 12.6		G 0.15		U 1				
Residuals in seconds of arc											
1989 03 09	675	0.7+	0.7+	1992 12 17	691	0.7−	0.1+	1997 12 30	113	0.1+	0.6−
1989 03 09	675	1.1+	0.9+	1992 12 17	691	0.6−	0.0	1997 12 30	113	0.8+	0.6+
1991 09 09	033	0.8−	0.8−	1997 10 30	113	0.3+	0.2+	1997 12 30	113	1.0+	0.1−
1991 09 10	033	0.6−	0.4−	1997 10 31	113	0.1−	0.5+	1999 01 18	113	0.7−	1.7−
1991 09 12	033	0.5−	1.0−	1997 10 31	113	0.2+	0.7+	1999 01 18	113	1.3−	0.5−
1991 09 12	033	0.4−	0.5−	1997 10 31	113	0.1+	0.4+	1999 01 20	611	0.7−	0.2−
1991 09 13	033	0.1+	0.8−	1997 10 31	113	0.2+	0.2+	1999 01 20	611	0.6−	0.2+
1991 09 14	033	0.9+	1.0−	1997 10 31	113	1.4−	0.3+	1999 01 21	113	1.3−	0.3−

1999 MAR. 2

M.P.C. 33881

1991 10 02	033	0.0	0.3-	1997 11 01	611	1.0+	0.8+	1999 01 21	113	1.5-	0.4-
1991 10 02	033	0.9-	0.7-	1997 11 01	611	0.9+	0.1+	1999 02 10	113	0.9-	0.1+
1991 10 03	033	0.1-	0.1+	1997 11 01	611	1.0+	0.7+	1999 02 10	113	1.0-	0.2+
1991 10 03	033	0.2-	1.0-	1997 11 01	611	0.9+	0.6+	1999 02 12	704	0.0	0.8-
1991 10 03	033	1.7+	0.6-	1997 11 01	611	0.6+	0.5+	1999 02 12	704	0.3+	1.0-
1991 10 04	033	1.4+	0.7-	1997 11 01	611	0.8+	0.6+	1999 02 12	704	0.2-	1.0-
1991 10 04	033	0.0	0.7+	1997 11 01	113	0.9-	0.9+	1999 02 12	704	0.9+	0.3-
1991 10 04	033	0.7+	0.5-	1997 11 01	113	0.5-	0.3-	1999 02 12	704	1.2+	0.5+
1991 10 05	033	0.1-	0.6-	1997 11 01	611	1.0+	0.3+	1999 02 16	704	0.1-	0.1-
1991 10 07	033	1.2-	0.5+	1997 11 01	113	0.6-	0.2-	1999 02 16	704	0.1+	0.8-
1991 10 07	033	1.7+	0.9-	1997 11 04	611	0.5+	1.0+	1999 02 16	704	0.1+	1.0-
1991 10 08	033	0.3-	0.2-	1997 11 04	611	0.8+	0.7+	1999 02 16	704	0.3+	0.9-
1991 10 08	033	0.0	0.0	1997 11 19	113	0.8-	0.7-	1999 02 16	704	0.6+	1.6-
1991 10 09	033	0.3-	0.4-	1997 11 19	113	1.2-	0.3-				
1992 12 17	691	0.0	1.2+	1997 11 19	113	0.8-	0.3-				

(10096)* 1991 RK₅ = 1933 UF₁ = 1994 EN₆

Discovered 1991 Sept. 13 by H. E. Holt at Palomar.

Id. G. V. Williams (*MPC* 23339)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	166.50192	(2000.0)	P	Q	
<i>n</i>	0.18669193	ω	319.90329	+0.88930401	+0.45528599
<i>a</i>	3.0319289	Ω	13.21451	-0.35630961	+0.74881433
<i>e</i>	0.1179065	<i>i</i>	10.85413	-0.28667375	+0.48165523
<i>P</i>	5.28	<i>H</i>	12.5	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1933 10 19	024	0.3-	0.6+	1994 02 10	809	1.0-	1.5+	1997 12 06	704	0.4-	0.9+
1933 10 20	024	(4.2+	4.7-)	1994 02 10	809	0.2-	0.6+	1997 12 06	704	0.4-	0.3-
1991 09 11	675	0.3+	0.1-	1994 02 10	809	1.6-	0.6+	1997 12 06	704	0.3-	0.0
1991 09 11	675	0.3+	0.6+	1994 02 13	809	(0.5+	4.9+)	1997 12 06	704	0.4-	0.4-
1991 09 12	095	(3.5-	3.5+)	1994 02 13	809	(0.2+	4.4+)	1998 12 27	699	1.2+	0.8-
1991 09 12	095	1.3+	0.7-	1994 02 13	809	(0.4-	4.4+)	1998 12 27	699	0.5-	0.2+
1991 09 13	675	0.3+	0.5-	1994 02 16	010	0.2+	0.1-	1998 12 27	699	0.4+	1.7-
1991 09 13	675	0.3-	0.5-	1994 02 16	010	0.1+	0.2-	1999 02 10	704	0.3-	0.6-
1991 09 14	675	0.3+	0.7+	1994 03 04	399	0.3-	0.4-	1999 02 10	704	0.5-	0.3+
1991 09 14	675	0.3+	0.4+	1994 03 04	399	1.6-	0.5-	1999 02 10	704	0.1+	0.3+
1991 09 16	675	0.8+	0.9-	1994 03 09	010	1.6+	1.7+	1999 02 10	704	0.4-	0.3+
1991 09 16	675	0.4+	0.6-	1994 03 09	010	1.0+	1.2+	1999 02 10	704	0.6-	0.1-
1991 10 05	691	(2.1-	0.9+)	1994 03 09	010	0.9+	0.9+	1999 02 13	704	0.2+	2.0-
1991 10 05	691	1.7-	1.0+	1994 03 10	010	1.2+	1.0+	1999 02 13	704	1.7+	0.8-
1991 10 05	691	1.6-	1.0+	1994 03 10	010	0.8+	0.5+	1999 02 13	704	0.3+	1.0-
1994 02 08	809	1.8-	0.6-	1994 03 10	010	0.7+	0.2+	1999 02 13	704	0.4-	1.0-
1994 02 08	809	(2.8-	0.9-)	1996 11 11	689	(16.1-	6.4-)				
1994 02 08	809	(2.7-	1.2-)	1997 12 06	704	0.3-	0.6+				

(10097)* 1991 RV₁₆ = 1996 FJ₁₅

Discovered 1991 Sept. 15 by H. E. Holt at Palomar.

Id. T. Kobayashi (*MPC* 27712)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	37.04482	(2000.0)	P	Q	
<i>n</i>	0.29454816	ω	19.16186	+0.75726926	-0.65147961
<i>a</i>	2.2371675	Ω	21.69681	+0.58178447	+0.64088308
<i>e</i>	0.1159236	<i>i</i>	7.15036	+0.29676608	+0.40600886
<i>P</i>	3.35	<i>H</i>	14.6	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1954 08 08	675	0.7+	0.2+	1996 03 20	704	0.3+	0.3-	1998 11 10	704	1.1-	0.7+
1954 08 08	675	0.5-	0.4-	1996 03 20	704	0.6+	0.6+	1998 11 10	704	0.1+	0.6+
1991 09 15	675	0.1-	0.7-	1996 03 21	704	0.2+	1.5-	1998 11 10	704	0.2+	0.6+
1991 09 15	675	0.4-	0.4-	1996 03 21	704	0.0	1.3-	1998 11 10	704	0.1+	0.4+
1991 09 17	675	0.6-	1.4-	1996 03 21	704	0.9-	0.2+	1998 12 14	704	0.1+	0.5-
1991 09 17	675	0.5-	0.3-	1998 08 31	704	1.1+	1.0-	1998 12 14	704	0.2-	0.5+
1991 10 02	675	0.2+	0.3-	1998 08 31	704	(4.7-	1.0-)	1998 12 14	704	0.0	0.1+
1991 10 02	675	1.1+	0.9+	1998 08 31	704	0.6-	1.0-	1998 12 14	704	1.2+	0.0

1991 10 03	675	0.3+	0.8+	1998 08 31	704	(2.5-	3.1+)	1998 12 14	704	0.3-	0.2-
1991 10 03	675	0.2+	0.1+	1998 09 29	704	0.8-	0.3+	1998 12 17	704	0.7+	0.5+
1994 07 13	675	1.4+	1.0-	1998 09 29	704	1.0-	0.6-	1998 12 17	704	0.7+	0.5-
1994 07 13	675	0.7-	0.3-	1998 09 29	704	1.8-	1.2+	1998 12 17	704	1.0+	0.8-
1996 03 19	704	1.1-	1.2+	1998 09 29	704	0.3+	0.1-	1998 12 17	704	(2.5-	0.8-)
1996 03 19	704	0.2-	1.1-	1998 09 29	704	1.0-	0.8+	1998 12 17	704	1.1+	1.3-

(10098)* 1991 SC₁ = 1981 SH₈ = 1996 QE₂

Discovered 1991 Sept. 30 by R. H. McNaught at Siding Spring.

Id. G. V. Williams (*MPC* 29615)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	155.32216	(2000.0)	P	Q	
<i>n</i>	0.18724024	ω	290.18686	+0.87941572	+0.45998914
<i>a</i>	3.0260070	Ω	42.67551	-0.34050251	+0.78780588
<i>e</i>	0.0920344	<i>i</i>	10.42281	-0.33269511	+0.40959966
<i>P</i>	5.26	<i>H</i>	12.9	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1981 09 24	033	0.2+	0.3-	1997 11 26	566	0.6-	0.1-	1999 01 09	699	0.2+	0.4-
1981 09 24	033	0.4+	1.3-	1997 11 26	566	0.5-	0.2-	1999 01 19	704	0.3-	0.0
1991 09 05	413	0.2+	0.6-	1997 11 29	704	0.6-	0.0	1999 01 19	704	0.2+	1.8-
1991 09 05	413	0.4+	0.5-	1997 11 29	704	0.2-	0.5+	1999 01 19	704	0.2-	0.2+
1991 09 14	675	0.3-	0.4+	1997 11 29	704	0.1-	1.0+	1999 01 19	704	0.6-	0.1-
1991 09 14	675	0.2+	0.3+	1997 11 29	704	0.1+	0.1-	1999 01 19	704	0.6-	0.0
1991 09 30	413	(2.3+	0.4+)	1997 11 29	704	0.1+	0.7-	1999 02 10	704	0.3+	0.1-
1991 10 01	413	1.1-	0.9+	1997 12 04	704	(2.9-	0.5+)	1999 02 10	704	0.0	0.4-
1991 10 02	413	0.4-	0.6+	1997 12 04	704	1.0-	0.0	1999 02 10	704	0.2+	0.1+
1991 10 02	413	0.6+	0.4+	1997 12 04	704	0.6-	0.4+	1999 02 10	704	0.2-	0.5+
1991 10 05	413	0.7-	1.0+	1997 12 04	704	0.4-	0.1+	1999 02 10	704	0.4+	0.9+
1991 10 09	413	1.7-	0.4+	1997 12 05	704	0.8+	0.3-	1999 02 13	704	0.0	0.3+
1991 10 11	675	(2.1+	1.7+)	1997 12 05	704	1.4+	0.2+	1999 02 13	704	0.5+	1.6-
1991 10 11	675	(1.6+	2.5+)	1997 12 05	704	0.6+	0.6-	1999 02 13	704	0.1-	1.1+
1991 10 12	413	0.0	0.4+	1997 12 05	704	0.7+	0.5-	1999 02 13	704	0.9+	0.1+
1991 10 13	675	1.7+	1.0+	1997 12 05	704	0.7+	0.1-	1999 02 13	704	0.8-	1.5+
1991 10 13	675	0.1+	0.8-	1998 12 27	699	1.1-	0.3-	1999 02 19	566	0.0	0.5+
1996 08 20	566	0.0	0.5-	1998 12 27	699	0.9-	0.1+	1999 02 19	566	0.3+	0.8+
1996 08 20	566	0.1+	0.4-	1998 12 27	699	0.7-	0.5+	1999 02 19	566	0.1+	0.4+
1996 08 20	566	0.1-	0.5-	1999 01 09	699	0.9+	0.5-				
1997 11 26	566	0.2-	0.2-	1999 01 09	699	1.7+	0.5-				

(10099)* 1991 VB₉ = 1979 UF₁ = 1997 WF₁₄

Discovered 1991 Nov. 4 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 30978)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	75.18445	(2000.0)	P	Q	
<i>n</i>	0.16753325	ω	314.23207	+0.64781252	-0.76015222
<i>a</i>	3.2588825	Ω	95.32311	+0.71248934	+0.58130491
<i>e</i>	0.1180177	<i>i</i>	2.88275	+0.26962545	+0.29026403
<i>P</i>	5.88	<i>H</i>	13.4	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1979 10 26	033	(8.4+	7.0+)	1997 11 22	691	0.1-	0.3-	1999 01 13	699	0.3+	1.0+
1979 10 26	033	(11.3+	4.8+)	1997 11 22	691	0.5-	0.7-	1999 01 13	699	0.2+	1.1+
1979 10 26	033	0.4-	0.2-	1997 11 22	691	0.7-	0.8-	1999 01 19	704	1.2-	0.4+
1991 10 17	675	1.3+	0.0	1997 11 25	400	0.4+	0.1-	1999 01 19	704	1.3+	0.8+
1991 11 04	691	0.3-	0.7+	1997 11 25	400	1.5+	2.0-	1999 01 19	704	0.3+	0.1+
1991 11 04	691	0.2-	0.5+	1997 11 29	704	0.5+	0.0	1999 01 19	704	0.2-	0.6-
1991 11 04	691	0.4-	0.5+	1997 11 29	704	0.1+	0.4+	1999 02 10	704	0.9+	0.4-
1991 11 05	691	0.2-	0.8+	1997 11 29	704	0.5+	1.1-	1999 02 10	704	0.8+	0.8-
1991 11 05	691	0.2-	0.7+	1997 11 29	704	1.0+	0.4-	1999 02 10	704	0.3-	0.1+
1991 11 05	691	0.0	0.4+	1997 11 29	704	0.5-	1.1-	1999 02 10	704	0.5+	0.3-
1991 11 06	691	0.4-	1.0+	1997 11 29	691	1.1-	0.8-	1999 02 12	699	0.0	0.0
1991 11 06	691	0.3-	1.2+	1997 11 29	691	0.9-	0.7-	1999 02 12	699	0.0	0.0
1991 11 06	691	0.2-	1.0+	1997 11 29	691	0.8-	0.5-	1999 02 12	699	0.4-	0.3-
1991 11 08	691	0.3-	0.7+	1997 12 04	704	0.9+	0.4-	1999 02 13	704	0.8-	0.4-

1991 11 08	691	0.2-	0.7+	1997 12 04	704	0.2+	0.1-	1999 02 13	704	1.0-	0.3-
1991 11 08	691	0.3-	0.7+	1997 12 04	704	1.5+	1.8-	1999 02 13	704	0.4-	0.8+
1991 11 08	691	0.4-	0.9+	1997 12 04	704	0.2-	0.1-	1999 02 13	704	0.3+	0.2-
1991 11 08	691	0.0	0.7+	1997 12 04	704	0.6+	1.4-	1999 02 18	566	0.2-	0.2+
1991 11 08	691	0.2-	0.6+	1998 02 15	327	0.1-	0.6+	1999 02 18	566	0.1-	0.1-
1996 09 08	809	0.3+	0.0	1998 02 15	327	0.0	0.3+	1999 02 18	566	0.2-	0.1-
1996 09 08	809	0.1-	0.3+	1998 02 15	327	0.5+	0.0				
1996 09 08	809	0.2+	1.2-	1999 01 13	699	0.8+	0.3+				

(10100)* 1991 XH₁ = 1983 RM₁ = 1987 WP₅ = 1998 RD₃₅

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

Id. G. V. Williams (*MPC* 32662)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26287918	ω	11.23078	+0.51683646	-0.85572244		
<i>a</i>	2.4134145	Ω	47.65440	+0.78281055	+0.46063400		
<i>e</i>	0.1771018	<i>i</i>	1.92936	+0.34653675	+0.23570199		
<i>P</i>	3.75	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1983 09 10	688	0.3+	1.1-	1998 09 14	704	0.3+	0.2+	1998 10 10	699	0.7-	0.5-
1983 09 10	688	0.3-	0.1+	1998 09 14	704	0.5-	0.6+	1998 10 12	699	0.1-	0.3-
1983 09 11	095	0.1+	1.9+	1998 09 14	704	0.1-	1.1+	1998 10 12	699	0.3-	0.4-
1987 11 16	327	0.6-	1.3-	1998 09 18	704	0.5-	0.2-	1998 10 12	699	0.0	0.4-
1991 12 10	033	0.5+	0.2+	1998 09 18	704	0.9-	0.5+	1998 10 13	704	0.3+	0.6+
1991 12 10	033	0.8+	1.2+	1998 09 18	704	0.0	1.3+	1998 10 13	704	0.2-	0.9+
1991 12 12	033	0.6+	0.6+	1998 09 18	704	0.1+	0.3+	1998 10 13	704	0.5+	0.0
1992 01 02	033	0.6-	0.3-	1998 09 18	704	0.2-	1.1+	1998 10 13	704	(0.1-	2.0-)
1992 01 03	033	0.1-	0.5-	1998 09 27	699	0.6+	0.8-	1998 10 13	704	0.3+	0.7-
1996 04 17	566	0.3-	0.4+	1998 09 27	699	0.7+	0.9-	1998 10 20	699	0.8-	0.5-
1996 04 17	566	0.1-	0.3+	1998 09 27	699	1.1+	0.3-	1998 10 20	699	0.2+	0.6-
1996 04 17	566	0.2-	0.4+	1998 10 10	699	0.2-	0.6-	1998 10 20	699	0.1-	0.6-
1998 09 14	704	0.1+	0.6+	1998 10 10	699	0.0	0.4-				

(10101)* 1992 BM₂ = 1977 SD₁ = 1987 SV₁₈ = 1994 VN₇

Discovered 1992 Jan. 30 by E. W. Elst at the European Southern Observatory.

Id. S. Nakano (*MPC* 24391)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29217479	ω	208.35837	+0.46884136	-0.88246829		
<i>a</i>	2.2492663	Ω	213.72244	+0.82275226	+0.45192631		
<i>e</i>	0.0991875	<i>i</i>	3.91596	+0.32135105	+0.13043131		
<i>P</i>	3.37	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1977 09 18	095	0.8-	1.3+	1994 11 28	691	0.8-	0.3+	1998 12 23	704	1.2-	0.6+
1977 09 16	095	1.1-	1.3+	1994 11 28	691	0.7-	0.3+	1998 12 23	704	0.7-	0.4+
1989 03 07	675	1.4-	0.4+	1994 11 28	675	1.1-	1.1-	1998 12 23	704	0.5+	0.8+
1989 03 07	675	1.1-	1.0+	1994 11 28	675	1.0-	2.0-	1999 02 12	704	0.3-	0.3+
1992 01 30	809	0.8+	0.8+	1994 11 30	675	0.5-	1.6-	1999 02 12	704	0.1-	0.5-
1992 01 30	809	0.7+	0.6+	1994 11 30	675	0.5-	0.1+	1999 02 12	704	1.4+	1.1+
1992 01 30	809	0.8+	0.7+	1994 12 03	675	0.1+	0.3+	1999 02 12	704	0.5-	1.6-
1992 02 02	809	2.0+	0.3+	1994 12 03	675	0.0	0.3-	1999 02 16	704	0.5+	0.1-
1992 02 02	809	1.4+	0.7+	1996 04 21	566	0.0	0.0	1999 02 16	704	0.7+	0.5-
1992 02 02	809	1.6+	0.2+	1996 04 21	566	0.1-	0.0	1999 02 16	704	0.4+	0.2-
1992 02 06	809	1.9+	0.5-	1996 04 21	566	0.8-	0.3-	1999 02 16	704	0.1+	0.1-
1992 02 06	809	0.9+	0.3+	1996 04 22	566	0.7-	0.5+	1999 02 16	704	0.3-	0.1-
1992 02 06	809	0.2+	0.2-	1996 04 22	566	0.3-	0.2+	1999 02 18	566	1.5-	0.3-
1992 02 11	809	(2.3+	1.4-)	1996 04 22	566	0.7-	0.2+	1999 02 18	566	0.9-	0.8-
1992 02 11	809	1.1+	1.1-	1997 08 31	560	1.4+	0.3-	1999 02 18	566	1.1-	0.3-
1994 11 04	675	0.7-	1.8-	1997 08 31	560	1.4+	0.1+	1999 02 21	758	0.3+	0.4+
1994 11 06	675	0.1+	1.3-	1997 08 31	560	1.5+	0.3-	1999 02 21	758	0.1+	0.4+
1994 11 06	675	0.3+	0.2-	1997 09 11	750	1.2+	1.3+	1999 02 21	758	0.5-	0.0
1994 11 08	894	(2.7-	0.5+)	1997 09 11	750	0.2-	1.3-	1999 02 22	758	0.1+	0.2-

1994 11 08	894	(2.5-	0.5-)	1997 09 12	750	0.7+	1.3+	1999 02 22	758	0.2+	0.4+
1994 11 10	894	1.3-	0.9+	1997 09 12	750	0.7+	0.9+	1999 02 22	758	0.6-	0.1-
1994 11 10	894	1.5-	0.2+	1998 12 23	704	0.2-	0.4+				
1994 11 28	691	0.2-	0.4+	1998 12 23	704	0.5+	1.1-				

(10102)* 1992 DA₆ = 1981 JH₃

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

Id. G. V. Williams (*MPC* 23861)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26152904	ω	45.29363	-0.99495334	+0.09826906		
<i>a</i>	2.4217135	Ω	140.33283	-0.09867818	-0.92169880		
<i>e</i>	0.1322194	<i>i</i>	1.82009	-0.01817859	-0.37525259		
<i>P</i>	3.77	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1981 05 05	675	(1.4+	3.5-)	1996 04 24	691	0.2-	0.6-	1998 12 16	704	0.4+	0.9+
1981 05 06	675	0.5-	0.1+	1996 04 24	691	0.2+	0.3-	1998 12 16	704	1.2-	0.5+
1981 05 10	675	0.6+	0.3+	1996 04 24	691	0.0	0.5-	1999 01 20	561	0.1+	0.6+
1992 02 29	809	0.2+	0.3+	1998 12 15	704	0.1-	0.5+	1999 01 20	561	0.2-	0.4+
1992 03 03	809	0.2-	0.4+	1998 12 15	704	(0.4+	2.8-)	1999 01 20	561	0.4-	0.3+
1992 03 07	809	0.4+	0.5+	1998 12 15	704	1.4+	2.2-	1999 01 20	561	0.6-	0.4+
1992 04 06	809	0.1+	0.3+	1998 12 15	704	1.0+	1.2-	1999 01 20	561	0.4-	0.4+
1996 04 19	691	0.4-	0.1-	1998 12 15	704	0.0	0.2-	1999 01 20	561	0.4-	0.3+
1996 04 19	691	0.3-	0.5-	1998 12 16	704	0.3-	0.6-				
1996 04 19	691	0.2-	0.4-	1998 12 16	704	0.5+	1.6-				

(10103)* 1992 DB₉ = 1986 TW₅

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

Id. G. V. Williams (*MPC* 23861)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26471004	ω	306.25898	+0.73921156	+0.67299318		
<i>a</i>	2.4022734	Ω	11.51695	-0.56982977	+0.64512807		
<i>e</i>	0.1052382	<i>i</i>	7.31616	-0.35897118	+0.36178717		
<i>P</i>	3.72	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1986 10 09	046	(0.4+	6.2-)	1996 04 22	566	1.2+	0.6-	1998 12 21	704	1.7-	0.5+
1986 10 09	046	(3.6+	3.8-)	1996 04 22	566	0.4+	0.2+	1999 02 10	704	0.3+	1.1-
1986 10 10	046	(7.5+	2.2-)	1996 04 22	566	0.8+	0.3-	1999 02 10	704	0.4-	0.2-
1986 10 10	046	(5.3+	3.4-)	1997 09 30	566	0.4+	0.2+	1999 02 10	704	0.9-	0.8-
1992 02 29	809	1.0-	0.8-	1997 09 30	566	0.9+	0.1-	1999 02 10	704	0.4-	0.2-
1992 03 03	809	0.5+	0.2+	1997 09 30	566	0.3+	0.0	1999 02 10	704	0.2+	0.0
1992 03 07	809	0.7+	0.8+	1997 11 02	691	0.3-	0.3+	1999 02 12	699	1.1+	0.8+
1992 04 06	809	0.1+	0.3+	1997 11 02	691	1.2-	0.3+	1999 02 12	699	0.7+	0.3-
1996 03 16	691	0.8-	0.5+	1997 11 02	691	1.1-	0.3+	1999 02 12	699	0.2-	0.2+
1996 03 16	691	0.6-	0.5+	1998 12 21	704	1.4+	0.0				
1996 03 16	691	0.8-	0.6+	1998 12 21	704	0.0	1.0+				

(10104)* 1992 EY₉ = 1997 SJ₃

Discovered 1992 Mar. 2 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. K. Ichikawa (*MPC* 30978)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27660548	ω	290.09777	-0.37295333	+0.92734795		
<i>a</i>	2.3328968	Ω	317.96399	-0.83335174	-0.34925153		
<i>e</i>	0.0769351	<i>i</i>	2.61259	-0.40795918	-0.13434710		
<i>P</i>	3.56	<i>H</i>	15.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1992 02 25	675	(2.6+ 0.2+)	1997 09 27	046	0.1+ 0.9+	1998 01 08	691	0.7- 0.4-
1992 02 25	675	0.9+ 0.4-	1997 09 27	046	0.5+ 0.9+	1998 01 08	691	0.3- 1.1-
1992 03 02	809	0.4- 0.8+	1997 09 27	046	0.6+ 0.5+	1999 01 14	691	0.9- 0.1-
1992 03 04	809	0.2+ 0.5+	1997 09 29	046	0.4+ 0.2+	1999 01 14	691	0.9- 0.0
1992 03 07	809	0.7+ 0.0	1997 09 29	046	0.7+ 0.2-	1999 01 14	691	0.9- 0.3-
1993 08 22	691	1.0- 0.1-	1997 09 29	046	0.6+ 0.1+	1999 01 18	691	0.8- 0.1+
1993 08 22	691	0.5- 0.0	1997 10 05	046	0.5+ 0.5+	1999 01 18	691	0.4- 0.2-
1993 08 22	691	0.7- 0.0	1997 10 07	046	0.4+ 0.5-	1999 01 18	691	0.5- 0.2+
1996 05 22	566	0.2+ 0.3-	1997 10 07	046	0.1+ 0.4-	1999 02 10	704	0.3+ 0.5+
1996 05 22	566	0.2+ 0.4-	1997 10 07	046	0.4+ 0.5-	1999 02 10	704	0.4- 0.1+
1996 05 22	566	0.6+ 0.1+	1997 10 22	046	0.1- 0.7-	1999 02 10	704	0.6+ 0.2-
1997 09 26	046	0.5- 0.8+	1997 10 22	046	0.4- 0.7-	1999 02 10	704	1.1+ 0.4-
1997 09 26	046	0.3- 0.3+	1997 10 22	046	0.2- 0.3-	1999 02 21	691	0.3+ 0.5+
1997 09 26	046	0.6- 0.3+	1997 10 23	046	0.8- 0.5-	1999 02 21	691	0.1+ 0.3+
1997 09 26	046	0.5+ 0.2+	1997 10 23	046	0.2- 0.3+	1999 02 21	691	0.3+ 0.4+
1997 09 26	046	1.2+ 0.8+	1997 10 23	046	0.5- 0.2-			
1997 09 26	046	1.2+ 1.0+	1998 01 08	691	1.7- 0.7-			

(10105)* 1992 EM₁₂ = 1970 EM₃ = 1994 PM₁₈ = 1994 RK₁₉
 = 1996 YE₁ = 1998 HZ₈₈

Discovered 1992 Mar. 6 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.
 Id. A. Gñädig (*MPC* 33481)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	64.01095	(2000.0)	P	Q
<i>n</i>	0.17897379	ω 51.63247	-0.96283960	+0.26992685
<i>a</i>	3.1184809	Ω 144.02495	-0.25227846	-0.88712895
<i>e</i>	0.1143218	<i>i</i> 0.86916	-0.09641311	-0.37435508
<i>P</i>	5.51	<i>H</i> 13.4	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1951 11 28	675	1.0+ 0.2+	1994 08 13	809	(2.4+ 2.8+)	1998 04 21	704	0.4+ 0.6-
1970 03 10	805	1.4+ 0.2+	1994 08 13	809	(2.0+ 2.5+)	1998 04 21	704	0.5- 0.8+
1970 03 10	805	0.9- 1.2+	1994 09 05	809	0.1+ 0.7+	1998 04 21	704	0.4+ 1.6+
1970 03 10	805	0.1+ 0.1+	1994 09 05	809	0.7- 1.7+	1998 04 22	704	0.4+ 0.2+
1977 09 08	413	0.8- 0.2+	1994 09 05	809	1.5- 1.3+	1998 04 22	704	1.1- 0.2-
1977 09 08	413	0.3- 0.5-	1994 09 06	809	(0.5+ 3.8+)	1998 04 22	704	0.2- 0.3-
1992 03 06	809	(2.5- 1.2+)	1994 09 06	809	(0.0 3.6+)	1998 04 22	704	0.1+ 0.2+
1992 03 08	809	1.5- 0.4+	1994 09 06	809	(1.0- 2.8+)	1998 04 22	704	0.2+ 1.5-
1992 03 09	809	0.6- 0.3-	1996 12 20	411	0.1- 0.1-	1998 04 30	699	0.8+ 0.6-
1992 04 06	809	0.1+ 0.6+	1996 12 20	411	0.3- 0.4-	1998 04 30	699	0.3+ 0.4-
1994 08 12	809	0.6+ 0.1+	1996 12 21	411	0.6+ 0.4+	1998 04 30	699	0.8+ 0.3+
1994 08 12	809	0.6+ 0.1+	1996 12 21	411	0.5+ 1.0+	1998 05 25	699	0.3- 0.6+
1994 08 12	809	0.0 1.5-	1998 04 21	704	0.2- 0.1+	1998 05 25	699	0.2+ 0.4+
1994 08 13	809	(3.4+ 2.8+)	1998 04 21	704	0.4+ 0.7-	1998 05 25	699	0.2+ 0.2+

(10106)* 1992 EV₁₅ = 1996 KY₃

Discovered 1992 Mar. 1 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.
 Id. T. Kobayashi (*MPC* 27556)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	8.16615	(2000.0)	P	Q
<i>n</i>	0.27465325	ω 309.45565	-0.40242835	-0.91539493
<i>a</i>	2.3439385	Ω 164.26520	+0.85101426	-0.37817552
<i>e</i>	0.1624598	<i>i</i> 2.15046	+0.33738131	-0.13796885
<i>P</i>	3.59	<i>H</i> 15.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1992 03 01	809	0.2- 0.9+	1999 01 09	120	0.4- 0.2-	1999 01 19	133	0.7- 0.1-
1992 03 03	809	0.6- 0.0	1999 01 10	120	0.6- 0.2-	1999 01 19	133	0.4+ 0.6-
1992 03 06	809	1.7+ 0.4+	1999 01 10	699	0.0 0.4-	1999 01 19	133	0.4- 0.8-
1992 04 07	809	0.4- 0.3+	1999 01 10	699	0.6+ 0.6-	1999 01 23	120	0.7- 0.4+
1996 04 21	809	(3.6+ 1.3-)	1999 01 10	699	0.6+ 1.1+	1999 01 23	120	0.9- 0.3+

1996 04 21	809	1.3+ 1.0-	1999 01 13	120	1.7- 0.8+	1999 02 12	704	0.3- 0.1+
1996 04 21	809	1.3+ 1.3-	1999 01 14	120	0.3+ 0.1-	1999 02 12	704	0.5+ 0.4+
1996 05 22	809	0.5- 0.5-	1999 01 14	120	0.7+ 0.1-	1999 02 12	704	0.2+ 1.0-
1996 05 22	809	1.1- 0.5+	1999 01 15	120	1.6+ 0.2-	1999 02 12	704	0.0 0.2+
1996 05 22	809	0.0 0.4+	1999 01 15	120	0.4+ 0.7+	1999 02 12	704	0.3+ 0.3+
1996 05 24	809	0.5+ 0.1+	1999 01 15	120	0.1+ 0.5-	1999 02 16	704	1.0+ 0.7-
1996 05 24	809	0.5- 0.8+	1999 01 15	120	0.4- 0.8+	1999 02 16	704	0.4+ 1.7-
1996 05 24	809	0.9- 0.6+	1999 01 15	120	0.8+ 0.1+	1999 02 16	704	0.4- 0.4-
1997 10 01	910	0.1+ 0.0	1999 01 18	704	1.5+ 1.4+	1999 02 16	704	1.4- 0.7+
1997 10 01	910	0.0 0.1+	1999 01 18	704	1.1- 0.4+	1999 02 16	704	2.1- 0.1-
1997 10 01	910	0.1- 0.1+	1999 01 18	704	1.5+ 0.3-			
1999 01 09	120	0.1- 0.5-	1999 01 18	704	0.3+ 0.4-			

(10107)* 1992 FW₁

Discovered 1992 Mar. 27 by D. I. Steel at Siding Spring.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	15.80294	(2000.0)	P	Q
<i>n</i>	0.27639079	ω 267.98709	-0.15237231	-0.98524807
<i>a</i>	2.3341047	Ω 191.68154	+0.98827881	-0.15114460
<i>e</i>	0.2661108	<i>i</i> 22.62891	+0.00936365	-0.08025930
<i>P</i>	3.57	<i>H</i> 14.9	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1981 01 08	413	(0.2- 3.5-)	1992 04 10	413	0.2- 0.8-	1997 08 02	557	0.1+ 0.3+
1981 01 08	413	(0.0 3.6-)	1992 04 30	413	1.2- 1.3-	1997 08 02	557	0.1+ 0.1-
1983 10 26	413	1.5+ 1.6-	1992 06 19	413	0.0 0.0	1999 01 22	426	0.2- 0.2-
1983 10 26	413	0.2- 0.4+	1992 06 19	413	0.4- 0.2+	1999 01 22	426	0.0 0.4-
1987 10 16	413	0.2+ 0.1-	1993 07 26	658	0.1- 1.3-	1999 01 22	426	0.0 0.2-
1987 10 16	413	0.7+ 0.4+	1993 07 26	658	0.2- 1.0-	1999 01 23	426	0.1- 0.4-
1987 10 20	413	0.2- 1.1-	1993 07 26	658	0.8- 0.8-	1999 01 23	426	0.3- 0.1-
1987 10 20	413	0.2- 1.7+	1994 10 01	675	0.8+ 0.2-	1999 01 23	426	0.2- 0.4-
1989 04 15	413	1.2+ 1.9+	1994 10 01	675	0.6+ 1.1-	1999 01 23	426	0.1- 0.2-
1989 04 15	413	(2.8+ 3.3-)	1994 10 11	691	1.5- 0.3-	1999 02 17	704	0.0 0.4-
1992 03 11	413	1.0+ 1.4+	1994 10 11	691	1.6- 0.3-	1999 02 17	704	0.1+ 0.9-
1992 03 11	413	(1.7+ 2.3-)	1994 10 11	691	0.9- 0.4-	1999 02 17	704	0.0 0.5+
1992 03 27	413	0.5- 2.0+	1994 11 04	675	1.3+ 1.0+	1999 02 17	704	1.5+ 0.0
1992 03 27	413	0.1+ 1.3-	1994 11 04	675	0.0 0.3+	1999 02 17	704	0.5+ 0.1+
1992 03 28	413	0.3- 0.1+	1997 08 01	557	0.1+ 0.5+			
1992 04 06	413	0.9- 1.2-	1997 08 01	557	0.5+ 0.2-			

(10108)* 1992 HM = 1981 JW₅ = 1988 EE₂

Discovered 1992 Apr. 26 by C. S. Shoemaker at Palomar.

Id. K. Kinoshita (*MPC* 23339)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	271.48088	(2000.0)	P	Q
<i>n</i>	0.26511999	ω 181.64332	-0.61561779	+0.71143439
<i>a</i>	2.3997964	Ω 50.52313	-0.71791582	-0.32894616
<i>e</i>	0.1544137	<i>i</i> 26.04650	-0.32497942	-0.62101170
<i>P</i>	3.72	<i>H</i> 13.8	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1981 05 08	675	0.7- 0.5-	1994 11 29	675	0.8+ 0.7-	1999 02 09	704	0.4+ 0.7-
1981 05 09	675	0.4- 0.7+	1994 11 29	675	1.0+ 0.7-	1999 02 09	704	0.1+ 0.6-
1988 03 14	033	0.5+ 0.1+	1994 12 01	675	0.7+ 0.6+	1999 02 09	704	0.2- 0.2+
1988 03 14	033	0.2- 0.2+	1994 12 01	675	0.9+ 0.8-	1999 02 09	704	0.4- 0.4-
1992 04 26	675	0.8- 0.4-	1997 11 06	689	0.0 0.6-	1999 02 09	704	0.8- 0.0
1992 04 26	675	1.1- 0.9-	1999 01 13	704	0.2+ 0.0	1999 02 23	566	0.3+ 0.7+
1992 04 30	675	1.3+ 0.1+	1999 01 13	704	0.0 0.7+	1999 02 23	566	0.2- 0.1+
1992 06 04	675	0.7+ 0.4+	1999 01 13	704	0.3+ 0.2+	1999 02 23	566	0.7- 0.4+
1992 06 05	675	0.4+ 0.3-	1999 01 13	704	0.7- 1.0+			
1992 06 05	675	0.4+ 1.1-	1999 01 13	704	1.1- 1.0+			

(10109)* 1992 KQ = 1987 HN

Discovered 1992 May 29 by E. F. Helin at Palomar.

Id. G. V. Williams (*MPC* 29100)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	153.06938		(2000.0)		P		Q		
<i>n</i>	0.22670769	ω	201.42781		+0.56341361		+0.78762344		
<i>a</i>	2.6637403	Ω	103.69352		-0.71579344		+0.61612104		
<i>e</i>	0.1753860	<i>i</i>	14.87585		-0.41255891		+0.00664721		
<i>P</i>	4.35	<i>H</i>	12.5		<i>G</i>	0.15	<i>U</i>		2
Residuals in seconds of arc									
1987 04 27	675	(3.5- 0.4+)	1997 09 06	608	0.7- 0.2-	1998 12 26	715	0.1- 0.4-	
1987 04 27	675	1.3- 0.1-	1997 10 18	423	0.0 0.3-	1998 12 26	715	0.5- 0.0	
1992 05 29	675	(4.2- 1.0-)	1997 10 18	423	0.2+ 0.0	1998 12 26	715	0.3- 0.1-	
1992 05 29	675	1.7+ 0.6+	1997 10 18	423	0.2- 0.3+	1998 12 28	715	1.5+ 1.5-	
1992 06 02	675	0.3+ 0.7+	1997 10 19	423	0.2- 0.6-	1998 12 28	715	0.6+ 0.8-	
1992 06 02	675	0.9+ 0.3+	1997 10 19	423	0.0 0.4-	1999 01 05	716	0.2+ 0.3-	
1992 06 28	675	1.4- 0.9-	1997 10 19	423	0.5+ 0.5-	1999 01 05	716	0.9+ 0.0	
1992 06 28	675	0.2+ 0.4+	1997 10 19	423	0.4+ 0.8-	1999 01 06	716	(2.8+ 0.6-)	
1992 06 29	675	0.5+ 0.1-	1998 12 15	704	0.3- 0.8+	1999 01 06	716	1.5+ 0.8+	
1992 06 29	675	0.7+ 0.1+	1998 12 15	704	0.1- 0.5+	1999 01 16	704	0.0 0.5-	
1992 06 30	675	0.6- 0.9-	1998 12 15	704	1.7- 0.3-	1999 01 16	704	0.3- 0.4-	
1992 06 30	675	1.5- 0.4-	1998 12 15	704	0.0 0.4+	1999 01 16	704	0.8+ 1.3-	
1993 12 07	675	0.2+ 1.0+	1998 12 15	704	1.5- 0.3+	1999 01 16	704	0.1+ 0.9-	
1993 12 07	675	0.2+ 0.5+	1998 12 22	704	0.7- 0.3+	1999 01 19	704	1.0+ 0.0	
1997 09 04	608	0.6+ 0.2+	1998 12 22	704	0.0 0.0	1999 01 19	704	0.1- 1.2+	
1997 09 04	608	0.5+ 0.3+	1998 12 22	704	0.2- 0.2+	1999 01 19	704	0.1- 0.5+	
1997 09 05	608	1.0- 0.5+	1998 12 22	704	0.5- 0.9+	1999 01 19	704	0.3+ 0.7+	
1997 09 06	608	1.0- 0.1+	1998 12 22	704	(3.5- 0.6-)	1999 01 19	704	(3.0- 0.3-)	

(10110)* 1992 LJ = 1976 GF₄ = 1993 TR₂₄

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

Id. G. V. Williams (*MPC* 23124)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	249.24017		(2000.0)	P		Q	
<i>n</i>	0.25221069	ω	100.25998	-0.41481169	+0.90898132		
<i>a</i>	2.4810017	Ω	145.14111	-0.86040770	-0.37717307		
<i>e</i>	0.1443220	<i>i</i>	4.11752	-0.29602339	-0.17746390		
<i>P</i>	3.91	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc							
1976 04 02	095	2.0+ 0.5-	1992 06 06	675	0.3- 0.7-	1997 11 30	735 (3.1- 1.5+)
1984 03 29	675	0.5- 2.2+	1992 06 06	675	0.3- 0.9-	1999 01 13	691 1.0- 0.2-
1984 03 29	675	1.0+ 0.0	1992 06 28	675(34.6+ 65.5-)		1999 01 13	691 1.1- 0.2-
1984 03 30	675	(3.0- 1.9+)	1992 06 28	675(32.1+ 62.3-)		1999 01 13	691 0.9- 0.4-
1984 03 30	675	1.9- 0.7-	1993 10 09	809	1.3+ 0.0	1999 01 20	704 0.2+ 0.2-
1984 04 29	675	1.7- 2.2-	1993 10 09	809	0.6+ 0.2-	1999 01 20	704 0.8+ 0.1+
1984 04 29	675	0.4+ 2.1+	1993 10 09	809	0.2+ 0.3-	1999 01 20	704 0.8+ 0.6-
1989 09 30	675	0.4- 0.6+	1993 10 11	809	0.3- 0.7-	1999 01 20	704 1.3- 0.4-
1989 09 30	675	1.0- 1.0+	1993 10 11	809	0.2+ 0.3-	1999 01 20	704 1.4+ 1.0-
1992 04 28	675	(1.0+ 3.7-)	1993 10 11	809	0.3+ 0.0	1999 01 21	120 0.3+ 0.6+
1992 04 28	675	0.8- 0.6-	1993 10 20	809	0.4+ 1.5-	1999 01 21	120 0.1- 0.3-
1992 05 02	809	0.1- 1.1+	1993 10 20	809	0.2- 0.2-	1999 01 23	120 0.2- 0.2-
1992 05 02	809	0.6+ 1.4+	1993 10 20	809	0.4- 1.2-	1999 01 23	120 0.4- 0.3-
1992 05 02	809	(0.4+ 2.5+)	1996 05 15	801	0.0 0.3-	1999 02 15	120 0.3+ 0.1-
1992 06 03	675	0.2+ 1.0-	1996 05 23	801	0.0 0.3+	1999 02 15	120 0.9+ 0.5-
1992 06 03	675	0.1+ 0.4-	1996 05 23	801	0.2+ 0.8-	1999 02 15	120 0.2- 0.3-
1992 06 05	675	1.1- 1.2-	1996 07 12	801	0.5+ 0.6-		
1992 06 05	675	1.3+ 0.8-	1997 11 30	735	(2.8- 1.4+)		

(10111)* 1992 OO₁ = 1970 CR = 1991 LU

Discovered 1992 July 25 by E. W. Elst at Caussols.

Id. A. Lowe (*MPC* 21582), G. V. Williams (*MPC* 31231)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	327.01521		(2000.0)		P		Q			
n	0.24131531	ω	59.03585		-0.93592011		+0.30826996			
a	2.5551288	Ω	138.23393		-0.34009517		-0.91675291			
e	0.0130444	i	14.81885		+0.09159051		-0.25403492			
P	4.08	H	12.7		G	0.15	U	1		
Residuals in seconds of arc										
1970 02 11	805	0.3+	1.2-	1992 07 26	010	(1.4-	3.8-)	1992 08 04	809	1.7+ 1.2+
1970 02 11	805	0.1-	0.6-	1992 07 26	010	(2.0-	4.1-)	1992 08 05	809	(2.1+ 1.2+)
1970 02 11	805	0.5-	0.8-	1992 07 26	010	(2.7-	4.2-)	1992 08 05	809	(2.3+ 1.2+)
1991 06 14	675	0.6-	0.6+	1992 07 26	809	0.2-	0.6-	1992 08 05	809	(2.5+ 1.3+)
1991 06 14	675	0.2+	0.8-	1992 07 26	809	0.5-	0.5-	1998 01 25	566	0.0 0.1-
1991 06 16	675	0.4+	0.8-	1992 07 26	809	0.2-	0.3-	1998 01 25	566	0.0 0.2-
1991 06 16	675	1.0+	1.8-	1992 07 26	033	0.4+	1.0-	1998 01 25	566	0.0 0.1-
1992 06 28	675	0.1+	0.1-	1992 07 27	033	0.7+	1.1-	1998 02 24	566	0.5+ 0.3-
1992 07 24	809	0.3-	1.6+	1992 07 28	033	0.8+	1.7-	1998 02 24	566	0.4+ 0.1-
1992 07 24	809	0.5-	0.2-	1992 07 29	033	0.5+	1.0-	1998 02 24	566	0.3+ 0.3-
1992 07 24	809	1.4-	0.1-	1992 07 30	809	1.0-	0.5+	1999 01 13	757	0.8- 0.3+
1992 07 25	010	(0.5-	4.2-)	1992 07 30	809	1.5-	0.4+	1999 01 13	757	0.9- 0.4+
1992 07 25	010	(1.2-	3.8-)	1992 07 30	809	1.5-	0.7+	1999 02 12	127	0.8+ 0.6+
1992 07 25	010	(0.6-	3.7-)	1992 07 30	033	0.7+	1.2-	1999 02 12	127	0.7+ 0.9+
1992 07 25	033	0.0	0.1-	1992 08 04	809	1.3+	1.2+	1999 02 24	127	0.3- 0.1+
1992 07 26	033	0.9-	0.9-	1992 08 04	809	1.6+	1.0+	1999 02 24	127	0.4- 0.1-

(10112)* 1992 OP₁ = 1982 UC₈ = 1982 VF₁₃ = 1993 VU₄

Discovered 1992 July 31 by H. E. Holt at Palomar.

Id. K. Ichikawa (*MPC* 27309)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	63.73448		(2000.0)		P		Q				
<i>n</i>	0.18620593	ω	101.58810		+0.92215897		+0.31404406				
<i>a</i>	3.0372022	Ω	240.46988		-0.36859050		+0.89048936				
<i>e</i>	0.1107671	<i>i</i>	15.04311		+0.11731956		+0.32924919				
<i>P</i>	5.29	<i>H</i>	12.7		<i>G</i>	0.15	<i>U</i>		<i>2</i>		
Residuals in seconds of arc											
1982 10 21	095	0.7-	1.8+	1998 10 02	704	0.6+	0.1+	1998 11 10	704	0.4-	0.5+
1982 11 09	095	0.7+	1.6-	1998 10 02	704	0.1-	0.6-	1998 11 10	704	0.4-	0.1+
1992 07 31	675	0.4+	0.6+	1998 10 02	704	1.0-	0.8-	1998 11 10	704	0.5+	0.6-
1992 07 31	675	0.1-	1.4-	1998 10 14	704	0.0	0.0	1998 11 11	704	0.5+	0.1-
1992 08 04	675	0.8-	0.3-	1998 10 14	704	0.3-	0.2+	1998 11 11	704	0.6+	0.4-
1992 08 05	675	0.6+	0.8+	1998 10 14	704	1.3+	1.3+	1998 11 11	704	0.2+	0.3-
1992 08 05	675	0.1-	0.1+	1998 10 14	704	0.3+	0.5+	1998 11 11	704	0.3+	0.1-
1993 11 09	010	0.1+	0.5+	1998 10 29	704	0.2-	0.1-	1998 11 11	704	0.3-	0.0
1993 11 09	010	(2.6+	0.4-)	1998 10 29	704	0.6-	0.1-	1998 12 09	704	0.2-	0.5+
1993 11 10	010	0.2+	0.3-	1998 10 29	704	0.2+	0.6-	1998 12 09	704	0.3-	0.3+
1993 11 10	010	0.3-	0.2-	1998 10 29	704	0.4-	0.7-	1998 12 09	704	1.3-	0.2+
1993 11 10	010	0.0	0.4-	1998 10 29	704	0.7-	0.1+	1998 12 09	704	1.3+	0.2+
1998 10 02	704	0.1+	0.4+	1998 11 10	704	0.6-	0.4+	1998 12 09	704	0.4-	0.1+
1998 10 02	704	0.8+	0.6-	1998 11 10	704	0.1+	0.1+				

(10113)* 1992 PX₂ = 1975 MA = 1984 UB₄

Discovered 1992 Aug. 6 by H. E. Holt at Palomar.

Id. G. V. Williams (*MPC* 21584)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	262.74571		(2000.0)		P		Q	
n	0.23459303	ω	311.76658		-0.50848188		+0.84056694	
a	2.6037102	Ω	286.75325		-0.72078101		-0.53418415	
e	0.1519352	i	11.24927		-0.47108483		-0.08996949	
P	4.20	H	13.1		G 0.15		U 1	
Residuals in seconds of arc								
1954 07 03	675	0.1+ 0.1+	1992 08 28	095	(1.5+ 2.5-)	1999 01 18	704	(2.8- 2.2-)
1954 07 03	675	0.9+ 0.1+	1998 11 23	699	0.2+ 0.1-	1999 01 20	704	0.1+ 0.4+

1975 06 17	808	0.9−	2.2−	1998 11 23	699	0.5+	0.6+	1999 01 20	704	0.2+	0.4+
1975 06 17	808	0.1−	0.0	1998 11 23	699	0.2+	0.4+	1999 01 20	704	0.1+	0.3−
1984 10 20	095	0.9−	0.1−	1998 12 23	704	1.1+	0.4−	1999 01 20	704	0.5−	0.4−
1992 08 06	675	0.8+	0.2+	1998 12 23	704	1.9−	0.6−	1999 02 12	704	0.1+	0.1+
1992 08 06	675	1.1+	0.3+	1998 12 23	704	(0.9−	2.1−)	1999 02 12	704	0.1−	0.1+
1992 08 07	675	1.5+	0.5+	1998 12 23	704	(1.2−	2.4+)	1999 02 12	704	0.7−	0.1−
1992 08 07	675	1.8−	1.8−	1998 12 23	704	(2.8−	0.5−)	1999 02 12	704	0.2+	0.5+
1992 08 23	675	0.3−	0.9+	1998 12 26	120	0.3+	0.0	1999 02 12	704	1.1−	0.6+
1992 08 23	675	0.9+	0.7+	1998 12 26	120	0.2+	0.0	1999 02 16	704	0.2+	0.6−
1992 08 26	095	0.3+	0.6−	1998 12 26	120	0.1−	0.1+	1999 02 16	704	0.1−	1.2−
1992 08 26	095	0.4−	0.4−	1999 01 18	704	0.4−	0.8−	1999 02 16	704	0.3+	0.3+
1992 08 28	675	0.7+	0.3−	1999 01 18	704	0.7−	1.0−	1999 02 16	704	0.3+	0.7−
1992 08 28	675	0.6+	0.7+	1999 01 18	704	0.3+	0.3+	1999 02 16	704	0.1−	0.2−
1992 08 28	095	1.8+	1.3−	1999 01 18	704	0.1+	0.7−				

(10114)* 1992 RZ = 1978 WF₅

Discovered 1992 Sept. 4 by F. Börngen and L. D. Schmadel at Tautenburg.
Id. G. V. Williams (*MPC* 21268)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	27.11771	(2000.0)	P	Q	
<i>n</i>	0.20163293	ω 163.19875	+0.10979870	−0.99382028	
<i>a</i>	2.8802382	Ω 280.49529	+0.91001886	+0.10710653	
<i>e</i>	0.0281225	<i>i</i> 0.94953	+0.39976234	+0.02914535	
<i>P</i>	4.89	<i>H</i> 13.1	<i>G</i> 0.15	<i>U</i> 2	

Residuals in seconds of arc

1978 11 29	675	0.3−	0.2+	1997 10 11	595	0.3−	0.3+	1999 01 19	704	0.1+	0.8−
1978 11 30	675	0.2+	0.1−	1997 10 11	595	0.7−	0.1+	1999 01 19	704	0.8−	0.1+
1992 08 05	033	0.5+	0.3−	1997 10 30	704	0.1+	0.3−	1999 01 19	704	0.1+	0.1−
1992 08 06	033	0.4+	0.5−	1997 10 30	704	0.4+	0.7−	1999 01 19	704	0.2−	0.2−
1992 09 04	033	1.0−	0.4+	1997 10 30	704	1.1−	1.2−	1999 01 19	704	1.7−	0.2−
1992 09 06	033	1.9−	0.6−	1997 12 28	566	1.3+	1.1−	1999 01 20	596	0.7−	0.3−
1992 09 07	033	0.5−	0.2+	1997 12 28	566	1.3+	0.5−	1999 01 20	596	0.3−	0.5−
1992 09 07	033	0.4−	0.4+	1997 12 28	566	1.1+	0.7−	1999 01 20	596	0.3−	0.4−
1992 09 21	033	1.3+	0.2+	1998 12 16	699	0.1+	0.7+	1999 01 22	426	0.0	0.1+
1992 09 21	033	0.6+	0.2−	1998 12 16	699	0.2+	0.1+	1999 01 22	426	0.0	0.2+
1992 09 22	033	0.3−	0.2+	1998 12 16	699	0.5+	0.6+	1999 01 22	426	0.4−	0.3+
1992 09 24	033	0.5+	1.3+	1998 12 17	704	0.7+	0.0	1999 01 23	426	0.1−	0.0
1992 09 24	033	0.2+	1.1+	1998 12 17	704	1.2+	0.1+	1999 01 23	426	0.0	0.1+
1992 09 26	033	0.4+	0.4+	1998 12 17	704	1.0+	0.2+	1999 01 23	426	0.1+	0.1+
1992 09 27	033	0.0	0.3+	1998 12 17	704	0.0	0.5+				
1992 09 28	033	0.5−	0.0	1998 12 17	704	1.1+	0.5+				

(10115)* 1992 SK = 1985 SD = 1985 TO₂

Discovered 1992 Sept. 24 by E. F. Helin and J. Alu at Palomar.

Id. G. V. Williams (*MPC* 21115)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	284.04352	(2000.0)	P	Q	
<i>n</i>	0.70650554	ω 233.49603	−0.46561139	+0.88401398	
<i>a</i>	1.2485109	Ω 9.04453	−0.70374865	−0.34139031	
<i>e</i>	0.3248596	<i>i</i> 15.32100	−0.53660402	−0.31933045	
<i>P</i>	1.40	<i>H</i> 17.0	<i>G</i> 0.15	<i>U</i> 2	

Residuals in seconds of arc

1953 10 12	675	0.7+	0.3−	1995 11 20	658	0.6−	0.2+	1998 11 25	561	0.8−	0.7−
1985 09 22	675	2.2−	0.5−	1995 11 30	711	0.7+	0.6+	1998 11 25	561	0.1−	0.1−
1985 09 22	675	1.6+	1.1−	1995 11 30	711	1.1+	0.7+	1999 01 13	704	0.6−	1.1−
1985 10 12	010	(4.0−	1.0+)	1995 12 08	595	1.6−	0.7+	1999 01 13	704	0.3−	0.4+
1985 10 12	010	1.9−	2.2+	1995 12 08	595	0.2−	1.7+	1999 01 13	704	0.2+	0.9+
1992 09 24	675	(7.6+	3.1−)	1995 12 09	595	0.2−	0.7+	1999 01 13	704	0.4+	2.0+
1992 09 24	675	(0.9+	2.8−)	1995 12 09	595	0.5+	1.5+	1999 01 13	704	0.3+	2.0+
1992 09 26	675	2.0+	0.1−	1995 12 09	595	0.9+	1.2+	1999 01 22	561	0.2−	0.3+
1992 09 26	675	(3.4+	1.4−)	1995 12 14	608	0.1−	1.5+	1999 01 22	561	0.1−	0.0
1992 10 02	675	0.5+	0.5−	1995 12 16	608	0.5+	0.5−	1999 01 22	561	0.0	0.0
1992 10 02	675	0.1−	0.8−	1995 12 16	608	0.3+	0.0	1999 01 22	561	0.0	0.1+

1992 10 05	413	1.6−	1.3+	1995 12 19	566	0.8+	1.9−	1999 01 25	711	0.0	0.3+
1992 10 05	413	1.4+	0.4−	1995 12 19	566	0.4+	1.8−	1999 01 25	711	0.0	0.4+
1992 10 06	413	0.4+	0.2+	1995 12 19	566	0.1−	1.6−	1999 01 26	360	0.2+	0.4+
1992 10 06	413	0.4+	0.2+	1995 12 20	566	0.7+	0.2+	1999 01 26	360	0.0	0.4+
1992 10 10	413	0.0	0.0	1995 12 20	566	0.1+	0.5+	1999 01 26	360	0.0	0.5+
1992 10 10	413	0.6−	0.2−	1995 12 20	566	0.1+	0.2−	1999 02 09	704	0.1+	1.1−
1992 10 13	413	0.8+	0.2−	1995 12 20	608	0.6+	0.5+	1999 02 09	704	0.4+	0.5−
1992 10 13	413	0.5+	0.1−	1995 12 20	608	0.2−	0.3+	1999 02 09	704	0.7−	1.5−
1992 10 20	675	0.3+	0.3−	1995 12 23	658	0.0	0.2−	1999 02 09	704	0.1−	0.3−
1992 10 20	675	0.0	1.0−	1995 12 23	658	0.0	0.2−	1999 02 09	704	0.8−	0.7−
1992 10 27	657	0.4−	0.4+	1995 12 23	658	0.5−	0.3−	1999 02 09	557	0.1−	0.1−
1992 10 27	657	0.5+	0.2−	1995 12 24	658	0.1+	0.5−	1999 02 09	557	0.2−	0.1−
1992 10 27	657	0.8+	0.7−	1995 12 24	658	0.1+	0.8−	1999 02 09	557	0.1−	0.3−
1992 10 28	801	0.8+	0.0	1995 12 24	658	0.5+	0.2+	1999 02 12	587	0.5−	0.1+
1992 10 28	801	0.6+	0.3+	1996 01 10	658	0.3+	0.2+	1999 02 12	587	0.2+	0.3−
1995 10 29	658	0.4−	0.5−	1996 01 10	658	0.0	0.6+	1999 02 12	587	0.4−	0.4−
1995 10 29	658	0.6−	0.3−	1996 01 10	658	0.3−	0.2+	1999 02 15	151	0.4+	0.7+
1995 10 29	658	0.5−	0.5−	1996 01 12	658	0.4−	0.3+	1999 02 15	151	0.8−	0.3−
1995 10 30	658	0.7−	0.1−	1996 01 12	658	0.2−	0.3+	1999 02 17	071	0.2+	0.7−
1995 10 30	658	1.2−	0.2−	1996 01 12	658	0.1−	0.3+	1999 02 17	071	0.4+	0.4−
1995 10 30	658	1.0−	0.4−	1996 02 29	658	0.8−	0.1−	1999 02 17	071	0.7−	0.4−
1995 10 31	658	0.4−	0.3−	1996 02 29	658	0.4−	0.1−	1999 02 18	750	0.1−	0.1−
1995 10 31	658	0.4−	0.4−	1996 02 29	658	0.5−	0.2−	1999 02 18	750	0.1+	0.0
1995 10 31	658	0.4−	0.2−	1996 03 14	658	0.0	0.7−	1999 02 18	750	0.1+	0.1−
1995 11 13	608	0.2−	1.9+	1996 03 14	658	0.3+	0.1+	1999 02 19	750	1.0+	0.2+
1995 11 13	608	1.5−	1.6−	1996 11 01	413	0.2+	0.3+	1999 02 19	750	0.3+	0.2−
1995 11 17	608	0.1+	1.2+	1996 11 01	413	0.1−	0.0	1999 02 19	750	0.2+	0.2−
1995 11 17	608	1.9−	1.7+	1996 11 02	413	0.0	0.1+	1999 02 19	711	0.4−	0.0
1995 11 20	658	0.4−	0.4+	1996 11 02	413	0.5−	0.3+	1999 02 19	711	0.5−	0.0
1995 11 20	658	0.1−	0.4+	1998 11 25	561	0.5−	0.2+				
1995 11 20	658	0.2+	1.3−	1998 11 25	561	0.5−	0.0				

(10116)* 1992 SJ₂ = 1995 DV₂

Discovered 1992 Sept. 21 by F. Börngen and L. D. Schmadel at Tautenburg.

Id. K. Ichikawa (*MPC* 25216)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	312.33097	(2000.0)	P	Q	
<i>n</i>	0.18970196	ω 325.25174	−0.69057516	−0.72223200	
<i>a</i>	2.9997714	Ω 168.25769	+0.69909756	−0.68022033	
<i>e</i>	0.0504723	<i>i</i> 10.92213	+0.18538757	−0.12522475	
<i>P</i>	5.20	<i>H</i> 12.4	<i>G</i> 0.15	<i>U</i> 2	

Residuals in seconds of arc

1990 04 01	675	0.2+	1.4−	1998 11 13	704	0.4+	1.7−	1998 12 15	704	0.5−	0.5+
1990 04 01	675	1.0−	0.5−	1998 11 13	704	1.8+	0.7+	1998 12 15	704	1.1+	0.4+
1992 09 21	033	1.2+	0.8−	1998 11 22	113	0.4−	0.7−	1998 12 15	704	0.1−	0.8+
1992 09 22	033	0.5−	0.4+	1998 11 22	113	0.5−	0.6−	1998 12 17	699	0.2+	0.2+
1992 09 23	033	0.6+	0.6−	1998 11 24	426	0.2−	0.7−	1998 12 17	699	0.7+	0.3+
1992 09 24	033	0.6+	0.2−	1998 11 24	426	0.6−	0.2−	1998 12 17	699	0.4+	0.1+
1992 09 26	033	0.4−	0.2+	1998 11 24	426	0.4−	0.8−	1998 12 17	113	0.7−	0.0
1992 09 27	033	0.1+	0.6−	1998 11 25	426	0.1−	0.6−	1998 12 17	113	0.6−	0.2+
1992 09 28	033	0.7−	0.9−	1998 11 25	426	0.5−	0.7−	1998 12 17	113	0.8−	0.1−
1995 02 23	114	0.5+	0.4−	1998 11 25	426	0.6+	1.5−	1998 12 22	704	0.2+	0.2+
1995 02 23	114	1.0−	0.9+	1998 12 08	120	0.1+	0.3+	1998 12 22	704	0.1+	0.0
1995 02 26	114	0.3−	0.5−	1998 12 08	120	0.2+	0.4+	1998 12 22	704	0.1+	0.1−
1995 03 02	114	1.9−	1.6+	1998 12 08	120	0.1+	0.5+	1998 12 22	704	0.0	0.1−
1995 03 02	114	1.6+	1.6−	1998 12 09	113	0.6−	0.0	1999 01 06	113	0.2−	0.4+
1995 03 04	114	0.6+	0.3−	1998 12 09	113	1.4−	0.3+	1999 01 06	113	0.3−	0.6−
1995 03 04	114	0.1−	0.1+	1998 12 10	113	0.4−	0.3+	1999 01 17	113	0.1−	0.6+
1995 04 04	114	0.6+	1.1−	1998 12 10	113	0.4−	0.4+	1999 01 17	113	0.3+	0.4+
1998 11 13	704	(2.5+)	0.4−)	1998 12 15	704	0.7+	1.0+	1999 02 10	113	0.8+	0.8−
1998 11 13	704	0.7−	0.3+	1998 12 15	704	0.6+	0.1−	1999 02 10	113	1.6+	0.4+

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	76.45711	(2000.0)	P	Q
<i>n</i>	0.19208184	ω	189.53657	+0.95118119
<i>a</i>	2.9749420	Ω	188.51904	+0.29397273
<i>e</i>	0.1114043	<i>i</i>	10.67870	+0.09399143
<i>P</i>	5.13	<i>H</i>	13.6	<i>G</i> 0.15 <i>U</i> 1

Residuals in seconds of arc

1990 03 27	675	0.5+	0.5-	1996 06 08	684	0.6+	0.1-	1997 09 30	566	0.1-	0.6-
1990 03 27	675	0.2+	0.5+	1996 06 09	684	0.7+	0.1+	1997 09 30	566	0.4-	0.9-
1992 09 21	400	0.0	0.1-	1996 06 09	684	0.8+	0.1+	1998 12 15	704	0.5+	0.8-
1992 09 21	400	0.8+	0.3-	1996 06 09	684	0.7+	0.1-	1998 12 15	704	1.0+	0.3-
1992 09 30	691	0.7-	0.7+	1996 06 12	684	0.2-	0.2+	1998 12 15	704	0.8-	0.3+
1992 09 30	691	0.7-	0.7+	1996 06 12	684	0.1+	0.3+	1998 12 15	704	(1.7-	2.2+)
1992 09 30	691	1.0-	0.6+	1996 06 12	684	0.2+	0.5-	1998 12 22	704	0.5-	0.2-
1992 10 01	400	0.2+	0.6-	1996 06 12	658	0.1-	0.3+	1998 12 22	704	(0.7+	2.2-)
1992 10 01	400	1.8+	0.1-	1996 06 12	658	0.0	0.2+	1998 12 22	704	0.6-	1.7-
1992 10 02	400	(1.6+	2.2+)	1996 06 12	658	0.1+	0.2+	1999 01 18	704	0.2+	0.5-
1992 10 02	400	(4.4+	5.0+)	1996 06 18	684	0.1+	0.3+	1999 01 18	704	1.6+	0.3-
1995 03 27	691	0.9-	0.3-	1996 06 18	684	0.2-	0.0	1999 01 18	704	1.1+	0.2-
1995 03 27	691	1.1-	0.0	1996 06 21	658	0.1-	0.0	1999 01 18	704	0.2-	0.1+
1995 03 27	691	1.1-	0.2-	1996 06 21	658	1.1-	0.2-	1999 01 18	704	1.8-	0.3+
1995 04 07	691	0.8-	0.6-	1996 06 21	658	0.6+	0.3-	1999 01 20	704	0.5+	1.2+
1995 04 07	691	0.6-	0.6-	1997 09 28	566	0.3+	0.2-	1999 01 20	704	0.8+	1.0+
1995 04 07	691	0.3-	0.4-	1997 09 28	566	0.5-	0.8-	1999 01 20	704	0.2-	0.4+
1996 06 08	684	0.4+	0.0	1997 09 28	566	1.2-	0.6-	1999 01 20	704	0.7+	0.2+
1996 06 08	684	0.4+	0.3-	1997 09 30	566	0.2+	0.5-				

(10118)* 1992 UK₁ = 1977 LC₁ = 1978 WP

Discovered 1992 Oct. 19 by S. Ueda and H. Kaneda at Kushiro.

Id. K. Ichikawa (*MPC* 21945)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

<i>M</i>	174.25131	(2000.0)	P	Q
<i>n</i>	0.20975568	ω	50.87241	+0.72182713
<i>a</i>	2.8053920	Ω	265.96778	-0.67029892
<i>e</i>	0.1609673	<i>i</i>	8.04807	-0.17223516
<i>P</i>	4.70	<i>H</i>	13.0	<i>G</i> 0.15 <i>U</i> 1

Residuals in seconds of arc

1954 07 31	675	(3.8-	2.2+)	1996 07 18	684	0.4-	0.0	1999 01 15	699	0.1+	0.6-
1977 06 12	675	0.8-	0.0	1996 07 18	684	0.3-	0.1+	1999 01 15	699	1.1+	0.7-
1977 06 13	675	1.7-	0.3+	1996 07 20	801	0.6-	1.2-	1999 01 15	699	1.1+	1.3-
1978 11 24	033	2.0+	0.9+	1996 07 20	801	0.3+	0.8-	1999 02 12	704	0.1-	0.5-
1978 11 24	033	0.9+	0.2+	1996 08 08	684	0.6+	0.8+	1999 02 12	704	0.6+	1.3+
1992 10 19	399	1.2-	0.2+	1996 08 08	684	0.4+	0.7+	1999 02 12	704	1.0-	1.4+
1992 10 19	399	0.5+	0.1-	1996 08 08	684	0.2+	0.7+	1999 02 12	704	0.5+	0.9+
1992 10 22	399	1.4-	1.9-	1996 08 10	684	0.6+	0.4+	1999 02 12	704	1.6-	1.5+
1992 10 22	399	0.2+	1.5-	1996 08 10	684	0.9+	0.4+	1999 02 16	704	1.6+	0.1-
1992 11 02	399	1.6+	1.8+	1996 08 18	801	0.4+	0.5+	1999 02 16	704	0.3+	0.8-
1992 11 02	399	1.1+	2.0+	1997 12 04	704	0.5+	0.4-	1999 02 16	704	2.1+	1.6-
1996 06 15	801	0.4+	1.7-	1997 12 04	704	1.9-	0.4+	1999 02 16	704	1.1+	0.2-
1996 07 12	801	0.5+	0.3-	1997 12 04	704	1.9-	2.1-	1999 02 19	566	0.8-	0.0
1996 07 18	801	0.4-	0.6+	1997 12 04	704	2.0-	0.3+	1999 02 19	566	1.1-	0.0
1996 07 18	684	0.2-	0.1-	1997 12 04	704	0.6-	0.3+	1999 02 19	566	1.1-	0.0

(10119)* 1992 YC₁ = 1996 RL₂

Discovered 1992 Dec. 18 by E. W. Elst at Caussols.

Id. G. V. Williams (*MPC* 27915)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	326.34645	(2000.0)	P	Q
<i>n</i>	0.17797098	ω	93.71271	-0.99759530
<i>a</i>	3.1301843	Ω	83.20403	+0.03180146
<i>e</i>	0.1343891	<i>i</i>	2.51852	+0.06158151
<i>P</i>	5.54	<i>H</i>	13.2	<i>G</i> 0.15 <i>U</i> 1

Residuals in seconds of arc

1992 12 18	010	0.1-	0.4+	1996 09 15	566	0.2-	0.4-	1999 01 19	704	1.0-	0.6+
1992 12 19	010	1.0-	0.6-	1996 09 15	566	0.1-	0.6-	1999 01 19	704	0.4-	0.5-
1992 12 19	010	0.7-	0.2-	1996 09 15	566	0.1-	0.9-	1999 01 19	704	0.4-	0.8-
1992 12 19	010	1.4-	1.1+	1997 10 25	688	0.2+	0.9-	1999 01 19	704	1.2-	1.5-
1992 12 19	010	1.0-	0.7+	1997 10 25	688	0.3+	0.5-	1999 02 10	704	0.1+	0.4-
1992 12 20	010	(3.1-	1.0+)	1997 10 26	688	0.3+	1.0-	1999 02 10	704	0.0	0.4-
1993 01 16	010	1.9+	0.3-	1997 10 26	688	0.0	0.9-	1999 02 10	704	0.3-	0.4-
1993 01 16	010	0.5+	0.2+	1997 10 29	566	0.1+	0.5-	1999 02 10	704	0.5+	0.0
1993 01 16	010	0.0	0.3-	1997 10 29	566	0.1+	0.4-	1999 02 10	704	0.4+	0.4+
1993 01 17	010	(2.7+	0.6-)	1997 10 29	566	0.1+	0.4-	1999 02 12	699	0.7+	0.1+
1993 01 17	010	1.9+	0.4+	1997 12 04	704	1.5-	1.1+	1999 02 12	699	0.5+	0.1+
1993 01 17	010	(2.7+	0.1-)	1997 12 04	704	0.6-	1.6+	1999 02 12	699	0.5+	0.1+
1996 09 10	566	0.5+	0.1-	1997 12 04	704	0.2+	1.1+	1999 02 13	704	0.0	0.4-
1996 09 10	566	0.2+	0.2-	1997 12 04	704	0.8+	0.5+	1999 02 13	704	0.7+	0.2+
1996 09 10	566	0.3-	0.2-	1998 11 23	699	0.6-	0.4+	1999 02 13	704	0.1-	0.4+
1996 09 14	566	0.2+	0.5+	1998 11 23	699	1.1-	1.0+	1999 02 13	704	0.0	0.1-
1996 09 14	566	0.2+	0.4+	1998 11 23	699	0.6+	0.0	1999 02 13	704	0.4+	0.2+
1996 09 14	566	0.1+	0.5+	1999 01 19	704	0.5-	0.2-				

(10120)* 1992 YH₂ = 1982 BL₄

Discovered 1992 Dec. 18 by E. W. Elst at Caussols.

Id. A. Lowe (*MPC* 21946)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	66.13921	(2000.0)	P	Q
<i>n</i>	0.17400920	ω	322.81951	+0.63765228
<i>a</i>	3.1775172	Ω	86.80974	+0.74326986
<i>e</i>	0.0646237	<i>i</i>	10.48692	+0.20235978
<i>P</i>	5.66	<i>H</i>	12.9	<i>G</i> 0.15 <i>U</i> 1

Residuals in seconds of arc

1982 01 26	381	0.5-	0.2-	1993 01 16	010	0.4-	0.2-	1999 01 19	704	0.6-	0.0
1982 01 26	381	0.9-	0.7+	1993 01 17	010	1.1-	0.1+	1999 01 19	704	1.2+	1.8-
1982 01 28	381	(6.0+	1.5-)	1993 01 17	010	0.8-	0.5+	1999 01 19	704	1.0-	0.3-
1982 01 28	381	0.9+	1.5+	1993 01 17	010	0.1-	1.2+	1999 01 19	704	0.6+	1.7+
1991 09 17	675	(1.0+	2.8+)	1997 09 25	557	0.3-	0.2+	1999 02 10	704	0.7+	0.0
1991 09 17	675	0.0	1.7+	1997 09 25	557	0.3-	0.0	1999 02 10	704	1.4-	0.1+
1992 12 18	010	1.5+	1.1-	1997 09 26	557	0.4-	0.3+	1999 02 10	704	1.3-	0.0
1992 12 19	010	0.6+	0.9-	1997 09 27	557	0.4-	0.2+	1999 02 10	704	0.3+	0.2+
1992 12 19	010	0.6+	1.2-	1997 10 23	118	0.5-	0.2-	1999 02 10	704	0.4-	0.9+
1992 12 19	010	0.5+	0.1-	1997 10 23	118	0.6+	0.6-	1999 02 13	704	0.1+	1.3+
1992 12 19	010	0.4+	0.4-	1998 11 16	120	0.9+	0.0	1999 02 13	704	0.7+	0.4+
1992 12 20	010	0.1-	0.6-	1998 11 16	120	0.2-	0.0	1999 02 13	704	0.2+	0.4+
1993 01 16	010	0.4+	0.4+	1998 11 16	120	0.3+	0.6-	1999 02 13	704	0.3-	0.2-
1993 01 16	010	0.0	0.2-	1998 11 16	120	0.6+	0.2-	1999 02 13	704	0.2-	1.0-

(10121)* 1993 BS₄ = 1994 GA₁₁ = 2118 T-1

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

Id. K. Kinoshita (*MPC* 25331)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	227.73799	(2000.0)	P	Q
<i>n</i>	0.17268655	ω	263.51051	+0.40637237
<i>a</i>	3.1937214	Ω	30.47058	-0.83195013
<i>e</i>	0.1651172	<i>i</i>	0.90417	-0.37778364
<i>P</i>	5.71	<i>H</i>	13.5	<i>G</i> 0.15 <i>U</i> 1

Residuals in seconds of arc

1971 03 24	675	0.4+	1.7-	1993 02 22	010	1.7-	0.3+	1996 10 15	691	0.0	0.1-
1971 03 25	675	0.4-	0.5+	1993 02 23	010	(2.1-	1.9-)	1996 10 15	691	0.0	0.3+
1971 03 25	675	0.0	0.3-	1994 04 06	691	0.2-	0.8+	1999 01 20	910	1.2+	0.4+
1971 03 26	675	1.9+	0.2-	1994 04 06	691	0.1-	0.4+	1999 01 20	910	1.1+	0.2+
1971 03 27	675	0.4+	1.3+	1994 04 06	691	0.7-	0.5-	1999 01 20	910	1.4+	0.1+
1971 04 02	675	(3.8+	1.5-)	1994 04 16	691	1.0-	0.7+	1999 01 23	910	1.3+	0.3-
1993 01 27	010	1.6-	0.3+	1994 04 16	691	1.0-	0.7+	1999 01 23	910	1.4+	0.2-
1993 01 27	010	1.3-	0.1+	1994 04 16	691	0.6-	0.4-	1999 01 23	910	1.4+	0.1-

1993 01 27	010	1.1–	0.1–	1996 10 07	691	0.5–	0.2+	1999 01 26	910	1.8+	0.2–
1993 01 28	010	1.9–	0.1+	1996 10 07	691	0.5–	0.0	1999 01 26	910	1.6+	0.1–
1993 01 28	010	(2.3–	0.2+)	1996 10 07	691	0.6–	0.1+	1999 01 26	910	1.6+	0.3–
1993 01 28	010	1.9–	0.9–	1996 10 08	691	0.8+	0.4+	1999 02 10	704	1.6–	1.2+
1993 02 20	010	0.0	1.3–	1996 10 08	691	0.6+	0.3+	1999 02 10	704	0.3+	0.8+
1993 02 20	010	0.6–	0.1–	1996 10 08	691	0.7+	0.4+	1999 02 10	704	0.7+	0.5+
1993 02 20	010	0.3–	1.4–	1996 10 15	691	0.1–	0.4+	1999 02 10	704	(2.1–	0.0)

(10122)* 1993 BC₅ = 1996 NL₃

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

Id. G. V. Williams (*MPC* 27714)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams					
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17019068	ω	283.07438	+0.20301494		−0.97916892	
<i>a</i>	3.2248699	Ω	155.21141	+0.90169576		+0.18550497	
<i>e</i>	0.1631784	<i>i</i>	0.49582	+0.38174558		+0.08255989	
<i>P</i>	5.79	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1993 01 27	010	(0.4–	2.4–)	1996 09 08	809	(0.1+	2.2+)	1997 11 28	327	0.2–	0.3+
1993 01 27	010	1.2–	1.7–	1996 09 08	809	(1.2+	2.5+)	1997 11 28	327	0.2–	0.0
1993 01 27	010	(0.6–	2.9–)	1997 10 12	327	0.2–	0.1+	1997 11 29	704	0.6–	0.5–
1993 01 28	010	0.9+	0.7–	1997 10 12	327	0.0	0.1–	1997 11 29	704	0.2–	1.0+
1993 01 28	010	0.3–	0.0	1997 10 12	327	0.1+	0.3–	1997 11 29	704	0.5–	0.1–
1993 01 28	010	1.2–	0.5–	1997 10 12	327	0.1+	0.3–	1997 11 29	704	0.3–	0.6+
1993 02 20	010	0.8+	1.2–	1997 10 19	327	1.2–	0.2–	1997 11 29	704	0.3+	0.0
1993 02 20	010	0.3+	1.4–	1997 10 19	327	0.4–	0.2–	1998 12 16	120	0.0	0.4+
1993 02 20	010	0.7+	1.1–	1997 10 19	327	0.5–	0.1+	1998 12 16	120	0.6+	0.4+
1993 02 22	010	1.1–	0.1–	1997 10 22	327	0.1–	0.3–	1998 12 16	120	1.5+	0.4–
1993 02 23	010	1.3–	1.2–	1997 10 22	327	0.8–	0.7–	1999 01 15	699	0.5+	0.3+
1996 07 14	809	0.8+	1.4–	1997 10 22	327	0.2–	0.7+	1999 01 15	699	0.6+	0.2+
1996 07 14	809	1.5–	1.9–	1997 10 29	704	1.2–	0.1+	1999 02 10	704	0.3+	1.1+
1996 07 14	809	1.5–	1.7–	1997 10 29	704	0.2+	1.6+	1999 02 10	704	0.3+	0.3+
1996 07 16	809	0.3–	0.9+	1997 10 29	704	0.7+	1.3+	1999 02 10	704	0.9+	0.8+
1996 07 16	809	1.4–	1.5+	1997 10 29	704	0.7–	0.9+	1999 02 10	704	0.0	0.3–
1996 07 16	809	0.9–	0.4+	1997 10 30	704	1.2+	1.4–	1999 02 10	704	0.7–	0.4+
1996 08 08	809	1.7+	0.2+	1997 10 30	704	1.9+	0.9–	1999 02 12	699	0.8+	1.3+
1996 08 08	809	0.8+	0.4+	1997 10 30	704	1.6+	0.9–	1999 02 12	699	0.6+	1.2+
1996 08 08	809	0.1+	0.4+	1997 10 30	704	1.4+	0.9–	1999 02 12	699	0.4+	1.5+
1996 08 09	809	0.7+	1.5+	1997 11 20	327	0.4–	0.5+	1999 02 13	704	0.0	0.5+
1996 08 09	809	0.1–	0.5+	1997 11 20	327	0.1+	0.5+	1999 02 13	704	0.3–	0.7+
1996 08 09	809	0.4+	1.5+	1997 11 20	327	0.7–	1.0+	1999 02 13	704	0.5–	0.8+
1996 09 08	809	(0.5+	2.7+)	1997 11 28	327	0.0	0.2+	1999 02 13	704	0.2–	1.2+

(10123)* 1993 FJ₁₆ = 1977 TJ₅ = 1987 OS₁ = 1990 KX₃ = 1992 AS₄

Discovered 1993 Mar. 17 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. E. Bowell (*MPC* 28588), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams					
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28833463	ω	267.30510	+0.96025857		+0.27046858	
<i>a</i>	2.2691934	Ω	76.99592	−0.21963275		+0.88460408	
<i>e</i>	0.2055379	<i>i</i>	4.05626	−0.17223511		+0.37989785	
<i>P</i>	3.42	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1977 10 08	095	0.5+	1.5–	1993 04 16	413	0.3–	0.5–	1999 01 10	699	0.8+	0.6+
1987 07 29	010(35.9–	47.6+)		1994 09 11	675	0.0	0.6+	1999 01 14	716	0.5–	0.5–
1987 07 29	010(34.0–	48.6+)		1994 09 11	675	0.3–	0.1+	1999 01 14	716	1.4–	0.4+
1990 05 26	675	0.3+	0.9+	1994 11 04	675	0.3–	1.0+	1999 01 19	704	0.6+	0.1–
1990 05 26	675	0.1+	0.6+	1994 11 04	675	0.5–	0.8+	1999 01 19	704	0.0	0.0
1992 01 02	033	0.0	0.3–	1998 12 16	699	0.1–	0.1+	1999 01 19	704	0.9–	0.2+
1992 01 03	033	0.4+	0.3–	1998 12 16	699	0.9+	0.5+	1999 01 19	704	0.1+	0.1–
1993 03 17	809	0.7–	0.0	1998 12 16	699	0.1+	0.6–	1999 01 19	704	1.3–	0.4–

1993 03 18	809	0.1+	0.0	1999 01 10	699	0.8+	0.7+
1993 03 23	809	0.8+	0.3+	1999 01 10	699	0.8+	1.1+

(10124)* 1993 FE₂₃ = 1977 TU₅ = 1982 BP₁₁ = 1984 UD₅ = 1984 WG

Discovered 1993 Mar. 21 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. T. Kobayashi (*MPC* 26742)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams					
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28922620	ω	354.56175	+0.99810634		+0.06129424	
<i>a</i>	2.2645277	Ω	1.94678	−0.04912184		+0.84484743	
<i>e</i>	0.1707346	<i>i</i>	8.75745	−0.03702404		+0.53148455	
<i>P</i>	3.41	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1977 10 08	095	0.8+	1.3–	1993 03 27	809	0.4+	0.5–	1999 01 09	699	0.3+	0.6–
1982 01 20	095	0.8–	1.0+	1993 04 18	413	(2.3+	0.4–)	1999 01 09	699	0.4+	0.1–
1984 10 30	010	1.6+	0.9–	1994 08 03	675	0.2–	0.2–	1999 01 09	699	0.5+	0.3–
1984 11 25	054	(5.6–	1.8–)	1994 08 03	675	0.7+	0.1+	1999 01 12	758	0.5–	0.5+
1991 12 03	675	0.6–	0.3+	1994 10 12	691	0.5–	0.5+	1999 01 12	758	1.2–	0.6+
1991 12 03	675	(2.6+	0.1–)	1994 10 12	691	1.0–	0.6+	1999 02 18	566	0.5+	0.3–
1993 03 21	809	0.6–	0.5–	1994 10 12	691	0.4–	0.4+	1999 02 18	566	0.1–	0.4–
1993 03 22	809	0.2+	0.5–	1996 02 11	411	0.2+	0.0	1999 02 18	566	0.4+	0.3–
1993 03 26	809	0.6–	0.0	1996 02 11	411	0.5+	0.6+				

(10125)* 1993 FB₂₄ = 1981 TM₁ = 1996 ED₅

Discovered 1993 Mar. 21 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. G. V. Williams (*MPC* 27105)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams					
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30463596	ω	336.09989	+0.86668152		+0.49878343	
<i>a</i>	2.1875027	Ω	353.95807	−0.44308678		+0.76151476	
<i>e</i>	0.1809258	<i>i</i>	4.82055	−0.22921007		+0.41389656	
<i>P</i>	3.24	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1981 10 02	095	0.7+	1.2–	1996 03 26	691	1.2–	0.8–	1999 01 14	699	0.6+	0.1–
1993 03 21	809	0.9–	0.2+	1996 03 26	691	0.4–	0.9–	1999 01 14	699	0.2+	0.3–
1993 03 22	809	0.7+	0.5+	1997 09 29	566	1.8+	0.5+	1999 01 14	699	0.2–	0.8+
1993 03 26	809	1.4–	0.7+	1997 09 29	566	1.2+	0.5+	1999 02 10	704	0.3+	0.4–
1993 03 27	809	0.4+	0.4–	1997 09 29	566	1.6+	0.8+	1999 02 10	704	0.4–	0.3+
1993 04 16	413	1.2–	0.8–	1997 11 01	568	0.1–	1.2+	1999 02 10	704	0.4–	0.5+
1996 03 11	691	0.0	0.1–	1997 11 01	568	0.2+	1.3+	1999 02 10	704	0.1+	0.0
1996 03 11	691	0.2–	0.1–	1997 11 02	327	0.6–	0.8–	1999 02 10	704	0.8–	0.3–
1996 03 11	691	0.2+	0.2–	1997 11 02	327	0.6–	0.9–	1999 02 12	699	0.1+	0.1–
1996 03 18	691	0.1+	0.0	1997 11 02	327	0.4–	0.8–	1999 02 12	699	0.7+	0.1+
1996 03 18	691	0.0	0.1–	1997 11 15	426	0.5–	0.8–	1999 02 12	699	0.8+	0.4–
1996 03 18	691	0.1–	0.1–	1997 11 15	426	1.4–	1.2–	1999 02 13	704	(1.5–	2.6–)
1996 03 19	566	0.7+	0.0	1997 11 15	426	1.5–	0.4–	1999 02 13	704	1.2–	0.8+
1996 03 19	566	0.7+	0.1+	1997 11 18	426	0.4–	0.8–	1999 02 13	704	0.6–	0.6+
1996 03 19	566	0.5+	0.1–	1997 11 18	426	0.4–	0.6–	1999 02 13	704	1.2+	0.2+
1996 03 26	691	0.6+	1.3–	1997 11 18	426	0.6–	0.4–				

(10126)* 1993 FW

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	182.44502	(2000.0)	P		Q	
<i>n</i>	0.30055717	ω 19.03145	+0.59023450	+0.80699090		
<i>a</i>	2.2072490	Ω 287.14691	−0.74327197	+0.53377532		
<i>e</i>	0.1795181	<i>i</i> 1.18257	−0.31491271	+0.25268476		
<i>P</i>	3.28	<i>H</i> 14.7	<i>G</i> 0.15	<i>U</i> 1		

Residuals in seconds of arc

1981 12 04	511	0.6−	0.3+	1994 11 07	675	0.6+	0.1+	1997 09 24	118	0.3−	0.2−
1981 12 04	511	0.2+	0.7+	1994 11 07	675	0.2−	0.9+	1998 11 15	691	0.7−	0.6−
1990 05 26	675	0.0	0.3+	1997 08 29	127	0.5+	0.9−	1998 11 15	691	1.0−	0.5−
1990 05 26	675	0.0	0.2+	1997 08 30	127	0.8+	1.0−	1998 11 15	691	0.8−	0.7−
1993 03 21	809	0.3+	0.2+	1997 09 01	367	0.0	0.7+	1999 01 19	704	1.5+	0.4+
1993 03 22	809	0.9+	0.3+	1997 09 01	367	0.0	0.6+	1999 01 19	704	(2.4+ 1.6+)	
1993 03 26	809	0.2+	0.2−	1997 09 24	118	0.3−	0.0	1999 01 19	704	(2.7− 0.2−)	
1993 04 21	413	1.1−	0.2−	1997 09 24	118	0.6−	0.1−	1999 01 19	704	0.7−	0.5−

(10127)* 1993 FF₂₆ = 1988 VC₈ = 1991 RU₁₅

Discovered 1993 Mar. 21 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. G. V. Williams (*MPC* 23525)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	38.39749	(2000.0)	P		Q	
<i>n</i>	0.30017134	ω 74.27161	+0.55287544	−0.83294244		
<i>a</i>	2.2091400	Ω 342.10609	+0.73276427	+0.49922959		
<i>e</i>	0.1314359	<i>i</i> 4.31991	+0.39671814	+0.23869796		
<i>P</i>	3.28	<i>H</i> 15.2	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1988 11 03	033	0.5−	1.5−	1993 03 26	809	0.8−	0.1−	1998 12 17	704	0.6−	0.0
1988 11 04	033	0.1+	1.8+	1993 04 17	413	1.2+	0.4−	1998 12 17	704	1.2+	0.5−
1988 11 09	675	1.0+	1.3−	1995 10 26	691	0.9−	0.0	1998 12 17	704	0.9+	0.8+
1988 11 09	675	0.3−	1.2+	1995 10 26	691	1.0−	0.2+	1998 12 17	704	0.3−	0.3+
1991 09 11	675	(3.1+ 1.4−)		1995 10 26	691	0.7−	0.3+	1998 12 17	704	0.1−	0.7+
1991 09 11	675	0.4−	1.0−	1998 12 14	704	1.5−	0.1−	1999 01 16	704	0.6−	0.0
1991 09 15	675	0.3+	0.4+	1998 12 14	704	0.3−	0.3−	1999 01 16	704	(1.5+ 3.3−)	
1991 09 15	675	(1.6+ 2.2−)		1998 12 14	704	0.0	0.6−	1999 01 16	704	0.8+	0.0
1993 03 21	809	0.3−	0.3−	1998 12 14	704	0.5+	1.9−	1999 01 23	732	0.5+	1.6+
1993 03 22	809	0.0	0.3−	1998 12 14	704	0.0	0.0				

(10128)* 1993 FT₃₁ = 1953 RL = 1977 TD₆ = 1994 PG₁₆

Discovered 1993 Mar. 19 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. K. Kinoshita (*MPC* 25331)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	89.41215	(2000.0)	P		Q	
<i>n</i>	0.28851130	ω 212.45744	+0.99844709	−0.02325798		
<i>a</i>	2.2682670	Ω 148.75552	+0.03824626	+0.94687327		
<i>e</i>	0.2302542	<i>i</i> 5.60062	−0.04050476	+0.32076484		
<i>P</i>	3.42	<i>H</i> 14.5	<i>G</i> 0.15	<i>U</i> 1		

Residuals in seconds of arc

1953 09 13	760	0.4−	0.9+	1994 08 11	809	1.4+	0.8−	1997 07 26	824	0.4−	0.5+
1953 09 13	760	0.8−	0.8+	1994 08 11	809	0.6+	1.4−	1997 07 26	824	0.3−	0.2+
1953 09 17	760	1.1+	0.3+	1994 08 11	809	0.3+	0.1−	1997 07 26	824	0.4−	0.1+
1953 09 17	760	1.2−	0.9+	1996 03 12	691	1.1+	0.1−	1998 10 30	704	0.1+	0.5−
1953 09 17	675	0.4+	0.3−	1996 03 12	691	0.8+	0.3−	1998 10 30	704	1.2+	1.5+
1953 09 17	675	0.7+	0.8−	1996 03 12	691	0.4+	0.3−	1998 10 30	704	0.2−	0.6−
1977 10 08	095	1.4−	0.7+	1996 03 15	566	0.4+	0.2+	1998 12 16	699	0.2−	0.1−
1993 03 19	809	1.2+	0.1+	1996 03 15	566	0.7+	0.1+	1998 12 16	699	0.4+	0.0
1993 03 20	809	1.4+	0.4+	1996 03 15	566	0.9+	0.1−	1998 12 16	699	0.7−	0.2−
1993 03 24	809	0.7+	0.5−	1997 07 11	824	0.4−	0.3+	1998 12 25	120	0.2−	0.8−
1993 03 25	691	0.9−	1.2−	1997 07 11	824	0.6−	0.2+	1998 12 25	120	0.6−	0.5−
1993 03 25	691	0.9−	1.0−	1997 07 11	824	0.4−	0.2+	1998 12 25	120	0.7−	0.6−

1993 03 25	691	0.7−	0.8−	1997 07 12	824	0.4−	0.4+	1998 12 26	120	0.8−	0.9−
1993 04 16	413	(1.4− 2.7+)		1997 07 12	824	0.6−	0.2+	1999 01 18	704	0.2−	0.5−
1994 08 10	809	1.1+	0.8−	1997 07 12	824	0.2−	0.0	1999 01 18	704	0.9−	0.3+
1994 08 10	809	0.5+	1.2−	1997 07 23	824	0.3−	0.2+	1999 01 18	704	0.7−	0.3−
1994 08 10	809	0.5+	0.9−	1997 07 23	824	0.6−	0.1−	1999 01 18	704	(1.1+ 2.7−)	

(10129)* 1993 FO₄₀ = 1988 XH₅

Discovered 1993 Mar. 19 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. G. V. Williams (*MPC* 23527)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	105.30352	(2000.0)	P		Q	
<i>n</i>	0.30920510	ω 318.33683	+0.94637454	−0.32165389		
<i>a</i>	2.1658994	Ω 60.44991	+0.30484305	+0.85807054		
<i>e</i>	0.0807436	<i>i</i> 1.99161	+0.10698572	+0.40031703		
<i>P</i>	3.19	<i>H</i> 15.0	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1988 12 01	888	0.4−	0.3+	1996 03 26	566	0.2+	0.2−	1999 01 19	704	0.9−	1.1+
1988 12 01	888	0.3+	0.7+	1996 03 26	566	0.1+	0.1−	1999 01 19	704	0.4+	0.6−
1988 12 08	381	(4.9+ 1.0+)		1998 12 17	910	1.0−	0.1−	1999 02 10	704	0.1+	0.2+
1993 03 19	809	0.2−	0.2+	1998 12 17	910	0.7−	0.1−	1999 02 10	704	0.0	0.4+
1993 03 20	809	0.1+	0.0	1998 12 17	910	0.7−	0.3−	1999 02 10	704	0.5+	0.3+
1993 03 24	809	0.6+	0.5+	1998 12 17	910	0.8−	0.0	1999 02 10	704	0.7+	0.2+
1993 04 21	413	0.4−	1.3+	1998 12 18	910	0.8−	0.1−	1999 02 10	704	1.9+	1.2+
1994 09 11	675	0.7+	0.6−	1998 12 18	910	0.9−	0.0	1999 02 13	704	0.5+	0.0
1994 09 11	675	0.7+	0.1−	1999 01 13	699	0.4+	0.3−	1999 02 13	704	0.7+	0.1+
1994 09 30	675	0.5−	0.8+	1999 01 13	699	0.2+	0.8−	1999 02 13	704	0.4−	0.4+
1994 09 30	675	1.4−	0.9+	1999 01 13	699	0.0	0.5+	1999 02 13	704	0.4−	1.1−
1996 03 26	566	0.3+	0.6−	1999 01 19	704	0.6−	0.8−	1999 02 13	704	0.2+	0.1−

(10130)* 1993 FJ₅₀ = 1991 TM₅

Discovered 1993 Mar. 19 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. G. V. Williams (*MPC* 23528)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	339.54658	(2000.0)	P		Q	
<i>n</i>	0.31055920	ω 161.98295	−0.80812069	−0.58891090		
<i>a</i>	2.1595990	Ω 341.92371	+0.53588425	−0.72721575		
<i>e</i>	0.0342083	<i>i</i> 2.06420	+0.24447705	−0.35262047		
<i>P</i>	3.17	<i>H</i> 14.7	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1991 10 03	033	1.9−	1.7+	1996 03 18	801	0.3+	0.0	1999 01 23	715	0.2+	0.5+
1991 10 04	033	0.7−	0.3+	1996 03 19	566	0.3−	0.1+	1999 01 24	715	(2.7− 0.4+)	
1991 10 04	033	0.9+	1.2+	1996 03 19	566	0.1−	0.2+	1999 01 24	715	0.3−	0.9+
1993 03 19	809	0.8+	0.1+	1996 03 19	566	0.0	0.1+	1999 01 24	715	0.1−	0.1−
1993 03 20	809	0.5+	0.2−	1996 03 21	801	0.4+	0.1+	1999 02 10	704	0.5−	0.4−
1993 03 24	809	0.2+	0.2+	1996 03 21	801	0.2+	0.0	1999 02 10	704	0.0	0.0
1993 04 17	413	1.3−	0.8+	1998 11 26	120	0.3+	0.7−	1999 02 10	704	0.1−	0.8−
1994 09 26	493	0.1+	0.5−	1998 11 26	120	0.5+	0.3−	1999 02 10	704	0.1+	0.3−
1994 09 26	493	0.4+	0.2−	1998 11 27	120	0.3−	0.2−	1999 02 10	704	0.6−	1.2−
1996 02 16	566	0.1−	0.0	1998 12 16	699	1.0+	0.2+	1999 02 13	704	0.1+	0.8−
1996 02 16	566	0.2+	0.2+	1998 12 16	699	1.2+	0.2−	1999 02 13	704	0.3+	0.6+
1996 02 16	566	0.1−	0.1−	1998 12 16	699	0.3−	0.4+	1999 02 13	704	0.5+	0.0
1996 03 15	566	0.6+	0.7+	1999 01 19	691	0.8−	0.4−	1999 02 13	704	0.4−	0.5−
1996 03 15	566	0.6+	1.2+	1999 01 19	691	0.8−	0.3−	1999 02 13	704	0.5−	0.1+
1996 03 15	566	0.5+	0.5+	1999 01 19	691	0.8−	0.3−				
1996 03 18	801	0.3−	0.1+	1999 01 23	715	1.2+	0.7+				

(10131)* 1993 FP₇₃ = 1994 PW₃₀

Discovered 1993 Mar. 21 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. G. V. Williams (*MPC* 25428)

1999 MAR. 2

M.P.C. 33889

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5									
<i>M</i>	80.76043		(2000.0)		P		Q		Williams
<i>n</i>	0.28229660	ω	133.73436		+0.99744736		+0.06338896		
<i>a</i>	2.3014362	Ω	222.66295		-0.07102004		+0.92845880		
<i>e</i>	0.1762904	<i>i</i>	2.78034		+0.00741021		+0.36598647		
<i>P</i>	3.49	<i>H</i>	15.5		<i>G</i>	0.15	<i>U</i>	1	
Residuals in seconds of arc									
1993 03 21	809	0.5-	0.2-	1994 09 06	809	0.7-	0.6-	1998 12 16	704 0.9- 0.7-
1993 03 22	809	0.5+	0.2-	1994 09 06	809	1.2-	0.6-	1998 12 16	704 (2.4- 0.8-)
1993 04 18	413	(5.2- 0.4+)		1997 07 02	688	0.3-	0.6+	1998 12 22	704 0.3- 0.7-
1994 08 12	809	(3.3+ 2.4+)		1997 07 02	688	0.3-	0.3+	1998 12 22	704 0.8- 0.9+
1994 08 12	809	(2.2+ 1.4+)		1997 07 02	688	0.0	0.8+	1998 12 22	704 1.3- 1.2-
1994 08 12	809	(2.3+ 2.4+)		1997 07 02	688	0.1+	0.8+	1998 12 22	704 0.3+ 0.2-
1994 08 13	809	(2.6+ 1.2+)		1997 07 03	688	0.3+	0.7+	1998 12 22	704 0.2+ 1.2+
1994 08 13	809	1.9+	1.0+	1997 07 03	688	0.2-	1.1+	1999 01 18	561 0.2- 0.6+
1994 08 13	809	1.4+	0.9+	1997 07 03	688	0.4+	0.1+	1999 01 18	561 0.6+ 0.9+
1994 09 01	691	1.3-	1.9+	1997 07 03	688	0.7+	0.0	1999 01 18	561 0.4+ 0.6+
1994 09 01	691	0.2-	0.8+	1998 12 15	704	0.9-	0.6-	1999 01 20	561 0.1+ 0.9+
1994 09 01	691	0.1-	1.0+	1998 12 15	704	(2.4- 1.1+)		1999 01 20	561 0.2+ 0.9+
1994 09 05	809	0.6+	0.6-	1998 12 15	704	0.0	0.1-	1999 01 20	561 0.3+ 1.0+
1994 09 05	809	0.2-	0.5-	1998 12 15	704	0.3+	0.5+	1999 01 20	561 0.3+ 0.5+
1994 09 05	809	0.1-	0.7-	1998 12 16	704	0.3-	0.1+	1999 01 21	561 0.3+ 0.5+
1994 09 06	809	0.3-	1.2-	1998 12 16	704	1.5+	0.1-	1999 01 21	561 0.3+ 0.3+

(10132)* 1993 FL₈₄ = 1981 WS₇ = 1994 TP₂

Discovered 1993 Mar. 20 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. G. V. Williams (*MPC* 24744, *MPC* 30660)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5									
<i>M</i>	128.94849		(2000.0)		P		Q		Williams
<i>n</i>	0.29850875	ω	164.61874		+0.97686059		+0.21374549		
<i>a</i>	2.2173351	Ω	183.06917		-0.20802394		+0.94139527		
<i>e</i>	0.1644901	<i>i</i>	8.05238		-0.04969328		+0.26093640		
<i>P</i>	3.30	<i>H</i>	13.9		<i>G</i>	0.15	<i>U</i>	1	
Residuals in seconds of arc									
1981 11 25	095	1.1+	0.1-	1994 11 01	400	0.4-	0.2+	1997 08 02	124 0.1- 0.1-
1993 03 20	809	0.0	1.5+	1994 11 07	675	0.1+	0.0	1997 08 30	566 1.1+ 1.6+
1993 03 24	809	0.1+	0.7+	1994 11 07	675	0.0	0.1+	1997 08 30	566 0.2+ 1.4+
1993 04 14	691	1.8-	1.4-	1997 07 13	138	1.2-	0.1+	1997 08 30	566 0.6+ 1.3+
1993 04 14	691	0.8-	0.5-	1997 07 13	138	0.2-	0.5-	1998 12 30	725 0.3+ 0.9+
1993 04 14	691	0.7-	0.8-	1997 07 15	610	0.2-	0.1-	1998 12 30	725 0.3+ 0.5+
1993 04 18	413	0.4+	0.9-	1997 07 15	610	0.5-	0.2+	1998 12 30	725 0.3+ 0.2-
1994 10 02	400	0.1-	1.3-	1997 07 15	104	0.7-	0.1+	1999 01 03	725 0.3+ 0.5-
1994 10 02	400	0.7+	0.2+	1997 07 15	104	0.8-	0.0	1999 01 03	725 0.2- 0.4-
1994 10 03	400	1.3-	0.1+	1997 07 15	610	0.9-	0.4+	1999 01 15	699 0.4+ 0.1+
1994 10 03	400	0.2-	1.1-	1997 07 15	104	0.4-	0.2+	1999 01 15	699 0.5+ 0.2+
1994 10 07	400	0.0	0.8-	1997 07 22	610	2.0+	1.4+	1999 01 15	699 0.8+ 0.1-
1994 10 07	400	0.1-	0.3-	1997 07 22	610	1.9+	0.9+	1999 01 18	704 0.1+ 0.7+
1994 10 08	675	1.1+	1.3-	1997 07 22	610	1.7+	0.5+	1999 01 18	704 0.2- 1.7+
1994 10 08	675	1.6-	0.5-	1997 07 29	560	0.1-	0.3-	1999 01 18	704 0.1- 0.7+
1994 10 10	397	0.2+	0.6+	1997 07 29	560	0.2+	0.5-	1999 01 18	704 0.7- 0.5-
1994 10 10	397	0.5-	0.3+	1997 07 29	560	0.2-	0.2-	1999 01 18	704 1.5- 0.2+
1994 10 11	675	1.3+	0.9+	1997 07 30	560	0.6-	0.4-	1999 02 12	704 0.6+ 0.2+
1994 10 11	675	0.3+	0.2+	1997 07 30	560	0.1-	0.3-	1999 02 12	704 0.3+ 0.2+
1994 10 26	400	0.8-	0.5-	1997 07 30	560	0.5-	0.7-	1999 02 12	704 0.4+ 0.2+
1994 10 26	400	0.1+	0.8+	1997 08 02	124	0.2-	0.0	1999 02 12	704 1.2+ 0.3+
1994 11 01	400	1.1-	0.2+	1997 08 02	124	0.4+	0.2-	1999 02 12	704 0.1+ 0.1+

(10133)* 1993 GC₁ = 1987 SH₂₇ = 1987 UT₇ = 1996 CM₁

Discovered 1993 Apr. 15 by H. E. Holt at Palomar.

Id. T. Kobayashi (*MPC* 26743)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5									
<i>M</i>	130.25443		(2000.0)		P		Q		Williams
<i>n</i>	0.28392371	ω	260.14770		+0.85026028		+0.51943715		
<i>a</i>	2.2926351	Ω	68.51304		-0.43995493		+0.79008988		
<i>e</i>	0.1602687	<i>i</i>	5.24756		-0.28895867		+0.32548890		
<i>P</i>	3.47	<i>H</i>	13.7		<i>G</i>	0.15	<i>U</i>	2	
Residuals in seconds of arc									
1987 09 27	095	1.2+	1.9-	1996 03 28	413	0.4+	0.2+	1998 12 18	426 0.0 0.6-
1987 10 23	095	0.4-	0.2+	1996 03 28	413	0.5+	0.2+	1998 12 18	426 0.3- 0.0
1993 04 15	675	0.5-	0.5-	1996 03 28	413	0.2+	0.2+	1998 12 18	426 0.1+ 0.1-
1993 04 15	675	0.5-	0.5-	1996 03 28	413	0.2+	0.2+	1999 01 16	704 0.5+ 0.0
1993 04 16	675	0.5+	0.3-	1998 11 20	132	0.2-	0.9+	1999 01 16	704 0.4+ 0.2-
1993 04 16	675	0.4-	0.1-	1998 11 20	132	1.4+	0.2+	1999 01 16	704 0.1+ 0.1+
1993 04 19	675	0.1+	0.5-	1998 11 20	132	1.5+	0.6-	1999 01 16	704 0.2+ 0.3-
1993 04 19	675	0.1-	1.0-	1998 12 16	426	0.1+	0.3-	1999 01 16	704 1.9- 1.9-
1996 02 11	411	1.2-	0.0	1998 12 16	426	0.8-	0.0	1999 01 19	704 0.2- 0.0
1996 02 11	411	0.2-	0.4+	1998 12 17	704	0.8+	0.2+	1999 01 19	704 0.9- 0.7+
1996 02 12	411	0.6+	0.2+	1998 12 17	704	1.0+	0.5-	1999 01 19	704 0.2- 0.8+
1996 02 12	411	0.1+	0.7-	1998 12 17	704	1.1+	1.1-	1999 01 19	704 0.7- 1.0+
1996 02 18	411	1.1-	0.7+	1998 12 17	704	0.4-	0.7-	1999 01 19	704 1.7- 1.9+
1996 02 18	411	0.4+	0.3-	1998 12 17	704	0.7+	0.9-		

(10134)* 1993 HL₆ = 1967 GF = 1990 KH₃ = 1991 UL

Discovered 1993 Apr. 17 by H. Debehogne at the European Southern Observatory.

Id. K. Ichikawa (*MPC* 22689)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5									
<i>M</i>	272.29111		(2000.0)		P		Q		Williams
<i>n</i>	0.30289098	ω	345.70865		-0.92923656		+0.36147837		
<i>a</i>	2.1958963	Ω	215.78200		-0.32485080		-0.89793096		
<i>e</i>	0.1444860	<i>i</i>	7.51824		-0.17604365		-0.25110434		
<i>P</i>	3.25	<i>H</i>	13.8		<i>G</i>	0.15	<i>U</i>	1	
Residuals in seconds of arc									
1967 04 06	095	0.2+	1.2-	1993 04 18	809	1.3-	1.4-	1998 11 23	704 1.1- 0.4-
1990 05 22	095	0.1+	1.6+	1993 04 18	809	0.5+	1.7-	1998 11 23	704 0.4+ 1.1-
1990 05 22	095	(3.0+ 1.9-)		1993 04 20	809	0.8-	0.1+	1998 11 23	704 1.5+ 0.1-
1991 10 07	675	0.1-	1.7+	1993 04 21	809	1.0-	0.7+	1998 11 23	704 0.8+ 1.6-
1991 10 07	675	1.0-	1.1+	1993 04 21	809	1.2-	1.4+	1998 12 15	704 0.3+ 0.0
1991 10 18	399	0.7-	1.7-	1993 04 23	809	1.0+	0.7+	1998 12 15	704 0.4+ 0.3-
1991 10 18	399	(0.4- 2.8-)		1993 04 24	809	0.5+	0.7+	1998 12 15	704 0.6+ 0.0
1991 10 19	399	(2.7- 3.2-)		1993 04 26	809	0.4+	0.7-	1998 12 15	704 0.3+ 0.2-
1991 10 19	399	(3.0- 3.3-)		1993 04 26	809	0.1-	0.5-	1998 12 15	704 0.6- 0.6+
1991 10 28	399	(0.0 2.1+)		1993 04 27	809	0.6+	0.6-	1998 12 22	704 0.2+ 0.1+
1991 10 28	399	0.8+	0.8-	1997 08 22	367	0.6+	1.2+	1998 12 22	704 0.9+ 0.4+
1991 10 29	399	1.1-	1.7+	1997 08 22	367	0.4+	0.6+	1998 12 22	704 (2.1+ 1.6+)
1991 10 29	399	1.4-	0.3-	1997 08 25	563	1.1+	0.5-	1998 12 22	704 0.6+ 1.2-
1991 10 31	399	(3.2- 1.8+)		1997 08 25	563	0.6+	0.7-	1998 12 29	689 0.3- 1.2-
1991 10 31	399	(4.3- 2.7+)		1997 08 25	563	0.6+	0.6-	1999 01 18	704 0.4+ 0.1-
1993 03 21	809	(2.5- 4.1+)		1997 08 27	563	0.0	0.7-	1999 01 18	704 1.7- 1.5+
1993 03 22	809	0.0	1.0+	1997 08 27	563	0.3-	0.1+	1999 01 18	704 0.2- 0.5+
1993 04 17	413	(4.7+ 0.4+)		1997 08 27	563	0.9-	1.6-	1999 01 18	704 1.0- 0.6+
1993 04 17	809	(2.6- 0.8-)		1998 11 23	704	0.1+	0.1+	1999 01 18	704 0.4+ 0.9+

(10135)* 1993 LZ₁ = 1979 WK₅ = 1992 GF₈ = 1994 YR₂

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

Id. K. Ichikawa (*MPC* 27311)

M.P.C. 33890

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	105.67052	(2000.0)	P		Q		Williams	
<i>n</i>	0.26816622	ω	86.71597	+0.99423967	-0.03912073			
<i>a</i>	2.3815882	Ω	275.50959	-0.00462492	+0.91448023			
<i>e</i>	0.1270895	<i>i</i>	5.75346	+0.10707980	+0.40273500			
<i>P</i>	3.68	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	1	

Residuals in seconds of arc

1979 11 17	095	0.6-	0.0	1998 10 23	691	1.1-	0.6-	1999 01 18	704	0.2+	0.3-
1992 03 08	809	0.1+	0.4+	1998 10 29	691	0.5-	0.3-	1999 01 18	704	0.6+	0.6+
1992 04 07	809	0.5-	0.8-	1998 10 29	691	0.6-	0.5-	1999 01 18	704	0.6-	1.7+
1993 06 13	675	1.2+	0.3-	1998 10 29	691	0.8-	0.6-	1999 01 18	704	1.3-	0.4+
1993 06 13	675	1.7+	1.2-	1998 12 16	699	0.4+	0.5+	1999 01 20	704	0.1+	0.7-
1993 06 17	675	0.9-	1.9-	1998 12 16	699	0.2+	0.0	1999 01 20	704	0.3-	0.1+
1993 06 20	675	0.2+	0.1-	1998 12 16	699	0.5+	0.0	1999 01 20	704	0.7+	0.4+
1993 06 20	675	1.0-	0.1-	1998 12 23	704	1.0+	0.8-	1999 01 20	704	0.2+	0.2-
1994 11 28	010	1.0+	0.3-	1998 12 23	704	0.0	0.5+	1999 02 12	704	0.7+	0.2-
1994 11 28	010	1.0+	1.2-	1998 12 23	704	1.7+	0.1+	1999 02 12	704	0.5-	1.0+
1994 11 29	010	1.1+	1.3-	1998 12 23	704	1.3-	0.4+	1999 02 12	704	0.8-	0.6+
1994 12 22	399	1.5+	0.6-	1998 12 23	704	0.2+	0.9+	1999 02 12	704	0.7+	0.4+
1994 12 22	399	0.5-	0.9+	1998 12 26	732	0.3-	0.8-	1999 02 12	704	1.1+	0.1+
1994 12 25	399	1.3-	0.1+	1998 12 26	732	0.3-	0.4-	1999 02 18	566	0.2-	0.2-
1994 12 25	399	0.9-	0.2-	1998 12 26	732	0.3-	0.4-	1999 02 18	566	0.2-	0.2-
1997 08 23	689	1.1-	0.2+	1998 12 27	732	0.1-	0.4-	1999 02 18	566	0.3-	0.3-
1998 10 23	691	0.9-	0.4-	1998 12 27	732	0.0	0.5-				
1998 10 23	691	0.9-	0.5-	1998 12 27	732	0.5-	0.5-				

(10136)* 1993 OM₃ = 1993 OB₁₁ = 1969 EX₁ = 1986 KS = 1994 WM₃

Discovered 1993 July 20 by E. W. Elst at the European Southern

Observatory.

Id. G. V. Williams (d, *MPC* 22935), K. Kinoshita (*MPC* 25429)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	305.32747	(2000.0)	P		Q		Williams	
<i>n</i>	0.29515237	ω	92.82587	-0.82892314	+0.55106962			
<i>a</i>	2.2341133	Ω	120.63273	-0.54723471	-0.76339771			
<i>e</i>	0.1090870	<i>i</i>	6.40325	-0.11584732	-0.33696619			
<i>P</i>	3.34	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	2	

Residuals in seconds of arc

1969 03 14	095	(0.5+	4.4+)	1996 04 18	801	0.6-	0.8+	1998 12 21	704	0.7-	0.8+
1986 05 31	808	0.0	0.2+	1996 04 21	413	1.6-	1.0+	1998 12 21	704	0.5-	0.1+
1986 05 31	808	0.2+	0.0	1996 04 22	801	0.5-	0.6+	1998 12 21	704	0.7+	0.0
1993 07 13	809	(3.6+	1.4+)	1996 04 22	801	0.4-	0.7+	1998 12 21	704	1.4+	1.5+
1993 07 13	809	(2.8+	0.8+)	1996 05 10	691	1.2-	0.6+	1999 01 14	699	0.2+	0.6-
1993 07 13	809	(2.7+	1.4+)	1996 05 10	691	1.6-	0.5+	1999 01 14	699	0.2+	0.7-
1993 07 20	809	(2.8+	0.2-)	1996 05 10	691	1.1-	0.6+	1999 01 14	699	0.2-	0.5-
1993 07 20	809	1.8+	0.6+	1996 05 18	801	0.1+	0.9-	1999 01 15	699	0.2-	0.6-
1993 07 20	809	1.9+	0.8+	1996 05 18	801	0.3+	0.6+	1999 01 15	699	0.1+	0.5-
1993 07 20	809	(3.2-	0.0)	1996 05 20	801	0.5+	0.0	1999 01 15	699	0.1-	0.1-
1993 07 20	809	(2.5-	0.5+)	1996 05 20	801	0.7+	0.1-	1999 02 10	704	0.6+	0.0
1993 07 20	809	(3.7-	0.5-)	1996 05 23	691	(2.4-	0.6+)	1999 02 10	704	0.2+	1.1-
1993 07 24	809	1.5+	0.6-	1996 05 23	691	(2.0-	0.8+)	1999 02 10	704	0.1-	0.4-
1993 07 24	809	(2.2-	0.6-)	1996 05 23	691	(2.3-	0.3+)	1999 02 10	704	0.0	0.9-
1994 11 27	675	0.6+	1.0+	1997 10 29	566	0.7-	0.0	1999 02 10	704	0.1+	1.0-
1994 11 27	675	0.9-	0.6-	1997 10 29	566	0.5-	0.2+	1999 02 13	704	1.1+	0.8-
1994 11 28	399	0.3-	0.0	1997 10 29	566	0.9-	0.1+	1999 02 13	704	0.6+	1.4-
1994 11 28	399	0.6-	1.4+	1998 12 01	704	1.2-	1.7+	1999 02 13	704	1.7+	1.4+
1994 11 29	399	0.5-	0.4+	1998 12 01	704	0.5-	0.6+	1999 02 13	704	0.7+	0.7+
1994 11 29	399	1.1-	0.3+	1998 12 01	704	0.2-	0.1-	1999 02 13	704	0.5+	1.2+
1996 04 18	801	0.5-	0.7+	1998 12 01	704	(4.9-	0.4+)				

(10137)* 1993 PV₆ = 1991 AA₃

Discovered 1993 Aug. 15 by E. W. Elst at Caussols.

Id. G. V. Williams (*MPC* 22597)

1999 MAR. 2

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	118.88458	(2000.0)	P		Q		Williams	
<i>n</i>	0.25285713	ω	50.87003	+0.98873842	-0.14288220			
<i>a</i>	2.4767713	Ω	317.29123	+0.10887020	+0.89080048			
<i>e</i>	0.1973135	<i>i</i>	3.76248	+0.10268212	+0.43134577			
<i>P</i>	3.90	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	2	

Residuals in seconds of arc

1991 01 15	033	0.3+	0.5+	1997 09 24	560	0.0	0.1+	1999 02 12	699	1.0+	0.2+
1991 01 15	033	0.0	0.3-	1997 09 24	560	0.2+	0.1-	1999 02 14	691	1.1-	0.5+
1991 01 15	033	1.5+	0.1-	1997 09 24	560	0.3+	0.1+	1999 02 14	691	1.2-	0.4+
1991 01 15	033	0.6+	0.5-	1997 09 24	560	0.1+	0.3+	1999 02 14	691	1.2-	0.4+
1991 01 16	033	0.8+	0.0	1997 11 26	566	0.5-	0.1-	1999 02 16	704	0.6+	0.0
1991 01 22	675	1.6-	0.3-	1997 11 26	566	0.0	0.2-	1999 02 16	704	0.5+	0.4-
1991 01 22	675	0.9-	1.6+	1997 11 26	566	0.3-	0.1-	1999 02 16	704	0.4+	0.7-
1993 08 13	675	1.1+	1.0+	1999 01 19	910	0.4+	0.2-	1999 02 16	704	0.1+	0.8-
1993 08 13	675	1.3-	1.1+	1999 01 20	910	0.3+	0.3-	1999 02 16	704	0.2+	0.5-
1993 08 15	010	0.3-	0.4+	1999 01 20	910	0.2+	0.2-	1999 02 18	566	0.1+	0.0
1993 08 15	010	0.5-	0.4+	1999 02 12	704	0.0	0.0	1999 02 18	566	0.1-	0.0
1993 08 15	010	1.2-	0.3+	1999 02 12	704	0.8-	0.1-	1999 02 18	566	0.1+	0.1-
1993 08 17	010	(2.6-	0.1-)	1999 02 12	704	0.4-	0.1+	1999 02 21	691	0.2+	0.5+
1993 09 05	596	(0.2+	2.6-)	1999 02 12	704	0.1+	0.0	1999 02 21	691	0.4+	0.3+
1993 09 05	596	0.6-	1.3-	1999 02 12	699	0.7+	0.6+	1999 02 21	691	0.4+	0.3+
1993 09 06	596	0.6+	0.1+	1999 02 12	704	0.8-	0.4+				
1993 09 06	596	1.5+	0.9-	1999 02 12	699	0.1+	0.2+				

(10138)* 1993 SS₁ = 1995 DF₁₃

Discovered 1993 Sept. 16 by K. Endate and K. Watanabe at Kitami.

Id. G. V. Williams (*MPC* 25331)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	53.26291	(2000.0)	P		Q		Williams	
<i>n</i>	0.23786915	ω	285.47272	+0.30195583	-0.95255188			
<i>a</i>	2.5797481	Ω	146.87427	+0.89933080	+0.27129301			
<i>e</i>	0.1478690	<i>i</i>	4.01983	+0.31627011	+0.13800366			
<i>P</i>	4.14	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	1	

Residuals in seconds of arc

1993 09 16	400	0.8-	0.4-	1995 03 23	691	0.6-	0.1-	1999 02 10	704	0.1-	0.4+
1993 09 16	400	1.6-	1.6+	1995 03 23	691	0.1-	0.0	1999 02 10	704	0.2-	0.6+
1993 09 18	400	1.2+	0.4+	1997 10 26	688	0.2+	0.1-	1999 02 10	704	0.3+	0.7+
1993 09 18	400	(3.2-	0.1+)	1997 10 26	688	0.2+	0.4-	1999 02 10	704	0.1+	1.0+
1993 10 11	400	1.6+	1.5-	1997 10 27	688	0.0	0.5-	1999 02 10	704	0.5+	0.8+
1993 10 11	400	0.3+	1.5+	1997 10 27	688	0.3+	0.5-	1999 02 12	691	1.1-	1.8-
1993 10 12	675	0.2+	1.0-	1997 11 29	688	0.2-	0.3-	1999 02 12	691	0.3-	0.5-
1993 10 15	400	1.2-	0.7+	1997 11 29	688	0.0	0.3-	1999 02 12	691	0.1-	0.4-
1993 10 15	400	(0.6-	2.4-)	1998 11 25	704	(2.5-	0.4+)	1999 02 13	704	0.2-	0.1+
1995 02 06	691	1.1-	0.3-	1998 11 25	704	1.0-	1.3-	1999 02 13	704	1.0+	0.8+
1995 02 06	691	1.0-	0.1+	1998 11 25	704	(2.1+	3.1-)	1999 02 13	704	0.1+	0.7+
1995 02 06	691	1.0-	0.6-	1998 11 25	704	(3.1-	0.0)	1999 02 13	704	1.5+	0.6+
1995 02 25	098	0.6-	0.4+	1999 01 14	699	0.5+	0.7+	1999 02 13	704	0.0	0.5+
1995 02 25	098	1.2+	0.5-	1999 01 14	699	0.9+	0.8+	1999 02 18	691	1.1-	0.4-
1995 02 26	098	0.4+	1.0-	1999 01 14	699	0.8+	1.5+	1999 02 18	691	1.1-	0.3-
1995 02 26	098	(0.0	2.1-)	1999 01 22	699	0.0	0.8-	1999 02 18	691	0.9-	0.4-
1995 02 27	098	1.6+	0.0	1999 01 22	699	0.4+	1.3-				
1995 02 27	098	(2.4+	0.7+)	1999 01 22	699	0.4+	0.8-				

(10139)* 1993 ST₄ = 1974 HS₁ = 1986 TZ₂ = 1992 GA₈

Discovered 1993 Sept. 19 by E. W. Elst at Caussols.

Id. A. Lowe (*MPC* 23342), G. V. Williams (*ibid.*)

1999 MAR. 2

M.P.C. 33891

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	270.12682		(2000.0)	P		Q	
<i>n</i>	0.27353844	ω	192.66091	−0.33767890	+0.94114495		
<i>a</i>	2.3503027	Ω	57.60530	−0.86205467	−0.30291014		
<i>e</i>	0.0276122	<i>i</i>	1.00458	−0.37793480	−0.14997213		
<i>P</i>	3.60	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc							
1974 04 24	805	(4.1− 3.2−)	1993 08 24	809	1.3+ 1.4+	1997 10 30	704 0.2− 0.4−
1974 04 25	805	0.1− 1.2−	1993 08 24	809	1.3+ 1.9+	1997 10 30	704 0.6− 1.2−
1986 10 04	046	(2.7+ 3.0−)	1993 09 19	010	0.5− 0.4+	1997 11 20	691 (3.7− 0.9+)
1986 10 04	046	0.7+ 0.6+	1993 09 19	010	0.3− 0.6+	1997 11 20	691 (3.5− 0.9+)
1986 10 05	046	(1.2− 4.5−)	1993 09 20	010	0.9− 0.1+	1997 11 20	691 (3.7− 1.0+)
1986 10 05	046	0.5+ 2.2−	1993 09 20	010	0.1+ 0.1+	1999 01 13	699 0.2+ 0.5+
1992 04 05	691	1.1− 1.6−	1993 09 20	010	0.9− 0.9+	1999 01 13	699 0.7+ 0.2+
1992 04 05	691	1.4− 0.6−	1993 09 21	675	1.0− 1.5−	1999 02 12	120 0.2− 0.3+
1992 04 05	691	1.4− 0.7−	1997 10 29	704	0.2− 0.9−	1999 02 13	120 0.4− 0.6+
1993 08 15	809	0.3+ 0.6+	1997 10 29	704	1.2− 1.1−	1999 02 13	120 0.4− 0.7+
1993 08 15	809	0.0 0.5−	1997 10 29	704	0.6− 0.3−	1999 02 19	566 0.2+ 0.6+
1993 08 15	809	0.6− 0.7−	1997 10 29	704	0.0 0.4−	1999 02 19	566 0.6+ 0.8+
1993 08 20	809	0.5− 0.8+	1997 10 29	704	0.5− 0.4−	1999 02 19	566 0.1+ 0.7+
1993 08 20	809	0.6− 0.5+	1997 10 30	704	0.7+ 1.0+	1999 02 21	691 1.8+ 0.9+
1993 08 20	809	0.4− 1.1+	1997 10 30	704	1.1+ 0.6+	1999 02 21	691 1.7+ 1.0+
1993 08 24	809	0.5+ 1.3+	1997 10 30	704	1.0+ 0.0	1999 02 21	691 1.6+ 1.0+

(10140)* 1993 SX₄ = 1973 GZ = 1977 KH = 1984 CJ = 1990 WQ₁₅

Discovered 1993 Sept. 19 by E. W. Elst at Caussols.

Id. A. Gnädig (*MPC* 31235)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	307.71961		(2000.0)	P		Q	
<i>n</i>	0.26179093	ω	22.01370	−0.99086657	+0.13437344		
<i>a</i>	2.4200982	Ω	165.69489	−0.12952479	−0.92516561		
<i>e</i>	0.1321988	<i>i</i>	2.61634	−0.03750686	−0.35498221		
<i>P</i>	3.76	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	2
Residuals in seconds of arc							
1973 04 01	095	0.2+ 0.5−	1998 11 23	699	0.1+ 0.3+	1999 01 15	423 0.9+ 0.1−
1973 04 04	095	0.1− 1.5+	1998 11 23	699	0.0 0.0	1999 01 15	423 0.5+ 0.4+
1977 05 23	095	0.7+ 1.4+	1998 11 27	747	0.4+ 0.3+	1999 01 18	704 0.2− 0.2−
1984 02 02	801	(4.2+ 3.0+)	1998 11 27	747	0.3+ 0.2+	1999 01 18	704 0.3+ 0.6+
1990 11 21	372	0.9+ 0.3−	1998 11 27	747	0.2+ 0.4+	1999 01 18	704 0.0 0.4−
1990 11 21	372	0.8− 1.0−	1998 11 27	747	0.0 0.2+	1999 01 18	704 0.0 0.3−
1993 08 19	010	0.3+ 0.6+	1998 12 09	689	0.7− 0.6+	1999 01 18	704 0.2+ 0.4−
1993 08 19	010	0.1+ 0.5+	1998 12 16	699	0.2− 0.2+	1999 01 20	704 0.0 0.6+
1993 08 19	010	0.1+ 0.0	1998 12 16	699	0.1− 0.2+	1999 01 20	704 0.1− 0.2+
1993 09 19	010	0.8− 1.6+	1998 12 16	699	0.4− 0.1+	1999 01 20	704 0.2+ 0.7+
1993 09 19	010	(1.5− 2.4+)	1998 12 23	704	0.9+ 0.1+	1999 01 20	704 0.3+ 0.8+
1993 09 20	010	0.0 1.1+	1998 12 23	704	0.1− 1.3−	1999 02 11	699 0.3− 0.4+
1993 09 20	010	1.2− 0.6+	1998 12 23	704	0.3− 0.7−	1999 02 11	699 0.2+ 0.4+
1993 09 20	010	0.5− 1.3+	1998 12 23	704	1.3− 0.5−	1999 02 11	699 0.2− 0.1+
1998 10 30	704	0.6− 0.5−	1999 01 10	423	0.0 0.1+	1999 02 12	704 1.3− 2.1+
1998 10 30	704	1.5+ 0.1−	1999 01 10	423	0.3+ 0.9+	1999 02 12	704 0.6− 0.3+
1998 10 30	704	0.9+ 0.2+	1999 01 11	727	0.1− 0.2−	1999 02 12	704 0.1− 0.6−
1998 10 30	704	0.6+ 1.6−	1999 01 11	727	0.2− 0.1+	1999 02 12	704 0.3+ 0.3+
1998 11 23	699	0.4+ 0.0	1999 01 11	727	0.2+ 0.2+	1999 02 12	704 0.1+ 0.1−

(10141)* 1993 VE = 1975 HK = 1976 UZ₂ = 1996 GB₂₀

Discovered 1993 Nov. 5 by S. Otomo at Kiyosato.

Id. B. G. Marsden (*MPC* 27313), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	158.13079		(2000.0)	P		Q	
<i>n</i>	0.23360662	ω	272.85681	+0.65352390	+0.74220341		
<i>a</i>	2.6110346	Ω	39.29887	−0.56727273	+0.61013278		
<i>e</i>	0.1786571	<i>i</i>	13.55625	−0.50110694	+0.27725815		
<i>P</i>	4.22	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc							
1975 04 20	805	1.5+ 0.1+	1996 03 27	809	1.0− 0.9+	1999 01 12	732 1.6− 0.1+
1976 10 26	095	(5.0+ 0.4−)	1996 04 15	809	(3.8+ 0.0)	1999 01 12	732 1.2− 0.4+
1993 11 05	894	1.3− 1.5+	1996 04 15	809	(3.6+ 0.1+)	1999 01 12	732 1.5− 0.2+
1993 11 05	894	0.1− 0.4+	1996 04 15	809	(2.7+ 0.4+)	1999 01 14	704 0.5+ 0.5−
1993 11 09	894	0.2+ 0.6+	1996 04 17	809	(1.1+ 2.6−)	1999 01 14	704 0.9+ 0.2+
1993 11 09	894	0.9+ 1.0+	1996 04 17	809	(0.8+ 2.8−)	1999 01 14	704 0.6+ 0.8+
1993 11 14	894	0.7− 0.3−	1996 04 17	809	(0.7+ 3.4−)	1999 01 14	704 (2.3+ 3.7−)
1993 11 14	894	(2.3+ 2.0−)	1997 10 30	704	1.2+ 0.1+	1999 01 14	704 1.1+ 0.1+
1993 11 16	894	1.6− 0.4+	1997 10 30	704	1.2+ 0.5+	1999 01 15	699 0.7+ 0.4−
1993 11 16	894	0.9− 1.3+	1997 10 30	704	1.1+ 0.4+	1999 01 15	699 0.8+ 0.3−
1993 11 18	894	(0.2+ 2.5+)	1997 10 30	704	(3.6+ 0.2−)	1999 01 15	699 0.6+ 0.6−
1993 11 18	894	0.8− 0.9+	1997 10 30	704	1.1− 1.3−	1999 02 10	704 0.3+ 0.5+
1993 12 04	894	1.2− 0.4−	1997 10 31	426	0.5+ 0.3−	1999 02 10	704 0.3− 0.7+
1993 12 04	894	1.0− 1.8−	1997 10 31	426	0.4+ 0.3−	1999 02 10	704 0.2− 0.2−
1993 12 07	894	1.1− 0.4+	1997 10 31	426	0.8+ 0.2−	1999 02 10	704 0.4+ 0.8−
1993 12 07	894	0.8− 0.7−	1997 11 01	426	0.9+ 0.1+	1999 02 10	704 0.2− 0.2−
1993 12 09	894	0.6− 0.2+	1997 11 01	426	0.5+ 0.1+	1999 02 13	704 0.7+ 0.2+
1993 12 09	894	0.4+ 1.1+	1997 11 01	426	0.2+ 0.0	1999 02 13	704 0.4+ 0.3+
1993 12 13	894	1.0− 0.4+	1998 12 24	699	1.0+ 0.1+	1999 02 13	704 0.3− 0.1−
1993 12 13	894	0.2+ 0.7+	1998 12 24	699	0.2+ 0.3+	1999 02 13	704 0.7+ 0.1−
1996 03 24	809	(2.5− 1.4−)	1998 12 24	699	0.6+ 0.6+	1999 02 13	704 0.5− 0.1+
1996 03 24	809	(3.1− 1.6−)	1999 01 09	732	0.0 0.6−	1999 02 19	566 0.2− 1.6−
1996 03 24	809	(3.5− 1.3−)	1999 01 09	732	0.0 0.5−	1999 02 19	566 0.5− 1.0−
1996 03 27	809	0.2− 1.7+	1999 01 09	732	0.0 0.5−	1999 02 19	566 0.2− 0.7−
1996 03 27	809	0.4+ 0.8+	1999 01 09	732	0.1+ 0.2−		

(10142)* 1993 VG₁ = 1961 TF₁ = 1961 TX₁ = 1975 XC₂ = 1991 DH₂
= 1996 KV₃

Discovered 1993 Nov. 15 by A. Sugie at the Dync Astronomical Observatory.

Id. T. Kobayashi (*MPC* 27558), O. Kippes (d, *MPC* 2324)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

<i>M</i>	65.09024		(2000.0)	P		Q	
<i>n</i>	0.21645951	ω	315.25543	+0.87459025	−0.44462502		
<i>a</i>	2.7471662	Ω	72.05000	+0.48195943	+0.75362402		
<i>e</i>	0.2524081	<i>i</i>	11.72923	+0.05298108	+0.48410684		
<i>P</i>	4.55	<i>H</i>	12.1	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc							
1961 10 10	760	1.9+ 0.1−	1996 05 22	809	(3.7+ 0.9+)	1998 12 26	619 0.2+ 0.0
1961 10 10	760	1.0− 0.1+	1996 05 24	809	(3.1+ 5.1−)	1998 12 26	619 0.0 0.3+
1961 10 15	760	0.7− 0.1−	1996 05 24	809	(2.7+ 4.8−)	1998 12 27	619 0.3− 0.0
1961 10 15	760	0.3− 1.1−	1996 05 24	809	(2.7+ 4.8−)	1998 12 27	619 0.3− 0.3−
1975 12 01	095	(4.9− 8.6+)	1998 10 30	704	0.1− 0.1−	1998 12 27	619 0.3− 0.5−
1991 02 23	493	0.6+ 1.2+	1998 10 30	704	0.4− 0.0	1999 02 10	704 0.1− 0.2+
1991 02 23	493	1.0+ 0.1−	1998 10 30	704	0.3− 0.5+	1999 02 10	704 0.6+ 0.3−
1991 02 23	493	1.4+ 1.4−	1998 10 30	704	0.3+ 0.1−	1999 02 10	704 0.9+ 0.3−
1993 11 11	400	0.1− 0.5+	1998 10 30	704	0.1+ 0.1−	1999 02 10	704 0.2+ 0.4−
1993 11 11	400	0.9+ 0.1−	1998 12 01	689	0.0 1.3−	1999 02 10	704 0.6+ 0.7+
1993 11 15	402	0.4− 0.1−	1998 12 18	699	0.2− 0.3+	1999 02 12	699 0.1+ 0.6+
1993 11 15	402	0.1− 0.2−	1998 12 18	699	0.2+ 0.2+	1999 02 12	699 0.2+ 0.7+
1993 11 16	402	0.7− 0.8+	1998 12 18	699	0.4+ 0.1+	1999 02 12	699 0.1+ 0.5+
1993 11 16	402	0.4+ 0.4+	1998 12 21	704	0.2− 1.3−	1999 02 13	704 0.8+ 0.8−
1996 05 14	566	0.6− 0.2+	1998 12 21	704	1.4− 0.9−	1999 02 13	704 1.0+ 0.4+
1996 05 14	566	0.6− 0.1+	1998 12 21	704	0.9− 0.4−	1999 02 13	704 (1.8+ 2.2+)
1996 05 14	566	0.6− 0.3+	1998 12 21	704	0.8− 0.7−	1999 02 13	704 0.4+ 0.0
1996 05 22	809	(4.2+ 1.2+)	1998 12 21	704	1.9− 1.7+	1999 02 13	704 0.8− 0.2+
1996 05 22	809	(3.9+ 0.9+)	1998 12 26	619	0.1+ 0.4+		

(10143)* 1994 AP₁ = 1996 PB₂

Discovered 1994 Jan. 8 by A. Sugie at the Dynic Astronomical Observatory.
Id. G. V. Williams (*MPC* 27716)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams					
<i>M</i>	331.34884	(2000.0)	P			Q		
<i>n</i>	0.19109359	ω	192.88707	−0.85469208	−0.46620019			
<i>a</i>	2.9851899	Ω	316.81829	+0.50098418	−0.62539116			
<i>e</i>	0.2164940	<i>i</i>	19.49593	+0.13607461	−0.62573420			
<i>P</i>	5.16	<i>H</i>	12.3	<i>G</i>	0.15	<i>U</i>	2	

Residuals in seconds of arc

1994 01 08	402	0.5+	0.3−	1996 08 14	566	0.5+	0.8−	1999 01 16	732	0.3−	0.4−
1994 01 08	402	(1.7+ 2.2−)		1997 10 25	688	0.0	0.6−	1999 01 16	704	0.5−	0.9+
1994 01 09	402	0.6−	0.2−	1997 10 25	688	0.4−	0.0	1999 01 16	704	0.0	0.5+
1994 01 09	402	0.5+	0.0	1997 10 26	688	0.1−	0.3−	1999 01 16	704	(3.0− 1.3+)	
1994 01 15	402	0.5−	1.5−	1997 10 26	688	1.1+	0.8+	1999 01 16	704	0.6+	1.0+
1994 01 15	402	0.4−	0.1+	1998 12 12	704	0.7+	0.2+	1999 01 16	704	0.3+	1.5+
1994 02 07	900	0.2−	0.3+	1998 12 12	704	0.2+	1.0+	1999 01 17	732	0.3−	0.1+
1994 02 07	900	0.4+	0.1−	1998 12 12	704	0.1+	0.4−	1999 01 17	732	0.5−	0.3−
1994 02 12	675	0.9−	1.3−	1998 12 12	704	0.5+	0.1−	1999 01 19	704	(2.4− 0.9−)	
1994 02 12	675	0.4−	0.7−	1998 12 12	704	0.2−	0.4−	1999 01 19	704	0.2−	0.3+
1994 02 14	675	0.8−	0.5−	1998 12 24	699	0.2+	0.4+	1999 01 19	704	0.2−	0.8+
1994 02 14	675	0.4−	0.6−	1998 12 24	699	0.6+	0.5+	1999 01 19	704	0.2+	0.6−
1994 02 18	900	0.0	0.7+	1998 12 24	699	0.3+	0.3+	1999 01 19	704	0.2−	0.1−
1994 02 18	900	0.1+	0.0	1999 01 15	732	0.4−	0.0	1999 01 19	127	0.3+	0.7−
1996 08 13	566	0.6+	0.5−	1999 01 15	732	0.5−	0.2+	1999 01 19	127	0.3+	0.8−
1996 08 13	566	0.1−	0.5−	1999 01 15	732	0.4−	0.0	1999 01 20	127	0.6+	0.9−
1996 08 13	566	0.3+	0.6−	1999 01 15	732	0.6−	0.1−	1999 01 20	127	0.7+	1.1−
1996 08 14	566	0.4+	0.4−	1999 01 16	732	0.2−	0.2−				
1996 08 14	566	0.3+	0.4−	1999 01 16	732	0.0	0.1+				

(10144)* 1994 AB₂ = 1977 UQ₄ = 1991 NV₅

Discovered 1994 Jan. 9 by Y. Kushida and O. Muramatsu at the Yatsugatake South Base Observatory.

Id. G. V. Williams (*MPC* 23128)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams					
<i>M</i>	2.41498	(2000.0)	P			Q		
<i>n</i>	0.19626213	ω	240.94473	−0.40161660	−0.91574651			
<i>a</i>	2.9325474	Ω	232.73842	+0.84480211	−0.36598281			
<i>e</i>	0.0222233	<i>i</i>	0.76339	+0.35357248	−0.16572542			
<i>P</i>	5.02	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	1	

Residuals in seconds of arc

1977 10 18	675	0.0	0.5−	1994 01 13	691	0.5−	0.2−	1998 12 16	699	0.5+	0.2+
1977 10 19	675	0.4+	0.0	1994 01 13	691	0.3−	1.1−	1998 12 16	691	1.4−	0.5−
1991 07 10	809	0.4+	1.1−	1994 01 14	896	0.3+	0.1+	1998 12 16	691	1.5−	0.7−
1991 07 10	809	0.6+	1.1−	1994 01 14	896	0.6+	0.0	1998 12 16	691	1.2−	0.8−
1991 07 10	809	0.8+	0.8−	1994 01 19	896	(1.5− 3.9+)		1998 12 24	691	0.3−	0.4+
1991 07 11	809	0.7−	0.7+	1995 04 26	411	0.5+	1.2+	1998 12 24	691	0.3+	0.3+
1991 07 11	809	0.4−	0.7+	1995 04 26	411	0.2−	0.3+	1998 12 24	691	0.1+	0.1+
1991 07 11	809	0.2−	0.6+	1997 12 29	566	0.9−	0.3+	1999 01 16	120	0.1−	0.3+
1994 01 08	691	0.9−	0.4−	1997 12 29	566	0.3−	0.9+	1999 01 16	120	0.2−	0.2+
1994 01 08	691	0.2+	0.5−	1997 12 29	566	0.5−	1.2+	1999 01 17	120	0.2−	0.0
1994 01 08	691	0.1−	0.5−	1998 12 16	120	0.3+	0.4+	1999 01 18	704	0.8+	0.3−
1994 01 09	896	0.7−	0.6+	1998 12 16	744	0.9+	0.9−	1999 01 18	704	0.0	0.6+
1994 01 09	896	1.2+	0.4−	1998 12 16	744	0.4+	0.4+	1999 01 18	704	0.4−	1.0+
1994 01 11	896	(2.2+ 0.4−)		1998 12 16	744	1.1+	0.4−	1999 01 18	704	0.3+	0.1−
1994 01 11	896	0.7−	1.2+	1998 12 16	699	0.7+	0.2+	1999 01 18	704	0.6+	0.0
1994 01 13	691	0.3−	0.4−	1998 12 16	699	0.4+	0.2−				

(10145)* 1994 CK₁ = 1998 MY₅

Discovered 1994 Feb. 10 by Spacewatch at Kitt Peak.

Id. J. E. Rogers (*MPC* 32233)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams					
<i>M</i>	53.91712	(2000.0)	P			Q		
<i>n</i>	0.37615319	ω	26.91979	+0.99647519	+0.07300235			
<i>a</i>	1.9006095	Ω	328.80916	−0.08383321	+0.88440052			
<i>e</i>	0.6328979	<i>i</i>	4.57690	+0.00303070	+0.46098414			
<i>P</i>	2.62	<i>H</i>	17.3	<i>G</i>	0.15	<i>U</i>	1	

Residuals in seconds of arc

1994 02 10	691	0.4+	0.2−	1998 06 25	860	0.3+	0.5−	1998 07 02	860	1.6+	1.1−
1994 02 10	691	0.1−	0.5−	1998 06 25	860	0.0	0.3+	1998 07 03	860	0.4+	0.3−
1994 02 10	691	0.5−	0.3−	1998 06 25	860	0.2−	1.9+	1998 07 04	860	0.8+	0.8+
1994 02 11	691	0.2−	0.4+	1998 06 26	711	0.1−	0.2−	1998 07 04	860	1.2+	0.5−
1994 02 11	691	0.7+	0.1−	1998 06 26	711	(2.4+ 1.3−)		1998 07 04	860	1.4+	0.5−
1994 02 11	691	0.2−	0.1−	1998 06 26	711	(4.4− 0.3+)		1998 07 10	426	1.1−	0.3+
1994 02 12	691	0.1−	0.6−	1998 06 26	426	0.4−	0.2−	1998 07 10	426	0.5−	0.2+
1994 02 12	691	0.0	0.1−	1998 06 26	426	0.0	0.5−	1998 07 10	426	0.5−	0.1−
1994 02 12	691	0.1−	0.3+	1998 06 26	426	0.4−	0.1−	1998 07 10	426	0.2−	0.1+
1994 02 16	691	0.2−	0.5+	1998 06 26	426	0.4−	0.0	1998 07 11	422	0.2−	0.6+
1994 02 16	691	0.3−	0.2+	1998 06 26	422	0.1−	0.2+	1998 07 11	422	0.1−	0.1+
1994 02 16	691	0.4−	0.1+	1998 06 26	422	0.1−	0.0	1998 07 11	422	0.1−	0.6+
1994 02 19	691	0.6−	0.3−	1998 06 26	422	0.0	0.2+	1998 09 24	557	0.1+	0.1−
1994 02 19	691	0.1+	0.1−	1998 06 27	104	1.0+	0.5+	1998 09 24	557	0.2−	0.5−
1994 02 19	691	0.5−	0.2+	1998 06 27	104	0.5+	0.4−	1998 09 24	557	0.0	0.6+
1994 03 05	691	0.4+	0.7−	1998 06 27	104	0.4−	0.3+	1998 12 21	704	0.0	0.1+
1994 03 05	691	0.2+	0.2−	1998 06 27	104	0.6+	0.7+	1998 12 21	704	1.5+	1.0+
1994 03 05	691	0.3+	0.8−	1998 06 27	104	(3.2− 1.8+)		1998 12 21	704	(0.2+ 2.1+)	
1998 06 24	566	0.7+	0.1+	1998 06 29	426	0.2+	0.2+	1998 12 21	704	1.8+	0.6−
1998 06 24	566	0.6+	0.4+	1998 06 29	426	0.1+	0.2−	1999 01 18	402	0.0	0.1−
1998 06 24	566	0.0	0.3+	1998 06 29	426	0.3−	0.2+	1999 01 18	402	0.2−	0.5+
1998 06 25	566	0.2+	0.4−	1998 06 29	426	0.1−	0.1−	1999 01 18	402	0.0	0.1−
1998 06 25	566	0.7−	0.6−	1998 07 02	422	0.0	0.0	1999 01 21	360	0.0	0.1−
1998 06 25	566	0.2−	0.5−	1998 07 02	422	0.3−	0.1+	1999 01 21	360	0.1−	0.1−
1998 06 25	426	0.5−	0.2−	1998 07 02	422	0.1−	0.4−	1999 01 21	360	0.3−	0.2−
1998 06 25	426	0.4−	0.2−	1998 07 02	422	0.1−	0.3+	1999 02 19	711	0.3−	0.6+
1998 06 25	426	0.4−	0.2−	1998 07 02	429	0.1+	0.2+	1999 02 19	711	0.1−	0.5+
1998 06 25	426	0.3−	0.2−	1998 07 02	429	0.6−	0.2−	1999 02 20	711	0.1+	1.3+
1998 06 25	426	0.5−	0.2−	1998 07 02	429	0.2+	0.1−	1999 02 20	711	0.9−	0.7+

(10146)* 1994 CV₁ = 1997 TO₁₈

Discovered 1994 Feb. 8 by K. Endate and K. Watanabe at Kitami.

Id. G. V. Williams (*MPC* 30982)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams					
<i>M</i>	335.09030	(2000.0)	P			Q		
<i>n</i>	0.18254805	ω	74.78072	−0.77815838	−0.62496906			
<i>a</i>	3.0776406	Ω	66.49851	+0.54701061	−0.72314061			
<i>e</i>	0.1797038	<i>i</i>	3.89637	+0.30862426	−0.29407708			
<i>P</i>	5.40	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	1	

Residuals in seconds of arc

1992 10 28	801	0.0	0.4−	1997 10 03	327	0.2+	0.1+	1998 12 17	704	0.4+	0.9−
1992 10 28	801	0.5+	0.2−	1997 10 09	327	0.0	0.1−	1998 12 17	704	(2.7− 1.9−)	
1992 11 18	691	0.3−	0.5+	1997 10 09	327	0.0	0.3−	1998 12 17	704	1.4−	0.8+
1992 11 18	691	0.5−	0.2+	1997 10 09	327	0.2+	0.2−	1998 12 17	704	0.1+	1.0+
1992 11 18	691	0.0	0.5+	1997 10 10	327	0.3+	0.3+	1999 01 16	704	0.2−	0.2+
1994 02 08	400	1.0+	0.1−	1997 10 10	327	0.4+	0.1−	1999 01 16	704	0.0	0.1+
1994 02 08	400	(3.8+	3.7−)	1997 10 10	327	0.1+	0.2−	1999 01 16	704	0.3+	0.1−
1994 02 11	400	1.5−	1.5+	1997 10 19	327	(0.1− 2.4−)		1999 01 16	704	0.2+	0.1+
1994 02 11	400	(2.1− 0.0)		1997 10 19	327	1.0−	0.1+	1999 01 16	704	1.1+	1.3−
1994 03 03	400	0.3−	0.6−	1997 10 19	327	0.1−	0.1+	1999 01 19	704	0.2−	0.1+
1994 03 03	400	0.5+	0.1−	1998 12 14	704	0.4+	0.2+	1999 01 19	704	0.0	0.6+
1994 03 04	400	(3.5+	2.1−)	1998 12 14	704	0.0	0.3−	1999 01 19	704	0.7−	0.4+
1994 03 04	400	0.5+	0.2−	1998 12 14	704	0.1+	0.5−	1999 01 19	704	(1.2− 2.1+)	
1997 10 03	327	0.3+	0.1+	1998 12 14	704	0.3−	0.6−				
1997 10 03	327	0.4−	0.3+	1998 12 14	704	0.2+	0.4−				

1999 MAR. 2

M.P.C. 33893

(10147)* 1994 CK₂

Discovered 1994 Feb. 13 by T. Kobayashi at Oizumi.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	317.45159	(2000.0)	P		Q	
<i>n</i>	0.17330236	ω	79.56825	−0.73614534	−0.67585159	
<i>a</i>	3.1861514	Ω	57.90050	+0.60302712	−0.67926424	
<i>e</i>	0.1179906	<i>i</i>	2.45311	+0.30732447	−0.28605022	
<i>P</i>	5.69	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1992 11 27	691	0.1−	0.4+	1994 03 06	411	1.1+	0.7−	1998 12 14	704	0.1−	0.2−
1992 11 27	691	0.2−	0.7+	1994 03 06	411	0.6+	1.3+	1998 12 14	704	1.0+	0.4−
1992 11 27	691	0.2−	0.8+	1997 10 27	688	0.1+	1.0+	1998 12 14	704	0.5+	0.7−
1994 02 13	411	0.2+	0.8+	1997 10 27	688	0.0	0.7+	1998 12 14	704	0.4+	1.2−
1994 02 13	411	0.2+	0.3+	1997 10 28	688	0.5+	0.9+	1998 12 14	704	0.7−	0.8−
1994 02 13	411	0.1−	0.2+	1997 10 28	688	0.2+	0.8+	1998 12 17	704	0.1−	0.3−
1994 02 14	411	0.2−	0.6−	1997 12 05	910	0.6−	0.2+	1998 12 17	704	0.3+	0.5−
1994 02 14	411	0.1+	0.3+	1997 12 05	910	0.7−	0.0	1998 12 17	704	0.4−	0.0
1994 02 14	411	0.4+	0.0	1997 12 05	910	0.5−	0.0	1998 12 17	704	0.2−	0.7−
1994 02 17	411	0.1+	0.2+	1997 12 06	910	0.4−	0.1+	1998 12 17	704	0.2+	0.2−
1994 02 17	411	0.6−	0.4+	1997 12 06	910	0.5−	0.1−	1999 02 11	327	0.5+	0.7+
1994 02 17	411	0.4+	1.3−	1997 12 06	910	0.6−	0.2+	1999 02 11	327	0.4+	0.0
1994 03 04	411	0.2+	1.4+	1998 09 02	402	0.3+	0.3−	1999 02 11	327	0.6+	0.3−
1994 03 04	411	0.5−	0.4+	1998 09 02	402	0.3−	0.4+	1999 02 14	327	0.6−	0.6+
1994 03 04	411	1.2−	0.9+	1998 09 02	402	0.6−	0.3−	1999 02 14	327	0.4−	0.2+
1994 03 06	411	0.4+	0.3+	1998 09 02	402	0.0	0.0	1999 02 14	327	0.4−	0.1+

(10148)* 1994 GR₉ = 1982 DP₅ = 1988 FO₂ = 1988 FQ₂

Discovered 1994 Apr. 14 by S. Otomo at Kiyosato.

Id. S. Nakano (*MPC* 25069), F. N. Bowman (d, *ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

<i>M</i>	277.95808	(2000.0)	P		Q	
<i>n</i>	0.17138584	ω	224.01756	−0.59819326	+0.80135083	
<i>a</i>	3.2098600	Ω	9.24209	−0.73297669	−0.54649790	
<i>e</i>	0.1446305	<i>i</i>	0.46252	−0.32389814	−0.24326303	
<i>P</i>	5.75	<i>H</i>	12.2	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1982 02 25	010	0.2+	0.3−	1996 10 18	817	0.7+	1.1+	1999 01 19	704	0.7+	0.4+
1982 02 26	010	0.4+	0.7−	1996 10 18	817	0.9+	1.2+	1999 01 19	704	0.1+	0.5+
1988 03 17	046	(4.8−	0.7−)	1997 11 29	704	0.9−	0.7−	1999 01 20	120	0.5+	0.3−
1988 03 17	046	(5.3−	2.1−)	1997 11 29	704	2.0−	1.6−	1999 01 20	120	0.0	0.2+
1988 03 21	071	0.2−	1.5−	1997 11 29	704	2.1−	0.3−	1999 01 20	120	0.3+	0.0
1988 03 21	071	1.0−	0.4+	1997 11 29	704	1.0−	0.6−	1999 01 23	691	0.6−	0.5−
1994 04 14	894	(1.1−	2.9+)	1997 11 29	704	(2.6−	1.1−)	1999 01 23	691	0.7−	0.2−
1994 04 14	894	0.7+	0.2+	1997 12 31	704	1.2+	1.7+	1999 01 23	691	0.8−	0.3−
1994 04 19	894	0.1−	0.1−	1997 12 31	704	0.1−	0.8−	1999 02 10	704	0.5+	0.4−
1994 04 19	894	0.8−	0.6+	1997 12 31	704	1.0+	0.6−	1999 02 10	704	0.2+	0.6−
1994 05 05	894	0.4+	0.1−	1997 12 31	704	0.2+	0.6−	1999 02 10	704	0.3+	0.8−
1994 05 05	894	0.4−	0.1+	1999 01 13	699	1.1+	0.1−	1999 02 10	704	1.3−	1.1−
1994 05 08	894	0.9−	0.5+	1999 01 13	699	1.5+	0.1−	1999 02 10	704	0.1+	0.3−
1994 05 08	894	0.3−	0.2−	1999 01 13	699	1.0+	0.2−	1999 02 13	704	0.8−	0.5−
1994 05 12	894	(0.5−	2.8−)	1999 01 14	699	1.3+	0.5+	1999 02 13	704	1.7−	0.5+
1994 05 12	894	0.3+	0.3−	1999 01 14	699	1.5+	0.1+	1999 02 13	704	0.5+	0.6+
1996 10 04	098	0.1−	0.3−	1999 01 14	699	0.4+	1.1+	1999 02 13	704	0.1+	0.9+
1996 10 04	098	1.1−	1.9−	1999 01 19	704	0.4+	0.0	1999 02 13	704	0.2−	1.8+
1996 10 18	817	0.5+	1.6+	1999 01 19	704	0.4−	0.6+				
1996 10 18	817	0.6+	0.8+	1999 01 19	704	0.3+	0.5+				

(10149)* 1994 PA = 1996 AZ₃

Discovered 1994 Aug. 3 by M. Tombelli and A. Boattini at San Marcello

Pistoiese.

Id. M. Tombelli (*MPC* 26904)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	336.74927	(2000.0)	P		Q	
<i>n</i>	0.30601716	ω	237.19158	−0.59038446	−0.80094320	
<i>a</i>	2.1809156	Ω	249.31112	+0.77157064	−0.52380892	
<i>e</i>	0.0272155	<i>i</i>	6.11657	+0.23690702	−0.29002448	
<i>P</i>	3.22	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i> 2

Residuals in seconds of arc

1994 08 03	104	1.4+	0.7−	1994 08 28	104	0.3−	0.2−	1997 08 04	108	0.5+	0.5−
1994 08 03	104	(0.6+	2.1−)	1994 08 28	104	0.1+	0.0	1998 12 07	104	0.4−	0.9+
1994 08 03	104	0.2−	0.9−	1994 08 28	104	0.4−	1.3+	1998 12 07	104	0.3+	0.0
1994 08 03	104	0.1+	1.1−	1996 01 15	098	(0.4−	3.2−)	1998 12 07	104	1.6−	0.4−
1994 08 03	104	0.3+	0.6−	1996 01 15	098	(1.5+	2.6−)	1998 12 07	104	1.7−	1.0+
1994 08 03	104	0.6−	0.2−	1996 01 16	098	1.4+	0.7−	1998 12 12	104	0.4−	0.1−
1994 08 03	104	1.3−	0.3+	1996 01 17	098	1.6+	0.4−	1998 12 12	104	0.8−	1.0−
1994 08 04	104	1.2−	1.1+	1996 01 17	098	1.0−	1.8−	1998 12 15	704	0.1+	1.4+
1994 08 04	104	0.6+	1.0−	1996 01 18	098	1.4−	1.5−	1998 12 15	704	1.2+	0.3+
1994 08 04	104	0.4−	0.5−	1996 01 19	098	0.7+	0.2−	1998 12 15	704	(2.0−	0.5−)
1994 08 04	104	0.4−	0.3−	1996 02 13	098	0.4−	1.3−	1998 12 15	704	0.2+	0.4−
1994 08 04	104	0.4+	0.3−	1996 02 14	098	0.5−	0.3−	1998 12 15	704	0.2+	0.1−
1994 08 05	104	1.8+	0.8−	1996 02 15	098	(2.6−	2.3−)	1998 12 18	108	1.7+	1.0−
1994 08 05	104	0.1−	0.4−	1996 02 17	098	1.4−	1.5−	1998 12 18	108	0.9−	0.3−
1994 08 05	104	0.9−	0.2−	1996 02 24	098	(2.7+	1.0−)	1998 12 18	108	(2.1+	0.0)
1994 08 06	104	0.6−	0.9−	1996 02 24	098	1.7−	0.4+	1998 12 22	704	0.4+	0.7−
1994 08 06	104	0.8+	0.8−	1996 03 14	098	0.4+	1.4−	1998 12 22	704	1.4+	0.8−
1994 08 06	104	0.3−	0.6−	1996 03 14	098	1.4−	0.9−	1998 12 22	704	1.3+	1.0+
1994 08 10	104	0.8+	1.5−	1997 07 26	108	1.0−	0.4−	1998 12 22	704	0.4+	0.1−
1994 08 10	104	0.6+	0.6−	1997 07 26	108	0.6−	0.9−	1999 01 15	108	0.4+	0.5+
1994 08 10	104	0.9+	0.5−	1997 07 26	108	(6.5+	6.8+)	1999 01 15	108	0.5−	0.6+
1994 08 10	104	0.5+	0.5−	1997 07 27	104	0.4−	0.1−	1999 01 15	108	1.2−	0.5−
1994 08 15	104	0.1−	0.9+	1997 07 27	104	0.5+	0.2+	1999 01 19	104	0.1+	0.2+
1994 08 15	104	0.8+	1.4+	1997 08 04	108	1.0+	1.0−				
1994 08 15	104	0.6+	1.1+	1997 08 04	108	(2.7+	0.7+)				

(10150)* 1994 PN

Discovered 1994 Aug. 7 by G. J. Garradd at Siding Spring.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	57.68123		(2000.0)			P		Q			
<i>n</i>	0.26929252	ω	233.90664			+0.74765096		+0.05685006			
<i>a</i>	2.3749430	Ω	113.23511			−0.06225356		+0.99794156			
<i>e</i>	0.5407168	<i>i</i>	46.05902			−0.66116756		−0.02967692			
<i>P</i>	3.66	<i>H</i>	15.8			<i>G</i>	0.15	<i>U</i>	1		
Residuals in seconds of arc											
1994 08 07	413	1.2+	0.1−	1994 08 31	360	0.1−	0.5−	1995 03 07	413	0.0	0.5+
1994 08 07	413	(0.5+	4.0+)	1994 08 31	360	0.0	1.5+	1995 03 07	413	0.3−	0.3+
1994 08 09	413	(0.9−	2.1−)	1994 09 17	413	1.6−	1.6−	1995 03 21	413	0.2−	0.5+
1994 08 09	413	0.6−	0.2−	1994 09 17	413	1.5−	1.7−	1995 03 21	413	0.4+	0.4+
1994 08 11	413	0.7−	1.4−	1994 09 18	413	0.8−	1.0−	1995 03 22	413	0.4−	0.1+
1994 08 11	413	(2.5+	0.3−)	1994 09 18	413	0.7−	1.0−	1995 03 22	413	0.0	0.4+
1994 08 11	413	(0.4+	2.8−)	1994 10 02	474	(2.0−	0.6−)	1997 03 29	696	0.2−	0.4−
1994 08 12	474	0.2+	1.2+	1994 10 02	474	1.8−	2.0−	1997 03 29	696	0.3−	0.4−
1994 08 12	474	0.2+	1.1+	1994 10 28	474	0.6+	0.6−	1997 03 29	696	0.6−	0.2−
1994 08 15	413	0.2−	0.1+	1994 10 28	474	1.1−	0.1−	1997 03 30	696	0.1−	0.2+
1994 08 15	413	0.7−	0.1−	1994 10 31	474	0.6+	1.3+	1997 03 30	696	0.7−	0.2−
1994 08 16	413	0.4+	0.0	1994 10 31	474	0.5+	1.5+	1997 03 30	696	0.9−	0.2+
1994 08 16	413	0.4+	0.1+	1994 11 11	413	0.0	0.7+	1998 11 20	561	(2.1+	0.4−)
1994 08 16	413	0.3+	0.1+	1994 11 11	413	0.1+	1.1+	1998 11 20	561	0.2+	0.3−
1994 08 16	413	0.4+	0.0	1994 12 18	413	0.3+	0.0	1998 11 20	561	0.7+	0.2−
1994 08 17	413	0.4+	0.4−	1994 12 18	413	0.5+	0.1−	1998 11 24	426	0.6+	0.1−
1994 08 17	413	0.6+	0.2−	1994 12 19	413	0.1+	0.2−	1998 11 25	426	0.7−	0.5−
1994 08 26	413	0.1−	0.6+	1994 12 19	413	0.0	0.0	1998 11 25	426	0.4+	0.1+
1994 08 26	413	0.1−	0.6+	1995 01 12	413	0.2−	0.5−	1998 11 25	426	0.4+	0.1−
1994 08 26	360	0.2−	0.4+	1995 01 12	413	0.2−	0.5−	1998 11 27	426	0.3−	0.6−
1994 08 26	360	0.5+	0.6+	1995 01 13	413	1.1−	0.3−	1998 11 27	426	0.2−	0.1+
1994 08 27	413	0.0	0.3+	1995 01 13	413	1.0−	0.3−	1998 11 27	426	0.2+	0.2−

1994 08 27	413	0.1+	0.4+	1995 02 09	413	0.8+	0.2+	1999 01 16	118	0.5+	0.2-
1994 08 28	413	0.2+	0.2-	1995 02 09	413	0.9+	0.2-	1999 01 16	118	0.9+	0.0
1994 08 28	413	0.2+	0.0	1995 02 20	413	0.9-	0.1+	1999 02 20	711	0.3+	1.2+
1994 08 28	413	0.4+	0.0	1995 02 20	413	0.9-	0.0	1999 02 20	711	0.3-	1.3+
1994 08 28	413	0.5+	0.2-	1995 02 21	413	0.6-	0.2+	1999 02 22	711	0.0	0.5-

(10151)* 1994 PF₂₂ = 1972 BT = 1977 RY₁ = 1984 WA₅ = 1989 CE = 1993 HX₇

Discovered 1994 Aug. 12 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 24749)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	91.20951		(2000.0)		P		Q
<i>n</i>	0.29039016	ω	25.87358	+0.99698165		-0.06551868	
<i>a</i>	2.2584724	Ω	337.76428	+0.03685605		+0.87159646	
<i>e</i>	0.1953678	<i>i</i>	6.31929	+0.06833171		+0.48582601	
<i>P</i>	3.39	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1972 01 20	033	(5.7-	1.6+)	1989 02 02	875	0.8-	2.2+	1994 09 06	809	0.4-	1.4+
1972 01 20	033	0.7-	1.0-	1989 02 04	875	1.3-	0.8-	1994 09 06	809	0.3+	1.4+
1977 09 08	675	0.0	0.2-	1989 02 04	875	1.0+	0.8-	1996 03 25	566	1.6+	1.1-
1977 09 08	095	(3.7-	2.8+)	1991 12 03	675	0.7+	0.7-	1996 03 25	566	0.7+	0.0
1977 09 09	675	0.4-	0.2-	1993 04 18	413	(6.2-	0.6+)	1996 03 25	566	1.2+	0.9-
1984 11 21	010	1.4+	0.4+	1994 08 12	809	0.9+	1.1-	1998 12 29	689	0.7-	0.1-
1989 01 29	046	(3.3-	4.1-)	1994 08 12	809	0.6+	1.0-	1999 01 21	610	0.0	0.8+
1989 01 29	046	(2.9-	1.0-)	1994 08 12	809	0.1+	1.3-	1999 01 21	610	0.2-	0.5+
1989 01 30	046	(5.6-	0.4-)	1994 08 13	809	(3.0+	0.1-)	1999 01 21	610	0.3-	0.2+
1989 01 30	046	(4.8-	1.5-)	1994 08 13	809	(2.6+	1.0-)	1999 01 21	610	0.4-	0.1-
1989 01 31	046	(7.8-	2.4-)	1994 08 13	809	(2.2+	0.4-)	1999 01 21	610	0.3-	0.3-
1989 01 31	046	(7.4-	2.7-)	1994 09 05	809	0.8-	0.4-	1999 02 10	704	0.5+	0.6-
1989 02 02	675	0.6-	0.8+	1994 09 05	809	0.2-	0.4-	1999 02 10	704	0.8-	0.0
1989 02 02	675	0.0	0.6+	1994 09 05	809	0.6-	0.4-	1999 02 10	704	0.2+	0.3-
1989 02 02	875	0.2+	0.1+	1994 09 06	809	0.2-	1.8+	1999 02 10	704	0.3-	0.7+

(10152)* 1994 RJ₁₁ = 1987 VN₁ = 1989 ET₉ = 1993 HK₈

Discovered 1994 Sept. 11 by S. Otomo at Kiyosato.

Id. G. V. Williams (*MPC* 29921)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	76.72834		(2000.0)		P		Q
<i>n</i>	0.27156020	ω	357.78994	+0.95904837		+0.28186595	
<i>a</i>	2.3617031	Ω	345.74389	-0.25810162		+0.82912060	
<i>e</i>	0.1417471	<i>i</i>	6.50289	-0.11666098		+0.48281530	
<i>P</i>	3.63	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1987 11 12	327	0.9-	0.6+	1998 08 28	704	(1.4-	2.9-)	1998 11 25	716	0.3-	0.4+
1987 11 12	327	0.1-	1.6+	1998 08 31	704	0.2+	1.8+	1998 11 26	716	1.0-	0.2+
1989 03 05	033	0.3+	0.1+	1998 08 31	704	1.0+	0.4-	1998 11 26	716	0.1+	0.2-
1989 03 05	033	0.0	0.4+	1998 08 31	704	0.4+	0.2+	1998 12 13	716	0.2-	0.1-
1993 04 16	413	(0.1-	2.7-)	1998 08 31	704	2.0-	0.8+	1998 12 13	716	0.1-	0.1-
1993 04 18	413	(0.6+	3.4+)	1998 10 24	761	1.0-	0.0	1998 12 14	704	0.2-	0.0
1994 08 03	675	0.2-	1.4-	1998 10 24	761	0.7-	0.1-	1998 12 14	704	0.4+	0.6-
1994 08 03	675	0.2-	0.3-	1998 10 25	761	0.2-	0.1-	1998 12 14	704	0.4+	1.1-
1994 09 11	894	0.7+	0.5-	1998 10 25	761	0.4+	0.6+	1998 12 14	704	0.5+	1.0-
1994 09 11	894	1.1+	0.3-	1998 11 14	704	0.9-	0.2+	1998 12 14	704	1.3+	0.3-
1994 09 25	894	(2.5-	1.6+)	1998 11 14	704	0.5-	0.1+	1998 12 24	699	0.0	0.6+
1994 09 25	894	0.7-	1.1+	1998 11 14	704	0.5+	0.9-	1998 12 24	699	0.0	0.6+
1994 09 30	894	0.7+	0.7+	1998 11 14	704	(0.9+	2.1-)	1998 12 24	699	0.1-	0.7+
1994 09 30	894	0.2-	0.1+	1998 11 16	704	0.9-	0.2-	1999 01 06	699	0.3-	0.5+
1994 10 10	033	0.3+	0.6-	1998 11 16	704	0.4+	0.6-	1999 01 06	699	0.1+	0.6+
1994 10 12	033	0.6-	0.3-	1998 11 16	704	0.2-	0.6-	1999 01 06	699	0.5+	0.7+
1998 08 28	704	(2.4+	0.5+)	1998 11 16	704	0.5+	0.0	1999 02 06	704	1.1+	1.1-
1998 08 28	704	1.3+	1.3+	1998 11 16	704	0.5-	1.0-	1999 02 06	704	1.3+	0.4-
1998 08 28	704	0.6-	0.1-	1998 11 25	716	0.1-	0.1-	1999 02 06	704	1.8+	1.5-

(10153)* 1994 UB = 1990 HG₁

Discovered 1994 Oct. 26 by D. di Cicco at Sudbury.

Id. G. V. Williams (*MPC* 29922)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	128.54662		(2000.0)		P		Q
<i>n</i>	0.28073875	ω	131.88525	+0.29454326		+0.95321140	
<i>a</i>	2.3099423	Ω	154.99884	-0.91754338		+0.30199197	
<i>e</i>	0.1983690	<i>i</i>	9.26721	-0.26712997		+0.01374338	
<i>P</i>	3.51	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1990 04 26	675	0.3+	0.5-	1994 10 26	817	0.5-	1.0-	1998 10 29	699	0.0	1.4+
1990 04 26	675	0.0	1.2+	1994 10 29	817	0.0	0.1+	1998 10 29	699	1.4+	0.5+
1994 08 12	809	0.1-	0.1-	1994 10 29	817	0.7+	0.6-	1998 12 12	817	0.2+	0.2-
1994 08 12	809	0.1-	0.2+	1994 10 29	817	0.3+	0.3-	1998 12 12	817	0.4-	0.0
1994 08 12	809	0.6-	0.0	1994 10 29	817	0.5-	0.5-	1998 12 12	817	0.3-	0.3-
1994 08 13	809	0.3-	0.5+	1994 10 29	817	0.6+	1.4+	1998 12 12	817	0.2-	0.2-
1994 08 13	809	0.6-	0.4+	1997 04 15	817	0.2-	0.1+	1999 01 05	817	0.4+	0.2+
1994 08 13	809	0.4-	0.5+	1997 04 15	817	0.2+	0.4-	1999 01 05	817	0.6-	0.2+
1994 09 11	675	0.2+	1.0-	1997 04 15	817	0.3-	0.5-	1999 01 06	817	0.7-	0.5+
1994 09 11	675	0.6+	0.0	1997 04 15	817	0.4+	0.4-	1999 01 06	817	0.4-	0.2+
1994 10 01	675	0.7+	0.3-	1997 04 16	817	0.1+	1.0+	1999 01 06	817	0.2+	0.6-
1994 10 01	675	0.0	0.5+	1997 04 16	817	0.2-	0.2+	1999 01 08	817	0.4+	0.2+
1994 10 26	817	0.0	0.8+	1997 04 16	817	0.1+	0.4+	1999 01 08	817	0.6-	0.2+
1994 10 26	817	0.9+	0.3+	1997 04 16	817	0.1+	0.4+				
1994 10 26	817	1.0-	0.5-	1998 10 29	699	(2.6+	0.3+)				

(10154)* 1994 UH = 1977 XA₂

Discovered 1994 Oct. 31 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 24398)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	67.41064		(2000.0)		P		Q
<i>n</i>	0.28864569	ω	315.20277	+0.29150798		-0.95593792	
<i>a</i>	2.2675628	Ω	117.82019	+0.88827152		+0.25704604	
<i>e</i>	0.1083060	<i>i</i>	2.25016	+0.35496029		+0.14180982	
<i>P</i>	3.41	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1955 04 16	675	0.2+	0.2+	1996 04 15	596	0.5+	0.3+	1997 09 02	367	0.1-	0.4+
1977 12 07	675	0.5-	0.6-	1996 05 13	566	0.5+	0.4-	1998 12 21	704	2.0+	0.6+
1977 12 08	675	0.3+	0.8-	1996 05 13	566	0.8+	0.6-	1998 12 21	704	0.8-	1.3-
1994 10 31	411	0.0	0.3-	1996 05 13	566	0.2+	0.8-	1998 12 21	704	0.0	1.4-
1994 10 31	411	0.5+	0.9-	1996 05 23	691	0.2-	0.3-	1998 12 21	704	1.0+	0.8-
1994 11 01	411	0.1+	0.1-	1996 05 23	691	0.3-	0.2+	1999 02 13	704	0.5+	0.1+
1994 11 01	411	0.2+	0.5-	1996 05 23	691	0.0	0.7+	1999 02 13	704	0.6+	0.3+
1994 11 08	411	0.0	0.7-	1996 06 08	809	0.5-	1.1-	1999 02 13	704	0.1+	0.4+
1994 11 08	411	0.2-	0.6-	1996 06 08	809	0.6-	0.8-	1999 02 13	704	0.8+	0.1+
1994 11 28	675	1.3+	2.1+	1996 06 08	809	0.8-	0.8-	1999 02 13	704	0.8+	0.3-
1994 11 28	675	1.4+	1.6+	1996 06 10	809	0.6+	0.1+	1999 02 13	704	0.1-	0.4-
1995 01 07	691	1.0-	0.5-	1996 06 10	809	0.8-	0.3-	1999 02 13	704	1.4-	0.1-
1995 01 07	691	0.8-	0.3-	1996 06 10	809	0.1+	1.0-	1999 02 13	704	2.1-	1.3+
1995 01 07	691	0.9-	0.6-	1997 09 01	367	0.2-	0.3-	1999 02 13	704	0.9-	0.7+
1996 04 15	596	0.0	0.7+	1997 09 01	367	0.4-	0.5-	1999 02 13	704	0.9-	0.2-
1996 04 15	596	0.2+	0.5+	1997 09 02	367	0.0	0.6-				

(10155)* 1994 VZ₂ = 1983 RJ₄ = 1990 JR

Discovered 1994 Nov. 4 by K. Endate and K. Watanabe at Kitami.

Id. S. Nakano (*MPC* 24573)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

<i>M</i>	80.62352		(2000.0)	P	Q
<i>n</i>	0.27281373	ω	341.29245	+0.96353568	-0.25285994
<i>a</i>	2.3544631	Ω	33.74394	+0.26118412	+0.81767628
<i>e</i>	0.2518003	<i>i</i>	9.06577	+0.05815373	+0.51717246
<i>P</i>	3.61	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1983 09 11	688	0.4+	0.3-	1998 12 21	704	0.6+	1.4-	1999 02 10	704	(1.5-	2.5-)
1983 09 11	688	0.3+	0.6-	1998 12 21	704	0.2-	1.2-	1999 02 10	704	0.3-	0.3-
1983 09 12	688	0.5+	0.9-	1998 12 21	704	0.1+	1.0-	1999 02 10	704	(1.2-	3.8-)
1983 09 12	688	0.0	0.1-	1998 12 21	704	(2.2+	0.9-)	1999 02 13	704	0.7-	0.5-
1990 05 03	413	0.4-	0.1-	1998 12 21	704	1.0+	0.7+	1999 02 13	704	0.2+	0.8-
1990 05 04	413	0.9+	0.2-	1999 01 19	704	0.7-	1.4+	1999 02 13	704	0.1-	1.3+
1994 11 04	400	0.5+	0.2-	1999 01 19	704	0.4+	0.4+	1999 02 13	704	(0.2-	2.3-)
1994 11 04	400	0.2-	0.6-	1999 01 19	704	0.5+	0.2+	1999 02 19	566	0.5+	1.3-
1994 11 06	400	1.0-	1.4+	1999 01 19	704	1.2-	0.3-	1999 02 19	566	0.1+	0.9-
1994 11 06	400	0.0	0.5-	1999 01 19	704	0.3+	0.8+	1999 02 19	566	0.2-	0.9-
1994 11 26	400	0.0	1.6+	1999 02 10	704	1.4-	0.5+				
1994 11 26	400	(2.4-	0.8+)	1999 02 10	704	0.5+	0.4-				

(10156)* 1994 VQ₇ = 1980 RQ₂ = 1980 TC₆ = 1987 SO₂₅ = 1997 ON

Discovered 1994 Nov. 7 by S. Ueda and H. Kaneda at Kushiro.

Id. G. V. Williams (*MPC* 30663)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	110.43970		(2000.0)	P	Q
<i>n</i>	0.28563072	ω	135.73399	+0.99630358	-0.07730800
<i>a</i>	2.2834917	Ω	228.73827	+0.05823354	+0.92834246
<i>e</i>	0.1695509	<i>i</i>	2.85582	+0.06315091	+0.36359834
<i>P</i>	3.45	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1980 09 08	095	0.8+	0.0	1997 07 28	910	0.8+	0.6+	1997 08 08	552	0.7-	0.2-
1980 10 08	095	1.2-	0.8+	1997 07 28	910	0.9+	0.6+	1998 12 24	699	1.1+	0.3-
1987 09 24	095	0.6+	1.7-	1997 08 02	552	1.1-	0.1-	1998 12 24	699	0.8+	1.0+
1994 10 31	399	0.3-	0.1+	1997 08 02	552	1.3-	0.9+	1998 12 24	699	0.7+	1.2+
1994 10 31	399	0.2+	0.2+	1997 08 02	552	0.3-	0.1+	1999 02 11	699	0.5-	0.8+
1994 11 07	399	1.1-	0.7-	1997 08 02	552	0.7-	0.1+	1999 02 11	699	0.0	0.0
1994 11 07	399	0.7-	0.6-	1997 08 03	552	0.3-	0.2-	1999 02 11	699	0.2+	0.8+
1994 11 23	399	1.1+	1.3+	1997 08 03	552	0.4-	0.3+	1999 02 12	704	0.1+	0.8+
1994 11 23	399	0.4+	0.9+	1997 08 03	552	0.5-	0.3-	1999 02 12	704	0.4+	0.5+
1997 07 26	910	0.9+	0.5+	1997 08 04	552	0.9-	0.2-	1999 02 12	704	0.4+	0.2+
1997 07 26	910	0.9+	0.6+	1997 08 04	552	(3.0-	1.7+)	1999 02 12	704	0.6-	0.2+
1997 07 26	910	1.1+	0.5+	1997 08 04	552	0.6-	0.1+	1999 02 12	704	0.8-	0.8-
1997 07 28	910	0.8+	0.8+	1997 08 08	552	0.4+	0.0				

(10157)* 1994 WE₁ = 1987 YF₅ = 1996 HS

Discovered 1994 Nov. 27 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 27108)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	337.37271		(2000.0)	P	Q
<i>n</i>	0.26947913	ω	83.10107	-0.83886405	-0.53203230
<i>a</i>	2.3738464	Ω	64.69624	+0.43549483	-0.78281075
<i>e</i>	0.0591640	<i>i</i>	7.31469	+0.32657520	-0.32272119
<i>P</i>	3.66	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1987 12 24	010	0.3-	2.2+	1996 04 20	557	0.0	0.4-	1996 06 04	689	1.3-	0.2+
1987 12 24	010	1.3+	0.1+	1996 04 21	557	0.1-	0.7-	1996 06 05	689	0.4+	0.4-
1987 12 24	010	0.2-	2.0+	1996 04 21	557	0.3+	0.3-	1998 12 18	699	0.3+	0.0
1994 11 27	411	0.1-	0.1-	1996 04 27	557	0.7+	0.7-	1998 12 18	699	0.2+	1.2-
1994 11 27	411	0.0	0.3+	1996 04 27	557	0.5+	0.2+	1998 12 18	699	0.4+	0.8-
1994 11 28	411	0.7+	0.6+	1996 05 09	411	0.1+	0.0	1999 01 24	106	0.4+	0.5+
1994 11 28	411	0.6+	0.2+	1996 05 09	411	0.1+	0.8+	1999 01 24	106	1.5+	0.2-

1994 12 04	098	0.1-	0.1-	1996 05 10	411	0.7+	0.2-	1999 01 24	106	0.9+	0.5-
1994 12 04	098	1.6-	0.0	1996 05 10	411	0.0	0.8+	1999 02 10	704	0.3-	0.1+
1994 12 04	411	0.5-	0.5-	1996 05 19	809	(1.8+	3.8+)	1999 02 10	704	0.3-	0.9+
1994 12 04	411	0.0	0.3+	1996 05 19	809	(0.9+	4.1+)	1999 02 10	704	0.5-	0.7+
1994 12 04	098	0.5+	0.1+	1996 05 19	809	(0.4+	3.6+)	1999 02 10	704	1.7-	0.8+
1994 12 21	411	0.1+	0.3+	1996 05 22	809	(2.1+	3.0+)	1999 02 10	704	1.1-	0.2+
1994 12 21	411	0.0	0.1+	1996 05 22	809	(1.7+	3.4+)	1999 02 13	704	0.6+	0.8-
1996 04 19	557	0.0	0.3-	1996 05 22	809	(1.5+	3.1+)	1999 02 13	704	0.1+	0.7-
1996 04 19	557	0.2+	0.2-	1996 05 23	809	0.3-	1.0+	1999 02 13	704	0.2-	0.9-
1996 04 19	557	0.3+	0.3-	1996 05 23	809	0.1-	1.6+	1999 02 13	704	0.5-	1.6-
1996 04 20	557	0.0	0.5-	1996 05 23	809	0.8-	1.2+	1999 02 13	704	0.5-	1.0-

(10158)* 1994 XK = 1982 TW₂ = 1986 VR₆

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

Id. T. Kobayashi (*MPC* 24576)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	102.14842		(2000.0)	P	Q
<i>n</i>	0.25770857	ω	295.56381	+0.98820711	+0.13124687
<i>a</i>	2.4455890	Ω	56.98725	-0.08319386	+0.89263800
<i>e</i>	0.2078138	<i>i</i>	5.39716	-0.12855147	+0.43124432
<i>P</i>	3.82	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1982 10 14	095	1.3-	0.6-	1996 04 23	566	0.7+	0.8+	1997 10 28	861	0.7-	0.2-
1982 10 15	095	(0.4+	7.0-)	1996 04 23	566	0.5+	0.2+	1997 10 28	861	(2.4-	1.8+)
1986 11 06	688	0.3+	1.1+	1997 06 29	367	0.7+	0.1-	1998 10 30	704	1.8-	0.7+
1986 11 06	688	1.1+	1.6+	1997 06 29	367	0.2+	0.1+	1998 10 30	704	0.7-	0.5+
1994 08 12	381	0.4-	0.8+	1997 07 04	367	0.3-	0.7+	1998 10 30	704	0.2-	0.3+
1994 08 12	381	0.6+	0.8+	1997 07 04	367	0.3-	0.5+	1998 10 30	704	0.5+	0.2-
1994 08 12	381	0.2+	0.7+	1997 09 03	861	0.4-	0.3-	1999 01 10	699	0.1+	0.3-
1994 08 12	381	2.0+	0.0	1997 09 03	861	0.4+	0.2+	1999 01 10	699	0.0	0.2-
1994 12 03	411	0.7-	0.6-	1997 09 23	861	0.7+	0.8-	1999 01 10	699	0.3+	0.1-
1994 12 03	411	0.8-	0.4-	1997 09 23	861	0.6-	0.5+	1999 02 10	704	0.2+	0.6-
1994 12 04	411	0.8-	0.7+	1997 09 23	861	0.1+	0.1+	1999 02 10	704	0.1-	0.2-
1994 12 04	411	0.3-	0.4-	1997 10 22	861	0.5-	0.7-	1999 02 10	704	0.5+	0.3-
1994 12 09	411	0.3-	0.1+	1997 10 22	861	0.5-	0.2-	1999 02 10	704	0.7+	1.3-
1994 12 09	411	0.5-	0.3+	1997 10 22	861	0.5-	0.6-				
1996 04 23	566	0.7+	0.6+	1997 10 28	861	1.1+	1.4-				

(10159)* 1994 XS₄ = 1996 JQ₁

Discovered 1994 Dec. 9 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 27314), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	228.04003		(2000.0)	P	Q
<i>n</i>	0.26300797	ω	160.73223	-0.05888555	+0.99049983
<i>a</i>	2.4126266	Ω	105.73933	-0.93200234	-0.00995172
<i>e</i>	0.1353076	<i>i</i>	7.41811	-0.35763687	-0.13715337
<i>P</i>	3.75	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1993 09 18	675	0.1+	0.1-	1996 01 24	691	0.8-	0.3-	1999 01 10	699	0.8-	0.3-
1993 09 18	675	0.7-	0.1+	1996 01 24	691	0.8-	0.1-	1999 01 10	699	0.9+	0.1-
1993 09 19	675	0.1+	0.1-	1996 05 09	411	0.1+	0.1-	1999 01 19	704	0.3+	0.5+
1993 09 19	675	0.3+	0.2-	1996 05 09	411	0.5+	0.1+	1999 01 19	704	0.7+	0.9+
1993 10 10	675	0.8-	0.2-	1996 05 10	411	0.8+	0.2-	1999 01 19	704	0.0	1.1+
1993 10 10	675	0.3+	0.4+	1996 05 10	411	0.6+	1.0-	1999 01 19	704	(3.6-	0.7+)
1994 12 09	411	1.0+	1.7-	1996 05 13	566	0.4+	0.8+	1999 02 10	704	1.8+	0.2+
1994 12 09	411	0.3+	0.7-	1996 05 13	566	0.3+	0.4+	1999 02 10	704	0.3+	0.2+
1994 12 10	411	0.2+	0.3-	1996 05 13	566	0.2+	0.4+	1999 02 10	704	0.9+	0.1+
1994 12 10	411	1.0+	0.7-	1996 05 16	691	0.5-	0.1-	1999 02 10	704	0.8+	0.1+
1994 12 28	411	0.1+	0.5+	1996 05 16	691	0.6-	0.0	1999 02 10	704	0.9-	1.4-
1994 12 28	411	0.3-	0.0	1996 05 16	691	0.6-	0.1-	1999 02 13	704	0.4+	0.1+
1994 12 29	411	0.0	0.1+	1996 05 19	566	0.6+	1.0-	1999 02 13	704	0.6-	0.7+
1994 12 29	411	0.3-	0.5+	1996 05 19	566	0.6+	0.8-	1999 02 13	704	0.4-	0.4+
1994 12 29	411	0.5-	0.7-	1996 05 19	566	0.5+	0.5-	1999 02 13	704	1.2-	0.0

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1995 12 31	691	1.3−	1.1−	1996 05 22	566	0.2+	1.0+	1999 02 13	704	1.9−	1.3+
1995 12 31	691	1.1−	0.7−	1996 05 22	566	0.0	0.7+	1999 02 19	566	0.2−	0.2+
1995 12 31	691	1.4−	0.7−	1996 05 22	566	0.6−	0.9+	1999 02 19	566	0.7−	0.1−
1996 01 24	691	0.9−	0.1−	1999 01 10	699	1.0+	0.4+	1999 02 19	566	0.4−	0.0

(10160)* 1994 YQ₁ = 1986 VJ₄ = 1990 VG₁₆

Discovered 1994 Dec. 31 by T. Kobayashi at Oizumi.

Id. E. Bowell (*MPC* 27917), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	122.86782	(2000.0)		P	Q		
<i>n</i>	0.26500265	ω	278.27692	+0.99250036	−0.02810887		
<i>a</i>	2.4005047	Ω	83.39280	+0.07462773	+0.91012521		
<i>e</i>	0.1316617	<i>i</i>	6.87834	−0.09681802	+0.41337876		
<i>P</i>	3.72	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1986 11 07	010	1.1−	1.6+	1995 01 19	411	1.7−	0.0	1999 01 20	426	0.5+	0.2−
1986 11 07	010	(5.8+	0.8−)	1995 02 03	411	0.9−	0.1−	1999 02 10	704	0.3+	0.2+
1990 11 14	675	0.8+	1.2+	1995 02 03	411	1.1−	0.5−	1999 02 10	704	0.7+	0.0
1990 11 14	675	1.3+	0.3−	1997 09 30	566	0.0	0.6−	1999 02 10	704	0.5+	0.4+
1994 12 31	411	0.1+	0.6−	1997 09 30	566	0.1+	0.6−	1999 02 10	704	0.4+	0.4+
1994 12 31	411	0.2+	0.6+	1997 09 30	566	0.0	0.5−	1999 02 10	704	0.7−	0.2−
1995 01 01	411	(0.0	2.1−)	1997 12 27	566	(2.3+	0.4+)	1999 02 13	704	0.1−	0.1+
1995 01 01	411	0.1−	1.1−	1997 12 27	566	0.2+	0.3+	1999 02 13	704	0.1−	0.0
1995 01 01	411	0.2−	0.4−	1997 12 27	566	0.4+	0.3+	1999 02 13	704	0.3−	0.1−
1995 01 06	411	0.9−	0.3+	1999 01 16	426	0.5−	0.2+	1999 02 13	704	0.0	0.1−
1995 01 06	411	0.2−	1.0−	1999 01 16	426	0.0	0.6+	1999 02 18	566	0.3+	0.2−
1995 01 10	411	0.2+	0.1−	1999 01 16	426	0.2+	0.1+	1999 02 18	566	0.2+	0.2−
1995 01 10	411	0.3+	0.1−	1999 01 20	426	1.0+	0.1+	1999 02 18	566	0.3+	0.3−
1995 01 19	411	0.1−	0.2+	1999 01 20	426	0.3+	0.4+				

(10161)* 1994 YZ₁ = 1996 LX

Discovered 1994 Dec. 31 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 27449)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	71.19787	(2000.0)		P	Q		
<i>n</i>	0.26733776	ω	13.66032	+0.34432803	−0.93707091		
<i>a</i>	2.3865059	Ω	56.22785	+0.85471827	+0.28742332		
<i>e</i>	0.0367871	<i>i</i>	3.98448	+0.38845191	+0.19820681		
<i>P</i>	3.69	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1992 04 04	691	0.2−	0.2−	1995 01 19	411	0.1−	0.6−	1996 06 14	566	0.1−	0.4+
1992 04 04	691	0.3+	0.4−	1995 02 01	411	0.1−	1.3−	1998 12 24	699	(0.7+	2.1+)
1992 04 23	691	0.1+	0.4+	1995 02 01	411	0.9−	0.5−	1998 12 24	699	0.6+	1.4+
1992 04 23	691	0.1+	0.2+	1996 05 15	566	0.5+	0.0	1998 12 24	699	1.4+	1.2+
1992 04 23	691	0.1+	0.7+	1996 05 15	566	0.8+	0.4−	1999 02 10	704	0.3+	0.2−
1994 12 31	411	0.6+	1.3+	1996 05 15	566	0.5+	0.1+	1999 02 10	704	0.2−	0.9−
1994 12 31	411	1.6+	1.4+	1996 06 13	566	0.6−	0.5+	1999 02 10	704	0.6+	0.1+
1995 01 01	411	0.3+	0.1+	1996 06 13	566	0.2−	0.3+	1999 02 10	704	0.4−	0.2+
1995 01 01	411	0.7−	0.4−	1996 06 13	566	0.6−	0.4+	1999 02 10	704	0.6−	0.3−
1995 01 06	411	0.9−	0.2−	1996 06 14	566	0.4+	0.6−	1999 02 13	704	0.5−	0.0
1995 01 06	411	0.2−	0.3−	1996 06 14	566	0.7−	0.3+	1999 02 13	704	0.5−	0.3−
1995 01 10	411	0.6−	0.5+	1996 06 14	566	0.2−	0.2+	1999 02 13	704	0.4−	0.1−
1995 01 10	411	0.5−	0.1−	1996 06 14	566	0.0	1.3−	1999 02 13	704	0.3+	0.4−
1995 01 19	411	1.5+	1.2−	1996 06 14	566	0.0	0.4−	1999 02 13	704	0.1+	0.6+

(10162)* 1995 AL

Discovered 1995 Jan. 2 by T. Nijima and T. Urata at Ojima.

1999 MAR. 2

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Nakano			
<i>M</i>	195.20381	(2000.0)		P	Q		
<i>n</i>	0.25509099	ω	192.70818	+0.39832624	+0.90930179		
<i>a</i>	2.4622906	Ω	100.86732	−0.83045879	+0.41326888		
<i>e</i>	0.0962237	<i>i</i>	7.04462	−0.38945398	+0.04877594		
<i>P</i>	3.86	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1993 09 18	675	2.0−	1.5+	1995 02 06	887	0.1+	0.5−	1999 01 22	699	1.8+	0.7+
1993 09 18	675	0.2+	0.4+	1995 02 06	887	0.0	0.0	1999 01 22	699	1.4+	1.3−
1993 09 19	675	0.1+	0.3−	1996 04 12	691	1.5−	0.2+	1999 01 22	385	0.8+	0.7+
1993 09 23	675	0.5+	0.1−	1996 04 12	691	1.3−	0.4+	1999 01 22	385	0.8−	0.8+
1993 09 23	675	0.7+	0.3+	1996 04 12	691	1.1−	0.2+	1999 01 22	385	0.7+	0.3−
1995 01 02	887	0.7−	0.8−	1996 05 15	385	0.6+	0.1−	1999 01 28	888	1.1−	0.3−
1995 01 02	887	0.2−	0.4−	1996 05 15	385	0.6+	0.4+	1999 01 28	888	0.5−	0.7−
1995 01 02	887	0.2+	0.2−	1996 05 15	385	1.1+	0.4+	1999 02 06	385	0.3+	0.2−
1995 01 05	887	0.2+	0.0	1996 05 22	385	0.1−	0.1+	1999 02 10	704	1.2+	0.9+
1995 01 05	887	0.1+	0.4−	1996 05 22	385	0.6+	0.2+	1999 02 10	704	0.2+	0.1+
1995 01 10	887	0.1+	0.3+	1996 05 22	385	0.3+	0.7−	1999 02 10	704	0.7−	1.1−
1995 01 10	887	0.3+	0.6−	1996 06 21	385	0.9+	0.2+	1999 02 10	704	1.5−	0.5+
1995 01 10	887	0.1+	0.4−	1996 06 21	385	0.1+	0.9+	1999 02 10	704	1.5−	0.4−
1995 01 25	887	0.2−	0.0	1996 06 21	385	0.5+	1.0+	1999 02 12	385	0.9+	0.8+
1995 01 25	887	0.0	0.0	1997 10 11	385	0.1+	0.7+	1999 02 12	385	0.2+	0.6−
1995 01 31	887	0.1−	0.2+	1997 10 11	385	0.5−	0.9+	1999 02 13	704	0.1−	0.6+
1995 01 31	887	0.3+	1.1+	1997 10 12	385	0.3−	0.9+	1999 02 13	704	0.6−	1.4+
1995 01 31	887	0.4−	0.6+	1997 10 12	385	0.4−	0.7−	1999 02 13	704	0.8+	0.9+
1995 02 06	887	0.2−	0.2+	1999 01 22	699	1.0+	0.7+	1999 02 13	704	1.5−	0.5+

(10163)* 1995 BH₁

Discovered 1995 Jan. 26 by A. Nakamura at Kuma.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Nakano			
<i>M</i>	100.47003	(2000.0)		P	Q		
<i>n</i>	0.26768266	ω	75.82843	+0.90498536	−0.42495030		
<i>a</i>	2.3844555	Ω	309.31490	+0.37942551	+0.82792301		
<i>e</i>	0.2066728	<i>i</i>	1.51562	+0.19245203	+0.36600647		
<i>P</i>	3.68	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1995 01 23	691	0.5−	0.1−	1995 02 01	104	0.1−	0.2+	1996 04 22	360	0.0	0.4+
1995 01 23	691	0.8−	0.0	1995 02 01	104	0.5−	0.0	1996 04 22	360	0.1+	0.2+
1995 01 23	691	0.6−	0.1−	1995 02 01	104	0.1−	0.7+	1997 08 01	360	0.4+	0.3−
1995 01 26	360	1.2+	0.0	1995 02 02	104	0.6−	0.6+	1997 08 01	360	0.3+	0.3−
1995 01 26	360	0.8+	0.4+	1995 02 02	104	0.2−	0.4+	1997 08 26	360	0.3−	0.3+
1995 01 26	360	0.9+	0.2+	1995 02 02	104	0.0	0.1+	1997 08 26	360	0.1−	0.3+
1995 01 27	691	0.7−	0.3−	1995 02 06	691	0.6−	0.6−	1997 08 28	360	0.0	0.3+
1995 01 27	691	0.7−	0.1−	1995 02 06	691	1.1−	0.1−	1997 08 28	360	0.2+	0.3+
1995 01 27	691	0.8−	0.3−	1995 02 21	360	0.4+	0.3+	1997 09 28	360	0.4−	0.4−
1995 01 27	104	0.6+	0.4+	1995 02 21	360	1.2+	0.3−	1997 09 28	360	0.1+	0.2−
1995 01 27	104	1.3+	0.1−	1995 02 24	360	0.4+	0.3−	1997 10 21	360	0.3−	0.1+
1995 01 27	104	1.1+	0.2−	1995 02 24	360	0.9+	0.8+	1997 10 21	360	0.4−	0.4+
1995 01 28	385	0.6−	0.2−	1995 03 20	360	0.4−	0.7−	1999 01 21	360	0.1+	0.2+
1995 01 28	385	0.7+	0.2+	1995 03 20	360	0.7+	0.2+	1999 01 21	360	0.0	0.6+
1995 01 29	360	0.2+	0.5−	1995 03 20	360	0.1+	0.1+	1999 01 21	360	0.0	0.6+
1995 01 29	360	0.5+	0.2−	1996 04 11	360	0.0	0.2−	1999 01 22	360	0.8+	0.1+
1995 01 29	385	0.7+	0.4−	1996 04 11	360	0.5−	0.2+	1999 01 22	360	0.3+	0.1+
1995 01 29	385	0.4−	0.5−	1996 04 11	360	0.2−	0.1−	1999 02 09	360	0.1+	0.8−
1995 01 31	104	0.8−	0.4+	1996 04 21	360	0.2+	0.1+	1999 02 14	360	0.6−	0.5−

1999 MAR. 2

M.P.C. 33897

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	60.87263		(2000.0)	P	Q
<i>n</i>	0.23479274	ω	266.02025	+0.73106977	-0.65877538
<i>a</i>	2.6022335	Ω	135.06641	+0.68194137	+0.69701550
<i>e</i>	0.1600986	<i>i</i>	14.56610	+0.02220254	+0.28316849
<i>P</i>	4.20	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1989 09 04	413	0.3-	0.6-	1995 01 29	411	0.3+	0.2+	1999 01 10	699	0.2+	0.3-
1989 09 04	413	0.2+	0.3+	1995 01 30	400	(0.7+ 3.0-)		1999 01 10	699	0.0	0.1-
1989 09 21	413	0.3+	0.4-	1995 01 30	400	(2.7+ 2.4-)		1999 01 18	704	0.3-	0.6-
1989 09 21	413	0.3-	0.8+	1995 02 06	411	0.3+	0.1-	1999 01 18	704	0.3-	0.3-
1991 02 10	675	0.4-	0.4-	1995 02 06	411	0.4+	0.2+	1999 01 18	704	0.2-	0.0
1991 02 10	675	0.6-	0.8-	1995 02 10	411	0.8+	0.3+	1999 01 18	704	0.1-	0.4+
1993 08 17	675	0.1-	0.1+	1995 02 10	411	0.7+	0.0	1999 01 18	704	0.1+	0.3-
1993 08 17	675	0.1+	0.1-	1995 02 19	411	0.1-	0.4+	1999 01 20	704	0.8+	1.1-
1995 01 27	411	0.3-	0.8+	1995 02 19	411	0.5-	0.1-	1999 01 20	704	0.2-	0.1-
1995 01 27	411	0.0	0.1+	1995 02 27	411	0.1-	0.3-	1999 01 20	704	0.2+	0.2-
1995 01 28	691	1.3-	0.3+	1995 02 27	411	0.9+	0.1+	1999 01 20	704	(0.9+ 2.7+)	
1995 01 28	691	0.5-	0.3+	1998 12 30	758	0.4-	0.2+	1999 02 06	610	0.2-	0.2-
1995 01 28	691	0.9-	0.2+	1998 12 30	758	0.1-	0.0	1999 02 06	610	0.1-	0.0
1995 01 28	400	(2.9+ 0.0)		1998 12 30	758	0.2+	0.1+	1999 02 06	610	0.1-	0.1+
1995 01 28	400	1.9+	0.3-	1998 12 30	758	0.1+	0.3+	1999 02 06	610	0.1-	0.3+
1995 01 29	411	0.4-	0.3+	1999 01 10	699	0.1+	0.0	1999 02 06	610	0.1-	0.4+

(10165)* 1995 BL₂

Discovered 1995 Jan. 31 by Spacewatch at Kitt Peak.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	178.55966		(2000.0)	P	Q
<i>n</i>	0.71841472	ω	348.33865	+0.52569533	+0.79658590
<i>a</i>	1.2346748	Ω	312.52066	-0.74429376	+0.26080585
<i>e</i>	0.5037986	<i>i</i>	23.89025	-0.41191167	+0.54537254
<i>P</i>	1.37	<i>H</i>	17.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1991 02 22	413	1.0-	1.2+	1995 02 21	691	1.0-	0.1-	1995 12 09	595	0.6+	0.3+
1991 02 22	413	(2.6+ 5.0-)		1995 02 21	691	0.4-	0.4-	1995 12 09	595	0.4-	0.0
1995 01 31	691	0.7-	0.5+	1995 02 21	691	0.6-	0.3-	1995 12 09	595	0.6-	1.3-
1995 01 31	691	0.6-	0.2+	1995 02 21	413	0.3+	0.4-	1995 12 17	360	0.7+	0.2-
1995 01 31	691	0.8-	0.5+	1995 02 21	413	0.1+	0.2-	1995 12 17	360	0.5+	0.3-
1995 02 01	691	0.6-	0.1-	1995 02 21	118	0.3+	0.2-	1995 12 17	360	0.1+	0.3-
1995 02 01	691	0.5-	0.3-	1995 02 21	118	0.2+	0.1-	1995 12 23	658	0.3-	0.1-
1995 02 01	691	0.5-	0.0	1995 02 21	118	0.2+	0.3-	1995 12 23	658	0.4-	0.4-
1995 02 01	691	0.8-	0.0	1995 02 21	118	0.6+	1.0-	1995 12 23	658	0.2-	0.3-
1995 02 01	691	0.3-	0.0	1995 02 21	118	0.4-	0.3+	1996 01 12	658	0.9-	0.3+
1995 02 01	691	0.8-	0.3-	1995 02 23	658	0.5-	0.3-	1996 01 12	658	0.6-	0.1+
1995 02 02	691	0.9-	0.1-	1995 02 23	658	0.3-	0.1+	1996 01 12	658	0.5-	0.2+
1995 02 02	691	0.9-	0.2-	1995 02 23	658	0.1+	0.2+	1996 01 16	658	(2.7- 0.3+)	
1995 02 02	691	0.6-	0.3-	1995 02 28	118	0.1+	0.1-	1996 01 16	658	(2.6- 0.1+)	
1995 02 02	557	0.7+	0.5-	1995 02 28	118	1.6+	0.3+	1996 01 16	118	0.6+	1.0-
1995 02 02	557	0.8+	0.2+	1995 02 28	658	1.6-	1.0-	1996 01 16	118	0.4+	1.3-
1995 02 02	557	0.3+	0.1-	1995 02 28	658	1.7+	0.6+	1996 01 20	711	0.0	0.1-
1995 02 03	817	0.3+	0.6-	1995 02 28	658	0.4-	0.8+	1996 01 20	711	0.2+	0.8+
1995 02 03	817	1.2+	0.3+	1995 03 01	118	0.8+	0.4+	1996 01 20	711	0.9+	0.3-
1995 02 03	817	1.1+	0.3-	1995 03 01	118	0.4+	0.2-	1996 01 21	711	0.3-	0.4-
1995 02 03	557	0.4+	0.2-	1995 03 05	691	(2.1- 1.0+)		1996 01 21	711	0.6-	0.7-
1995 02 03	557	0.2+	0.2+	1995 03 05	691	0.9-	0.0	1996 01 21	118	0.0	0.3-
1995 02 03	557	0.4+	0.3+	1995 03 05	691	1.4-	0.3-	1996 01 21	118	0.0	0.2-
1995 02 04	691	0.5-	1.9+	1995 03 20	360	0.2-	0.3+	1996 02 09	711	0.5+	0.6-
1995 02 04	691	0.6-	0.1-	1995 03 20	360	0.1-	0.0	1996 02 09	711	0.2+	0.2-
1995 02 04	691	0.6-	0.1-	1995 03 20	360	0.3+	0.6+	1996 02 10	711	(1.0- 2.4+)	
1995 02 07	658	0.1-	0.1+	1995 03 21	413	0.2+	0.3+	1996 02 10	711	0.0	1.5+
1995 02 07	658	0.5+	0.0	1995 03 21	413	0.3-	0.5+	1996 02 16	658	0.2-	1.0-
1995 02 07	658	0.2+	0.1+	1995 03 22	413	0.2+	0.5+	1996 02 16	658	0.7-	1.3-
1995 02 07	691	0.6-	0.1-	1995 03 22	413	0.1-	0.3+	1996 02 16	658	0.1+	1.0-
1995 02 07	691	0.6-	0.1-	1995 04 03	711	1.3+	1.4-	1996 03 09	711	0.7+	0.4-

1995 02 07	691	0.6-	0.0	1995 04 03	711	1.4+	1.2-	1996 03 09	711	0.7+	0.8-
1995 02 07	587	0.3+	0.7-	1995 04 17	413	0.3-	0.2+	1996 03 10	711	0.3+	0.1-
1995 02 07	587	0.1-	0.2-	1995 04 17	413	0.3+	0.1-	1996 03 10	711	0.3+	0.6-
1995 02 07	540	1.4+	0.4+	1995 06 05	413	1.2-	0.4-	1996 03 23	658	0.5-	0.7-
1995 02 07	540	0.4-	0.1-	1995 06 05	413	0.7-	0.7-	1996 03 23	658	1.0-	0.6-
1995 02 07	540	0.2-	0.5-	1995 06 05	413	0.1+	1.3-	1996 03 23	658	0.3-	0.3-
1995 02 09	413	0.7+	0.2+	1995 06 20	413	0.4-	0.6-	1998 11 25	561	0.6-	1.1+
1995 02 09	413	0.5+	0.1+	1995 06 20	413	0.5-	0.6-	1998 11 25	561	0.2-	1.0+
1995 02 09	413	0.6+	0.1+	1995 06 20	413	0.9-	0.4-	1998 11 25	561	0.9-	0.7+
1995 02 09	413	0.6+	0.1+	1995 06 20	413	0.4-	0.0	1999 01 22	561	1.2+	1.0+
1995 02 10	897	0.7+	0.4-	1995 07 20	413	0.0	0.5+	1999 01 22	561	0.7+	1.2+
1995 02 10	897	0.4-	1.6-	1995 07 20	413	0.2+	0.4+	1999 01 22	561	0.8+	1.2+
1995 02 10	897	0.7+	0.5+	1995 07 20	413	0.2-	0.2+	1999 01 22	561	0.9+	1.2+
1995 02 10	360	0.1-	0.2+	1995 10 23	557	0.0	0.3-	1999 01 22	561	0.7+	1.1+
1995 02 10	360	0.4+	0.2-	1995 10 23	557	0.0	0.0	1999 01 24	711	0.5-	0.1+
1995 02 19	360	0.4+	0.1-	1995 10 24	557	0.0	0.1-	1999 01 24	711	0.2-	0.0
1995 02 19	360	0.2+	0.4+	1995 10 24	118	0.0	0.1-	1999 02 09	360	0.1-	0.3+
1995 02 19	360	0.0	0.0	1995 10 24	557	0.2+	0.1+	1999 02 09	360	0.1+	0.6+
1995 02 19	104	0.3-	0.3-	1995 10 24	557	0.3+	0.1-	1999 02 09	360	0.0	0.1+
1995 02 19	104	0.3-	0.2+	1995 10 24	557	0.1+	0.3-	1999 02 10	704	(2.3+ 0.8+)	
1995 02 19	104	0.1+	0.5-	1995 11 30	711	0.5+	0.4+	1999 02 10	704	0.5+	1.1+
1995 02 19	104	0.5+	0.3-	1995 11 30	711	0.6+	0.6+	1999 02 10	704	(0.9- 2.2-)	
1995 02 20	413	0.2+	0.1-	1995 12 09	595	0.9+	0.4-				
1995 02 20	413	0.6+	0.4-	1995 12 09	595	0.0	0.5+				

(10166)* 1995 BN₃ = 1996 KH₅ = 1997 SG₃₅

Discovered 1995 Jan. 30 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 31386)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	114.15086		(2000.0)	P	Q
<i>n</i>	0.23179534	ω	273.35287	+0.99740936	+0.03150022
<i>a</i>	2.6246189	Ω	84.84905	-0.00282991	+0.91550953
<i>e</i>	0.1352696	<i>i</i>	3.72301	-0.07187883	+0.40106114
<i>P</i>	4.25	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1995 01 30	411	(1.1+ 2.7+)	1996 05 22	809	(0.7- 3.3+)	1999 01 10	699	(2.5- 0.3-)
1995 01 30	411	0.6+ 1.1+	1996 05 24	809	1.5+ 0.2-	1999 01 10	699	0.5- 0.1+
1995 02 01	411	0.3+ 0.5+	1996 05 24	809	1.1+ 0.1+	1999 01 19	704	1.0- 0.5-
1995 02 01	411	0.8+ 1.2+	1996 05 24	809	0.9- 0.4+	1999 01 19	704	0.4- 0.5-
1995 02 06	411	0.2- 0.9-	1997 09 30	566	0.2+ 0.1-	1999 01 19	704	1.0+ 1.3-
1995 02 06	411	0.8- 0.2+	1997 09 30	566	0.5- 1.1-	1999 01 19	704	0.8+ 0.3-
1995 02 10	411	1.2- 0.0	1997 09 30	566	0.7- 0.8+	1999 02 10	704	0.8+ 0.4+
1995 02 10	411	0.9- 0.7+	1997 10 01	422	0.3- 0.4-	1999 02 10	704	0.7+ 0.5+
1995 02 19	411	0.6+ 0.2+	1997 10 01	422	0.1- 0.3-	1999 02 10	704	0.2+ 0.7+
1995 02 19	411	0.1+ 1.1-	1997 10 01	422	0.1- 0.4-	1999 02 10	704	0.5+ 0.8+
1995 03 01	411	1.5+ 1.5-	1997 10 30	704	0.3- 0.1+	1999 02 10	704	0.2- 0.8+
1995 03 01	411	0.6- 0.2+	1997 10 30	704	1.2- 1.3+	1999 02 13	704	0.0 0.2-
1996 05 13	691	0.3- 0.5+	1997 10 30	704	0.9- 1.8+	1999 02 13	704	1.1+ 0.2+
1996 05 13	691	0.1- 0.5+	1997 11 30	566	1.6+ 0.1+	1999 02 13	704	0.4+ 2.0+
1996 05 13	691	0.5- 0.5+	1997 11 30	566	1.2+ 0.4+	1999 02 13	704	0.7- 0.4-
1996 05 22	809	(0.2- 3.9+)	1997 11 30	566	1.2+ 0.5+	1999 02 13	704	2.7- 0.6-
1996 05 22	809	(0.9- 3.9+)	1999 01 10	699	0.1- 0.7-			

Residuals in seconds of arc

1980 03 16	809	0.9+	0.4-	1995 02 07	896	0.6+	1.1-	1998 01 03	327	0.1-	0.6+
1980 03 16	809	0.3+	0.1+	1995 02 07	896	0.8+	0.9-	1998 01 03	327	0.2-	0.9+
1980 03 16	809	0.3-	0.8+	1995 02 19	372	2.1-	1.9+	1999 01 24	426	0.0	0.8+
1980 03 16	809	1.2-	0.6+	1995 02 19	372	0.3+	1.9+	1999 01 26	426	1.5+	0.3+
1980 03 16	095	1.3-	0.5+	1997 11 06	327	(1.6+	3.0+)	1999 01 26	426	0.9+	0.8+
1980 03 17	809	1.1+	1.5-	1997 11 06	327	0.5+	0.4+	1999 01 26	426	0.7+	0.9+
1980 03 17	809	(0.8+	2.3-)	1997 11 06	327	0.1-	0.3+	1999 02 10	704	0.5-	0.4-
1980 03 17	809	0.1+	0.9+	1997 11 26	704	0.8-	0.7-	1999 02 10	704	1.2-	0.2-
1980 03 17	809	0.5-	1.2-	1997 11 26	704	1.0-	0.4-	1999 02 10	704	0.4-	0.1+
1988 05 14	675	0.3+	0.0	1997 11 26	704	1.0-	1.9-	1999 02 10	704	0.4-	0.6-
1988 05 14	675	0.0	0.4-	1997 11 29	704	0.4+	1.0+	1999 02 10	704	0.7-	0.2+
1995 01 31	372	1.6+	1.4-	1997 11 29	704	1.2+	0.5-	1999 02 13	704	0.3+	0.0
1995 01 31	372	(0.7+	4.3-)	1997 11 29	704	0.5+	0.8+	1999 02 13	704	0.7+	0.7+
1995 02 06	372	0.8-	1.6-	1997 11 29	704	0.7-	0.1-	1999 02 13	704	0.0	0.5-
1995 02 06	372	0.4+	0.6+	1997 12 04	704	1.8+	0.8-	1999 02 13	704	1.3-	0.6+
1995 02 07	896	(2.7-	0.5-)	1997 12 04	704	1.1-	0.6-	1999 02 13	704	0.1-	0.3-
1995 02 07	896	1.0+	1.3-	1997 12 04	704	0.0	0.6+				
1995 02 07	896	(3.6-	4.9+)	1998 01 03	327	0.1+	0.1+				

(10168)* 1995 CN

Discovered 1995 Feb. 4 by J. B. Child and J. E. Rogers at Stony Ridge.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	18.15976		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$		
n	0.21486925	ω	286.09695	+0.69861276	-0.70658294		
a	2.7607042	Ω	119.02432	+0.69578619	+0.63420773		
e	0.0846379	i	7.39922	+0.16679864	+0.31388072		
P	4.59	H	14.6	G	0.15	U	2

Residuals in seconds of arc

1984 11 15	413	0.3+	1.1-	1995 03 21	413	0.3-	0.2-	1998 10 19	809	1.5+	0.8+
1989 12 20	413	(5.8+	0.3+)	1995 03 21	413	0.6-	0.0	1999 01 19	651	0.7-	0.1-
1995 02 04	671	1.9+	0.3+	1996 05 26	413	0.6-	0.5-	1999 01 19	651	1.7-	1.7+
1995 02 04	671	0.4-	0.3-	1996 05 26	413	0.6-	0.6-	1999 01 19	651	1.1-	0.1+
1995 02 04	671	0.3+	0.3-	1996 05 28	413	0.3+	0.9-	1999 01 19	651	0.9-	0.0
1995 02 05	671	0.3-	0.3-	1998 10 16	429	(3.0-	0.7-)	1999 01 19	651	1.1-	0.4-
1995 02 05	671	0.1+	0.4-	1998 10 16	429	2.0-	1.7-	1999 01 20	651	0.7-	0.4-
1995 02 05	671	0.1-	0.4-	1998 10 18	809	1.5+	1.9-	1999 01 20	651	0.9-	0.9-
1995 02 23	671	0.1+	0.3+	1998 10 18	809	1.4+	0.9-	1999 01 20	651	1.3-	1.1+
1995 02 23	671	0.2-	0.3+	1998 10 18	809	1.4+	0.0	1999 01 20	651	0.4-	0.0
1995 02 26	671	0.5+	0.3-	1998 10 19	809	1.3+	0.9+	1999 01 20	651	0.2-	1.2+
1995 02 26	671	0.9-	0.4-	1998 10 19	809	1.4+	0.4+				

(10169)* 1995 DK = 1990 DL₂

Discovered 1995 Feb. 21 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 29106)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	289.32365		(2000.0)	P	Q
n	0.20238585	ω	358.48653	-0.93919264	-0.33891110
a	2.8730903	Ω	161.40861	+0.31684863	-0.91735901
e	0.1127979	i	9.98598	+0.13237874	-0.20878630
P	4.87	H	13.0	G	0.15
				U	1

Residuals in seconds of arc

1990 02 24	809	0.8-	1.0-	1995 02 26	411	0.4+	0.9-	1998 11 13	704	0.4+	0.3-
1990 02 24	809	0.3-	0.9-	1995 02 26	411	0.0	0.3-	1998 12 15	704	0.5-	0.4-
1990 02 24	809	0.1+	0.9-	1995 03 06	411	0.6+	0.0	1998 12 15	704	0.2-	0.9-
1990 02 25	809	(1.3-	2.2+)	1995 03 06	411	0.2+	0.3+	1998 12 15	704	0.6-	1.4-
1990 02 25	809	(1.0-	2.3+)	1995 03 11	411	0.3+	0.1+	1998 12 15	704	0.0	1.1-
1990 02 25	809	(1.0-	2.5+)	1995 03 11	411	0.3+	0.4+	1998 12 15	704	1.0-	0.9-
1993 11 16	675	(3.2+	0.3-)	1995 03 20	411	0.2-	1.1+	1999 01 07	704	0.6+	0.5-
1993 11 16	675	0.5+	1.2-	1995 03 20	411	0.6-	0.8+	1999 01 07	704	0.2+	1.4+
1993 12 07	675	0.0	0.4+	1997 08 11	691	0.0	0.3+	1999 01 07	704	1.5-	0.4-
1993 12 07	675	0.5+	0.4-	1997 08 11	691	0.3-	0.6+	1999 01 13	699	0.7+	1.4+
1995 02 21	411	0.4-	0.6+	1997 08 11	691	0.3-	0.5+	1999 01 13	699	0.8-	1.1+

1995 02 21	411	0.2-	0.3+	1998 11 13	704	0.4+	1.1+	1999 01 13	699	0.1-	1.6+
1995 02 22	411	0.5+	1.1+	1998 11 13	704	0.5+	0.0				
1995 02 22	411	0.2+	0.2+	1998 11 13	704	1.1+	1.7+				

(10170)* 1995 DA₁

Discovered 1995 Feb. 22 by J. Tichá at Klet.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	291.20991		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$		
n	0.23191221	ω	103.84147	-0.87242212	+0.46422219		
a	2.6237371	Ω	104.00619	-0.48674476	-0.79689875		
e	0.1290841	i	9.06656	-0.04426268	-0.38658782		
P	4.25	H	14.2	G	0.15	U	1

Residuals in seconds of arc

1995 02 22	046	0.2+	0.1-	1995 05 02	046	0.1+	0.0	1997 10 23	046	0.3-	0.1+
1995 02 22	046	0.1-	0.3-	1995 05 27	046	0.3-	0.6-	1997 10 23	046	0.2-	0.4-
1995 02 22	046	0.1+	0.2-	1995 05 27	046	0.6+	0.1-	1997 10 23	046	0.2-	0.2-
1995 02 22	046	0.6-	0.1-	1995 05 27	046	1.1+	0.8+	1997 10 30	046	0.6+	0.3+
1995 02 23	046	0.2-	0.1-	1996 06 12	046	0.3+	1.5+	1997 10 30	046	0.5+	0.3+
1995 02 23	046	0.3+	0.6-	1996 06 12	046	0.7+	0.2-	1997 10 30	046	0.6+	0.2+
1995 02 23	046	0.5+	0.4-	1996 06 12	046	0.9+	0.2+	1999 01 18	046	0.1+	0.4+
1995 02 23	046	0.5+	0.3+	1996 06 14	046	0.4+	0.2-	1999 01 18	046	0.3-	0.4+
1995 02 23	046	0.1-	0.1-	1996 06 14	046	0.1-	1.1+	1999 01 18	046	0.1+	0.3+
1995 02 27	817	0.8-	0.1-	1996 06 14	046	0.9-	0.7-	1999 01 20	046	0.2-	0.3+
1995 02 27	817	0.5-	0.2-	1996 06 18	046	1.4-	1.0-	1999 01 20	046	0.0	0.4+
1995 02 27	817	0.7-	0.3-	1996 06 18	046	1.5-	1.2-	1999 01 20	046	0.0	0.3+
1995 02 27	817	0.3-	0.1-	1996 06 18	046	1.2-	1.3-	1999 02 10	704	0.2+	0.2-
1995 02 27	046	0.2+	0.5+	1996 06 18	046	1.2-	1.3-	1999 02 10	704	0.0	0.2+
1995 02 27	046	0.2-	0.0	1996 07 12	589	0.9+	0.8+	1999 02 10	704	0.1+	0.6+
1995 02 27	046	0.1-	0.4+	1996 07 12	589	0.0	0.4+	1999 02 10	704	0.2-	0.1-
1995 03 01	046	0.0	0.2-	1996 07 13	589	0.6+	0.3+	1999 02 10	704	0.7-	0.0
1995 03 01	046	0.1-	0.1-	1996 07 13	589	0.2+	1.0+	1999 02 13	704	0.0	0.0
1995 03 01	046	0.2-	0.1+	1996 07 20	046	0.0	0.3+	1999 02 13	704	0.4+	0.2+
1995 03 06	046	0.0	0.6+	1996 07 20	046	0.2+	0.6+	1999 02 13	704	0.2+	0.1-
1995 03 06	046	0.5+	0.6+	1996 07 20	046	0.1+	0.4+	1999 02 13	704	1.2+	0.2-
1995 03 06	046	0.1-	0.4+	1996 07 21	046	0.4+	0.9+	1999 02 13	704	0.2+	0.2+
1995 03 10	046	0.6+	0.2-	1996 07 21	046	0.2+	0.7+	1999 02 19	566	0.2-	0.0
1995 03 10	046	0.3+	0.7-	1996 07 21	046	0.6+	0.5+	1999 02 19	566	0.4-	0.3-
1995 03 10	046	0.3-	0.1-	1997 09 23	046	0.5+	0.3-	1999 02 19	566	0.5-	0.2+
1995 03 24	046	0.1+	0.3-	1997 09 23	046	0.9-	0.2+	1999 02 24	046	0.2+	0.5+
1995 03 24	046	0.1+	0.2-	1997 09 23	046	0.6+	0.0	1999 02 24	046	0.1+	0.3+
1995 03 24	046	0.5+	0.7+	1997 09 25	046	0.3-	0.1+	1999 02 24	046	0.1-	0.5+
1995 05 02	046	0.5-	0.1-	1997 09 25	046	0.3-	0.4-				
1995 05 02	046	0.6-	0.3-	1997 09 25	046	0.2-	0.0				

(10171)* 1995 EE₈ = 1978 EF₂ = 1980 TF₅

Discovered 1995 Mar. 7 by M. Hirasawa and S. Suzuki at Nyukasa.

Id. T. Kobayashi (*MPC* 25334)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

M	4.71552		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.23229480	ω	142.50419	-0.68631555	-0.72605218
a	2.6208554	Ω	350.56483	+0.58827839	-0.51968593
e	0.1242133	i	15.08085	+0.42766752	-0.45030519
P	4.24	H	12.5	G 0.15	U 2

Residuals in seconds of arc

1978 03 05	095	1.9-	1.7-	1995 04 03	408	0.4+	1.6-	1999 02 10	704	0.5-	0.5-
1980 10 08	675	1.5+	0.6-	1998 11 25	704	0.4-	0.2-	1999 02 10	704	0.2+	0.2-
1980 10 09	675	0.1-	0.0	1998 11 25	704	0.0	0.3+	1999 02 10	704	0.2+	0.7+
1980 10 10	675	(3.2+	0.6-)	1998 11 25	704	0.5+	0.9-	1999 02 13	704	0.3+	0.3+
1988 09 11	675	0.8-	0.4-	1998 11 25	704	0.8-	0.4-	1999 02 13	704	0.7+	0.1+
1995 03 07	408	0.9+	0.2+	1998 11 25	704	0.8+	0.2+	1999 02 13	704	0.1+	0.0
1995 03 07	408	0.1+	0.1-	1998 12 27	699	0.2+	0.7-	1999 02 13	704	0.2+	0.0
1995 04 01	408	0.1-	1.3+	1998 12 27	699	0.4-	0.2-	1999 02 13	704	0.8-	0.7+

1999 MAR. 2

M.P.C. 33899

1995 04 01 408 0.6+ 0.5- 1998 12 27 699 0.1+ 0.1+ 1999 02 22 757 0.3- 0.7+
 1995 04 03 408 0.9- 0.1- 1999 02 10 704 0.6+ 0.4+ 1999 02 22 757 0.6- 0.5+

(10172)* 1995 FW₁₉ = 1983 RF₈ = 1997 TF₂₄

Discovered 1995 Mar. 31 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 30875)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams	
<i>M</i>	171.39068	(2000.0)	
<i>n</i>	0.21736014	ω 298.92572	+0.63553244 +0.77187628
<i>a</i>	2.7395724	Ω 10.58791	-0.67111331 +0.56347803
<i>e</i>	0.0611194	<i>i</i> 5.45879	-0.38171383 +0.29444782
<i>P</i>	4.53	<i>H</i> 13.4	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1983 09 11	095	0.4-	0.9+	1997 10 11	620	0.3+	0.4-	1999 01 22	699	0.4+	0.2+
1995 03 23	691	0.3-	0.3-	1997 10 11	620	0.3+	0.5+	1999 01 22	699	0.1+	0.2-
1995 03 23	691	0.3-	0.4-	1997 10 31	620	0.9+	0.0	1999 01 22	699	0.6+	0.5-
1995 03 23	691	0.1-	0.3-	1997 10 31	620	0.4+	0.3+	1999 02 10	704	0.0	1.3+
1995 03 27	675	1.6+	0.7+	1997 10 31	620	0.0	0.5+	1999 02 10	704	0.4-	1.0+
1995 03 31	691	0.4-	0.1-	1997 11 06	620	0.7+	0.1-	1999 02 10	704	0.2-	0.1+
1995 03 31	691	0.0	0.2-	1997 11 06	620	0.1+	0.3+	1999 02 10	704	0.2+	0.6-
1995 04 04	691	0.2-	0.4-	1997 11 07	620	1.4+	0.5+	1999 02 10	704	0.8+	0.6-
1995 04 04	691	0.7-	0.1-	1998 12 21	704	0.6+	0.1+	1999 02 13	704	0.1+	0.5+
1995 04 04	691	0.3-	0.0	1998 12 21	704	0.2+	0.2+	1999 02 13	704	0.2+	1.9+
1997 09 28	691	0.1+	0.4-	1998 12 21	704	0.1-	1.8-	1999 02 13	704	0.3+	1.6+
1997 09 28	691	0.5-	0.6-	1998 12 21	704	0.3-	0.9-	1999 02 13	704	0.5+	1.8-
1997 09 28	691	0.6-	0.5-	1998 12 21	704	0.7-	1.7+	1999 02 13	704	0.2-	1.9-
1997 10 07	620	1.5-	1.9-	1999 01 19	704	0.7+	0.6+	1999 02 18	566	0.0	0.2-
1997 10 07	620	0.3-	0.1+	1999 01 19	704	1.0-	1.5+	1999 02 18	566	0.7-	0.1-
1997 10 07	620	0.9-	1.5+	1999 01 19	704	1.1-	0.6-	1999 02 18	566	0.1+	0.4-
1997 10 11	620	0.3+	1.2-	1999 01 19	704	(2.5-	0.3-)				

(10173)* 1995 HA

Discovered 1995 Apr. 21 by P. Pravec and L. Šarounová at Ondřejov.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams	
<i>M</i>	182.10641	(2000.0)	
<i>n</i>	0.18270878	ω 76.64078	+0.32748776 +0.94120889
<i>a</i>	3.0758354	Ω 212.85222	-0.91524439 +0.29419895
<i>e</i>	0.0815735	<i>i</i> 8.79363	-0.23469019 +0.16605061
<i>P</i>	5.39	<i>H</i> 14.7	<i>G</i> 0.15 <i>U</i> 1

Residuals in seconds of arc

1995 04 21	557	0.1-	0.5-	1995 05 28	557	0.1+	0.7+	1997 10 29	704	1.5-	1.5-
1995 04 21	557	0.0	0.3-	1995 05 28	557	0.1-	1.1+	1997 10 29	704	(3.2-	2.1-)
1995 04 22	557	0.1-	0.3-	1996 07 20	557	0.0	0.3+	1997 10 29	704	(1.2-	2.6-)
1995 04 22	557	0.5-	0.2-	1996 07 20	557	0.1-	0.4-	1997 10 29	704	(2.4-	1.0-)
1995 04 22	557	0.1+	0.5-	1996 07 21	557	0.0	0.2+	1997 10 29	704	1.9-	1.6-
1995 04 22	557	0.2+	0.2-	1996 07 21	557	0.5-	0.4-	1997 11 06	704	0.4+	0.5-
1995 04 22	557	0.1+	0.7-	1996 07 21	557	0.1-	0.0	1997 11 06	704	1.1+	1.3-
1995 04 22	557	0.0	0.2-	1996 08 05	557	0.0	0.1+	1997 11 06	704	1.3+	0.7+
1995 04 23	557	0.3-	0.6-	1996 08 05	557	1.1+	0.1+	1997 11 06	704	1.2+	0.8-
1995 04 23	557	0.3+	1.2-	1996 08 05	557	0.3-	0.2-	1998 12 16	557	0.2-	0.1+
1995 04 24	557	0.4-	0.0	1997 09 26	557	0.2+	0.0	1998 12 16	557	0.3-	0.1-
1995 05 01	557	0.1-	1.0-	1997 09 27	557	0.2+	1.0+	1998 12 18	557	0.2+	0.1+
1995 05 01	557	0.6-	0.5-	1997 09 27	557	0.1+	0.5+	1998 12 18	557	0.4-	0.2+
1995 05 02	557	0.8-	0.9-	1997 09 28	557	0.5-	0.3+	1999 01 12	557	0.1-	0.2+
1995 05 02	557	0.2+	0.9+	1997 09 28	557	0.1+	0.2-	1999 01 12	557	0.3-	0.6+
1995 05 02	557	0.4+	0.1+	1997 10 05	557	0.5+	0.1+	1999 01 12	557	0.1-	0.1-
1995 05 23	557	1.2+	0.0	1997 10 05	557	0.3+	0.5+	1999 01 17	557	0.9+	0.3+
1995 05 23	557	0.3+	0.9+	1997 10 22	557	0.7-	0.2+	1999 01 17	557	0.3+	0.6-
1995 05 28	557	0.5-	0.6+	1997 10 22	557	0.3-	0.5-				

(10174)* 1995 JD

Discovered 1995 May 2 by Z. Moravec at Kletř.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	311.30006	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.21658693	ω 340.42577	-0.96852064	+0.24526380
<i>a</i>	2.7460887	Ω 213.86242	-0.21699545	-0.91564529
<i>e</i>	0.2360694	<i>i</i> 4.38314	-0.12198664	-0.31849546
<i>P</i>	4.55	<i>H</i> 14.4	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1995 05 02	046	(3.0+ 1.8-)	1995 06 27	046	0.8-	0.6+	1998 12 23	704	0.1-	1.4-	
1995 05 02	046	(4.4- 0.4+)	1995 07 13	046	(2.5+ 0.9-)		1998 12 31	046	0.5+	0.4-	
1995 05 03	046	0.5+	0.5-	1995 07 13	046	(2.2+ 0.2-)	1998 12 31	046	0.1-	0.3-	
1995 05 03	046	0.4+	0.5-	1995 07 16	046	1.0+	0.0	1998 12 31	046	0.0	0.5-
1995 05 03	046	0.5+	0.4-	1995 07 16	046	0.9+	0.2-	1999 01 18	704	1.0+	1.3+
1995 05 03	046	0.5+	0.3-	1995 07 16	046	0.7+	0.3-	1999 01 18	704	0.1+	0.7-
1995 05 05	046	0.7+	0.1-	1996 08 08	046	1.0-	0.7+	1999 01 18	704	0.5-	0.0
1995 05 05	046	0.5+	0.6-	1996 08 08	046	1.1-	0.3+	1999 01 18	704	0.1-	0.5-
1995 05 05	046	0.7+	0.6-	1996 08 08	046	0.4-	0.6+	1999 01 18	046	0.3+	0.3+
1995 05 06	046	0.4+	0.0	1996 08 08	046	0.7-	0.3+	1999 01 18	046	0.1+	0.4+
1995 05 06	046	0.8+	0.6-	1996 08 15	046	0.5+	0.3-	1999 01 18	046	0.1+	0.4+
1995 05 06	046	0.8+	0.8-	1996 08 15	046	1.2+	0.0	1999 01 20	046	0.3+	0.8+
1995 05 15	046	0.4-	1.5-	1996 08 15	046	0.9+	0.4-	1999 01 20	046	0.0	0.6+
1995 05 15	046	0.4-	0.9-	1996 08 15	046	0.5+	0.3-	1999 01 20	046	0.3+	0.5+
1995 05 15	046	0.3+	0.9-	1997 10 23	691	0.1+	0.1-	1999 01 20	704	0.5-	0.1-
1995 05 23	046	0.8-	0.2-	1997 10 23	691	0.0	0.6-	1999 01 20	704	0.4-	0.5+
1995 05 23	046	0.9-	0.1-	1997 10 23	691	0.0	0.3-	1999 01 20	704	0.8+	0.4+
1995 05 23	046	0.7-	0.0	1997 10 28	691	0.7+	0.3+	1999 01 20	704	1.2-	0.4-
1995 05 25	046	0.8-	0.7+	1997 10 28	691	0.0	0.0	1999 01 20	704	0.2-	0.3-
1995 05 25	046	0.3-	0.4+	1997 10 28	691	0.4+	0.1-	1999 02 12	704	0.2+	0.8-
1995 05 25	046	0.2-	0.7+	1997 11 01	691	0.9-	0.0	1999 02 12	704	0.3+	0.1-
1995 05 29	046	0.3-	0.5+	1997 11 01	691	0.1-	0.2+	1999 02 12	704	0.2-	0.4+
1995 05 29	046	0.0	0.8+	1997 11 01	691	0.3-	0.0	1999 02 12	704	0.1-	0.5+
1995 05 29	046	1.1-	1.1+	1998 12 16	699	0.2+	0.6+	1999 02 12	704	0.1+	0.6+
1995 06 20	046	0.2-	0.4+	1998 12 16	699	0.0	0.2-	1999 02 24	046	0.3+	0.2+
1995 06 20	046	0.1-	1.1+	1998 12 16	699	0.2-	1.0+	1999 02 24	046	0.0	0.3+
1995 06 20	046	0.0	1.5+	1998 12 23	704	(2.3+ 0.6-)		1999 02 24	046	0.1-	0.7+
1995 06 27	046	1.2-	1.1+	1998 12 23	704	1.6-	1.1-	1999 02 24	046	0.7+	0.2+
1995 06 27	046	1.1-	0.9+	1998 12 23	704	0.4+	1.0-				

(10175)* 1996 CR₁ = 1980 TM₃ = 1990 SD₁₆

Discovered 1996 Feb. 14 at Višňan.

Id. G. V. Williams (*MPC* 26909)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	199.28712	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.28806211	ω 91.08283	+0.29511484	+0.95506117
<i>a</i>	2.2706243	Ω 196.16423	-0.91138891	+0.27269129
<i>e</i>	0.1282147	<i>i</i> 5.70326	-0.28684052	+0.11617923
<i>P</i>	3.42	<i>H</i> 14.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1980 10 14	511	1.1+	0.6-	1996 03 02	120	0.4-	1.2-	1997 10 03	691	0.5-	0.4-
1980 10 14	511	0.2+	1.1-	1996 03 02	120	1.1-	0.8-	1997 10 03	691	0.3-	0.1-
1980 10 14	511	0.3-	1.3-	1996 03 11	120	0.7-	0.6-	1998 12 23	704	0.6-	0.6+
1990 09 17	675	0.5+	0.7-	1996 03 11	120	0.0	0.7-	1998 12 23	704	1.8-	0.7+
1990 09 17	675	0.0	0.6-	1996 03 19	566	0.0	0.9+	1998 12 23	704	1.2-	0.1-
1990 09 20	675	0.4+	0.4-	1996 03 19	566	0.1+	1.1+	1998 12 23	704	1.4-	1.4+
1990 09 20	675	0.0	0.8-	1996 03 19	566	0.2+	0.7+	1999 01 14	699	1.4+	0.2+
1996 02 14	120	0.6+	0.5-	1996 03 23	566	0.2+	0.1+	1999 01 14	699	1.6+	0.4-
1996 02 14	120	0.2-	0.4-	1996 03 23	566	0.1+	0.2+	1999 01 14	699	1.1+	0.5-
1996 02 15	120	0.8-	0.7-	1996 03 23	566	0.0	0.2+	1999 01 18	704	0.1+	0.5+
1996 02 15	120	0.3-	0.6-	1996 03 23	120	0.4+	0.4-	1999 01 18	704	0.5+	0.5+
1996 02 15	120	0.2									

M.P.C. 33900

1999 MAR. 2

1996 02 24 120 1.5- 1.3- 1997 09 25 560 0.6+ 0.8- 1999 02 12 704 0.3- 0.2+
 1996 03 02 120 0.3- 0.1+ 1997 10 03 691 0.6- 0.3- 1999 02 12 704 0.9+ 0.3-

(10176)* 1996 CW₇ = 1977 QW₁

Discovered 1996 Feb. 14 by U. Munari and M. Tombelli at Cima Ekar.

Id. G. V. Williams (*MPC* 30278)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams		Williams	
<i>M</i>	212.95132	(2000.0)	P	Q	
<i>n</i>	0.29852614	ω	153.99409	+0.16417991	+0.98313425
<i>a</i>	2.2172490	Ω	125.35392	-0.92138938	+0.18201098
<i>e</i>	0.2077851	<i>i</i>	5.66953	-0.35225923	-0.01786210
<i>P</i>	3.30	<i>H</i>	14.6	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1977 08 19	095	0.2+	0.4+	1997 07 15	104	0.2-	0.2-	1999 01 19	104	0.1+	0.1+
1994 11 28	691	1.4-	0.1+	1997 09 01	104	0.3+	0.6+	1999 01 20	704	1.1+	0.3-
1994 11 28	691	0.7-	0.0	1997 09 01	104	0.2+	0.0	1999 01 20	704	0.1-	1.1+
1994 11 28	691	0.9-	0.4+	1997 09 01	104	0.6+	1.0+	1999 01 20	704	0.3+	1.4+
1996 02 14	098	0.8-	1.4-	1997 09 02	104	0.5+	0.5+	1999 01 20	704	0.1-	0.6-
1996 02 14	098	1.3-	0.9-	1997 10 04	108	1.8+	0.8-	1999 01 20	108	(1.9-	3.4+)
1996 02 15	098	1.5-	0.0	1997 10 04	108	0.4-	1.3-	1999 01 20	108	1.4-	0.0
1996 02 15	098	0.4+	0.2-	1997 10 04	108	0.3+	0.9-	1999 02 10	704	1.1-	0.1-
1996 02 24	098	0.3+	0.2-	1999 01 14	691	0.4-	0.3+	1999 02 10	704	1.3+	1.7+
1996 02 24	098	0.9+	0.9-	1999 01 14	691	0.4-	0.3+	1999 02 10	704	1.2+	1.2+
1996 03 14	098	1.0-	0.6-	1999 01 14	691	0.4-	0.3+	1999 02 10	704	0.4+	0.0
1996 03 14	098	1.2-	0.4-	1999 01 19	104	0.1-	0.4+	1999 02 10	704	0.7-	0.1-
1996 03 20	098	0.3+	0.2+	1999 01 19	104	0.0	0.3+	1999 02 13	704	0.4+	0.2-
1996 03 20	098	0.9+	0.2+	1999 01 19	108	1.1+	1.3-	1999 02 13	704	1.3+	0.3-
1997 07 10	599	0.2+	0.1-	1999 01 19	108	1.1+	1.3-	1999 02 13	704	0.7+	1.3-
1997 07 10	599	(2.3-	2.4+)	1999 01 19	108	(1.2+	2.4-)	1999 02 13	108	2.0-	0.9-
1997 07 15	104	0.1-	1.3-	1999 01 19	108	1.5+	0.2-	1999 02 19	104	0.2-	0.9+
1997 07 15	104	1.4-	1.6-	1999 01 19	104	0.0	0.2-	1999 02 19	104	0.4-	0.8+

(10177)* 1996 CK₉ = 1962 PF = 1992 CB₇ = 1997 OD₁

Discovered 1996 Feb. 10 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 30457)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams		Williams	
<i>M</i>	140.76188	(2000.0)	P	Q	
<i>n</i>	0.28131407	ω	174.33229	+0.83393917	+0.54925210
<i>a</i>	2.3067919	Ω	152.14170	-0.51071371	+0.80488902
<i>e</i>	0.1554501	<i>i</i>	6.58042	-0.20908605	+0.22466819
<i>P</i>	3.50	<i>H</i>	14.2	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1962 08 01	760	0.7+	2.0-	1997 08 02	108	0.7-	0.6+	1998 12 29	327	0.0	0.0
1992 02 06	809	1.3-	0.3+	1997 08 02	108	1.2+	0.3-	1998 12 29	327	0.1+	0.2+
1992 02 06	809	0.6-	0.8-	1997 08 02	108	0.2-	1.4-	1998 12 29	327	0.2-	0.1-
1992 02 06	809	1.0-	0.9-	1997 08 07	104	0.2-	0.8-	1999 01 05	120	0.2+	1.0-
1996 02 10	691	0.6-	0.1-	1997 08 07	104	0.1-	0.5-	1999 01 05	120	0.8+	0.7-
1996 02 10	691	0.7-	0.1+	1997 08 07	104	0.1-	0.3-	1999 01 06	120	1.4+	0.6-
1996 02 10	691	0.6-	0.1+	1997 08 09	104	0.5-	0.2-	1999 01 11	327	0.8+	1.7+
1996 03 26	566	0.9+	0.1+	1997 08 09	104	0.0	0.1-	1999 01 11	327	0.0	0.1-
1996 03 26	566	0.9+	0.0	1997 08 09	104	0.1-	0.3-	1999 01 11	327	0.2+	0.1-
1996 03 26	566	0.4+	0.2+	1997 08 14	104	0.4+	0.3+	1999 01 14	120	0.2+	0.4+
1996 04 22	566	0.6-	0.0	1997 08 14	104	0.2-	0.0	1999 01 15	120	1.2+	0.8+
1996 04 22	566	0.1+	0.5+	1997 09 28	691	(2.2-	0.6+)	1999 01 15	120	0.2+	0.1-
1996 04 22	566	0.5-	0.6+	1997 09 28	691	(2.2-	0.3+)	1999 01 18	704	0.6+	0.0
1997 07 29	104	0.3-	0.6-	1997 09 28	691	2.0-	0.2+	1999 01 18	704	0.2+	1.9-
1997 07 29	104	0.2-	0.6+	1997 09 29	734	0.3-	1.0+	1999 01 18	704	0.0	0.6+
1997 07 29	104	0.4-	0.1+	1997 09 29	734	0.4-	1.3+	1999 01 18	704	1.5-	1.7+
1997 07 30	108	0.6-	0.2-	1997 09 29	734	0.9-	1.1-	1999 01 20	704	0.2-	0.3-
1997 07 30	610	1.4+	1.9+	1997 09 30	734	0.6-	0.0	1999 01 20	704	0.3-	0.4-
1997 07 30	610	1.7+	1.8+	1997 09 30	734	0.0	0.4+	1999 01 20	704	1.8-	0.5-
1997 07 30	610	1.8+	1.6+	1997 09 30	734	0.3-	0.7+	1999 01 20	704	1.6+	2.0+
1997 07 30	108	0.4-	1.3-	1998 12 29	327	0.0	0.3-				

(10178)* 1996 DD = 1991 UH₅

Discovered 1996 Feb. 18 by T. Kobayashi at Oizumi.

Id. B. A. Skiff (*MPC* 30278), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		(2000.0)		Williams		Williams	
<i>M</i>	20.98158			P	Q		
<i>n</i>	0.30456577	ω	50.74827	-0.24711535	-0.96846442		
<i>a</i>	2.1878388	Ω	53.58738	+0.87641604	-0.23738160		
<i>e</i>	0.0019904	<i>i</i>	2.26397	+0.41331456	-0.07567452		
<i>P</i>	3.24	<i>H</i>	14.8	<i>G</i>	0.15 <i>U</i> 1		

Residuals in seconds of arc

1991 10 17	675	1.2+	0.3+	1996 03 22	411	1.8-	0.2-	1999 01 19	704	0.3-	0.8-
1991 11 05	691	0.6-	0.4+	1996 03 26	566	0.2-	0.2+	1999 01 19	704	1.5-	0.1+
1991 11 05	691	0.5-	0.4+	1996 03 26	566	0.0	0.7+	1999 01 22	699	0.3+	0.0
1991 11 05	691	0.6-	0.3+	1996 03 26	566	0.0	0.2+	1999 01 22	699	0.6+	0.0
1996 02 18	411	0.4-	0.7+	1996 04 22	566	0.6+	0.4+	1999 01 22	699	0.3-	0.4+
1996 02 18	411	1.0+	1.1-	1996 04 22	566	0.6+	0.3+	1999 02 10	704	0.1-	0.0
1996 02 19	411	0.1+	0.7-	1996 04 22	566	0.9+	0.7+	1999 02 10	704	0.3-	0.9-
1996 02 19	411	1.0-	0.7-	1997 09 02	566	0.1+	0.7-	1999 02 10	704	0.4-	0.2+
1996 02 27	411	0.2-	0.5-	1997 09 02	566	0.4+	0.4-	1999 02 10	704	0.0	1.2-
1996 02 27	411	0.6-	0.6-	1997 09 02	566	0.4+	0.2-	1999 02 10	704	0.4+	0.3+
1996 03 01	966	0.7+	0.4-	1997 09 22	684	0.1-	0.1+	1999 02 11	699	0.3-	0.3+
1996 03 01	966	0.2-	0.6-	1997 09 22	684	0.4-	0.0	1999 02 11	699	1.4+	0.3-
1996 03 01	966	0.1+	0.1-	1997 09 22	684	0.1-	0.2-	1999 02 11	699	0.7+	0.4-
1996 03 09	411	0.3+	0.0	1997 09 23	684	0.1+	0.1-	1999 02 13	704	0.2+	0.4+
1996 03 09	411	0.0	1.7+	1997 09 23	684	0.1+	0.1-	1999 02 13	704	0.2+	0.5-
1996 03 10	966	0.3+	0.2+	1999 01 19	704	0.6+	0.6+	1999 02 13	704	0.8-	1.2+
1996 03 10	966	0.8+	0.5+	1999 01 19	704	0.2-	1.1-	1999 02 13	704	0.8-	0.2+
1996 03 22	411	0.5-	0.0	1999 01 19	704	(2.6-	2.5-)	1999 02 13	704	(1.1-	2.1-)

(10179)* 1996 DE

Discovered 1996 Feb. 18 by T. Kobayashi at Oizumi.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		(2000.0)		Nakano		Nakano	
<i>M</i>	82.47084			P	Q		
<i>n</i>	0.23382685	ω	187.40047	+0.88833720	+0.43133689		
<i>a</i>	2.6093948	Ω	145.62700	-0.40571552	+0.89791144		
<i>e</i>	0.1391819	<i>i</i>	16.19846	-0.21506265	+0.08776978		
<i>P</i>	4.22	<i>H</i>	13.1	<i>G</i>	0.15 <i>U</i> 1		

Residuals in seconds of arc

1988 03 18	675	0.4-	0.6-	1996 03 09	411	1.2+	2.1-	1997 07 03	560	0.6+	0.6+
1988 03 18	675	0.4+	1.2-	1996 03 22	411	0.4-	0.1+	1997 07 03	560	0.5+	0.5+
1989 07 29	675	0.4+	0.6-	1996 03 22	411	0.8-	0.2+	1997 07 08	689	0.7-	0.3-
1989 07 29	675	0.9+	1.6-	1997 06 05	801	0.4-	0.5-	1998 11 01	689	0.4+	0.3-
1993 08 20	675	(0.1+	2.9+)	1997 06 05	801	0.6-	0.6-	1998 11 13	704	1.1+	0.2+
1993 08 20	675	(1.5-	3.3+)	1997 06 09	816	0.5-	0.1-	1998 11 13	704	0.2-	1.1-
1993 08 22	675	1.0-	0.7-	1997 06 11	816	0.5-	0.4-	1998 11 13	704	1.2+	0.0
1993 08 22	675	1.8-	0.7-	1997 06 28	824	(2.5+	2.1-)	1998 11 13	704	0.0	0.5+
1996 02 18	411	0.5-	0.1-	1997 06 28	824	0.9+	0.7-	1998 11 16	566	0.2-	1.7-
1996 02 18	411	1.2-	0.2-	1997 06 28	824	0.4+	0.7-	1998 11 16	566	0.3-	2.0-
1996 02 19	411	0.6+	0.6-	1997 06 28	816	0.6+	0.5-	1998 11 16	566	0.2-	1.7-
1996 02 19	411	0.3+	0.3-	1997 06 28	816	0.5+	0.2-	1999 02 04	704	0.2+	0.6-
1996 02 27	411	1.3-	0.2-	1997 07 01	560	0.2+	0.8+	1999 02 04	704	1.8-	0.9+
1996 02 27	411	0.8-	0.1+	1997 07 01	560	0.1-	0.5+	1999 02 04	704	1.1+	1.6+
1996 03 09	411	0.9+	1.2-	1997 07 03	560	0.8+	0.1-	1999 02 04	704	0.1+	0.5+

1999 MAR. 2

M.P.C. 33901

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	78.74604	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.28693805	ω 207.63160	+0.90118535	-0.43342614
<i>a</i>	2.2765505	Ω 178.04801	+0.41040977	+0.85137157
<i>e</i>	0.1316012	<i>i</i> 4.37339	+0.13938720	+0.29547967
<i>P</i>	3.43	<i>H</i> 14.9	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1980 08 04	675	0.4-	1.5+	1996 02 24	566	0.2+	0.8-	1996 04 19	566	0.7+	2.4+
1980 08 05	675	0.4-	1.0+	1996 02 24	566	1.2-	0.1-	1996 04 19	566	0.3-	2.2+
1983 07 01	413	0.3-	0.0	1996 02 24	566	0.1+	0.8-	1998 12 16	699	0.6+	0.6-
1983 07 01	413	0.1-	1.1-	1996 03 15	422	0.3+	0.4-	1998 12 16	699	0.3+	1.0-
1987 09 02	095	1.0+	1.6-	1996 03 15	422	0.7+	0.6-	1998 12 16	699	0.5-	1.1+
1994 10 04	691	0.3-	0.2+	1996 03 15	422	0.8+	0.2-	1999 01 19	704	1.0+	0.3-
1994 10 04	691	0.2-	0.3+	1996 03 18	566	0.4+	0.7-	1999 01 19	704	0.4+	0.2-
1994 10 04	691	0.5-	0.5+	1996 03 18	566	0.0	0.3-	1999 01 19	704	0.5+	0.7-
1994 10 06	691	0.2+	0.3+	1996 03 18	566	0.3+	0.4-	1999 01 22	426	0.2-	0.0
1994 10 06	691	0.0	0.3+	1996 03 18	422	(2.6-	0.6+)	1999 01 22	426	0.2-	0.5+
1994 10 06	691	0.0	0.2+	1996 03 18	422	1.5-	0.8+	1999 01 22	426	0.3-	0.6+
1996 02 24	566	0.9-	0.1-	1996 03 28	413	0.3+	0.1+	1999 01 23	426	0.6-	0.5+
1996 02 24	566	0.8+	0.8-	1996 03 28	413	0.3+	0.1+	1999 01 23	426	0.7-	0.5+
1996 02 24	566	0.6-	0.2-	1996 04 19	566	0.2+	1.9+	1999 01 23	426	0.2-	0.6+

(10181)* 1996 FP₃

Discovered 1996 Mar. 26 by P. G. Comba at Prescott.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	52.85659	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.29944448	ω 315.71879	+0.19038011	-0.97868323
<i>a</i>	2.2127135	Ω 123.16147	+0.92432756	+0.15226400
<i>e</i>	0.0968692	<i>i</i> 5.28004	+0.33071738	+0.13782163
<i>P</i>	3.29	<i>H</i> 16.4	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1993 06 23	691	0.4+	0.6+	1996 04 17	608	0.9-	0.6+	1999 01 13	684	1.1+	0.3+
1993 06 23	691	0.0	0.4+	1996 04 17	608	1.0-	0.6+	1999 01 14	684	0.8+	0.3+
1993 06 23	691	1.0-	0.9+	1996 04 21	684	0.0	0.4+	1999 01 14	684	1.0+	0.3-
1996 03 26	684	0.1+	0.0	1996 04 21	684	0.2-	0.3+	1999 02 07	684	0.3+	0.2-
1996 03 26	684	0.4-	0.5-	1996 04 21	684	0.3-	0.2+	1999 02 07	684	0.1+	0.1+
1996 03 27	684	0.6+	0.3-	1996 05 09	684	0.3+	0.1+	1999 02 08	684	0.0	0.3-
1996 03 27	684	0.2-	0.3-	1996 05 09	684	0.6+	0.3-	1999 02 08	684	0.2+	0.2-
1996 03 27	684	0.6+	0.2-	1997 07 31	684	0.1-	0.3+	1999 02 10	704	0.2-	0.1-
1996 03 28	684	0.6-	0.0	1997 07 31	684	0.4-	0.5-	1999 02 10	704	0.6+	0.1+
1996 03 28	684	1.0+	1.7-	1997 07 31	684	0.6+	0.1-	1999 02 10	704	(1.1-	2.6+)
1996 03 30	684	1.1-	0.3-	1997 08 01	684	0.2+	0.3+	1999 02 10	704	1.5-	0.7+
1996 03 30	684	0.6-	1.1-	1997 08 01	684	0.0	0.2+	1999 02 10	704	(3.4-	0.0)
1996 04 08	684	(1.1-	2.4-)	1997 08 04	684	0.1-	0.1+	1999 02 13	704	0.5-	0.9-
1996 04 08	684	0.7+	0.6-	1997 08 04	684	0.4+	0.3+	1999 02 13	704	(0.8-	2.3+)
1996 04 11	684	0.2+	0.1-	1997 09 01	684	0.0	0.5-	1999 02 13	704	(0.1+	2.2+)
1996 04 11	684	0.5+	1.0-	1997 09 01	684	0.6+	0.8-	1999 02 13	704	1.7-	1.2+
1996 04 15	684	1.4+	0.1+	1997 09 01	684	0.7+	0.8-	1999 02 18	566	0.4-	0.5-
1996 04 15	684	0.5+	0.3+	1997 09 04	684	0.8-	0.9-	1999 02 18	566	0.3-	0.6-
1996 04 16	608	0.1-	0.6+	1997 09 04	684	0.4-	0.1-	1999 02 18	566	0.4-	0.1+
1996 04 16	608	0.3-	0.7+	1999 01 13	684	0.6+	0.1-				

(10182)* 1996 FL₅ = 1978 ET₃

Discovered 1996 Mar. 20 by K. Endate and K. Watanabe at Kitami.

Id. G. V. Williams (*MPC* 30458)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	270.17141	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.27930067	ω 189.11124	-0.79310808	+0.60603898
<i>a</i>	2.3178646	Ω 28.46979	-0.55047999	-0.67050131
<i>e</i>	0.1436939	<i>i</i> 7.32742	-0.26067479	-0.42795414
<i>P</i>	3.53	<i>H</i> 14.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1978 03 06	095	0.9-	0.1-	1997 07 06	688	0.2+	0.4+	1998 11 24	699	0.3-	0.1-
1989 04 01	675	1.0+	0.5-	1997 07 06	688	0.3+	0.5+	1998 11 24	699	0.5+	0.5+
1989 04 01	675	0.6+	0.3-	1997 07 06	688	0.4+	0.0	1998 11 24	699	0.1-	0.0
1996 03 20	400	(3.3-	0.9+)	1997 07 06	688	0.0	0.0	1998 12 17	699	0.2+	0.3-
1996 03 20	400	0.8+	1.4-	1997 07 07	688	0.6+	0.2-	1998 12 17	699	0.1+	0.0
1996 03 27	400	0.2+	0.4+	1997 07 07	688	0.4+	0.1-	1998 12 17	699	0.0	0.4-
1996 03 27	400	0.9+	0.6-	1997 07 07	688	0.3-	0.6+	1998 12 17	704	0.1-	0.4-
1996 04 09	894	0.8-	0.6+	1997 07 07	688	0.2+	0.3+	1998 12 17	704	0.4+	0.5-
1996 04 09	894	0.7-	0.2-	1997 09 22	966	0.7-	1.0-	1998 12 17	704	0.6+	0.5-
1996 04 11	894	0.5+	0.2-	1997 09 22	966	1.6-	1.0-	1998 12 17	704	0.2+	0.5-
1996 04 11	894	1.2-	0.5+	1997 09 23	966	1.3-	0.2-	1998 12 17	704	0.8+	0.3+
1996 04 13	400	0.8-	0.2+	1997 09 23	966	0.4+	0.6+	1999 01 16	704	0.9-	0.8+
1996 04 13	400	0.9-	0.1-	1997 09 23	966	0.7+	0.9-	1999 01 16	704	0.3+	0.4-
1996 04 14	400	0.4-	0.0	1997 09 23	966	1.4+	1.0-	1999 01 16	704	0.5+	0.9+
1996 04 14	400	0.0	0.5+	1997 10 02	608	0.2-	0.4-	1999 01 16	704	0.4-	0.3+
1996 04 20	566	0.0	0.4-	1997 10 02	608	0.2+	0.3-	1999 01 19	704	0.6-	0.3-
1996 04 20	566	0.1+	0.4-	1997 10 03	608	0.0	0.6-	1999 01 19	704	0.1+	0.3+
1996 04 20	566	0.6-	0.6-	1997 10 30	704	1.8+	0.4+	1999 01 19	704	0.1-	0.6-
1996 04 21	566	0.1+	0.1-	1997 10 30	704	(2.3+	0.1-)	1999 01 19	704	0.4-	0.6-
1996 04 21	566	0.1+	0.1+	1997 10 30	704	0.6+	0.1+	1999 01 19	704	0.0	0.5+
1996 04 21	566	0.0	0.0	1997 10 30	704	0.8-	0.2+				

(10183)* 1996 GV₂₀ = 1982 BT₁₂ = 1989 EG₂

Discovered 1996 Apr. 15 by E. W. Elst at the European Southern

Observatory.

Id. G. V. Williams (*MPC* 27318)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	321.28637	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.28933819	ω 81.04264	-0.99129024	-0.13153094
<i>a</i>	2.2639433	Ω 91.39909	+0.11809523	-0.90991810
<i>e</i>	0.1390973	<i>i</i> 0.37703	+0.05828536	-0.39338106
<i>P</i>	3.41	<i>H</i> 15.1	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1982 01 30	675	(9.3+	1.8-)	1996 05 15	566	0.6+	0.6+	1999 01 15	691	0.6-	0.1+
1982 01 31	675	(3.5+	0.8-)	1996 05 15	566	0.4+	0.9+	1999 01 15	691	0.5-	0.2-
1989 03 06	046	0.8+	0.5-	1996 05 15	566	0.0	0.5+	1999 01 19	704	0.6+	1.1-
1989 03 06	046	0.4+	1.2-	1997 09 30	691	0.2-	0.6+	1999 01 19	704	0.6+	0.5-
1989 03 07	046	0.1-	0.2-	1997 09 30	691	0.3-	1.2+	1999 01 19	704	0.2-	0.4+
1989 03 07	046	(0.2-	3.7-)	1997 09 30	691	0.1-	0.6+	1999 01 19	704	(1.1-	2.1+)
1996 03 22	809	(2.0+	2.2+)	1997 10 06	691	0.2-	0.9+	1999 02 10	704	0.1-	0.0
1996 03 22	809	(1.8+	2.8+)	1997 10 06	691	0.5-	0.8+	1999 02 10	704	0.2+	0.8+
1996 03 22	809	1.6+	1.6+	1997 10 06	691	0.6-	0.6+	1999 02 10	704	0.9-	1.0+
1996 03 26	809	(4.0+	2.5+)	1998 10 27	691	0.3-	0.5-	1999 02 10	704	0.4-	1.1+
1996 03 26	809	(3.1+	2.6+)	1998 10 27	691	0.5-	0.4-	1999 02 10	704	0.6-	0.7+
1996 03 26	809	(2.3+	2.2+)	1998 10 27	691	0.1-	0.1-	1999 02 11	699	0.6+	1.2+
1996 04 15	809	0.7-	0.0	1998 12 30	725	0.6-	0.1-	1999 02 11	699	0.1-	0.4-
1996 04 15	809	0.2+	0.7-	1998 12 30	725	0.1+	0.2-	1999 02 11	699	0.4+	0.4+
1996 04 15	809	1.0-	0.1+	1999 01 03	725	0.7-	0.3-	1999 02 13	704	0.5+	0.5+
1996 04 23	566	0.4+	0.4-	1999 01 03	725	0.2-	0.7-	1999 02 13	704	0.1-	0.9+
1996 04 23	566	0.1+	0.6+	1999 01 03	725	0.2+	0.1-	1999 02 13	704	1.4+	1.8+
1996 04 23	566	0.4-	0.1+	1999 01 15	691	0.6-	0.5-	1999 02 13	704	2.0+	0.5+

(10184)* 1996 HC₁₉ = 1997 SN₁₆

Discovered 1996 Apr. 18 by E. W. Elst at the European Southern

Observatory.

Id. G. V. Williams (*MPC* 30763)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	120.06006	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.26523938	ω 174.33514	+0.97036889	-0.24123586
<i>a</i>	2.3990762	Ω 199.64092	+0.22005060	+0.90581066
<i>e</i>	0.1058686	<i>i</i> 2.34707	+0.09980959	+0.34829915
<i>P</i>	3.72	<i>H</i> 15.0	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1992 04 07	691	0.0	0.9–	1996 05 19	809	0.8–	1.1+	1999 01 15	699	0.7+	0.4–
1992 04 07	691	0.3–	1.4–	1996 05 22	809	(0.3+ 2.3+)		1999 01 15	699	0.4–	1.5+
1992 04 28	691	0.3–	0.8–	1996 05 22	809	(1.6– 2.9+)		1999 01 15	699	1.3–	0.6–
1992 04 28	691	0.3–	1.0–	1996 05 22	809	0.7–	1.9+	1999 02 12	704	0.3+	0.9+
1992 04 28	691	0.9–	0.8–	1996 05 23	809	1.5–	1.5–	1999 02 12	704	0.7–	0.7–
1993 07 24	691	0.2–	0.5+	1996 05 23	809	(2.3– 0.6–)		1999 02 12	704	0.3–	0.5+
1993 07 24	691	0.3+	0.2+	1996 05 23	809	(3.5– 1.1–)		1999 02 12	704	0.4–	1.0–
1993 07 24	691	0.4–	0.1+	1997 09 29	327	0.5–	0.1–	1999 02 12	704	0.2+	0.6+
1996 04 18	809	0.8+	0.2–	1997 09 29	327	0.2–	0.4+	1999 02 16	704	0.1–	1.1–
1996 04 18	809	0.6–	0.1–	1997 09 29	327	0.7–	0.6–	1999 02 16	704	0.8+	0.2–
1996 04 18	809	0.3+	1.5–	1997 09 30	327	0.0	0.1–	1999 02 16	704	(3.5+ 1.0–)	
1996 04 20	809	0.4+	0.1+	1997 09 30	327	0.1+	0.3–	1999 02 16	704	1.5+	1.7+
1996 04 20	809	1.3+	0.5+	1997 09 30	327	0.2–	0.3–	1999 02 18	566	0.1+	0.2+
1996 04 20	809	0.8+	0.6–	1997 10 10	327	0.9+	0.2–	1999 02 18	566	0.2+	0.1–
1996 05 19	809	0.0	1.7+	1997 10 10	327	0.8+	0.3–	1999 02 18	566	0.0	0.5+
1996 05 19	809	0.5+	0.6+	1997 10 10	327	0.7+	0.6–				

(10185)* 1996 HD₂₁ = 1976 UC₁₂ = 1979 HP₁ = 1980 RW₁ = 1980 TQ₁₅
= 1989 UT₆

Discovered 1996 Apr. 18 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 27319)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.23584825	<i>ω</i>	215.47205	+0.10992875	+0.99161372		
<i>a</i>	2.5944638	<i>Ω</i>	60.92768	−0.89303407	+0.12855288		
<i>e</i>	0.2195652	<i>i</i>	4.45932	−0.43635516	−0.01328103		
<i>P</i>	4.18	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1976 10 22	381	0.4–	1.0–	1996 04 20	691	0.1–	0.3–	1996 05 22	809	(1.1+ 3.0–)
1976 10 22	381	0.6–	1.3–	1996 04 20	691	0.4–	0.4–	1996 05 22	809	(1.1+ 3.3–)
1979 04 20	095	0.7–	2.0–	1996 04 20	691	0.3–	0.4–	1996 05 22	809	(1.1+ 3.0–)
1980 09 07	095	0.8–	1.9–	1996 05 14	566	0.5+	0.5+	1996 05 23	809	(1.3+ 3.0–)
1980 09 15	511	1.1+	0.5+	1996 05 14	566	0.6+	0.5+	1996 05 23	809	(0.9+ 3.1–)
1980 09 15	511	1.2+	0.1+	1996 05 14	566	0.5+	0.5+	1996 05 23	809	(0.0 2.9–)
1980 09 15	511	1.3+	0.4+	1996 05 17	566	0.3–	0.9–	1998 12 17	704	0.5– 0.9+
1980 10 01	046	(4.4– 3.4–)		1996 05 17	566	0.4–	0.6–	1998 12 17	704	0.7+ 0.3–
1980 10 01	046	(4.7– 3.8–)		1996 05 17	566	0.5–	0.5–	1998 12 17	704	0.0 0.8–
1989 10 26	033	0.6–	1.3+	1996 05 19	809	(1.3+ 3.5–)		1998 12 17	704	0.6– 0.7–
1989 10 26	033	0.2–	1.4+	1996 05 19	809	(0.9+ 4.1–)		1998 12 17	704	(0.6– 2.0–)
1989 10 28	033	1.3–	0.4+	1996 05 19	809	(1.3+ 3.3–)		1999 01 19	704	0.8+ 0.4+
1996 04 18	809	(3.2+ 0.0)		1996 05 19	566	0.5–	0.2+	1999 01 19	704	0.9– 1.5–
1996 04 18	809	(3.0+ 0.0)		1996 05 19	566	0.1–	0.1+	1999 01 19	704	(2.7– 0.5+)
1996 04 18	809	(3.0+ 0.4+)		1996 05 19	566	0.0	0.1+	1999 01 19	704	1.3+ 0.8+
1996 04 20	809	(4.4+ 1.1–)		1996 05 19	566	0.4+ 0.8+		1999 01 19	704	0.4+ 0.6–
1996 04 20	809	(5.4+ 1.7–)		1996 05 19	566	0.3+ 0.5+				
1996 04 20	809	(5.9+ 1.8–)		1996 05 19	566	0.0	0.6+			

(10186)* 1996 HD₂₄ = 1997 QZ₄

Discovered 1996 Apr. 20 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 30763)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.25806257	<i>ω</i>	89.40572	+0.42742357	+0.90280569		
<i>a</i>	2.4433520	<i>Ω</i>	206.06138	−0.86646703	+0.39411509		
<i>e</i>	0.2046288	<i>i</i>	6.19957	−0.25796120	+0.17209063		
<i>P</i>	3.82	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1993 10 14	675	0.1–	0.8–	1996 05 24	809	(2.9+ 1.3–)	1997 12 04	704	0.3+	0.9–
1993 10 14	675	0.1+	0.4+	1997 08 31	910	1.4– 0.1+	1998 12 24	699	1.7+	0.3+

1996 03 16	566	0.4–	0.2–	1997 08 31	910	1.4–	0.2–	1998 12 24	699	0.2–	0.5–
1996 03 16	566	0.9–	0.2–	1997 08 31	910	1.5–	0.0	1998 12 24	699	0.2+	0.5+
1996 03 16	566	0.3–	0.2+	1997 10 30	566	0.6–	0.3–	1999 01 15	699	0.4+	0.9–
1996 04 20	809	0.9+	1.3+	1997 10 30	566	0.6–	0.2–	1999 01 15	699	0.1–	0.5+
1996 04 20	809	0.9+	1.4+	1997 10 30	566	0.3–	0.1–	1999 01 15	699	0.2+	0.1+
1996 04 20	809	1.2+	0.7+	1997 11 28	566	0.4–	1.1+	1999 01 18	704	(2.0– 0.5+)	
1996 04 21	809	(2.1– 1.4+)		1997 11 28	566	0.4–	0.6+	1999 01 18	704	0.3+	1.7+
1996 04 21	809	0.1–	0.7+	1997 11 28	566	0.6+	0.4+	1999 01 18	704	(2.7+ 2.7+)	
1996 04 21	809	1.2–	0.5+	1997 11 29	704	0.1+	0.4–	1999 02 12	704	1.0–	0.5–
1996 05 22	809	0.5–	1.3–	1997 11 29	704	1.8+	0.1–	1999 02 12	704	1.3–	0.4–
1996 05 22	809	0.1+	1.9–	1997 11 29	704	0.6+	0.5+	1999 02 12	704	1.1+	1.1–
1996 05 22	809	(0.1– 2.1–)		1997 11 29	704	0.7+	0.8+	1999 02 12	704	1.1–	0.3+
1996 05 23	809	(3.7– 3.7–)		1997 11 29	704	0.0	0.9+	1999 02 16	704	0.4–	0.6–
1996 05 23	809	(3.6– 3.5–)		1997 12 04	704	0.7+	0.5–	1999 02 16	704	0.9–	0.1–
1996 05 23	809	(3.7– 3.6–)		1997 12 04	704	0.3+	0.4+	1999 02 16	704	1.3+	0.1–
1996 05 24	809	(2.8+ 1.3–)		1997 12 04	704	0.5+	0.5–	1999 02 16	704	0.7+	0.5+
1996 05 24	809	(2.5+ 1.5–)		1997 12 04	704	0.0	0.0	1999 02 16	704	1.3–	0.5–

(10187)* 1996 JV = 1970 JH = 1992 CF₈

Discovered 1996 May 12 by T. B. Spahr at the University of Arizona's Catalina Station.

Id. E. Bowell (*MPC* 28595), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.26330617	<i>ω</i>	156.01205	+0.11009239	+0.92702697		
<i>a</i>	2.4108047	<i>Ω</i>	118.51974	−0.96509394	+0.18593700		
<i>e</i>	0.1905913	<i>i</i>	24.07780	−0.23764124	−0.32565079		
<i>P</i>	3.74	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1970 05 09	095	0.4+	0.6+	1996 06 07	658	0.6+	0.7+	1999 01 05	120	0.4+	0.5–
1989 07 05	675	0.2–	0.6+	1996 06 12	658	0.1–	0.1–	1999 01 05	120	0.2+	0.2–
1989 07 05	675	0.1–	0.7+	1996 06 12	658	0.1–	0.0	1999 01 07	691	0.1+	1.4+
1992 02 04	675	0.1+	0.9+	1996 06 12	658	0.1–	0.1–	1999 01 07	691	0.9–	0.1+
1992 02 04	675	0.0	1.3–	1996 06 15	816	0.3–	0.3+	1999 01 07	691	0.7–	0.1–
1996 05 12	693	0.1+	0.3+	1996 06 15	816	0.4–	0.2+	1999 01 15	691	1.3–	0.5–
1996 05 12	693	0.8–	1.8+	1996 06 15	816	0.2–	0.3+	1999 01 15	691	1.4–	0.3–
1996 05 14	693	1.1+	0.9+	1996 06 15	816	0.3–	0.1+	1999 01 15	691	1.4–	0.3–
1996 05 14	693	0.4+	0.8–	1996 09 20	696	0.1–	0.1+	1999 01 19	704	0.1+	0.1–
1996 05 21	693	0.3–	0.6–	1996 09 20	696	0.3+	0.1+	1999 01 19	704	0.2–	0.3+
1996 05 21	693	(5.4+ 0.9+)		1997 10 14	608	0.4–	0.5+	1999 01 19	704	0.5–	0.5+
1996 05 24	657	1.0+	0.7–	1997 10 14	608	0.5–	0.9+	1999 01 19	704	0.5+	0.8+
1996 05 24	657	0.9+	0.7–	1997 10 15	608	0.3–	0.3+	1999 02 10	704	0.5+	0.5–
1996 05 24	657	0.1–	0.7+	1997 10 15	608	0.2–	0.4+	1999 02 10	704	0.2+	0.4+
1996 05 24	657	1.2+	0.5+	1997 10 16	608	0.6–	0.9+	1999 02 10	704	0.8+	0.2–
1996 05 27	658	0.6–	0.2+	1997 10 17	608	0.5–	1.0+	1999 02 10	704	0.1–	0.4–
1996 05 27	658	0.4–	0.3+	1997 10 17	608	0.1+	0.6+	1999 02 12	699	1.0–	1.1+
1996 05 27	658	0.5–	0.2+	1998 12 16	699	0.5–	0.0	1999 02 12	699	0.3+	0.6+
1996 05 30	657	1.4–	0.2+	1998 12 16	699	0.0	0.2+	1999 02 12	699	0.2+	0.7+
1996 05 30	657	1.1–	0.3–	1998 12 16	699	0.4+	0.1–	1999 02 13	704	0.2–	0.4–
1996 05 31	657	0.3+	0.0	1998 12 23	704	1.0+	0.4+	1999 02 13	704	0.1+	0.0
1996 05 31	657	0.8+	0.1+	1998 12 23	704	1.8+	0.2+	1999 02 13	704	0.1–	0.2+
1996 05 31	657	(0.4+ 2.2+)		1998 12 23	704	1.4+	0.5–	1999 02 13	704	0.2+	0.4–
1996 06 07	658	0.6+	0.7+	1998 12 23	704	0.3+	0.7+	1999 02 13	704	0.3+	0.0
1996 06 07	658	0.6+	0.7+	1998 12 23	704	(1.4– 2.4+)					

(10188)* 1996 JY = 19

1999 MAR. 2

M.P.C. 33903

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	233.69673	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.26330617	ω 102.26202	+0.30367111	+0.95263021
<i>a</i>	2.4108047	Ω 185.50254	-0.92783831	+0.29168854
<i>e</i>	0.2427610	<i>i</i> 10.04125	-0.21656388	+0.08610152
<i>P</i>	3.74	<i>H</i> 14.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1989 10 04	809	0.6+	0.3-	1996 05 16	896	0.1-	0.2+	1998 12 12	402	0.1+	0.6-
1989 10 04	809	0.8+	0.2-	1996 05 16	896	0.3-	0.4-	1998 12 12	402	0.2+	0.5-
1989 10 04	809	0.8+	0.4-	1996 05 19	896	0.4+	0.5-	1998 12 16	402	0.1+	0.4-
1989 10 06	809	0.7-	0.8-	1996 05 19	896	0.2+	0.0	1998 12 16	402	0.2+	0.5-
1989 10 06	809	0.5-	0.8-	1996 05 21	897	0.1+	0.8-	1999 02 06	402	0.8+	0.8-
1989 10 06	809	0.2-	0.8-	1996 05 21	897	0.7+	0.2-	1999 02 06	402	0.5+	0.5-
1996 05 14	900	0.1+	0.0	1996 05 21	897	0.3+	0.7-	1999 02 12	704	0.0	0.4+
1996 05 14	900	0.1+	0.1+	1996 05 23	900	0.7-	0.3+	1999 02 12	704	0.4-	0.1+
1996 05 15	896	0.1+	0.1-	1996 05 23	900	0.4-	0.1+	1999 02 12	704	0.6-	0.1-
1996 05 15	896	0.4-	0.2+	1996 06 08	587	0.1+	0.8+	1999 02 12	704	0.8-	0.4+
1996 05 15	896	0.3+	0.0	1996 06 08	587	0.5+	0.7+	1999 02 12	704	(2.3-	1.1-)
1996 05 15	897	0.2+	0.9-	1996 06 09	587	0.3-	0.1+	1999 02 16	704	1.0-	0.2-
1996 05 15	897	(2.4-	0.3-)	1996 06 09	587	0.5-	0.1-	1999 02 16	704	1.3+	1.1-
1996 05 15	897	0.3-	0.4+	1996 06 09	587	1.0-	0.1-	1999 02 16	704	0.6-	0.3+
1996 05 15	355	0.5+	0.1+	1997 12 26	566	0.0	0.8+	1999 02 16	704	0.5-	0.2-
1996 05 15	355	0.1-	0.9-	1997 12 26	566	0.2-	0.1-	1999 02 16	704	0.2-	0.3+
1996 05 15	900	0.1+	0.0	1997 12 26	566	0.3+	1.0+				
1996 05 15	900	0.4+	0.1-	1998 12 12	402	0.2+	0.7-				

(10189)* 1996 JK₁₆ = 1982 DW₅ = 1984 SN₇

Discovered 1996 May 15 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 27562)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	89.00860	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.22567228	ω 231.36629	+0.96247756	-0.25827004
<i>a</i>	2.6718818	Ω 143.38497	+0.27135858	+0.91741104
<i>e</i>	0.0891629	<i>i</i> 8.02523	-0.00121632	+0.30274339
<i>P</i>	4.37	<i>H</i> 13.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1982 02 25	010	0.5+	1.1-	1996 05 23	691	0.6+	0.1+	1999 01 18	704	0.3+	0.4-
1982 02 26	010	1.0+	2.0+	1996 06 08	691	0.2-	0.5+	1999 01 18	704	0.8-	1.4+
1982 02 27	010	1.9-	1.2-	1996 06 08	691	0.4-	0.4+	1999 01 18	704	0.3+	0.3-
1982 02 28	010	0.6+	0.9+	1996 06 08	691	0.8+	0.4+	1999 01 18	704	0.9+	1.4+
1984 09 24	071	2.1-	0.3+	1996 06 15	691	1.0+	0.3-	1999 01 18	704	0.3-	1.0+
1984 09 25	071	0.0	1.4+	1996 06 15	691	0.1-	0.0	1999 01 20	704	0.4-	0.5-
1984 09 25	071	1.2+	1.1+	1996 06 15	691	0.0	0.2+	1999 01 20	704	0.2+	0.2+
1996 05 15	691	0.7-	0.6+	1998 12 22	704	0.0	1.1-	1999 01 20	704	0.8-	1.2+
1996 05 15	691	0.9-	0.2-	1998 12 22	704	1.0+	1.7-	1999 01 20	704	1.3-	1.9+
1996 05 15	691	0.7-	0.0	1998 12 22	704	0.9+	1.1-	1999 01 20	704	0.2+	0.9+
1996 05 23	691	0.3+	0.4+	1998 12 22	704	0.5+	0.0				
1996 05 23	691	1.0+	0.2+	1998 12 22	704	0.6-	1.0-				

(10190)* 1996 NC = 1978 WU₃

Discovered 1996 July 14 at Haleakala by the JPL Near-Earth Asteroid

Tracking program.

Id. G. V. Williams (*MPC* 27721)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	99.42109	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.20464561	ω 287.21638	+0.86588329	-0.49729208
<i>a</i>	2.8519009	Ω 102.63417	+0.47750719	+0.78929899
<i>e</i>	0.0355391	<i>i</i> 3.18905	+0.14910740	+0.36014954
<i>P</i>	4.82	<i>H</i> 14.1	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1978 11 29	675	0.6-	0.6+	1997 10 28	688	1.0-	0.1+	1999 01 19	704	0.0	0.2+
1978 11 30	675	0.2+	1.2+	1997 10 29	704	0.7+	0.2-	1999 01 19	704	0.5-	0.1+
1996 07 14	566	0.4-	0.4+	1997 10 29	704	0.3+	0.1-	1999 02 10	704	0.1+	0.6-
1996 07 14	566	0.3-	0.8+	1997 10 29	704	0.8+	0.1+	1999 02 10	704	0.5+	0.1-
1996 07 14	566	0.2-	0.8+	1997 10 29	704	1.1+	0.5-	1999 02 10	704	0.3-	0.2+
1996 07 15	566	0.3-	0.1+	1997 10 29	704	0.5+	0.1+	1999 02 10	704	0.5-	0.1+
1996 07 15	566	0.9-	0.2+	1998 12 21	910	0.2-	0.6-	1999 02 10	704	0.4+	0.4+
1996 07 15	566	0.3-	0.2+	1998 12 22	910	0.1+	0.3-	1999 02 12	699	0.0	0.6+
1996 07 22	566	0.5+	0.0	1998 12 22	910	0.3-	0.5-	1999 02 12	699	0.5+	0.7+
1996 07 22	566	0.0	0.1+	1998 12 22	910	0.2-	0.4-	1999 02 12	699	0.4+	0.4+
1996 07 22	566	0.7-	0.3-	1998 12 22	910	0.2-	0.2-	1999 02 13	704	0.4-	0.6+
1996 08 10	566	0.6+	0.4+	1998 12 22	910	0.1-	0.4-	1999 02 13	704	0.2+	0.5+
1996 08 10	566	1.0+	0.4+	1999 01 14	699	0.4+	0.4-	1999 02 13	704	0.9+	0.6+
1996 08 10	566	0.3+	1.3+	1999 01 14	699	0.2+	1.1+	1999 02 13	704	0.2+	0.8+
1997 10 27	688	0.9-	0.1-	1999 01 14	699	0.5+	0.9+	1999 02 13	704	0.3-	0.4-
1997 10 27	688	0.8-	0.3+	1999 01 19	704	0.6+	0.7-				
1997 10 28	688	0.6-	0.2+	1999 01 19	704	1.1-	0.8+				

(10191)* 1996 NU₁ = 1978 LV = 1990 BS₂ = 1993 VZ₇

Discovered 1996 July 14 at Haleakala by the JPL Near-Earth Asteroid

Tracking program.

Id. G. V. Williams (*MPC* 27721)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	179.01898	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.22491427	ω 18.39649	+0.84673854	+0.51430772
<i>a</i>	2.6778816	Ω 309.87803	-0.50766296	+0.70460475
<i>e</i>	0.0561813	<i>i</i> 10.21492	-0.15909797	+0.48889643
<i>P</i>	4.38	<i>H</i> 13.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1978 06 08	809	0.4+	1.0-	1996 07 14	566	0.1-	0.7-	1999 01 18	704	0.9-	0.8+
1990 01 29	046	1.5-	0.7-	1996 07 14	566	0.0	0.5-	1999 02 12	704	1.0+	0.5+
1990 01 29	046	1.6-	1.4-	1996 07 14	566	0.3-	0.6-	1999 02 12	704	0.0	0.5+
1990 01 30	046	(2.7-	1.6-)	1996 07 14	566	0.9+	0.4+	1999 02 12	704	0.5+	0.1-
1990 01 30	046	(5.7-	0.4-)	1996 07 23	566	0.4-	0.0	1999 02 12	704	0.3+	0.4+
1992 09 22	675	0.0	0.1-	1996 07 23	566	0.3-	0.1-	1999 02 12	704	0.3+	1.3+
1992 09 22	675	0.6-	0.0	1996 07 23	566	0.5-	0.0	1999 02 16	704	1.2+	0.1+
1992 09 25	675	0.6-	0.6+	1996 08 09	566	0.5-	2.0+	1999 02 16	704	0.5+	0.1+
1992 09 25	675	1.5+	0.4+	1996 08 09	566	0.4-	1.9+	1999 02 16	704	0.7+	0.0
1993 11 12	033	0.8+	0.8+	1996 08 09	566	0.2-	1.6+	1999 02 16	704	1.2+	0.4+
1993 11 13	033	0.1+	0.8+	1999 01 18	704	1.1-	0.8+	1999 02 16	704	1.0+	0.1+
1996 07 14	566	0.1-	0.6-	1999 01 18	704	0.7-	0.6+				
1996 07 14	566	0.0	0.7-	1999 01 18	704	0.3+	0.8-				

(10192)* 1996 OQ₁ = 1991 PM₂₃ = 1997 WS₄₅

Discovered 1996 July 20 by the Beijing Schmidt CCD Asteroid Program at

Xinglong.

Id. G. V. Williams (*MPC* 31109)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	232.89670	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.20561996	ω 320.98933	+0.13076989	+0.99132289
<i>a</i>	2.8428844	Ω 316.52004	-0.90467745	+0.11381133
<i>e</i>	0.0384049	<i>i</i> 1.11149	-0.40553416	+0.06577161
<i>P</i>	4.79	<i>H</i> 14.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1991 08 02	809	1.0+	1.2-	1997 11 26	704	(2.8-	0.7-)	1999 01 19	910	0.4+	0.4-
1991 08 02	809	0.3-	0.3-	1997 11 26	704	(2.8-	1.3-)	1999 02 10	704	0.5-	0.5-
1991 08 02	809	0.2-	0.3-	1997 11 26	704	(3.3-	1.9-)	1999 02 10	704	1.0-	0.5-
1996 07 20	327	0.6-	0.7+	1997 11 29	704	2.0-	1.0-	1999 02 10	704	1.9-	1.1+
1996 07 20	327	0.2-	0.5+	1997 11 29	704	1.5-	1.8-	1999 02 10	704	(2.5-	0.6+)
1996 07 20	327	0.2-	1.1+	1997 11 29	704	(0.9-	2.8-)	1999 02 10	704	1.5-	0.2+
1996 07 21	327	0.0	0.7-	1997 11 29	704	0.8-	0.1+	1999 02 12	699	0.3-	0.7+

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1996 07 21	327	0.4−	0.0	1997 11 30	566	0.4+	0.1−	1999 02 12	699	0.3+	0.0
1996 07 21	327	0.3−	0.1+	1997 11 30	566	0.9+	0.1−	1999 02 12	699	0.3+	0.4+
1996 07 21	327	0.6−	0.2+	1997 11 30	566	0.5+	0.2+	1999 02 13	704	0.4−	0.5+
1996 08 06	327	0.8−	0.1−	1997 12 29	566	0.9+	0.8+	1999 02 13	704	0.2−	1.3+
1996 08 06	327	0.4+	0.1−	1997 12 29	566	0.8+	1.0+	1999 02 13	704	0.5+	1.0+
1996 08 06	327	0.4+	0.0	1997 12 29	566	0.8+	1.1+	1999 02 13	704	1.7+	1.0−
1996 08 06	327	0.1+	0.2−	1999 01 15	910	0.1−	0.6−	1999 02 13	704	0.2−	0.2+
1996 08 13	327	0.5+	0.5+	1999 01 15	910	0.4−	0.4−	1999 02 16	704	0.8+	0.4+
1996 08 13	327	0.2+	0.7+	1999 01 15	910	0.0	0.2−	1999 02 16	704	0.2+	0.3−
1996 08 13	327	0.8+	0.1−	1999 01 15	910	0.1−	0.4−	1999 02 16	704	0.8+	1.0−
1996 08 13	327	0.2−	0.2−	1999 01 15	910	0.2−	0.3−	1999 02 16	704	0.0	0.0
1996 08 15	566	0.0	0.1−	1999 01 15	910	0.1−	0.5−	1999 02 16	704	0.9+	0.9+
1996 08 15	566	0.0	0.5−	1999 01 19	910	0.3+	0.5−				
1996 08 15	566	0.0	0.2−	1999 01 19	910	0.3+	0.6−				

(10193)* 1996 PR₁ = 1980 RH₄

Discovered 1996 Aug. 8 by AMOS at Haleakala.

Id. G. V. Williams (*MPC* 27923)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams			
<i>M</i>	180.55808	(2000.0)	P	Q		
<i>n</i>	0.18498828	ω	139.98275	+0.55313145	+0.83308946	
<i>a</i>	3.0505155	Ω	163.59876	−0.76681510	+0.51041151	
<i>e</i>	0.2999659	<i>i</i>	0.55730	−0.32563815	+0.21317139	
<i>P</i>	5.33	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1980 09 07	095	0.8−	2.0+	1996 08 16	608	0.3+	0.5−	1998 12 28	691	1.7−	0.4−
1980 09 09	095	(0.9−	4.4−)	1996 08 16	608	0.2+	0.4−	1998 12 28	691	1.5−	0.5−
1995 04 06	691	0.1−	0.3−	1996 09 04	608	0.6+	0.3−	1998 12 28	691	2.0−	0.3−
1995 04 06	691	0.1−	0.5−	1996 09 04	608	0.5+	0.2−	1999 01 09	691	0.1+	0.3−
1995 04 06	691	0.1+	0.5−	1996 09 05	608	0.2+	0.0	1999 01 09	691	0.3+	0.2−
1996 08 08	608	0.1+	0.8−	1996 09 05	608	0.6−	0.4+	1999 01 09	691	0.1+	0.2−
1996 08 08	608	0.2+	0.9−	1997 10 23	608	0.2−	0.8+	1999 02 13	691	0.1−	0.5−
1996 08 08	608	0.0	0.9−	1997 10 23	608	0.1−	1.2+	1999 02 13	691	0.1−	0.4−
1996 08 08	608	0.2+	0.9−	1997 10 30	608	0.5+	0.1+	1999 02 13	691	0.5−	0.1−
1996 08 09	608	0.0	0.7−	1997 10 30	608	0.6+	0.2+	1999 02 21	691	1.2+	1.6−
1996 08 09	608	0.1−	0.7−	1998 12 26	691	0.2−	0.7−	1999 02 21	691	1.0+	0.1−
1996 08 14	608	0.3+	0.4−	1998 12 26	691	0.4+	0.2−	1999 02 21	691	0.7+	0.2−
1996 08 14	608	0.5+	0.3−	1998 12 26	691	0.3−	0.5−				

(10194)* 1996 QN₁ = 1986 RE₈ = 1991 RK₃₆

Discovered 1996 Aug. 18 by G. R. Viscome at Rand Observatory.

Id. G. V. Williams (*MPC* 28078)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams			
<i>M</i>	201.05095	(2000.0)	P	Q		
<i>n</i>	0.19114518	ω	322.15347	+0.52018949	+0.85186203	
<i>a</i>	2.9846528	Ω	338.97596	−0.73611900	+0.41093080	
<i>e</i>	0.0810992	<i>i</i>	9.80681	−0.43304932	+0.32475678	
<i>P</i>	5.16	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1986 09 07	095	(0.7+	6.8+)	1996 09 15	358	0.7−	0.5+	1997 10 11	816	0.0	0.1+
1986 09 11	095	(3.7+	0.7+)	1996 09 15	358	(1.0−	2.2−)	1997 10 11	816	0.1−	0.1−
1991 09 14	675	0.8+	0.1−	1996 09 19	824	0.5−	0.4−	1997 10 11	816	0.2−	0.3+
1991 09 14	675	1.8+	0.3−	1996 09 19	824	0.2−	0.0	1997 10 26	816	0.2−	0.2+
1991 10 05	691	1.0−	0.4+	1996 10 02	816	0.9+	0.8+	1997 10 26	816	0.2−	0.0
1991 10 05	691	1.0−	0.0	1996 10 02	816	0.5+	0.4+	1997 10 26	816	0.0	0.1−
1991 10 05	691	0.8−	0.1+	1996 10 02	816	0.9+	0.8+	1997 11 08	816	0.2+	0.6−
1996 08 09	358	(3.2−	1.2+)	1996 10 02	816	0.4+	0.6+	1997 11 08	816	0.2+	0.2−
1996 08 09	358	1.8−	0.9+	1996 10 06	816	0.7+	0.4+	1997 11 08	816	0.3+	0.5−
1996 08 10	358	1.4−	0.5+	1996 10 06	816	1.0+	0.2+	1999 01 13	699	0.1−	0.6+
1996 08 10	358	1.3−	1.0−	1996 10 06	816	0.5+	0.5+	1999 01 13	699	0.3−	0.5+
1996 08 15	358	(2.6−	0.6−)	1996 10 07	816	0.6+	0.4+	1999 01 13	699	0.5+	0.9+
1996 08 15	358	1.6−	0.3−	1996 10 07	816	0.5+	0.4+	1999 02 10	704	0.0	0.2+
1996 08 18	816	1.0−	0.4−	1996 10 07	816	0.9+	0.2+	1999 02 10	704	0.1+	0.1+

1999 MAR. 2

1996 08 18	816	0.8−	0.3−	1996 10 12	816	1.0+	0.5+	1999 02 10	704	0.5−	0.1+
1996 08 18	816	1.1−	0.1−	1996 10 12	816	1.1+	0.6+	1999 02 10	704	0.3−	0.3−
1996 08 18	816	0.7−	0.2−	1996 11 05	816	0.5+	0.8+	1999 02 10	704	(1.2+	2.5−)
1996 08 19	824	0.3−	0.8−	1996 11 05	816	0.8+	0.0	1999 02 12	699	0.0	0.0
1996 08 19	824	0.4−	0.9−	1996 11 05	816	0.5+	0.4+	1999 02 12	699	0.1+	0.4+
1996 08 19	824	0.4−	0.8−	1996 11 05	816	0.8+	0.1+	1999 02 12	699	0.1−	0.1+
1996 08 19	824	0.4−	0.9−	1996 11 16	816	0.6+	0.1+	1999 02 13	704	0.2+	0.0
1996 09 02	358	1.7+	1.5+	1996 11 16	816	0.6+	0.4+	1999 02 13	704	0.6+	0.8+
1996 09 02	358	0.8−	0.5+	1996 11 16	816	0.7+	0.3+	1999 02 13	704	0.9+	0.1+
1996 09 12	358	(0.3+	2.0−)	1996 11 16	816	1.1+	0.5+	1999 02 13	704	0.4+	0.1+
1996 09 12	358	1.3−	1.0−	1997 10 08	816	0.2−	0.2−	1999 02 13	704	0.8+	0.0
1996 09 12	358	1.0−	1.4−	1997 10 08	816	0.3−	0.0				

(10195)* 1996 RS₅ = 1986 RB₁ = 1986 TG₉ = 1991 RA₈

Discovered 1996 Sept. 13 by R. Linderholm at Lime Creek.

Id. G. V. Williams (*MPC* 28080)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams			
<i>M</i>	182.44066	(2000.0)	P	Q		
<i>n</i>	0.20057102	ω	346.39472	+0.99770624	−0.01815709	
<i>a</i>	2.8903954	Ω	15.10743	+0.05409100	+0.79304806	
<i>e</i>	0.1839464	<i>i</i>	14.48987	−0.04069928	+0.60888841	
<i>P</i>	4.91	<i>H</i>	12.2	<i>G</i>	0.15	<i>U</i> 2

Residuals in seconds of arc

1986 09 01	801	(9.5+	3.6+)	1996 09 20	721	0.5+	0.1+	1996 12 14	327	1.0+	0.8+
1986 10 02	095	(2.2−	3.7+)	1996 09 20	721	0.6+	0.0	1996 12 22	327	0.0	0.4+
1989 03 29	675	0.5+	0.2−	1996 10 06	691	1.3−	0.9+	1996 12 22	327	0.5−	0.3+
1989 03 29	675	0.8+	0.5+	1996 10 06	691	1.2−	0.0	1996 12 22	327	0.2+	0.3+
1991 09 12	675	1.2+	1.1−	1996 10 06	691	1.1−	0.1+	1998 04 18	699	0.3+	0.5−
1991 09 12	675	0.6+	0.9−	1996 10 08	691	1.2−	0.6+	1998 04 18	699	0.4−	0.5−
1991 09 14	675	0.7+	1.2−	1996 10 08	691	0.9−	0.2+	1998 04 18	699	0.5−	0.4−
1991 09 14	675	0.7+	0.9−	1996 10 08	691	1.4−	0.0	1998 04 19	699	0.4−	0.3−
1991 09 16	095	0.7−	0.1+	1996 10 12	721	0.6+	0.0	1998 04 19	699	0.6−	0.2+
1991 09 16	095	(0.7+	2.2+)	1996 10 12	721	0.9+	0.1−	1998 04 19	699	0.5−	0.2−
1991 10 16	095	(2.6+	3.0+)	1996 10 12	721	0.6+	0.8−	1998 12 17	910	0.3−	0.5−
1996 09 13	721	0.3+	0.7+	1996 12 14	327	1.0+	0.2+	1998 12 17	910	0.3−	0.3−
1996 09 13	721	0.2+	0.5+	1996 12 14	327	0.7+	0.1+	1998 12 17	910	0.2−	0.2−

(10196)* 1996 TJ₁₅ = 1990 SM₁₂ = 2033 T-1

Discovered 1996 Oct. 9 by S. Ueda and H. Kaneda at Kushiro.

Id. G. V. Williams (*MPC* 28309)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams			
<i>M</i>	184.36222	(2000.0)	P	Q		
<i>n</i>	0.17286404	ω	210.52403	+0.85957326	+0.50987136	
<i>a</i>	3.1915350	Ω	118.78255	−0.46062572	+0.80200823	
<i>e</i>	0.1524780	<i>i</i>	2.23186	−0.22126399	+0.31114947	
<i>P</i>	5.70	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i> 2

Residuals in seconds of arc

1971 03 25	675	0.8+	0.4−	1996 10 09	399	0.3−	1.1−	1999 01 23	910	0.6+	0.8−
1971 03 25	675	0.9−	0.3−	1996 10 10	399	0.5+	1.1−	1999 01 23	910	0.7+	0.5−
1971 03 26	675	1.3−	0.9−	1996 10 10	399	0.4+	0.5+	1999 02 10	704	0.5−	0.2+
1971 03 27	675	0.2+	1.3−	1996 10 16	399	1.2−	0.4+	1999 02 10	704	1.8−	0.6−
1990 09 18	809	0.8−	0.3−	1996 10 16	399	1.2−	0.2+	1999 02 10	704	1.6+	0.6+
1990 09 18	809	0.3−	0.3−	1996 11 06	399	1.3+	0.9+	1999 02 10	704	0.0	1.7−

1999 MAR. 2

M.P.C. 33905

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	207.58416		(2000.0)	P	Q
<i>n</i>	0.20551373	ω	302.44101	+0.72539195	+0.68829111
<i>a</i>	2.8438640	Ω	14.06939	-0.62017689	+0.65847858
<i>e</i>	0.0688535	<i>i</i>	1.85418	-0.29864215	+0.30440320
<i>P</i>	4.80	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1991 08 06	675	0.6+	0.1+	1997 12 26	327	0.1-	0.2+	1998 01 17	104	0.9-	0.0
1991 08 06	675	0.1-	0.8-	1997 12 26	327	0.1-	0.3+	1998 01 17	104	0.2+	0.1+
1991 08 10	675	0.7+	0.2-	1997 12 29	327	(2.6+	2.2+)	1999 01 14	120	0.6-	0.3+
1991 08 10	675	0.2+	0.1-	1997 12 29	327	0.1+	0.2+	1999 01 14	120	1.4-	0.3+
1994 02 15	691	0.5-	0.1-	1997 12 29	327	0.2-	0.1-	1999 01 14	120	1.6+	0.7+
1994 02 15	691	0.4-	0.1+	1997 12 29	104	0.6+	1.0-	1999 01 20	120	0.1+	0.6+
1994 02 15	691	0.6-	0.1+	1997 12 29	104	0.7+	0.7-	1999 01 21	120	0.5-	0.5+
1996 10 05	809	1.1+	0.7+	1997 12 29	104	0.1-	0.5-	1999 01 28	120	0.5+	0.9+
1996 10 05	809	0.7+	0.9+	1997 12 29	104	0.0	0.4+	1999 01 28	120	0.5+	0.3+
1996 10 05	809	0.4-	1.3+	1997 12 29	104	0.1-	0.5+	1999 02 08	691	0.1+	0.2+
1996 10 06	809	0.6-	0.6+	1997 12 29	104	0.1-	0.8+	1999 02 08	691	0.0	0.2+
1996 10 06	809	0.5-	0.8+	1998 01 01	104	0.0	0.3-	1999 02 08	691	0.0	0.4+
1996 10 06	809	1.0-	0.1+	1998 01 01	104	0.9+	0.1-	1999 02 09	691	0.0	0.5+
1996 10 18	610	0.2-	0.0	1998 01 01	104	0.4+	0.1-	1999 02 09	691	0.1+	0.1+
1996 10 18	610	0.4-	0.1-	1998 01 01	104	0.4+	0.5+	1999 02 09	691	0.0	0.3+
1996 10 18	610	0.4-	0.3-	1998 01 04	327	1.1+	0.2+	1999 02 13	704	0.9+	0.9-
1996 10 19	610	1.1-	0.3-	1998 01 04	327	0.1-	0.1+	1999 02 13	704	0.2+	0.3+
1996 10 19	610	0.8-	0.3+	1998 01 04	327	0.4-	0.3-	1999 02 13	704	(2.7+	2.0+)
1996 10 19	610	0.3-	0.9+	1998 01 05	327	0.0	0.6-	1999 02 13	704	1.1+	0.6-
1997 12 24	327	0.0	0.3-	1998 01 05	327	0.3+	0.6-	1999 02 13	704	0.2+	0.6+
1997 12 24	327	0.0	0.0	1998 01 05	327	0.1-	0.4-	1999 02 18	691	0.0	0.3+
1997 12 24	327	0.2-	0.1-	1998 01 05	327	0.0	0.5-	1999 02 18	691	0.2+	0.3+
1997 12 26	327	0.1+	0.1-	1998 01 17	104	1.4-	0.2+	1999 02 18	691	0.3+	0.2+

(10198)* 1996 XN₂₆ = 1986 WW₃ = 1991 VU₁₃ = 1991 XE₄ = 1993 CJ₂

Discovered 1996 Dec. 6 by U. Munari and M. Tombelli at Cima Ekar.

Id. G. V. Williams (*MPC* 29633, *MPC* 33697)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	293.95967		(2000.0)	P	Q
<i>n</i>	0.20303105	ω	227.49452	+0.37909412	+0.92418152
<i>a</i>	2.8670004	Ω	64.83798	-0.83316950	+0.36282808
<i>e</i>	0.0484555	<i>i</i>	2.95434	-0.40263661	+0.11934953
<i>P</i>	4.85	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1986 11 25	010	0.9-	1.7+	1997 02 06	098	0.8+	1.4-	1998 02 27	108	0.6-	1.1+
1986 11 25	010	(9.2+	0.8+)	1997 02 06	104	0.6+	0.7-	1998 02 27	108	(2.5+	2.1-)
1986 11 25	010	(9.2+	0.9+)	1997 02 06	104	1.4+	0.7+	1998 03 03	704	0.4+	1.0+
1991 11 13	399	1.6-	0.4+	1998 01 24	104	0.7+	0.9+	1998 03 03	704	1.3+	0.1-
1991 11 13	399	0.7-	0.9-	1998 01 24	104	0.1+	1.2+	1998 03 03	704	0.4+	0.4+
1991 12 01	675	1.6+	0.1-	1998 01 24	104	0.2+	0.8+	1998 03 03	704	0.9+	0.1+
1991 12 01	675	1.7+	0.5-	1998 02 17	108	(2.0+	2.1-)	1998 03 03	704	0.3-	0.5+
1993 02 13	372	(0.8-	2.6+)	1998 02 17	108	0.6-	0.8-	1998 03 04	704	1.8-	0.2+
1993 02 13	372	0.2-	0.4+	1998 02 17	108	0.7+	0.6+	1998 03 04	704	(2.4-	0.6+)
1996 12 04	098	1.2-	0.0	1998 02 22	566	0.6+	0.4-	1998 03 04	704	1.2-	0.1+
1996 12 04	098	1.6-	0.3+	1998 02 22	566	0.5+	0.1-	1998 03 04	704	1.2-	0.2-
1996 12 06	098	0.6+	1.1-	1998 02 22	566	0.9+	0.2-	1998 03 04	704	1.4-	0.3-
1996 12 06	098	0.5+	0.6-	1998 02 23	566	0.5+	0.4-	1998 03 17	108	0.7-	1.7-
1996 12 08	098	1.0-	0.1+	1998 02 23	566	0.9+	0.4-	1998 03 17	108	(0.8+	2.3+)
1996 12 08	098	0.0	0.5+	1998 02 23	566	0.6+	0.1-	1998 03 17	108	0.8-	0.5-
1997 01 15	098	0.4+	1.0+	1998 02 27	108	0.2+	1.1-				

(10199)* 1997 CU₂₆

Discovered 1997 Feb. 15 by Spacewatch at Kitt Peak.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	331.48659		(2000.0)	P	Q
<i>n</i>	0.01580131	ω	241.93912	-0.93652124	+0.07529219
<i>a</i>	15.7280178	Ω	300.46354	+0.13476956	-0.82433004
<i>e</i>	0.1690778	<i>i</i>	23.40787	-0.32367442	-0.56108028
<i>P</i>	62.38	<i>H</i>	6.4	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1988 11 05	675	0.8-	1.4-	1997 03 06	696	0.9+	0.3-	1997 12 27	360	0.1-	0.2-
1989 10 07	675	0.0	1.0-	1997 03 06	696	1.2+	0.1+	1997 12 31	113	0.2-	0.4-
1997 02 15	691	1.8-	0.2+	1997 03 06	696	0.2+	0.2+	1997 12 31	113	0.3+	0.5-
1997 02 15	691	1.7-	0.1+	1997 03 06	696	0.4+	0.2+	1997 12 31	113	0.1+	0.9-
1997 02 15	691	1.5-	0.1-	1997 03 06	696	0.4+	0.2+	1998 01 07	627	(0.6-	2.1+)
1997 02 16	691	1.1-	0.2-	1997 03 06	696	0.5+	0.1+	1998 01 07	627	0.6-	0.8+
1997 02 16	691	1.3-	0.3-	1997 03 06	696	0.5+	0.2+	1998 01 07	627	0.1+	0.4+
1997 02 16	691	1.1-	0.2-	1997 03 08	696	0.7+	0.1+	1998 01 10	611	0.4-	0.0
1997 02 17	327	0.7+	0.1-	1997 03 08	696	1.0+	0.1+	1998 01 10	611	0.0	0.0
1997 02 17	327	0.0	0.2-	1997 03 08	696	0.6+	0.1+	1998 01 10	611	0.4-	0.1-
1997 02 17	327	0.3-	0.4-	1997 03 08	696	0.5+	0.1+	1998 01 10	611	0.8-	0.0
1997 02 17	046	0.0	0.5-	1997 03 08	696	0.8+	0.1+	1998 01 10	611	0.2-	0.1-
1997 02 17	046	0.5+	0.5-	1997 03 08	696	0.6+	0.0	1998 01 10	113	0.1-	0.3-
1997 02 17	557	0.1-	0.0	1997 03 08	696	0.6+	0.1+	1998 01 10	113	0.5+	1.4+
1997 02 17	046	0.1	0.3+	1997 03 08	696	0.6+	0.0	1998 01 17	113	0.9-	0.3+
1997 02 17	046	0.0	0.1-	1997 03 08	696	0.5+	0.0	1998 01 17	113	1.2-	0.4+
1997 02 17	557	0.1+	0.1+	1997 03 08	696	0.6+	0.0	1998 01 17	113	0.1-	0.4+
1997 02 17	557	0.0	0.2-	1997 03 08	696	0.6+	0.0	1998 01 18	113	0.5-	0.2+
1997 02 17	557	0.1-	0.4-	1997 03 08	696	0.7+	0.1+	1998 01 21	355	0.1+	0.0
1997 02 22	046	0.6-	0.2-	1997 03 08	696	0.5+	0.2+	1998 01 21	355	0.1+	0.2-
1997 02 22	046	0.2-	0.0	1997 03 08	696	0.5+	0.0	1998 01 27	113	0.3-	1.1+
1997 02 22	046	0.1-	0.3-	1997 03 08	696	0.5+	0.1+	1998 01 27	113	1.5-	0.5+
1997 02 22	046	0.2-	0.5+	1997 03 08	696	0.6+	0.1-	1998 01 28	113	0.9-	0.3+
1997 02 22	046	0.1-	0.2-	1997 03 08	696	0.6+	0.1+	1998 01 28	113	0.8-	0.2-
1997 02 22	046	0.2-	0.1-	1997 03 08	696	0.5+	0.1+	1998 01 29	360	0.4-	0.1-
1997 02 23	658	(0.5+	4.7-)	1997 03 08	696	0.8+	0.1+	1998 01 29	360	0.3-	0.1-
1997 02 23	658	(1.1+	4.7-)	1997 03 08	696	0.5+	0.1+	1998 02 01	113	0.2+	0.6+
1997 02 23	658	(0.8+	5.0-)	1997 03 08	696	0.6+	0.1+	1998 02 01	113	0.5+	0.7+
1997 02 23	046	0.2-	0.7+	1997 03 08	696	0.5+	0.0	1998 02 01	046	0.4-	0.1-
1997 02 23	046	0.1-	0.1+	1997 03 08	696	0.5+	0.1+	1998 02 01	046	0.3-	0.2-
1997 02 23	046	0.2+	0.0	1997 03 08	696	0.6+	0.1+	1998 02 01	046	0.6-	0.1+
1997 02 23	046	0.1+	0.0	1997 03 08	696	0.9+	0.1+	1998 02 04	113	0.9-	0.4+
1997 02 23	046	0.4+	0.2+	1997 03 08	696	0.6+	0.1+	1998 02 04	113	0.5-	0.7+
1997 02 23	046	0.0	0.8-	1997 03 08	696	0.7+	0.1+	1998 02 18	113	0.0	0.1-
1997 02 24	557	0.1+	0.1-	1997 03 08	696	0.6+	0.1+	1998 02 18	113	0.4-	0.1-
1997 02 24	046	0.2+	0.2+	1997 03 08	402	0.0	0.3-	1998 02 20	113	0.2-	0.1-
1997 02 24	046	0.1-	0.1+	1997 03 08	402	0.1+	0.0	1998 02 20	113	0.0	0.1-
1997 02 24	046	0.0	0.7+	1997 03 08	402	0.3-	0.2-	1998 02 20	113	0.1-	0.1-
1997 02 24	046	0.7-	0.1+	1997 03 09	046	0.0	0.4+	1998 02 27	118	0.1+	0.1-
1997 02 24	557	0.2-	0.1-	1997 03 09	046	0.2-	0.4+	1998 02 27	118	0.2+	0.0
1997 02 26	817	0.0	0.1-	1997 03 09	046	0.1+	0.3+	1998 03 01	360	0.0	0.2+
1997 02 26	046	0.3+	0.3+	1997 03 11	402	0.2+	0.2+	1998 03 01	360	0.1-	0.0
1997 02 26	046	0.4+	0.1-	1997 03 11	402	0.0	0.3+	1998 03 01	864	0.4-	0.5+
1997 02 26	046	0.2+	0.0	1997 03 11	402	0.3+	0.1+	1998 03 01	864	0.3-	0.5+
1997 02 26	046	0.0	0.5-	1997 03 15	691	0.6+	0.0	1998 03 01	864	0.2-	0.6+
1997 02 27	402	0.3-	0.1-	1997 03 15	711	0.0	0.2+	1998 03 02	402	0.1-	0.2+
1997 02 27	402	0.4-	0.3+	1997 03 15	711	0.1-	0.2+	1998 03 02	402	0.0	0.0
1997 02 27	402	0.3-	0.0	1997 03 16	711	0.3+	0.3+	1998 03 02	402	0.1+	0.0
1997 02 27	360	0.1+	0.1+	1997 03 16	711	0.0	0.3+	1998 03 05	711	0.1-	0.2+
1997 02 27	360	0.3+	0.0	1997 03 16	587	0.3+	0.0	1998 03 05	711	0.1-	0.2+
1997 02 27	360	0.0	0.1-	1997 03 16	587	0.1+	0.4-	1998 03 18	402	0.3+	0.1+
1997 02 27	587	0.3-	0.1-	1997 03 17	711	0.1+	0.3+	1998 03 18	402	0.1+	0.3+
1997 02 27	046	0.3-	1.1+	1997 03 17	711	0.1+	0.3+	1998 03 18	402	0.2+	0.4+
1997 02 27	046	0.1-	0.4+	1997 03 27	658	0.2+	0.1+	1998 04 10	046	0.2-	0.5+
1997 02 27	046	0.7-	0.4+	1997 03 27	658	0.2+	0.4+	1998 04 10	046	0.1-	0.2+
1997 02 27	046	0.1-	0.9+	1997 03 27	658	0.4-	0.4-	1998 04 10	046	0.1+	0.2+
1997 02 27	587	0.0	0.1-	1997 04 01	046	0.1+	0.4+	1998 04 25	118	0.4-	0.3+
1997 02 28	046	0.3+	0.0	1997 04 01	046	0.1+	0.5+	1998 04 25	118	0.1-	0.7+
1997 02 28	046	0.0	0.1+	1997 04 01	046	0.0	0.4+	1998 05 09	504	0.1-	0.4-

1997 02 28	046	0.4+	0.2+	1997 04 07	587	0.1+	0.6+	1998 05 09	504	0.4-	0.3-
1997 02 28	046	0.1-	0.2+	1997 04 08	587	0.2+	0.4+	1998 05 20	402	0.7-	0.6-
1997 02 28	108	0.2+	1.8+	1997 04 30	587	0.4+	0.5+	1998 05 20	402	0.8+	0.7+
1997 03 01	402	0.0	0.2-	1997 05 01	691	0.9-	0.1+	1998 11 14	402	0.1-	0.2-
1997 03 01	402	0.3-	0.3+	1997 05 01	691	0.9-	0.1-	1998 11 14	402	0.0	0.2+
1997 03 01	402	0.6-	0.3-	1997 05 01	691	1.0-	0.4+	1998 11 14	402	0.3-	0.2+
1997 03 02	118	0.3+	0.1+	1997 05 01	118	0.3+	0.1+	1998 11 29	402	0.0	0.1-
1997 03 02	118	0.0	0.1+	1997 05 01	587	0.4+	0.4+	1998 11 29	402	0.2-	0.1-
1997 03 02	118	0.3+	0.2-	1997 05 02	118	0.3+	0.4+	1998 11 29	402	0.0	0.1-
1997 03 02	691	1.6-	0.1-	1997 05 03	118	0.6+	0.1+	1998 12 28	360	0.0	0.1-
1997 03 02	691	1.6-	0.2+	1997 05 04	360	0.5+	0.4+	1998 12 28	360	0.1+	0.0
1997 03 02	700	0.5-	0.7-	1997 05 04	360	0.5+	0.1+	1998 12 28	360	0.2+	0.0
1997 03 02	700	0.3+	0.8-	1997 05 04	360	0.1+	0.4+	1999 01 11	691	0.6-	0.1-
1997 03 02	691	1.7-	0.0	1997 05 11	046	1.3-	0.1-	1999 01 11	691	0.7-	0.3-
1997 03 02	700	0.6+	0.9+	1997 05 11	046	1.7-	0.7+	1999 01 11	691	0.6-	0.3-
1997 03 02	046	0.1+	0.1-	1997 05 14	711	0.2-	0.4+	1999 01 15	699	0.1-	0.8+
1997 03 02	046	0.1+	0.3-	1997 05 14	711	0.1-	0.3+	1999 01 15	699	0.2+	0.0
1997 03 02	046	0.5-	0.3+	1997 05 17	046	1.2-	0.2+	1999 01 15	699	0.1-	0.5+
1997 03 02	046	0.3-	0.1+	1997 05 17	046	1.3-	0.4-	1999 01 18	621	0.3-	0.1-
1997 03 02	108	0.6+	0.9+	1997 05 26	360	0.5-	0.0	1999 01 18	621	0.1-	0.1-
1997 03 02	587	0.2-	0.2-	1997 05 26	360	0.3-	0.2-	1999 01 18	704	0.7+	0.8-
1997 03 02	587	0.4+	0.3+	1997 05 28	587	1.3+	0.2+	1999 01 18	704	0.0	1.0-
1997 03 03	696	0.2-	0.1-	1997 09 28	046	(0.0	2.1-)	1999 01 18	704	0.2-	1.2-
1997 03 03	696	0.0	0.3-	1997 09 28	046	0.2-	1.3-	1999 01 18	704	0.4-	0.9+
1997 03 03	360	0.3+	0.1-	1997 09 28	046	0.6+	1.7-	1999 01 18	704	(3.1-	0.9-)
1997 03 03	118	0.0	0.1+	1997 09 28	046	0.2+	1.8-	1999 01 18	402	0.0	0.2+
1997 03 03	118	0.1+	0.1+	1997 09 28	046	0.5+	1.1-	1999 01 18	402	0.2+	0.3+
1997 03 04	897	0.1-	0.4+	1997 09 28	046	0.4+	0.7-	1999 01 18	402	0.0	0.3+
1997 03 04	897	0.4+	1.0-	1997 09 28	046	0.6+	0.3-	1999 01 20	621	0.3+	0.1-
1997 03 04	897	0.6-	0.2-	1997 09 28	046	0.7+	0.6-	1999 01 20	621	0.2+	0.1-
1997 03 04	402	0.1+	0.0	1997 09 28	046	0.9+	0.1-	1999 01 20	621	0.0	0.1-
1997 03 04	402	0.1-	0.1+	1997 09 29	046	0.2+	1.0-	1999 01 20	113	0.6-	0.4+
1997 03 04	402	0.1-	0.0	1997 09 29	046	0.4+	1.2-	1999 01 21	621	0.3+	0.3-
1997 03 04	360	0.3-	0.2+	1997 09 29	046	0.7+	1.1-	1999 01 21	621	0.1+	0.2-
1997 03 04	360	0.1-	0.0	1997 09 29	046	1.1+	1.2-	1999 01 21	113	0.3-	0.3+
1997 03 05	402	1.3-	0.6-	1997 09 29	046	0.3-	1.4-	1999 01 21	621	0.1+	0.1-
1997 03 05	402	0.2+	1.0+	1997 09 29	046	0.1+	1.3-	1999 01 21	113	1.0+	0.1+
1997 03 05	402	0.1+	0.3-	1997 10 06	046	0.8+	0.3-	1999 02 08	360	0.2-	0.1+
1997 03 05	046	0.1-	0.0	1997 10 06	046	0.4+	1.0-	1999 02 08	402	0.0	0.3-
1997 03 05	046	0.2+	0.0	1997 10 06	046	0.1+	0.8-	1999 02 08	402	0.1-	0.1-
1997 03 05	046	0.2-	0.0	1997 10 07	046	0.6+	0.4-	1999 02 08	402	0.1-	0.3-
1997 03 05	046	0.1+	0.1+	1997 10 07	046	0.5+	1.1-	1999 02 08	360	0.1-	0.1-
1997 03 06	696	0.5+	0.4+	1997 10 07	046	0.3+	0.8-	1999 02 08	360	0.1-	0.1-
1997 03 06	696	0.4+	0.2+	1997 10 26	950	0.8-	0.6-	1999 02 12	704	0.3+	1.5-
1997 03 06	696	0.6+	0.3+	1997 10 26	950	1.0-	0.6-	1999 02 12	704	1.8+	0.2-
1997 03 06	696	0.5+	0.1+	1997 11 09	360	0.3-	0.1-	1999 02 12	704	0.4-	0.1+
1997 03 06	696	0.4+	0.2+	1997 11 09	360	0.1-	0.0	1999 02 12	704	(3.4-	0.5-)
1997 03 06	696	0.4+	0.2+	1997 11 11	046	0.1+	0.1+	1999 02 13	108	1.2-	0.2+
1997 03 06	696	0.6+	0.2+	1997 11 11	046	0.3-	0.5-	1999 02 13	108	0.3-	0.8+
1997 03 06	696	0.5+	0.2+	1997 11 11	046	0.5-	0.4+	1999 02 16	704	0.5+	0.8-
1997 03 06	696	0.5+	0.2+	1997 11 30	696	0.4+	0.3+	1999 02 16	704	0.4+	0.5+
1997 03 06	696	0.5+	0.3+	1997 11 30	696	0.4+	0.3+	1999 02 16	704	0.3+	1.6-
1997 03 06	696	0.5+	0.2+	1997 12 05	867	1.1-	0.4-	1999 02 16	704	(2.4-	0.3-)
1997 03 06	696	0.4+	0.3+	1997 12 05	867	0.9-	0.4-	1999 02 21	627	0.2+	0.2-
1997 03 06	696	0.7+	0.2+	1997 12 05	867	0.9-	0.3-	1999 02 21	627	0.5+	0.1+
1997 03 06	696	0.9+	0.2-	1997 12 27	360	0.1+	0.1+				

(10200)* 1997 NZ₂ = 1992 HS₁

Discovered 1997 July 7 by V. Gorette at Pianoro.

Id. G. V. Williams (*MPC* 30465)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams	
<i>M</i>	119.48676	(2000.0)	P	Q	
<i>n</i>	0.21933565	ω	232.45039	+0.41284105	+0.90830191
<i>a</i>	2.7230978	Ω	62.06172	-0.80971902	+0.39992433
<i>e</i>	0.1635942	<i>i</i>	4.37888	-0.41703402	+0.12267100
<i>P</i>	4.49	<i>H</i>	14.7	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1992 04 27	691	0.1-	0.1-	1997 07 07	610	0.5+	1.1+	1998 11 17	610	1.0-	1.8+
1992 04 27	691	0.1-	0.2+	1997 07 07	610	(3.7+	2.8+)	1998 11 17	610	1.1-	1.8+
1992 04 27	691	0.4-	0.1+	1997 07 07	610	(3.1+	2.3+)	1998 11 18	704	0.8+	1.3-
1992 05 07	691	0.3-	0.7+	1997 07 08	610	(2.6+	1.7+)	1998 11 18	704	0.3-	0.1-
1992 05 07	691	0.0	0.0	1997 07 08	610	(4.5+	1.9-)	1998 11 18	704	1.5+	1.9-
1992 05 07	691	1.9+	1.7+	1997 07 09	610	(3.5+	0.3+)	1998 11 18	704	0.5+	1.7-
1996 03 21	691	0.2-	0.8-	1997 07 09	610	(3.2+	0.9+)	1998 11 21	704	0.0	1.3-
1996 03 21	691	0.7-	0.8-	1997 07 14	104	2.0+	0.6-	1998 11 21	704	0.7+	1.2-
1996 03 21	691	0.4-	1.4-	1997 07 14	104	1.2-	0.6-	1998 11 21	704	0.5-	0.1+
1997 07 03	402	0.7+	0.4-	1997 07 14	104	0.2+	0.6-	1998 11 21	704	0.4-	1.4+
1997 07 03	402	0.6+	0.3-	1997 07 27	104	0.2-	0.7-	1998 11 26	120	0.1+	1.1+
1997 07 03	402	0.5+	0.1-	1997 07 27	104	1.5-	0.3-	1998 11 26	120	1.8-	0.3+
1997 07 05	360	0.1+	0.0	1997 08 03	566	1.0-	0.5-	1998 12 14	691	1.7-	0.2-
1997 07 05	360	0.1+	0.2-	1997 08 03	566	0.3-	0.2+	1998 12 14	691	1.5-	0.1-
1997 07 05	360	0.0	0.2-	1997 08 03	566	0.0	0.1-	1998 12 14	691	1.2-	0.6-
1997 07 06	402	0.4-	0.1+	1998 11 15	104	0.9+	0.4-	1999 02 10	691	0.4-	0.3-
1997 07 06	402	0.3-	0.1-	1998 11 15	104	1.3+	0.0	1999 02 10	691	0.3-	0.1-
1997 07 06	402	0.3-	0.1+	1998 11 15	104	1.8+	0.4+	1999 02 10	691	0.1-	0.1+
1997 07 07	610	0.1-	0.0	1998 11 17	610	1.4+	0.2+	1999 02 14	691	0.0	0.6-
1997 07 07	610	0.1+	0.4+	1998 11 17	610	0.2+	1.0+	1999 02 14	691	0.6+	0.2-
1997 07 07	610	0.3+	0.7+	1998 11 17	610	0.4-	1.3+	1999 02 14	691	0.7+	0.1-

(10201)* 1997 NL₆ = 1977 EN₅

Discovered 1997 July 12 at Farra d'Isonzo.

Id. G. V. Williams (*MPC* 30465)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams	
<i>M</i>	182.05945	(2000.0)	P	Q	
<i>n</i>	0.30381254	ω	85.39805	+0.14163897	+0.98977145
<i>a</i>	2.1914535	Ω	192.78263	-0.93605562	+0.12830674
<i>e</i>	0.1893634	<i>i</i>	4.42094	-0.32208429	+0.06236866
<i>P</i>	3.24	<i>H</i>	15.7	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1977 03 12	381	0.0	1.6+	1994 09 14	691	0.3-	0.1+	1997 09 21	595	0.5-	0.6-
1977 03 12	381	1.4+	0.6+	1994 09 14	691	0.7-	0.2+	1997 09 21	595	0.2-	1.2+
1977 03 14	381	1.5+	0.9+	1997 07 12	595	0.1+	0.3+	1997 09 24	118	0.4-	0.1-
1977 03 14	381	2.4+	1.3-	1997 07 12	595	0.2-	0.4+	1997 09 24	118	0.6-	0.1+
1977 03 15	381	1.2-	1.2+	1997 07 12	595	0.5+	0.3+	1998 12 16	595	1.0-	0.8-
1977 03 15	381	1.4-	0.9+	1997 07 12	595	0.3-	0.3+	1998 12 16	595	0.2+	0.5-
1991 11 02	691	0.5-	0.6+	1997 07 22	595	0.3+	0.4+	1998 12 17	595	0.7+	0.0
1991 11 02	691	0.0	0.5+	1997 07 22	595	0.3+	0.1+	1998 12 18	595	1.0+	0.0
1991 11 02	691	0.2-	0.5+	1997 09 11	118	0.0	0.3+	1999 01 05	595	0.6+	0.8+
1993 03 19	691	1.3-	0.1-	1997 09 11	118	0.6+	0.7+	1999 01 06	595	1.4+	0.1+
1993 03 19	691	1.3-	0.1+	1997 09 19	595	0.2-	0.0	1999 01 14	595	0.2-	0.9+

1999 MAR. 2

M.P.C. 33907

1990 08 17	675	(4.1− 2.3+)	1997 08 02	566	0.1− 0.0	1998 12 15	704	0.2− 0.3−
1990 08 19	675	0.4− 0.4−	1997 08 02	566	0.1− 0.1−	1998 12 15	704	0.2+ 0.7+
1990 08 19	675	(0.7− 2.3−)	1997 08 03	566	(1.9− 3.0+)	1998 12 15	704	0.3+ 0.5−
1992 01 09	675	0.3− 1.9−	1997 08 03	566	(1.9− 3.1+)	1999 01 07	699	1.1− 0.4+
1992 01 09	675	(0.0 2.4−)	1997 08 03	566	(1.8− 2.4+)	1999 01 07	699	0.0 0.7+
1992 01 10	675	0.1− 1.3−	1997 08 03	566	0.2− 0.3+	1999 01 07	699	0.5− 0.2−
1997 08 01	566	0.3+ 0.3+	1997 08 03	566	0.1− 0.0	1999 01 11	704	(2.3+ 0.9−)
1997 08 01	566	0.1− 0.2+	1997 08 03	566	0.4+ 0.5+	1999 01 11	704	0.2+ 1.1+
1997 08 01	566	0.3+ 0.4+	1997 08 03	566	0.1+ 0.1−	1999 01 11	704	1.3+ 1.1+
1997 08 02	566	0.2− 0.1−	1997 08 03	566	0.2+ 0.2+			
1997 08 02	566	0.2− 0.3−	1997 08 03	566	0.0 0.1+			

(10203)* 1997 PQ = 1991 RR₂₇

Discovered 1997 Aug. 1 by F. B. Zoltowski at Woomera.

Id. G. V. Williams (*MPC* 30676)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	40.31873	(2000.0)	P	Q	
<i>n</i>	0.30152083	ω	306.12530	+0.31743385	−0.94592437
<i>a</i>	2.2025436	Ω	125.23329	+0.89419436	+0.27513328
<i>e</i>	0.0799131	<i>i</i>	4.69129	+0.31567736	+0.17183933
<i>P</i>	3.27	<i>H</i>	15.0	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1991 09 12	675	0.8+ 0.6−	1997 09 03	426	0.1− 0.2+	1999 01 16	426	0.3+ 0.5+
1991 09 12	675	0.5+ 0.8−	1998 09 20	557	0.2+ 0.4+	1999 01 17	426	0.5+ 0.3+
1991 09 14	675	0.5+ 0.5−	1998 09 20	557	0.1+ 0.3+	1999 01 17	426	1.0+ 0.2+
1991 09 14	675	0.9− 0.6−	1998 09 22	557	0.3− 0.6−	1999 01 17	426	0.2+ 0.6+
1993 04 19	691	0.5− 1.3−	1998 09 22	557	0.2− 0.2+	1999 01 18	704	0.1− 0.0
1993 04 19	691	0.6− 1.3−	1998 12 11	426	0.1+ 0.4−	1999 01 18	704	0.6− 0.1+
1997 07 27	426	0.3+ 0.4−	1998 12 11	426	0.3− 0.4−	1999 01 18	704	0.8− 0.2+
1997 07 27	426	0.2− 0.0	1998 12 11	426	0.6+ 0.7−	1999 01 18	704	0.2− 0.6−
1997 08 01	426	0.5− 0.0	1998 12 15	426	0.5− 0.1−	1999 01 18	704	0.1+ 0.3+
1997 08 01	426	0.6− 0.3−	1998 12 15	426	0.1− 0.7−	1999 01 20	704	0.2− 1.3−
1997 08 04	426	0.1+ 0.0	1998 12 15	426	0.1+ 0.3−	1999 01 20	704	0.7− 1.0+
1997 08 04	426	1.1+ 0.1−	1998 12 16	699	0.2− 0.1−	1999 01 20	704	0.8+ 1.4+
1997 08 08	426	1.0+ 0.4+	1998 12 16	699	0.4+ 0.3−	1999 01 20	704	0.2+ 0.8+
1997 08 08	426	0.4− 0.5+	1998 12 16	699	0.1+ 0.3−	1999 02 10	426	0.1− 0.4+
1997 08 14	426	1.4+ 0.2−	1998 12 22	704	0.2+ 0.4−	1999 02 10	426	0.0 0.3−
1997 08 14	426	0.5− 0.1−	1998 12 22	704	0.5− 0.3−	1999 02 10	426	0.1− 0.4−
1997 09 02	426	0.2− 0.1−	1998 12 22	704	0.4− 0.2+	1999 02 12	426	0.5+ 0.3−
1997 09 02	426	0.2− 0.9+	1998 12 22	704	0.0 0.3+	1999 02 12	426	0.2− 0.1−
1997 09 03	426	0.3− 0.2−	1998 12 22	704	1.1− 0.5−			
1997 09 03	426	1.0− 0.4+	1999 01 16	426	0.9+ 0.6+			

(10204)* 1997 PK₁ = 1990 BK₄ = 1990 DJ₅

Discovered 1997 Aug. 1 by P. G. Comba at Prescott.

Id. G. V. Williams (*MPC* 30676)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	6.24138	(2000.0)	P	Q	
<i>n</i>	0.21010734	ω	294.04863	+0.21414487	−0.97416027
<i>a</i>	2.8022609	Ω	143.35381	+0.93420489	+0.18278555
<i>e</i>	0.0787278	<i>i</i>	6.90805	+0.28531246	+0.13266954
<i>P</i>	4.69	<i>H</i>	13.7	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1990 01 24	033	0.6+ 0.0	1997 08 10	684	0.5− 0.6−	1998 11 14	684	0.5− 0.3+
1990 01 25	033	1.2− 0.9−	1997 08 10	684	0.3− 0.8−	1998 12 12	684	0.6− 0.0
1990 02 23	033	0.4+ 0.4−	1997 08 23	684	0.8+ 0.3+	1998 12 12	684	0.6− 0.0
1990 02 23	033	0.3+ 0.6+	1997 08 23	684	0.9+ 0.1+	1998 12 13	684	0.0 0.0
1995 02 04	691	0.1− 0.2−	1997 08 23	684	0.8+ 0.2+	1998 12 13	684	0.1− 0.1+
1995 02 04	691	0.1− 0.1−	1997 08 25	684	0.2+ 0.0	1998 12 15	704	0.4+ 0.3+
1995 02 04	691	0.0 0.2−	1997 08 25	684	0.2+ 0.4+	1998 12 15	704	0.2+ 0.2+
1997 08 01	684	0.0 0.2−	1997 08 25	684	0.4+ 0.2+	1998 12 15	704	1.1+ 0.1−
1997 08 01	684	0.1− 0.2−	1997 09 21	684	0.6− 0.3−	1998 12 15	704	1.4+ 0.3−
1997 08 04	684	0.3+ 0.4+	1997 09 21	684	0.5− 0.1−	1998 12 15	704	0.3− 0.5+

1997 08 04	684	0.4+ 0.4+	1997 09 21	684	0.4− 0.1−	1998 12 22	704	0.1+ 0.2+
1997 08 04	684	0.3+ 0.4+	1997 09 22	684	0.4− 0.0	1998 12 22	704	1.2+ 1.2−
1997 08 05	684	0.2− 0.2−	1997 09 22	684	0.2− 0.2−	1998 12 22	704	0.7− 0.1−
1997 08 05	684	0.3− 0.1−	1998 11 13	684	0.4− 0.0	1998 12 22	704	0.7− 0.3+
1997 08 05	684	0.3− 0.2−	1998 11 13	684	0.4− 0.1+			
1997 08 10	684	0.4− 0.6−	1998 11 14	684	0.2− 0.1+			

(10205)* 1997 PX₁ = 1964 EF = 1993 KU₂

Discovered 1997 Aug. 7 at Kleť.

Id. G. V. Williams (*MPC* 30676)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	188.98417	(2000.0)	P	Q	
<i>n</i>	0.27602827	ω	179.30111	+0.05463373	+0.99316597
<i>a</i>	2.3361479	Ω	93.82699	−0.91661255	+0.09085044
<i>e</i>	0.1228236	<i>i</i>	5.93292	−0.39602599	−0.07326361
<i>P</i>	3.57	<i>H</i>	14.6	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1964 03 11	033	1.7− 2.1+	1997 08 12	046	0.4− 0.5+	1997 09 25	046	0.6+ 0.1−
1964 03 12	033	1.9+ 1.3−	1997 08 12	046	0.3− 0.3+	1997 09 26	046	0.4+ 0.4−
1991 12 27	691	1.5+ 1.7+	1997 08 13	046	0.1− 0.1+	1997 09 26	046	0.7+ 0.3−
1991 12 27	691	0.3− 0.6+	1997 08 13	046	0.2+ 0.2+	1997 09 26	046	0.5+ 0.2−
1991 12 27	691	0.4− 0.8−	1997 08 13	046	0.1+ 0.1+	1997 10 19	046	0.4+ 0.0
1993 05 27	010	0.1− 1.2+	1997 08 14	046	0.7+ 0.1+	1997 10 19	046	0.6+ 0.1−
1993 05 27	010	(0.7+ 2.4+)	1997 08 14	046	0.5+ 0.1+	1997 10 19	046	0.5+ 0.0
1993 05 28	010	0.8+ 1.6+	1997 08 14	046	0.6+ 0.1+	1997 10 22	046	0.2− 0.0
1993 05 29	010	(2.3+ 2.7+)	1997 08 22	046	0.2+ 0.2−	1997 10 22	046	0.5+ 0.0
1993 05 29	010	(3.0+ 3.8+)	1997 08 22	046	0.2− 0.1+	1997 10 22	046	0.2+ 0.1−
1993 05 29	010	(3.2+ 4.3+)	1997 08 22	046	0.2− 0.3+	1998 11 23	704	0.6− 0.5−
1997 08 07	046	0.4− 0.0	1997 08 23	046	0.1− 0.1−	1998 11 23	704	0.6− 0.3+
1997 08 07	046	0.4− 0.1+	1997 08 23	046	0.1− 0.0	1998 11 23	704	(3.1− 0.1−)
1997 08 07	046	0.5+ 0.4−	1997 08 23	046	0.0 0.0	1998 11 23	704	(1.5− 2.5+)
1997 08 07	046	0.0 0.1+	1997 08 27	046	0.5− 0.0	1998 12 10	046	0.2− 0.1−
1997 08 07	046	0.0 0.1+	1997 08 27	046	0.5− 0.2−	1998 12 10	046	0.3− 0.1+
1997 08 07	046	0.1− 0.0	1997 08 27	046	0.4− 0.1−	1998 12 10	046	0.4− 0.2−
1997 08 07	046	0.0 0.0	1997 08 30	566	0.1− 0.1+	1998 12 11	046	0.1− 0.1−
1997 08 07	046	0.1− 0.1−	1997 08 30	566	0.5− 0.1+	1998 12 11	046	0.1− 0.1+
1997 08 07	046	0.1+ 0.2−	1997 08 30	566	0.0 0.0	1998 12 11	046	0.0 0.0
1997 08 07	046	0.1+ 0.0	1997 09 01	566	0.5− 0.2+	1998 12 15	704	0.6+ 0.8+
1997 08 09	046	0.4+ 0.0	1997 09 01	566	0.6− 0.3+	1998 12 15	704	0.5+ 1.0−
1997 08 09	046	0.2− 0.0	1997 09 01	566	0.5− 0.3+	1998 12 15	704	0.5+ 0.8+
1997 08 09	046	0.0 0.6+	1997 09 02	566	0.4− 0.7+	1998 12 15	704	0.6+ 0.5−
1997 08 10	046	0.1− 0.1+	1997 09 02	566	0.3− 0.6+	1998 12 15	704	1.0+ 0.3+
1997 08 10	046	0.4+ 0.0	1997 09 02	566	0.6− 0.3+	1999 01 18	046	0.6− 0.6+
1997 08 10	046	0.4+ 0.4+	1997 09 08	046	0.3− 0.3−	1999 01 18	046	0.4− 0.9+
1997 08 11	046	0.0 0.4+	1997 09 08	046	0.4− 0.1−	1999 01 18	046	0.3− 0.9+
1997 08 11	046	0.3− 0.3+	1997 09 08	046	0.4− 0.2−	1999 01 19	046	0.4− 0.7+
1997 08 11	046	0.2− 0.1+	1997 09 25	046	0.2+ 0.3−	1999 01 19	046	0.3− 0.7+
1997 08 12	046	0.3− 0.6+	1997 09 25	046	0.7+ 0.3−	1999 01 19	046	0.0 0.8+

(10206)* 1997 PC₂ = 1989 GT₇ = 1996 FF₁

Discovered 1997 Aug. 7 by L. L. Amburgey at Fitchburg.

Id. G. V. Williams (*MPC* 30677)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	181.77738	(2000.0)	P	Q	
<i>n</i>	0.27208560	ω	324.91092	+0.25025737	+0.96806099
<i>a</i>	2.3586618	Ω	319.57581	−0.88286349	+0.22175888
<i>e</i>	0.0715037	<i>i</i>	1.33775	−0.39739566	+0.11696549
<i>P</i>	3.62	<i>H</i>	14.4	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1989 04 10	809	0.3− 1.5−	1997 08 07	823	0.8+ 0.7+	1997 10 19	327	0.3− 0.1−
1989 04 10	809	0.7− 1.5−	1997 08 08	823	0.3+ 0.2−	1997 10 19	327	0.1

1996 03 19	566	1.4−	1.6+	1997 08 23	358	(1.0−	3.4−)	1998 12 14	704	0.1−	0.8+
1996 03 19	566	(3.3+	3.6+)	1997 08 24	358	1.3−	0.2+	1998 12 14	704	0.0	0.5−
1996 03 19	566	1.6−	1.9+	1997 08 24	358	1.6−	1.9−	1998 12 14	704	0.9+	1.8−
1996 03 19	566	(2.9+	4.0+)	1997 08 24	358	(2.4−	1.3−)	1998 12 14	704	0.7−	0.8−
1996 03 19	566	0.9−	1.4+	1997 08 25	823	0.9+	0.5−	1998 12 17	704	1.0+	1.1+
1996 03 20	566	1.6+	0.1−	1997 08 25	823	0.5+	0.2−	1998 12 17	704	0.7−	1.1−
1996 03 20	566	1.4+	0.2−	1997 08 26	823	0.1+	0.2−	1998 12 17	704	0.2−	0.7−
1996 03 20	566	1.3+	0.1−	1997 08 26	823	0.6+	0.6−	1998 12 17	704	(0.7+	3.3+)
1996 04 22	566	0.8+	0.4−	1997 08 27	358	0.2+	0.6−	1999 01 16	704	0.8+	0.8−
1996 04 22	566	0.1−	0.1−	1997 08 27	358	1.8+	1.1+	1999 01 16	704	0.5−	0.9−
1996 04 22	566	0.6+	0.7−	1997 08 30	358	1.0−	1.0+	1999 01 16	704	0.5+	0.9−
1997 08 07	823	0.7−	0.6+	1997 08 30	358	(2.1−	5.3−)	1999 01 16	704	0.8−	2.0+

(10207)* 1997 QA = 1980 BH₆ = 1981 KQ

Discovered 1997 Aug. 16 by P. Kolény and L. Kornoš at Modra.

Id. G. V. Williams (*MPC* 31250)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		160.04932		(2000.0)		P		Q	
<i>n</i>		0.26307205	ω	25.85948		+0.95787091		+0.27597123	
<i>a</i>		2.4122348	Ω	317.86676		−0.27976052		+0.83397725	
<i>e</i>		0.0831159	<i>i</i>	6.80743		−0.06494126		+0.47783033	
<i>P</i>		3.75	<i>H</i>	13.9		<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1980 01 23	095	0.2−	0.9−	1997 09 11	118	0.1+	0.1+	1998 01 18	118	0.2−	0.5−
1981 05 28	809	0.1−	0.1+	1997 09 11	118	0.2+	0.1+	1998 01 29	118	0.1−	0.6+
1989 07 29	675	0.0	0.1−	1997 09 11	118	0.2+	0.2+	1998 01 29	118	0.0	0.4+
1989 07 29	675	0.2+	0.4−	1997 09 11	118	0.4+	0.2+	1998 02 25	118	0.3+	0.2−
1997 08 16	118	0.1+	0.4−	1997 09 11	118	0.4+	0.2+	1998 02 25	118	0.3+	0.4−
1997 08 16	118	0.1−	0.2−	1997 09 12	118	0.4+	0.2+	1999 01 15	699	0.2+	1.0+
1997 08 16	118	0.6−	0.3−	1997 09 16	118	0.5+	0.4+	1999 01 15	699	0.2+	0.6+
1997 08 16	118	0.0	0.3−	1997 09 16	118	0.3+	0.5+	1999 01 15	699	0.0	0.2+
1997 08 16	118	0.3−	0.3−	1997 09 25	118	0.8−	0.2−	1999 02 09	118	0.0	0.4−
1997 08 18	118	1.3+	0.3−	1997 09 25	118	0.7−	0.2−	1999 02 09	118	0.1+	0.2−
1997 08 18	118	1.7+	0.5−	1997 09 25	118	0.8−	0.3−	1999 02 12	699	0.1+	1.3+
1997 08 18	118	1.7+	0.2−	1997 09 28	118	0.8−	0.3+	1999 02 12	704	0.3−	0.0
1997 08 20	118	0.1+	0.5−	1997 09 28	118	0.7−	0.3+	1999 02 12	704	0.0	0.4+
1997 08 20	118	0.3+	0.3−	1997 09 28	118	0.8−	0.3+	1999 02 12	699	0.8+	0.4+
1997 08 20	118	0.5+	0.2−	1997 10 19	118	0.5−	0.3+	1999 02 12	704	0.7−	0.2−
1997 08 21	118	0.2+	0.4−	1997 10 19	118	1.1−	0.3+	1999 02 12	704	0.4+	1.1+
1997 08 21	118	0.0	0.4−	1997 11 18	118	0.2+	0.4−	1999 02 12	699	0.4+	1.7−
1997 08 26	118	0.7−	0.5−	1997 11 18	118	0.0	0.6−	1999 02 12	704	0.3−	0.6+
1997 08 26	118	0.6−	0.5−	1997 11 18	118	0.1+	0.8−	1999 02 16	118	0.2−	0.6−
1997 08 27	118	0.1−	0.1−	1997 11 19	118	0.2−	0.0	1999 02 16	118	0.2−	0.6−
1997 08 27	118	0.1−	0.1−	1997 11 19	118	0.4−	0.0	1999 02 16	118	0.2−	0.7−
1997 09 01	118	0.1+	0.5+	1997 12 25	118	0.2+	0.2+	1999 02 16	704	0.1−	0.7−
1997 09 01	118	0.0	0.3+	1997 12 25	118	0.1+	0.1−	1999 02 16	704	0.3+	0.2−
1997 09 01	118	0.0	0.4+	1997 12 25	118	0.3+	0.0	1999 02 16	704	0.4+	0.2+
1997 09 06	118	0.9+	1.6+	1998 01 18	118	0.2−	0.4−	1999 02 16	704	0.5−	0.2+
1997 09 06	118	1.0+	1.7+	1998 01 18	118	0.2−	0.6−	1999 02 16	704	0.2+	0.1+

(10208)* 1997 QN₁ = 1987 QJ₇ = 1994 WP₁₂

Discovered 1997 Aug. 30 at Stroncone.

Id. G. V. Williams (*MPC* 30679)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		146.51381		(2000.0)		P		Q	
<i>n</i>		0.29486751	ω	114.36595		+0.92702390		+0.37093443	
<i>a</i>		2.2355519	Ω	223.91654		−0.36637152		+0.86453063	
<i>e</i>		0.2010875	<i>i</i>	4.55509		−0.07999121		+0.33910830	
<i>P</i>		3.34	<i>H</i>	14.6		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1987 08 26	095	(3.1+	1.3+)	1997 09 05	589	0.3−	0.2+	1997 11 02	589	0.1−	0.1+
1987 08 31	054	0.4−	1.5+	1997 09 05	589	0.2−	0.1−	1997 11 02	589	0.0	0.2−
1987 09 01	095	(3.7−	0.2−)	1997 09 08	589	0.8+	0.2−	1997 11 02	589	0.5−	0.1−

1994 11 27	408	0.1−	0.7−	1997 09 08	589	0.9+	0.2−	1997 11 03	589	0.7+	0.2+
1994 11 27	408	0.0	0.2−	1997 09 08	589	0.8−	0.3+	1997 11 03	589	0.8+	0.1−
1994 12 04	408	0.3+	0.2+	1997 09 10	589	0.1+	0.1−	1997 11 03	589	0.5+	0.0
1994 12 04	408	0.6+	1.1+	1997 09 10	589	0.3+	0.4−	1999 01 15	699	0.1+	0.4−
1994 12 04	408	0.3−	1.0−	1997 09 10	589	0.1−	0.1−	1999 01 15	699	0.8+	0.7+
1995 02 03	691	1.0−	0.5−	1997 09 18	589	0.2−	0.0	1999 01 15	699	0.6+	0.3−
1995 02 03	691	0.7−	0.3−	1997 09 18	589	0.0	0.1−	1999 02 12	704	0.9+	0.9+
1997 08 30	589	0.0	0.5+	1997 09 18	589	0.6−	0.3+	1999 02 12	704	0.2+	0.4+
1997 08 30	589	0.1+	0.2−	1997 09 18	589	0.8−	0.3+	1999 02 12	704	1.1+	0.9+
1997 08 30	589	0.5−	0.1+	1997 09 18	589	0.6−	0.5+	1999 02 12	704	0.3+	2.1+
1997 08 30	589	0.9−	0.5+	1997 09 24	589	0.5+	0.4+	1999 02 12	704	0.2−	0.6+
1997 08 31	589	0.2−	0.4+	1997 09 24	589	0.2−	0.0	1999 02 16	704	0.6−	0.3−
1997 08 31	589	0.3−	0.5+	1997 09 24	589	0.1+	0.2−	1999 02 16	704	1.4+	0.5+
1997 09 01	589	0.3−	0.5+	1997 09 24	589	0.3−	0.2+	1999 02 16	704	0.0	0.4+
1997 09 01	589	0.6+	0.0	1997 09 26	589	0.1−	0.2−	1999 02 16	704	0.5−	0.2+
1997 09 01	589	0.6+	0.1+	1997 09 26	589	0.5+	0.1+	1999 02 16	704	1.9−	0.2−
1997 09 05	589	0.1+	0.1−	1997 11 02	589	0.1−	0.9−				

(10209)* 1997 QY₁ = 1929 TA₁ = 1982 SY₁₂ = 1995 DA₁₄ = 1996 KE₆

Discovered 1997 Aug. 24 by Y. Shimizu and T. Urata at the Nachi-Katsuura

Observatory.

Id. S. Nakano (*MPC* 30679)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		104.32367		(2000.0)		P		Q	
<i>n</i>		0.26032847	ω	339.06805		+0.91528805		−0.40070230	
<i>a</i>		2.4291534	Ω	44.62419		+0.37737030		+0.81739797	
<i>e</i>		0.2007703	<i>i</i>	3.35050		+0.14085252		+0.41388191	
<i>P</i>		3.79	<i>H</i>	14.2		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1929 10 10	690	0.2+	0.3−	1997 08 24	905	1.0−	0.6+	1999 01 15	699	0.8+	0.3−
1982 09 28	095	0.8+	1.4−	1997 08 27	905	0.6+	0.4+	1999 01 15	699	1.0+	0.7+
1995 02 22	033	0.8−	0.9+	1997 08 27	905	1.6−	0.2−	1999 02 10	704	0.4−	0.2−
1995 02 22	033	1.6−	1.1+	1997 09 03	385	0.3−	0.6+	1999 02 10	704	0.8−	0.3−
1996 04 17	809	(3.1+	0.7+)	1997 09 03	385	0.4−	0.6+	1999 02 10	704	0.4+	0.4−
1996 04 17	809	(3.0+	1.0+)	1997 09 04	385	0.1+	1.0+	1999 02 10	704	0.0	0.7+
1996 04 17	809	(2.6+	1.0+)	1997 09 04	385	0.1−	0.9+	1999 02 10	704	0.3−	0.6−
1996 05 19	809	1.4+	1.1−	1997 10 31	566	0.4−	1.1+	1999 02 13	704	0.8+	0.3+
1996 05 19	809	0.3−	0.2+	1997 10 31	566	0.6−	0.9+	1999 02 13	704	2.0+	0.8+
1996 05 19	809	0.7−	0.1+	1997 10 31	566	1.1−	1.1+	1999 02 13	704	0.1+	0.4+
1996 05 22	809	0.1+	1.6+	1997 12 01	910	(2.5−	0.4−)	1999 02 13	704	1.4+	2.1+
1996 05 22	809	0.4+	0.6+	1997 12 01	910	(2.4−	0.5−)	1999 02 13	704	1.5+	0.6+
1996 05 22	809	1.5−	0.9+	1997 12 01	910	(2.4−	0.3−)				
1997 08 24	905	1.0+	1.1+	1999 01 15	699	0.7−	0.2−				

(10210)* 1997 QV₃ = 1989 TO₁₇ = 1992 LC₁

Discovered 1997 Aug. 30 by the OCA-DLR Asteroid Survey at Caussols.

Id. K. Ichikawa (*MPC* 30769)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	237.25684		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.25274846	ω	74.35943	-0.06118905	+0.99789080
a	2.4774812	Ω	192.19414	-0.95057220	-0.06488336
e	0.0930437	i	5.89010	-0.30441484	+0.00202463
P	3.90	H	14.4	G 0.15	U 1

1999 MAR. 2

M.P.C. 33909

1992 06 03	809	0.5+	0.7+	1997 10 29	704	1.7+	0.2+	1999 02 12	704	0.7-	0.3+
1992 06 03	809	1.0+	0.5+	1997 10 30	704	1.0+	0.4+	1999 02 16	704	0.4+	0.5+
1992 06 03	809	0.0	0.2-	1997 10 30	704	1.1+	0.0	1999 02 16	704	0.5+	0.8+
1997 08 30	910	0.6-	0.8+	1997 10 30	704	0.6+	0.1+	1999 02 16	704	0.4-	0.2-
1997 08 30	910	0.8-	0.8+	1997 10 30	704	0.6+	0.1-	1999 02 16	704	0.1-	0.1+
1997 08 30	910	0.9-	0.5+	1997 10 30	704	0.9+	0.0	1999 02 16	704	1.3-	0.1-
1997 09 01	910	1.3-	0.4+	1997 11 30	566	1.0-	0.1+				

(10211)* 1997 RG₃ = 1977 EQ₅ = 1982 UM₄

Discovered 1997 Sept. 6 at Monte Viseggi.

Id. G. V. Williams (*MPC* 30770)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		186.27252		(2000.0)		P		Q	
<i>n</i>		0.25856439	ω	98.29552		+0.02561831		+0.99965862	
<i>a</i>		2.4401896	Ω	173.16619		-0.93332142		+0.02575679	
<i>e</i>		0.1789032	<i>i</i>	2.47195		-0.35812684		+0.00438448	
<i>P</i>		3.81	<i>H</i>	13.7		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1977 03 12	381	(3.6-	1.0+)	1997 09 11	126	0.5+	0.0	1997 10 05	691	1.0-	0.1+
1977 03 12	381	0.6-	0.3-	1997 09 16	126	1.5+	0.1+	1998 12 18	126	0.0	0.3+
1977 03 14	381	0.6-	0.3-	1997 09 16	126	0.5+	0.5+	1998 12 18	126	0.1-	0.3+
1977 03 14	381	0.5+	1.1-	1997 09 19	126	1.5-	1.0-	1998 12 18	126	0.2+	0.4+
1982 10 20	033	0.2+	0.5-	1997 09 19	126	0.3-	0.2+	1998 12 18	126	0.2+	0.1+
1997 09 06	126	0.9+	0.2-	1997 09 19	126	0.3+	0.1+	1998 12 22	704	1.9+	0.8+
1997 09 06	126	0.4+	0.2-	1997 09 20	126	0.4-	0.1-	1998 12 22	704	0.3+	0.8-
1997 09 06	126	0.5+	0.3+	1997 09 20	126	0.7+	0.2+	1998 12 22	704	1.0-	0.2+
1997 09 07	126	0.7+	0.0	1997 09 26	126	1.2+	0.6-	1998 12 22	704	(2.4-	1.0+)
1997 09 07	126	0.6+	0.0	1997 09 26	126	0.1+	0.5+	1998 12 22	126	0.1+	0.6-
1997 09 07	126	1.0-	0.8+	1997 09 26	126	0.1+	0.1+	1998 12 22	126	0.1+	0.4-
1997 09 07	126	1.2-	0.4+	1997 09 29	691	1.0-	0.3+	1998 12 22	126	0.3+	0.1-
1997 09 07	126	0.5+	0.2+	1997 09 29	691	1.0-	0.5+	1999 01 05	126	0.4-	0.5+
1997 09 07	126	0.8+	0.2+	1997 09 29	691	0.9-	0.2+	1999 01 05	126	0.4-	0.7+
1997 09 07	126	0.6+	0.0	1997 10 03	126	0.2+	1.0-	1999 01 05	126	0.8-	0.1-
1997 09 08	126	0.2-	0.0	1997 10 03	126	0.2+	1.5-	1999 01 15	126	0.6-	1.2-
1997 09 08	126	0.2+	0.1+	1997 10 03	126	0.1+	1.1-	1999 01 15	126	0.0	0.1+
1997 09 11	126	0.4-	0.4-	1997 10 05	691	1.1-	0.1-				
1997 09 11	126	0.6+	0.2-	1997 10 05	691	1.1-	0.1+				

(10212)* 1997 RA₇ = 1977 EM₆ = 1978 RG₅

Discovered 1997 Sept. 3 by S. P. Laurie at Church Stretton.

Id. G. V. Williams (*MPC* 30681)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		226.68660		(2000.0)		P		Q	
<i>n</i>		0.30881147	ω	20.75461		-0.10306088		+0.99396978	
<i>a</i>		2.1677396	Ω	243.34595		-0.91840147		-0.10954980	
<i>e</i>		0.0922674	<i>i</i>	2.40159		-0.38199109		-0.00478729	
<i>P</i>		3.19	<i>H</i>	14.6		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1977 03 12	381	0.8-	0.5+	1997 09 28	566	0.5-	1.2+	1999 01 09	120	0.2-	0.3+
1977 03 12	381	0.0	0.2+	1997 09 28	566	0.1+	1.4+	1999 01 18	704	0.3+	0.6-
1977 03 14	381	0.1+	0.1-	1997 09 28	566	1.1-	0.8+	1999 01 18	704	0.1-	1.0-
1977 03 14	381	0.7+	0.5-	1997 09 28	566	0.3+	0.1+	1999 01 18	704	1.2+	0.3+
1977 03 15	381	0.5+	0.0	1997 09 28	566	0.3+	0.1+	1999 01 18	704	0.5+	0.6+
1977 03 15	381	0.6-	0.4-	1998 12 23	704	0.6+	0.3+	1999 01 18	704	0.6-	0.9-
1978 09 06	095	0.3-	0.8+	1998 12 23	704	1.6-	1.5-	1999 02 12	704	0.6-	0.4-
1997 09 03	966	0.5+	0.3-	1998 12 23	704	1.6-	1.6-	1999 02 12	704	0.0	0.8+
1997 09 04	966	0.2-	0.5-	1998 12 23	704	0.8+	0.4+	1999 02 12	704	0.2+	0.0
1997 09 04	966	0.5-	1.3-	1998 12 26	120	0.7+	0.1-	1999 02 12	704	0.5+	0.1+
1997 09 04	966	0.1+	0.1+	1998 12 26	120	0.6-	0.0	1999 02 12	704	0.3-	0.2+
1997 09 04	966	0.6+	0.7-	1998 12 26	120	0.4-	0.1-	1999 02 16	704	1.1+	0.2-
1997 09 09	966	0.6+	1.8-	1999 01 06	120	0.0	0.5+	1999 02 16	704	0.2-	1.1+
1997 09 09	966	0.6+	0.9-	1999 01 07	120	0.3-	0.4+	1999 02 16	704	0.5+	0.5+
1997 09 28	566	0.7-	0.9+	1999 01 09	120	0.2-	0.2+	1999 02 16	704	(2.4-	3.3+)

(10213)* 1997 RK₇ = 1978 PH₄ = 1978 TW = 1982 UT₈

Discovered 1997 Sept. 10 at Kleť.

Id. G. V. Williams (*MPC* 31114)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		121.27544		(2000.0)		P		Q	
<i>n</i>		0.25936167	ω	54.85720		+0.99383309		+0.03569002	
<i>a</i>		2.4351863	Ω	302.88005		-0.08008186		+0.88589405	
<i>e</i>		0.2611523	<i>i</i>	7.18142		+0.07669868		+0.46251266	
<i>P</i>		3.80	<i>H</i>	14.5		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1978 08 09	095	0.8-	1.3+	1997 09 23	046	0.0	0.1-	1997 12 21	046	0.7+	0.0
1978 10 02	095	0.2+	1.2+	1997 09 23	046	0.1+	0.1-	1997 12 21	046	0.6+	0.1+
1982 10 21	095	1.2-	0.8+	1997 09 23	046	0.0	0.2-	1997 12 21	046	0.6+	0.2-
1997 08 30	566	0.2+	0.4-	1997 09 29	046	0.1+	0.2-	1997 12 27	566	0.2-	0.6-
1997 08 30	566	0.3-	0.6+	1997 09 29	046	0.0	0.2-	1997 12 27	566	0.2+	1.0-
1997 08 30	566	0.9+	0.5+	1997 09 29	046	0.1+	0.2-	1997 12 27	566	0.1+	0.7-
1997 09 10	046	0.0	0.3+	1997 10 17	046	0.1+	0.3-	1999 01 21	046	0.3+	0.2+
1997 09 10	046	0.2-	0.4+	1997 10 17	046	0.1+	0.3-	1999 01 21	046	0.1+	0.4+
1997 09 10	046	0.1-	0.4+	1997 10 17	046	0.2+	0.2-	1999 01 21	046	0.1+	0.1+
1997 09 10	046	0.2-	0.5+	1997 10 18	046	0.0	0.2-	1999 01 22	046	0.0	0.2+
1997 09 11	046	0.4-	0.4+	1997 10 18	046	0.1-	0.2-	1999 01 22	046	0.4-	0.3+
1997 09 11	046	0.4-	0.3+	1997 10 18	046	0.1+	0.3-	1999 01 22	046	0.2+	0.1+
1997 09 11	046	0.3-	0.3+	1997 10 27	046	0.3-	0.2+	1999 02 12	704	0.8+	1.0+
1997 09 11	046	0.2-	0.4+	1997 10 27	046	0.1-	0.4+	1999 02 12	704	0.4+	1.7+
1997 09 12	046	0.2-	0.3+	1997 10 27	046	0.1-	0.0	1999 02 12	704	(1.0+	2.7+)
1997 09 12	046	0.1-	0.2+	1997 10 29	046	0.1-	0.3+	1999 02 12	704	1.1+	0.7+
1997 09 12	046	0.3-	0.2+	1997 10 29	046	0.1+	0.2+	1999 02 16	704	1.0-	0.6-
1997 09 16	046	0.3-	0.1+	1997 10 29	046	0.1+	0.2+	1999 02 16	704	0.3+	0.5-
1997 09 16	046	0.1-	0.0	1997 11 05	046	0.4+	0.2-	1999 02 16	704	1.5+	0.6+
1997 09 16	046	0.1-	0.0	1997 11 05	046	1.0+	0.7-	1999 02 16	704	0.2-	0.4-
1997 09 20	046	0.2-	0.3-	1997 12 19	046	0.1+	0.1-	1999 02 25	046	0.2-	0.6+
1997 09 20	046	0.3-	0.3-	1997 12 19	046	0.3+	0.2-	1999 02 25	046	0.1+	0.3+
1997 09 20	046	0.3-	0.3-	1997 12 19	046	0.5+	0.0	1999 02 25	046	0.3-	0.3+

(10214)* 1997 RT₉ = 1979 SD₆ = 1982 JW₁ = 1988 RN₈

Discovered 1997 Sept. 10 by T. Pauwels at Uccle.

Id. B. G. Marsden (*MPC* 30771)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		65.69690		(2000.0)		P		Q	
<i>n</i>		0.21910414	ω	240.64717		+0.49433591		-0.86927086	
<i>a</i>		2.7250156	Ω	179.72571		+0.82584812		+0.46948525	
<i>e</i>		0.2093007	<i>i</i>	5.23883		+0.27130591		+0.15476361	
<i>P</i>		4.50	<i>H</i>	13.9		<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1979 09 23	095	0.9-	1.1+	1997 09 30	566	1.3+	0.4-	1998 11 25	704	1.5-	1.4-
1982 05 15	675	0.6+	0.5+	1997 09 30	566	0.9+	0.4-	1998 11 25	704	(2.1-	2.3-)
1982 05 16	675	1.6-	0.3-	1997 09 30	566	1.1+	0.6-	1999 01 15	699	0.5+	0.2+
1982 05 17	675	0.2-	0.3+	1997 10 27	012	0.4+	0.2-	1999 01 15	699	0.4+	0.4-
1982 05 18	675	0.3-	0.3-	1997 10 27	012	0.2+	0.1+	1999 01 15	699	0.1-	0.5+
1988 09 11	071	(3.1-	0.8-)	1997 10 27	557	0.3-	0.0	1999 02 05	120	0.1+	1.2-
1988 09 11	071	2.2+	0.5+	1997 10 27	012	0.4+	0.1-	1999 02 05	120	0.7+	0.3+
1997 09 10	012	0.4-	0.0	1997 10 27	557	0.4-	0.0	1999 02 15	120	0.4+	0.4-
1997 09 11	012	0.2-	0.0	1997 12 26	566	1.5-	0.3+	1999 02 15	120	0.8+	0.3-
1997 09 11	012	0.4-	0.0	1997 12 26	566	1.8-	0.3+	1999 02 16	704	0.0	0.1-
1997 09 13	012	0.3-	0.1-	1997 12 26	566	0.4-	1.1+	1999 02 16	704	0.0	0.3+
1997 09 13	012	0.0	0.3+	1997 12 30	566	0.8-	0.7-	1999 02 16	704	0.3-	0.7+
1997 09 13	012	0.2+	0.1+	1997 12 30	566	0.7-	0.5-	1999 02 16	704	0.1-	0.0
1997 09 25	012	0.0	0.3-	1997 12 30	566	0.8-	0.0	1999 02 16	704	0.1-	0.2-
1997 09 25	012	0.1-	0.2-	1998 11 25	704	0.9-	0.7+				
1997 09 25	012	0.1+	0.6-	1998 11 25	704	(0.1+	2.4-)				

(10215)* 1997 SQ = 1982 VA₄ = 1992 UO₇ = 1995 FF₁₃

Discovered 1997 Sept. 20 by L. Šarounová at Ondřejov.

Id. G. V. Williams (*MPC* 30772)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	97.35680	(2000.0)	P	Q	
<i>n</i>	0.19259135	ω 303.93157	+0.99864725	-0.05089074	
<i>a</i>	2.9696928	Ω 58.98764	+0.05086391	+0.91350717	
<i>e</i>	0.1592348	<i>i</i> 0.71321	+0.01079550	+0.40362703	
<i>P</i>	5.12	<i>H</i> 14.8	<i>G</i> 0.15	<i>U</i> 1	

Residuals in seconds of arc

1982 11 14	381	1.1+	1.1+	1997 09 21	557	0.4+	0.4-	1997 11 03	557	0.2+	0.1-
1982 11 14	381	0.4+	0.5+	1997 09 21	557	0.2+	0.4-	1997 11 04	557	0.1+	0.4+
1992 10 18	691	1.3-	0.3-	1997 09 24	557	0.3+	0.2-	1998 12 10	557	0.1-	1.5-
1992 10 18	691	1.3-	0.1-	1997 09 24	557	0.2+	0.2-	1998 12 10	557	0.5+	0.8-
1992 10 21	691	1.1-	0.1-	1997 09 25	557	0.5+	0.2-	1998 12 17	691	0.5-	0.1-
1992 10 21	691	0.8-	0.2+	1997 09 25	557	0.1+	0.2-	1998 12 17	691	0.6-	0.2+
1992 10 21	691	0.9-	0.0	1997 09 25	557	0.4+	0.2+	1998 12 17	691	0.6-	0.5-
1995 03 27	691	0.4-	0.7-	1997 10 05	557	0.3+	0.0	1998 12 18	557	0.7+	0.9-
1995 03 27	691	0.4-	0.4-	1997 10 05	557	0.3+	0.0	1998 12 18	557	0.6+	0.5-
1995 03 27	691	0.3-	0.5-	1997 10 17	557	0.1-	0.7-	1998 12 22	691	1.2-	0.8+
1995 04 07	691	0.2-	0.2-	1997 10 17	557	0.5+	0.4-	1998 12 22	691	1.2-	0.5+
1995 04 07	691	0.0	0.6-	1997 10 17	557	0.7+	0.3-	1998 12 22	691	1.9-	0.6+
1995 04 07	691	0.0	0.3-	1997 10 25	595	0.7+	0.9-	1999 01 12	557	0.5+	0.0
1997 09 20	557	0.5+	0.2+	1997 10 25	595	0.2+	0.5+	1999 01 12	557	0.3+	0.0
1997 09 20	557	0.7+	0.0	1997 10 29	595	0.4-	0.1+	1999 01 12	557	0.9+	0.5+
1997 09 20	557	0.4-	1.2-	1997 11 01	595	0.3-	0.4+	1999 01 17	557	0.8+	0.0
1997 09 21	557	0.0	0.2-	1997 11 01	595	0.3-	0.3+	1999 01 17	557	1.2+	0.0
1997 09 21	557	0.1+	0.3-	1997 11 03	557	0.2+	0.2+				

(10216)* 1997 SN₃ = 1992 PX₁

Discovered 1997 Sept. 22 by S. P. Laurie at Church Stretton.

Id. G. V. Williams (*MPC* 30879)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	43.09208	(2000.0)	P	Q	
<i>n</i>	0.21514751	ω 290.22545	+0.18441042	-0.98151824	
<i>a</i>	2.7583233	Ω 149.00852	+0.93475119	+0.15907209	
<i>e</i>	0.1385088	<i>i</i> 5.69931	+0.30369887	+0.10638621	
<i>P</i>	4.58	<i>H</i> 13.5	<i>G</i> 0.15	<i>U</i> 1	

Residuals in seconds of arc

1992 08 08	010	0.5+	0.2+	1997 10 27	966	0.9-	1.9+	1999 02 12	704	0.2+	0.6+
1992 08 08	010	0.2-	0.3+	1997 10 28	966	0.2+	0.6-	1999 02 12	704	0.5-	0.1-
1992 08 08	010	0.6-	1.4-	1997 12 26	566	0.5+	0.2-	1999 02 12	704	0.4+	0.7+
1992 08 09	010	(2.6+	1.1+)	1997 12 26	566	0.1-	0.2+	1999 02 12	704	0.4-	0.2+
1992 08 09	010	0.0	0.9+	1997 12 26	566	0.2+	0.1+	1999 02 12	704	0.7+	0.4+
1992 08 09	010	0.7-	0.7+	1998 11 25	704	0.0	0.1-	1999 02 15	120	0.6-	0.1-
1995 04 24	691	0.1+	0.7-	1998 11 25	704	0.8+	1.9+	1999 02 15	120	0.5-	0.3-
1995 04 24	691	0.0	1.0-	1998 11 25	704	0.2-	0.2+	1999 02 16	704	0.1+	0.2-
1995 04 24	691	0.0	1.1-	1998 11 25	704	1.8+	0.6-	1999 02 16	704	(2.2-	0.9+)
1997 09 22	966	1.4-	0.1-	1999 01 23	120	0.0	0.3-	1999 02 16	704	0.2+	0.3+
1997 09 22	966	(1.2-	2.1+)	1999 01 23	120	0.3-	0.3-	1999 02 16	704	0.3-	0.7+
1997 09 23	966	0.3+	0.2-	1999 01 24	120	0.4-	0.3-	1999 02 16	704	0.4-	0.2+
1997 09 23	966	0.8-	0.3-	1999 01 25	120	0.2-	0.3-	1999 02 17	120	0.5-	0.6-
1997 09 23	966	0.9+	1.2-	1999 01 27	120	0.8-	0.4-	1999 02 17	120	0.5-	0.6-
1997 09 23	966	0.1-	0.3-	1999 01 27	120	0.5+	0.8-	1999 02 21	691	0.1-	0.2-
1997 10 01	966	0.7+	0.6-	1999 01 28	120	0.5-	0.7-	1999 02 21	691	0.0	0.2-
1997 10 01	966	0.5+	0.7-	1999 02 12	699	0.5+	0.3+	1999 02 21	691	0.0	0.1-
1997 10 02	966	1.7+	0.3-	1999 02 12	699	0.3+	0.5+				
1997 10 02	966	0.3+	0.8-	1999 02 12	699	0.4+	0.3+				

(10217)* 1997 SN₄ = 1942 TK = 1953 GG₂ = 1959 TF

Discovered 1997 Sept. 27 at Haleakala by the JPL Near-Earth Asteroid Tracking program.

Id. T. Urata (*MPC* 33700)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	104.49683	(2000.0)	P	Q	
<i>n</i>	0.23277404	ω 1.37445	+0.99985683	+0.01433998	
<i>a</i>	2.6172569	Ω 357.74440	-0.01686745	+0.80242496	
<i>e</i>	0.2566344	<i>i</i> 13.19297	-0.00134612	+0.59658071	
<i>P</i>	4.23	<i>H</i> 12.5	<i>G</i> 0.15	<i>U</i> 2	

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

1942 10 03	186	(0.00+	0.04+)	X	1997 10 16	327	0.3-	0.4+	1999 01 19	704	0.8-	0.1+
1953 04 15	675	0.3+	0.6+		1997 10 23	327	0.2-	0.2+	1999 01 19	704	0.4-	0.2-
1953 04 15	675	0.2+	0.0		1997 10 23	327	0.2-	0.1+	1999 02 10	704	1.1+	0.9-
1959 10 01	024	0.1+	0.2-		1997 10 23	327	0.0	0.1-	1999 02 10	704	0.2+	0.2-
1997 09 27	566	0.1+	0.3-		1999 01 09	699	1.0+	0.1-	1999 02 10	704	1.1+	0.5+
1997 09 27	566	0.3+	0.3-		1999 01 09	699	0.1+	0.3-	1999 02 10	704	0.8+	1.0+
1997 09 27	566	0.4+	0.2-		1999 01 09	699	0.5+	0.5-	1999 02 10	704	0.2+	0.1+
1997 09 28	566	0.5+	0.2+		1999 01 13	905	0.2-	0.6-	1999 02 13	704	0.5-	0.0
1997 09 28	566	0.2+	0.4+		1999 01 13	905	0.6-	0.7+	1999 02 13	704	0.3-	0.5-
1997 09 28	566	0.1-	0.3+		1999 01 19	704	0.3-	0.0	1999 02 13	704	0.3-	0.4+
1997 10 16	327	0.6-	0.2+		1999 01 19	704	0.1+	0.0	1999 02 13	704	0.1+	0.4+
1997 10 16	327	0.8-	0.0		1999 01 19	704	0.7-	0.3-	1999 02 13	704	1.0-	0.6+

(10218)* 1997 SJ₂₃ = 1988 CZ = 1992 JV₁ = 1993 SV₁₃

Discovered 1997 Sept. 29 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 30773)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	292.95028	(2000.0)	P	Q	
<i>n</i>	0.26581230	ω 204.14792	-0.80656660	+0.59102679	
<i>a</i>	2.3956277	Ω 12.10329	-0.53285071	-0.71829385	
<i>e</i>	0.1597823	<i>i</i> 3.20778	-0.25596960	-0.36707123	
<i>P</i>	3.71	<i>H</i> 14.9	<i>G</i> 0.15	<i>U</i> 2	

Residuals in seconds of arc

1988 02 14	033	0.6+	0.2-	1993 09 16	809	(0.9+	3.0-)	1999 01 19	704	1.1-	1.4-
1988 02 14	033	0.1-	0.7+	1993 09 23	809	(2.6+	1.5+)	1999 01 19	704	0.2-	0.5+
1988 02 15	033	0.1+	0.8+	1993 09 23	809	1.8+	0.3-	1999 01 19	704	0.1-	1.1-
1988 02 15	033	(4.0+	1.0-)	1993 09 23	809	1.1-	1.8-	1999 01 19	704	0.5-	0.6-
1992 05 02	809	0.5-	0.0	1997 09 29	691	0.2-	0.2+	1999 02 10	704	0.5+	0.4-
1992 05 02	809	0.1+	0.2+	1997 09 29	691	0.0	0.3+	1999 02 10	704	0.2-	0.7+
1992 05 02	809	0.3+	0.4+	1997 09 29	691	0.0	0.1+	1999 02 10	704	0.6+	0.3+
1992 05 03	809	0.8+	0.0	1997 10 04	691	0.7-	0.1+	1999 02 10	704	0.6+	0.1+
1992 05 03	809	1.0+	0.1+	1997 10 04	691	0.5-	0.2-	1999 02 10	704	0.1-	0.3+
1992 05 03	809	1.5+	0.1+	1997 10 04	691	0.3-	0.1+	1999 02 12	699	0.6+	1.0+
1992 05 04	809	1.5-	0.8-	1997 10 10	691	0.0	0.3+	1999 02 12	699	0.8+	0.9+
1992 05 04	809	1.1-	0.5-	1997 10 10	691	0.2-	0.2+	1999 02 12	699	1.1+	0.7+
1992 05 04	809	1.1-	0.5-	1997 10 10	691	0.0	0.1-	1999 02 13	704	2.3+	0.5-
1992 05 04	809	(7.1+	2.4-)	1997 10 30	704	0.0	0.6-	1999 02 13	704	(3.9-	1.4-)
1992 05 04	809	(7.9+	2.5-)	1997 10 30	704	1.8+	0.3-	1999 02 13	704	2.5-	2.1-
1992 05 04	809	(8.2+	2.5-)	1997 10 30	704	0.4+	0.3+	1999 02 19	566	0.5+	0.4+
1993 09 16	809	(2.0+	2.7-)	1997 10 30	704	1.1-	1.8+	1999 02 19	566	0.3+	0.2+
1993 09 16	809	0.7+	1.2-	1999 01 19	704	0.3-	0.7-	1999 02 19	566	0.4+	0.5+

(10219)* 1997 UJ₅ = 1992 GL₈ = 1995 AH₃

Discovered 1997 Oct. 25 by L. Tesi and A. Boattini at San Marcello Pistoiese.

Id. K. Ichikawa (*MPC* 30990), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	170.14874	(2000.0)	P	Q	
<i>n</i>	0.28112458	ω 339.40661	+0.90510749	+0.42513890	
<i>a</i>	2.3078284	Ω 355.42006	-0.37860802	+0.79933805	
<i>e</i>	0.0981524	<i>i</i> 4.38899	-0.19348487	+0.42463583	
<i>P</i>	3.51	<i>H</i> 14.7	<i>G</i> 0.15	<i>U</i> 2	

1999 MAR. 2

M.P.C. 33911

Residuals in seconds of arc

1992 04 06	809	1.0+	1.0-	1997 11 02	104	0.1-	0.5+	1997 12 27	104	0.2+	0.3-
1995 01 04	010	0.4-	0.5-	1997 11 02	104	0.1-	0.4+	1998 12 26	104	0.8+	0.2+
1995 01 04	010	1.4-	1.8-	1997 11 02	104	0.2-	0.5+	1998 12 26	104	0.3+	0.3-
1995 01 04	010	0.1+	1.3-	1997 11 02	104	0.3-	0.4+	1998 12 27	104	0.2+	0.1-
1995 01 04	010	(0.2+ 3.4-)		1997 11 02	104	1.1-	0.3+	1999 01 19	104	0.2+	0.2+
1995 01 05	010	(0.5+ 3.0-)		1997 11 03	104	0.2+	0.5+	1999 01 19	104	0.0	0.7-
1995 01 05	010	(0.8- 3.6-)		1997 11 03	104	0.5+	0.5+	1999 01 20	104	0.1+	0.5+
1996 05 14	566	0.1+	0.5+	1997 11 03	104	0.4+	0.6+	1999 01 20	104	0.2-	0.1+
1996 05 14	566	0.4-	0.2+	1997 11 16	104	0.2-	1.1+	1999 01 20	104	0.6+	0.5-
1996 05 14	566	0.3-	0.1-	1997 11 16	104	0.0	1.1+	1999 02 10	704	0.7-	0.6+
1997 10 25	104	0.1-	0.6-	1997 11 16	104	0.3+	1.2+	1999 02 10	704	0.2-	0.1-
1997 10 25	104	0.2-	0.5-	1997 11 16	104	0.9+	1.1+	1999 02 10	704	0.4+	0.3-
1997 10 25	104	0.1-	0.2-	1997 12 05	104	1.9+	0.8-	1999 02 10	704	0.0	0.5+
1997 10 26	104	0.5+	0.3-	1997 12 05	104	(2.3+ 0.5-)		1999 02 10	704	0.4-	2.4+
1997 10 26	104	0.2+	0.1-	1997 12 05	104	(2.3+ 0.3-)		1999 02 13	704	0.0	0.6-
1997 10 26	104	0.3-	0.5+	1997 12 14	104	0.4+	0.6+	1999 02 13	704	1.1+	0.4+
1997 10 30	704	0.2-	0.3-	1997 12 14	104	0.3+	0.5-	1999 02 13	704	0.1+	0.7+
1997 10 30	704	0.9-	0.1-	1997 12 14	104	0.5+	0.1-	1999 02 13	704	1.1-	0.4+
1997 10 30	704	0.3-	0.2+	1997 12 14	104	0.7-	0.0	1999 02 13	704	0.6-	0.8+
1997 10 30	704	0.8-	0.6-	1997 12 27	104	0.1-	0.8-	1999 02 19	104	1.1+	0.1+
1997 10 30	704	0.7-	0.3-	1997 12 27	104	0.2-	0.5-	1999 02 19	104	1.3+	0.1-

(10220)* 1997 UG₇

Discovered 1997 Oct. 20 by R. A. Tucker at the Goodricke-Pigott

Observatory, Tucson.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	308.47420	(2000.0)	<i>P</i>	<i>Q</i>	
<i>n</i>	0.22326882	ω	195.15726	-0.98952148	-0.11871049
<i>a</i>	2.6910225	Ω	337.52684	+0.14437968	-0.80832123
<i>e</i>	0.1194042	<i>i</i>	12.41633	+0.00132041	-0.57664947
<i>P</i>	4.41	<i>H</i>	13.7	<i>G</i>	0.15

Residuals in seconds of arc

1953 11 29	675	1.7+	0.0	1997 10 27	683	1.3+	0.3+	1999 01 06	683	0.5+	0.5-
1955 03 25	675	0.7-	1.4-	1997 10 27	683	0.4-	0.7-	1999 01 06	292	1.1-	0.7-
1955 03 25	675	0.2-	1.6+	1997 10 27	683	0.3+	0.0	1999 01 06	292	1.6-	1.1-
1974 06 23	413	1.0-	1.1-	1997 11 06	683	1.6-	0.7-	1999 01 06	683	0.3+	0.6-
1974 06 23	413	1.0+	0.6-	1997 11 06	683	0.6-	0.3+	1999 01 06	292	0.3+	0.6-
1983 06 12	413	1.0+	0.0	1997 11 06	683	1.1-	0.1+	1999 01 09	699	0.1-	0.2+
1993 09 21	675	0.4-	1.5+	1997 11 28	683	0.4-	0.1+	1999 01 09	699	0.3+	0.7-
1993 09 21	675	0.7+	1.8-	1997 11 28	683	0.8-	0.2-	1999 01 09	699	0.0	0.7+
1995 02 26	675	0.5-	0.1-	1997 12 01	683	0.1+	0.8+	1999 01 16	704	0.9+	0.5-
1995 02 26	675	1.5+	0.1+	1997 12 01	683	0.1+	0.5+	1999 01 16	704	0.8+	0.7-
1997 10 20	683	0.7-	0.1+	1997 12 01	683	0.7-	0.5+	1999 01 16	704	0.2+	0.7-
1997 10 20	683	0.3-	0.5+	1997 12 31	683	0.2-	0.4-	1999 01 16	704	0.8-	0.6-
1997 10 20	683	0.3+	0.4+	1997 12 31	683	0.1-	0.3+	1999 01 19	704	0.2-	0.5+
1997 10 20	683	0.8+	0.3+	1997 12 31	683	0.2-	1.0-	1999 01 19	704	0.5+	0.6+
1997 10 20	683	0.1-	0.4+	1998 01 02	683	0.1+	0.4+	1999 01 19	704	1.1+	0.3+
1997 10 21	683	0.5+	0.6-	1998 01 02	683	0.2-	0.5+	1999 01 19	704	1.1-	1.5+
1997 10 21	683	0.4+	0.3-	1998 01 02	683	0.1-	0.4+	1999 01 19	704	0.4-	1.9+
1997 10 21	683	0.4+	0.2-	1998 12 24	699	0.6-	0.5-	1999 02 08	683	0.1-	0.2-
1997 10 21	683	0.1+	0.6-	1998 12 24	699	0.4+	0.0	1999 02 08	683	0.0	0.5+
1997 10 21	683	0.2+	0.6-	1998 12 24	699	0.5+	0.0	1999 02 08	683	0.4-	0.1+
1997 10 24	683	0.1+	0.0	1999 01 05	683	0.1+	0.3-	1999 02 11	683	0.8+	0.0
1997 10 24	683	0.0	0.5+	1999 01 05	683	0.0	0.4-	1999 02 11	683	0.9-	0.5+
1997 10 24	683	0.3-	0.3+	1999 01 05	683	0.4-	0.5-				

(10221)* 1997 UM₉ = 1982 VP₈ = 1982 VE₁₁

Discovered 1997 Oct. 28 by P. Pravec at Ondřejov.

Id. G. V. Williams (*MPC* 30991)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	15.75696	(2000.0)	<i>P</i>	<i>Q</i>	
<i>n</i>	0.25991995	ω	88.20111	-0.68986089	-0.71780333
<i>a</i>	2.4316980	Ω	45.90949	+0.60117719	-0.64041754
<i>e</i>	0.0380578	<i>i</i>	7.52630	+0.40333354	-0.27317349
<i>P</i>	3.79	<i>H</i>	14.0	<i>G</i>	0.15

Residuals in seconds of arc

1982 11 09	095	0.3+	0.8-	1997 11 01	557	0.1+	0.3+	1998 12 17	557	0.1+	0.4+
1982 11 14	095	0.2+	0.0	1997 11 01	557	0.3-	0.2+	1998 12 17	557	0.3-	0.9+
1995 03 04	801	0.3+	0.2-	1997 11 03	704	0.4-	0.5-	1998 12 18	557	0.7-	0.7+
1995 03 05	801	0.3-	0.1+	1997 11 03	704	0.0	0.2+	1998 12 18	557	0.0	0.6+
1995 03 05	801	0.4-	0.3+	1997 11 03	704	1.0+	0.2+	1998 12 21	704	0.4+	0.9+
1995 03 05	801	0.1-	0.9+	1997 11 03	704	0.5+	0.1-	1998 12 21	704	0.0	0.3-
1995 03 05	801	0.2+	0.3+	1997 11 03	704	(1.3- 3.1+)		1998 12 21	704	0.6-	1.6-
1997 10 28	557	0.4-	0.2+	1997 11 03	557	0.1-	0.2+	1998 12 21	704	1.0+	0.7-
1997 10 29	557	0.2-	0.3+	1997 11 03	557	0.0	0.3+	1998 12 21	704	1.0-	1.1-
1997 10 30	704	0.5+	0.7-	1997 11 18	557	0.3-	0.1-	1999 02 10	704	0.5+	0.4+
1997 10 30	704	0.5-	0.6-	1997 11 18	557	0.5-	0.3-	1999 02 10	704	0.5+	0.1-
1997 10 30	704	0.8+	0.3-	1997 12 06	910	0.1+	0.1+	1999 02 10	704	0.0	0.4+
1997 10 30	704	0.4-	0.1-	1997 12 06	910	0.1+	0.2+	1999 02 10	704	1.0+	0.1+
1997 10 30	704	0.5+	0.7-	1997 12 06	910	0.1+	0.2+	1999 02 10	704	0.2-	1.3-
1997 10 30	566	0.2-	0.3+	1998 10 20	557	0.1+	0.1+	1999 02 13	704	0.1-	0.2-
1997 10 30	566	0.2-	0.4+	1998 10 20	557	0.7+	0.5-	1999 02 13	704	0.1+	0.2+
1997 10 30	566	0.1-	0.4+	1998 10 21	557	0.4+	0.4+	1999 02 13	704	0.2-	0.2+
1997 10 30	557	0.0	0.2+	1998 10 21	557	0.0	0.2+	1999 02 13	704	0.9-	0.1-
1997 10 30	557	0.3-	0.1+	1998 10 21	557	0.1+	0.4+	1999 02 13	704	0.9-	0.9-

(10222)* 1997 UV₁₀ = 1979 YG₂ = 1986 LO₁ = 1988 VX₉ = 1995 GF₇

Discovered 1997 Oct. 29 by C. Buil at Ramonville Saint Agne.

Id. G. V. Williams (*MPC* 30991)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	341.23202	(2000.0)	<i>P</i>	<i>Q</i>	
<i>n</i>	0.21365258	ω	270.62838	-0.86890152	-0.48003894
<i>a</i>	2.7711751	Ω	240.68969	+0.49108321	-0.80546128
<i>e</i>	0.1053563	<i>i</i>	7.95763	+0.06202767	-0.34755537
<i>P</i>	4.61	<i>H</i>	12.5	<i>G</i>	0.15

Residuals in seconds of arc

1979 12 23	095	0.5-	1.2-	1997 11 01	959	1.1+	0.3+	1998 12 24	699	0.3+	0.5+
1986 06 01	805	0.9-	2.2+	1997 11 01	959	1.1-	0.1+	1998 12 25	958	1.1-	0.3+
1986 06 01	805	(0.8-	2.7+)	1997 11 16	958	0.1+	0.1-	1998 12 25	958	1.5+	0.3-
1986 06 01	805	0.4-	0.0	1997 11 16	958	0.2+	0.8+	1998 12 25	958	0.2+	0.6+
1986 06 01	805	1.0+	2.0-	1997 11 20	132	0.1-	0.5-	1999 01 18	704	0.5+	0.3+
1988 11 14	399	0.5-	1.1-	1997 11 20	132	0.7+	0.6+	1999 01 18	704	0.5-	0.1+
1988 11 14	399	0.1+	1.3-	1997 11 20	132	0.3-	0.4-	1999 01 18	704	0.2+	1.0+
1988 11 14	399	2.5+	1.4-	1997 11 30	133	0.5+	0.1+	1999 01 18	704	0.6+	0.4+
1995 04 01	408	1.0-	1.6+	1997 11 30	133	0.2+	0.5+	1999 01 18	704	1.0-	0.2-
1995 04 01	408	0.8+	0.8+	1997 12 01	133	1.5-	0.6-	1999 02 10	426	0.5-	0.2+
1995 04 03	408	1.3+	0.6+	1997 12 01	133	0.1+	0.9+	1999 02 10	426	0.6-	0.2+
1995 04 03	408	0.4+	0.2-	1997 12 29	566	0.7-	0.4+	1999 02 10	426	0.4-	0.3+
1995 04 03	408	0.2-	0.3+	1997 12 29	566	0.8-	0.5+	1999 02 12	704	1.5+	1.2-
1997 10 29	566	0.0	0.1+	1997 12 29	566	0.9-	0.6+	1999 02 12	704	0.9-	1.5-
1997 10 29	566	0.0	0.3+	1998 11 20	132	0.5-	0.1+	1999 02 12	704	0.8-	0.6-
1997 10 29	566	0.3+	0.5+	1998 11 20	132	0.4+	0.0	1999 02 12	704	0.1+	1.1-
1997 10 29	959	0.0	0.5+	1998 11 20	132	1.1+	0.1+	1999 02 12	704	0.4-	0.6-
1997 10 29	959	0.2-	1.4+	1998 11 21	143	0.1+	0.8+	1999 02 12	426	0.4-	0.3+
1997 10 29	959	0.5-	1.1+	1998 11 21	143	(2.1-	0.2+)	1999 02 12	426	0.2-	0.4+
1997 10 29	959	0.1-	1.0+	1998 11 25	704	1.2-	0.1+	1999 02 12	426	0.3-	0.3+
1997 10 31	959	0.1-	0.7+	1998 11 25	704	0.0	0.3-	1999 02 16	704	0.0	0.8+
1997 10 31	959	0.5-	0.3-	1998 11 25	704	0.3+	0.6-	1999 02 16	704	0.8+	0.6+
1997 10 31	959	0.7-	0.2+	1998 11 25	704	0.3+	1.0-	1999 02 16	704	0.1-	1.1+
1997 10 31	959	0.5-	1.3-	1998 11 25	704	1.1+	1.2-	1999 02 16	704	0.2+	0.5+
1997 10 31	959	0.1-	0.4+	1998 12 24	699	0.7+	0.3+	1999 02 16	704	0.7-	0.4+
1997 11 01	959	1.0+	0.7+	1998 12 24	699	0.7+	0.2+				

(10223)* 1997 UD₁₁ = 1939 EE = 1978 GR₁ = 1983 EZ₃ = 1989 GM₃
= 1994 EW₂

Discovered 1997 Oct. 31 by T. Urata at the Nihondaira Observatory.

Id. K. Ichikawa (*MPC* 30991), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		265.31054		(2000.0)		P		Q	
<i>n</i>		0.17887800	ω	161.38107		-0.82626138		+0.56271022	
<i>a</i>		3.1195941	Ω	52.88912		-0.52077895		-0.74588617	
<i>e</i>		0.1409492	<i>i</i>	1.83112		-0.21466581		-0.35638608	
<i>P</i>		5.51	<i>H</i>	12.9		<i>G</i>	0.15	<i>U</i>	2

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

1939 03 10	053	(0.4+ 46.0-)	X	1997 10 29	704	0.4+	0.3+	1998 12 14	704	0.9+	1.3-
1939 03 12	053	(81.1+ 30.0-)	X	1997 10 29	704	1.1+	0.2+	1998 12 14	704	0.9-	1.0-
1939 03 13	053	(13.0+ 0.8-)	X	1997 10 29	704	0.3+	0.6-	1998 12 17	704	0.5-	0.8-
1939 03 17	053	(86.7+ 20.6-)	X	1997 10 29	704	0.3-	1.2-	1998 12 17	704	(1.0+ 2.6+)	
1939 03 19	053	(11.3- 21.9-)	X	1997 10 29	704	1.3-	1.1-	1998 12 17	704	0.6+	0.7+
1939 03 21	053	(72.3+ 7.2+)	X	1997 10 30	704	0.8-	0.5-	1998 12 17	704	0.1+	0.9+
1939 03 23	053	(55.9+ 38.9-)	X	1997 10 30	704	0.2+	0.4-	1998 12 28	888	0.2-	0.4+
1939 04 08	053	(0.03+ 0.00-)	X	1997 10 30	704	0.0	0.2-	1998 12 28	888	0.1-	0.5+
1939 04 11	053	(5.2- 32.9-)	X	1997 10 30	704	0.2-	0.4-	1999 01 16	704	0.2+	0.4+
1939 04 14	053	(24.2+ 0.2+)	X	1997 10 30	704	0.0	0.6-	1999 01 16	704	0.5+	0.6-
1978 04 07	095	0.0	0.5-	1997 10 31	385	0.1+	0.2-	1999 01 16	704	0.7+	1.0+
1983 03 15	095	(3.8+ 0.5-)		1997 10 31	385	0.0	0.1-	1999 01 16	704	0.5+	0.4+
1989 04 03	809	(5.4- 1.8-)		1997 11 01	385	0.6+	0.0	1999 01 19	704	0.3-	0.5+
1989 04 03	809	(5.6- 1.6-)		1997 11 01	385	0.2+	0.3+	1999 01 19	704	0.4-	0.3+
1989 04 03	809	(4.9- 1.4-)		1997 11 06	385	0.4+	0.7+	1999 01 19	704	0.8+	0.3-
1989 04 05	809	0.0	0.9+	1997 11 06	385	0.0	1.0+	1999 01 19	704	0.5-	0.5-
1989 04 05	809	0.6+	1.2+	1997 11 08	385	0.8+	0.5+	1999 01 21	888	0.2-	0.6+
1989 04 05	809	1.0+	0.5+	1997 11 08	385	0.3-	0.9+	1999 01 21	888	0.3+	0.4+
1989 04 12	809	0.7-	1.5-	1997 12 05	385	0.6-	0.2+	1999 02 09	888	0.7-	0.3+
1989 04 12	809	0.9-	2.0-	1997 12 05	385	0.6-	0.9-	1999 02 09	888	0.7-	0.2+
1994 03 11	098	(2.7- 1.1-)		1998 12 14	704	0.7+	0.3+				
1994 03 12	098	1.8-	0.2-	1998 12 14	704	0.9+	1.6-				

(10224)* 1997 UK₂₂ = 1982 XQ₃ = 1993 SJ₁₆

Discovered 1997 Oct. 26 by N. Sato at Chichibu.

Id. S. Nakano (*MPC* 30992)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		181.36873		(2000.0)		P		Q	
<i>n</i>		0.26001230	ω	186.99336		+0.68881669		+0.72334645	
<i>a</i>		2.4311222	Ω	126.55695		-0.66218944		+0.65474877	
<i>e</i>		0.1655469	<i>i</i>	3.42394		-0.29501984		+0.21925775	
<i>P</i>		3.79	<i>H</i>	14.1		<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1982 12 13	381	1.6+	0.7-	1997 10 29	704	0.2+	1.7+	1997 11 24	369	0.2-	0.6-
1982 12 14	381	0.1-	1.1-	1997 10 29	704	0.3+	0.9-	1997 11 24	369	0.2-	0.5-
1982 12 14	381	1.2-	0.5+	1997 10 30	704	1.9+	1.7-	1999 01 13	699	1.4-	0.2-
1992 04 26	691	0.2+	0.1-	1997 10 30	704	2.0+	1.6-	1999 01 13	699	0.3+	0.4-
1992 04 26	691	0.2+	0.4-	1997 10 30	704	2.1+	1.9-	1999 01 13	699	0.9-	0.9+
1992 04 26	691	0.1-	0.2+	1997 10 30	704	(2.3+ 2.3-)		1999 01 19	704	(2.2- 2.6+)	
1993 09 19	400	1.9+	0.9-	1997 10 30	704	(2.4+ 1.4-)		1999 01 19	704	(2.6- 0.9+)	
1993 09 19	400	1.6-	0.3-	1997 11 01	369	0.8-	0.9+	1999 01 19	704	0.2+	0.5+
1996 04 17	691	0.1-	0.2-	1997 11 01	369	0.7-	0.1+	1999 01 19	704	1.1-	1.2+
1996 04 17	691	0.2-	0.4+	1997 11 01	369	0.3-	0.0	1999 02 10	704	1.6+	1.2+
1996 04 17	691	0.0	0.5-	1997 11 01	369	0.1-	0.4-	1999 02 10	704	0.6-	0.2+
1997 10 26	369	1.2-	0.5+	1997 11 03	704	0.7-	0.5+	1999 02 10	704	0.0	1.3+
1997 10 26	369	0.1+	0.3+	1997 11 03	704	1.3-	0.7+	1999 02 10	704	0.3-	0.8+
1997 10 26	369	0.1+	0.4+	1997 11 03	704	0.8-	0.7+	1999 02 10	704	0.1+	1.5+
1997 10 29	704	1.0+	1.2+	1997 11 03	704	0.9-	0.3-	1999 02 13	704	0.8+	1.1-
1997 10 29	704	0.0	0.4+	1997 11 06	369	0.7-	0.0	1999 02 13	704	0.8+	1.3-
1997 10 29	704	(0.0 2.5-)		1997 11 06	369	0.2-	0.0	1999 02 13	704	0.5-	1.2-
1997 10 29	704	0.0	1.6+	1997 11 19	369	0.5+	0.2+	1999 02 13	704	0.2-	1.6-

1997 10 29	704	0.4-	0.6-	1997 11 19	369	0.6+	0.3-	1999 02 13	704	1.0+	1.7-
1997 10 29	704	0.2+	1.5+	1997 11 23	369	0.5-	0.3+				
1997 10 29	704	0.1+	1.0-	1997 11 23	369	0.4-	0.0				

(10225)* 1997 VQ₁ = 1978 WD₁₆ = 1987 SD₂₁ = 1992 SU₁₂

Discovered 1997 Nov. 1 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 31116), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		82.77718		(2000.0)		P		Q	
<i>n</i>		0.20574412	ω	168.09484		+0.58536265		-0.79999408	
<i>a</i>		2.8417406	Ω	245.93711		+0.73152607		+0.59120101	
<i>e</i>		0.0696483	<i>i</i>	8.29658		+0.34960002		+0.10242478	
<i>P</i>		4.79	<i>H</i>	12.9		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1978 11 30	675	0.0	0.6+	1997 11 06	704	1.4-	0.7-	1998 12 26	699	0.6+	0.3+
1978 12 01	675	0.2-	0.5+	1997 11 06	704	0.7-	0.0	1998 12 26	699	1.4+	0.1+
1987 09 18	095	0.7+	0.9-	1997 11 06	704	0.4-	0.1+	1999 02 12	704	1.5-	1.6-
1992 09 27	372	(1.2- 2.4+)		1997 11 06	704	0.1-	0.4-	1999 02 12	704	1.4-	0.6+
1992 10 01	372	(2.6- 0.2-)		1997 11 06	704	0.3-	0.3-	1999 02 12	704	0.1+	1.0+
1997 10 29	704	1.9-	0.6+	1997 11 24	399	1.7+	0.4-	1999 02 12	704	1.0-	0.8+
1997 10 29	704	0.9-	1.0+	1997 11 24	399	1.6+	0.5-	1999 02 12	704	0.4-	0.4-
1997 10 29	704	0.8-	0.2-	1997 12 21	426	1.4+	0.6+	1999 02 16	704	0.6+	0.0
1997 10 29	704	1.2-	0.0	1997 12 21	426	0.9+	0.2-	1999 02 16	704	0.5+	0.7-
1997 10 29	704	0.0	0.1-	1997 12 21	426	0.8+	0.5+	1999 02 16	704	0.2+	0.1+
1997 10 30	566	0.1+	0.5+	1997 12 24	426	1.6+	0.1+	1999 02 16	704	0.2+	0.3-
1997 10 30	566	0.2+	0.4+	1997 12 24	426	1.2+	0.1+	1999 02 16	704	1.0+	0.5-
1997 10 30	566	0.0	0.8+	1997 12 24	426	1.4+	0.4+	1999 02 18	566	0.6-	0.3-
1997 11 01	399	1.2-	0.7-	1998 01 26	566	0.4+	0.6+	1999 02 18	566	0.1-	0.4-
1997 11 01	399	0.6-	0.7-	1998 01 26	566	0.5+	0.7+	1999 02 18	566	0.7-	0.3-
1997 11 02	399	0.7-	2.0-	1998 01 26	566	0.2+	0.7+				
1997 11 02	399	0.2+	0.5-	1998 12 26	699	1.0+	0.3+				

(10226)* 1997 VK₅ = 1950 XA₁ = 1981 SV₇ = 1981 WN₅ = 1983 BL
= 1988 ND₁ = 1991 BS₄

Discovered 1997 Nov. 8 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 30995)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		275.94820		(2000.0)		P		Q	
<i>n</i>		0.25151072	ω	348.08405		-0.21200536		+0.97144000	
<i>a</i>		2.4856027	Ω	269.60710		-0.88764566		-0.23703521	
<i>e</i>		0.1289406	<i>i</i>	6.11801		-0.40882625		+0.01089164	
<i>P</i>		3.92	<i>H</i>	12.8		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1950 12 11	675	0.5-	0.6-	1997 11 19	411	0.8+	0.5-	1998 01 07	699	0.1+	1.0+
1950 12 11	675	0.7-	0.5+	1997 11 19	411	0.7+	0.1-	1998 01 07	699	0.7-	1.0+
1981 09 29	095	0.9+	0.2+	1997 11 27	905	0.0	0.2-	1998 03 24	327	0.5+	0.6+
1981 11 24	095	0.1-	1.5+	1997 11 27	905	0.4-	0.4-	1998 03 24	327	0.3+	0.3+
1983 01 22	688	0.4-	0.5-	1997 11 30	905	0.3+	0.3+	1998 03 24	327	0.6-	0.6+
1983 01 22	688	2.0+	0.4-	1997 11 30	905	0.1-	0.3+	1998 12 23	704	0.2+	1.2-
1988 07 14	046	(8.2+ 1.2-)		1997 12 03	411	0.0	0.0	1998 12 23	704	1.7-	0.2+
1988 07 14	046	(8.7+ 1.6-)		1997 12 03	411	0.2-	0.0	1998 12 23	704	(2.7- 1.2-)	
1991 01 17	675	0.5+	0.4+	1997 12 04	704	0.7-	1.4-	1998 12 23	704	(2.4- 0.0)	
1991 01 17	675	0.2+	0.4+	1997 12 04	704	0.1+	0.0	1999 02 16	704	0.4+	0.1-
1997 11 08	411	0.2+	0.8-	1997 12 04	704	0.5-	0.3+	1999 02 16	704	0.2+	0.8+
1997 11 08	411	0.2-	1.0-	1997 12 04	704	0.2-	0.0	1999 02 16	704	0.2-	0.5+
1997 11 09	411	0.8+	0.7-	1997 12 04	704	0.2+	0.3-	1999 02 16	704	0.6-	0.1-
1997 11 09	411	0.4-	1.2-	1998 01 07	699	0.9-	1.4+	1999 02 16	704	0.2-	0.7-

1999 MAR. 2

M.P.C. 33913

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5					Nakano				
M	90.42901		(2000.0)		P		Q		
n	0.17793334	ω	157.83151		+0.73189273		−0.65230248		
a	3.1306258	Ω	244.42733		+0.58780849		+0.75065939		
e	0.0654680	i	12.61895		+0.34469437		+0.10493785		
P	5.54 <th>H</th> <td>12.2</td> <th>G</th> <td>0.15<th>U</th><td>2</td><th></th><th></th></td>	H	12.2	G	0.15 <th>U</th> <td>2</td> <th></th> <th></th>	U	2		
Residuals in seconds of arc									
1975 11 28	330	(0.3+ 2.6+)	1997 12 03	399	0.1− 0.2−	1999 01 11	888	0.2− 0.1+	
1980 11 11	688	1.2+ 1.9−	1997 12 04	704	0.5+ 0.9+	1999 01 11	888	0.2− 0.0	
1980 11 11	688	0.0 0.1−	1997 12 04	704	1.5+ 0.5−	1999 01 17	699	0.9+ 0.2+	
1991 09 12	675	0.0 1.4−	1997 12 04	704	(2.4+ 0.6+)	1999 01 17	699	0.9+ 0.1−	
1991 09 12	675	0.6− 1.1−	1997 12 04	704	0.2+ 0.0	1999 01 17	699	0.1+ 0.5+	
1991 09 16	675	(0.1− 2.5−)	1997 12 04	704	1.3+ 1.0+	1999 01 22	385	0.0 0.0	
1991 09 16	675	0.5− 1.2−	1997 12 05	704	0.3+ 0.4−	1999 01 22	385	0.5+ 0.3+	
1997 11 04	888	0.9+ 0.6+	1997 12 05	704	0.6+ 0.3+	1999 02 07	886	0.7− 1.6+	
1997 11 04	888	0.7+ 1.5+	1997 12 05	704	1.2+ 0.1+	1999 02 07	886	1.9− 0.8+	
1997 11 08	888	0.7+ 0.8+	1997 12 05	704	0.9+ 0.2−	1999 02 12	704	0.8+ 1.5−	
1997 11 08	888	0.2− 0.4+	1997 12 05	704	1.1+ 0.3+	1999 02 12	704	1.4− 0.4−	
1997 11 18	886	0.7− 0.7+	1997 12 05	399	0.1− 0.3+	1999 02 12	704	0.4+ 0.5−	
1997 11 18	886	0.8− 0.6+	1997 12 05	399	1.0+ 0.2−	1999 02 12	704	0.1+ 0.2−	
1997 11 19	886	0.4− 0.3+	1998 01 17	910	1.0− 0.4+	1999 02 14	888	0.3− 0.4−	
1997 11 19	886	0.1− 0.4+	1998 01 17	910	0.9− 0.5+	1999 02 14	888	0.1− 0.3−	
1997 11 24	888	0.1+ 0.3−	1998 01 17	910	0.9− 0.3+	1999 02 16	704	0.2+ 0.4+	
1997 11 24	888	0.3+ 0.3−	1998 01 27	910	1.9− 0.0	1999 02 16	704	0.1+ 1.4−	
1997 11 24	399	0.7+ 0.2+	1998 01 27	910	2.0− 0.1+	1999 02 16	704	0.7+ 1.4−	
1997 11 24	399	0.0 0.2−	1998 01 27	910	1.7− 0.1+	1999 02 16	704	0.5− 0.8−	
1997 12 02	886	0.2− 1.3−	1998 02 27	327	0.8− 0.1+	1999 02 16	704	0.6− 0.5−	
1997 12 02	886	0.1− 1.5−	1998 02 27	327	0.9− 0.2+				
1997 12 03	399	0.0 0.6−	1998 02 27	327	0.7− 0.2+				

(10228)* 1997 VY₈ = 1986 TO₉ = 1991 PK₁₈

Discovered 1997 Nov. 1 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 30997)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5					Nakano						
M	120.00723		(2000.0)		P		Q				
n	0.18429436		ω	59.08346	+0.98960502		−0.07538387				
a	3.0581681		Ω	304.96816	+0.00875668		+0.88161094				
e	0.1028331		i	8.59514	+0.14354522		+0.46591782				
P	5.35		H	12.4	G	0.15	U	1			
Residuals in seconds of arc											
1986 10 02	095	0.8−	1.0+	1997 11 24	399	2.0+	0.5−	1999 01 20	120	0.2+	0.2+
1986 10 08	095	0.9+	1.3+	1997 12 28	725	0.1+	0.9−	1999 02 11	699	0.7+	1.0+
1991 08 08	675	1.5−	1.3−	1997 12 28	725	0.8−	0.8−	1999 02 11	699	0.3−	0.4+
1991 08 08	675	(0.4+	2.5−)	1997 12 30	725	0.6−	0.5+	1999 02 11	699	0.5+	0.9+
1991 09 12	675	0.4+	0.4−	1997 12 30	725	0.7−	0.1+	1999 02 12	704	0.0	0.2−
1991 09 12	675	0.3−	0.6−	1997 12 30	725	1.2+	0.8+	1999 02 12	704	0.2+	0.6−
1996 08 20	566	0.4+	0.3+	1999 01 14	699	0.5+	0.9−	1999 02 12	704	0.5−	0.4+
1996 08 20	566	0.5+	0.0	1999 01 14	699	0.4+	0.4−	1999 02 12	704	0.2−	0.2−
1996 08 20	566	0.3+	0.1+	1999 01 14	699	0.1+	0.5−	1999 02 12	704	0.0	0.9−
1997 11 01	399	(1.7+	2.4+)	1999 01 17	120	0.9−	0.6+	1999 02 16	704	0.1+	0.1−
1997 11 01	399	0.9+	1.4+	1999 01 17	120	1.1−	0.6−	1999 02 16	704	1.2+	0.0
1997 11 02	399	0.1−	0.7−	1999 01 17	120	1.8−	0.9−	1999 02 16	704	0.1+	0.9+
1997 11 02	399	0.9−	0.8−	1999 01 19	120	0.2−	0.0	1999 02 16	704	0.5+	0.6+
1997 11 24	399	0.7−	0.2−	1999 01 19	120	0.1−	0.3+				

(10229)* 1997 WR₃ = 1975 TV₅ = 1986 WL₈ = 1993 SU₁

Discovered 1997 Nov. 19 by Y. Shimizu and T. Urata at the Nachi-Katsuura Observatory.

Id. S. Nakano (*MPC* 30998)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5					Nakano				
M	222.75082		(2000.0)		P		Q		
n	0.26984636	ω	247.13719		+0.45328821		+0.88666265		
a	2.3716923	Ω	50.14176		−0.76793319		+0.44053664		
e	0.1133736	i	6.84041		−0.45255764		+0.14055893		
P	3.65	H	13.7	G	0.15	U	1		
Residuals in seconds of arc									
1975 10 14	095	0.5+ 1.3−	1997 11 19	905	1.0+ 0.2−	1997 12 20	327	0.6− 0.7+	
1986 11 30	381	1.6− 0.7+	1997 11 19	905	0.6− 0.8+	1997 12 20	327	0.7− 0.6+	
1986 12 01	381	1.8+ 0.5+	1997 11 24	886	0.6− 0.1+	1997 12 20	327	0.2− 0.7+	
1986 12 01	381	0.2− 1.1−	1997 11 24	886	1.1+ 0.3+	1997 12 23	327	0.6− 0.5+	
1993 09 16	400	0.8− 1.0−	1997 11 24	888	0.6− 0.2−	1997 12 23	327	0.4− 0.5+	
1993 09 16	400	1.2− 1.8+	1997 11 24	888	0.4− 0.3−	1997 12 23	327	0.5− 0.7+	
1993 09 18	400	0.8+ 1.8−	1997 11 29	704	0.6+ 0.2+	1999 01 28	888	0.6− 0.6−	
1993 09 18	400	1.6+ 0.6+	1997 11 29	704	1.5+ 0.4+	1999 01 28	888	0.3− 0.7−	
1993 10 15	010	(3.6− 4.1+)	1997 11 29	704	0.1+ 0.7−	1999 02 10	704	1.1− 0.1−	
1993 10 15	010	(2.5− 3.5+)	1997 11 29	704	0.0 0.2−	1999 02 10	704	0.1+ 0.1−	
1993 10 15	010	(2.4− 3.5+)	1997 11 29	704	0.4− 0.3−	1999 02 10	704	0.1+ 0.2−	
1997 10 01	910	0.7+ 0.5−	1997 12 03	886	0.7− 1.2−	1999 02 10	704	0.8− 0.0	
1997 10 01	910	0.5+ 0.5−	1997 12 03	886	1.1+ 0.1−	1999 02 10	704	0.3+ 0.4−	
1997 10 01	910	0.7+ 0.6−	1997 12 04	704	0.4− 0.5+	1999 02 13	704	0.4+ 0.2−	
1997 11 05	905	0.1+ 1.0+	1997 12 04	704	0.0 0.3+	1999 02 13	704	0.1− 0.0	
1997 11 05	905	1.2− 0.1−	1997 12 04	704	0.5+ 0.4+	1999 02 13	704	0.8+ 0.3−	
1997 11 06	905	1.0− 0.4−	1997 12 04	704	0.5+ 0.2+	1999 02 13	704	0.7+ 0.4+	
1997 11 06	905	0.1− 0.3−	1997 12 04	704	0.3− 1.0−	1999 02 13	704	0.3− 0.6+	

(10230)* 1997 WU₃₅ = 1984 BF₇ = 1991 PL₇ = 1996 PZ₂

Discovered 1997 Nov. 29 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. A. Doppler (*MPC* 33266)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5					Williams						
<i>M</i>	298.98077	(2000.0)			P		Q				
<i>n</i>	0.20125067	ω	213.14455		−0.85274278		+0.52233043				
<i>a</i>	2.8838843	Ω	358.34351		−0.47287938		−0.77267208				
<i>e</i>	0.0119284	<i>i</i>	1.61795		−0.22184418		−0.36076138				
<i>P</i>	4.90	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	1				
Residuals in seconds of arc											
1984 01 25	675	0.6−	0.2+	1997 11 29	704	0.3−	0.6−	1999 02 10	704	0.2−	0.2+
1984 01 26	675	0.7−	0.4−	1997 11 29	704	0.1+	1.1+	1999 02 10	704	0.5+	0.1+
1991 08 06	809	0.2−	1.0+	1997 11 29	704	0.8+	0.7−	1999 02 10	704	0.6−	0.9+
1991 08 06	809	0.8−	2.0+	1997 11 29	704	0.2−	1.3−	1999 02 10	704	0.1−	0.2+
1991 08 06	809	(0.4−	2.1+)	1997 12 04	704	1.4−	1.1−	1999 02 10	704	1.1+	0.9+
1991 08 14	809	1.0+	0.1+	1997 12 04	704	0.6+	1.4+	1999 02 12	734	(2.7+	0.4+)
1991 08 14	809	0.1+	0.7+	1997 12 04	704	0.5+	0.1−	1999 02 12	734	1.2+	0.3+
1991 08 14	809	1.9+	0.9+	1997 12 04	704	0.1−	0.9+	1999 02 12	699	0.4+	0.9+
1996 08 14	566	0.5−	0.4−	1997 12 04	704	0.7+	1.1+	1999 02 12	699	1.0+	0.3+
1996 08 14	566	0.6−	0.1−	1999 01 15	910	0.5+	0.4−	1999 02 12	699	0.3−	0.2−
1996 08 14	566	0.5−	0.3−	1999 01 15	910	0.1+	0.0	1999 02 13	734	0.3−	0.5−
1996 08 15	566	0.4−	0.0	1999 01 15	910	0.4+	0.4−	1999 02 13	734	0.3−	0.3−
1996 08 15	566	0.7−	0.7−	1999 01 15	910	0.3+	0.0	1999 02 13	704	0.1−	0.9−
1996 08 15	566	0.9−	0.3−	1999 01 15	910	0.3+	0.2−	1999 02 13	704	0.2−	0.4+
1997 11 26	704	(3.1−	1.0+)	1999 01 15	910	0.4+	0.1−	1999 02 13	704	0.3+	1.6+
1997 11 26	704	0.5−	0.6+	1999 01 19	910	0.6+	0.1+	1999 02 13	704	1.6−	0.7+
1997 11 26	704	(2.8−	0.8−)	1999 01 19	910	0.5+	0.2+	1999 02 13	704	1.7−	0.6−
1997 11 29	704	0.8+	0.3−	1999 01 19	910	0.5+	0.2+				

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	107.03934		(2000.0)	P	Q
<i>n</i>	0.19267314	ω	283.55218	+0.85980895	-0.50577308
<i>a</i>	2.9688523	Ω	106.87059	+0.49224520	+0.78449049
<i>e</i>	0.0592333	<i>i</i>	4.20432	+0.13573220	+0.35884295
<i>P</i>	5.12	<i>H</i>	13.5	<i>G</i>	0.15

Residuals in seconds of arc

1994 02 07	809	0.0	0.5+	1997 12 04	704	0.5-	0.4+	1998 03 11	327	0.1-	0.3+
1994 02 07	809	0.8-	0.9-	1997 12 04	704	0.4+	0.9-	1998 11 20	910	0.7-	0.1-
1994 02 07	809	1.3-	0.0	1997 12 04	704	0.3-	1.2-	1998 11 20	910	0.6-	0.2-
1994 02 09	809	(2.9+	1.7+)	1997 12 04	704	1.9-	1.3+	1998 11 20	910	0.9-	0.1+
1994 02 09	809	1.9+	1.8+	1997 12 04	704	0.2-	0.5-	1999 01 22	699	0.5-	0.1-
1994 02 09	809	1.8+	0.8+	1998 02 23	327	0.3+	0.1-	1999 01 22	699	0.5-	0.1-
1994 02 12	809	0.2+	0.5-	1998 02 23	327	0.1+	0.0	1999 01 22	699	0.6-	0.6-
1994 02 12	809	0.1-	0.5+	1998 02 23	327	0.2+	0.3+	1999 02 10	704	0.4+	0.3+
1994 02 12	809	1.0-	0.3-	1998 02 24	327	0.1+	0.3-	1999 02 10	704	0.1+	0.9+
1996 07 21	566	0.1+	0.4-	1998 02 24	327	0.0	0.2+	1999 02 10	704	0.7+	0.6+
1996 07 21	566	0.1+	0.4-	1998 02 24	327	0.6+	0.5+	1999 02 10	704	0.4+	1.0+
1996 07 21	566	0.1+	0.5-	1998 02 24	327	0.1-	0.0	1999 02 10	704	1.2+	1.5+
1996 08 19	566	0.3-	0.2+	1998 02 24	327	0.6+	0.2-	1999 02 12	699	0.8+	0.3+
1996 08 19	566	0.7-	0.3+	1998 02 24	327	0.2-	0.3-	1999 02 12	699	0.1+	0.3-
1996 08 19	566	0.5-	0.3+	1998 02 27	327	0.4+	0.2-	1999 02 12	699	0.0	0.6-
1996 09 13	566	0.7+	0.6+	1998 02 27	327	0.0	0.3-	1999 02 13	704	0.3-	0.4-
1996 09 13	566	0.2-	0.8+	1998 02 27	327	0.0	0.1-	1999 02 13	704	1.0-	1.4-
1996 09 13	566	0.5+	0.8+	1998 03 01	327	0.3-	0.2+	1999 02 13	704	0.5-	0.3-
1997 11 29	704	0.3+	0.3+	1998 03 01	327	0.5+	0.4+	1999 02 13	704	0.2+	0.4-
1997 11 29	704	0.1+	0.2+	1998 03 01	327	0.2+	0.9-	1999 02 13	704	0.5+	0.5-
1997 11 29	704	0.5+	0.1+	1998 03 11	327	0.8+	0.2+				
1997 11 29	704	0.0	0.4+	1998 03 11	327	0.4-	0.7+				

(10232)* 1997 WR₄₉ = 1985 RW₃ = 1996 NN₂

Discovered 1997 Nov. 26 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. A. Gnädig (*MPC* 31395)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	162.29945		(2000.0)	P	Q
<i>n</i>	0.17469815	ω	166.58451	+0.65041509	+0.75935119
<i>a</i>	3.1691576	Ω	143.98324	-0.69978685	+0.60855958
<i>e</i>	0.2417987	<i>i</i>	1.81270	-0.29539562	+0.23030633
<i>P</i>	5.64	<i>H</i>	13.3	<i>G</i>	0.15

Residuals in seconds of arc

1985 09 08	809	0.3-	0.7-	1985 09 20	809	0.3-	0.5+	1997 12 05	704	1.2+	0.1+
1985 09 08	809	0.2-	0.7-	1985 09 22	809	1.7+	0.8-	1997 12 05	704	0.2-	0.1+
1985 09 08	809	0.3-	0.8-	1985 09 22	809	1.6+	0.8-	1998 01 03	910	0.8+	0.0
1985 09 10	809	0.6+	0.3-	1996 07 14	809	0.3+	0.7+	1998 01 03	910	0.5+	0.0
1985 09 10	809	0.9+	0.3-	1996 07 14	809	0.2+	0.5+	1998 01 03	910	0.4+	0.1+
1985 09 10	809	1.0+	0.3-	1996 07 14	809	0.5-	0.6+	1998 02 27	327	1.9-	0.8-
1985 09 11	809	0.7+	0.9-	1996 07 16	809	0.5-	1.1+	1998 02 27	327	0.6+	0.3-
1985 09 11	809	0.8+	0.9-	1996 07 16	809	0.6-	1.4+	1998 02 27	327	1.3+	1.1+
1985 09 11	809	0.7+	0.7-	1996 07 16	809	0.8-	2.0+	1998 10 20	691	0.4+	0.2+
1985 09 14	809	2.5+	0.8+	1997 11 26	704	(0.4+	2.2+)	1998 10 20	691	0.1+	0.4+
1985 09 14	809	(2.9+	0.8+)	1997 11 26	704	0.9+	1.8+	1998 10 20	691	0.1+	0.1+
1985 09 14	809	(2.8+	0.8+)	1997 11 26	704	0.7+	0.6+	1998 10 28	691	0.5-	0.1+
1985 09 17	809	1.6-	1.0-	1997 11 29	704	1.6-	1.1+	1998 10 28	691	0.8-	0.2-
1985 09 17	809	1.4-	1.1-	1997 11 29	704	1.7-	1.2-	1998 10 28	691	0.8-	0.2-
1985 09 17	809	1.3-	1.1-	1997 11 29	704	0.0	1.2+	1998 12 23	691	0.1-	0.2+
1985 09 18	809	1.0-	0.7+	1997 11 29	704	1.2-	0.9-	1998 12 23	691	0.2+	0.1+
1985 09 18	809	0.7-	0.7+	1997 11 29	704	1.2-	1.8+	1998 12 23	691	0.2+	0.0
1985 09 18	809	0.5-	0.8+	1997 12 05	704	0.4+	0.2+	1999 01 07	691	0.3+	0.1-
1985 09 20	809	0.4-	0.7+	1997 12 05	704	0.6-	0.2+	1999 01 07	691	0.1+	0.2-
1985 09 20	809	0.2-	0.7+	1997 12 05	704	0.7+	0.1+	1999 01 07	691	0.4+	0.2-

(10233)* 1997 XQ₂ = 1991 JE₃

Discovered 1997 Dec. 5 by J.-C. Merlin at Le Creusot.

Id. G. V. Williams (*MPC* 31124)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	185.96811		(2000.0)	P	Q
<i>n</i>	0.21916300	ω	139.96724	+0.79617336	+0.60506461
<i>a</i>	2.7245277	Ω	182.80198	-0.56598085	+0.74345438
<i>e</i>	0.0884755	<i>i</i>	2.56989	-0.21394780	+0.28490771
<i>P</i>	4.50	<i>H</i>	13.0	<i>G</i>	0.15

Residuals in seconds of arc

1991 05 12	809	0.3-	1.3+	1997 12 07	504	1.2-	0.2-	1998 02 12	504	0.4-	0.0
1991 05 12	809	0.4-	0.4+	1997 12 07	627	0.2+	0.3+	1998 02 12	504	1.2-	0.2+
1991 05 12	809	0.6-	0.3+	1997 12 07	627	0.6+	0.7-	1998 02 12	504	0.7-	0.3+
1991 05 17	809	0.0	1.0+	1997 12 07	627	0.1-	0.5+	1998 02 28	327	0.2+	0.0
1991 05 17	809	1.1+	0.2+	1997 12 09	627	0.1+	0.2-	1998 02 28	327	0.2+	0.1+
1991 05 17	809	0.7+	0.3+	1997 12 09	627	(1.1+	2.3+)	1998 02 28	327	0.4+	0.2+
1996 08 20	566	0.1-	0.2+	1997 12 09	627	1.3+	0.1-	1998 02 28	327	0.5+	0.0
1996 08 20	566	0.3-	0.2-	1997 12 20	422	0.1-	0.2-	1998 03 18	504	(2.1-	0.1-)
1996 08 20	566	0.3+	0.1+	1997 12 20	422	0.2-	0.1-	1998 03 18	504	(2.2-	0.6-)
1996 12 13	566	1.1-	0.4+	1997 12 20	422	0.0	0.1-	1998 03 22	504	1.1-	0.3-
1996 12 13	566	0.6-	0.7+	1997 12 20	132	0.3-	0.3-	1999 01 15	699	0.1-	0.4+
1996 12 13	566	1.2+	0.5-	1997 12 20	132	0.3+	0.0	1999 01 15	699	0.0	0.5-
1997 11 29	704	(2.3-	0.3-)	1997 12 20	132	1.1-	0.2+	1999 01 15	699	0.6+	0.2-
1997 11 29	704	(2.7-	0.7-)	1997 12 23	132	1.7+	1.0+	1999 01 18	704	0.2+	1.6+
1997 11 29	704	1.3-	0.7-	1997 12 23	132	0.4-	0.7-	1999 01 18	704	1.2-	0.3+
1997 11 29	704	0.6-	0.4+	1997 12 26	132	0.4-	0.4+	1999 01 18	704	1.0-	0.6+
1997 11 29	704	(2.6-	0.4-)	1997 12 26	132	0.1+	0.2+	1999 01 18	704	0.3+	1.6+
1997 11 30	566	0.6+	0.5-	1997 12 26	132	0.7-	0.0	1999 01 23	504	0.5-	0.6-
1997 11 30	566	0.4+	0.3-	1997 12 28	504	0.7+	0.3-	1999 01 23	504	0.4-	0.8-
1997 11 30	566	0.8+	0.5-	1997 12 28	504	0.1+	0.2-	1999 01 23	504	0.2-	0.0
1997 12 04	704	0.3+	0.0	1997 12 28	504	0.8+	0.3-	1999 01 23	504	0.2+	0.4+
1997 12 04	704	1.4+	1.1+	1997 12 28	504	0.5+	0.4-	1999 01 23	504	0.1+	0.1+
1997 12 04	704	1.4+	0.1-	1997 12 28	504	0.0	0.2-	1999 01 23	504	0.5+	0.2+
1997 12 04	704	0.3+	0.6+	1997 12 28	958	0.0	0.1-	1999 02 12	699	0.0	0.2+
1997 12 04	704	0.4+	0.5+	1997 12 28	958	0.2-	2.0+	1999 02 12	704	0.3+	0.2-
1997 12 05	504	0.2+	1.8+	1997 12 29	958	(2.8-	0.2+)	1999 02 12	704	0.9-	0.4+
1997 12 05	504	1.2+	1.6+	1997 12 29	566	0.7-	0.2-	1999 02 12	699	1.3+	0.1+
1997 12 05	504	(0.5+	2.0+)	1997 12 29	566	0.3-	0.0	1999 02 12	704	0.6-	0.0
1997 12 06	504	0.1+	0.4+	1997 12 29	566	0.7-	0.0	1999 02 12	704	0.8-	0.1+
1997 12 06	504	0.1-	0.3+	1998 01 10	504	1.0-	0.4-	1999 02 12	699	1.4+	0.5-
1997 12 06	504	0.1-	0.3+	1998 01 10	504	1.5-	0.5-	1999 02 12	704	0.3-	0.2-
1997 12 06	504	0.0	0.4+	1998 01 14	504	0.3-	0.1+	1999 02 16	704	0.1+	0.5-
1997 12 06	504	0.2+	0.6+	1998 01 23	504	0.0	0.6-	1999 02 16	704	0.5+	0.8-
1997 12 07	504	0.2+	0.1+	1998 01 23	504	0.2-	1.0-	1999 02 16	704	0.2-	0.3-
1997 12 07	504	0.1-	0.2+	1998 02 12	504	0.6-	0.7-	1999 02 16	704	0.4+	0.5-
1997 12 07	504	0.6-	0.2-	1998 02 12	504	0.8-	0.7-	1999 02 16	704	0.6+	0.3-

(10234)* 1997 YB_s = 1954 OS = 1993 BH

Discovered 1997 Dec. 27 at Kleť.

Id. B. G. Marsden (*MPC* 31256), G. V. Williams (*MPC* 31396)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	207.73171		(2000.0)	P	Q
<i>n</i>	0.19064980	ω	190.53345	+0.79274353	+0.59429490
<i>a</i>	2.9898208	Ω	132.12434	-0.54512673	+0.79070139
<i>e</i>	0.0670813	<i>i</i>	10.52972	-0.27275363	+0.14698601
<i>P</i>	5.17	<i>H</i>	12.2	<i>G</i>	0.15

Residuals in seconds of arc

1999 MAR. 2

M.P.C. 33915

1993 01 18	372	(2.1– 3.7+)	1997 12 31	046	0.1+ 0.5–	1998 04 08	046	0.2– 0.8–
1993 01 18	372	0.1+ 1.8+	1997 12 31	046	0.1– 0.5–	1998 04 09	046	0.4– 0.2–
1993 01 25	372	1.3– 1.9+	1997 12 31	046	0.1– 0.4–	1998 04 09	046	0.1– 0.2–
1993 01 25	372	(3.3– 4.8+)	1998 01 01	046	0.0 0.4–	1998 04 09	046	0.9– 1.0–
1996 11 27	327	0.2– 0.9+	1998 01 02	046	0.0 0.4–	1999 01 24	046	0.1– 0.4+
1996 11 27	327	0.7– 0.3+	1998 01 02	046	0.1+ 0.4–	1999 01 24	046	0.3– 0.5+
1996 11 27	327	0.4– 1.1+	1998 01 13	046	0.2+ 0.3–	1999 01 24	046	0.2– 0.3+
1996 12 10	327	0.6+ 0.3+	1998 01 13	046	0.4+ 0.4–	1999 01 25	046	0.0 0.2+
1996 12 10	327	0.1+ 0.2–	1998 01 13	046	0.0 0.3–	1999 01 25	046	0.5+ 0.1–
1996 12 10	327	0.5– 0.2+	1998 01 15	046	0.2+ 0.1–	1999 01 25	046	0.0 0.1–
1997 12 27	046	0.5+ 0.3+	1998 01 15	046	0.5– 0.3+	1999 02 25	046	0.8+ 1.5+
1997 12 27	046	0.2+ 0.2+	1998 01 15	046	0.3– 0.1–	1999 02 25	046	0.7– 1.0+
1997 12 27	046	0.2+ 0.2+	1998 01 26	046	0.4– 0.1+	1999 02 25	046	0.7– 0.6+
1997 12 27	046	0.4+ 0.3+	1998 01 26	046	0.0 0.6+	1999 02 25	046	0.7– 0.6+
1997 12 27	046	0.4+ 0.1+	1998 01 26	046	0.6+ 0.4+	1999 02 26	046	0.6+ 0.1–
1997 12 28	046	0.3+ 0.1+	1998 01 26	046	0.2+ 0.2–	1999 02 26	046	0.5+ 0.3+
1997 12 28	046	0.1+ 0.2–	1998 03 10	046	0.7– 0.1–	1999 02 26	046	0.3+ 0.6+
1997 12 28	046	0.3+ 0.2+	1998 03 10	046	0.2– 0.3–	1999 02 26	046	0.5+ 0.5+

(10235)* 1998 QR₃₇ = 1971 QT = 1982 RT₂ = 1991 GQ₁₁ = 1993 TD₁₃

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>	65.62582		(2000.0)		P		Q
<i>n</i>	0.18367723	ω	15.33862		+0.32226268		+0.94552646
<i>a</i>	3.0650142	Ω	273.47826		–0.87332337		+0.27814935
<i>e</i>	0.1575398	<i>i</i>	2.64794		–0.36531226		+0.16915272
<i>P</i>	5.37	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1971 08 18	095	1.0+ 1.9–	1998 08 17	704	0.4+ 0.6–	1998 09 15	699	0.6– 0.9+
1971 08 24	095	0.2+ 0.2–	1998 08 17	704	1.3+ 1.7–	1998 09 18	704	0.0 1.4+
1982 09 12	095	0.3– 1.0–	1998 08 23	704	0.6+ 0.5–	1998 09 18	704	0.2+ 0.3+
1991 04 11	033	0.3+ 0.9+	1998 08 23	704	0.3– 0.7–	1998 09 18	704	0.6– 0.2–
1991 04 11	033	0.4+ 1.0+	1998 08 23	704	0.1– 0.2–	1998 09 18	704	0.1– 0.5+
1993 10 13	675	0.8+ 0.0	1998 08 23	704	0.5– 0.4+	1998 09 18	704	0.8– 0.2+
1993 10 13	675	0.2– 1.2–	1998 08 23	704	0.9– 0.6+	1998 12 09	704	1.4+ 1.3+
1993 10 15	675	0.2+ 0.1–	1998 09 14	704	0.6– 0.8+	1998 12 09	704	0.5– 0.2+
1998 08 03	699	1.8+ 0.0	1998 09 14	704	1.1– 1.0+	1998 12 09	704	1.0– 0.5–
1998 08 03	699	(2.6+ 0.3–)	1998 09 14	704	0.6– 2.0+	1998 12 09	704	1.6+ 0.7–
1998 08 03	699	(2.9+ 0.4–)	1998 09 14	704	0.4– 1.4+	1998 12 09	704	(3.1– 2.3+)
1998 08 17	704	0.5+ 0.5–	1998 09 14	704	0.7– 1.2+	1998 12 11	699	0.3– 1.4–
1998 08 17	704	1.2+ 0.8–	1998 09 15	699	0.6– 0.9+	1998 12 11	699	0.5– 0.1+
1998 08 17	704	0.0 0.4–	1998 09 15	699	0.5– 0.7+	1998 12 11	699	0.3– 1.0–

(10236)* 1998 QA₉₃ = 1951 CK₂ = 1953 UH = 1976 JK₄ = 1982 BG = 1984 UK

Discovered 1998 Aug. 28 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 33269)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	17.24362		(2000.0)		P		Q
<i>n</i>	0.28499469	ω	11.75110		+0.61923704		–0.78395662
<i>a</i>	2.2868879	Ω	40.01110		+0.71472109		+0.53942371
<i>e</i>	0.1365865	<i>i</i>	3.94594		+0.32514497		+0.30730129
<i>P</i>	3.46	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1951 02 04	675	1.5+ 1.1–	1998 11 10	704	0.4+ 0.2+	1999 01 03	327	0.0 0.4–
1951 02 04	675	1.4– 1.0–	1998 11 10	704	0.1+ 0.2+	1999 01 03	327	0.1+ 0.3–
1953 10 17	760	1.1– 0.6+	1998 11 10	704	0.2+ 0.7+	1999 01 08	699	0.2– 0.4–
1953 10 17	760	(0.1– 3.5–)	1998 11 10	704	0.6+ 0.4+	1999 01 08	699	0.2– 0.2–
1976 05 03	809	0.4– 0.4+	1998 11 10	704	0.2+ 0.7+	1999 01 08	704	1.2– 0.8–
1982 01 16	688	(1.1+ 4.6–)	1998 11 11	704	0.1– 0.2–	1999 01 08	704	1.3+ 0.5–

1982 01 16	688	(1.5+ 3.7–)	1998 11 11	704	0.1+ 0.1+	1999 01 08	704	1.2– 1.6+
1984 10 23	688	1.4+ 0.9–	1998 11 11	704	0.7– 1.2+	1999 01 08	699	0.3– 0.3–
1984 10 23	688	0.2– 1.0–	1998 11 11	704	0.7– 0.5+	1999 01 08	704	1.5– 1.8+
1984 10 29	688	1.3+ 1.5–	1998 11 11	704	0.2– 1.0+	1999 01 08	704	0.1+ 1.5+
1984 10 29	688	1.2+ 1.7–	1998 11 16	566	0.8+ 0.6–	1999 01 11	704	0.2– 0.4–
1998 08 28	704	0.5– 0.3–	1998 11 16	566	0.5+ 0.5–	1999 01 11	704	0.0 0.3+
1998 08 28	704	0.9– 0.1–	1998 11 16	566	0.8+ 0.7–	1999 01 11	704	0.5– 0.3+
1998 08 28	704	0.4+ 0.1+	1998 11 25	691	0.8– 0.3–	1999 01 11	704	0.2+ 1.0–
1998 08 28	704	1.7– 1.2–	1998 11 25	691	0.8– 0.2–	1999 01 11	704	0.5+ 0.2–
1998 08 28	704	0.1– 0.3+	1998 11 25	691	0.8– 0.1–	1999 02 02	699	0.3– 0.5+
1998 08 31	704	0.0 0.8+	1998 12 08	699	0.0 0.1+	1999 02 02	699	0.7– 0.2+
1998 08 31	704	0.9– 1.3+	1998 12 08	699	0.1+ 0.1+	1999 02 02	699	0.7– 0.4+
1998 08 31	704	0.5+ 0.5+	1998 12 08	699	0.8+ 0.0	1999 02 06	704	(0.9+ 2.1–)
1998 08 31	704	0.6– 1.2+	1998 12 25	120	0.2+ 0.2–	1999 02 06	704	0.8+ 0.5–
1998 08 31	704	1.4+ 0.7–	1998 12 25	120	0.5+ 0.1–	1999 02 06	704	0.3+ 0.6–
1998 10 18	699	0.2+ 0.4+	1998 12 25	120	0.1+ 0.0	1999 02 06	704	0.5– 0.1+
1998 10 18	699	0.3+ 0.3+	1999 01 03	327	0.0 0.6–			
1998 10 18	699	0.2+ 0.3+	1999 01 03	327	0.2+ 0.7–			

(10237)* 1998 SJ₁₁₉ = 1977 DC₁ = 1988 PN₂ = 1991 PD₂₇ = 1995 YP₄

Discovered 1998 Sept. 26 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. A. Doppler (*MPC* 33286)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	151.14479		(2000.0)		P		Q
<i>n</i>	0.30071390	ω	136.68883		–0.32244161		+0.94641419
<i>a</i>	2.2064820	Ω	114.49296		–0.87384739		–0.29021279
<i>e</i>	0.0569259	<i>i</i>	1.14657		–0.36389853		–0.14169233
<i>P</i>	3.28	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1977 02 18	381	1.1+ 0.7+	1995 12 22	691	0.5– 0.8–	1998 10 19	699	0.2+ 0.3–
1977 02 18	381	0.9+ 0.2–	1998 09 26	704	0.1– 0.4+	1998 10 28	704	1.2+ 0.5+
1977 02 19	381	0.5– 0.3–	1998 09 26	704	0.5– 1.0+	1998 10 28	704	1.1– 0.2+
1977 02 19	381	0.3– 0.5–	1998 09 26	704	0.2– 0.1+	1998 10 28	704	1.1+ 0.0
1988 08 13	033	0.1– 0.2+	1998 09 26	704	0.5– 0.8+	1998 10 28	704	1.1– 1.0–
1988 08 14	033	0.2+ 1.9–	1998 09 26	704	0.1+ 1.0+	1998 10 28	704	1.1+ 0.8+
1988 08 14	033	0.5+ 0.7–	1998 09 27	704	1.0+ 0.2–	1998 10 29	704	0.5– 1.2+
1991 08 05	809	0.2+ 0.2+	1998 09 27	704	1.0+ 0.3+	1998 10 29	704	(0.1– 2.4–)
1991 08 05	809	0.7– 0.3+	1998 09 27	704	1.0+ 0.0	1998 10 29	704	0.4+ 1.2–
1991 08 05	809	1.3– 0.0	1998 09 27	704	0.4+ 0.5–	1998 10 29	704	0.8+ 0.9–
1995 12 16	691	0.9– 0.1–	1998 10 10	699	0.4+ 0.2+	1999 01 09	910	1.3– 0.5–
1995 12 16	691	0.9– 0.0	1998 10 10	699	0.2– 1.3+	1999 01 09	910	1.3– 0.8–
1995 12 16	691	0.8– 0.2+	1998 10 10	699	0.4+ 0.7+	1999 01 09	910	1.0– 0.1–
1995 12 22	691	0.8– 0.7–	1998 10 19	699	0.5+ 0.1–			
1995 12 22	691	0.1– 0.2–	1998 10 19	699	0.3+ 0.2–			

(10238)* 1998 SO₁₄₀ = 1979 UR₃ = 1995 WA₆ = 1997 EO₄₉ = 1997 FT₂

Discovered 1998 Sept. 26 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 33295)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	56.92092		(2000.0)		P		Q
<i>n</i>	0.31162761	ω	128.30512		+0.98381741		+0.17421961
<i>a</i>	2.1546601	Ω	221.70913		–0.17766083		+0.91824865
<i>e</i>	0.1497829	<i>i</i>	3.60564		–0.02323667		+0.35562193
<i>P</i>	3.16	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1979 10 16	095	0.4– 1.3+	1998 09 26	704	0.1– 0.1+	1998 11 10	704	0.0 0.7–
1995 11 18	399	0.3– 0.3+	1998 09 26	704	0.3– 0.4–	1998 11 10	704	1.3+ 1.1+
1995 11 18	399	0.7– 0.9–	1998 09 26	704	0.8– 0.3–	1998 11 10	704	0.6+ 0.3–
1995 11 25	399	0.2+ 0.8–	1998 09 27	704	0.2– 0.3+	1998 11 10	704	0.1+ 1.0–
1995 11 25	399	0.8+ 0.7+	1998 09 27	704	0.4+ 0.4+	1998 11 10	704	0.2+ 0.0
1997 03 11	809	0.8+ 0.9+	1998 09 27	704	0.4– 1.1+	1998 11 11	704	0.3+ 1.2–

1997 03 11	809	0.9+	0.1+	1998 09 27	704	(0.9−	2.3+)	1998 11 11	704	1.4−	0.5−
1997 03 11	809	0.8+	0.5+	1998 09 27	704	0.5−	0.4+	1998 11 11	704	0.2−	0.2−
1997 03 11	809	(2.2−	3.6+)	1998 10 10	699	0.1−	0.1−	1998 11 11	704	0.3−	1.1+
1997 03 11	809	(0.9−	2.5+)	1998 10 10	699	0.2−	0.1+	1998 11 11	704	1.2−	0.8+
1997 03 11	809	(2.1−	3.4+)	1998 10 10	699	0.2−	0.6+	1998 11 23	699	0.1−	0.5−
1997 03 12	809	0.7+	0.3−	1998 10 17	699	0.4+	0.6+	1998 11 23	699	0.1+	0.2−
1997 03 12	809	1.0+	0.5+	1998 10 17	699	0.6+	0.5+	1998 11 23	699	0.1−	0.3−
1997 03 12	809	0.6+	0.2+	1998 10 17	699	0.1−	0.4+	1998 12 09	699	0.3−	0.4−
1997 03 13	809	(2.0−	3.7+)	1998 10 28	704	0.2+	0.3+	1998 12 09	699	0.1−	1.3+
1997 03 13	809	(1.9−	3.1+)	1998 10 28	704	0.1+	0.2−	1998 12 09	699	0.2+	0.9−
1997 03 13	809	(1.7−	2.6+)	1998 10 28	704	0.2+	0.8−	1999 01 08	704	0.2+	0.6+
1997 03 31	704	1.1−	1.3+	1998 10 28	704	0.2−	0.7+	1999 01 08	704	(2.5+	1.7−)
1997 03 31	704	0.8−	1.6+	1998 10 29	704	0.7+	0.4+	1999 01 08	704	0.0	1.1−
1997 04 03	704	0.5−	0.4+	1998 10 29	704	1.1+	0.3+	1999 01 08	704	1.5+	0.5−
1997 04 03	704	0.6−	0.2−	1998 10 29	704	0.4−	0.2+	1999 01 13	691	0.9−	0.1+
1998 09 26	704	0.3+	0.5−	1998 10 29	704	0.5+	0.4+	1999 01 13	691	1.0−	0.2−
1998 09 26	704	0.1−	0.1+	1998 10 29	704	0.9−	0.3+	1999 01 13	691	0.2−	0.2+

(10239)* 1998 TY₃₀ = 1981 SJ₅ = 1981 UZ = 1987 XE₁ = 1992 QT₁
= 1996 HJ₂₆

Discovered 1998 Oct. 10 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPC* 33305)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	66.10400	(2000.0)	P	Q	
<i>n</i>	0.17503898	ω	293.84370	+0.77400792	+0.61754454
<i>a</i>	3.1650424	Ω	28.63082	−0.42062707	+0.66654876
<i>e</i>	0.2381019	<i>i</i>	16.96612	−0.47327012	+0.41755418
<i>P</i>	5.63	<i>H</i>	12.8	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1981 09 25	095	0.3−	0.9−	1996 04 22	691	1.4−	0.4−	1998 11 10	704	0.4+	0.1−
1981 10 30	704	0.8+	1.1+	1996 04 22	691	1.3−	0.5−	1998 11 10	704	1.0+	0.3−
1981 10 31	704	(1.5−	5.4−)	1998 08 27	910	1.2−	0.2−	1998 11 10	704	0.5+	1.7−
1987 12 12	054	0.8−	0.7+	1998 08 27	910	1.1−	0.2−	1998 11 11	704	0.0	0.1−
1987 12 12	054	0.9−	0.4+	1998 08 27	910	1.3−	0.2−	1998 11 11	704	0.4+	0.5−
1992 08 25	675	0.0	0.9−	1998 10 10	699	0.4+	0.3+	1998 11 11	704	0.5+	0.5−
1992 08 25	675	0.4+	0.8−	1998 10 10	699	0.8+	0.3+	1998 11 11	704	0.5−	0.2+
1992 08 27	675	0.2+	0.3+	1998 10 10	699	0.7+	0.4+	1998 11 11	704	0.9+	1.0−
1992 08 27	675	0.2−	0.5+	1998 10 19	699	0.5−	0.4+	1999 01 14	699	0.5−	0.0
1996 04 20	566	1.0+	0.2−	1998 10 19	699	0.2+	0.5+	1999 01 14	699	0.5−	0.6+
1996 04 20	566	0.7+	0.1−	1998 10 19	699	0.1+	0.5+	1999 01 14	699	0.2+	0.0
1996 04 20	566	0.8+	0.4−	1998 11 10	704	0.2+	0.2−				
1996 04 22	691	1.4−	0.6−	1998 11 10	704	0.5+	0.2−				

(10240)* 1998 VW₃₄ = 1989 YO₁ = 1995 CT₄ = 1996 HN₁₅

Discovered 1998 Nov. 12 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 33321)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Nakano			
<i>M</i>	24.37699	(2000.0)	P	Q	
<i>n</i>	0.20320147	ω	187.95997	+0.76774996	−0.64062403
<i>a</i>	2.8653972	Ω	211.88965	+0.58919076	+0.71361270
<i>e</i>	0.0649934	<i>i</i>	1.37566	+0.25182187	+0.28347446
<i>P</i>	4.85	<i>H</i>	13.0	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1989 12 30	413	0.2+	1.0+	1996 04 18	809	1.5−	0.5+	1998 11 18	399	0.5−	0.7−
1989 12 30	413	0.8−	0.8+	1996 04 18	809	(1.2+	3.3+)	1998 11 18	399	0.0	0.9+
1989 12 31	413	0.7+	0.5+	1996 04 18	809	(0.8+	3.1+)	1998 11 19	399	0.1+	0.5−
1989 12 31	413	0.8+	1.3+	1996 04 18	809	(0.4+	3.2+)	1998 11 19	399	0.7−	0.7−
1995 02 01	691	0.2−	0.2−	1996 05 22	809	1.6+	1.7−	1998 11 22	399	0.2+	0.4−
1995 02 01	691	0.1−	0.3−	1996 05 22	809	0.8+	2.1−	1998 11 22	399	0.4+	0.1−
1995 02 01	691	0.3−	0.7−	1996 05 22	809	(0.6+	3.1−)	1998 11 27	691	1.3+	1.6−
1995 02 02	691	0.2−	0.2−	1998 10 18	699	0.1+	0.7−	1998 11 27	691	1.6−	0.1−
1995 02 02	691	0.0	0.8−	1998 10 18	699	0.2−	0.5−	1998 11 27	691	1.7−	0.1−

1995 02 02	691	0.1−	0.4−	1998 10 18	699	0.3+	0.4−	1998 12 08	699	0.3+	0.2+
1996 04 17	809	(3.0−	2.2+)	1998 11 10	699	0.4+	0.3−	1998 12 08	699	0.2+	0.8−
1996 04 17	809	(4.4−	2.4+)	1998 11 10	699	0.6+	1.4+	1998 12 08	699	1.0+	0.1+
1996 04 17	809	(4.7−	2.3+)	1998 11 10	699	0.7+	0.4+	1998 12 15	120	0.7+	0.2−
1996 04 18	809	1.1−	0.9−	1998 11 12	399	0.4−	1.3−	1998 12 15	120	0.8+	0.8+
1996 04 18	809	0.8−	0.3+	1998 11 12	399	0.5−	0.1+				

(10241)* 1999 AU₆ = 1981 UX₂₄ = 1996 KB₁ = 1997 WB₄₉

Discovered 1999 Jan. 9 by K. Korlević at Višnja.

Id. K. Ichikawa (*MPC* 33731), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	133.27301	(2000.0)	P	Q	
<i>n</i>	0.18560181	ω	186.98035	+0.93306324	+0.35947173
<i>a</i>	3.0437893	Ω	151.94068	−0.32866290	+0.86681756
<i>e</i>	0.1628188	<i>i</i>	1.60267	−0.14619745	+0.34555374
<i>P</i>	5.31	<i>H</i>	13.5	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1981 10 25	675	0.2−	0.2+	1997 11 29	704	0.8+	0.3+	1999 01 13	120	0.2+	0.1−
1981 10 26	675	0.2−	0.9+	1997 11 29	704	0.5+	1.0+	1999 01 13	120	0.2+	0.2+
1996 05 23	867	0.2−	0.1+	1997 11 29	704	0.9−	0.7+	1999 01 15	120	0.4+	0.1−
1996 05 23	867	0.4−	0.1+	1997 11 30	566	0.6+	1.6−	1999 01 15	120	1.1+	0.4+
1996 05 24	867	0.2+	0.3+	1997 11 30	566	0.4+	1.0−	1999 01 17	120	0.8−	0.2−
1996 05 24	867	0.4−	0.1+	1997 11 30	566	0.6+	1.2−	1999 01 17	120	1.0+	0.6+
1996 05 25	867	0.4+	0.5+	1997 11 30	566	0.4+	1.0−	1999 01 22	691	1.5−	0.1−
1996 05 25	867	0.3+	0.0	1997 11 30	566	0.8+	1.3−	1999 01 22	691	1.7−	0.2+
1997 09 07	910	1.1−	0.2+	1997 11 30	566	0.2+	0.4−	1999 01 22	691	1.6−	0.1+
1997 09 07	910	1.1−	0.4+	1999 01 09	120	0.3−	0.4−	1999 01 23	120	1.1+	0.5+
1997 09 07	910	1.1−	0.3+	1999 01 09	120	0.8+	0.5+	1999 02 16	704	0.3+	0.1+
1997 10 05	910	0.3−	0.4+	1999 01 09	120	(2.6+	0.3+)	1999 02 16	704	1.2+	0.7−
1997 10 05	910	0.2−	0.5+	1999 01 13	120	0.6+	0.4+	1999 02 16	704	(0.3+	2.3+)
1997 10 05	910	0.3−	0.5+	1999 01 13	120	0.8+	0.7+	1999 02 16	704	1.5−	0.5−
1997 11 29	704	0.4+	0.1−	1999 01 13	120	0.1−	0.2+				
1997 11 29	704	0.2+	1.7+	1999 01 13	120	0.0	0.0				

(10242)* 2808 P-L = 1977 DB₅

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. K. Hurukawa (*JAM* 1639)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	309.83816	(2000.0)	P	Q	
<i>n</i>	0.26102099	ω	311.31308	−0.66411708	−0.74762856
<i>a</i>	2.4248549	Ω	180.30174	+0.69613240	−0.61828165
<i>e</i>	0.1499407	<i>i</i>	2.03996	+0.27266864	−0.24244451
<i>P</i>	3.78	<i>H</i>	15.2	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1960 09 24	675	0.0	0.0	1978 07 08	675	2.4+	0.1+	1998 11 10	704	0.1+	0.2−
1960 09 24	675	0.0	0.1−	1978 07 09	675	0.1−	0.1−	1998 11 10	704	0.3−	0.5−
1960 09 26	675	0.2−	1.0−	1994 10 09	691	1.1−	0.0	1998 11 10	704	0.5+	0.0
1960 09 26	675	0.1−	0.4+	1994 10 09	691	1.1−	0.1−	1998 11 10	704	1.0+	0.1−
1960 09 28	675	0.5+	0.3+	1996 03 17	566	0.8−	0.3+	1998 11 11	704	1.2+	0.5+
1960 09 28	675	0.3−	0.9−	1996 03 17	566	0.6−	0.2+	1998 11 11	704	0.1+	0.0
1960 09 29	675	1.5+	0.2−	1996 03 17	566	0.6−	0.5+	1998 11 11	704	0.4+	0.7+
1960 09 29	675	1.9−	1.7−	1996 04 19	566	1.1−	2.2−	1998 11 11	704	1.2+	0.2+
1960 10 22	675	1.4−	0.0	1996 04 19	566	0.2−	2.4−	1998 11 11	704	(2.4+	0.1−)
1960 10 25	675	2.0+	1.1−	1996 04 19	566	1.1−	2.4−	1998 11 24	699	0.9+	0.1+
1960 10 26	675	0.2+	0.6−	1998 10 29	704	1.6−	1.4−	1998 11 24	699	1.0+	0.3−
1977 02 18	381	0.9+	0.0	1998 10 29	704	1.4−	0.1−	1998 11 24	699	0.3+	0.1+
1977 02 19	381	0.7−	1.0+	1998 10 29	704	0.1−	0.2−	1998 12 08	699	0.1−	0.3+
1977 02 19	381	1.4+	0.0	1998 10 29	704	1.9−	0.1−	1998 12 08	699	0.5+	0.2−
1978 07 07	675	0.4−	0.1+	1998 11 10	704	0.6+	0.1+	1998 12 08	699	0.6+	0.3−

(10243)* 3553 P-L = 1990 ED₁

Discovered 1960 Oct. 22 by C. J. van Houten and I. van Houten-Groeneveld
on Palomar Schmidt plates taken by T. Gehrels.

Id. H. Kaneda (*MPC* 16589)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21301193	ω	192.75301	−0.68192026	−0.72466795		
<i>a</i>	2.7767286	Ω	300.33987	+0.68075996	−0.57921769		
<i>e</i>	0.1704651	<i>i</i>	6.60044	+0.26748952	−0.37331386		
<i>P</i>	4.63	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1960 10 22	675	1.3+	0.1+	1996 07 23	566	0.4+	0.1+	1999 01 18	704	0.6−	0.1−
1960 10 24	675	0.8−	1.1−	1996 07 23	566	0.0	0.4−	1999 01 18	704	0.4−	0.3+
1960 10 26	675	0.3+	0.4−	1996 07 23	566	0.2−	0.2−	1999 01 18	704	0.3−	0.1−
1990 02 24	809	0.2+	1.1−	1996 08 09	566	0.1−	0.7+	1999 01 18	704	0.5+	0.1−
1990 02 24	809	0.8+	1.1−	1996 08 09	566	0.0	0.3+	1999 02 06	120	0.4+	0.0
1990 02 24	809	0.1+	1.0−	1996 08 09	566	0.7+	0.5+	1999 02 06	120	0.2+	0.4−
1990 03 02	809	0.2+	0.3+	1998 11 25	704	0.8−	1.5−	1999 02 11	699	0.4+	0.3+
1990 03 02	809	0.4+	0.9+	1998 11 25	704	(2.3−	0.7−)	1999 02 11	699	0.4+	0.2−
1990 03 02	809	0.0	0.2+	1998 11 25	704	0.7+	1.8+	1999 02 11	699	0.2+	0.2+
1990 03 04	809	0.7−	0.0	1998 11 25	704	0.2+	1.3+	1999 02 12	704	0.7+	0.6+
1990 03 04	809	0.7−	0.1−	1998 12 30	327	0.1−	0.1+	1999 02 12	704	0.9+	1.1+
1990 03 04	809	1.3−	0.1−	1998 12 30	327	0.1+	0.2+	1999 02 12	704	1.0+	0.2+
1990 03 20	095	(0.6+	3.3−)	1998 12 30	327	0.0	0.1+	1999 02 12	704	0.5+	0.1−
1990 03 20	095	(1.8−	2.7−)	1999 01 08	691	(2.3−	0.3−)	1999 02 12	704	0.7+	0.0
1996 07 14	566	0.1−	0.4−	1999 01 08	691	(2.3−	0.1−)	1999 02 16	704	0.6+	0.6+
1996 07 14	566	0.5−	0.1−	1999 01 14	120	0.4−	0.0	1999 02 16	704	0.3−	0.6−
1996 07 14	566	0.7−	0.2−	1999 01 15	120	0.8−	0.0	1999 02 16	704	0.3+	0.3−
1996 07 22	566	0.3−	1.0+	1999 01 17	691	0.8−	0.2−	1999 02 16	704	0.5−	0.3+
1996 07 22	566	0.0	0.3+	1999 01 17	691	0.6−	0.3−	1999 02 16	704	0.4−	0.3−
1996 07 22	566	0.1+	0.3+	1999 01 18	704	0.5−	0.2+				

(10244)* 4668 P-L = 1990 TB₁₄

Discovered 1960 Sept. 26 by C. J. van Houten and I. van Houten-Groeneveld
on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 17651)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26440380	ω	27.47170	+0.56278903	−0.82427633		
<i>a</i>	2.4041280	Ω	28.40879	+0.73249495	+0.46258948		
<i>e</i>	0.1014345	<i>i</i>	7.48114	+0.38304001	+0.32646516		
<i>P</i>	3.73	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1960 09 26	675	0.4−	0.3−	1996 03 27	809	0.3−	0.4+	1999 01 19	704	0.1+	1.4+
1960 09 27	675	0.2−	0.5+	1996 03 27	809	0.3−	0.4−	1999 01 22	699	0.4+	0.5+
1960 09 28	675	0.4+	0.1+	1996 03 27	809	0.5+	0.5−	1999 01 22	699	0.2+	0.7+
1960 10 22	675	1.1+	0.3+	1996 04 17	809	(0.1−	2.4+)	1999 01 22	699	0.5+	0.7+
1960 10 25	675	0.1−	0.1−	1996 04 17	809	(0.3−	2.6+)	1999 02 10	704	0.5+	0.2−
1960 10 26	675	0.5−	0.3−	1996 04 17	809	0.3+	1.7+	1999 02 10	704	1.1+	0.3−
1990 10 14	033	0.1−	0.2+	1997 09 01	566	0.1+	0.9+	1999 02 10	704	0.1−	1.1+
1990 10 14	033	1.5−	0.2−	1997 09 01	566	0.0	0.4+	1999 02 10	704	0.0	0.0
1990 10 14	033	0.1−	0.3+	1997 09 01	566	0.1+	1.0+	1999 02 13	704	0.7−	0.8−
1996 03 24	809	1.5+	0.3+	1999 01 19	704	0.5−	0.4−	1999 02 13	704	0.0	0.7−
1996 03 24	809	1.4−	0.3+	1999 01 19	704	0.3+	0.7−	1999 02 13	704	(2.2+	0.4−)
1996 03 24	809	0.7−	0.6+	1999 01 19	704	0.0	0.0	1999 02 13	704	(2.8−	0.1−)

(10245)* 6071 P-L = 1995 DH₂

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

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21270846	ω	341.59804	−0.99847450	−0.03259958		
<i>a</i>	2.7793690	Ω	196.72266	+0.04298802	−0.96548385		
<i>e</i>	0.0928192	<i>i</i>	8.90961	−0.03465120	−0.25841480		
<i>P</i>	4.63	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1954 05 28	675	0.6+	0.2+	1995 02 25	693	1.1−	1.5−	1998 12 15	704	0.6+	0.1−
1954 05 28	675	0.5+	0.4−	1995 02 26	693	1.4−	0.1+	1998 12 22	704	0.1−	0.2+
1960 09 24	675	0.5+	0.1−	1995 02 26	693	0.6−	0.7−	1998 12 22	704	1.3+	1.1−
1960 09 25	675	0.0	0.0	1997 08 10	557	0.1+	0.3+	1998 12 22	704	0.7+	0.6−
1960 09 26	675	0.0	0.7−	1997 08 10	557	0.1+	0.1−	1998 12 22	704	0.7−	0.8+
1960 09 28	675	0.2−	0.4−	1997 08 13	557	0.1+	0.2+	1998 12 22	704	0.9+	0.2+
1960 10 17	675	0.5−	1.0−	1997 08 14	557	0.2−	0.3+	1999 01 14	699	1.0−	0.7+
1960 10 22	675	0.3−	0.8+	1997 08 14	557	0.2+	0.1−	1999 01 14	699	0.0	1.4+
1960 10 24	675	0.6−	0.5+	1997 08 14	557	0.1−	0.0	1999 01 14	699	0.6−	0.8+
1960 10 26	675	0.1−	0.1+	1998 12 15	704	0.5+	0.2−	1999 02 13	734	0.4−	0.8+
1988 10 07	675	0.3+	1.9−	1998 12 15	704	0.2+	0.0	1999 02 13	734	0.3−	0.8+
1988 10 07	675	0.3−	1.2−	1998 12 15	704	1.1+	1.0−				
1995 02 25	693	0.5+	0.5−	1998 12 15	704	0.0	0.1+				

(10246)* 6381 P-L = 1993 TV₂₆

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld
on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 23130)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24032711	ω	245.69698	+0.37757220	−0.92595654		
<i>a</i>	2.5621283	Ω	182.15272	+0.90054204	+0.36885280		
<i>e</i>	0.0561289	<i>i</i>	10.13976	+0.21555339	+0.08094509		
<i>P</i>	4.10	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1960 09 24	675	0.5−	1.4+	1993 10 09	809	0.5−	0.2+	1999 02 12	704	0.6−	1.5+
1960 09 26	675	0.1−	0.8+	1993 10 11	809	0.7+	0.4−	1999 02 12	704	0.7+	1.8+
1960 09 27	675	0.8+	0.8−	1993 10 11	809	0.4+	0.8−	1999 02 12	704	0.0	0.6−
1960 09 28	675	0.4+	0.5+	1993 10 11	809	0.5−	0.9−	1999 02 12	704	0.4+	0.5+
1960 10 22	675	1.2−	0.5+	1993 10 20	809	1.5+	0.9−	1999 02 16	704	0.1−	0.7+
1960 10 24	675	0.5+	1.6+	1993 10 20	809	0.0	0.7−	1999 02 16	704	0.8−	0.7+
1960 10 26	675	0.9−	0.8+	1993 10 20	809	0.6−	0.1−	1999 02 16	704	0.4+	0.2+
1989 11 22	675	0.3−	0.3+	1999 01 15	699	0.4+	1.0−	1999 02 16	704	0.3−	0.7−
1989 11 22	675	0.1+	0.4+	1999 01 15	699	0.8+	0.0	1999 02 16	704	0.5−	0.1−
1993 10 09	809	0.1+	0.3−	1999 01 15	699	1.0+	0.5−				
1993 10 09	809	0.2−	0.4−	1999 02 12	704	0.8−	1.2−				

(10247)* 6629 P-L = 1994 PT₉

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* 24757)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.08336570	ω	319.24964	−0.52871442	−0.84851788		
<i>a</i>	5.1897261	Ω	162.63364	+0.79654943	−0.50490514		
<i>e</i>	0.0066012	<i>i</i>	4.20265	+0.29320651	−0.15839258		
<i>P</i>	11.82	<i>H</i>	10.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1960 09 24	675	1.0+	0.2+	1994 09 03	809	0.0	1.3+	1998 12 22	704	0.6−	0.8−
1960 09 26	675	0.1+	0.3+	1994 09 03	809	0.8−	0.9+	1998 12 22	704	0.3+	0.1+
1960 09 27	675	0.4+	1.2+	1994 09 03	809	0.8−	1.3+	1998 12 22	704	0.5−	0.5+
1960 09 28	675	0.7+	0.1−	1994 09 04	809	1.4−	1.4+	1998 12 22	704	0.4+	0.1−
1960 10 17	675	0.9−	0.7−	1994 09 04	809	(2.3−	1.2+)	1998 12 26	732	0.2+	0.2−
1960 10 22	675	0.9−	1.5−	1994 09 04	809	(2.4−	0.3+)	1998 12 26	732	0.7−	0.1−

M.P.C. 33918

1960 10 24	675	0.3+	0.4-	1996 09 23	327	1.2+	0.3+	1998 12 26	732	0.4-	0.3-
1960 10 26	675	0.1+	1.5-	1996 09 23	327	1.1+	0.3+	1998 12 27	732	0.0	0.0
1994 08 10	809	0.4+	0.5-	1996 09 23	327	0.7+	0.2+	1998 12 27	732	0.2+	0.3-
1994 08 10	809	0.1+	0.2-	1997 11 29	704	1.6-	0.2-	1998 12 27	732	0.3+	0.0
1994 08 10	809	0.1-	0.3-	1997 11 29	704	(2.3-	1.4+)	1999 01 20	704	(2.2+	1.1-)
1994 08 11	809	0.3+	0.7-	1997 11 29	704	1.8-	0.4-	1999 01 20	704	1.4+	1.2+
1994 08 11	809	0.6+	0.6-	1997 11 29	704	(2.6-	0.0)	1999 01 20	704	1.2+	0.3+
1994 08 11	809	0.3+	0.3-	1997 11 29	704	0.8-	0.9+	1999 01 20	704	(2.8+	1.6-)

(10248)* 7639 P-L = 1979 FJ = 1983 CO₈ = 1991 AF₃

Discovered 1960 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. H. Kaneda (*MPC* 18131)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	287.66152	(2000.0)		P	Q		
<i>n</i>	0.23833776	ω	79.04453	-0.98798930	-0.13434336		
<i>a</i>	2.5763655	Ω	93.20270	+0.09405205	-0.91484780		
<i>e</i>	0.1837764	<i>i</i>	4.38554	+0.12260246	-0.38079570		
<i>P</i>	4.14	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1960 10 17	675	1.0-	0.7-	1991 01 15	033	0.9-	0.2-	1998 11 24	704	(1.3-	2.5+)
1960 10 22	675	0.6+	0.1-	1991 01 16	033	0.8-	0.1-	1998 12 08	699	0.2-	0.6+
1960 10 25	675	0.3+	0.3-	1996 06 16	816	0.1-	0.5+	1998 12 08	699	0.1-	1.0+
1960 10 26	675	0.1-	0.1+	1996 06 16	816	0.2-	0.4+	1998 12 08	699	0.7+	0.6+
1979 03 27	801	2.4+	1.4+	1996 06 16	816	0.2-	0.4+	1999 01 05	699	0.3-	0.2+
1983 02 10	095	1.1-	2.0-	1998 11 24	704	0.8-	0.9+	1999 01 05	699	0.5+	1.6-
1991 01 09	033	0.7-	0.3+	1998 11 24	704	0.9+	0.6+	1999 01 05	699	0.6+	0.1-
1991 01 15	033	0.6-	0.2-	1998 11 24	704	0.9+	1.5+				

(10249)* 9515 P-L = 1985 TY

Discovered 1960 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. T. Kobayashi (*MPC* 13154)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	65.00609	(2000.0)		P	Q		
<i>n</i>	0.23834587	ω	341.62547	+0.83092922	-0.55412527		
<i>a</i>	2.5763071	Ω	52.12869	+0.51808300	+0.73782802		
<i>e</i>	0.0925137	<i>i</i>	3.63286	+0.20284633	+0.38542833		
<i>P</i>	4.14	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1960 10 17	675	0.5-	0.1-	1996 04 17	809	1.6+	1.9+	1998 12 17	704	0.1-	1.2-
1960 10 22	675	1.0-	1.1+	1996 04 17	809	0.1+	1.4+	1998 12 17	704	0.1+	0.4-
1960 10 24	675	0.8+	0.5+	1996 04 17	809	0.4+	0.4+	1999 01 16	704	0.1-	0.3+
1960 10 26	675	0.1+	0.3+	1996 04 18	809	0.6+	1.3+	1999 01 16	704	0.3-	1.1+
1985 10 15	688	0.4-	1.0+	1996 04 18	809	0.2-	0.8+	1999 01 16	704	0.9+	0.2+
1985 10 15	688	(5.9-	0.2-)	1996 04 18	809	0.3-	0.5+	1999 01 16	704	1.2+	0.2+
1985 10 20	688	2.0-	2.2+	1998 12 14	704	(2.4+	0.4-)	1999 01 19	704	1.1-	1.0+
1985 10 20	688	(3.2+	2.8+)	1998 12 14	704	0.1-	0.0	1999 01 19	704	(2.2-	2.9+)
1989 09 02	675	0.0	0.3-	1998 12 14	704	0.9+	0.7-	1999 01 19	704	0.9+	0.8+
1989 09 02	675	0.4-	0.9-	1998 12 17	704	0.1+	0.2+	1999 01 19	704	0.4-	0.5+
1989 09 29	675	0.7+	0.6+	1998 12 17	704	0.7-	0.0				
1989 09 29	675	0.0	1.0+	1998 12 17	704	1.0-	0.1+				

(10250)* 1252 T-1 = 1997 RK

Discovered 1971 Mar. 25 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 30682)

1999 MAR. 2

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	285.26399	(2000.0)		P	Q		
<i>n</i>	0.27605655	ω	346.02247	-0.99648768	+0.07557311		
<i>a</i>	2.3359884	Ω	198.42682	-0.06158485	-0.95324628		
<i>e</i>	0.0392916	<i>i</i>	6.55230	-0.05674157	-0.29259227		
<i>P</i>	3.57	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1971 03 24	675	1.7+	0.4-	1994 10 31	691	0.6-	0.0	1998 12 15	704	1.5+	0.1+
1971 03 25	675	0.7+	0.9+	1996 03 23	566	0.1-	0.6+	1998 12 15	704	0.4-	0.9+
1971 03 25	675	1.1+	0.3-	1996 03 23	566	0.1-	0.2+	1998 12 22	704	0.2-	0.0
1971 03 26	675	0.4-	0.5+	1996 03 23	566	0.1-	0.5+	1998 12 22	704	0.8+	0.7+
1971 03 27	675	0.4-	0.5-	1997 09 01	566	0.1-	0.5-	1998 12 22	704	0.1+	0.6-
1971 04 02	675	1.0-	0.3-	1997 09 01	566	0.1-	0.5-	1998 12 22	704	0.4+	0.5+
1971 04 16	675	0.1-	1.1-	1997 09 01	566	0.2+	0.6-	1998 12 22	704	0.3-	0.0
1971 04 16	675	0.8-	0.6-	1997 09 02	566	0.1+	0.0	1999 01 20	704	0.6-	1.3-
1971 05 13	675	0.1+	0.9-	1997 09 02	566	0.4+	0.3-	1999 01 20	704	0.4-	1.5-
1971 05 14	675	0.2-	0.0	1997 09 02	566	0.8+	0.0	1999 01 20	704	0.7+	0.9-
1971 05 16	675	1.7-	0.3+	1998 12 15	704	0.1-	0.3-	1999 01 20	704	0.5-	0.5-
1994 10 31	691	0.4-	0.0	1998 12 15	704	0.7-	0.6+	1999 01 20	704	0.2+	0.0
1994 10 31	691	0.1-	0.1-	1998 12 15	704	0.3+	0.3+				

(10251)* 3089 T-1 = 1980 WX₁ = 1997 ML₁₀

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* 30285)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	11.88031	(2000.0)		P	Q		
<i>n</i>	0.27660961	ω	204.87492	-0.10516316	-0.99387080		
<i>a</i>	2.3328736	Ω	251.17653	+0.91831351	-0.08390228		
<i>e</i>	0.0858366	<i>i</i>	2.06350	+0.38162941	-0.07198081		
<i>P</i>	3.56	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1971 03 24	675	2.2+	1.2-	1997 06 30	691	0.0	0.3+	1998 12 22	704	0.5+	0.3-
1971 03 25	675	(2.9+	1.9-)	1997 06 30	691	0.3+	0.1+	1998 12 22	704	(3.0-	2.6-)
1971 03 26	675	0.8+	0.8-	1997 07 11	691	0.1-	0.1-	1998 12 22	704	0.4-	0.7+
1971 03 26	675	0.0	0.2+	1997 07 11	691	0.1-	0.1+	1998 12 22	704	0.8-	1.8+
1971 03 27	675	1.5-	0.8+	1997 07 11	691	0.4-	0.6+	1998 12 22	704	1.1-	0.5-
1971 04 02	675	(3.9+	3.3-)	1997 07 12	691	0.3+	0.1-	1999 01 20	704	(0.1+	2.2-)
1971 04 16	675	1.0-	1.2+	1997 07 12	691	0.3-	0.1+	1999 01 20	704	0.3+	0.1-
1971 04 16	675	0.3-	1.8+	1997 07 12	691	0.0	0.1+	1999 01 20	704	0.2+	0.7-
1971 05 13	675	0.9+	0.8-	1998 12 15	704	0.7-	1.2+	1999 01 20	704	0.4+	0.3-
1971 05 14	675	1.1-	1.1-	1998 12 15	704	0.2+	0.9+	1999 01 20	704	0.5+	0.8-
1980 11 30	095	0.1+	1.5-	1998 12 15	704	0.9+	0.5+				
1997 06 30	691	0.2-	0.2+	1998 12 15	704	0.5+	0.2-				

(10252)* 4164 T-1 = 1978 VX₁₅

Discovered 1971 Mar. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. A. Gnädig (*MPC* 33056)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	150.86908	(2000.0)		P	Q		
<i>n</i>	0.20461167	ω	286.42356	+0.76524951	+0.64336207		
<i>a</i>	2.8522162	Ω	33.54263	-0.57448241	+0.69786243		
<i>e</i>	0.0686248	<i>i</i>	2.26864	-0.29045335	+0.31475908		
<i>P</i>	4.82	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1971 03 24	675	0.0	0.1+	1982 07 16	413	0.3+	1.2+	1999 02 10	704	0.6-	0.5+
1971 03 26	675	1.4-	1.9-	1982 07 16	413	0.3+	0.0	1999 02 10	704	0.3+	0.1+
1971 03 26	675	1.6-	0.7-	1997 12 06	910	0.3-	0.7-	1999 02 10	704	0.1-	0.9-
1971 03 27	675	0.1+	0.2-	1997 12 06	910	0.3-	0.8-	1999 02 12	704	0.3+	0.2+
1971 04 02	675	0.1+	1.5+	1997 12 06	910	0.3-	0.6-	1999 02 12	704	0.6+	0.1-

1971 04 16	675	0.3+	0.3-	1999 01 19	704	0.3-	0.7+	1999 02 12	704	0.7+	0.3-
1971 04 16	675	0.3-	0.2-	1999 01 19	704	0.1-	0.3-	1999 02 12	704	0.0	0.4-
1971 05 13	675	0.9+	1.8+	1999 01 19	704	0.3+	0.5+	1999 02 12	704	0.3-	0.6-
1971 05 14	675	1.6+	0.6+	1999 01 19	704	0.4-	0.7+				
1978 11 01	095	0.1-	1.2+	1999 02 10	704	1.0+	0.7+				

(10253)* 2116 T-2 = 1992 AN₃ = 1992 CE₄

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 (d, *MPC* 21085), T. Kobayashi (*MPC* 23987)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	6.11840	(2000.0)	P	Q	
<i>n</i>	0.28326663	ω	63.71201	-0.45404138	-0.89096451
<i>a</i>	2.2961791	Ω	53.29230	+0.81505847	-0.41777148
<i>e</i>	0.1494543	<i>i</i>	0.38265	+0.35989737	-0.17790232
<i>P</i>	3.48	<i>H</i>	15.1	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1973 09 19	675	1.8+	0.9-	1996 03 24	809	0.7-	0.1-	1999 01 19	704	1.0-	0.1-
1973 09 19	675	1.4+	1.0-	1996 03 24	809	1.4-	0.2+	1999 02 10	704	1.2+	0.7-
1973 09 20	675	2.0-	0.7-	1996 03 24	809	1.0-	1.2-	1999 02 10	704	(3.3-	0.9-)
1973 09 24	675	1.5-	0.5+	1996 04 17	809	(0.9-	3.5-)	1999 02 10	704	0.7+	0.5-
1973 09 24	675	1.8-	0.8+	1996 04 17	809	(0.6-	3.0-)	1999 02 10	704	0.6+	0.6-
1973 09 25	675	0.3+	1.6-	1996 04 17	809	(0.5-	3.5-)	1999 02 11	699	0.2+	0.6+
1973 09 25	675	0.4-	0.2-	1996 05 13	566	0.2+	1.5-	1999 02 11	699	0.2+	0.7+
1973 09 29	675	1.0-	0.0	1996 05 13	566	0.0	2.0-	1999 02 11	699	0.4+	0.5+
1973 09 29	675	1.7+	1.1-	1996 05 13	566	0.2+	1.7-	1999 02 13	691	0.4+	0.2-
1973 09 30	675	0.0	0.6-	1997 07 06	688	0.1+	0.3-	1999 02 13	691	0.5+	0.0
1973 09 30	675	0.2+	0.1-	1997 07 06	688	0.1+	0.1+	1999 02 13	704	0.5+	0.3-
1973 10 04	675	1.8+	0.1-	1997 07 06	688	0.2+	0.1+	1999 02 13	691	0.5+	0.2-
1973 10 04	675	0.3+	0.3-	1997 07 06	688	0.0	0.1-	1999 02 13	704	0.3-	0.4-
1973 10 05	675	1.9+	1.3-	1999 01 09	691	1.1-	0.1-	1999 02 13	704	0.3+	0.3+
1973 10 05	675	0.0	0.7-	1999 01 09	691	1.2-	0.0	1999 02 13	704	0.2-	0.8-
1992 01 11	303	1.0-	0.3-	1999 01 09	691	1.5-	0.0	1999 02 13	704	1.0-	0.4-
1992 01 12	303	1.4+	0.4-	1999 01 19	704	0.1-	0.2+	1999 02 18	120	0.6+	1.0-
1992 01 27	372	(2.6+	0.1+)	1999 01 19	704	0.7-	0.5+	1999 02 18	120	0.4+	1.0-
1992 02 04	372	(3.8-	0.6+)	1999 01 19	704	0.3-	0.4+				

(10254)* 2314 T-2 = 1989 GP₃ = 1990 RJ₁₅ = 1993 OL₂

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. T. Kobayashi (*MPC* 15906), G. V. Williams (*MPC* 27322)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	259.38215	(2000.0)	P	Q	
<i>n</i>	0.28932060	ω	96.43960	-0.21158129	+0.97716320
<i>a</i>	2.2640351	Ω	161.31030	-0.91918635	-0.19212065
<i>e</i>	0.0647761	<i>i</i>	3.51258	-0.33215931	-0.09078404
<i>P</i>	3.41	<i>H</i>	14.6	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1973 09 29	675	1.3+	1.1-	1989 04 06	809	0.3-	1.0-	1996 04 21	809	0.3+	2.0+
1973 09 29	675	1.7+	2.0-	1989 04 06	809	0.5+	1.4-	1998 12 01	704	0.4+	0.3+
1973 09 30	675	(2.7+	3.9-)	1989 04 06	809	1.0+	0.0	1998 12 01	704	1.2+	0.5+
1973 09 30	675	1.3-	1.5+	1990 09 15	809	(0.9+	4.6-)	1998 12 01	704	0.1+	0.7+
1973 09 30	675	(2.7+	3.4-)	1990 09 15	809	(0.8+	4.8-)	1998 12 01	704	1.3-	0.7+
1973 09 30	675	0.7-	0.7+	1990 09 15	809	(1.3+	3.7-)	1999 02 10	704	1.3+	0.3-
1973 10 04	675	0.1-	0.3-	1993 07 20	010	0.3-	0.1-	1999 02 10	704	0.5-	0.0
1973 10 04	675	1.7-	1.9+	1993 07 20	010	1.2-	1.2-	1999 02 10	704	1.0-	0.5+
1973 10 04	675	0.0	0.8+	1993 07 21	010	0.5+	1.6-	1999 02 10	704	0.3+	0.7+
1973 10 04	675	1.7-	0.9+	1993 07 23	010	0.8-	0.2-	1999 02 10	704	0.2+	1.0+
1973 10 05	675	0.6+	0.8+	1993 07 23	010	0.3-	0.3+	1999 02 16	704	0.1-	0.4-
1973 10 05	675	(3.3-	2.0+)	1993 07 23	010	1.6+	0.4+	1999 02 16	704	0.2-	0.9-
1973 10 05	675	1.2+	0.8+	1996 04 20	809	(1.6+	3.2+)	1999 02 16	704	0.3-	0.2-
1973 10 05	675	(3.4-	2.4+)	1996 04 20	809	(1.1+	3.0+)	1999 02 16	704	0.3+	0.6-
1989 04 03	809	1.8-	0.8+	1996 04 20	809	(1.0+	3.2+)	1999 02 16	704	0.2-	1.0-

1989 04 03	809	0.0	0.3+	1996 04 21	809	1.3+	1.7+
1989 04 03	809	0.9-	0.6+	1996 04 21	809	1.2+	1.1+

(10255)* 3398 T-3 = 1991 YN

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* 19691)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	61.36223	(2000.0)	P	Q	
<i>n</i>	0.28978512	ω	266.78170	+0.52339908	-0.85188638
<i>a</i>	2.2616149	Ω	151.63352	+0.79644043	+0.48137609
<i>e</i>	0.1272826	<i>i</i>	2.23399	+0.30287960	+0.20631687
<i>P</i>	3.40	<i>H</i>	14.3	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1950 12 09	675	1.4-	0.7+	1991 12 30	511	(0.8-	2.2-)	1996 03 23	566	0.8-	0.7-
1950 12 09	675	0.3-	0.6+	1991 12 30	511	0.9-	1.4-	1996 03 26	566	0.4-	0.2-
1953 09 06	675	1.4+	0.8+	1991 12 31	511	(2.9-	0.7-)	1996 03 26	566	0.2-	0.2-
1953 09 06	675	0.5+	0.1+	1991 12 31	511	(2.7-	1.0-)	1996 03 26	566	0.1-	0.0
1953 09 17	675	1.6-	1.3-	1992 01 05	511	0.4-	0.4-	1998 12 30	725	0.1-	0.2+
1953 09 17	675	1.8+	0.5-	1992 01 05	511	(2.2+	0.5+)	1998 12 30	725	0.1+	0.1+
1977 10 07	675	0.4-	1.8-	1994 10 02	400	0.1+	1.0-	1999 01 03	725	0.3+	0.1+
1977 10 11	675	0.7-	0.8+	1994 10 02	400	0.1-	1.8-	1999 01 03	725	0.3+	0.3-
1977 10 11	675	1.5-	0.9+	1994 10 03	400	1.0-	0.2+	1999 01 13	699	0.2+	0.0
1977 10 12	675	1.4+	0.2-	1994 10 03	400	(3.9+	0.8+)	1999 01 13	699	0.2+	0.2-
1977 10 12	675	0.1-	0.9-	1994 10 08	691	0.7-	0.5+	1999 01 13	699	0.5+	0.1+
1977 10 12	675	2.1+	0.3-	1994 10 08	691	1.0-	0.1+	1999 02 06	402	0.2-	0.0
1977 10 12	675	0.3+	1.1-	1994 10 08	691	1.2-	0.0	1999 02 06	402	0.2-	0.0
1977 10 16	675	0.2+	0.1-	1994 10 16	292	0.5+	0.9+	1999 02 06	402	0.2-	0.1+
1977 10 16	675	0.6+	1.3-	1994 10 16	292	0.2+	1.2+	1999 02 13	704	0.6+	0.0
1977 10 17	675	0.3+	0.9+	1994 11 07	675	0.6+	0.1+	1999 02 13	704	0.5+	0.2-
1977 10 17	675	0.1-	0.4-	1994 11 07	675	0.6+	0.7+	1999 02 13	704	0.9+	0.8+
1977 10 21	675	0.5+	0.0	1996 03 23	566	1.1-	0.5-	1999 02 13	704	0.2+	0.3+
1977 10 21	675	0.0	0.3+	1996 03 23	566	0.8-	0.5-	1999 02 13	704	0.9+	1.9-

(10256)* 4157 T-3 = 1989 BH₁

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. S. Nakano (*MPC* 14480)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Nakano			
<i>M</i>	309.83802	(2000.0)	P	Q	
<i>n</i>	0.28700785	ω	345.94902	-0.86502641	-0.50090619
<i>a</i>	2.2761814	Ω	163.89552	+0.46973217	-0.82862445
<i>e</i>	0.1024124	<i>i</i>	5.93368	+0.17629804	-0.24994901
<i>P</i>	3.43	<i>H</i>	14.6	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1977 10 07	675	(1.2+	3.7-)	1991 11 02	809	0.3-	0.4+	1998 12 15	704	0.2+	0.5-
1977 10 11	675	1.4+	1.7-	1991 11 02	809	1.4-	0.5+	1998 12 15	704	0.1+	0.4+
1977 10 11	675	(1.8+	2.5-)	1991 11 06	809	0.1-	1.6+	1998 12 15	704	0.8+	1.2+
1977 10 12	675	(0.8+	2.7-)	1991 11 06	809	0.2-	1.1+	1998 12 22	704	1.7+	1.1-
1977 10 12	675	(1.1+	2.6-)	1991 11 06	809	0.6+	0.4-	1998 12 22	704	1.2+	1.6-
1977 10 16	675	0.3-	0.0	1991 11 09	809	0.3-	0.2-	1998 12 22	704	0.8-	0.5-
1977 10 16	675	0.1-	0.0	1991 11 09	809	0.6-	0.3+	1998 12 22	704	1.7-	1.8-
1977 10 17	675	(0.1-	3.0-)	1991 11 09	809	0.4-	0.3-	1998 12 22	704	0.2-	1.7+
1977 10 17	675	(0.1-	2.8-)	1993 05 18	691	0.4+	0.2+	1999 01 17	561	0.3+	0.3+
1977 10 21	675	0.9-	0.7+	1993 05 18	691	0.3+	0.1-	1999 01 17	561	0.1+	0.3+
1977 10 21	675	0.2-	0.2+	1993 05 18	691	0.1+	0.1+	1999 01 17	561	0.3+	0.3+
1977 10 22	675	(0.0	2.3-)	1996 03 15	566	0.3-	0.4+	1999 01 19	561	0.3+	0.4+
1977 10 22	675	0.4+	1.8-	1996 03 15	566	0.0	0.1-	1999 01 19	561	0.3+	0.5+
1989 01 26	046	2.1+	1.3-	1996 03 15	566	0.2+	0.1-	1999 01 19	561	0.7+	0.4+
1989 01 26	046	1.4+	0.3+	1996 03 17	691	1.3-	0.7+	1999 01 20	561	0.2+	0.3+
1989 01 27	046	0.9-	1.0+	1996 03 17	691	0.7-	0.3+	1999 01 20	561	0.2+	0.3+
1989 01 27	046	1.0+	1.1-	1996 03 17	691	0.7-	0.4+	1999 01 20	561	0.3+	0.3+
1989 01 28	046	(4.6+	0.6+)	1996 03 21	566	0.5+	0.1+	1999 01 22	561	0.5-	0.2+

M.P.C. 33920

1989 01 28	046	(4.6+	0.6+)	1996 03 21	566	0.1+	0.0	1999 01 22	561	0.5-	0.3+
1989 02 03	046	0.9-	1.4-	1996 03 21	566	0.5+	0.1+	1999 01 22	561	0.5-	0.3+
1989 02 03	046	1.7-	0.1+	1998 12 15	704	0.4-	2.1-	1999 01 22	561	0.4-	0.3+
1991 11 02	809	0.8+	1.7+	1998 12 15	704	0.3-	0.5-				

(10257)* 4333 T-3 = 1996 TO₆₂ = 1997 WP₅₃

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* 31270)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.15337028	ω	224.70722	+0.99617358	-0.06655306		
<i>a</i>	3.4565426	Ω	139.00880	+0.08180922	+0.93812855		
<i>e</i>	0.0888214	<i>i</i>	4.95421	-0.03074807	+0.33983158		
<i>P</i>	6.43	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1977 10 07	675	0.7+	1.1-	1996 10 06	809	0.8+	0.1+	1999 01 22	120	0.2-	1.0-
1977 10 11	675	(2.8+	0.9-)	1996 10 07	809	0.7+	1.6-	1999 01 22	120	0.4+	1.4-
1977 10 11	675	2.1+	0.6+	1996 10 07	809	0.5+	1.2-	1999 01 23	120	0.1+	1.4-
1977 10 12	675	0.1+	1.0-	1996 10 07	809	0.3+	0.8-	1999 01 23	120	0.8+	0.9-
1977 10 12	675	0.1-	0.9-	1997 11 29	704	1.2-	0.6+	1999 01 23	120	0.6-	1.6-
1977 10 16	675	0.8-	0.6+	1997 11 29	704	1.2-	0.3+	1999 01 24	120	1.1+	0.9-
1977 10 16	675	0.1-	0.2-	1997 11 29	704	(2.3-	0.2-)	1999 02 10	704	0.2-	0.6-
1977 10 17	675	0.0	0.0	1997 11 29	704	1.5-	0.2-	1999 02 10	704	1.1-	1.6-
1977 10 17	675	0.3+	0.2-	1997 11 29	704	(2.5-	0.7+)	1999 02 10	704	0.2-	0.1-
1977 10 21	675	0.3-	0.1+	1997 12 05	704	0.9-	0.4+	1999 02 10	704	0.2+	0.2+
1977 10 21	675	0.8-	1.0+	1997 12 05	704	0.8-	0.1+	1999 02 10	704	0.4-	0.1-
1977 10 22	675	(4.3-	0.9+)	1997 12 05	704	0.1-	0.9+	1999 02 13	704	0.3+	1.0-
1977 10 22	675	(0.2-	3.5+)	1997 12 05	704	0.5-	0.7+	1999 02 13	704	0.3+	0.1-
1989 07 05	675	1.4-	1.0-	1997 12 05	704	1.0-	0.8+	1999 02 13	704	0.3+	1.0+
1989 07 29	675	(2.9-	3.1-)	1997 12 29	566	1.2+	0.3+	1999 02 13	704	1.0-	1.7+
1996 10 06	809	(2.2+	0.5+)	1997 12 29	566	1.4+	0.4+				
1996 10 06	809	1.2+	0.3-	1997 12 29	566	1.6+	0.4+				

1969 TY₁ = 1995 KQ₂ = 1996 QW₂ = 1999 CH₆₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17860427	ω	153.54552	+0.99409286	+0.10254591		
<i>a</i>	3.1227807	Ω	200.66126	-0.10851675	+0.94476513		
<i>e</i>	0.0958251	<i>i</i>	5.78237	+0.00187183	+0.31129275		
<i>P</i>	5.52	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1969 10 08	095	2.5+	0.8+	1996 08 18	010	0.7-	0.5+	1999 02 12	704	0.7-	0.1-
1969 10 13	095	(4.5+	3.4-)	1996 08 18	010	0.0	1.5+	1999 02 12	704	0.0	0.4+
1969 10 16	095	(2.5+	4.1-)	1996 08 20	010	(5.2-	3.0-)	1999 02 12	704	0.1-	0.0
1969 11 04	095	1.9-	0.1+	1996 08 20	010	(5.2-	2.3-)	1999 02 12	704	1.4-	0.0
1969 11 11	095	0.3+	1.8-	1996 08 20	010	(7.1-	3.1-)	1999 02 16	704	0.1-	0.3+
1969 11 13	095	0.1-	2.2-	1999 01 15	699	0.5+	0.3-	1999 02 16	704	0.3+	0.1+
1995 05 22	010	0.1+	1.7-	1999 01 15	699	1.3+	0.2+	1999 02 16	704	0.2+	0.4+
1995 05 22	010	0.2-	0.9-	1999 01 15	699	1.0+	0.9-	1999 02 16	704	0.4-	0.9+
1996 08 18	010	0.2-	0.8+	1999 02 12	704	0.0	0.4+	1999 02 16	704	0.1-	0.0

1972 TR₈ = 1999 CX₂

Id. T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23993964	ω	6.94826	+0.82035399	+0.55325093		
<i>a</i>	2.5648859	Ω	318.36572	-0.53458984	+0.65210483		
<i>e</i>	0.1710418	<i>i</i>	12.57817	-0.20305919	+0.51833648		
<i>P</i>	4.11	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	5

1999 MAR. 2

Residuals in seconds of arc

1972 10 04	029	1.2+	0.0	1999 02 08	104	1.0-	0.0	1999 02 12	704	1.2-	1.1-
1972 10 04	029	0.5+	0.1-	1999 02 08	104	1.2+	0.2+	1999 02 12	704	(3.0-	1.2-)
1972 10 06	029	0.7-	0.2+	1999 02 12	699	1.1+	0.1-	1999 02 16	704	0.1+	0.4+
1972 10 08	029	1.1-	0.3-	1999 02 12	699	(0.0	2.4+)	1999 02 16	704	0.6+	0.6-
1972 10 12	029	0.2-	0.1+	1999 02 12	699	0.8+	0.4+	1999 02 16	704	0.0	0.6+
1972 10 12	029	0.3+	0.1+	1999 02 12	704	0.7-	0.3+	1999 02 16	704	0.2-	0.2+
1999 02 07	104	0.5-	0.2+	1999 02 12	704	0.5+	0.9-				
1999 02 07	104	0.1-	0.0	1999 02 12	704	0.5-	0.5+				

1973 SL = 1996 TZ₃₉ = 1998 XU₇₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.08529665	ω	325.09602	+0.22509179	-0.97391166		
<i>a</i>	5.1111041	Ω	111.88066	+0.90085405	+0.19676112		
<i>e</i>	0.0588358	<i>i</i>	1.77884	+0.37120839	+0.11305368		
<i>P</i>	11.56	<i>H</i>	10.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1973 09 19	675	2.2+	0.5-	1973 10 04	675	1.8+	0.8-	1996 10 10	809	0.2-	0.4+
1973 09 19	675	0.1-	0.2-	1973 10 04	675	0.2-	0.7-	1996 10 10	809	0.9-	0.3+
1973 09 20	675	0.6+	0.6+	1973 10 05	675	1.8+	1.9-	1998 12 15	704	0.9-	0.6+
1973 09 24	675	0.4+	2.0-	1973 10 05	675	0.0	0.5+	1998 12 15	704	0.6+	0.7+
1973 09 24	675	0.8-	0.6+	1996 10 07	809	0.5-	0.6+	1998 12 15	704	0.9-	0.8+
1973 09 25	675	0.6-	0.7-	1996 10 07	809	1.0-	1.0+	1998 12 15	704	0.4-	0.5+
1973 09 25	675	0.7-	0.1-	1996 10 07	809	1.1-	0.3-	1998 12 22	704	0.2+	0.3+
1973 09 29	675	0.4-	1.1-	1996 10 08	809	0.9-	1.0+	1998 12 22	704	1.8+	0.6-
1973 09 29	675	0.9-	0.4-	1996 10 08	809	0.0	1.0+	1998 12 22	704	0.2-	0.9-
1973 09 30	675	0.1+	0.5+	1996 10 08	809	1.7+	1.0+	1998 12 22	704	0.4+	0.6-
1973 09 30	675	0.7-	0.7+	1996 10 10	809	0.6+	0.4+	1998 12 22	704	0.5-	1.1-

1973 SS₁ = 1996 RQ₂₈

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.08402523	ω	53.80246	+0.14793188	-0.98614720		
<i>a</i>	5.1625340	Ω	27.97273	+0.84827544	+0.08751180		
<i>e</i>	0.0218380	<i>i</i>	9.20493	+0.50847314	+0.14090911		
<i>P</i>	11.73	<i>H</i>	11.9	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1973 09 19	675	(3.6+	2.5-)	1973 09 25	675	0.4-	0.2-	1973 10 04	675	0.7-	1.0+
1973 09 19	675	0.3-	0.6+	1973 09 25	675	1.5+	0.8+	1973 10 05	675	(3.5+	2.6-)
1973 09 20	675	0.9-	0.1+	1973 09 29	675	(0.0	3.0-)	1973 10 05	675	0.1+	0.4+
1973 09 24	675	2.0+	2.3-	1973 09 29	675	0.7-	0.3-	1996 09 11	809	0.1+	0.1-
1973 09 24	675	1.2-	1.1+	1973 09 30	675	(0.3-	3.2-)	1996 09 14	809	0.1-	0.0
1973 09 24	675	0.8+	0.7+	1973 09 30	675	1.3-	0.2-				
1973 09 25	675	(0.1-	2.9-)	1973 10 04	675	1.1+	1.6-				

1973 SP₄ = 1973 UD₄ = 1999 DM₄Id. B. G. Marsden (d, *MPC* 9064), G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25078652	ω	347.00647	+0.94581768	+0.32430356		
<i>a</i>	2.4903856	Ω	353.99742	-0.28253997	+0.79772659		
<i>e</i>	0.1790907	<i>i</i>	8.80308	-0.16000027	+0.50838911		
<i>P</i>	3.93	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1973 09 27	095	1.0+	1.2-	1999 01 22	910	0.5+	0.2+	1999 02 24	120	0.8-	0.7-
1973 09 28	095	0.7-	1.1+	1999 01 22	910	0.4+	0.3+	1999 02 26	120	1.9-	0.1+
1973 10 29	095	0.2-	0.1-	1999 02 23	120	0.0	0.6-	1999 02 26	120	0.2+	0.1+
1999 01 22	910	0.4+	0.4+	1999 02 24	120	1.1+	1.0-	1999 02 27	120	0.2+	1.2+

1999 MAR. 2

M.P.C. 33921

1974 OU₁ = 1974 QK₃ = 1999 CY₅₇Id. B. G. Marsden (d, *MPC* 9064), G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18744579	ω	235.09866	−0.56161929	+0.82739257		
<i>a</i>	3.0237944	Ω	0.74517	−0.68952974	−0.46649774		
<i>e</i>	0.0625015	<i>i</i>	10.20430	−0.45731008	−0.31273215		
<i>P</i>	5.26	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1974 07 24	413	0.5−	1.5+	1998 12 17	699	0.1−	0.1+	1999 02 13	704	0.2+	1.0−
1974 07 26	808	0.1−	1.2−	1999 02 10	704	0.0	0.5−	1999 02 13	704	1.7+	0.1−
1974 07 26	808	0.6+	0.3−	1999 02 10	704	0.2+	0.3+	1999 02 13	704	0.8−	0.1−
1974 08 18	809	(4.5+	4.6−)	1999 02 10	704	0.3−	0.2+	1999 02 13	704	0.2+	0.1+
1998 12 17	699	0.5−	0.1−	1999 02 10	704	0.6−	0.2+	1999 02 13	704	0.6−	0.2+
1998 12 17	699	0.5+	0.1−	1999 02 10	704	0.1−	0.8+				

1976 UZ₇ = 1976 SO₅ = 1999 CB₆₂Id. C. M. Bardwell (d, *MPC* 5597), G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19009585	ω	134.29365	+0.94538305	+0.31480954		
<i>a</i>	2.9956262	Ω	207.68365	−0.32596087	+0.91353712		
<i>e</i>	0.1100057	<i>i</i>	10.48349	+0.00062799	+0.25757500		
<i>P</i>	5.18	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1976 09 24	095	1.1−	0.3+	1999 01 15	699	0.4−	0.2+	1999 02 16	704	0.4+	0.1−
1976 10 22	381	0.2+	0.2+	1999 01 15	699	0.3+	0.1+	1999 02 16	704	1.1−	1.7−
1976 10 22	381	0.4+	0.4−	1999 02 12	704	1.0+	0.2−	1999 02 16	704	0.7−	1.1−
1976 10 24	381	1.0+	0.6−	1999 02 12	704	1.2+	0.8+	1999 02 16	704	1.3−	1.0−
1976 11 18	381	0.1−	0.7+	1999 02 12	704	0.5+	0.5+	1999 02 19	566	0.5−	0.4+
1976 11 18	381	0.5−	0.2−	1999 02 12	704	0.9+	0.2+	1999 02 19	566	0.4−	0.1+
1999 01 15	699	0.0	0.3+	1999 02 12	704	0.6+	1.6+	1999 02 19	566	0.5−	0.2−

1977 AC₂ = 1998 WA₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22746878	ω	103.13824	+0.46859872	−0.87260430		
<i>a</i>	2.6577952	Ω	318.00903	+0.70959554	+0.46467904		
<i>e</i>	0.1721337	<i>i</i>	11.88281	+0.52620281	+0.15044976		
<i>P</i>	4.33	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1977 01 12	675	1.3−	0.2−	1998 12 01	704	0.4+	0.5−	1999 02 14	910	0.6+	0.3−
1977 01 13	675	0.3−	1.5+	1998 12 01	704	0.5+	0.2−	1999 02 14	910	0.6+	0.2−
1977 01 13	095	0.4+	1.1−	1999 02 12	699	0.3+	0.5+	1999 02 16	910	1.0+	0.2−
1977 01 20	095	1.3+	0.0	1999 02 12	704	0.4−	0.3+	1999 02 16	910	0.8+	0.2−
1998 11 25	704	1.2−	0.4+	1999 02 12	699	0.7+	0.3+	1999 02 16	910	0.9+	0.3−
1998 11 25	704	0.7+	0.4+	1999 02 12	704	0.1−	0.1−	1999 02 16	704	0.8−	0.1−
1998 11 25	704	0.7−	0.5+	1999 02 12	699	0.9+	0.2+	1999 02 16	704	0.9−	0.3+
1998 11 25	704	0.3+	0.0	1999 02 12	704	0.9−	0.6−	1999 02 16	704	1.6−	0.1−
1998 11 25	704	0.3−	0.6−	1999 02 12	704	0.0	0.2−	1999 02 16	704	0.8−	0.4+
1998 12 01	704	0.0	0.2+	1999 02 12	704	0.6−	0.0	1999 02 16	704	0.3−	0.5+
1998 12 01	704	0.0	0.6−	1999 02 14	910	0.7+	0.2−				

1978 NX₇ = 1990 QA₁₂ = 1998 AD₈ = 1999 CQ₅₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17159786	ω	241.62560	+0.96277282	+0.25443321		
<i>a</i>	3.2072154	Ω	103.51346	−0.20328639	+0.90409009		
<i>e</i>	0.1250216	<i>i</i>	5.38687	−0.17816602	+0.34334364		
<i>P</i>	5.74	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1978 07 07	675	0.0	0.3+	1998 01 02	704	0.2−	0.2+	1999 02 10	704	0.2+	2.0+
1978 07 08	675	0.1+	0.1+	1998 01 06	704	0.0	0.3−	1999 02 10	704	0.6+	0.2+
1978 07 09	675	0.1−	0.8−	1998 01 06	704	0.2+	0.4−	1999 02 13	704	0.5+	0.4−
1990 08 25	675	0.3−	0.4−	1998 01 06	704	0.2+	0.3−	1999 02 13	704	0.5−	1.3−
1990 08 25	675	0.2+	0.6+	1999 01 15	699	0.4−	1.0−	1999 02 13	704	(1.0−	2.8+)
1998 01 02	704	0.2+	0.2−	1999 01 15	699	0.7+	0.2−	1999 02 13	704	1.5−	0.9−
1998 01 02	704	0.3−	0.2+	1999 01 15	699	0.4+	0.5−	1999 02 18	566	0.5−	0.4+
1998 01 02	704	0.4+	0.5+	1999 02 10	704	0.5+	1.1+	1999 02 18	566	0.0	0.5+
1998 01 02	704	0.5−	0.1−	1999 02 10	704	0.5+	0.3−	1999 02 18	566	0.4−	0.2+

1978 RV = 1999 CM₉₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21445489	ω	319.13960	+0.87096294	+0.49024326		
<i>a</i>	2.7642591	Ω	11.63836	−0.39752677	+0.74247212		
<i>e</i>	0.2988970	<i>i</i>	9.39787	−0.28878370	+0.45650487		
<i>P</i>	4.60	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1978 09 01	095	0.1+	1.5−	1978 10 04	095	0.1+	2.1+	1999 02 10	704	0.2+	0.6+
1978 09 05	095	0.4−	0.8+	1978 10 09	095	1.8−	1.2−	1999 02 13	704	0.1+	2.0+
1978 09 07	095	0.1−	1.2+	1999 02 10	704	0.6−	1.3−	1999 02 13	704	0.8−	0.8−
1978 09 12	095	0.1−	0.2−	1999 02 10	704	0.5−	1.7−	1999 02 13	704	2.7+	0.6+
1978 09 28	095	2.0+	1.2−	1999 02 10	704	1.5−	0.4−	1999 02 13	704	0.2+	1.0+

1978 XK = 1990 DW₄ = 1991 KO₁ = 1998 YR₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20366793	ω	228.15937	+0.99068938	−0.13319932		
<i>a</i>	2.8610204	Ω	139.47161	+0.13418499	+0.92041500		
<i>e</i>	0.1165626	<i>i</i>	2.48292	+0.02299889	+0.36755158		
<i>P</i>	4.84	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1978 12 03	675	0.5+	0.1+	1991 05 17	809	0.2−	0.8−	1999 01 06	120	0.2−	0.3−
1978 12 03	675	1.1+	0.6+	1991 05 17	809	0.2−	1.1−	1999 01 15	120	1.2+	0.2−
1978 12 05	675	1.1−	0.3+	1998 12 16	699	0.9+	0.1−	1999 01 16	120	0.2−	0.5−
1978 12 06	675	0.1−	1.3+	1998 12 16	699	0.6+	0.5−	1999 01 16	120	0.0	0.3−
1978 12 06	675	0.5−	1.8−	1998 12 16	699	0.9+	0.2+	1999 01 17	120	0.1+	0.1−
1990 02 28	809	0.6+	0.5+	1998 12 25	120	0.8+	0.7−	1999 01 17	120	0.6−	0.1−
1990 02 28	809	0.3+	0.9+	1998 12 25	120	0.1−	0.1+	1999 01 18	704	0.7−	0.1+
1990 02 28	809	0.5+	0.8+	1998 12 25	120	0.4−	0.3+	1999 01 18	704	1.8+	0.4+
1990 03 01	809	0.7−	1.0+	1998 12 26	120	0.3−	0.4−	1999 01 18	704	0.2+	0.8−
1990 03 01	809	0.1−	1.0+	1998 12 27	120	0.3−	0.2−	1999 01 18	704	1.1−	1.1−
1990 03 01	809	0.0	1.0+	1999 01 05	120	0.2−	0.2+	1999 01 20	704	0.5−	0.7+
1990 03 02	809	0.2−	0.5−	1999 01 05	120	0.1−	0.3+	1999 01 20	704	0.1+	0.1+
1990 03 02	809	0.3+	0.6−	1999 01 05	120	0.6−	0.1−	1999 01 20	704	0.4−	0.6−
1990 03 02	809	0.6+	0.6−	1999 01 06	120	0.7−	0.1−	1999 01 20	704	(2.3−	0.2−)
1991 05 17	809	0.1−	1.0−	1999 01 06	120	0.6−	0.5−				

1979 MT₆ = 1979 OZ₁₁ = 1999 CC₇₀Id. H. Oishi (d, *JAM* 2067), G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23228399	ω	306.39218	−0.67279252	+0.71684911		
<i>a</i>	2.6209367	Ω	280.24581	−0.60521024	−0.67551797		
<i>e</i>	0.0654922	<i>i</i>	10.71558	−0.42552413	−0.17263494		
<i>P</i>	4.24	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1979 06 23	413	0.6+	0.4−	1979 07 28	413	1.8−	0.2−	1999 02 12	704	0.6+	0.2+
1979 06 24	413	1.3−	0.6+	1999 02 12	704	0.1+	0.7−	1999 02 16	704	1.6+	0.8+

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1979 06 25 413 0.8+ 0.2- 1999 02 12 704 0.5- 0.7- 1999 02 16 704 0.8+ 0.1-
 1979 07 26 675 1.7+ 0.2+ 1999 02 12 704 1.7- 1.3+ 1999 02 16 704 0.8- 0.8-

1979 OH₁ = 1998 XC₈₂ = 1999 CU₂

Id. B. G. Marsden

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	194.39112		(2000.0)		P		Q	
<i>n</i>	0.17355860	ω	115.03719		-0.28758230		+0.94685174	
<i>a</i>	3.1830146	Ω	137.40638		-0.93745284		-0.24746356	
<i>e</i>	0.0663416	<i>i</i>	12.29429		-0.19615963		-0.20550807	
<i>P</i>	5.68	<i>H</i>	12.7	<i>G</i>	0.15		<i>U</i>	4

Residuals in seconds of arc

1979 07 24 675 0.6+ 1.1+ 1998 12 15 704 0.4+ 1.7+ 1999 02 06 552 0.3+ 0.3-
 1979 07 24 413 1.2- 0.4- 1998 12 15 704 0.3+ 0.2- 1999 02 06 552 0.1+ 0.1-
 1979 07 25 675 0.2- 0.7+ 1998 12 22 704 0.0 0.2- 1999 02 08 552 0.8- 1.0-
 1979 07 26 675 0.5- 1.3+ 1998 12 22 704 0.8- 0.1+ 1999 02 08 552 0.0 0.4+
 1979 07 28 413 0.0 0.5- 1998 12 22 704 1.7+ 0.4+ 1999 02 08 552 0.0 0.1+
 1979 07 31 095 1.3+ 2.0- 1998 12 22 704 (1.2- 2.4+) 1999 02 13 552 0.2+ 0.6+
 1998 12 15 704 0.0 1.5- 1999 01 14 699 1.7- 0.1+ 1999 02 13 552 0.8+ 0.5-
 1998 12 15 704 0.6+ 0.5- 1999 01 14 699 0.8- 0.2+
 1998 12 15 704 0.4- 0.4- 1999 01 14 699 0.1- 1.2+

1979 QD₂ = 1994 GN₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	210.26476		(2000.0)		P		Q	
<i>n</i>	0.18145103	ω	299.38632		+0.86038329		+0.50953624	
<i>a</i>	3.0900328	Ω	29.98444		-0.45989660		+0.78522925	
<i>e</i>	0.2189539	<i>i</i>	1.22098		-0.21962627		+0.35183497	
<i>P</i>	5.43	<i>H</i>	14.6	<i>G</i>	0.15		<i>U</i>	6

Residuals in seconds of arc

1979 08 22 809 0.4+ 0.7- 1979 08 26 809 0.1- 0.0 1994 04 06 691 0.0 0.4+
 1979 08 22 809 0.9+ 0.2+ 1979 08 26 809 0.2+ 0.0 1994 04 11 691 0.1+ 0.1+
 1979 08 22 809 0.8- 0.3- 1979 08 26 809 0.2- 0.6+ 1994 04 11 691 0.7+ 0.0
 1979 08 23 809 0.4- 0.1- 1994 04 06 691 0.1+ 0.8+
 1979 08 23 809 0.2- 0.2+ 1994 04 06 691 0.1+ 0.1-

1979 QF₂ = 1996 AQ₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	337.93733		(2000.0)		P		Q	
<i>n</i>	0.20534981	ω	215.03881		+0.97039899		-0.24101099	
<i>a</i>	2.8453772	Ω	158.89132		+0.23023315		+0.90384680	
<i>e</i>	0.0839985	<i>i</i>	2.46285		+0.07292800		+0.35351756	
<i>P</i>	4.80	<i>H</i>	12.5	<i>G</i>	0.15		<i>U</i>	7

Residuals in seconds of arc

1979 08 22 809 0.8+ 0.2+ 1979 08 26 809 0.3- 0.3- 1996 01 12 369 0.3+ 0.7+
 1979 08 22 809 0.4+ 0.3+ 1979 08 26 809 0.1+ 0.2- 1996 01 13 369 0.1- 0.3+
 1979 08 22 809 0.1- 0.2+ 1979 08 26 809 0.8- 0.2- 1996 01 13 369 0.2+ 0.8-
 1979 08 23 809 0.2- 0.3- 1996 01 12 369 0.2- 0.0 1996 01 13 369 0.0 0.3-
 1979 08 23 809 0.1+ 0.3+ 1996 01 12 369 0.1- 0.0

1980 FZ₂ = 1993 RY₁₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	44.82638		(2000.0)		P		Q	
<i>n</i>	0.17645089	ω	103.19405		+0.19228421		+0.98128156	
<i>a</i>	3.1481360	Ω	177.80628		-0.97310828		+0.19206199	
<i>e</i>	0.1355922	<i>i</i>	16.14395		-0.12683473		+0.01409584	
<i>P</i>	5.59	<i>H</i>	14.1	<i>G</i>	0.15		<i>U</i>	5

Residuals in seconds of arc

1980 03 16 809 0.0 0.9+ 1980 03 17 809 0.8+ 0.1- 1993 09 19 809 0.9+ 1.7+
 1980 03 16 809 0.1+ 0.5+ 1980 03 23 809 0.2- 0.2+ 1993 09 19 675 0.5+ 0.6+

1999 MAR. 2

1980 03 16 809 0.0 0.3+ 1993 09 14 809 1.4+ 0.4+ 1993 09 19 675 0.5+ 0.9+
 1980 03 16 809 0.0 0.8- 1993 09 14 809 0.8+ 0.1- 1993 09 20 691 0.9- 0.8-
 1980 03 17 809 0.0 0.3- 1993 09 14 809 0.5- 0.4- 1993 09 20 691 0.9- 0.8-
 1980 03 17 809 0.0 0.4- 1993 09 19 809 0.4+ 0.4- 1993 09 20 691 0.7- 0.8-
 1980 03 17 809 0.6- 0.2- 1993 09 19 809 1.6- 0.3-

1980 PT₁ = 1999 CU₁₀₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	219.45072		(2000.0)		P		Q	
<i>n</i>	0.18340960	ω	327.97938		+0.02302699		+0.99197073	
<i>a</i>	3.0679952	Ω	303.05821		-0.88310097		-0.03812264	
<i>e</i>	0.0877067	<i>i</i>	8.53263		-0.46861758		+0.12058497	
<i>P</i>	5.37	<i>H</i>	12.9	<i>G</i>	0.15		<i>U</i>	6

Residuals in seconds of arc

1980 08 06 809 0.1+ 0.0 1999 02 11 699 0.9+ 0.4+ 1999 02 16 704 0.3+ 1.1-
 1980 08 07 809 0.3+ 0.1- 1999 02 12 704 0.1- 1.8- 1999 02 16 704 0.5+ 0.0
 1980 08 09 809 0.3+ 0.5- 1999 02 12 704 0.1+ 0.3- 1999 02 16 704 0.3+ 0.7+
 1980 08 10 809 0.7- 0.5+ 1999 02 12 704 0.5- 0.7- 1999 02 16 704 0.2+ 0.4+
 1999 02 11 699 0.4+ 0.2+ 1999 02 12 704 1.7- 1.4+
 1999 02 11 699 0.3+ 0.6+ 1999 02 12 704 0.7- 0.2+

1981 CH = 1999 BO₁₂

Id. T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	345.94205		(2000.0)		P		Q	
<i>n</i>	0.27309715	ω	186.48929		-0.79030319		-0.54087905	
<i>a</i>	2.3528339	Ω	316.39494		+0.57925181		-0.50639711	
<i>e</i>	0.1895681	<i>i</i>	24.67044		+0.19972032		-0.67157414	
<i>P</i>	3.61	<i>H</i>	14.2	<i>G</i>	0.15		<i>U</i>	3

Residuals in seconds of arc

1981 02 02 046 0.7- 1.3- 1998 12 21 704 (2.7- 1.7-) 1999 02 06 106 0.7- 0.8-
 1981 02 02 046 2.2- 1.3- 1999 01 13 699 0.1+ 0.4+ 1999 02 06 106 0.7- 0.8-
 1981 02 03 330 2.0+ 1.1+ 1999 01 13 699 0.1+ 0.1+ 1999 02 06 106 0.8- 0.8-
 1981 02 06 704 (3.5+ 16.8-)Y 1999 01 13 699 0.0 0.1+ 1999 02 10 704 0.6+ 0.6-
 1981 02 06 704 (4.7+ 1.7-)Y 1999 01 19 704 0.4+ 0.4- 1999 02 10 704 1.0+ 0.6-
 1981 02 06 704 (6.9- 8.4-)Y 1999 01 19 704 0.1+ 0.3+ 1999 02 10 704 0.4+ 0.8-
 1981 02 09 330(42.1+ 25.6+) 1999 01 19 704 0.9- 0.5+ 1999 02 10 704 0.9+ 0.2-
 1981 02 09 046 0.7- 0.5+ 1999 01 19 704 0.9+ 0.8+ 1999 02 10 704 0.8+ 0.2+
 1981 02 09 046 0.7+ 1.4+ 1999 01 22 699 0.6+ 0.1+ 1999 02 13 704 0.6- 0.2-
 1981 02 11 046 1.9+ 0.6+ 1999 01 22 699 0.6+ 0.0 1999 02 13 704 0.4- 0.0
 1981 02 11 046 0.6+ 0.5+ 1999 01 22 699 0.9+ 0.1+ 1999 02 13 704 0.8- 0.5+
 1981 02 27 046 (2.9- 1.3-) 1999 01 24 106 0.1+ 0.2- 1999 02 13 704 1.1- 0.6+
 1981 02 27 046 0.8- 0.0 1999 01 24 106 0.4- 0.1- 1999 02 13 704 1.2- 1.0+
 1981 03 09 808 0.5- 1.0- 1999 01 24 106 0.2- 0.4- 1999 02 24 046 0.4+ 0.3+
 1981 03 09 808 (0.4- 3.7+) 1999 01 25 106 0.0 0.3- 1999 02 24 046 0.3+ 0.3+
 1998 12 21 704 1.3+ 1.4+ 1999 01 25 106 0.1- 0.2- 1999 02 24 046 0.2+ 0.2+
 1998 12 21 704 1.2- 0.3+ 1999 01 25 106 0.0 0.1- 1999 02 25 046 0.2+ 0.5+
 1998 12 21 704 0.0 1.6- 1999 01 27 757 0.9- 0.4- 1999 02 25 046 0.2+ 0.5+
 1998 12 21 704 (1.4+ 3.5-) 1999 01 27 757 0.4- 0.2-

1981 EK₂ = 1999 CX₇₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	225.31821		(2000.0)		P		Q	
<i>n</i>	0.21539234	ω	28.76699		+0.33401095		+0.93272588	
<i>a</i>	2.7562327	Ω	261.02030		-0.88898626		+0.26382601	
<i>e</i>	0.1300492	<i>i</i>	7.90611		-0.31327323		+0.24580126	
<i>P</i>	4.58	<i>H</i>	14.5	<i>G</i>	0.15		<i>U</i>	5

Residuals in seconds of arc

1981 02 02 413 0.8+ 1.3+ 1981 03 10 413 1.1- 0.3- 1999 02 12 704 0.7- 0.9+
 1981 03 02 413 1.9+ 1.7+ 1981 03 12 413 3.1- 1.0+ 1999 02 12 704 0.2+ 2.1+
 1981 03 02 413 1.4+ 0.4- 1981 04 09 413 2.3- 0.6+ 1999 02 16 704 0.3+ 1.5-
 1981 03 07 413 0.1- 0.7+ 1981 04 09 413 1.1+ 1.9- 1999 02 16 704 1.1+ 1.9-

1999 MAR. 2

M.P.C. 33923

1981 03 07	413	1.6+	0.5-	1981 04 29	413	0.0	0.9-	1999 02 16	704	0.4-	0.1+
1981 03 10	413	0.2+	0.2-	1999 02 12	704	1.0-	0.9-				

1981 EQ₂ = 1999 CZ₁₀₃

Id. G. V. Williams, B. A. Skiff (1990 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	299.70106		(2000.0)		P		Q
<i>n</i>	0.26962647	ω	279.57041	-0.95114257			+0.29121253
<i>a</i>	2.3729816	Ω	277.41314	-0.22679156			-0.88441641
<i>e</i>	0.0633930	<i>i</i>	5.93768	-0.20950750			-0.36469559
<i>P</i>	3.66	<i>H</i>	14.6	<i>G</i>	0.15		<i>U</i> 4

Residuals in seconds of arc

1981 02 02	413	0.1+	0.4+	1981 04 08	413	1.8+	1.3-	1999 02 12	704	0.1+	0.5-
1981 02 14	413	2.2+	2.0+	1981 04 08	413	0.5+	1.2-	1999 02 12	704	0.5+	0.0
1981 03 02	413	(2.8-	1.8+)	1981 04 09	413	2.3-	0.2-	1999 02 12	704	0.2+	1.0-
1981 03 02	413	1.0+	0.1+	1981 04 09	413	0.6+	2.2-	1999 02 16	704	0.8-	0.4+
1981 03 07	413	1.2-	1.2+	1981 04 29	413	0.9-	1.2+	1999 02 16	704	0.1+	0.1-
1981 03 07	413	1.1+	0.4-	1990 11 13	675	0.2+	0.1-	1999 02 16	704	0.8-	0.2+
1981 03 10	413	1.9-	0.9+	1990 11 13	675	0.2-	0.1+	1999 02 16	704	0.7-	1.0-
1981 03 12	413	0.6-	0.7+	1999 02 12	704	0.1-	0.3+	1999 02 16	704	0.3+	0.7+
1981 03 12	413	(2.7+	0.5-)	1999 02 12	704	0.6+	0.2-				

1981 EF₇ = 1999 CD₇₂

Id. G. V. Williams, S. J. Bus (1979 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	38.48053		(2000.0)		P		Q
<i>n</i>	0.26973171	ω	210.16685	-0.09487107			-0.99147344
<i>a</i>	2.3723643	Ω	245.40428	+0.93185809			-0.05688106
<i>e</i>	0.0731298	<i>i</i>	5.63808	+0.35019992			-0.11723895
<i>P</i>	3.65	<i>H</i>	15.4	<i>G</i>	0.15		<i>U</i> 3

Residuals in seconds of arc

1979 10 18	675	1.7-	0.2-	1981 04 08	413	0.0	0.2-	1999 02 12	704	0.1-	1.9+
1979 10 18	675	1.5+	0.7+	1981 04 08	413	0.6-	0.0	1999 02 16	704	0.2-	0.5+
1981 02 12	413	0.3+	0.1-	1981 04 09	413	0.5+	0.7-	1999 02 16	704	0.4+	0.6-
1981 03 06	413	(4.4-	2.5+)	1981 04 09	413	(3.3+	1.7-)	1999 02 16	704	0.5-	1.0-
1981 03 06	413	0.0	1.9+	1981 05 01	413	2.0+	1.6-	1999 02 16	704	0.0	1.0-
1981 03 08	413	0.4-	1.3+	1999 02 12	704	0.3-	0.3-	1999 02 16	704	0.8+	1.5-
1981 03 08	413	(3.1+	0.2-)	1999 02 12	704	0.4+	1.8+				
1981 03 12	413	1.2-	0.7+	1999 02 12	704	0.6-	0.7-				

1981 EN₁₉ = 1999 CO₁₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	44.34529		(2000.0)		P		Q
<i>n</i>	0.21718522	ω	241.97594	+0.00619670			-0.99958284
<i>a</i>	2.7410431	Ω	207.71232	+0.93744832			+0.01562600
<i>e</i>	0.1591440	<i>i</i>	3.47773	+0.34806930			-0.02428958
<i>P</i>	4.54	<i>H</i>	14.6	<i>G</i>	0.15		<i>U</i> 5

Residuals in seconds of arc

1981 02 09	413	0.4+	0.0	1981 03 07	413	0.7+	0.9-	1981 05 02	413	0.1-	0.4-
1981 02 13	413	0.1-	0.5+	1981 03 11	413	0.7-	1.2+	1999 02 15	120	0.1+	0.7-
1981 03 02	413	0.5+	0.9+	1981 03 11	413	1.1+	0.8-	1999 02 15	120	0.9-	0.1+
1981 03 02	413	(5.6-	2.9+)	1981 03 16	413	1.8+	1.8-	1999 02 17	120	0.1-	0.0
1981 03 03	413	1.9-	0.9+	1981 03 29	413	0.2-	0.6+	1999 02 17	120	0.2-	0.6+
1981 03 03	413	1.5+	1.1-	1981 03 29	413	0.7-	0.3+	1999 02 17	120	0.9+	0.3-
1981 03 07	413	2.5-	1.0+	1981 04 30	413	0.3+	0.0				

1981 EK₂₁ = 1999 CT₃₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	262.52765		(2000.0)		P		Q
<i>n</i>	0.21542560	ω	260.87785	-0.38020494			+0.92441291
<i>a</i>	2.7559490	Ω	346.65529	-0.78913793			-0.34118798
<i>e</i>	0.0829464	<i>i</i>	7.48905	-0.48239562			-0.17044512
<i>P</i>	4.58	<i>H</i>	15.0	<i>G</i>	0.15		<i>U</i> 5

Residuals in seconds of arc

1981 02 09	413	0.9-	1.2-	1981 03 11	413	1.2+	0.3+	1999 02 10	704	0.1-	1.3-
1981 02 13	413	0.4+	0.2-	1981 03 16	413	0.5-	0.8-	1999 02 10	704	0.5-	0.0
1981 03 02	413	0.5+	1.6+	1981 04 06	413	2.2-	0.8+	1999 02 10	704	1.3+	0.6+
1981 03 02	413	2.3-	0.6+	1981 04 06	413	0.6+	0.1-	1999 02 10	704	0.7-	1.9-
1981 03 03	413	0.7+	0.1+	1981 04 12	413	0.6-	0.1-	1999 02 13	704	0.9-	0.8-
1981 03 07	413	0.1-	0.1+	1981 04 12	413	3.3+	0.2-	1999 02 13	704	1.0+	1.5+
1981 03 07	413	1.8+	0.6-	1981 04 30	413	0.9-	0.5-	1999 02 13	704	0.1-	2.0+
1981 03 11	413	1.4-	0.6+	1981 05 02	413	0.1+	0.5-				

1981 EM₂₅ = 1999 CP₇₁

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	339.25681		(2000.0)		P		Q
<i>n</i>	0.27128436	ω	350.63125	-0.96319993			-0.26870917
<i>a</i>	2.3633038	Ω	173.77011	+0.25028114			-0.90534627
<i>e</i>	0.1098304	<i>i</i>	3.39390	+0.09800634			-0.32885181
<i>P</i>	3.63	<i>H</i>	16.0	<i>G</i>	0.15		<i>U</i> 4

Residuals in seconds of arc

1981 02 09	413	1.0+	0.4-	1981 04 05	413	(2.9+	0.4-)	1999 02 12	699	1.1+	0.6+
1981 02 13	413	0.4+	0.7+	1981 04 06	413	0.9-	0.3+	1999 02 12	704	0.5+	0.0
1981 03 02	413	0.2-	0.2-	1981 04 06	413	0.6-	1.1-	1999 02 12	704	1.2-	0.4-
1981 03 02	413	0.0	1.7-	1981 04 10	413	0.1+	1.1+	1999 02 16	704	0.9+	0.9-
1981 03 06	413	1.8-	0.4+	1981 04 26	413	2.0+	0.0	1999 02 16	704	0.2+	0.5-
1981 03 06	413	0.9+	1.0-	1981 05 01	413	0.0	1.9+	1999 02 16	704	0.5-	0.9+
1981 03 11	413	1.5-	0.7-	1999 02 12	699	0.2+	0.8+	1999 02 16	704	0.9+	0.7+
1981 03 11	413	0.3+	0.9-	1999 02 12	704	0.6-	0.3-	1999 02 21	691	0.2-	0.1-
1981 03 15	413	1.1+	0.8-	1999 02 12	699	0.1-	1.2+	1999 02 21	691	0.0	0.4-
1981 04 05	413	0.7-	1.5+	1999 02 12	704	0.6-	0.2-	1999 02 21	691	0.2-	0.1-

1981 EW₂₇ = 1999 CV₆₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	38.55115		(2000.0)		P		Q
<i>n</i>	0.21407798	ω	253.26029	+0.24624164			-0.96919094
<i>a</i>	2.7675027	Ω	182.50657	+0.93225719			+0.23849416
<i>e</i>	0.2090177	<i>i</i>	7.65933	+0.26506901			+0.06155858
<i>P</i>	4.60	<i>H</i>	14.7	<i>G</i>	0.15		<i>U</i> 4

Residuals in seconds of arc

1981 02 12	413	0.3-	0.5+	1981 04 10	413	1.0-	1.1+	1999 02 12	704	1.0-	1.1+
1981 02 12	413	0.4+	0.1-	1981 05 01	413	0.2+	0.6-	1999 02 16	704	0.8+	0.4-
1981 02 13	413	0.1-	0.4-	1999 01 15	699	0.4+	0.5+	1999 02 16	704	0.0	0.2-
1981 03 02	413	0.5-	0.8+	1999 01 15	699	0.0	0.1-	1999 02 16	704	0.9+	0.6-
1981 03 06	413	(3.4-	2.4+)	1999 01 15	699	0.1+	0.3-	1999 02 16	704	1.9+	0.3-
1981 03 11	413	0.4+	1.0-	1999 02 12	704	1.4-	0.1+	1999 02 16	704	0.4+	0.0
1981 03 15	413	0.5-	0.4+	1999 02 12	704	1.4-	0.9+	1999 02 19	566	0.2+	0.2-
1981 03 15	413	1.2+	0.5-	1999 02 12	704	0.8-	0.1+	1999 02 19	566	0.0	0.1+
1981 04 05	413	0.2+	0.1-	1999 02 12	704	0.2-	0.4-	1999 02 19	566	0.1+	0.2-

1981 EG₂₉ = 1999 CK₁₀₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	16.87100		(2000.0)	P		Q	
<i>n</i>	0.21606733	ω	282.77650	-0.31891958	-0.94763899		
<i>a</i>	2.7504894	Ω	185.89925	+0.91979141	-0.30526716		
<i>e</i>	0.1961897	<i>i</i>	9.21076	+0.22863524	-0.09376733		
<i>P</i>	4.56	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1981 02 09	413	0.2+	0.2+	1981 03 15	413	1.3-	0.1-
1981 02 13	413	0.1+	0.2+	1981 03 15	413	1.4-	0.5+
1981 03 01	413	1.7-	1.0+	1981 03 16	413	0.4-	0.9+
1981 03 01	413	1.5+	0.8-	1981 03 29	413	0.4-	0.5+
1981 03 07	413	0.5+	0.6-	1981 03 29	413	2.0+	0.2+
1981 03 07	413	0.1-	0.6+	1981 04 26	413	0.9+	0.3+
1981 03 11	413	1.1-	0.7+	1981 05 02	413	0.4+	0.5-
1981 03 11	413	1.2+	0.7-	1999 02 12	704	0.2+	0.3+

1981 EC₃₃ = 1999 DD₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	37.19510		(2000.0)	P		Q	
<i>n</i>	0.27155380	ω	151.44402	-0.01858200	-0.99727480		
<i>a</i>	2.3617402	Ω	299.54033	+0.90101294	+0.01425141		
<i>e</i>	0.1697089	<i>i</i>	4.70732	+0.43339404	-0.07238692		
<i>P</i>	3.63	<i>H</i>	16.2	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1981 02 09	413	0.9+	0.2-	1999 02 12	704	0.0	0.8+
1981 03 01	413	1.2-	0.9+	1999 02 12	704	1.3-	0.7-
1981 03 07	413	0.9-	0.0	1999 02 12	704	0.1+	0.4-
1981 03 11	413	1.8-	1.0+	1999 02 16	704	1.0-	0.6-
1981 03 11	413	1.4+	1.0-	1999 02 16	704	0.8-	0.2-
1981 03 15	413	1.7+	0.7-	1999 02 16	704	0.7-	0.0
1999 02 12	704	0.3-	0.3+	1999 02 16	704	1.2+	0.6-

1981 EU₃₄ = 1999 CE₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	341.72563		(2000.0)	P		Q	
<i>n</i>	0.27075964	ω	34.63939	-0.88165690	-0.47147075		
<i>a</i>	2.3663561	Ω	117.21888	+0.42773158	-0.81626177		
<i>e</i>	0.1295526	<i>i</i>	1.28298	+0.19931587	-0.33381440		
<i>P</i>	3.64	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1981 02 02	413	1.3+	0.4-	1981 05 03	413	1.2+	0.0
1981 02 13	413	0.1+	0.2+	1999 01 14	699	0.5+	1.1+
1981 03 02	413	0.9-	0.5-	1999 01 14	699	0.7+	0.1+
1981 03 03	413	1.8-	0.2-	1999 01 14	699	0.8+	0.6+
1981 03 03	413	0.1+	1.0-	1999 02 10	704	0.4-	1.1-
1981 03 07	413	0.3-	0.2+	1999 02 10	704	0.8-	0.5-
1981 05 02	413	0.7+	0.3+	1999 02 10	704	0.4+	1.1-

1981 ES₄₀ = 1999 CH₁₀₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	28.78359		(2000.0)	P		Q	
<i>n</i>	0.21415471	ω	249.28644	+0.22683838	-0.97372737		
<i>a</i>	2.7668416	Ω	187.68517	+0.93991482	+0.22424488		
<i>e</i>	0.2696118	<i>i</i>	8.59420	+0.25515581	+0.03961367		
<i>P</i>	4.60	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1981 02 12	413	0.3+	0.3-	1981 05 01	413	0.5+	0.0
1981 03 02	413	(3.0+	6.4-)	1999 02 12	704	0.2-	1.2+
1981 03 06	413	0.1+	0.1-	1999 02 12	704	0.3+	1.8-

1981 03 11	413	0.7+	0.4-	1999 02 12	704	1.2-	0.5-	1999 02 16	704	0.2+	0.1+
1981 03 15	413	2.1-	2.5+	1999 02 12	704	0.1-	0.3+	1999 02 16	704	0.5+	1.0-
1981 04 26	413	0.8+	2.3-	1999 02 12	704	0.4-	0.9+				

1982 RK₁ = 1986 RU₁₀ = 1998 WV₁₂

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	126.69103		(2000.0)	P		Q	
<i>n</i>	0.25374823	ω	357.53630	+0.42738412	+0.90170868		
<i>a</i>	2.4709694	Ω	297.75879	-0.82820122	+0.36153173		
<i>e</i>	0.1065326	<i>i</i>	4.23192	-0.36252661	+0.23709970		
<i>P</i>	3.88	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1982 09 14	046	(5.3+	0.6-)	1986 09 12	095	0.1-	0.1-
1982 09 14	046	1.6+	0.4+	1998 11 21	704	0.2+	0.1+
1982 09 15	046	1.4-	0.5+	1998 11 21	704	0.1+	0.6+
1982 09 15	046	1.0+	0.2-	1998 11 21	704	0.1-	0.6+
1982 09 16	046	1.6-	0.2+	1998 11 21	704	1.1+	0.0
1982 09 16	046	(3.3-	0.1-)	1998 11 21	704	0.9-	0.5+
1986 09 09	095	0.5+	0.4-	1998 11 24	704	0.0	0.2-

1982 UW₁ = 1976 SQ₈ = 1988 VW₃ = 1998 MW₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	345.79265		(2000.0)	P		Q	
<i>n</i>	0.17378808	ω	143.60487	+0.94530314	+0.32187703		
<i>a</i>	3.1802119	Ω	197.84253	-0.32488142	+0.91451816		
<i>e</i>	0.1701210	<i>i</i>	9.93960	-0.02922375	+0.24505451		
<i>P</i>	5.67	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	3
Residuals in seconds of arc							
1976 09 28	095	(5.8-	7.9+)	1988 11 12	675	0.6+	0.3-
1982 10 16	046	0.3-	1.5-	1988 11 13	675	0.5-	0.2+
1982 10 16	046	0.3+	1.2-	1998 06 19	704	0.3+	0.3-
1982 10 20	046	(2.4-	1.0-)	1998 06 19	704	0.1+	0.4+
1982 10 20	046	0.1-	1.6+	1998 06 19	704	0.1-	0.0
1982 10 21	046	0.8-	0.4+	1998 06 19	704	0.4+	0.4-
1982 10 21	046	1.2+	0.8+	1998 06 19	704	0.3+	0.4-

1982 VL₄ = 1999 CR₈₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	84.65765		(2000.0)	P		Q	
<i>n</i>	0.19253017	ω	316.80179	+0.92393824	-0.31641025		
<i>a</i>	2.9703219	Ω	62.80945	+0.38226287	+0.78511003		
<i>e</i>	0.1491184	<i>i</i>	13.98719	-0.01460251	+0.53243478		
<i>P</i>	5.12	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1982 11 14	381	0.1-	0.0	1982 12 14	381	0.2+	0.1-
1982 11 14	381	0.3+	0.0	1999 02 10	704	1.5-	0.7+
1982 12 13	381	0.4+	0.7-	1999 02 10	704	0.2+	0.6+
1982 12 13	381	0.8-	0.1+	1999 02 10	704	0.4+	1.1-
1982 12 14	381	0.1-	0.1+	1999 02 10	704	0.0	0.6+

1984 ST₂ = 1999 CK₉₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	120.16257		(2000.0)	P		Q	
<i>n</i>	0.29757488	ω	18.59901	+0.99808442	+0.04590553		
<i>a</i>	2.2219718	Ω	338.64107	-0.06039787	+0.86821783		
<i>e</i>	0.2065444	<i>i</i>	6.53885	+0.01340115	+0.49405514		
<i>P</i>	3.31	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4

1999 MAR. 2

M.P.C. 33925

Residuals in seconds of arc

1984 09 25	688	0.4+	0.1+	1984 10 26	688	1.3+	0.1-	1999 02 10	704	0.4+	0.4+
1984 09 25	688	1.8+	1.0-	1999 01 13	699	0.1+	0.0	1999 02 10	704	0.3+	0.2+
1984 09 26	675	0.5-	0.6+	1999 01 13	699	0.2+	0.6+	1999 02 13	704	0.5+	0.3-
1984 09 27	675	0.6-	0.3-	1999 01 13	699	1.1-	0.7+	1999 02 13	704	0.1-	0.5-
1984 09 28	688	2.0-	0.2+	1999 02 10	704	0.1+	0.2+	1999 02 13	704	0.8-	0.2+
1984 09 28	688	0.8+	0.0	1999 02 10	704	0.9+	1.0-	1999 02 13	704	0.1-	0.6+
1984 10 26	688	1.0-	0.3+	1999 02 10	704	0.2-	0.7-	1999 02 13	704	0.4-	0.4-

1985 DA₂ = 1978 EG₈ = 1999 DW

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	280.24216		(2000.0)	P	Q
<i>n</i>	0.27977122	ω	297.59136	-0.48454657	+0.86947351
<i>a</i>	2.3152649	Ω	303.10448	-0.75671104	-0.47171964
<i>e</i>	0.2368163	<i>i</i>	6.58589	-0.43886560	-0.14661651
<i>P</i>	3.52	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1978 03 05	095	0.0	0.5+	1985 02 26	809	0.1+	0.1-	1999 02 16	704	0.1-	0.8+
1985 02 20	809	0.3+	1.3-	1985 02 26	809	0.5+	0.1+	1999 02 16	704	0.1+	0.7+
1985 02 20	809	0.5+	1.1-	1985 02 27	809	0.6+	0.0	1999 02 16	704	0.3+	0.6+
1985 02 20	809	0.6+	1.3-	1985 02 27	809	0.0	0.1-	1999 02 16	704	0.0	0.7+
1985 02 22	809	0.5+	0.7+	1985 02 28	809	0.9-	0.2-	1999 02 16	704	0.9+	0.6+
1985 02 22	809	0.7+	0.7+	1985 02 28	809	0.7-	0.3+	1999 02 17	120	0.1+	0.2-
1985 02 22	809	0.8+	0.7+	1999 02 12	699	0.4+	0.5+	1999 02 17	120	0.8-	0.4-
1985 02 24	809	1.3-	0.1+	1999 02 12	699	0.5+	0.5+	1999 02 18	120	0.6-	0.7-
1985 02 24	809	1.1-	0.1-	1999 02 12	699	0.4+	0.3+	1999 02 18	120	0.4-	0.5-
1985 02 24	809	0.9-	0.2+	1999 02 12	704	0.3-	0.4-	1999 02 19	566	0.2-	0.0
1985 02 25	809	0.1+	0.4+	1999 02 12	704	0.2+	0.0	1999 02 19	566	0.1-	0.4-
1985 02 25	809	0.3+	0.5+	1999 02 12	704	0.7-	0.0	1999 02 19	566	0.3-	0.1+
1985 02 25	809	0.4+	0.4+	1999 02 12	704	0.5+	0.0	1999 02 19	120	0.4-	1.3-
1985 02 26	809	0.2-	0.2-	1999 02 12	704	1.1+	0.2+	1999 02 19	120	0.8-	1.3-

1985 VA₁ = 1999 CD₈₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	204.24734		(2000.0)	P	Q
<i>n</i>	0.17657226	ω	189.37563	+0.12138787	+0.93826069
<i>a</i>	3.1466932	Ω	88.10418	-0.88840570	+0.24825248
<i>e</i>	0.0819462	<i>i</i>	18.91162	-0.44271922	-0.24090992
<i>P</i>	5.58	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1985 11 01	809	0.3-	0.2-	1999 01 09	699	0.8-	0.8+	1999 02 10	704	0.2+	0.4-
1985 11 03	809	0.6-	1.3+	1999 01 09	699	0.6+	0.5+	1999 02 13	704	0.5+	0.8+
1985 11 04	809	0.6+	0.0	1999 02 10	704	0.0	0.8-	1999 02 13	704	1.4-	0.9+
1985 11 05	809	0.4+	0.7-	1999 02 10	704	0.2-	0.1-	1999 02 13	704	1.2+	0.0
1985 11 07	809	0.1-	0.4-	1999 02 10	704	0.8+	0.3+	1999 02 13	704	0.7-	0.0
1999 01 09	699	0.1+	1.1-	1999 02 10	704	0.2-	0.1+	1999 02 13	704	0.0	1.0-

1986 CZ₁ = 1999 CH₈₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	273.15793		(2000.0)	P	Q
<i>n</i>	0.30648910	ω	319.59338	-0.35115348	+0.93279827
<i>a</i>	2.1786762	Ω	289.70982	-0.83531068	-0.35123112
<i>e</i>	0.1144993	<i>i</i>	4.94253	-0.42302164	-0.08077189
<i>P</i>	3.22	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1986 02 12	809	0.2-	0.1+	1986 02 15	809	0.4+	0.3+	1999 02 12	704	0.4+	0.4-
1986 02 12	809	0.0	0.1+	1986 02 15	809	0.5+	0.4+	1999 02 12	704	0.0	0.4-
1986 02 12	809	0.3+	0.1+	1986 02 15	809	0.6+	0.4+	1999 02 12	704	1.1+	1.5+
1986 02 13	809	0.5-	0.1-	1986 02 16	809	0.5+	0.3-	1999 02 12	704	0.2-	0.7+
1986 02 13	809	0.3-	0.2-	1986 02 16	809	0.6+	0.0	1999 02 16	704	0.5-	0.5+
1986 02 13	809	0.2-	0.2-	1986 02 16	809	0.7+	0.1+	1999 02 16	704	0.7+	0.2+
1986 02 14	809	0.8-	0.6-	1986 02 17	809	0.4-	0.3+	1999 02 16	704	0.4-	1.1-

1986 02 14	809	0.6-	0.6-	1986 02 17	809	0.3-	0.3+	1999 02 16	704	1.1-	0.9-
1986 02 14	809	0.3-	0.5-	1986 02 17	809	0.2-	0.3+				

1986 EA₅ = 1986 GE₂ = 1999 CT₄₇Id. B. G. Marsden (d, *MPC* 12118), G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	322.78845		(2000.0)	P	Q
<i>n</i>	0.22520526	ω	199.01614	-0.95524450	+0.29581735
<i>a</i>	2.6755744	Ω	358.19037	-0.27048836	-0.87375607
<i>e</i>	0.1819375	<i>i</i>	0.40259	-0.11976644	-0.38606012
<i>P</i>	4.38	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1986 03 04	809	0.8-	0.5+	1986 03 14	809	0.6-	1.1-	1999 02 10	704	0.2+	0.0
1986 03 04	809	0.6-	0.4+	1986 03 14	809	1.0-	0.5-	1999 02 13	704	0.2-	0.3-
1986 03 05	809	0.6+	0.0	1986 04 02	413	0.1+	0.2+	1999 02 13	704	0.3-	0.2+
1986 03 05	809	1.0+	0.1-	1986 04 02	413	0.5+	0.6+	1999 02 13	704	0.9-	0.2-
1986 03 09	413	0.6-	0.7+	1999 02 10	704	0.2-	0.0	1999 02 13	704	0.1+	0.3+
1986 03 09	413	(1.1- 12.0-)		1999 02 10	704	0.2+	0.1-	1999 02 13	704	0.0	0.3+
1986 03 10	809	0.1-	0.4-	1999 02 10	704	0.4+	0.4+				
1986 03 10	809	1.4+	0.3-	1999 02 10	704	0.8+	0.4-				

1987 KG₅ = 1999 CM₅

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	244.80329		(2000.0)	P	Q
<i>n</i>	0.23403428	ω	147.22127	+0.35259936	+0.92257456
<i>a</i>	2.6078527	Ω	142.74342	-0.90459913	+0.37888591
<i>e</i>	0.1716911	<i>i</i>	14.99362	-0.23952893	-0.07281235
<i>P</i>	4.21	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1987 05 29	675	0.3+	0.1+	1999 02 12	411	0.7-	0.1+	1999 02 20	411	1.3+	0.7-
1987 05 30	675	0.0	0.2-	1999 02 13	411	0.6-	0.6-	1999 02 22	411	0.0	0.1-
1987 06 01	675	0.3-	0.1+	1999 02 13	411	0.6-	0.1-	1999 02 22	411	0.6-	0.1+
1999 02 12	411	0.8+	0.9+	1999 02 20	411	0.4+	0.2+				

1987 PM = 1988 XK₄ = 1999 CN₇₀

Id. G. V. Williams, B. G. Marsden

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	203.99734		(2000.0)	P	Q
<i>n</i>	0.21317750	ω	22.65145	+0.51275453	+0.84875967
<i>a</i>	2.7752907	Ω	278.41402	-0.80634417	+0.42443496
<i>e</i>	0.0648882	<i>i</i>	7.50396	-0.29477427	+0.31537594
<i>P</i>	4.62	<i>H</i>	12.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1987 08 06	010	1.0-	1.8-	1988 12 06	881	0.0	0.2-	1999 02 16	704	0.2+	0.1-
1987 08 06	010	1.4+	1.5-	1999 02 12	704	0.0	0.2+	1999 02 16	704	0.7+	0.0
1987 08 06	010	1.1+	0.2-	1999 02 12	704	1.2-	0.3-	1999 02 16	704	0.7+	0.0
1987 09 02	095	0.3+	2.6+	1999 02 12	704	0.1-	0.1-	1999 02 16	704	0.2+	0.0
1987 09 16	095	0.6-	0.2+	1999 02 12	704	0.3-	0.5-	1999 02 16	704	0.9+	0.8+
1987 09 20	095	0.8-	0.2-	1999 02 12	704	1.4-	0.8-				

1987 RW = 1999 CQ₁₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	80.20621		(2000.0)	P	Q
<i>n</i>	0.28808609	ω	53.04823	+0.82982886	-0.55701266
<i>a</i>	2.2704983	Ω	340.73064	+0.47428872	+0.73565554
<i>e</i>	0.1722342	<i>i</i>	5.82288	+0.29399705	+0.38541902
<i>P</i>	3.42	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1987 09 01	095	1.7+	0.5-	1987 09 23	809	0.2-	0.2-	1999 02 13	704	0.7+	0.3+
1987 09 12	809	0.2-	0.4-	1987 09 23	809	1.0+	0.1+	1999 02 13	704	0.1-	0.1-
1987 09 12	809	0.4+	0.3-	1987 09 23	809	0.8+	0.1-	1999 02 15	120	0.3+	0.4-
1987 09 12	809	0.6+	0.4-	1987 09 23	809	0.5+	0.3-	1999 02 15	120	0.7-	0.3-
1987 09 14	809	1.0-	0.1+	1999 02 10	704	0.7+	0.1-	1999 02 15	120	0.3-	0.4-
1987 09 14	809	0.9-	0.2+	1999 02 10	704	0.2-	0.5-	1999 02 18	120	0.3+	0.3-
1987 09 14	809	0.8-	0.3+	1999 02 10	704	0.2-	0.3+	1999 02 18	120	0.4-	0.6-
1987 09 16	809	1.0-	0.0	1999 02 10	704	0.2+	1.1+	1999 02 19	566	0.1+	0.3-
1987 09 16	809	0.9-	0.6+	1999 02 10	704	0.4-	0.4+	1999 02 19	566	0.1-	0.0
1987 09 16	809	0.4-	0.9+	1999 02 13	704	0.2-	0.0	1999 02 19	566	0.4+	0.1-
1987 09 23	809	0.3+	0.2-	1999 02 13	704	0.2-	0.5+				
1987 09 23	809	0.1+	0.2-	1999 02 13	704	0.1+	0.2+				

1987 SM₃ = 1987 QR₁ = 1999 AK₃₄Id. C. M. Bardwell (d, *MPC* 12936), G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	254.69177	(2000.0)	
<i>n</i>	0.30296736	<i>ω</i>	309.12141
<i>a</i>	2.1955272	<i>Ω</i>	307.44110
<i>e</i>	0.1044251	<i>i</i>	5.94514
<i>P</i>	3.25	<i>H</i>	14.0
		<i>G</i>	0.15
		<i>U</i>	5

Residuals in seconds of arc

1987 08 30	552	0.6+	0.9-	1987 09 30	054	0.7+	0.7+	1999 02 16	704	0.0	0.3-
1987 08 30	552	0.5-	1.2-	1987 09 30	054	0.2-	0.4+	1999 02 16	704	0.2-	0.7+
1987 09 02	095	1.0-	2.2+	1987 10 01	054	0.2+	0.6+	1999 02 16	704	0.2-	0.8-
1987 09 16	095	0.4+	1.8-	1999 01 14	699	0.2+	0.4+	1999 02 18	106	0.6+	1.7+
1987 09 18	809	0.8-	0.5-	1999 01 14	699	0.1-	0.2+	1999 02 18	106	0.1+	0.6+
1987 09 18	809	(5.3+	0.9-)	1999 01 14	699	0.3+	0.2-	1999 02 18	106	0.2-	0.3+
1987 09 18	809	(9.8+	0.9-)	1999 01 22	699	0.0	0.4-	1999 02 23	106	0.1-	0.8-
1987 09 25	054	0.7+	0.8+	1999 01 22	699	0.6+	0.2+	1999 02 23	106	1.0-	0.8-
1987 09 25	054	0.3-	0.7-	1999 01 22	699	0.2+	0.2-	1999 02 23	106	0.1+	0.6-
1987 09 29	054	0.2-	0.6+	1999 02 16	704	0.2-	0.5-				
1987 09 29	054	0.7+	0.6-	1999 02 16	704	0.1-	0.0				

1987 SD₁₀ = 1999 BU₂₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler			
<i>M</i>	334.92971	(2000.0)	
<i>n</i>	0.28709673	<i>ω</i>	338.94910
<i>a</i>	2.2757116	<i>Ω</i>	164.30492
<i>e</i>	0.0548939	<i>i</i>	8.09978
<i>P</i>	3.43	<i>H</i>	15.1
		<i>G</i>	0.15
		<i>U</i>	6

Residuals in seconds of arc

1987 09 29	033	0.3-	0.3-	1999 01 18	704	0.1-	0.2+	1999 01 20	704	0.4+	0.4+
1987 09 29	033	0.1+	0.2-	1999 01 18	704	0.9-	0.4+	1999 01 20	704	0.2+	0.2+
1987 09 30	033	0.1+	0.4+	1999 01 18	704	0.6-	0.2-	1999 01 20	704	0.4+	0.0
1987 09 30	033	0.3-	0.6-	1999 01 18	704	1.4+	0.5-	1999 01 20	704	0.4+	0.9-
1987 10 01	033	0.4+	0.6+	1999 01 18	704	0.4-	0.9+	1999 01 20	704	0.7-	0.4-

1988 CA₂ = 1999 CP₅₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	45.26768	(2000.0)	
<i>n</i>	0.27561217	<i>ω</i>	335.59743
<i>a</i>	2.3384986	<i>Ω</i>	124.37229
<i>e</i>	0.0580927	<i>i</i>	7.09764
<i>P</i>	3.58	<i>H</i>	14.6
		<i>G</i>	0.15
		<i>U</i>	4

Residuals in seconds of arc

1988 01 19	071	(1.2+	3.3-)	1988 02 21	809	0.3-	0.5-	1999 02 10	704	0.4-	0.1+
1988 01 19	071	2.2+	1.9-	1988 02 23	809	0.6+	0.3+	1999 02 10	704	0.9+	0.1+
1988 02 11	809	0.6-	0.4+	1988 02 23	809	1.2-	0.7+	1999 02 10	704	0.9-	0.4-
1988 02 15	809	1.1+	0.1-	1988 02 23	809	0.4-	0.5+	1999 02 13	704	0.7-	0.5-
1988 02 17	809	0.5-	0.5+	1999 01 14	699	0.2-	0.7-	1999 02 13	704	0.7-	0.4+

1988 02 17	809	1.2-	0.1+	1999 01 14	699	0.3-	0.7+	1999 02 13	704	0.1+	0.0
1988 02 17	809	1.2-	0.2-	1999 01 14	699	1.0+	1.3-	1999 02 13	704	0.3+	0.4-
1988 02 21	809	0.9+	0.7+	1999 02 10	704	0.0	1.0-	1999 02 13	704	1.4+	0.8+
1988 02 21	809	0.2+	0.5+	1999 02 10	704	0.6-	1.1+				

1988 CO₄ = 1999 CM₇₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	336.56288	(2000.0)	
<i>n</i>	0.26807418	<i>ω</i>	259.80209
<i>a</i>	2.3821333	<i>Ω</i>	267.08044
<i>e</i>	0.0556442	<i>i</i>	7.51648
<i>P</i>	3.68	<i>H</i>	14.5
		<i>G</i>	0.15
		<i>U</i>	6

Residuals in seconds of arc

1988 02 13	809	0.2-	0.0	1988 02 21	809	0.6-	0.7+	1999 02 12	704	0.4-	0.5-
1988 02 15	809	0.4+	0.5-	1988 02 23	809	0.5+	0.3+	1999 02 12	704	1.5-	0.5-
1988 02 16	809	0.2+	0.3-	1988 02 23	809	0.2-	0.6-	1999 02 16	704	1.2+	1.0+
1988 02 16	809	0.0	0.1+	1988 02 23	809	0.4+	0.5-	1999 02 16	704	0.3-	0.3-
1988 02 16	809	0.3+	0.6-	1999 02 12	704	0.5-	0.7+	1999 02 16	704	0.5+	0.4-
1988 02 21	809	0.6-	0.6+	1999 02 12	704	0.3-	0.7+	1999 02 16	704	1.2+	0.3-
1988 02 21	809	0.3-	0.4+	1999 02 12	704	0.5-	0.4+	1999 02 16	704	0.9+	0.3-

1988 CR₇ = 1998 XU₈₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler			
<i>M</i>	238.89456	(2000.0)	
<i>n</i>	0.26039925	<i>ω</i>	133.70492
<i>a</i>	2.4287132	<i>Ω</i>	90.74335
<i>e</i>	0.1463681	<i>i</i>	2.62031
<i>P</i>	3.79	<i>H</i>	14.8
		<i>G</i>	0.15
		<i>U</i>	6

Residuals in seconds of arc

1988 02 15	809	0.4+	1.4-	1988 02 23	809	0.3+	0.4+	1988 12 15	704	0.1+	0.2-
1988 02 21	809	0.2-	0.2-	1988 02 23	809	0.5-	0.1+	1988 12 22	704	0.2+	0.7+
1988 02 21	809	0.7-	0.2-	1988 12 15	704	0.2-	0.9-	1988 12 22	704	0.9-	1.6+
1988 02 21	809	0.6-	1.1+	1988 12 15	704	0.1-	0.8-	1988 12 22	704	1.4+	0.2+
1988 02 23	809	1.2+	0.1+	1988 12 15	704	0.1-	0.4+	1988 12 22	704	0.5-	0.9-

1988 DA₅ = 1999 CS₇₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	173.70967	(2000.0)	
<i>n</i>	0.17825869	<i>ω</i>	147.40002
<i>a</i>	3.1268154	<i>Ω</i>	183.45657
<i>e</i>	0.0355708	<i>i</i>	22.39274
<i>P</i>	5.53	<i>H</i>	13.2
		<i>G</i>	0.15
		<i>U</i>	5

Residuals in seconds of arc

1988 02 23	413	0.1+	0.4-	1999 02 12	704	0.0	0.7-	1999 02 16	704	0.0	0.6-
1988 02 25	413	0.4-	0.7+	1999 02 12	704	1.6-	1.4-	1999 02 16	704	0.0	0.7+
1988 02 25	413	0.5+	0.2-	1999 02 12	704	0.2-	0.4+	1999 02 16	704	0.7+	0.5+
1988 03 10	413	0.7-	0.3+	1999 02 12	704	1.0+	1.2+	1999 02 16	704	0.1-	0.1-
1988 03 10	413	0.4+	0.4-	1999 02 16	704	0.2+	0.1+				

1988 SV₁ = 1999 CJ₄₃

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	118.02416	(2000.0)	
<i>n</i>	0.22922014	<i>ω</i>	251.23579
<i>a</i>	2.6442400	<i>Ω</i>	130.93719
<i>e</i>	0.0493909	<i>i</i>	10.43570
<i>P</i>	4.30	<i>H</i>	14.5
		<i>G</i>	0.15
		<i>U</i>	5

Residuals in seconds of arc

1988 09 15	675	0.3-	0.7-	1988 11 06	807	1.3-	0.0	1999 02 12	699	0.3+	1.3-
1988 09 15	675	0.9-	0.7-	1999 02 10	704	0.2+	0.1-	1999 02 13	704	0.3-	0.8-

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1988 09 16	807	0.6−	0.8+	1999 02 10	704	0.2−	0.7+	1999 02 13	704	0.1−	0.2+
1988 09 18	807	0.4+	0.8+	1999 02 10	704	0.6+	0.0	1999 02 13	704	0.8+	0.7+
1988 10 05	807	1.0+	0.5−	1999 02 10	704	0.2−	0.2+	1999 02 13	704	0.1−	0.1−
1988 10 06	807	0.8+	0.2−	1999 02 10	704	0.1+	1.0+	1999 02 13	704	1.7−	0.0
1988 10 07	807	0.3+	0.0	1999 02 12	699	0.1+	0.4−				
1988 11 04	807	0.6+	0.4+	1999 02 12	699	0.4+	0.2−				

1988 SL₂ = 1999 CR₁₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	23.83226		(2000.0)	P	Q
<i>n</i>	0.12567760	ω	307.12475	−0.34043151	−0.94012675
<i>a</i>	3.9472757	Ω	162.75643	+0.87925140	−0.32446203
<i>e</i>	0.1829664	<i>i</i>	3.16630	+0.33320168	−0.10433644
<i>P</i>	7.84	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1988 09 16	807	1.1+	0.5+	1999 02 12	704	1.5−	0.9−	1999 02 16	704	0.9−	0.1−
1988 09 18	807	0.4+	0.9−	1999 02 12	704	0.3−	1.0−	1999 02 16	704	1.6−	0.4−
1988 10 04	807	1.0−	0.4−	1999 02 12	699	0.5+	0.6+	1999 02 16	704	(2.1−	1.3+)
1988 10 05	807	0.6−	0.1−	1999 02 12	704	1.3−	0.8−	1999 02 16	704	0.7−	1.4+
1988 10 08	807	0.1−	0.0	1999 02 12	699	0.4+	0.3−	1999 02 16	704	0.1−	1.1+
1988 11 04	807	0.5+	0.6+	1999 02 12	699	0.5+	0.4−	1999 02 18	104	0.2+	0.1−
1988 11 05	807	0.4+	0.2+	1999 02 15	104	1.5+	1.0+	1999 02 18	104	0.1−	0.1+
1988 11 07	807	0.6−	0.2+	1999 02 15	104	1.3+	0.5+	1999 02 19	104	1.4+	0.6+
1999 02 12	704	0.7−	0.8−	1999 02 15	104	1.1+	0.1+	1999 02 19	104	0.3+	0.6+
1999 02 12	704	1.9−	1.0−	1999 02 15	104	1.8+	0.2−				

1988 TK = 1998 XO₄₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	137.96337		(2000.0)	P	Q
<i>n</i>	0.21603602	ω	308.46090	+0.65952272	+0.75163937
<i>a</i>	2.7507552	Ω	2.84381	−0.62744914	+0.55652913
<i>e</i>	0.2004474	<i>i</i>	9.57048	−0.41392918	+0.35399660
<i>P</i>	4.56	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1988 10 03	399	1.8−	1.2+	1988 10 13	399	(2.4−	0.2−)	1998 12 14	704	0.5+	0.1−
1988 10 03	399	0.9+	1.6−	1988 10 15	399	1.3−	0.9−	1998 12 14	704	1.7−	0.9+
1988 10 03	399	1.4+	0.6+	1988 10 16	399	0.4+	1.1+	1998 12 14	704	(0.5+	2.4−)
1988 10 03	399	1.3−	1.1−	1988 10 16	399	0.7−	0.2−	1998 12 17	704	0.8+	0.7−
1988 10 08	399	(1.6+	3.8+)	1988 10 18	399	0.3−	1.8−	1998 12 17	704	0.9−	0.7+
1988 10 13	399	1.0+	0.7+	1988 10 18	399	0.7−	0.0	1998 12 17	704	0.5+	0.4+
1988 10 13	399	1.6+	1.4+	1998 12 14	704	0.9+	1.2−	1998 12 17	704	(0.5−	2.1+)

1988 VC₂ = 1997 HY₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	308.41020		(2000.0)	P	Q
<i>n</i>	0.17616907	ω	341.70519	+0.87935676	−0.46995660
<i>a</i>	3.1514925	Ω	46.57643	+0.44898803	+0.76477064
<i>e</i>	0.1808065	<i>i</i>	6.05663	+0.15856054	+0.44075691
<i>P</i>	5.59	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1988 11 02	399	(2.6+	2.5+)	1988 11 11	399	0.3−	0.2−	1997 05 01	704	0.3+	0.0
1988 11 02	399	(2.6+	0.3+)	1988 11 11	399	(2.9−	0.2+)	1997 05 05	704	0.6+	0.2−
1988 11 02	399	0.7+	0.6+	1988 11 11	399	0.1−	0.1+	1997 05 05	704	0.2+	0.4−
1988 11 04	327	(2.1−	3.2+)	1997 04 30	704	0.3−	0.1−	1997 05 05	704	0.6+	0.3−
1988 11 04	327	(2.9−	3.0+)	1997 04 30	704	0.3−	0.0	1997 05 05	704	0.2+	0.4+
1988 11 04	046	0.9−	0.7−	1997 04 30	704	0.4−	0.3+	1997 05 05	704	0.3+	0.4+
1988 11 04	046	0.3+	0.4−	1997 04 30	704	0.6−	0.7+	1997 05 05	704	0.4−	0.0
1988 11 05	046	0.2+	0.5+	1997 04 30	704	0.0	0.2+	1997 05 05	704	0.6−	0.6+
1988 11 05	046	0.3−	0.4+	1997 05 01	704	0.1−	0.4−	1997 05 05	704	(2.9−	0.4+)
1988 11 08	399	(0.5+	7.0+)	1997 05 01	704	0.6+	0.3−	1997 05 05	704	0.5−	0.1+
1988 11 08	399	(1.5−	3.3+)	1997 05 01	704	0.2+	0.0				
1988 11 08	399	0.1−	0.5−	1997 05 01	704	0.0	1.0−				

1989 GV₁ = 1976 QF₂ = 1999 DX

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	242.98398		(2000.0)	P	Q
<i>n</i>	0.28879005	ω	307.70905	+0.37042233	+0.92855885
<i>a</i>	2.2668071	Ω	343.98251	−0.82278852	+0.31612955
<i>e</i>	0.1554931	<i>i</i>	4.94514	−0.43105260	+0.19452653
<i>P</i>	3.41	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1976 08 28	675	0.4−	0.7+	1989 04 08	809	0.3+	1.0+	1999 02 18	120	0.3+	0.1+
1989 04 03	809	0.5−	0.5−	1989 04 08	809	0.2+	0.6+	1999 02 18	120	2.1−	1.7+
1989 04 03	809	1.1−	0.8−	1989 04 08	809	0.5−	0.6+	1999 02 18	120	0.3−	0.8+
1989 04 03	809	0.8−	0.8−	1989 04 10	809	0.4+	0.5+	1999 02 18	120	0.2−	0.6−
1989 04 05	809	0.6+	0.4−	1989 04 10	809	0.2+	0.8+	1999 02 18	120	2.7+	0.6−
1989 04 05	809	0.5+	0.7−	1989 04 10	809	0.2−	0.4+				
1989 04 05	809	0.8+	1.0−	1999 02 17	120	0.0	0.3−				

1989 GE₃ = 1981 UB₂₉Id. K. Kinoshita (*MPC* 23670); 1989 GE₃ = 1978 JO (*ibid.*) is invalid

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	21.93349		(2000.0)	P	Q
<i>n</i>	0.18322499	ω	113.03103	−0.12262806	−0.99229814
<i>a</i>	3.0700556	Ω	343.98321	+0.88574184	−0.10146508
<i>e</i>	0.1932629	<i>i</i>	3.63939	+0.44768712	−0.07105796
<i>P</i>	5.38	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1981 10 24	675	0.5−	0.3+	1989 04 08	809	0.1+	0.1−	1999 02 10	704	0.5+	0.1+
1981 10 25	675	0.1−	0.1−	1989 04 08	809	0.4−	0.6+	1999 02 10	704	0.8+	0.3−
1981 10 26	675	0.4+	0.4+	1989 04 10	809	1.2+	1.6−	1999 02 10	704	0.4+	0.4+
1989 04 03	809	1.0−	0.6+	1989 04 10	809	0.7+	1.3−	1999 02 13	704	0.6−	0.7−
1989 04 03	809	(6.3−	2.1+)	1989 04 10	809	1.4+	2.0−	1999 02 13	704	0.5+	0.3+
1989 04 03	809	(10.8−	3.9+)	1999 01 10	699	0.1+	0.3+	1999 02 13	704	0.2+	0.1−
1989 04 05	809	1.5−	1.6+	1999 01 10	699	1.0−	0.6+	1999 02 13	704	0.8−	0.0
1989 04 05	809	0.8−	1.2+	1999 01 10	699	1.1−	0.3+	1999 02 13	704	0.1−	0.3−
1989 04 05	809	0.4+	1.7+	1999 02 10	704	0.5+	0.2+				
1989 04 08	809	0.1+	0.1−	1999 02 10	704	0.5+	0.6−				

1989 SD = 1992 PG₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	338.13203		(2000.0)	P	Q
<i>n</i>	0.31214101	ω	343.41690	+0.97162522	−0.23561610
<i>a</i>	2.1522968	Ω	30.23515	+0.22141265	+0.87522701
<i>e</i>	0.1493132	<i>i</i>	2.35870	+0.08319172	+0.42244851
<i>P</i>	3.16	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1989 09 23	403	(3.2−	0.4+)	Y	1989 09 29	403	0.1−	0.1+	1992 08 03	675	0.6+	1.1−
1989 09 23	403	(4.4−	3.5−)	Y	1989 10 01	807	1.2+	0.2+	1992 08 03	675	0.4−	0.1−
1989 09 24	403	1.3−	0.6+		1989 10 03	807	0.8+	0.2+	1992 08 06	675	0.1+	0.6+
1989 09 24	403	0.2−	0.4−	Y	1989 10 04	403	(3.4−	1.9−)	1992 08 06	675	0.3−	0.6+
1989 09 29	403	1.2+	0.6+		1989 10 04	403	1.6−	1.2−				

1989 UP₃ = 1999 CM₁₀₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	52.24239		(2000.0)	P	Q
<i>n</i>	0.23280528	ω	220.69185	+0.50110863	−0.86230024
<i>a</i>	2.6170228	Ω	199.58149	+0.83969852	+0.50490077
<i>e</i>	0.1451285	<i>i</i>	12.58004	+0.20927621	+0.03890389
<i>P</i>	4.23	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1989 10 26	675	1.2+	1.9+	1989 12 02	809	0.7−	0.1−	1999 02 12	704	0.4+	1.7+
1989 10 26	675	0.7+	0.1+	1989 12 02	809	0.7−	0.9−	1999 02 12	704	0.5+	1.1+

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1989 10 29	675	0.1+	0.0	1989 12 03	809	0.2+	1.1-	1999 02 16	704	1.2-	1.5-
1989 11 03	809	1.1+	0.4+	1989 12 03	809	0.7-	0.5-	1999 02 16	704	1.3-	0.7+
1989 11 03	809	0.7+	0.1+	1989 12 03	809	1.3-	0.9-	1999 02 16	704	0.0	0.3+
1989 11 03	809	0.4+	0.9+	1999 02 12	704	1.6+	0.2+	1999 02 16	704	0.5+	1.0-
1989 12 02	809	1.3-	0.5-	1999 02 12	704	0.1+	0.2-	1999 02 16	704	0.4-	0.5-

1989 UW₃ = 1999 CY₅₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23796540	ω	119.06515	+0.97812390	+0.11224278		
<i>a</i>	2.5790525	Ω	235.02044	-0.15823373	+0.94799912		
<i>e</i>	0.1944758	<i>i</i>	12.34262	+0.13503972	+0.29782417		
<i>P</i>	4.14	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1989 10 27	675	0.3+	0.9+	1989 12 02	675	0.3-	0.3-	1999 02 12	704	0.4+	1.1-
1989 10 27	675	0.5+	0.0	1989 12 02	675	0.5+	0.1-	1999 02 12	704	0.3+	1.1-
1989 10 29	675	0.6-	0.3-	1999 01 15	699	0.7-	1.2+	1999 02 12	704	0.1+	1.0-
1989 11 04	675	0.5-	0.8-	1999 01 15	699	0.6-	0.5+	1999 02 16	704	0.0	0.8+
1989 11 05	675	0.3+	0.2+	1999 01 15	699	0.9+	0.4+	1999 02 16	704	1.8+	0.9-
1989 11 29	675	0.0	0.8-	1999 02 12	704	0.9-	0.7-	1999 02 16	704	1.2-	1.5+
1989 11 29	675	0.1-	1.0+	1999 02 12	704	0.8-	0.2-	1999 02 16	704	0.6+	0.6+

1989 VP₁ = 1991 GK₁₃ = 1999 CR₈₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23982820	ω	280.01301	-0.37096278	-0.92738916		
<i>a</i>	2.5656803	Ω	192.10542	+0.91645924	-0.35719316		
<i>e</i>	0.1268543	<i>i</i>	13.32463	+0.14996358	-0.11118626		
<i>P</i>	4.11	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1989 11 03	809	1.1+	0.2-	1989 12 02	809	1.9-	0.1+	1999 02 12	704	0.2+	0.6-
1989 11 03	809	0.1-	0.7+	1989 12 02	809	2.8-	0.3+	1999 02 12	704	0.3+	0.2-
1989 11 03	809	0.6+	0.0	1989 12 03	809	1.1+	1.1-	1999 02 16	704	0.2-	0.9+
1989 11 06	809	0.0	0.3+	1989 12 03	809	0.1+	1.1-	1999 02 16	704	0.9-	0.9+
1989 11 06	809	1.1+	0.8+	1989 12 03	809	0.8-	1.1-	1999 02 16	704	0.8+	0.3-
1989 11 06	809	0.6+	1.3+	1991 04 10	809	0.3+	0.7+	1999 02 16	704	0.3-	0.4-
1989 11 25	675	0.4+	0.1+	1991 04 10	809	0.3-	0.2-	1999 02 16	704	0.4-	0.2-
1989 11 25	675	1.4+	0.4-	1991 04 10	809	0.1-	0.4-				
1989 12 02	809	0.9-	0.3+	1999 02 12	704	0.4+	0.1+				

1989 YC₅ = 1977 US₂ = 1996 CH₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17439458	ω	48.07303	+0.98083868	-0.01896775		
<i>a</i>	3.1728343	Ω	312.02783	-0.09147803	+0.83387379		
<i>e</i>	0.2574933	<i>i</i>	15.13102	+0.17200948	+0.55162915		
<i>P</i>	5.65	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1977 10 18	033	0.1+	0.2+	1989 12 29	511	1.1+	0.0	1990 01 03	511	(0.6-	2.2+)
1977 10 18	033	0.2-	0.2-	1989 12 29	511	0.2+	0.4-	1990 01 03	511	(2.5+	0.8+)
1977 10 18	033	0.2+	0.2+	1989 12 30	511	0.9-	0.0	1996 02 14	098	1.0-	0.1+
1977 10 18	033	0.4+	0.1+	1989 12 30	511	(2.1-	0.5+)	1996 02 14	098	0.6-	0.7-
1989 12 28	511	1.3-	1.6+	1990 01 01	511	0.6-	0.9-	1996 02 15	098	1.4+	1.3+
1989 12 28	511	0.4+	0.4+	1990 01 01	511	1.1+	0.9-	1996 02 15	098	0.4+	0.5-

1999 MAR. 2

1990 BT = 1978 TD₁ = 1983 BQ = 1992 ST₁₂ = 1997 EM₃₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28404901	ω	98.98331	+0.37242240	-0.92577536		
<i>a</i>	2.2919609	Ω	328.90000	+0.79424160	+0.35423687		
<i>e</i>	0.1616703	<i>i</i>	7.24342	+0.48008523	+0.13212201		
<i>P</i>	3.47	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1978 10 02	095	0.2-	0.8+	1990 01 21	877	(3.1-	1.9+)	1992 10 01	372	(4.5-	1.0+)
1983 01 21	688	1.1-	1.1-	1990 01 24	877	(3.7-	0.2+)	1997 03 04	704	1.3+	0.6+
1983 01 21	688	0.9+	1.5-	1990 01 24	877	(4.2-	2.0+)	1997 03 04	704	1.1+	0.7+
1990 01 21	877	(0.3-	2.3+)	1990 01 27	877	(0.8-	3.1+)	1997 03 05	704	0.4+	0.4+
1990 01 21	402	0.4-	0.9-	1990 01 27	877	0.3-	0.5+	1997 03 05	704	0.0	1.1+
1990 01 21	402	0.1-	0.9+	1992 09 27	372	0.4-	0.8+				

1990 ES₆ = 1998 XS₇₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19942441	ω	195.44795	+0.77224839	-0.63523963		
<i>a</i>	2.9014639	Ω	203.99887	+0.58550769	+0.71780998		
<i>e</i>	0.0416951	<i>i</i>	1.43006	+0.24660327	+0.28499024		
<i>P</i>	4.94	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	7

Residuals in seconds of arc

1990 03 02	809	0.6-	0.4-	1990 03 06	809	0.2+	0.1+	1998 12 16	704	0.9+	0.6-
1990 03 02	809	0.3-	0.5-	1990 03 06	809	0.2+	0.0	1998 12 16	704	0.1+	0.5-
1990 03 02	809	0.2-	0.5-	1998 12 15	704	0.1+	1.0-	1998 12 16	704	1.4-	0.2+
1990 03 03	809	0.2+	0.6+	1998 12 15	704	0.1+	0.1-	1998 12 16	704	0.2-	1.0+
1990 03 03	809	0.4+	0.2+	1998 12 15	704	0.0	0.3+	1998 12 16	704	0.8-	0.4+
1990 03 03	809	0.8+	0.3+	1998 12 15	704	0.9+	0.3+				
1990 03 06	809	0.1+	0.1-	1998 12 15	704	0.0	0.2-				

1990 OM₂ = 1999 CA₅₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29633465	ω	336.81957	+0.83969231	+0.54271253		
<i>a</i>	2.2281671	Ω	350.24140	-0.47850995	+0.72243071		
<i>e</i>	0.2067312	<i>i</i>	6.60359	-0.25679770	+0.42843550		
<i>P</i>	3.33	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 07 26	675	1.0+	0.3-	1990 07 30	675	0.9-	1.9-	1999 02 10	704	0.2-	0.8-
1990 07 26	675	0.7+	0.7-	1990 07 30	675	0.1+	0.8-	1999 02 10	704	1.6-	0.4-
1990 07 28	675	0.8+	0.2-	1990 09 14	675	0.5+	1.4-	1999 02 10	704	0.8-	0.2+
1990 07 28	675	0.6+	0.9+	1990 09 14	675	1.6+	2.8-	1999 02 10	704	0.8+	0.6+
1990 07 29	675	1.6-	0.5+	1990 09 15	675	3.0-	0.2+	1999 02 13	704	0.6-	0.7-
1990 07 29	675	0.4-	1.2+	1990 09 15	675	0.0	1.7+	1999 02 13	704	0.6-	0.3+
1990 07 30	675	1.6-	1.0+	1990 09 18	675	0.3+	1.5+	1999 02 13	704	1.6+	0.3+
1990 07 30	675	1.3+	0.5+	1990 09 18	675	0.8+	0.4+	1999 02 13	704	1.2+	0.2+

1990 QT = 1952 RN

Id. T. Kobayashi (1999 observations), E. Bowell (1999 observations), S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28532184	ω	353.11855	+0.96573283	+0.25908480		
<i>a</i>	2.2851394	Ω	351.81689	-0.23269214	+0.83815601		
<i>e</i>	0.1663342	<i>i</i>	6.18500	-0.11495421	+0.47996830		
<i>P</i>	3.45	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1952 09 11	839	1.2-	0.2+	1990 09 24	675	1.3+	1.2+	1999 02 10	704	0.9+	0.4+
1952 09 11	839	0.5+	1.3+	1990 09 24	675	0.9+	0.1-	1999 02 12	699	0.4+	0.3+
1990 08 19	675	1.5-	0.9+	1999 02 05	411	1.0-	0.0	1999 02 12	699	0.5-	0.4+

1999 MAR. 2

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1990 08 19	675	(2.9– 1.5+)	1999 02 05	411	0.3– 0.0	1999 02 12	699	0.3+ 0.1+
1990 08 21	675	(3.3– 1.7+)	1999 02 06	411	1.4– 0.6–	1999 02 13	704	0.2+ 0.7–
1990 08 21	675	(2.5– 1.3+)	1999 02 06	411	0.2– 0.1+	1999 02 13	704	0.5– 0.1–
1990 09 15	675	0.0 0.5–	1999 02 10	704	0.5+ 0.2+	1999 02 13	704	0.0 0.4+
1990 09 15	675	0.4– 0.5–	1999 02 10	704	0.9+ 0.0	1999 02 13	704	0.4+ 1.3+
1990 09 22	675	0.6+ 1.3–	1999 02 10	704	1.0+ 0.2+	1999 02 13	704	0.5– 0.0
1990 09 22	675	0.7– 0.2+	1999 02 10	704	0.7+ 0.0			

1990 QZ₈ = 1976 UV₁₂ = 1996 JJ₁₄ = 1999 AA₁₁

Id. K. Ichikawa (*MPC* 18297), H. Kaneda (*ibid.*), G. V. Williams; 1990 QZ₈
= 1978 GE₅ (*ibid.*) is invalid

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5 Williams								
<i>M</i>	18.52221		(2000.0)	P	Q			
<i>n</i>	0.27531714	ω	329.26749	–0.11455211	–0.99235239			
<i>a</i>	2.3401690	Ω	127.27111	+0.92278610	–0.12343562			
<i>e</i>	0.1117386	<i>i</i>	3.31269	+0.36789079	+0.00062141			
<i>P</i>	3.58	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	2	

Residuals in seconds of arc

1976 10 22	381	0.0 0.7+	1996 05 12	691	0.4+ 0.3–	1999 01 18	704	1.0+ 0.6–
1976 10 22	381	0.3+ 0.2+	1996 05 12	691	0.3+ 0.5–	1999 01 18	704	1.7+ 0.1–
1976 10 24	381	0.5– 0.2+	1996 05 19	691	0.9– 0.7–	1999 01 19	704	0.7+ 0.4–
1976 10 24	381	0.1+ 0.8–	1996 05 19	691	0.8– 0.7–	1999 01 19	704	0.5+ 0.9–
1990 08 16	809	(0.7+ 2.2–)	1996 05 19	691	0.6– 0.6–	1999 01 19	704	0.4+ 0.4+
1990 08 16	809	(0.4– 3.5–)	1998 12 16	699	0.1+ 0.2–	1999 01 19	704	0.7+ 0.4–
1990 08 16	809	(0.2+ 4.3–)	1998 12 16	699	0.3+ 0.5+	1999 02 10	704	1.0– 0.5+
1990 08 18	809	(0.4– 2.6–)	1998 12 16	699	0.4– 0.3+	1999 02 10	704	0.1– 0.4+
1990 08 18	809	0.8– 1.7–	1999 01 07	691	0.4– 0.4–	1999 02 10	704	0.7– 0.7+
1990 08 18	809	0.9– 0.9–	1999 01 07	691	0.3– 0.2–	1999 02 10	704	0.7– 0.5–
1990 08 24	809	(3.1+ 2.0–)	1999 01 07	691	0.3– 0.3–	1999 02 10	704	0.1+ 0.3–
1990 08 24	809	(1.9+ 2.1–)	1999 01 15	691	1.5– 0.1–	1999 02 13	704	0.3– 0.2–
1990 08 24	809	(2.1+ 2.6–)	1999 01 15	691	1.7– 0.5–	1999 02 13	704	0.7+ 0.0
1990 08 26	809	1.4+ 0.3–	1999 01 15	691	1.3– 0.7–	1999 02 13	704	0.4– 0.5+
1990 08 26	809	1.0+ 1.2–	1999 01 18	704	0.5+ 0.4–	1999 02 13	704	0.0 0.3–
1990 08 26	809	1.0+ 0.9–	1999 01 18	704	1.3+ 0.4–	1999 02 13	704	0.3– 0.1+
1996 05 12	691	0.5+ 0.3–	1999 01 18	704	0.5+ 0.6–			

1990 QU₉ = 1999 CT₅₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5 Williams								
<i>M</i>	235.35769		(2000.0)	P	Q			
<i>n</i>	0.17878388	ω	293.67097	+0.28308171	+0.95844303			
<i>a</i>	3.1206889	Ω	352.50587	–0.75109404	+0.19859869			
<i>e</i>	0.0918797	<i>i</i>	15.73946	–0.59642475	+0.20480604			
<i>P</i>	5.51	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	5	

Residuals in seconds of arc

1990 08 26	675	0.1+ 0.5–	1990 09 15	809	0.0 0.5+	1999 02 10	704	0.4– 0.0
1990 08 26	675	0.2+ 0.1+	1990 09 15	809	0.2+ 0.6+	1999 02 10	704	0.9+ 0.4–
1990 09 13	675	1.4– 0.3+	1990 09 15	809	0.5+ 0.5+	1999 02 13	704	0.4– 0.6+
1990 09 13	675	0.4– 0.7+	1990 09 18	675	1.5+ 0.6–	1999 02 13	704	0.4+ 0.1+
1990 09 14	809	1.0– 0.7–	1990 09 18	675	1.1+ 0.1–	1999 02 13	704	0.6– 0.0
1990 09 14	809	0.6– 0.5–	1999 02 10	704	0.3+ 0.5–	1999 02 13	704	0.8+ 0.9+
1990 09 14	809	0.1– 0.4–	1999 02 10	704	0.4+ 0.0	1999 02 13	704	1.6– 0.8–

1990 RS = 1988 AS₂ = 1999 CH₅₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5 Williams								
<i>M</i>	121.71186		(2000.0)	P	Q			
<i>n</i>	0.28260218	ω	24.33520	+0.96855053	–0.24741252			
<i>a</i>	2.2997769	Ω	349.88180	+0.19647161	+0.82557453			
<i>e</i>	0.1546734	<i>i</i>	8.64252	+0.15267213	+0.50716243			
<i>P</i>	3.49	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	4	

Residuals in seconds of arc

1988 01 11	033	0.2– 0.1+	1990 09 12	809	0.9+ 0.4–	1999 02 10	704	0.5+ 0.5–
1988 01 11	033	0.2+ 0.1+	1990 09 13	675	0.5– 0.4+	1999 02 10	704	0.4+ 0.1+

1990 09 11	809	1.4– 0.5+	1990 09 13	675	0.1+ 0.0	1999 02 10	704	0.4+ 1.6+
1990 09 11	809	0.8– 0.5+	1990 09 18	675	0.6+ 0.2–	1999 02 13	704	0.7– 1.6–
1990 09 11	809	0.4+ 0.3+	1990 09 18	675	0.2+ 0.3–	1999 02 13	704	1.6– 0.5+
1990 09 12	809	0.0 0.7–	1999 02 10	704	0.0 1.3–	1999 02 13	704	1.9+ 2.0+
1990 09 12	809	0.8+ 0.4–	1999 02 10	704	0.1+ 1.1–	1999 02 13	704	1.1– 0.0

1990 RQ₉ = 1999 CN₆₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5 Williams								
<i>M</i>	145.87496		(2000.0)	P	Q			
<i>n</i>	0.28436919	ω	134.98363	+0.95880691	+0.27979739			
<i>a</i>	2.2902401	Ω	208.87346	–0.28071627	+0.90691718			
<i>e</i>	0.1956451	<i>i</i>	5.82623	–0.04344755	+0.31498356			
<i>P</i>	3.47	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	6	

Residuals in seconds of arc

1990 08 26	095	1.7+ 0.8–	1990 09 17	675	0.1– 0.4–	1999 02 12	704	2.7– 0.4+
1990 08 26	095	1.9– 0.9+	1990 09 20	675	0.2– 0.3+	1999 02 16	704	1.1– 0.2+
1990 08 30	095	(0.3– 6.0+)	1990 09 20	675	0.8– 0.1+	1999 02 16	704	0.0 0.4+
1990 09 14	675	0.2+ 0.1–	1999 02 12	704	0.3+ 0.1+	1999 02 16	704	0.2+ 0.0
1990 09 14	675	0.2+ 0.4+	1999 02 12	704	1.0+ 0.4+	1999 02 16	704	0.1+ 0.2–
1990 09 17	675	0.8+ 0.3–	1999 02 12	704	1.6+ 0.4–	1999 02 16	704	0.7+ 0.9–

1990 SX₁₃ = 1999 CA₉₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5 Williams								
<i>M</i>	240.29687		(2000.0)	P	Q			
<i>n</i>	0.29368780	ω	149.79543	+0.00275803	+0.99962373			
<i>a</i>	2.2415346	Ω	120.35015	–0.92369117	+0.01300265			
<i>e</i>	0.1342387	<i>i</i>	1.81229	–0.38312792	–0.02415237			
<i>P</i>	3.36	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	6	

Residuals in seconds of arc

1990 08 16	809	0.4– 2.1+	1990 09 23	809	1.2+ 0.4+	1999 02 10	704	0.9– 1.4–
1990 08 16	809	1.0– 1.1+	1990 09 24	809	1.0– 0.3–	1999 02 13	704	0.3+ 0.3–
1990 08 16	809	0.2– 1.6+	1990 09 24	809	0.6– 0.3–	1999 02 13	704	0.0 0.7+
1990 08 20	809	0.3+ 1.6–	1990 09 24	809	0.3– 0.3–	1999 02 13	704	0.6– 0.1–
1990 08 20	809	0.9+ 2.0–	1999 02 10	704	0.3+ 0.5+	1999 02 13	704	0.7+ 0.4–
1990 08 20	809	0.3+ 1.2–	1999 02 10	704	0.3– 0.6+	1999 02 13	704	0.2+ 0.8–
1990 09 23	809	0.0 0.3+	1999 02 10	704	0.4+ 0.1+			
1990 09 23	809	0.7+ 0.4+	1999 02 10	704	0.0 1.2+			

1990 TD = 1999 CU₁₀₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5 Williams								
<i>M</i>	168.18353		(2000.0)	P	Q			
<i>n</i>	0.28681856	ω	74.35463	+0.85189364	+0.51692196			
<i>a</i>	2.2771827	Ω	254.45299	–0.50770045	+0.77573585			
<i>e</i>	0.1801165	<i>i</i>	5.00657	–0.12852036	+0.36197456			
<i>P</i>	3.44	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	5	

Residuals in seconds of arc

1990 09 18	675	0.2+ 0.7+	1990 10 09	413	0.3– 0.9+	1999 02 12	704	0.7– 1.8–
1990 09 18	675	0.4+ 0.2–	1990 10 11	413	0.2– 0.4–	1999 02 16	704	1.0+ 0.6+
1990 09 20	675	0.2– 0.0	1999 02 12	704	0.0 0.1–	1999 02 16	704	0.5+ 0.7+
1990 09 20	675	0.2– 0.2+	1999 02 12	704	0.0 0.8–	1999 02 16	704	1.0+ 0.6+
1990 10 09	413	0.3+ 1.1–	1999 02 12	704	0.1– 0.1+	1999 02 16	704	1.5– 1.0+

1990 TB₆ = 1999 CX₄₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5 Williams								
<i>M</i>	126.92224		(2000.0)	P	Q			
<i>n</i>	0.28187724	ω	33.05625	+0.99326833	–0.10156759			
<i>a</i>	2.3037183	Ω	332.60988	+0.06104795	+0.86761494			
<i>e</i>	0.1183028	<i>i</i>	6.95362	+0.09844371	+0.48675286			
<i>P</i>	3.50	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	5	

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Residuals in seconds of arc

1990 09 15	675	0.2+	0.7+	1999 02 10	704	0.5+	0.9-	1999 02 12	699	0.8+	0.1+
1990 09 15	675	0.7+	0.0	1999 02 10	704	0.5-	0.2-	1999 02 13	704	0.5+	0.9-
1990 09 20	675	0.4-	1.2-	1999 02 10	704	1.7+	0.8+	1999 02 13	704	0.1+	1.5-
1990 09 20	675	0.7-	0.2+	1999 02 10	704	(0.5-	2.8-)	1999 02 13	704	1.9-	0.8+
1990 10 09	413	0.1+	0.3-	1999 02 12	699	0.2-	0.9+	1999 02 13	704	0.0	1.3-
1990 10 11	413	0.1+	0.5+	1999 02 12	699	0.5+	1.5+	1999 02 13	704	1.6-	0.5+

1990 US₄ = 1993 LM₁ = 1999 CZ₈₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	193.68355		(2000.0)	P	Q
<i>n</i>	0.27704602	ω	218.06316	+0.41233725	+0.90312077
<i>a</i>	2.3304231	Ω	76.57604	-0.80274263	+0.42234909
<i>e</i>	0.1955144	<i>i</i>	7.07451	-0.43079259	+0.07742175
<i>P</i>	3.56	<i>H</i>	13.7	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1990 10 16	809	0.8-	0.8-	1990 10 26	385	(2.7+	0.2+)	1999 01 22	699	0.8+	0.1+
1990 10 16	809	0.5-	0.3-	1993 06 15	675	0.7-	0.1+	1999 02 10	704	0.1-	0.8-
1990 10 16	809	0.8-	0.0	1993 06 15	675	0.0	0.2+	1999 02 10	704	0.5+	0.6-
1990 10 19	809	0.7+	0.3-	1993 06 19	675	0.0	1.1-	1999 02 10	704	0.1-	0.1+
1990 10 19	809	0.2+	0.3-	1993 06 19	675	0.7+	0.5-	1999 02 10	704	0.3+	0.2+
1990 10 19	809	0.0	0.0	1998 12 14	699	1.1-	0.6-	1999 02 10	704	0.8-	0.1-
1990 10 24	809	0.2+	1.4+	1998 12 14	699	0.3-	0.8-	1999 02 13	704	0.2-	0.4+
1990 10 24	809	0.2+	0.3+	1998 12 14	699	0.9-	0.3-	1999 02 13	704	0.2+	0.5+
1990 10 24	809	1.0+	0.4-	1999 01 22	699	0.6-	0.5+	1999 02 13	704	1.3+	0.7+
1990 10 26	385	(4.2+	7.1+)	1999 01 22	699	0.5+	0.1-	1999 02 13	704	0.0	0.5-

1990 VX₄ = 1979 YG₇ = 1999 DF₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	80.61821		(2000.0)	P	Q
<i>n</i>	0.26526365	ω	323.88090	+0.69109299	-0.68852907
<i>a</i>	2.3989299	Ω	81.23419	+0.70427425	+0.57315855
<i>e</i>	0.2295498	<i>i</i>	12.85074	+0.16244463	+0.44431633
<i>P</i>	3.72	<i>H</i>	13.9	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1979 12 18	095	0.1+	0.6-	1990 11 17	809	0.0	0.4+	1999 02 22	888	0.2-	0.3-
1990 11 15	809	0.1-	0.5-	1990 11 21	809	1.0+	0.8+	1999 02 22	888	0.2-	0.5-
1990 11 15	809	0.1-	0.8-	1990 11 21	809	0.2-	0.8+	1999 02 25	385	0.2-	0.5-
1990 11 15	809	0.9-	0.6-	1990 11 21	809	0.2-	0.7+	1999 02 25	385	0.8-	0.2-
1990 11 17	809	0.3+	0.1-	1999 02 19	905	1.6+	1.3+	1999 02 25	385	0.4-	0.0
1990 11 17	809	0.1+	0.2-	1999 02 19	905	0.5+	0.4+				

1990 VH₅ = 1998 XE₉₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	59.10709		(2000.0)	P	Q
<i>n</i>	0.25322330	ω	286.73384	+0.85849931	-0.49295805
<i>a</i>	2.4743831	Ω	102.99689	+0.50816108	+0.78072715
<i>e</i>	0.1372172	<i>i</i>	8.33932	+0.06892933	+0.38400192
<i>P</i>	3.89	<i>H</i>	15.4	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1990 11 15	809	0.9-	0.1-	1990 11 21	809	0.3-	0.1+	1998 12 15	704	0.8-	0.2-
1990 11 15	809	0.8+	0.8-	1990 11 21	809	0.0	0.1+	1998 12 15	704	0.2+	0.6+
1990 11 15	809	0.0	0.9-	1990 11 21	809	0.6-	0.2+	1998 12 22	704	0.6+	0.3+
1990 11 17	809	0.6+	0.0	1998 12 15	704	0.6-	0.4+	1998 12 22	704	0.3+	0.6-
1990 11 17	809	1.2+	0.5+	1998 12 15	704	1.1-	0.7-	1998 12 22	704	0.5-	0.1+
1990 11 17	809	0.8-	1.0+	1998 12 15	704	1.3+	0.5+	1998 12 22	704	0.6+	0.4-

1999 MAR. 2

1991 EG₁ = 1997 NO₁₁ = 1999 CN₇₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	6.30479		(2000.0)	P	Q
<i>n</i>	0.23782706	ω	313.64363	-0.65513475	-0.75540736
<i>a</i>	2.5800525	Ω	177.19605	+0.74582941	-0.64930560
<i>e</i>	0.1286020	<i>i</i>	14.89840	+0.12056931	-0.08810200
<i>P</i>	4.14	<i>H</i>	13.5	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1991 03 09	675	1.2-	0.7-	1991 04 11	400	0.4-	1.5+	1999 02 12	704	0.6+	0.9+
1991 03 09	675	1.3-	1.3-	1997 07 05	360	0.1-	0.2+	1999 02 12	704	0.3+	1.1+
1991 03 15	400	1.6+	0.8-	1997 07 05	360	0.1-	0.6+	1999 02 16	704	0.4+	0.1+
1991 03 15	400	(0.8-	4.4-)	1997 07 05	360	0.1-	0.9+	1999 02 16	704	0.4-	0.5-
1991 03 21	400	1.6+	1.3+	1999 02 12	704	0.4-	0.3-	1999 02 16	704	0.4+	0.7-
1991 03 21	400	1.0+	0.1+	1999 02 12	704	0.1-	0.9+	1999 02 16	704	1.2-	0.6-
1991 04 11	400	1.3-	0.3+	1999 02 12	704	0.5+	0.7+	1999 02 16	704	0.1+	0.8-

1991 FK

Id. T. Kobayashi (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	334.42470		(2000.0)	P	Q
<i>n</i>	0.36512182	ω	174.70348	-0.99398644	-0.10933163
<i>a</i>	1.9387011	Ω	358.95866	+0.08394465	-0.72486158
<i>e</i>	0.0538143	<i>i</i>	19.70296	+0.07031532	-0.68016342
<i>P</i>	2.70	<i>H</i>	13.1	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1991 03 17	894	0.5-	0.8+	Y	1991 03 25	894	1.1+	1.8+	1991 04 13	675	0.3+	1.2-
1991 03 18	675	1.1-	0.8-		1991 03 25	894	0.1-	2.0+	1991 04 16	894	1.0-	0.6-
1991 03 18	675	0.7-	0.3-		1991 04 03	894	(2.7+	2.3+)	1991 04 16	894	(3.1+	0.4+)
1991 03 19	894	1.0+	1.2-		1991 04 03	894	(3.7+	1.6+)	1999 02 13	411	0.1-	0.8-
1991 03 19	894	1.3+	0.1-		1991 04 10	675	0.7+	0.8+	1999 02 13	411	0.3-	0.3-
1991 03 20	894	1.6-	1.6-	Y	1991 04 10	675	0.8-	0.6+	1999 02 14	411	0.3+	0.6+
1991 03 20	894	(5.0-	1.3+)	Y	1991 04 13	675	1.4+	0.4-	1999 02 14	411	0.3+	0.5+

1991 FY₃ = 1953 TG₁ = 1985 FR₁ = 1987 SO₂₁ = 1998 SG₇₉

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	45.31349		(2000.0)	P	Q
<i>n</i>	0.17573280	ω	301.99716	+0.72405215	+0.68534079
<i>a</i>	3.1567062	Ω	15.23008	-0.48941552	+0.58998230
<i>e</i>	0.2310480	<i>i</i>	17.23247	-0.48602566	+0.42688277
<i>P</i>	5.61	<i>H</i>	12.4	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1953 10 08	760	1.9+	0.1-	1991 03 23	809	0.6-	0.3+	1998 09 26	704	(3.1+	1.8-)
1953 10 08	760	(4.8-	2.0+)	1991 03 23	809	0.3-	0.3+	1998 09 27	704	1.8-	0.6+
1953 10 10	760	2.2-	2.0-	1991 03 23	809	0.1-	0.4+	1998 09 27	704	0.9-	0.4+
1953 10 10	760	(1.9-	4.6-)	1991 03 24	809	0.9+	0.2-	1998 09 27	704	1.6-	0.5+
1953 10 15	760	0.1-	0.0	1991 03 24	809	1.1+	0.2+	1998 09 27	704	1.2-	0.1+
1953 10 15	760	1.3+	0.9+	1991 03 24	809	1.3+	0.2+	1998 09 27	699	0.4+	0.2+
1985 03 22	688	(3.4-	2.3+)	1991 03 25	809	0.7-	0.5+	1998 09 27	704	1.3-	0.4-
1985 03 22	688	0.6+	0.7+	1991 03 25	809	0.6-	0.4+	1998 09 27	699	0.2-	0.4+
1987 09 18	095	(5.9-	5.7+)	1991 03 25	809	0.3-	0.4+	1998 09 27	699	0.6+	0.1+
1987 10 02	095	0.3-	0.8+	1998 09 26	704	1.1+	0.3+	1999 01 13	699	0.3-	0.3+
1991 03 22	809	0.3-	0.8-	1998 09 26	704	1.2+	1.0+	1999 01 13	699	0.1-	0.1-
1991 03 22	809	0.2-	0.8-	1998 09 26	704	1.5+	1.1-	1999 01 13	699	0.3-	0.2+
1991 03 22	809	0.2-	0.5-	1998 09 26	704	1.4+	1.1-				

1999 MAR. 2

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1991 GO₇ = 1999 CB₁₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	277.58303		(2000.0)		P		Q				
<i>n</i>	0.23317423	ω	12.48150		-0.53208275		+0.84068361				
<i>a</i>	2.6142615	Ω	225.47667		-0.78846162		-0.53531405				
<i>e</i>	0.1379003	<i>i</i>	8.11908		-0.30857125		-0.08179203				
<i>P</i>	4.23	<i>H</i>	15.2		<i>G</i>	0.15	<i>U</i>	6			
Residuals in seconds of arc											
1991 04 08	809	0.2-	0.9+	1991 04 19	809	0.7+	0.1-	1999 02 12	704	1.9-	1.3+
1991 04 08	809	0.4+	0.8-	1991 04 19	809	0.0	0.5+	1999 02 16	704	0.8+	1.5-
1991 04 08	809	0.0	0.8-	1991 04 19	809	0.6-	0.5-	1999 02 16	704	0.1-	0.3-
1991 04 10	809	0.5-	0.6+	1999 02 12	704	0.0	0.0	1999 02 16	704	0.5-	0.0
1991 04 10	809	0.4-	0.8+	1999 02 12	704	1.2+	0.8-				
1991 04 10	809	0.6+	0.6-	1999 02 12	704	0.3+	1.3+				

1991 GF₈ = 1999 AF₂₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	324.71770		(2000.0)		P		Q				
<i>n</i>	0.21347576	ω	106.64062		-0.41562832		-0.90926667				
<i>a</i>	2.7727050	Ω	8.02432		+0.76255940		-0.36159022				
<i>e</i>	0.1174872	<i>i</i>	9.09804		+0.49573809		-0.20612286				
<i>P</i>	4.62	<i>H</i>	18.8		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1991 04 08	809	0.1+	0.7-	1991 04 10	809	0.8+	0.3-	1999 01 08	699	0.4+	0.4+
1991 04 08	809	0.8+	1.2-	1991 04 19	809	0.4-	1.3+	1999 01 08	699	0.3-	0.7+
1991 04 08	809	0.8-	1.0-	1991 04 19	809	0.4-	1.0+	1999 01 15	699	1.2-	1.6-
1991 04 10	809	1.3+	0.4-	1991 04 19	809	1.0-	1.1+	1999 01 15	699	0.3-	0.4-
1991 04 10	809	0.1-	0.3+	1999 01 08	699	1.0+	1.2+	1999 01 15	699	0.1+	0.2-

1991 GA₁₀ = 1998 XT₈₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	225.96966		(2000.0)		P		Q				
<i>n</i>	0.21314114	ω	128.92067		-0.45479750		+0.85283188				
<i>a</i>	2.7756063	Ω	112.19708		-0.87856208		-0.38242907				
<i>e</i>	0.1753333	<i>i</i>	16.08869		-0.14590374		-0.35556404				
<i>P</i>	4.62	<i>H</i>	13.2		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1991 04 14	675	0.4-	0.1+	1998 12 15	704	0.5-	0.9-	1998 12 22	704	0.0	0.1+
1991 04 15	675	0.1+	0.3+	1998 12 15	704	0.2+	0.2-	1998 12 22	704	0.5-	0.8+
1991 04 16	675	0.3+	0.5-	1998 12 15	704	0.4-	0.7+	1998 12 22	704	0.0	0.4-
1998 12 15	704	0.2+	0.2-	1998 12 22	704	0.3+	0.1+				
1998 12 15	704	0.4+	0.5+	1998 12 22	704	0.2+	0.6-				

1991 PC₇ = 1972 TC₉ = 1999 CN₁₀₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	186.46179		(2000.0)		P		Q				
<i>n</i>	0.20224488	ω	227.49882		+0.84594994		+0.53038724				
<i>a</i>	2.8744253	Ω	100.39849		−0.47128989		+0.79212875				
<i>e</i>	0.0704918	<i>i</i>	3.22305		−0.24950860		+0.30202882				
<i>P</i>	4.87	<i>H</i>	13.7		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1972 10 09	033	0.5−	0.1−	1991 08 14	809	0.5−	1.2+	1991 09 07	809	0.4−	0.3−
1972 10 09	033	0.6+	0.0	1991 09 04	809	0.0	0.3+	1999 02 10	704	0.8−	1.3−
1972 10 09	033	0.3−	0.2+	1991 09 04	809	0.6+	0.4+	1999 02 10	704	1.9+	2.6−
1972 10 09	033	0.2+	0.1+	1991 09 04	809	0.1+	0.4+	1999 02 10	704	1.5−	2.2+
1991 08 06	809	0.5+	0.5−	1991 09 06	809	1.1+	0.6−	1999 02 13	704	0.7−	0.2−
1991 08 06	809	1.0−	1.0−	1991 09 06	809	0.3−	0.8−	1999 02 13	704	1.4−	1.1+
1991 08 06	809	0.8−	0.3−	1991 09 06	809	0.6+	0.3−	1999 02 13	704	0.6+	0.7−
1991 08 14	809	0.6+	0.8+	1991 09 07	809	1.0+	0.6+	1999 02 13	704	2.0+	1.7+
1991 08 14	809	0.7−	0.3+	1991 09 07	809	0.8−	0.1−				

1991 PQ₈ = 1976 UO₁₃ = 1999 AX₁₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	150.28738		(2000.0)		P		Q				
n	0.18926563	ω	206.10808		+0.81508372		+0.57857625				
a	3.0043801	Ω	118.50956		-0.52542429		+0.75991576				
e	0.1005208	i	1.94341		-0.24406523		+0.29627279				
P	5.21	H	14.3		G	0.15	U	5			
Residuals in seconds of arc											
1976 10 22	381	0.7-	1.2+	1991 08 07	675	2.0+	1.3-	1999 01 09	691	0.7-	0.6-
1976 10 22	381	0.3-	1.1+	1991 08 07	675	1.8+	1.1-	1999 01 15	691	0.8-	0.9-
1991 08 05	809	1.4-	0.8-	1991 09 04	809	0.7-	1.1-	1999 01 15	691	0.7-	0.5-
1991 08 05	809	1.7-	0.6-	1991 09 04	809	(2.8-	1.8-)	1999 01 15	691	0.9-	1.0-
1991 08 05	809	0.3-	0.7-	1991 09 04	809	(3.5-	5.0-)	1999 01 16	691	1.1+	0.4-
1991 08 05	809	2.0+	1.1-	1991 09 06	809	(2.5+	0.2-)	1999 01 16	691	1.1+	0.9-
1991 08 05	809	1.5+	0.3-	1991 09 06	809	0.5+	0.5+	1999 01 16	691	1.2+	0.6-
1991 08 05	675	0.2+	0.7-	1991 09 06	809	1.9-	1.4+	1999 01 22	691	0.2+	1.0-
1991 08 05	809	1.1+	1.4-	1999 01 09	691	0.9-	0.5-	1999 01 22	691	0.1+	0.7-
1991 08 05	675	0.7+	0.1+	1999 01 09	691	0.7-	0.5-	1999 01 22	691	0.4+	0.7-

1991 RH₄ = 1998 XA₅₁ = 1999 BA₁₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	17.84791		(2000.0)		P		Q				
<i>n</i>	0.29851909	ω	129.02624		+0.06609102		-0.99666160				
<i>a</i>	2.2172839	Ω	317.10887		+0.89233551		+0.08053300				
<i>e</i>	0.1500420	<i>i</i>	4.03856		+0.44650792		-0.01341986				
<i>P</i>	3.30	<i>H</i>	18.2		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1991 09 12	033	0.4-	0.2-	1998 12 14	704	0.0	0.2-	1999 01 16	704	(0.2-	2.5-)
1991 09 12	033	0.3+	0.1+	1998 12 14	704	0.2+	0.0	1999 01 16	704	1.1+	0.1-
1991 09 14	033	(3.8-	0.7-)	1998 12 14	704	0.2-	0.1-	1999 01 16	704	0.2-	0.0
1991 09 15	033	(3.9-	0.1-)	1998 12 14	704	0.9+	0.3-	1999 01 16	704	0.3-	1.3-
1991 09 15	033	(3.3-	1.4-)	1998 12 17	704	0.3-	0.6+	1999 01 19	704	0.1-	0.4-
1991 10 04	033	0.0	0.4+	1998 12 17	704	0.2-	0.6+	1999 01 19	704	(2.3+	0.1-)
1991 10 05	033	0.5-	0.7-	1998 12 17	704	0.2+	0.3+	1999 01 19	704	1.1-	0.0
1991 10 05	033	0.6+	0.1+	1998 12 17	704	0.2-	0.9+	1999 01 19	704	0.7-	1.1+
1998 12 14	704	0.1+	0.3-	1999 01 16	704	0.8+	0.7-				

1991 RJ₄ = 1999 AW₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	90.60127		(2000.0)		P		Q				
<i>n</i>	0.18663547	ω	72.85400		+0.39580418		-0.91818814				
<i>a</i>	3.0325404	Ω	353.75554		+0.77472221		+0.34345350				
<i>e</i>	0.0892847	<i>i</i>	8.68195		+0.49309689		+0.19740877				
<i>P</i>	5.28	<i>H</i>	19.9		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1991 09 12	033	0.2-	0.2+	1991 10 04	033	0.2-	0.4-	1999 01 20	910	0.0	0.1+
1991 09 12	033	0.3-	0.7+	1991 10 09	033	0.7-	0.8-	1999 01 20	910	0.1-	0.0
1991 09 14	033	0.3-	0.5-	1991 10 09	033	0.9-	0.4-	1999 01 22	910	0.4-	0.4+
1991 09 15	033	(1.1+	2.9-)	1999 01 15	910	0.0	0.2-	1999 01 22	910	0.2-	0.5+
1991 10 02	033	1.7+	1.1+	1999 01 15	910	0.3+	0.4-	1999 01 22	910	0.1-	0.4+
1991 10 02	033	0.4+	0.2-	1999 01 15	910	0.4+	0.8-				
1991 10 03	033	0.3+	0.5+	1999 01 20	910	0.3+	0.2+				

1991 RC₁₀ = 1999 CF₉₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	120.09178		(2000.0)		P		Q		Williams
<i>n</i>	0.18463173	ω	32.02036		+0.92387424		-0.38151772		
<i>a</i>	3.0544416	Ω	350.26634		+0.30289592		+0.77690402		
<i>e</i>	0.0902825	<i>i</i>	10.22442		+0.23390266		+0.50086362		
<i>P</i>	5.34	<i>H</i>	13.2		<i>G</i>	0.15	<i>U</i>	5	

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1999 MAR. 2

Residuals in seconds of arc

1991 09 12	675	0.3+	0.5-	1991 10 04	033	0.3+	0.5-	1999 02 13	704	0.5+	0.3+
1991 09 12	675	1.3-	0.4-	1991 10 05	033	0.6-	0.2-	1999 02 13	704	1.9+	1.4-
1991 09 14	675	0.6+	0.4+	1999 02 10	704	1.4+	0.4-	1999 02 13	704	0.5-	0.1-
1991 09 14	675	0.5-	0.0	1999 02 10	704	0.8-	0.6+	1999 02 13	704	0.3-	1.0-
1991 09 17	675	0.9+	0.9+	1999 02 10	704	0.8-	0.3+	1999 02 13	704	1.1-	0.7+
1991 09 17	675	0.4+	0.2-	1999 02 10	704	0.0	0.3-				
1991 10 04	033	0.1-	0.4+	1999 02 10	704	0.4-	1.3+				

1991 RZ₁₄ = 1999 DA₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19882277	ω	216.55460	+0.60602136	-0.79541563		
<i>a</i>	2.9073142	Ω	196.14704	+0.73581977	+0.56401607		
<i>e</i>	0.0610355	<i>i</i>	1.48701	+0.30217109	+0.22181039		
<i>P</i>	4.96	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1991 09 11	675	1.2+	0.3+	1991 09 15	675	0.3-	1.3+	1999 02 18	120	0.1-	0.2-
1991 09 11	675	0.3+	0.2-	1991 09 15	675	1.0+	1.0+	1999 02 18	120	0.3+	0.0
1991 09 13	675	0.6-	1.2-	1991 09 16	675	0.1+	1.0-	1999 02 19	120	0.7-	0.1+
1991 09 13	675	1.9-	0.9-	1991 09 16	675	0.5+	1.1-	1999 02 19	120	0.3+	0.5-
1991 09 14	033	0.8+	1.0+	1999 02 18	120	0.7+	0.5+				
1991 09 14	033	1.1-	0.9+	1999 02 18	120	0.5-	0.1+				

1991 RC₂₈ = 1985 OX = 1999 BN₂₅

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19059047	ω	55.14807	-0.85116683	+0.51684882		
<i>a</i>	2.9904411	Ω	155.58122	-0.52408629	-0.82714683		
<i>e</i>	0.0846612	<i>i</i>	12.79521	-0.02913054	-0.22067039		
<i>P</i>	5.17	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1985 07 20	413	0.1-	0.9-	1991 09 15	691	0.0	0.3+	1999 02 11	699	0.8+	0.2+
1991 09 08	691	0.6-	0.2-	1991 09 15	691	0.1+	0.0	1999 02 11	699	0.6+	0.5-
1991 09 08	691	0.4-	0.3-	1991 09 17	691	0.0	0.0	1999 02 12	704	0.1+	0.1-
1991 09 08	691	0.2+	0.2-	1991 09 17	691	0.1+	0.3-	1999 02 12	704	0.3-	0.3-
1991 09 08	691	0.1+	0.2-	1991 09 17	691	0.4+	0.3+	1999 02 12	704	0.5+	0.5+
1991 09 08	691	0.3+	0.1+	1999 01 18	704	0.7-	0.9+	1999 02 12	704	0.9-	0.5+
1991 09 08	691	0.2+	0.0	1999 01 18	704	0.5+	0.1+	1999 02 12	704	0.1-	0.6+
1991 09 10	691	0.0	0.1-	1999 01 18	704	0.2+	1.2-	1999 02 16	704	1.3+	1.2-
1991 09 10	691	0.2-	0.0	1999 01 18	704	(2.9+	1.9-)	1999 02 16	704	0.7-	0.6-
1991 09 10	691	0.3-	0.2-	1999 01 20	704	0.5+	0.1+	1999 02 16	704	0.5-	0.1-
1991 09 12	691	0.1+	0.2-	1999 01 20	704	0.0	0.9+	1999 02 16	704	0.2-	0.3-
1991 09 12	691	0.2+	0.0	1999 01 20	704	0.5+	0.5+	1999 02 16	704	1.9-	0.8-
1991 09 12	691	0.3+	0.2+	1999 01 20	704	1.0-	1.2-				
1991 09 15	691	0.1-	0.2+	1999 02 11	699	1.3+	0.6+				

1991 SA₁ = 1999 CV₆₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18604779	ω	197.87349	+0.94097601	+0.29918193		
<i>a</i>	3.0389231	Ω	143.48849	-0.26889369	+0.94478973		
<i>e</i>	0.1602258	<i>i</i>	15.42836	-0.20557319	+0.13365082		
<i>P</i>	5.30	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 08 07	675	0.2+	0.3+	1991 10 01	413	0.7-	0.1-	1999 02 12	704	0.7+	0.5-
1991 08 07	675	0.5-	0.5-	1991 10 02	413	0.5-	0.6-	1999 02 12	704	0.0	1.6+
1991 09 05	413	0.3+	0.0	1991 10 05	413	0.3-	0.3-	1999 02 12	704	1.0-	0.7-
1991 09 05	413	1.2+	1.6+	1991 10 09	413	0.9-	0.0	1999 02 16	704	0.5+	0.9-
1991 09 14	675	0.3+	0.2+	1991 10 12	413	0.4+	0.3+	1999 02 16	704	1.1-	2.1-

1991 09 14	675	0.5-	0.9-	1999 02 12	704	0.5+	0.1-	1999 02 16	704	0.5+	0.5+
1991 09 30	413	0.9+	0.1-	1999 02 12	704	1.0-	1.1+	1999 02 16	704	0.8+	1.2+

1991 TQ₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27730112	ω	6.86944	+0.88591891	-0.43850998		
<i>a</i>	2.3289936	Ω	21.24996	+0.40325008	+0.56706831		
<i>e</i>	0.2172788	<i>i</i>	24.65366	+0.22920963	+0.69723922		
<i>P</i>	3.55	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1991 10 10	675	1.2-	0.2-	1991 11 04	675	0.8+	0.5+	1998 09 21	704	0.0	0.3+
1991 10 10	675	0.1-	0.2-	1991 11 04	675	0.5+	0.3+	1998 12 30	699	0.2+	0.3-
1991 10 13	675	0.1-	1.2-	1998 09 21	704	0.2-	0.1+	1998 12 30	699	0.1+	0.1-
1991 10 13	675	0.6-	0.5-	1998 09 21	704	0.0	0.7-	1998 12 30	699	0.0	0.6-
1991 11 02	675	0.2+	1.1+	1998 09 21	704	0.9+	0.2-				
1991 11 02	675	0.3+	0.9+	1998 09 21	704	0.3-	0.6+				

1991 TD₆ = 1987 KK₂ = 1994 PD₁₁ = 1999 BK₃Id. B. G. Marsden (*MPC* 24390, unpublished)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30986313	ω	263.34972	-0.98413514	-0.17116937		
<i>a</i>	2.1628320	Ω	266.78712	+0.17557753	-0.90177408		
<i>e</i>	0.0381063	<i>i</i>	2.67979	+0.02550599	-0.39686843		
<i>P</i>	3.18	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1987 05 30	413	0.2-	0.8-	1994 08 10	809	0.6+	1.5-	1999 01 20	046	0.2-	0.3-
1987 05 30	413	0.3-	1.0-	1994 08 10	809	0.4+	1.3-	1999 01 22	046	0.4-	0.4-
1991 10 02	033	(0.4+	3.7+)	1994 08 11	809	0.5+	1.3-	1999 01 22	046	0.4-	0.5-
1991 10 02	033	(0.2+	2.7+)	1994 08 11	809	0.4+	0.9-	1999 01 22	046	0.3-	0.5-
1991 10 03	033	(1.6+	3.4+)	1994 08 11	809	0.2+	1.2-	1999 01 23	046	0.2-	0.5-
1991 10 07	691	1.4-	1.5+	1999 01 20	046	0.1+	0.1+	1999 01 23	046	0.1-	0.6-
1991 10 07	691	1.5-	1.2+	1999 01 20	046	0.7+	0.1+	1999 01 23	046	0.1-	0.8-
1991 10 07	691	1.7-	1.3+	1999 01 20	046	0.0	1.4-	1999 02 06	046	0.3+	0.5+
1991 10 08	033	0.7+	0.3+	1999 01 20	046	0.3-	0.6-	1999 02 06	046	0.7+	0.2+
1991 10 08	033	1.3+	0.6-	1999 01 20	046	0.3-	0.5-	1999 02 06	046	0.4+	0.1+
1991 10 09	033	1.0+	0.2+	1999 01 20	046	0.4-	0.4-	1999 02 06	046	0.3+	0.3-
1994 08 10	809	1.1+	1.7-	1999 01 20	046	0.4-	0.5-				

1991 VM₁₂ = 1999 CL₂₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17485150	ω	272.25372	+0.93269398	+0.35974627		
<i>a</i>	3.1673044	Ω	66.66254	-0.31874513	+0.85561702		
<i>e</i>	0.1959145	<i>i</i>	1.60885	-0.16877050	+0.37215876		
<i>P</i>	5.64	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 11 08	691	0.4+	0.3-	1991 12 05	399	1.9+	0.1-	1999 02 10	704	0.7+	0.2+
1991 11 08	691	0.3+	0.2-	1991 12 05	399	0.6-	0.6+	1999 02 10	704	1.8+	0.1-
1991 11 08	691	0.6-	0.3-	1991 12 09	399	0.0	0.8-	1999 02 13	704	0.4+	1.1-
1991 11 12	691	0.1-	0.1-	1991 12 09	399	1.3-	0.8+	1999 02 13	704	0.5+	0.5-
1991 11 12	691	0.3-	0.4+	1999 02 10	704	0.7-	0.8+	1999 02 13	704	0.2-	0.8+
1991 11 12	691	0.4+	0.0	1999 02 10	704	0.0	0.5+	1999 02 13	704	2.5-	0.7-

1999 MAR. 2

M.P.C. 33933

1992 DL₁₁ = 1999 CJ₉₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	124.64157		(2000.0)		P		Q				
<i>n</i>	0.27774857	ω	233.55898		+0.98059429		−0.17342858				
<i>a</i>	2.3264916	Ω	136.21869		+0.19342001		+0.93192362				
<i>e</i>	0.1344352	<i>i</i>	7.59243		−0.03199269		+0.31849788				
<i>P</i>	3.55	<i>H</i>	14.9		<i>G</i>	0.15	<i>U</i>	6			
Residuals in seconds of arc											
1992 02 29	809	0.3−	0.0	1999 02 10	704	0.7+	0.9−	1999 02 13	704	0.3+	0.4−
1992 03 03	809	0.7−	0.4+	1999 02 10	704	0.3−	0.6+	1999 02 13	704	0.4+	1.2+
1992 03 09	809	0.9+	0.5−	1999 02 12	699	0.2−	1.4+	1999 02 13	704	0.2−	0.4−
1999 02 10	704	0.2−	1.0−	1999 02 12	699	1.1−	0.7+	1999 02 13	704	0.2−	1.0+
1999 02 10	704	0.1+	0.1−	1999 02 12	699	0.2+	0.5−	1999 02 13	704	0.4+	1.6−

1992 EN₄ = 1998 YD₂₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	359.53843		(2000.0)		P		Q				
<i>n</i>	0.26858774	ω	337.98105		−0.20735283		−0.97709538				
<i>a</i>	2.3790958	Ω	123.95589		+0.90592506		−0.21024848				
<i>e</i>	0.1257353	<i>i</i>	3.30695		+0.36919452		−0.03286650				
<i>P</i>	3.67	<i>H</i>	16.2	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1992 02 27	675	1.0+	0.5−	1992 03 04	809	0.6+	0.5−	1998 12 16	704	0.8−	0.5+
1992 02 27	675	1.3−	0.4+	1992 03 06	809	0.2−	0.2−	1998 12 22	704	0.2+	0.4+
1992 02 28	675	0.1+	1.6+	1998 12 16	704	1.0+	0.6+	1998 12 22	704	0.2+	0.4−
1992 02 28	675	0.4+	0.6−	1998 12 16	704	0.6+	0.1+	1998 12 22	704	0.5−	0.1+
1992 03 01	809	0.6−	0.2−	1998 12 16	704	1.0−	0.7−	1998 12 22	704	0.3+	0.6−

1992 EE₅ = 1999 CA₂₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	57.12959		(2000.0)		P		Q				
<i>n</i>	0.27706346	ω	78.72529		+0.34877284		−0.93701966				
<i>a</i>	2.3303253	Ω	350.79628		+0.80763725		+0.31064585				
<i>e</i>	0.0634569	<i>i</i>	6.73318		+0.47547827		+0.15966628				
<i>P</i>	3.56	<i>H</i>	15.8		<i>G</i>	0.15	<i>U</i>	7			
Residuals in seconds of arc											
1992 03 01	809	0.8−	0.1+	1999 02 10	704	0.3−	1.1+	1999 02 13	704	0.3−	1.3−
1992 03 04	809	0.8+	0.2−	1999 02 10	704	0.5+	0.7−	1999 02 13	704	(2.3−	1.1+)
1992 03 06	809	0.1−	0.1+	1999 02 12	699	0.2+	0.8+	1999 02 13	704	0.1+	0.1+
1999 02 10	704	0.2−	0.4+	1999 02 12	699	0.8+	0.4+	1999 02 13	704	0.0	0.1−
1999 02 10	704	1.2−	1.4−	1999 02 12	699	0.3+	0.7+				

1992 EO₅ = 1999 CR₅₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	203.97828		(2000.0)		P		Q				
<i>n</i>	0.28295838	ω	187.49458		+0.68154368		+0.72338732				
<i>a</i>	2.2978465	Ω	125.54683		−0.66415011		+0.67486456				
<i>e</i>	0.1461981	<i>i</i>	7.80502		−0.30725046		+0.14583765				
<i>P</i>	3.48	<i>H</i>	15.0		<i>G</i>	0.15	<i>U</i>	6			
Residuals in seconds of arc											
1992 03 01	809	0.3+	0.7−	1999 02 10	704	0.4−	0.6+	1999 02 13	704	1.3+	0.7+
1992 03 04	809	0.4+	0.0	1999 02 10	704	0.3−	0.3+	1999 02 18	566	0.9−	0.2−
1992 03 06	809	0.6−	1.0+	1999 02 13	704	(2.5+	5.1−)	1999 02 18	566	0.7−	0.4+
1999 02 10	704	0.1+	0.8−	1999 02 13	704	(0.7−	3.2−)	1999 02 18	566	0.9−	0.3−
1999 02 10	704	1.3+	0.3+	1999 02 13	704	0.4+	1.3−				

1992 EU₆ = 1996 MD₁ = 1999 CP₃₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	271.67899		(2000.0)		P		Q				
n	0.27752526	ω	110.81010		−0.53617043		+0.83807552				
a	2.3277395	Ω	126.36420		−0.81350726		−0.48119095				
e	0.0737374	i	7.18740		−0.22522702		−0.25706942				
P	3.55	H	15.4	G	0.15		U	4			
Residuals in seconds of arc											
1992 03 01	809	0.7+	0.3+	1996 06 23	691	0.2−	0.5+	1999 02 10	704	0.4+	0.7+
1992 03 04	809	0.5+	0.1+	1996 06 23	691	0.1−	0.0	1999 02 13	704	0.2−	0.2+
1992 03 09	809	1.2−	0.3−	1996 06 23	691	0.0	0.1+	1999 02 13	704	0.7−	0.1+
1996 06 16	691	0.1+	0.1+	1999 02 10	704	0.7+	0.5+	1999 02 13	704	0.4−	1.0−
1996 06 16	691	0.0	0.3−	1999 02 10	704	0.1−	1.5−	1999 02 13	704	0.3−	0.7+
1996 06 16	691	0.3+	0.2−	1999 02 10	704	0.6+	0.1+				

1992 EO₇ = 1999 CD₉₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	350.80773		(2000.0)			P		Q			
n	0.27779997	ω	88.05474			−0.84111954		−0.53338137			
a	2.3262047	Ω	59.70034			+0.44577624		−0.77746901			
e	0.0999721	i	5.95444			+0.30627026		−0.33323602			
P	3.55	H	15.4		G	0.15		U	6		
Residuals in seconds of arc											
1992 03 01	809	0.3−	0.0	1999 02 10	704	1.5+	0.2+	1999 02 13	704	0.6−	0.9+
1992 03 04	809	0.3+	0.3−	1999 02 10	704	0.1+	0.7−	1999 02 13	704	1.3+	0.1−
1992 03 09	809	0.1−	0.3+	1999 02 10	704	2.6−	0.6+	1999 02 13	704	0.3−	0.1+
1999 02 10	704	0.4+	0.1−	1999 02 13	704	0.1+	0.7−				
1999 02 10	704	0.4+	0.1−	1999 02 13	704	0.2−	0.1−				

1992 EC₉ = 1999 CT₂₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	76.54228		(2000.0)			P		Q			
<i>n</i>	0.27551482	ω	284.66074			+0.70171334		−0.70335322			
<i>a</i>	2.3390495	Ω	120.18892			+0.69373709		+0.63824475			
<i>e</i>	0.1109488	<i>i</i>	7.54831			+0.16225672		+0.31295030			
<i>P</i>	3.58	<i>H</i>	15.3		<i>G</i>	0.15		<i>U</i>	6		
Residuals in seconds of arc											
1992 03 02	809	0.1−	0.5+	1999 02 10	704	0.2−	0.3+	1999 02 13	704	0.5+	0.8+
1992 03 05	809	0.2−	0.1−	1999 02 10	704	0.7−	0.8+	1999 02 19	566	0.6−	0.3+
1992 03 07	809	0.2+	0.4−	1999 02 13	704	1.1+	0.8−	1999 02 19	566	0.1−	0.2+
1999 02 10	704	0.2+	0.2+	1999 02 13	704	0.6+	0.3−	1999 02 19	566	0.4−	0.7+
1999 02 10	704	0.5−	0.5−	1999 02 13	704	0.7+	1.3−				
1999 02 10	704	0.0	0.5+	1999 02 13	704	0.7−	0.9−				

1992 ED₉ = 1996 LZ₄ = 1999 CZ₃₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	87.86926		(2000.0)		P		Q				
n	0.27800753	ω	316.85311		+0.67942189		−0.72752806				
a	2.3250467	Ω	90.10470		+0.69647163		+0.59855263				
e	0.0419343	i	5.47063		+0.23089642		+0.33531728				
P	3.55	H	15.0	G	0.15	U	6				
Residuals in seconds of arc											
1992 03 02	809	0.2+	1.3+	1996 06 10	809	1.3−	0.9−	1999 02 13	704	0.6−	0.7+
1992 03 05	809	0.6+	0.4+	1996 06 10	809	0.5−	0.9−	1999 02 13	704	2.1+	0.2+
1992 03 07	809	0.1−	0.0	1999 02 10	704	1.2−	0.7−	1999 02 13	704	0.1+	1.1+
1996 06 08	809	0.8+	0.2+	1999 02 10	704	0.8−	2.3−	1999 02 13	704	1.2+	2.1+
1996 06 08	809	1.0+	0.5+	1999 02 10	704	2.0−	0.6−	1999 02 13	704	0.6+	0.8+
1996 06 08	809	0.9+	1.7+	1999 02 10	704	0.7+	0.2+				
1996 06 10	809	1.2−	1.2−	1999 02 10	704	0.7−	3.2−				

M.P.C. 33934

1992 ET₉ = 1999 AZ₂₅

Id. T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	199.79802		(2000.0)	P		Q	
<i>n</i>	0.28139608	ω	158.85163	+0.68409327	+0.72777608		
<i>a</i>	2.3063437	Ω	154.23564	-0.68421743	+0.66336585		
<i>e</i>	0.1432659	<i>i</i>	6.41469	-0.25271111	+0.17403368		
<i>P</i>	3.50	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1992 02 25	675	1.0+	0.9-	1999 01 22	120	1.6+	1.3-	1999 02 10	704	0.3+	1.1-
1992 02 25	675	0.9+	1.2-	1999 01 22	120	0.7+	0.6+	1999 02 10	704	0.2+	1.1-
1992 02 27	675	1.0-	0.1-	1999 01 22	120	0.1-	1.2+	1999 02 10	704	0.6+	0.9-
1992 02 27	675	0.8-	1.5+	1999 01 23	120	0.5-	0.1+	1999 02 10	704	1.5-	0.5-
1992 02 28	675	0.4-	0.3+	1999 01 23	120	0.4-	0.6+	1999 02 12	699	0.3+	0.7+
1992 02 28	675	0.1-	0.8-	1999 01 23	120	1.0-	0.3-	1999 02 12	699	0.9-	0.5+
1992 03 02	809	0.3-	1.2+	1999 01 24	120	0.3-	0.1+	1999 02 12	699	0.4+	0.3-
1992 03 04	809	0.5-	0.7+	1999 01 24	120	0.6+	0.5-	1999 02 13	704	0.1-	0.0
1992 03 07	809	1.5+	0.0	1999 01 25	120	1.0+	0.2-	1999 02 13	704	1.6-	0.1-
1999 01 14	120	0.6+	0.3+	1999 01 25	120	0.3+	0.0	1999 02 13	704	0.6-	1.3+
1999 01 14	120	0.6-	0.5-	1999 02 05	120	0.9-	0.7+	1999 02 13	704	0.9+	0.4-
1999 01 14	120	0.2-	0.3+	1999 02 05	120	1.7+	1.8-	1999 02 13	704	0.1+	1.1+
1999 01 20	120	0.5-	0.7+	1999 02 06	120	(2.4+	1.7+)				
1999 01 21	120	0.2-	0.9+	1999 02 10	704	0.2-	0.6-				

1992 ER₁₈ = 1999 AR₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	241.51713		(2000.0)	P		Q	
<i>n</i>	0.25315485	ω	201.41364	-0.94530425	+0.32611652		
<i>a</i>	2.4748291	Ω	357.58728	-0.27029105	-0.79500809		
<i>e</i>	0.1267229	<i>i</i>	9.46144	-0.18259962	-0.51147840		
<i>P</i>	3.89	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 02 25	691	0.9-	0.2+	1992 03 04	809	1.9+	1.0-	1999 01 13	725	0.1-	1.0+
1992 02 25	691	0.9-	0.0	1999 01 10	725	0.7+	0.5+	1999 01 13	725	0.5+	0.3+
1992 02 25	691	1.0-	0.1+	1999 01 10	725	0.4+	0.3+				
1992 03 01	809	1.0+	0.8+	1999 01 13	725	1.5-	2.0-				

1992 ED₂₂ = 1999 CG₁₀₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	276.54787		(2000.0)	P		Q	
<i>n</i>	0.28179031	ω	126.94428	-0.37474283	+0.92356632		
<i>a</i>	2.3041921	Ω	120.85708	-0.87786185	-0.32529637		
<i>e</i>	0.1180408	<i>i</i>	5.42752	-0.29820526	-0.20299636		
<i>P</i>	3.50	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	7

Residuals in seconds of arc

1992 03 01	809	0.3-	0.3-	1999 02 10	704	0.9-	0.2-	1999 02 13	704	0.7-	1.1+
1992 03 04	809	0.1-	0.4-	1999 02 10	704	0.2+	1.7+	1999 02 13	704	0.2+	1.0-
1992 03 07	809	0.4+	0.6+	1999 02 13	704	0.6-	0.5+				
1999 02 10	704	0.8+	1.0-	1999 02 13	704	1.0+	1.0-				

1992 GP = 1955 HC₁ = 1999 CJ₃

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	269.42868		(2000.0)	P		Q	
<i>n</i>	0.26726354	ω	65.48064	-0.36023341	+0.93277574		
<i>a</i>	2.3869477	Ω	183.47989	-0.91359946	-0.35551473		
<i>e</i>	0.1151633	<i>i</i>	12.07820	-0.18859459	-0.05948697		
<i>P</i>	3.69	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	4

1999 MAR. 2

Residuals in seconds of arc

1955 04 21	675	0.2-	1.7-	1999 02 07	888	0.7+	0.1+	1999 02 12	704	0.5+	0.3-
1955 04 21	675	0.5-	2.0-	1999 02 07	888	1.0+	0.0	1999 02 12	704	0.7+	0.0
1992 04 03	400	0.6-	1.1+	1999 02 08	888	0.0	0.2+	1999 02 12	704	0.2+	0.0
1992 04 03	400	(0.8-	3.3-)	1999 02 08	888	0.1-	0.4+	1999 02 16	704	1.0-	0.1-
1992 04 07	400	1.5+	1.0+	1999 02 09	888	0.4-	0.0	1999 02 16	704	0.2-	0.3+
1992 04 07	400	0.6-	1.8+	1999 02 09	888	0.3-	0.0	1999 02 16	704	1.1-	0.1+
1992 04 27	400	1.4-	1.0+	1999 02 12	704	0.1-	0.3+	1999 02 16	704	0.3-	0.1+
1992 04 27	400	1.7+	1.6-	1999 02 12	704	0.7+	0.6+	1999 02 16	704	0.2-	0.9-

1992 MD = 1999 CF₅

Id. T. Urata

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	238.12113		(2000.0)	P		Q	
<i>n</i>	0.24326855	ω	146.51382	+0.16007176	+0.96177571		
<i>a</i>	2.5414334	Ω	131.61707	-0.95829314	+0.20539686		
<i>e</i>	0.2275305	<i>i</i>	17.28906	-0.23675155	-0.18110664		
<i>P</i>	4.05	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1992 06 29	675	0.2+	0.5-	1992 07 26	809	0.0	0.0	1999 02 12	385	0.6-	0.9+
1992 06 29	675	0.5+	0.2+	1992 07 30	809	0.2+	0.4-	1999 02 12	385	0.6-	0.3+
1992 06 30	675	0.0	0.1-	1992 07 30	809	0.4+	0.6+	1999 02 13	704	1.2-	0.3-
1992 06 30	675	0.7-	0.2+	1992 07 30	809	0.3+	0.3-	1999 02 13	704	0.2-	0.7-
1992 07 24	809	0.0	0.8+	1999 02 10	704	0.7+	0.2-	1999 02 13	704	0.2-	0.7-
1992 07 24	809	0.5-	0.3-	1999 02 10	704	0.7+	0.4-	1999 02 13	704	0.5-	0.1-
1992 07 24	809	1.0-	0.0	1999 02 10	704	0.5+	0.3+	1999 02 13	704	1.0+	1.1+
1992 07 26	809	0.6+	0.2+	1999 02 10	704	1.0+	0.3+	1999 02 13	385	0.2-	0.3-
1992 07 26	809	0.1-	0.4-	1999 02 10	704	(2.9-	0.2+)	1999 02 13	385	0.3-	0.0

1992 OV₁ = 1971 QT₂ = 1999 CU₇₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	193.02681		(2000.0)	P		Q	
<i>n</i>	0.23466111	ω	6.37830	+0.72483829	+0.66662096		
<i>a</i>	2.6032066	Ω	310.26283	-0.64171208	+0.56150789		
<i>e</i>	0.1594512	<i>i</i>	13.16949	-0.25062932	+0.49022994		
<i>P</i>	4.20	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1971 08 19	808	0.6+	1.0-	1992 07 29	033	1.0+	0.7+	1998 12 17	699	1.6-	0.5+
1992 07 24	809	0.7-	0.3-	1992 07 30	809	0.7+	0.3-	1998 12 17	699	0.5+	0.6+
1992 07 24	809	1.8-	1.1-	1992 07 30	809	0.5-	0.3+	1999 02 12	704	0.3-	0.1+
1992 07 24	809	(2.2-	1.3-)	1992 07 30	809	0.5-	0.1-	1999 02 12	704	0.6+	0.6+
1992 07 25	033	0.0	0.5+	1992 07 30	033	0.7+	0.4+	1999 02 12	704	0.4+	0.8+
1992 07 26	033	(0.7-	2.4+)	1992 08 04	809	0.6+	0.7+	1999 02 12	704	0.3+	0.1+
1992 07 26	809	0.2-	0.9-	1992 08 04	809	1.0+	0.7+	1999 02 12	704	0.4+	1.3-
1992 07 26	809	1.0-	0.5-	1992 08 04	809	1.2+	0.5+	1999 02 16	704	0.3-	0.1-
1992 07 26	809	0.9-	1.0-	1992 08 05	809	1.3-	0.6+	1999 02 16	704	0.6-	0.3-
1992 07 26	033	0.7+	0.4+	1992 08 05	809	1.0-	0.5+	1999 02 16	704	0.4-	0.0
1992 07 27	033	0.1+	0.4-	1992 08 05	809	0.2-	0.1+	1999 02 16	704	0.2+	0.1+
1992 07 28	033	1.5+	0.1+	1998 12 17	699	0.5+	0.6-	1999 02 16	704	0.2+	0.5-

1992 OT₉ = 1989 YO₆ = 1998 XS₈₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	99.87635		(2000.0)	P		Q	
<i>n</i>	0.21108884	ω	248.07595	+0.98051486	+0.14701310		
<i>a</i>	2.7935677	Ω	103.28064	-0.09024078	+0.92623744		
<i>e</i>	0.0527519	<i>i</i>	7.69381	-0.17449127	+0.34708984		
<i>P</i>	4.67	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1989 12 29	372	0.0	0.0	1992 08 01	809	1.5-	0.2+	1998 12 15	704	0.5+	0.6-
1989 12 29	372	0.1-	0.9-	1992 08 01	809	1.3-	0.7+	1998 12 15	704	0.1+	1.1-
1990 01 03	372	(0.6-	4.4+)	1992 08 01	809	0.9-	0.7+	1998 12 15	704	0.6+	0.7-
1990 01 03	372	(2.8+	2.5+)	1992 08 03	809	0.0	0.6+	1998 12 15	704	0.8+	0.7-

1999 MAR. 2

1992 07 28	809	0.9+	0.7+	1992 08 03	809	0.1+	0.5+	1998 12 22	704	0.1+	1.1+
1992 07 28	809	0.9+	0.4+	1992 08 03	809	0.4+	0.3+	1998 12 22	704	0.5-	0.5+
1992 07 28	809	1.0+	0.2+	1992 08 04	809	0.3-	1.7-	1998 12 22	704	1.4-	1.8+
1992 07 30	809	0.1+	0.2+	1992 08 04	809	0.3-	1.4-	1998 12 22	704	1.0-	0.5+
1992 07 30	809	0.4+	0.0	1992 08 04	809	0.1-	1.7-				
1992 07 30	809	0.7+	0.0	1998 12 15	704	0.6+	0.3-				

1992 SC₂ = 1999 CA₅

Id. T. Urata

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	85.30122		(2000.0)	P	Q
<i>n</i>	0.20336039	ω	257.91890	+0.84205715	-0.53833257
<i>a</i>	2.8639041	Ω	134.63992	+0.51148766	+0.77708509
<i>e</i>	0.0958680	<i>i</i>	2.71721	+0.17123125	+0.32609326
<i>P</i>	4.85	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1992 09 21	033	0.6+	0.8-	1992 09 28	033	0.8-	0.4+	1999 02 12	385	0.9-	0.2+
1992 09 22	033	0.2-	0.3+	1999 01 14	699	1.0-	0.2-	1999 02 12	385	0.5+	0.3-
1992 09 23	033	0.0	0.1-	1999 01 14	699	0.2+	0.7+	1999 02 13	385	0.4+	0.0
1992 09 24	033	0.1-	0.2-	1999 01 14	699	0.1-	0.1-	1999 02 13	385	0.2+	0.5+
1992 09 26	033	0.3+	0.4+	1999 02 11	699	0.3-	0.3-				
1992 09 27	033	0.2+	0.1-	1999 02 11	699	1.0+	0.4-				

1992 ST₁₃ = 1995 GD₂ = 1998 XS₈₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	41.65604		(2000.0)	P	Q
<i>n</i>	0.19014743	ω	246.43088	+0.68623078	-0.72642536
<i>a</i>	2.9950845	Ω	160.08831	+0.70092840	+0.64668555
<i>e</i>	0.1072072	<i>i</i>	6.29281	+0.19438800	+0.23260266
<i>P</i>	5.18	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1992 09 26	033	0.0	0.3-	1995 04 02	691	0.0	0.3+	1998 12 15	704	0.9+	0.7+
1992 09 26	033	0.1-	0.6-	1995 04 08	691	0.4-	0.2-	1998 12 15	704	0.4-	0.3+
1992 09 27	033	0.1-	0.1+	1995 04 08	691	0.5+	0.5+	1998 12 22	704	0.2-	0.8-
1992 09 28	033	0.2+	0.7+	1995 04 08	691	0.2+	0.4-	1998 12 22	704	0.5+	0.9-
1995 04 02	691	0.2-	0.1+	1998 12 15	704	0.6+	0.9+	1998 12 22	704	0.7-	1.3-
1995 04 02	691	0.1-	0.4-	1998 12 15	704	0.0	1.2+	1998 12 22	704	0.6-	0.0

1992 VL = 1999 CY₂₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	84.60410		(2000.0)	P	Q
<i>n</i>	0.18843121	ω	261.90470	+0.96273379	-0.22600496
<i>a</i>	3.0132430	Ω	111.05876	+0.26434224	+0.90242283
<i>e</i>	0.3031551	<i>i</i>	9.15903	-0.05715616	+0.36681711
<i>P</i>	5.23	<i>H</i>	13.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1992 10 26	675	0.7+	0.6+	1992 11 27	400	1.2+	0.1+	1999 02 13	704	0.4-	1.0+
1992 10 26	675	1.1-	0.4+	1992 11 27	400	1.2-	0.7-	1999 02 13	704	0.4-	0.4-
1992 11 02	400	0.9+	1.2-	1999 02 10	704	0.9-	0.7-	1999 02 13	704	0.6+	0.5-
1992 11 02	400	0.3-	0.6-	1999 02 10	704	1.3+	0.5+	1999 02 13	704	1.0+	0.1+
1992 11 17	400	0.0	1.9+	1999 02 10	704	0.2+	0.0	1999 02 13	704	0.3+	0.2-
1992 11 17	400	0.4-	0.4-	1999 02 10	704	1.7-	0.1+				

1992 WZ₁ = 1999 CB₈₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	95.57974		(2000.0)	P	Q
<i>n</i>	0.18635923	ω	335.43676	+0.97313402	-0.20214701
<i>a</i>	3.0355364	Ω	36.77082	+0.22967184	+0.81870131
<i>e</i>	0.1009401	<i>i</i>	10.60937	+0.01615650	+0.53746140
<i>P</i>	5.29	<i>H</i>	12.6	<i>G</i> 0.15	<i>U</i> 4

M.P.C. 33935

Residuals in seconds of arc

1992 10 25	675	1.1-	0.0	1992 11 21	399	0.5-	0.7+	1999 02 12	699	0.2+	0.3+
1992 10 25	675	0.5+	1.1+	1998 12 17	699	0.2+	0.1+	1999 02 12	699	0.1+	0.1+
1992 10 28	399	0.8-	1.0-	1998 12 17	699	0.7+	1.0-	1999 02 12	699	(3.0-	0.4-)
1992 10 28	399	(2.6-	1.1-)	1998 12 17	699	0.8+	1.1-	1999 02 13	704	1.9-	0.4+
1992 11 02	399	0.4-	0.6+	1999 02 10	704	0.6-	0.2+	1999 02 13	704	0.2-	1.0-
1992 11 02	399	1.0+	0.5-	1999 02 10	704	0.4+	1.2+	1999 02 13	704	1.4-	0.5+
1992 11 18	399	0.7+	0.3-	1999 02 10	704	0.1-	0.2+	1999 02 13	704	1.4+	0.9-
1992 11 18	399	1.4+	0.5-	1999 02 10	704	0.1+	0.8+				
1992 11 21	399	1.1-	0.1+	1999 02 10	704	(1.1-	3.3+)				

1992 WR₅ = 1976 YS₆ = 1999 BZ₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	96.72212		(2000.0)	P	Q
<i>n</i>	0.18424537	ω	107.53307	+0.97284633	-0.16341770
<i>a</i>	3.0587102	Ω	262.11125	+0.09259965	+0.92382090
<i>e</i>	0.1412820	<i>i</i>	9.52456	+0.21212103	+0.34619300
<i>P</i>	5.35	<i>H</i>	17.4	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1976 12 20	095	0.0	0.1-	1992 12 15	399	0.4+	0.1-	1999 01 18	704	0.4+	0.3+
1992 11 27	399	1.6+	0.0	1992 12 15	399	0.1-	0.3+	1999 01 20	704	0.0	0.7-
1992 11 27	399	0.9-	0.5-	1999 01 18	704	0.5+	0.3-	1999 01 20	704	0.1+	0.1+
1992 11 29	399	0.7-	0.2+	1999 01 18	704	0.6-	1.7-	1999 01 20	704	0.8-	0.9+
1992 11 29	399	0.4-	0.2+	1999 01 18	704	0.8+	1.1+	1999 01 20	704	0.4-	0.4+

1993 FQ₁₆ = 1999 CA₉₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	170.73074		(2000.0)	P	Q
<i>n</i>	0.31033243	ω	226.97162	+0.81683881	+0.57266660
<i>a</i>	2.1606509	Ω	97.97554	-0.50676787	+0.76990024
<i>e</i>	0.0566357	<i>i</i>	4.02303	-0.27560966	+0.28161425
<i>P</i>	3.18	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1993 03 17	809	0.1-	0.4+	1999 02 10	704	0.7-	0.1-	1999 02 13	704	0.6+	0.8-
1993 03 18	809	0.1-	0.2-	1999 02 10	704	1.1-	0.1+	1999 02 13	704	0.6+	0.3-
1993 03 23	809	0.1+	0.3-	1999 02 10	704	0.5-	0.8+	1999 02 13	704	0.4+	0.7-
1999 02 10	704	0.0	0.0	1999 02 13	704	0.7+	0.3+	1999 02 13	704	0.1+	0.8+

1993 FL₃₄ = 1999 CE₅₃

Id. G. V. Williams, E. Bowell (1989 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	273.08477		(2000.0)	P	Q
<i>n</i>	0.15324321	ω	197.83933	-0.46858968	+0.87953032
<i>a</i>	3.4584531	Ω	44.31559	-0.79539717	-0.37927933
<i>e</i>	0.0331395	<i>i</i>	6.80391	-0.38440480	-0.28735625
<i>P</i>	6.43	<i>H</i>	12.2	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1989 09 02	675	0.6+	0.4-	1999 02 08	678	0.3+	0.4+	1999 02 10	704	0.0	0.1+
1989 09 02	675	0.5-	0.1+	1999 02 08	678	1.0-	0.2+	1999 02 10	704	0.0	0.6+
1993 03 17	809	0.5+	0.1+	1999 02 08	678	0.5-	0.0	1999 02 10	704	(2.4-	1.4+)
1993 03 18	809	0.3+	0.2+	1999 02 08	678	0.1+	0.1+	1999 02 13	704	0.6-	0.5-
1993 03 19	691	0.2-	0.1+	1999 02 09	678	0.6-	0.3-	1999 02 13	704	1.6+	0.5+
1993 03 19	691	0.3-	0.1-	1999 02 09	678	0.7-	0.0	1999 02 13	704	0.8+	1.2+
1993 03 19	691	0.3-	0.2+	1999 02 09	678	0.9-	0.4-	1999 02 13	704	0.3+	0.2-
1993 03 23	809	0.8+	0.1+	1999 02 10	704	0.4+	0.8-	1999 02 13	704	0.6+	0.3-
1993 04 16	413	0.8-	0.7-	1999 02 10	704	0.1+	0.7-				

1993 JK = 1964 TM₁ = 1999 BG₂₅

Id. A. Doppler

M.P.C. 33936

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	245.37352		(2000.0)	P		Q	
<i>n</i>	0.29797859	ω	49.15402	-0.33963653	+0.94013661		
<i>a</i>	2.2199644	Ω	201.04203	-0.88478948	-0.32949423		
<i>e</i>	0.1396352	<i>i</i>	4.49027	-0.31905267	-0.08704426		
<i>P</i>	3.31	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1964 10 08	330	0.1+	0.2-	1993 05 21	691	0.1-	0.1-	1999 01 18	704	0.0	0.1-
1993 05 14	399	0.3+	1.5+	1993 05 21	691	0.1-	0.2-	1999 01 18	704	0.3+	0.1-
1993 05 14	399	0.4+	0.2-	1993 05 21	691	0.2-	0.3+	1999 01 18	704	0.3-	0.1-
1993 05 16	399	0.1-	0.7-	1993 05 21	691	0.3-	0.3+	1999 01 18	704	0.9+	0.1+
1993 05 16	399	0.4-	0.8-	1993 05 27	361	0.0	0.1+	1999 01 20	704	0.4+	0.3-
1993 05 21	691	0.1+	0.2+	1993 05 27	361	(0.9-	3.2-)	1999 01 20	704	0.3-	0.5+
1993 05 21	691	0.2+	0.2-	1998 12 16	699	0.6+	0.0	1999 01 20	704	0.0	0.1-
1993 05 21	691	0.2+	0.1-	1998 12 16	699	0.3+	0.4+	1999 01 20	704	1.7-	0.1-
1993 05 21	691	0.0	0.2-	1998 12 16	699	0.0	0.3-				

1993 NG₁ = 1999 AL₁₃

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	14.07522		(2000.0)	P		Q	
<i>n</i>	0.27319671	ω	171.43110	-0.34154708	-0.93538657		
<i>a</i>	2.3522623	Ω	298.49655	+0.85601118	-0.26933525		
<i>e</i>	0.0789070	<i>i</i>	5.98517	+0.38805985	-0.22915168		
<i>P</i>	3.61	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 07 12	809	(3.9+	0.8+)	1999 01 07	691	1.0-	0.1-	1999 02 11	699	0.7+	0.1-
1993 07 12	809	0.2-	0.3+	1999 01 07	691	0.9-	0.2-	1999 02 12	704	(2.4+	0.6+)
1993 07 12	809	0.9+	0.0	1999 01 14	699	0.4+	0.3+	1999 02 12	704	0.6+	0.6+
1993 07 19	809	0.0	0.9+	1999 01 14	691	0.7-	0.6-	1999 02 12	704	0.1-	0.2+
1993 07 19	809	1.2+	0.4-	1999 01 14	699	1.1+	0.8+	1999 02 12	704	1.2+	0.1+
1993 07 19	809	0.2-	0.3+	1999 01 14	691	0.4-	0.2-	1999 02 16	704	1.3-	0.5+
1993 07 23	809	0.5-	0.5-	1999 01 14	699	1.1+	0.7-	1999 02 16	704	0.8-	0.4-
1993 07 23	809	1.3-	0.9-	1999 01 14	691	0.6-	0.2-	1999 02 16	704	0.7+	0.4+
1993 07 23	809	0.4+	0.6-	1999 02 11	699	1.5+	0.6-	1999 02 16	704	1.4-	0.3+
1999 01 07	691	0.9-	0.0	1999 02 11	699	0.3+	0.7-				

1993 OV₄ = 1999 AV₁₁

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	250.75984		(2000.0)	P		Q	
<i>n</i>	0.27627996	ω	307.70225	-0.54150360	+0.83934350		
<i>a</i>	2.3347289	Ω	289.44655	-0.75452664	-0.51024441		
<i>e</i>	0.0627252	<i>i</i>	2.90026	-0.37076058	-0.18749169		
<i>P</i>	3.57	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 07 13	809	1.6+	0.2-	1993 07 24	809	0.0	0.4+	1999 01 14	691	0.4-	0.4+
1993 07 13	809	1.2+	0.1-	1999 01 07	691	0.6+	0.5+	1999 02 18	566	0.6+	0.0
1993 07 13	809	0.0	0.4+	1999 01 07	691	0.6+	0.3+	1999 02 18	566	0.0	0.3+
1993 07 20	809	0.8-	0.6+	1999 01 07	691	0.4+	0.3+	1999 02 18	566	0.1+	0.2-
1993 07 20	809	1.2-	0.2+	1999 01 14	691	0.5-	0.4+				
1993 07 20	809	1.3-	0.8+	1999 01 14	691	0.6-	0.2+				

1993 OE₁₃ = 1999 BU₁₂

Id. A. Doppler

1999 MAR. 2

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	217.10255		(2000.0)	P		Q	
<i>n</i>	0.28268703	ω	161.77559	+0.23687100	+0.96807432		
<i>a</i>	2.2993167	Ω	121.85319	-0.90295068	+0.25051350		
<i>e</i>	0.1012713	<i>i</i>	5.53997	-0.35856965	+0.00866608		
<i>P</i>	3.49	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 07 12	809	(4.0+	1.3-)	1993 07 23	809	0.9+	1.9+	1999 02 10	704	0.6-	0.4+
1993 07 12	809	(4.6+	0.5-)	1993 07 23	809	(1.6+	2.3+)	1999 02 10	704	0.9-	1.1+
1993 07 12	809	(5.2+	0.6-)	1993 07 23	809	(2.0+	2.4+)	1999 02 10	704	0.4-	0.9+
1993 07 12	809	(1.0+	2.4+)	1993 07 26	809	0.3-	1.5-	1999 02 13	704	0.7+	0.9+
1993 07 12	809	0.5+	1.9+	1993 07 26	809	1.5-	0.6-	1999 02 13	704	0.4+	0.1-
1993 07 12	809	(0.9+	2.5+)	1993 07 26	809	1.3-	0.9-	1999 02 13	704	0.6+	0.8-
1993 07 19	809	0.4+	1.4-	1999 01 23	120	1.3+	0.0	1999 02 13	704	0.5+	0.6-
1993 07 19	809	0.2+	1.4-	1999 01 23	120	0.5-	0.3+	1999 02 13	704	0.2+	0.4-
1993 07 19	809	0.7+	1.7-	1999 01 24	120	0.4-	0.2-	1999 02 18	120	0.8+	0.5-
1993 07 19	809	0.1-	1.0+	1999 01 25	120	0.2-	0.7-	1999 02 18	120	0.1+	0.0
1993 07 19	809	0.2+	0.8+	1999 01 25	120	0.2+	0.1-	1999 02 19	566	0.5-	0.2-
1993 07 19	809	0.1+	1.4+	1999 01 27	120	0.3+	0.4-	1999 02 19	566	0.0	0.2-
1993 07 23	809	(4.3+	1.7-)	1999 01 27	120	0.6-	0.2-	1999 02 19	566	0.0	0.1-
1993 07 23	809	(4.0+	0.6-)	1999 02 10	704	0.1-	0.5+				
1993 07 23	809	(4.3+	1.0-)	1999 02 10	704	0.9-	0.1+				

1993 PS₃ = 1999 CD₁₀₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	72.56085		(2000.0)	P		Q	
<i>n</i>	0.24316044	ω	166.71259	+0.84127357	-0.53834179		
<i>a</i>	2.5421866	Ω	225.97104	+0.48949754	+0.79737637		
<i>e</i>	0.1952541	<i>i</i>	3.94503	+0.22945791	+0.27272520		
<i>P</i>	4.05	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	7

Residuals in seconds of arc

1993 08 14	010	0.3+	1.3+	1993 08 18	010	0.8-	0.4-	1999 02 13	704	0.5+	0.6+
1993 08 14	010	0.5+	0.4-	1999 02 12	704	0.5+	0.3-	1999 02 13	704	2.2-	1.0-
1993 08 14	010	0.4-	0.5-	1999 02 12	704	0.4-	0.1-	1999 02 13	704	0.6-	0.5-
1993 08 15	010	0.5+	0.2+	1999 02 12	704	0.8+	0.3+	1999 02 13	704	1.2+	0.6+
1993 08 18	010	0.3+	0.3+	1999 02 12	704	0.1+	0.5+				
1993 08 18	010	0.4-	0.4-	1999 02 12	704	0.1+	0.1-				

1993 QY = 1999 CC₁₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	77.58334		(2000.0)	P		Q	
<i>n</i>	0.23536993	ω	235.75246	+0.80754528	-0.55811418		
<i>a</i>	2.5979776	Ω	156.32056	+0.56001455	+0.82703366		
<i>e</i>	0.3243047	<i>i</i>	28.35354	-0.18507925	+0.06725991		
<i>P</i>	4.19	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 08 13	675	0.2-	0.7+	1993 08 20	010	0.8+	0.4+	1999 02 12	704	0.1+	0.2-
1993 08 13	675	0.0	1.2+	1993 08 22	675	0.2+	0.5-	1999 02 12	699	0.7+	0.1+
1993 08 15	010	0.9+	1.9+	1993 08 22	675	0.0	1.4-	1999 02 12	704	0.1+	0.1-
1993 08 15	010	0.3-	0.7-	1993 09 12	801	0.4-	0.5-	1999 02 12	699	0.5+	0.2+
1993 08 16	010	1.0-	1.7-	1993 09 12	801	0.2-	0.0	1999 02 12	704	0.0	0.9+
1993 08 16	010	0.4-	1.8-	1993 09 12	675	0.0	0.0	1999 02 12	704	0.1+	0.2-
1993 08 16	010	0.3-	1.7-	1993 09 12	675	0.3-	0.3+	1999 02 12	704	0.5-	0.2+
1993 08 17	010	0.6-	0.3-	1993 09 14	801	1.1-	0.1-	1999 02 16	704	0.6-	1.1-
1993 08 17	010	0.3+	0.3+	1993 09 14	801	0.7-	1.3+	1999 02 16	704	0.1-	1.2-
1993 08 17	010	0.5+	0.5+	1993 09 15	675	(0.1-	3.3-)	1999 02 16	704	1.0+	0.5-
1993 08 19	675	0.2-	0.9-	1993 09 15	675	(0.8-	2.6-)	1999 02 16	704	1.3-	0.1+
1993 08 19	675	0.5-	1.1+	1993 10 14	801	1.3+	0.2-	1999 02 16	704	0.5-	0.3-
1993 08 20	010	0.3+	0.0	1993 10 14	801	1.4+	0.1+				
1993 08 20	010	0.7+	0.2+	1999 02 12	699	0.9+	0.3-				

1999 MAR. 2

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1993 QS₄ = 1999 CD₂₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	88.03344		(2000.0)	Williams		<i>P</i>	<i>Q</i>
<i>n</i>	0.23756893	ω	27.88876	+0.96317755	−0.26403148		
<i>a</i>	2.5819210	Ω	347.11357	+0.18417170	+0.78544656		
<i>e</i>	0.1968675	<i>i</i>	13.15552	+0.19588207	+0.55978664		
<i>P</i>	4.15	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 07 26	675	0.6−	0.7+	1993 08 24	809	(2.3−	0.3−)	1999 02 10	704	0.7−	0.8+
1993 07 26	675	0.2−	0.0	1993 08 24	809	1.8−	0.0	1999 02 10	704	0.3+	0.9−
1993 08 18	010	0.2+	0.0	1993 09 19	010	0.8−	1.2+	1999 02 10	704	(1.4−	2.4−)
1993 08 19	010	1.9+	0.1+	1993 09 19	010	1.3−	1.1+	1999 02 10	704	0.1−	0.1−
1993 08 19	010	1.9+	0.4−	1993 09 20	010	0.3−	1.7−	1999 02 10	704	0.8−	1.4−
1993 08 19	010	1.0+	0.7−	1993 09 20	010	0.4+	0.4−	1999 02 13	704	0.2−	1.0−
1993 08 20	809	(3.4+	1.5+)	1993 09 20	010	(2.8−	1.5−)	1999 02 13	704	1.2+	0.1+
1993 08 20	809	(3.3+	1.2+)	1999 01 22	699	0.4−	0.6+	1999 02 13	704	0.1+	0.9+
1993 08 20	809	(3.2+	1.6+)	1999 01 22	699	0.8−	0.5+	1999 02 13	704	1.4+	0.7+
1993 08 24	809	(2.2−	0.5+)	1999 01 22	699	0.1−	0.8+	1999 02 13	704	0.0	1.5−

1993 RS₃ = 1999 CK₇₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	78.40919		(2000.0)	Williams		<i>P</i>	<i>Q</i>
<i>n</i>	0.24344165	ω	186.57401	+0.79714640	−0.59168693		
<i>a</i>	2.5402286	Ω	210.72323	+0.56413119	+0.80086369		
<i>e</i>	0.2554031	<i>i</i>	13.61558	+0.21520598	+0.09232515		
<i>P</i>	4.05	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 08 21	675	2.1+	2.1−	1993 09 14	675	1.8−	0.7−	1999 02 12	704	1.8−	1.6+
1993 08 21	675	1.2−	2.4+	1993 09 14	675	1.8−	0.1−	1999 02 16	704	0.6+	0.6−
1993 08 23	675	1.2−	0.6+	1999 02 12	704	0.1−	0.4−	1999 02 16	704	0.5+	0.6−
1993 08 23	675	0.2+	0.8−	1999 02 12	704	0.1+	0.3−	1999 02 16	704	0.1+	0.1−
1993 09 12	675	1.3+	0.5−	1999 02 12	704	0.6−	0.6−	1999 02 16	704	0.8+	0.3+
1993 09 12	675	2.3+	1.2+	1999 02 12	704	0.5+	0.6+	1999 02 16	704	0.1−	0.1+

1993 RT₇ = 1997 RJ₁₃ = 1999 AO₃₁

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Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	55.57920		(2000.0)	Williams		<i>P</i>	<i>Q</i>
<i>n</i>	0.23854157	ω	94.79328	+0.38298146	−0.92345368		
<i>a</i>	2.5748978	Ω	332.65064	+0.82583338	+0.35373469		
<i>e</i>	0.1335559	<i>i</i>	2.94863	+0.41391355	+0.14867774		
<i>P</i>	4.13	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1993 09 15	809	1.2−	0.8−	1997 09 06	910	0.2+	0.5−	1999 02 10	704	1.2+	0.8−
1993 09 15	809	1.2−	0.2−	1997 09 06	910	0.3+	0.5−	1999 02 10	704	0.1+	0.7−
1993 09 15	809	(3.0−	0.4−)	1997 09 06	910	0.2+	0.6−	1999 02 10	704	0.6+	1.2−
1993 09 17	809	1.1+	0.3+	1997 09 06	910	0.3+	0.6−	1999 02 12	699	0.1−	0.6+
1993 09 17	809	0.6+	0.3+	1997 09 06	910	0.3+	0.6−	1999 02 12	699	0.9+	0.1−
1993 09 17	809	0.8−	1.2+	1999 01 14	691	0.5−	0.3−	1999 02 12	699	1.6+	0.0
1993 09 22	809	0.9−	0.7+	1999 01 14	691	0.4−	0.4−	1999 02 13	704	0.5+	0.2+
1993 09 22	809	0.3+	0.1+	1999 01 14	691	0.3−	0.1−	1999 02 13	704	0.3−	0.4+
1993 09 22	809	0.7+	1.1+	1999 01 19	691	1.7−	0.4−	1999 02 13	704	0.3−	1.0+
1993 09 24	809	(3.1+	5.9+)	1999 01 19	691	1.5−	0.4−	1999 02 13	704	0.5−	0.6+
1993 09 24	809	(2.9+	4.7+)	1999 01 19	691	1.5−	0.2−	1999 02 13	704	0.4−	1.3+
1993 09 24	809	(2.5+	3.8+)	1999 02 10	704	0.6+	0.3+				
1997 09 06	910	0.3+	0.6−	1999 02 10	704	1.2+	0.7−				

1993 RM₁₅ = 1999 CF₂₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	90.72110		(2000.0)	Williams		<i>P</i>	<i>Q</i>
<i>n</i>	0.23821352	ω	20.02345	+0.94271366	−0.33360061		
<i>a</i>	2.5772613	Ω	359.45920	+0.28501362	+0.80736368		
<i>e</i>	0.2012596	<i>i</i>	7.66913	+0.17337298	+0.48669757		
<i>P</i>	4.14	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1993 09 15	809	2.0+	1.7−	1993 09 22	809	1.6−	0.7+	1999 02 10	704	0.8−	1.1+
1993 09 15	809	0.2+	1.7−	1993 09 22	809	0.5+	0.8+	1999 02 10	704	1.5−	1.1+
1993 09 15	809	0.2−	1.8−	1993 09 22	809	0.8+	0.2−	1999 02 10	704	0.1+	0.4+
1993 09 19	675	0.2+	1.1+	1993 09 23	675	0.6+	0.9+	1999 02 10	704	1.7−	2.4+
1993 09 19	675	0.0	0.7+	1993 09 23	675	0.4+	1.2+	1999 02 13	704	3.5+	3.1−
1993 09 20	691	1.3−	0.7+	1993 10 10	675	0.3−	0.2−	1999 02 13	704	0.4−	0.6+
1993 09 20	691	1.3−	0.5+	1993 10 10	675	1.0+	1.5−	1999 02 13	704	1.6+	0.4−
1993 09 20	691	1.1−	0.4+	1999 02 10	704	1.5−	0.4−	1999 02 13	704	0.6+	1.6−

1993 TM = 1999 DU

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	163.23418		(2000.0)	Williams		<i>P</i>	<i>Q</i>
<i>n</i>	0.27246735	ω	354.76967	+0.93433475	−0.35217906		
<i>a</i>	2.3564582	Ω	26.05929	+0.33133422	+0.80184748		
<i>e</i>	0.1209017	<i>i</i>	7.14846	+0.13128671	+0.48271163		
<i>P</i>	3.62	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 09 21	675	0.1−	0.7+	1993 10 11	809	(2.2+	5.1+)	1993 11 04	905	0.1−	0.4+
1993 09 23	675	0.5−	0.2−	1993 10 11	809	(1.8+	4.5+)	1999 02 17	910	0.6−	0.2−
1993 10 08	400	2.1−	0.8−	1993 10 11	400	2.0−	0.7−	1999 02 17	910	0.4−	0.1−
1993 10 08	400	2.4+	0.5−	1993 10 11	400	1.6+	2.4−	1999 02 17	910	0.0	0.3+
1993 10 09	809	1.1+	1.3+	1993 10 19	400	1.3−	0.3−	1999 02 18	910	0.2+	0.6−
1993 10 09	809	0.7+	0.9+	1993 10 19	400	(8.0−	0.3+)	1999 02 18	910	0.4+	0.3+
1993 10 09	809	0.2−	1.5+	1993 11 04	905	0.3−	0.5+	1999 02 18	910	0.5+	0.6+
1993 10 11	809	(2.0+	4.8+)	1993 11 04	905	0.7+	0.2−				

1993 TW₁ = 1998 WS₂₃

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	73.52270		(2000.0)	Williams		<i>P</i>	<i>Q</i>
<i>n</i>	0.23865858	ω	12.59208	+0.49534977	−0.85713072		
<i>a</i>	2.5740562	Ω	47.91003	+0.77959312	+0.36688645		
<i>e</i>	0.0723652	<i>i</i>	10.97373	+0.38322731	+0.36155396		
<i>P</i>	4.13	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 10 15	400	(2.5−	1.2−)	1998 11 25	704	0.4−	1.5−	1999 02 10	704	0.7−	0.8+
1993 10 15	400	0.5−	0.9+	1998 12 01	704	(2.3−	0.3−)	1999 02 10	704	0.0	1.1+
1993 10 16	400	1.2−	0.7−	1998 12 01	704	0.1+	1.4+	1999 02 10	888	0.1+	0.3−
1993 10 16	400	0.4+	0.2+	1998 12 01	704	0.1−	0.5−	1999 02 10	888	0.0	0.3−
1993 10 20	400	(2.8+	0.5−)	1998 12 27	699	0.9+	0.3−	1999 02 10	888	0.5−	0.6+
1993 10 20	400	0.7+	1.6+	1998 12 27	699	0.6+	0.1+	1999 02 13	704	0.2+	0.5−
1993 10 23	376	0.1+	1.0−	1998 12 27	699	0.0	0.2+	1999 02 13	704	0.3+	0.5−
1993 10 23	376	0.4+	0.7−	1999 02 07	905	1.5−	0.0	1999 02 13	704	0.8+	0.8−
1998 11 25	704	0.2+	0.7+	1999 02 07	905	0.3−	0.8+	1999 02 13	704	1.4+	0.1+
1998 11 25	704	0.1+	1.1+	1999 02 10	704	0.7−	0.1−	1999 02 13	704	1.1+	0.2+
1998 11 25	704	0.1−	1.3−	1999 02 10	704	0.7−	0.2−				
1998 11 25	704	0.3−	1.1−	1999 02 10	704	0.2−	0.0				

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1993 TH₂ = 1999 CB₃₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	98.68611		(2000.0)	P	Q
<i>n</i>	0.23359640	ω	296.45766	+0.94615706	-0.31894785
<i>a</i>	2.6111107	Ω	82.18326	+0.31331590	+0.85937051
<i>e</i>	0.2001267	<i>i</i>	3.20036	+0.08136320	+0.39969314
<i>P</i>	4.22	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1993 10 15	400	0.3+	0.3+	1999 02 10	704	0.2-	0.1-	1999 02 13	704	0.8-	0.3+
1993 10 15	400	1.0-	0.5-	1999 02 10	704	0.1+	0.5+	1999 02 13	704	0.2+	0.2+
1993 10 16	400	0.2-	0.5+	1999 02 10	704	0.4-	0.5-	1999 02 13	704	0.1-	0.8+
1993 10 16	400	1.0+	0.3-	1999 02 10	704	0.0	0.7-	1999 02 13	704	0.7+	0.1+
1993 11 11	400	0.5+	0.1-	1999 02 10	704	0.3-	0.6-				
1993 11 11	400	0.6-	0.2+	1999 02 13	704	0.7+	0.0				

1993 TN₂ = 1979 DY = 1998 XV₅₁ = 1999 BL₁₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	201.75739		(2000.0)	P	Q
<i>n</i>	0.23673211	ω	229.66279	-0.04291400	+0.98737691
<i>a</i>	2.5880020	Ω	38.70244	-0.82670363	+0.05059587
<i>e</i>	0.1412495	<i>i</i>	14.11297	-0.56099866	-0.15008964
<i>P</i>	4.16	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1979 02 25	033	0.5-	0.0	1998 12 14	704	0.1-	0.6-	1999 01 16	704	0.3-	0.2+
1979 02 25	033	0.2-	0.1-	1998 12 14	704	0.9-	0.1-	1999 01 16	704	0.0	0.0
1993 10 14	675	0.1+	1.5+	1998 12 14	704	0.9+	0.6-	1999 01 16	704	0.7+	0.1+
1993 10 14	675	0.9-	0.7+	1998 12 14	704	0.3+	0.9-	1999 01 16	704	0.6-	0.8+
1993 10 15	400	0.7+	0.4+	1998 12 14	704	(3.0-	0.8-)	1999 01 19	704	0.8+	0.5+
1993 10 15	400	0.2+	1.4+	1998 12 17	704	0.1-	0.0	1999 01 19	704	0.4+	0.4+
1993 10 16	400	1.5+	0.1-	1998 12 17	704	0.2-	0.0	1999 01 19	704	(2.7+	0.3-)
1993 10 16	400	1.2-	1.6-	1998 12 17	704	0.6-	0.3-	1999 01 19	704	0.1-	0.2-
1993 10 20	399	0.1+	1.1-	1998 12 17	704	0.5-	0.3+				
1993 10 20	399	0.5-	1.8-	1998 12 17	704	0.1-	0.8+				

1993 TW₁₇ = 1999 CF₁₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	52.06791		(2000.0)	P	Q
<i>n</i>	0.22690928	ω	229.19248	+0.48356083	-0.87401159
<i>a</i>	2.6621624	Ω	192.15974	+0.85569374	+0.48348778
<i>e</i>	0.2453358	<i>i</i>	13.08075	+0.18427463	+0.04840765
<i>P</i>	4.34	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1993 09 19	691	0.4+	0.4-	1993 10 11	809	0.3+	0.2-	1999 02 12	704	1.7-	0.7-
1993 09 19	691	0.1+	0.0	1993 10 20	809	0.4-	0.8-	1999 02 16	704	0.7+	0.4-
1993 09 19	691	0.2-	0.3-	1993 10 20	809	0.3-	1.2-	1999 02 16	704	0.4-	0.0
1993 10 09	809	0.6+	1.3+	1993 10 20	809	0.7-	0.3-	1999 02 16	704	0.3+	0.8-
1993 10 09	809	0.6-	1.3+	1999 02 12	704	1.4+	0.5+	1999 02 16	704	0.8+	1.2+
1993 10 09	809	0.3-	0.8+	1999 02 12	704	0.7+	0.4-	1999 02 16	704	0.7-	1.2-
1993 10 11	809	0.7+	0.2-	1999 02 12	704	0.3+	2.0+				
1993 10 11	809	0.4+	0.2-	1999 02 12	704	1.4-	0.2-				

1993 TM₂₅ = 1999 BA₁₀

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	22.69062		(2000.0)	P	Q
<i>n</i>	0.22177327	ω	309.57415	-0.05084259	-0.99789334
<i>a</i>	2.7031071	Ω	143.28005	+0.93571972	-0.06170006
<i>e</i>	0.2698971	<i>i</i>	3.86457	+0.34906107	+0.02004943
<i>P</i>	4.44	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 5

1999 MAR. 2

Residuals in seconds of arc

1993 10 09	809	(0.4-	3.3-)	1999 01 23	120	0.1+	0.4-	1999 02 12	699	0.1+	0.7+
1993 10 09	809	(0.8-	3.5-)	1999 01 24	120	0.3+	0.1-	1999 02 12	699	0.4+	0.4+
1993 10 09	809	(0.8-	3.1-)	1999 01 24	120	0.0	0.3-	1999 02 12	699	0.7+	0.0
1993 10 11	809	0.8+	0.2-	1999 01 25	120	0.6+	0.3-	1999 02 13	704	0.2+	0.4-
1993 10 11	809	0.1-	0.5-	1999 01 25	120	0.3+	0.4-	1999 02 13	704	0.3+	0.3+
1993 10 11	809	0.3-	0.5-	1999 02 10	704	0.6-	0.6-	1999 02 13	704	0.1+	0.3+
1993 10 20	809	0.0	0.8+	1999 02 10	704	1.0-	0.1-	1999 02 13	704	0.7-	1.2+
1993 10 20	809	0.2+	0.6+	1999 02 10	704	0.8-	0.0	1999 02 13	704	0.6+	0.3-
1993 10 20	809	0.8-	0.0	1999 02 10	704	0.1-	0.1-	1999 02 15	120	0.4-	0.4+
1999 01 23	120	0.3-	0.2-	1999 02 10	704	0.3+	0.3-	1999 02 15	120	0.2-	0.3+

1993 TJ₃₄ = 1999 AV₂₁

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	356.81588		(2000.0)	P	Q
<i>n</i>	0.23257566	ω	348.03782	-0.76194147	-0.64650395
<i>a</i>	2.6187450	Ω	151.56934	+0.60066223	-0.72761616
<i>e</i>	0.2030231	<i>i</i>	4.63145	+0.24217780	-0.22936298
<i>P</i>	4.24	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1993 10 09	809	0.4-	0.4-	1999 01 15	120	0.2-	0.5+	1999 02 12	704	0.9+	0.7+
1993 10 09	809	0.1+	0.9+	1999 01 15	120	1.7+	0.4+	1999 02 12	704	1.6+	0.6-
1993 10 09	809	0.0	0.6+	1999 01 15	120	0.1-	0.4+	1999 02 16	704	0.6-	0.7-
1993 10 11	809	0.8-	0.1+	1999 01 16	120	0.5-	0.1+	1999 02 16	704	1.2-	0.4-
1993 10 11	809	(2.3-	0.5-)	1999 01 16	120	0.3-	0.5+	1999 02 16	704	1.0-	0.2-
1993 10 11	809	1.3-	0.9-	1999 01 16	120	0.9-	0.5+	1999 02 16	704	0.8-	0.4-
1993 10 11	809	(1.5-	2.4-)	1999 01 16	120	1.0-	0.0	1999 02 16	704	0.6-	0.9-
1993 10 11	809	(2.6-	3.0-)	1999 01 20	120	0.0	0.2-	1999 02 19	566	0.1+	0.2+
1993 10 11	809	(3.1-	2.1-)	1999 01 20	120	0.2-	0.0	1999 02 19	566	0.1-	0.1+
1993 10 21	809	1.0+	0.3-	1999 02 12	704	0.7+	0.0	1999 02 19	566	0.0	0.4+
1993 10 21	809	1.2+	0.2-	1999 02 12	704	0.7+	0.5-				
1993 10 21	809	0.1+	0.2-	1999 02 12	704	1.3+	0.4+				

1993 TJ₃₇ = 1999 BJ₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	359.46756		(2000.0)	P	Q
<i>n</i>	0.21719877	ω	340.83595	-0.23857442	-0.96968131
<i>a</i>	2.7409291	Ω	122.93412	+0.89901990	-0.24113780
<i>e</i>	0.1702739	<i>i</i>	3.61498	+0.36721311	-0.03963222
<i>P</i>	4.54	<i>H</i>	18.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1993 10 09	809	0.6-	0.2+	1999 01 19	046	0.2+	0.1-	1999 01 21	046	0.2+	0.1+
1993 10 09	809	0.5-	0.6-	1999 01 19	046	0.0	0.0	1999 01 22	046	0.4+	0.0
1993 10 09	809	0.2-	0.1-	1999 01 19	046	0.1+	0.2-	1999 01 22	046	0.1+	0.3+
1993 10 11	809	(1.6+	3.4+)	1999 01 20	046	0.1+	0.3-	1999 01 22	046	0.3+	0.1-
1993 10 11	809	0.4+	1.7+	1999 01 20	046	0.0	0.1-	1999 01 23	046	0.6-	0.1-
1993 10 11	809	0.2+	1.6+	1999 01 20	046	0.3+	0.1+	1999 01 23	046	0.6-	0.1-
1993 10 21	809	(0.4+	2.1-)	1999 01 20	046	0.1-	0.1+	1999 01 23	046	0.9-	0.7+
1993 10 21	809	0.2+	1.8-	1999 01 21	046	0.3+	0.1-				
1993 10 21	809	0.4+	1.0-	1999 01 21	046	0.2+	0.1-				

1993 TT₄₁ = 1998 XF₇₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	341.49633		(2000.0)	P	Q
<i>n</i>	0.21400877	ω	306.66591	-0.52322811	-0.85212617
<i>a</i>	2.7680993	Ω	174.84898	+0.81482070	-0.50390242
<i>e</i>	0.2515876	<i>i</i>	6.81001	+0.24959881	-0.14129172
<i>P</i>	4.61	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 4

1999 MAR. 2

M.P.C. 33939

Residuals in seconds of arc

1993 10 09	809	0.1+	0.3+	1993 10 20	809	0.2-	0.2-	1998 12 22	704	0.7-	1.4+
1993 10 09	809	0.9-	0.4+	1998 12 15	704	1.2+	0.1-	1999 01 14	699	0.4-	0.2+
1993 10 09	809	1.3-	1.0-	1998 12 15	704	0.0	0.4+	1999 01 14	699	0.7+	0.1-
1993 10 11	809	0.8+	0.7+	1998 12 15	704	0.1+	1.8-	1999 01 14	699	1.4-	0.6+
1993 10 11	809	1.3+	0.9+	1998 12 15	704	0.3+	0.4-	1999 02 14	910	0.3+	0.2-
1993 10 11	809	0.7+	0.5+	1998 12 15	704	0.5-	0.5+	1999 02 14	910	0.2+	0.3-
1993 10 20	809	0.4-	1.2-	1998 12 22	704	1.2-	0.7+	1999 02 14	910	0.1+	0.5-
1993 10 20	809	0.0	0.7-	1998 12 22	704	1.3+	0.5-				

1993 UF = 1999 CE₃₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	139.65706		(2000.0)	P	Q
n	0.25162459	ω	218.58462	+0.96986937	+0.14506822
a	2.4848527	Ω	131.88675	-0.10009744	+0.96972651
e	0.1811391	i	15.24267	-0.22211237	+0.19643245
P	3.92	H	14.5	G 0.15	U 4

Residuals in seconds of arc

1993 09 22	675	0.6-	1.5+	1993 10 21	413	1.1-	0.4+	1999 02 10	704	1.5+	1.2+
1993 09 22	675	0.8+	1.8-	1993 10 22	413	2.6+	1.0+	1999 02 10	704	0.9+	0.2+
1993 10 09	675	0.5-	0.5+	1993 10 22	413	2.8+	1.1+	1999 02 10	704	0.4-	0.1+
1993 10 09	675	1.0-	0.6-	1993 10 23	413	1.3+	0.0	1999 02 13	704	0.4-	0.9-
1993 10 14	675	0.5+	0.1-	1993 10 26	413	0.2-	0.9-	1999 02 13	704	0.4+	0.4+
1993 10 14	675	0.2-	0.4+	1993 10 26	413	0.9-	0.2-	1999 02 13	704	0.5-	0.4+
1993 10 20	413	0.5-	0.4-	1993 10 27	413	0.8-	0.5-	1999 02 13	704	2.6-	1.3-
1993 10 20	413	0.0	0.0	1993 10 27	413	0.8-	0.4-				
1993 10 21	413	1.4-	0.0	1999 02 10	704	1.1+	0.2-				

1993 XQ₂

Id. T. Kobayashi (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

M	74.88155		(2000.0)		$\mathbf{P}$	$\mathbf{Q}$	
n	0.22744121	ω	314.30102		+0.11166227	-0.97659097	
a	2.6580100	Ω	128.38473		+0.96541404	+0.06274360	
e	0.1456189	i	13.56495		+0.23559981	+0.20575064	
P	4.33	H	11.7	G	0.15	U	4

Residuals in seconds of arc

1993 12 14	675	0.4+	0.8+	1994 01 11	675	1.7+	0.7+	1999 02 20	411	0.2-	0.0
1993 12 14	675	0.4-	0.8-	1994 01 16	675	0.2-	1.2-	1999 02 21	411	0.1-	0.1-
1993 12 16	675	0.1+	0.3+	1994 01 16	675	1.3-	0.7+	1999 02 21	411	0.2+	0.1+
1993 12 16	675	0.3-	0.5-	1999 02 20	411	0.1+	0.1+				

1993 XW₂ = 1982 JG = 1999 BT₁₄ = 1999 CJ₉₇

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	139.45078		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.22346164	ω	225.63796	+0.98051533	+0.07140316
a	2.6894743	Ω	129.38422	-0.02410954	+0.96829976
e	0.1886661	i	13.69634	-0.19495746	+0.23936828
P	4.41	H	12.7	G 0.15	U 3

Residuals in seconds of arc

1982 05 13	033	0.4+	0.0	1999 01 25	372	0.7+	1.0+	1999 02 13	704	0.1+	0.1+
1982 05 13	033	0.3-	0.3+	1999 01 25	372	0.3-	1.9+	1999 02 13	704	0.7-	0.2-
1993 12 14	675	0.2+	0.1+	1999 02 10	704	0.2-	0.0	1999 02 13	704	0.7-	0.8+
1993 12 14	675	0.0	0.3-	1999 02 10	704	1.2+	0.1-	1999 02 13	704	0.1+	0.9-
1993 12 16	675	0.8+	0.6+	1999 02 10	704	0.5+	0.6+	1999 02 13	704	0.4-	1.0-
1993 12 16	675	0.1-	0.1+	1999 02 10	704	0.3-	0.4-	1999 02 18	566	0.1-	1.0-
1994 01 11	675	0.8+	0.9-	1999 02 10	704	0.4+	0.5-	1999 02 18	566	0.0	1.1-
1994 01 11	675	0.5+	0.1-	1999 02 12	699	0.2+	0.7+	1999 02 18	566	0.4-	0.9-
1994 01 16	675	1.6-	0.0	1999 02 12	699	0.1+	0.9+				
1994 01 16	675	0.6-	0.5+	1999 02 12	699	0.1-	0.2-				

1994 AZ₄ = 1999 CR₈₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	293.98238		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.19738921	ω	102.69834	-0.94285501	+0.32928670
a	2.9213737	Ω	96.54458	-0.32214014	-0.86176918
e	0.1292018	i	2.93898	-0.08514793	-0.38590692
P	4.99	H	14.0	G 0.15	U 6

Residuals in seconds of arc

1994 01 05	691	0.2-	0.2-	1994 01 18	691	0.4+	1.1+	1999 02 10	704	0.8-	1.6+
1994 01 05	691	0.4-	0.9-	1994 01 18	691	0.0	0.0	1999 02 13	704	0.5-	2.1-
1994 01 05	691	0.4+	0.2+	1994 01 18	691	0.0	0.2+	1999 02 13	704	0.5+	0.8+
1994 01 14	691	0.2+	0.1-	1999 02 10	704	1.4+	1.1-	1999 02 13	704	0.7-	0.8-
1994 01 14	691	0.0	0.2-	1999 02 10	704	0.0	0.6+				
1994 01 14	691	0.3-	0.0	1999 02 10	704	0.0	0.8+				

1994 AD₁₁ = 1987 QN₁ = 1999 AL₃₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	99.35427		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.20576506	ω	57.42368	+0.91550988	-0.38261266
a	2.8415478	Ω	324.62192	+0.25771260	+0.79503044
e	0.2062845	i	12.39692	+0.30891078	+0.47067414
P	4.79	H	12.7	G 0.15	U 3

Residuals in seconds of arc

1987 08 30	046	0.3+	1.3-	1994 02 04	399	1.3-	0.1-	1999 02 10	704	0.6-	0.0
1987 08 30	046	1.3+	1.4-	1994 02 05	399	1.8+	0.0	1999 02 10	704	0.4-	0.6-
1994 01 08	691	0.2-	0.3+	1994 02 05	399	0.5+	0.4+	1999 02 10	704	0.6-	1.1-
1994 01 08	691	0.4+	0.0	1999 01 14	699	0.8-	0.9-	1999 02 12	699	0.4+	0.4+
1994 01 08	691	0.6+	0.2-	1999 01 14	699	0.1+	0.1-	1999 02 12	699	0.4+	0.8+
1994 01 11	691	0.5-	0.3-	1999 01 14	699	0.0	0.9-	1999 02 12	699	0.8+	0.2+
1994 01 11	691	1.2-	0.6-	1999 01 22	699	0.6-	0.8-	1999 02 13	704	0.0	0.3-
1994 01 11	691	0.0	0.1-	1999 01 22	699	0.4-	1.4-	1999 02 13	704	0.0	0.7+
1994 01 15	399	0.4+	1.5+	1999 01 22	699	0.1+	0.6+	1999 02 13	704	0.3-	0.1+
1994 01 15	399	0.0	1.0+	1999 02 10	704	0.6-	0.3-	1999 02 13	704	0.1+	0.1+
1994 02 04	399	0.2-	1.4-	1999 02 10	704	0.1+	0.0	1999 02 13	704	0.0	0.0

1994 BP₄ = 1999 CU₅₉

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	302.22614		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$		
n	0.19044907	ω	63.46975	-0.91339802	+0.39024264		
a	2.9919212	Ω	139.21248	-0.40705188	-0.87310786		
e	0.1656476	i	10.21251	-0.00358174	-0.29222138		
P	5.18	H	12.6	G	0.15	U	5

Residuals in seconds of arc

1994 01 18	033	0.7-	0.1-	1994 02 11	675	1.1+	0.4-	1999 02 12	704	0.4+	0.6+
1994 01 18	033	(2.3-	0.5+)	1994 02 14	675	1.8+	0.2+	1999 02 12	704	0.6+	0.1-
1994 01 21	303	0.2-	0.3+	1994 02 14	675	(2.3+	0.2-)	1999 02 16	704	0.6-	0.9-
1994 01 21	303	0.0	0.1+	1999 02 11	699	0.2-	0.7+	1999 02 16	704	0.2-	0.2+
1994 01 21	303	0.6+	0.9+	1999 02 11	699	0.5-	0.5+	1999 02 16	704	0.1+	0.6-
1994 01 22	303	2.0-	0.5+	1999 02 11	699	0.3-	0.3+	1999 02 16	704	0.6+	1.2-
1994 01 22	303	(2.2-	0.4+)	1999 02 12	704	0.0	0.5+	1999 02 16	704	0.3-	1.2-
1994 01 22	303	1.8-	0.0	1999 02 12	704	0.2-	0.6+				
1994 02 11	675	1.0+	0.8-	1999 02 12	704	0.7+	0.0				

1994 CN = 1973 AH = 1999 CZ₈₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	48.48001		(2000.0)		P		Q				
<i>n</i>	0.19113450	ω	19.70517		+0.40125853		−0.90752054				
<i>a</i>	2.9847640	Ω	46.86193		+0.81592520		+0.29257548				
<i>e</i>	0.0508035	<i>i</i>	9.79089		+0.41624232		+0.30134045				
<i>P</i>	5.16	<i>H</i>	12.9		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1973 01 01	095	0.0	0.3+	1994 02 10	675	0.8−	1.8−	1999 02 10	704	0.7−	0.1+
1994 02 02	898	0.9+	1.5+	1994 02 15	675	0.3−	1.1−	1999 02 12	699	0.2+	0.5−
1994 02 02	898	0.4+	0.8+	1994 02 15	675	(0.7+ 2.2−)		1999 02 12	699	0.1−	0.6+
1994 02 07	385	0.2+	0.3−	1998 12 17	699	0.0	0.5−	1999 02 12	699	0.8−	0.7+
1994 02 07	385	0.2−	0.1−	1998 12 17	699	0.1−	0.4−	1999 02 13	704	1.4+	1.4−
1994 02 07	385	1.0−	0.3+	1998 12 17	699	0.4−	0.2−	1999 02 13	704	0.1+	1.3+
1994 02 09	385	0.0	0.0	1999 02 10	704	0.5−	0.3+	1999 02 13	704	1.9+	0.1−
1994 02 09	385	0.3+	0.9+	1999 02 10	704	0.2−	0.2+	1999 02 13	704	0.1−	0.1−
1994 02 09	385	0.3+	0.9+	1999 02 10	704	0.3+	0.0				
1994 02 10	675	0.3+	1.2−	1999 02 10	704	1.1−	0.1−				

1994 CM₇ = 1996 TL₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	215.74880		(2000.0)			P			Q		
<i>n</i>	0.25865243	ω	249.90289			+0.87225851			−0.48397084		
<i>a</i>	2.4396358	Ω	138.95739			+0.47908930			+0.81679137		
<i>e</i>	0.1207825	<i>i</i>	6.14309			+0.09817608			+0.31404470		
<i>P</i>	3.81	<i>H</i>	16.8			<i>G</i>	0.15		<i>U</i>	6	
Residuals in seconds of arc											
1994 02 15	691	0.4−	0.3−	1994 02 19	691	0.1+	0.6−	1996 10 06	684	0.1+	1.5+
1994 02 15	691	0.4−	0.2+	1994 02 19	691	0.1+	0.3+	1996 10 07	684	0.1+	1.3−
1994 02 16	691	0.1−	0.1−	1994 02 19	691	0.1+	0.2+	1996 10 07	684	0.3+	1.2−
1994 02 16	691	0.8+	0.4+	1996 10 06	684	0.8−	0.4+				
1994 02 16	691	0.2−	0.2−	1996 10 06	684	0.2+	0.5+				

1994 EU₆ = 1999 BS₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	28.17250		(2000.0)		P		Q				
<i>n</i>	0.18317285	ω	293.60693		+0.29857804		−0.94095676				
<i>a</i>	3.0706382	Ω	137.95710		+0.93925005		+0.26005675				
<i>e</i>	0.2650951	<i>i</i>	13.78173		+0.16929410		+0.21672763				
<i>P</i>	5.38	<i>H</i>	14.3		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1994 02 08	809	0.1+	0.7+	1999 01 18	704	0.8−	0.7+	1999 02 08	104	0.5−	0.5+
1994 02 08	809	0.3−	0.8+	1999 01 18	704	(2.0−	0.6−)	1999 02 08	104	0.1−	0.4+
1994 02 08	809	0.3−	0.8+	1999 01 18	704	0.3+	0.4−	1999 02 08	104	0.1+	0.1+
1994 02 10	809	0.1+	0.8+	1999 01 20	704	0.1+	0.7−	1999 02 13	104	0.3−	0.4+
1994 02 10	809	1.3−	0.1+	1999 01 20	704	0.3+	0.3−	1999 02 13	104	0.5+	0.1−
1994 02 10	809	1.1−	0.9−	1999 01 20	704	0.2+	0.1+	1999 02 13	104	1.0+	0.0
1994 03 09	010	(2.2−	4.2−)	1999 01 20	704	0.4+	0.7−	1999 02 13	104	0.4−	0.8−
1994 03 09	010	(2.8−	4.0−)	1999 02 05	120	0.5−	0.2+	1999 02 15	104	0.8+	0.3+
1994 03 09	010	(2.9−	4.5−)	1999 02 05	120	0.6−	0.1−	1999 02 15	104	0.9+	0.2+
1994 03 10	010	0.4+	0.5−	1999 02 05	120	0.7−	0.1+	1999 02 15	104	1.2+	0.2+
1994 03 10	010	0.9+	1.0−	1999 02 06	120	0.3−	0.0	1999 02 15	104	0.3+	0.2+
1994 03 10	010	1.3+	0.8−	1999 02 06	120	0.7−	0.0				
1999 01 18	704	0.6−	0.4−	1999 02 08	104	0.3−	0.1+				

1994 FV = 1999 CO₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	13.00112		(2000.0)		P		Q				
n	0.36914061	ω	116.54062		−0.14803314		−0.98163820				
a	1.9246045	Ω	340.79314		+0.72616086		−0.02530581				
e	0.1448070	i	21.44961		+0.67139899		−0.18906626				
P	2.67	H	15.7		G	0.15	U	5			
Residuals in seconds of arc											
1994 03 12	413	2.8−	3.4−	1994 03 23	413	0.1−	0.2+	1999 02 11	704	0.3−	0.5+
1994 03 12	413	3.0+	2.3+	1994 05 04	413	0.3−	0.0	1999 02 11	704	0.6+	0.7−
1994 03 21	413	0.1+	0.0	1994 05 04	413	0.3−	0.2−	1999 02 11	704	0.3+	0.0
1994 03 21	413	0.2−	0.8+	1999 02 08	704	1.2−	0.1−	1999 02 11	704	0.7−	0.1+
1994 03 22	413	0.1+	0.1+	1999 02 08	704	0.1+	0.9+	1999 02 11	704	0.4+	0.4−
1994 03 22	413	0.2+	0.1−	1999 02 08	704	1.0+	1.0−				
1994 03 23	413	0.1+	0.2+	1999 02 08	704	0.1−	0.7+				

1994 NL₂ = 1973 VA = 1998 XD₈₀

Id. T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	83.61628		(2000.0)			P		Q			
<i>n</i>	0.28064601	ω	94.73074			+0.77610296		+0.56307020			
<i>a</i>	2.3104512	Ω	231.30609			−0.61760644		+0.76964985			
<i>e</i>	0.3478483	<i>i</i>	21.33257			+0.12738323		+0.30098348			
<i>P</i>	3.51	<i>H</i>	13.3			<i>G</i>	0.15	<i>U</i>	2		
Residuals in seconds of arc											
1973 11 01	029	0.5−	0.5−	1998 12 15	704	0.3+	0.3+	1998 12 17	699	0.3−	0.7+
1973 11 01	029	0.5+	0.4+	1998 12 15	704	0.6+	0.7−	1998 12 22	704	0.2−	0.5−
1994 07 09	675	0.4+	0.5−	1998 12 15	704	0.2−	0.0	1998 12 22	704	0.3−	0.7−
1994 07 09	675	0.7+	1.0−	1998 12 15	704	1.2+	0.1−	1998 12 22	704	(2.5−	0.5+)
1994 07 11	675	0.2−	0.6−	1998 12 15	704	0.3−	0.6+	1998 12 22	704	1.6−	0.8+
1994 07 11	675	0.2+	0.9+	1998 12 17	699	0.6+	0.6−				
1994 07 13	675	1.1−	1.2+	1998 12 17	699	0.0	0.1+				

1994 PF₁ = 1999 CC₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	225.61398		(2000.0)			P		Q			
n	0.35810940	ω	146.87925			−0.01582090		+0.93164733			
a	1.9639280	Ω	119.72296			−0.98396613		+0.05000056			
e	0.0686841	i	24.70942			−0.17765234		−0.35990721			
P	2.75	H	15.5		G	0.15		U	4		
Residuals in seconds of arc											
1994 08 07	413	1.0+	3.3−	1994 08 28	413	0.4+	0.3+	1999 02 10	704	1.0−	2.1+
1994 08 07	413	2.3−	2.3+	1994 08 28	413	0.1+	0.2+	1999 02 10	704	1.0−	1.3+
1994 08 16	413	0.4+	0.4+	1994 09 17	413	0.6−	0.8−	1999 02 10	704	0.2−	1.0+
1994 08 16	413	0.1+	0.3+	1994 09 17	413	0.2−	0.5−	1999 02 13	704	0.5−	0.7−
1994 08 17	413	0.1+	0.5+	1994 09 18	413	0.4+	0.1+	1999 02 13	704	0.7+	2.3−
1994 08 17	413	0.5−	0.2+	1994 09 18	413	0.1+	1.5+	1999 02 13	704	2.3+	1.3−
1994 08 26	413	0.8+	0.3−	1999 02 10	704	0.1+	0.3−				
1994 08 26	413	0.2+	0.4−	1999 02 10	704	0.3−	0.4+				

1994 PU₁ = 1998 XW₈₉ = 1999 BY₂₁

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.28379453	ω	204.65006	+0.99622408	−0.07761621				
<i>a</i>	2.2933308	Ω	159.68730	+0.08571905	+0.95044193				
<i>e</i>	0.2178799	<i>i</i>	6.43412	−0.01377754	+0.30105792				
<i>P</i>	3.47	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	5		

1999 MAR. 2

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Residuals in seconds of arc

1994 08 11	894	0.4+	1.1-	1998 12 15	704	0.2+	0.2+	1999 01 18	704	0.2-	0.6-
1994 08 11	894	1.4+	1.6+	1998 12 15	704	0.2+	0.3-	1999 01 18	704	1.1+	0.2+
1994 08 15	894	0.5-	0.1+	1998 12 15	704	0.3+	0.4-	1999 01 18	704	0.2-	0.1+
1994 08 15	894	0.3+	0.5+	1998 12 22	704	0.3+	0.9-	1999 01 18	704	0.1+	0.6-
1994 08 16	894	(2.6-	0.8-)	1998 12 22	704	0.5-	0.2-	1999 01 20	704	0.2-	0.8+
1994 08 16	894	1.6-	0.9-	1998 12 22	704	0.4+	0.5-	1999 01 20	704	0.4+	0.8+
1998 12 15	704	1.0-	0.8+	1998 12 22	704	0.5+	0.7-	1999 01 20	704	1.0-	0.0
1998 12 15	704	0.6+	0.3+	1998 12 22	704	0.1+	0.4+	1999 01 20	704	1.1-	0.8+

1994 TG₁ = 1993 JO = 1999 CR₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	56.24061		(2000.0)		P		Q
<i>n</i>	0.28510382	ω	11.67823	+0.51047048			-0.85694548
<i>a</i>	2.2863043	Ω	47.67289	+0.78098569			+0.42740429
<i>e</i>	0.1263250	<i>i</i>	5.52368	+0.35983502			+0.28804517
<i>P</i>	3.46	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 05 14	809	1.9+	1.3+	1994 10 07	400	1.3-	0.4+	1999 02 10	704	0.5+	0.2+
1993 05 14	809	0.3-	0.5-	1994 10 26	400	0.4+	0.1-	1999 02 10	704	0.2+	0.2+
1993 05 14	809	1.1-	0.9+	1994 10 26	400	1.0+	1.1-	1999 02 10	704	0.1-	0.4+
1994 10 02	400	1.6+	1.0+	1998 12 14	699	0.9+	1.5+	1999 02 13	704	0.2-	0.3-
1994 10 02	400	1.9-	0.4-	1998 12 14	699	0.2-	0.2+	1999 02 13	704	0.0	0.8-
1994 10 03	400	0.1-	0.8-	1998 12 14	699	0.8+	0.4+	1999 02 13	704	0.2+	0.5+
1994 10 03	400	0.4+	0.2+	1999 02 10	704	0.2-	0.0	1999 02 13	704	0.1-	0.7-
1994 10 07	400	0.5-	1.6+	1999 02 10	704	0.7-	0.2+	1999 02 13	704	0.2-	0.4-

1994 TE₁₅ = 1978 XV₁ = 1993 FC₆₆ = 1999 CS₇₀

Id. G. V. Williams, S. Nakano, A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	131.05777		(2000.0)		P		Q
<i>n</i>	0.30568842	ω	131.16882	+0.98882019			+0.13869552
<i>a</i>	2.1824789	Ω	220.94607	-0.14906110			+0.92909029
<i>e</i>	0.2542934	<i>i</i>	4.79276	+0.00392662			+0.34286262
<i>P</i>	3.22	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1978 12 05	033	0.2+	0.2-	1994 10 24	894	0.4-	0.3+	1999 02 16	704	0.5-	1.3-
1978 12 05	033	0.0	0.6-	1994 10 25	894	0.3+	0.6-	1999 02 16	704	0.4-	1.5+
1993 03 21	809	2.8-	1.4+	1994 10 25	894	0.5+	0.8+	1999 02 16	704	1.3+	0.8+
1993 03 22	809	2.8+	1.7-	1999 02 12	704	0.9-	0.1-	1999 02 16	704	0.3+	0.6-
1994 10 13	894	0.2-	0.5+	1999 02 12	704	0.7-	1.0-	1999 02 16	704	2.0+	0.1-
1994 10 13	894	0.7-	0.2+	1999 02 12	704	0.8-	1.7+				
1994 10 24	894	0.3+	0.4-	1999 02 12	704	0.3-	0.3+				

1994 TN₁₆ = 1999 CM₉₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	28.49415		(2000.0)		P		Q
<i>n</i>	0.28616298	ω	67.67673	-0.08863059			-0.99543220
<i>a</i>	2.2806593	Ω	27.48083	+0.88323965			-0.09501166
<i>e</i>	0.1152051	<i>i</i>	4.41061	+0.46046969			-0.00935497
<i>P</i>	3.44	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 10 05	033	0.1-	0.3+	1999 01 22	699	0.4+	0.3+	1999 02 13	704	0.0	0.7-
1994 10 06	033	0.2+	0.3-	1999 01 22	699	0.6+	0.3-	1999 02 13	704	1.0+	0.0
1994 10 07	033	0.3-	0.3+	1999 01 22	699	0.6+	0.4-	1999 02 13	704	0.2-	0.0
1994 10 10	033	0.2-	0.2+	1999 02 10	704	0.7-	0.3+	1999 02 13	704	0.7+	0.6-
1994 10 28	033	0.5+	0.1+	1999 02 10	704	0.5-	0.6+	1999 02 13	704	1.0+	0.3+
1994 10 28	033	0.4+	0.1+	1999 02 10	704	1.1-	0.6+	1999 02 19	566	0.3-	0.9-
1994 11 01	033	0.6-	0.6-	1999 02 10	704	0.6-	0.5+	1999 02 19	566	0.3+	0.5-
1994 11 01	033	0.0	0.2-	1999 02 10	704	1.2-	1.1+	1999 02 19	566	0.1+	0.5-

1994 UU₆ = 1999 CX₅₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	56.73584		(2000.0)		P		Q
<i>n</i>	0.27861803	ω	47.93644	+0.49509668			-0.86870484
<i>a</i>	2.3216490	Ω	12.41379	+0.77479923			+0.43352364
<i>e</i>	0.2816362	<i>i</i>	4.05582	+0.39314810			+0.23960208
<i>P</i>	3.54	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 10 28	691	0.1+	0.2-	1994 11 10	691	0.3-	0.0	1999 02 10	704	0.0	0.9-
1994 10 28	691	0.2+	0.1-	1994 11 10	691	0.1+	0.1-	1999 02 10	704	0.7+	1.0-
1994 10 28	691	0.2+	0.2-	1994 11 10	691	0.2+	0.2+	1999 02 13	704	0.5+	0.0
1994 11 05	691	0.2-	0.4+	1994 11 29	675	0.7+	0.7-	1999 02 13	704	0.3-	0.6+
1994 11 05	691	0.2-	0.1+	1994 11 29	675	0.7-	0.5+	1999 02 13	704	1.3-	1.3+
1994 11 05	691	0.0	0.1+	1999 02 10	704	0.3+	0.2+	1999 02 13	704	0.1+	0.2-

1994 UY₁₁ = 1999 CB₁₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	25.60379		(2000.0)		P		Q
<i>n</i>	0.26752393	ω	73.78635	+0.00467359			-0.99396151
<i>a</i>	2.3853986	Ω	17.11153	+0.71442553			-0.07339032
<i>e</i>	0.3016655	<i>i</i>	21.87577	+0.69969588			+0.08157442
<i>P</i>	3.68	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 10 06	675	0.7+	2.8-	1999 02 11	704	0.2-	0.3+	1999 02 18	704	0.5-	0.4-
1994 10 06	675	1.2+	0.0	1999 02 11	704	0.2+	0.1+	1999 02 18	704	0.8+	0.1+
1994 10 09	675	0.8-	2.3+	1999 02 11	704	0.5-	0.2-	1999 02 18	704	0.4+	0.4-
1994 10 09	675	0.4+	0.8+	1999 02 11	704	0.0	0.2+	1999 02 18	704	0.4+	0.7-
1994 10 31	675	1.1-	0.1+	1999 02 11	704	0.8-	1.6+				
1994 10 31	675	0.1-	0.5-	1999 02 18	704	0.2+	0.7-				

1994 VO₆ = 1979 VN₁ = 1999 CM₈₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	37.69170		(2000.0)		P		Q
<i>n</i>	0.26218163	ω	25.90478	+0.51230692			-0.85338788
<i>a</i>	2.4176933	Ω	33.52381	+0.75453436			+0.39372562
<i>e</i>	0.2206506	<i>i</i>	10.04021	+0.41014573			+0.34162736
<i>P</i>	3.76	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1979 11 14	095	0.3-	0.9+	1999 02 10	704	0.3-	0.2-	1999 02 13	704	0.3+	0.2-
1994 11 04	400	0.1+	0.0	1999 02 10	704	0.1-	0.9+	1999 02 13	704	0.3-	1.0+
1994 11 04	400	0.1-	0.0	1999 02 10	704	1.0-	0.8+	1999 02 13	704	0.2-	0.7-
1994 11 06	400	0.5+	0.2-	1999 02 10	704	0.4-	0.1+	1999 02 18	566	(1.7+	2.5-)
1994 11 06	400	0.3+	1.1-	1999 02 10	704	0.5-	0.0	1999 02 18	566	1.2+	1.9-
1994 11 26	400	0.8-	0.3-	1999 02 13	704	0.8+	0.1+	1999 02 18	566	(1.6+	2.4-)
1994 11 26	400	0.5+	0.6+	1999 02 13	704	0.6+	0.2-				

1994 WA = 1999 CB₂₇

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	98.25136		(2000.0)		P		Q
<i>n</i>	0.27898664	ω	286.96996	+0.96610342			-0.24742148
<i>a</i>	2.3196036	Ω	87.40197	+0.25589733			+0.88017483
<i>e</i>	0.2038396	<i>i</i>	4.22898	+0.03406975			+0.40506157
<i>P</i>	3.53	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 11 11	408	0.5-	1.3+	1994 11 28	399	0.6-	0.1-	1999 02 10	704	1.1+	0.1-
1994 11 11	408	1.0+	0.4-	1994 11 28	596	1.6-	0.9-	1999 02 10	704	(2.1-	2.4-)
1994 11 12	408	0.7-	1.5-	1994 11 28	596	0.1+	1.0-	1999 02 10	704	0.8-	0.9-
1994 11 12	408	0.4+	0.2-	1994 11 28	596	0.5+	1.0-	1999 02 10	704	1.0-	1.1-
1994 11 22	596	0.5-	0.4-	1994 11 29	399	(2.8-	0.4+)	1999 02 10	704	0.1-	1.5-

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1994 11 22	596	0.4−	0.5−	1994 11 29	399	1.2−	0.8−	1999 02 12	699	1.0+	0.3+
1994 11 22	596	1.2−	0.6−	1994 11 29	596	1.2−	1.8−	1999 02 12	699	1.3+	0.3+
1994 11 23	596	0.3+	1.7+	1994 11 29	596	0.5+	0.1−	1999 02 12	699	0.1−	0.5+
1994 11 23	596	(2.7+	1.5+)	1994 11 29	596	0.5+	0.6+	1999 02 13	704	0.2−	1.0+
1994 11 23	596	2.0+	1.4+	1994 11 30	596	0.1−	0.7+	1999 02 13	704	0.7−	0.3+
1994 11 25	596	0.3−	1.0+	1994 11 30	596	0.8+	0.5+	1999 02 13	704	0.2−	0.7+
1994 11 25	596	0.1+	0.8+	1994 11 30	596	0.7+	0.4+	1999 02 13	704	0.5−	0.6+
1994 11 25	596	0.6+	0.7+	1994 12 02	596	0.5+	0.2+				
1994 11 28	399	0.1+	0.3−	1994 12 02	596	0.2+	0.2+				

1994 XL = 1984 DZ₁ = 1999 CZ₃₈

Id. G. V. Williams, S. Nakano, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	347.33244		(2000.0)	P	Q		
<i>n</i>	0.26329817	ω	161.02520	−0.92125852	−0.38892496		
<i>a</i>	2.4108535	Ω	356.07852	+0.34783720	−0.81866359		
<i>e</i>	0.1888344	<i>i</i>	3.75997	+0.17404602	−0.42252491		
<i>P</i>	3.74	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1984 02 26	095	0.8−	2.0−	1995 01 04	010	(3.7−	0.5−)	1999 02 10	704	0.2−	0.4+
1994 12 03	411	0.3+	0.8+	1995 01 04	010	0.7−	0.2−	1999 02 10	704	0.5+	0.6+
1994 12 03	411	0.0	0.0	1995 01 05	010	1.6−	0.7−	1999 02 10	704	1.0−	0.9+
1994 12 04	411	0.7+	0.4+	1995 01 05	010	1.1−	1.4−	1999 02 12	699	0.9+	0.0
1994 12 04	411	0.1−	0.1+	1995 01 07	411	0.9+	0.4−	1999 02 12	699	0.8+	0.2−
1994 12 09	411	0.2+	0.1+	1995 01 07	411	0.6+	0.5+	1999 02 12	699	0.9+	0.0
1994 12 09	411	0.0	0.2−	1999 01 22	699	1.0+	0.2+	1999 02 13	704	0.2−	0.2+
1994 12 24	411	0.3+	0.1+	1999 01 22	699	0.5+	0.6+	1999 02 13	704	0.6−	0.5−
1994 12 24	411	0.6+	0.2+	1999 01 22	699	1.0+	0.3−	1999 02 13	704	0.3−	0.2−
1995 01 04	010	(3.0−	0.1−)	1999 02 10	704	0.5−	1.1+	1999 02 13	704	0.2+	0.3−
1995 01 04	010	(3.7−	0.2−)	1999 02 10	704	0.8−	0.2+	1999 02 13	704	1.0−	0.0

1994 XW = 1992 CY₃ = 1999 CG₅₆

Id. G. V. Williams, T. Urata

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	95.64197		(2000.0)	P	Q		
<i>n</i>	0.28720870	ω	304.41965	+0.81685814	−0.56354983		
<i>a</i>	2.2751201	Ω	90.18073	+0.56136782	+0.72754278		
<i>e</i>	0.1782891	<i>i</i>	7.07126	+0.13269868	+0.39127111		
<i>P</i>	3.43	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 02 08	033	0.3+	0.9−	1994 12 02	905	0.0	0.5−	1999 02 10	704	0.5+	0.3−
1992 02 08	033	0.1−	0.7+	1994 12 02	905	1.2+	0.4+	1999 02 13	704	0.3+	1.0−
1992 02 09	033	0.5−	0.9−	1994 12 04	905	0.5+	0.1+	1999 02 13	704	0.4+	1.2+
1994 11 27	675	0.3−	0.7−	1994 12 04	905	0.7+	0.6+	1999 02 13	704	0.9−	0.4−
1994 11 27	675	1.1+	0.1−	1999 02 10	704	0.3−	0.4+	1999 02 13	704	0.6−	1.1+
1994 12 01	691	1.1−	0.2+	1999 02 10	704	0.6+	0.7−	1999 02 13	704	0.3+	1.3+
1994 12 01	691	1.1−	0.2−	1999 02 10	704	0.4−	0.2+				
1994 12 01	691	1.0−	0.4+	1999 02 10	704	0.5+	0.6−				

1994 XA₁ = 1990 SG₂₇ = 1999 CL₉₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	83.26787		(2000.0)	P	Q		
<i>n</i>	0.27217997	ω	67.53060	+0.75423737	−0.65645440		
<i>a</i>	2.3581166	Ω	333.49313	+0.59038047	+0.68729103		
<i>e</i>	0.2099525	<i>i</i>	1.78656	+0.28736195	+0.31096408		
<i>P</i>	3.62	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 09 23	095	0.4+	0.9−	1995 01 02	010	1.2+	0.0	1999 02 10	704	0.7−	0.8−
1994 12 06	411	1.0+	0.5−	1995 01 02	411	0.7+	0.5−	1999 02 13	704	1.1−	1.8−
1994 12 06	411	0.3+	0.1+	1995 01 02	411	0.3+	0.1−	1999 02 13	704	0.0	0.6+
1994 12 07	411	0.4−	0.2−	1995 01 03	010	2.2−	0.6+	1999 02 13	704	1.3+	0.9−
1994 12 07	411	0.3−	0.6+	1995 01 04	010	0.7+	1.0+	1999 02 13	704	0.2−	0.6−

1999 MAR. 2

1994 12 14	411	0.4−	0.5−	1999 02 10	704	0.1−	2.4+	1999 02 13	704	1.6−	0.1−
1994 12 14	411	0.5−	0.3+	1999 02 10	704	1.3+	0.2−				
1995 01 02	010	0.4−	0.1−	1999 02 10	704	0.3+	0.1−				

1994 YO₁ = 1999 CX₇₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	133.39161		(2000.0)	P	Q		
<i>n</i>	0.27256678	ω	55.44912	+0.99255432	−0.09518120		
<i>a</i>	2.3558851	Ω	309.88947	+0.05052809	+0.88951495		
<i>e</i>	0.0989265	<i>i</i>	5.68474	+0.11082791	+0.44688219		
<i>P</i>	3.62	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 12 31	411	0.2−	0.6+	1995 01 19	411	0.0	0.5−	1999 02 12	704	0.1−	0.7+
1994 12 31	411	1.1−	0.2+	1995 01 19	411	(0.4−	4.4−)	1999 02 12	704	0.3−	0.0
1995 01 01	411	0.3+	0.2+	1995 01 20	411	1.7−	0.1+	1999 02 12	704	0.2−	0.1−
1995 01 01	411	0.0	0.2+	1995 01 20	411	0.1+	0.4+	1999 02 16	704	0.6+	1.2−
1995 01 05	411	0.0	0.7−	1999 02 12	699	0.9+	0.7−	1999 02 16	704	0.4+	0.8−
1995 01 05	411	0.3+	0.1−	1999 02 12	704	0.4−	0.0	1999 02 16	704	0.2+	0.5+
1995 01 05	411	0.4+	0.4+	1999 02 12	699	0.1+	0.5+	1999 02 16	704	0.9−	0.5+
1995 01 07	411	0.9+	0.6−	1999 02 12	704	0.1−	0.2−	1999 02 16	704	0.1+	0.1−
1995 01 07	411	0.9+	0.5−	1999 02 12	699	0.4−	0.9+				

1994 YP₁ = 1999 CD₄₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	52.29480		(2000.0)	P	Q		
<i>n</i>	0.26210907	ω	69.72643	+0.34326376	−0.93923904		
<i>a</i>	2.4181395	Ω	0.19792	+0.84419889	+0.30845737		
<i>e</i>	0.1938238	<i>i</i>	2.56167	+0.41170162	+0.15061236		
<i>P</i>	3.76	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1994 12 31	411	0.2+	1.2−	1995 01 19	411	0.7+	0.2−	1999 02 12	699	0.8+	0.7+
1994 12 31	411	0.4+	0.9+	1999 02 10	704	0.0	0.5−	1999 02 13	704	0.6+	0.3+
1995 01 01	411	0.1−	0.2+	1999 02 10	704	0.4−	0.2+	1999 02 13	704	0.3+	1.4−
1995 01 02	411	0.5+	0.6−	1999 02 10	704	0.3−	0.1+	1999 02 13	704	0.2+	0.3−
1995 01 02	411	0.3−	0.3+	1999 02 10	704	1.3+	0.1−	1999 02 13	704	0.3−	0.1+
1995 01 06	411	0.4−	0.2+	1999 02 10	704	1.9−	1.8−	1999 02 13	704	0.7+	0.4+
1995 01 06	411	0.7−	0.2+	1999 02 12	699	0.2−	1.2+				
1995 01 19	411	0.2−	0.3+	1999 02 12	699	0.8−	1.0+				

1994 YR₁ = 1999 CJ₁₀₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	63.30647		(2000.0)	P	Q		
<i>n</i>	0.26874467	ω	355.45128	+0.24533149	−0.95953236		
<i>a</i>	2.3781695	Ω	80.30163	+0.89380877	+0.16866336		
<i>e</i>	0.0927718	<i>i</i>	8.06195	+0.37539092	+0.22550016		
<i>P</i>	3.67	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 12 31	411	0.5−	0.5+	1995 01 07	411	0.0	0.3−	1999 02 10	704	2.5+	1.3+
1994 12 31	411	2.4−	1.3−	1995 01 07	411	0.0	0.5+	1999 02 13	704	0.4−	0.3+
1995 01 01	411	1.1+	1.3+	1995 01 19	411	0.4−	0.8−	1999 02 13	704	0.3−	0.3−
1995 01 01	411	0.9+	0.0	1995 01 19	411	0.4+	0.6+	1999 02 13	704	0.7−	0.3−
1995 01 05	411	0.5+	0.5−	1999 02 10	704	0.2+	0.4−	1999 02 13	704	0.3−	0.7−
1995 01 05	411	0.4+	0.0	1999 02 10	704	1.3−	0.0	1999 02 13	704	0.4+	0.1+

1994 YU₂ = 1999 CD₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	46.05075		(2000.0)	P	Q
n	0.26809545	ω	261.93977	+0.39408989	−0.91111704
a	2.3820073	Ω	163.21066	+0.91754307	+0.39759831
e	0.2347730	i	24.69079	−0.05298935	+0.10854183
P	3.68	H	14.8	G 0.15	U 3

1999 MAR. 2

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Residuals in seconds of arc

1994 11 27	413	2.8+	3.6-	1995 01 14	413	0.1-	0.5+	1999 02 12	704	0.3+	0.4-
1994 12 31	413	0.3+	1.6+	1995 02 02	413	0.4-	1.1+	1999 02 16	704	0.5+	0.4-
1994 12 31	413	0.1-	2.5-	1995 02 02	413	1.2-	0.8+	1999 02 16	704	0.2-	0.1-
1995 01 13	413	0.3-	0.5+	1995 03 21	413	0.6-	1.3+	1999 02 16	704	0.2+	0.3-
1995 01 13	413	0.5-	0.8+	1995 03 21	413	0.7-	1.4+	1999 02 16	704	0.3-	0.4-
1995 01 14	413	0.0	0.5+	1999 02 12	704	0.1+	0.8-	1999 02 16	704	0.3+	0.9+
1995 01 14	413	0.1-	0.3+	1999 02 12	704	0.6-	0.8-				
1995 01 14	413	0.2-	0.5+	1999 02 12	704	0.0	0.4-				

1995 AE₁ = 1999 AG₃₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	305.87919	(2000.0)	P	Q	
<i>n</i>	0.25474012	ω 42.24325	-0.91451353	+0.40306550	
<i>a</i>	2.4645510	Ω 161.43888	-0.39417656	-0.86847369	
<i>e</i>	0.1620109	<i>i</i> 6.25601	-0.09104855	-0.28860293	
<i>P</i>	3.87	<i>H</i> 14.3	<i>G</i> 0.15	<i>U</i> 5	

Residuals in seconds of arc

1995 01 06	372	1.9+	1.0-	1999 01 22	699	0.2-	0.2+	1999 02 12	704	0.8-	0.8+
1995 01 06	372	(4.1+ 0.9+)		1999 01 22	699	0.4-	0.1+	1999 02 16	704	0.5+	0.5-
1995 01 08	372	(3.4+ 2.2-)		1999 01 22	699	0.1-	0.3+	1999 02 16	704	0.3+	0.8-
1995 01 27	399	(2.8- 3.2-)		1999 02 12	699	0.1+	0.2+	1999 02 16	704	0.2+	0.3-
1995 01 27	399	(1.5- 3.3-)		1999 02 12	699	0.0	0.3+	1999 02 16	704	0.6+	0.2-
1995 01 28	399	(3.1- 0.6-)		1999 02 12	699	0.4+	0.3+	1999 02 16	704	0.5+	0.8-
1995 01 28	399	1.9- 0.7+		1999 02 12	704	0.2+	0.9+	1999 02 19	566	0.1+	0.1-
1999 01 14	699	0.1+	0.1-	1999 02 12	704	1.2-	1.1+	1999 02 19	566	0.3+	0.4-
1999 01 14	699	0.1-	0.2+	1999 02 12	704	0.1-	0.4-	1999 02 19	566	0.3-	0.5-
1999 01 14	699	0.1-	0.1+	1999 02 12	704	0.3+	0.1+				

1995 BP = 1999 CQ₁₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	228.65090	(2000.0)	P	Q	
<i>n</i>	0.23148171	ω 310.05380	-0.05664271	+0.98564356	
<i>a</i>	2.6269890	Ω 315.88973	-0.83226542	-0.13461170	
<i>e</i>	0.2596763	<i>i</i> 13.20955	-0.55147609	+0.10191401	
<i>P</i>	4.26	<i>H</i> 13.2	<i>G</i> 0.15	<i>U</i> 5	

Residuals in seconds of arc

1995 01 23	411	0.5+	0.5-	1995 02 03	033	0.1-	0.7+	1999 02 10	704	0.2+	0.7+
1995 01 23	411	0.2-	0.0	1995 02 06	411	1.2+	0.6-	1999 02 10	704	0.8-	1.2+
1995 01 25	411	0.7-	0.3-	1995 02 06	411	0.9+	0.4-	1999 02 10	704	0.3-	0.3-
1995 01 25	411	0.9-	0.6+	1995 02 07	411	0.3-	0.1+	1999 02 13	704	0.3-	1.1+
1995 01 29	411	0.5-	0.4+	1995 02 07	411	0.2-	1.1-	1999 02 13	704	0.5+	2.3-
1995 01 29	411	1.1+	0.4-	1995 02 19	411	0.0	0.6+	1999 02 13	704	0.3-	0.6-
1995 01 30	033	0.0	0.1+	1995 02 19	411	0.7-	0.2+				
1995 01 31	033	0.3-	0.6+	1999 02 10	704	0.9+	0.3+				

1995 BM₁ = 1999 CP₁₈

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	83.38885	(2000.0)	P	Q	
<i>n</i>	0.24142028	ω 252.90335	+0.96517438	-0.25042647	
<i>a</i>	2.5543881	Ω 121.54085	+0.26079656	+0.89830611	
<i>e</i>	0.2381984	<i>i</i> 5.09339	+0.02058100	+0.36101622	
<i>P</i>	4.08	<i>H</i> 14.3	<i>G</i> 0.15	<i>U</i> 5	

Residuals in seconds of arc

1995 01 23	411	0.2+	0.2-	1995 02 05	691	0.7-	0.2+	1999 01 10	699	0.8-	0.6+
1995 01 23	411	0.7+	1.0+	1995 02 05	691	0.9-	0.2+	1999 02 10	704	0.1+	0.4+
1995 01 25	411	0.9-	0.1-	1995 02 06	411	0.1+	1.1-	1999 02 10	704	1.9+	0.3+
1995 01 25	411	0.9+	0.6+	1995 02 06	411	1.0+	0.9-	1999 02 10	704	0.7+	0.9-
1995 01 26	411	0.5-	0.8+	1995 02 10	411	1.2+	0.3-	1999 02 10	704	0.2-	0.6-
1995 01 26	411	0.3+	0.6+	1995 02 10	411	0.3-	0.6-	1999 02 13	704	0.4+	1.2+
1995 01 26	411	0.7+	0.7+	1995 02 17	411	0.1+	0.2-	1999 02 13	704	1.2+	1.3+

1995 01 30	411	0.8+	0.3-	1995 02 17	411	1.5-	0.5-	1999 02 13	704	1.8-	0.8-
1995 01 30	411	0.5-	0.3-	1999 01 10	699	0.1+	0.9-	1999 02 13	704	1.4-	0.4+
1995 02 05	691	0.6-	0.3+	1999 01 10	699	0.3-	1.0-				

1995 BY₂ = 1998 XJ₇₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	25.84421	(2000.0)	P	Q	
<i>n</i>	0.22395880	ω 295.30485	+0.61009158	-0.76279499	
<i>a</i>	2.6854926	Ω 115.39320	+0.78512331	+0.54560468	
<i>e</i>	0.1636587	<i>i</i> 13.72359	+0.10662857	+0.34707253	
<i>P</i>	4.40	<i>H</i> 13.1	<i>G</i> 0.15	<i>U</i> 4	

Residuals in seconds of arc

1995 01 27	894	0.8-	0.5+	1995 02 06	894	1.0-	1.2+	1998 12 22	704	1.0+	0.2+
1995 01 27	894	0.7+	0.3-	1995 02 06	894	1.1+	0.6+	1998 12 22	704	0.5-	0.3-
1995 01 29	894	0.9-	0.8-	1998 12 15	704	0.6-	0.5-	1998 12 22	704	0.6-	0.1+
1995 01 29	894	0.4-	0.1+	1998 12 15	704	0.7-	0.4-	1998 12 22	704	0.3-	0.4+
1995 02 01	894	0.6+	0.1-	1998 12 15	704	0.4+	0.2+	1999 01 14	699	0.1+	0.5-
1995 02 01	894	1.0+	0.1+	1998 12 15	704	0.5+	1.1+	1999 01 14	699	0.5+	0.3+
1995 02 05	894	0.3-	1.0-	1998 12 15	704	0.4-	0.1-	1999 01 14	699	0.8+	0.6-

1995 BO₇ = 1999 BR₂₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Doppler		
<i>M</i>	227.35583	(2000.0)	P	Q	
<i>n</i>	0.25350320	ω 322.77700	+0.26063048	+0.95945403	
<i>a</i>	2.4725614	Ω 321.99234	-0.83853292	+0.16987080	
<i>e</i>	0.1917541	<i>i</i> 10.03810	-0.47847079	+0.22492640	
<i>P</i>	3.89	<i>H</i> 15.4	<i>G</i> 0.15	<i>U</i> 6	

Residuals in seconds of arc

1995 01 29	691	0.1+	0.1-	1995 02 04	691	0.0	0.8+	1999 01 18	691	0.3-	0.4-
1995 01 29	691	0.3+	0.0	1995 02 05	691	0.4+	0.4-	1999 01 18	691	0.2-	0.2-
1995 01 29	691	0.6-	0.3-	1995 02 05	691	0.2+	0.2+	1999 01 23	691	0.1-	0.1-
1995 02 04	691	0.4-	0.3+	1995 02 05	691	0.0	0.1-	1999 01 23	691	0.1-	0.5-
1995 02 04	691	0.0	0.4-	1999 01 18	691	0.6+	1.2+	1999 01 23	691	0.1+	0.0

1995 BB₁₄ = 1993 RH₃ = 1999 AV₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Doppler		
<i>M</i>	107.87595	(2000.0)	P	Q	
<i>n</i>	0.23746243	ω 55.06606	+0.99363097	+0.03005924	
<i>a</i>	2.5826930	Ω 302.97968	-0.07695077	+0.88505318	
<i>e</i>	0.1629735	<i>i</i> 7.43843	+0.08231694	+0.46451836	
<i>P</i>	4.15	<i>H</i> 14.1	<i>G</i> 0.15	<i>U</i> 4	

Residuals in seconds of arc

1993 09 14	098	0.5+	0.1-	1995 02 01	691	0.3+	0.2+	1999 01 13	725	0.3-	0.4+
1993 09 14	098	0.7+	0.4+	1995 02 02	691	0.4+	0.4+	1999 01 15	725	0.3-	0.2+
1993 09 15	098	1.2-	0.2-	1995 02 02	691	0.7+	0.5+	1999 01 15	725	0.4-	0.1+
1995 01 31	691	0.2-	0.0	1995 02 02	691	0.7+	0.4+	1999 01 15	691	1.5+	0.7-
1995 01 31	691	0.2-	0.1+	1995 02 07	691	0.0	0.1+	1999 01 15	691	(2.4+ 0.4-)	
1995 01 31	691	1.5-	1.1-	1995 02 07	691	0.1-	0.1+	1999 01 15	691	1.7+	0.4-
1995 02 01	691	0.4+	0.2-	1995 02 07	691	0.1+	0.4-	1999 01 19	691	0.3+	0.5-
1995 02 01	691	0.0	0.1-	1999 01 10	725	1.3-	0.3+	1999 01 19	691	0.1+	0.6-
1995 02 01	691	0.1-	0.1+	1999 01 10	725	1.2-	0.5+				
1995 02 01	691	0.2-	0.0	1999 01 13	725	0.1-	0.5+				

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1999 MAR. 2

1995 DZ₅ = 1999 BV₂₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	153.78772		(2000.0)	P		Q		Doppler	
<i>n</i>	0.22947373	ω	325.85982	+0.93947466	+0.34255540				
<i>a</i>	2.6422915	Ω	14.11201	−0.30802462	+0.85285822				
<i>e</i>	0.1404761	<i>i</i>	1.54404	−0.15002732	+0.39406681				
<i>P</i>	4.30	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	6		

Residuals in seconds of arc

1995 02 06	691	0.1+	0.3+	1995 02 24	691	0.2−	0.0	1999 01 18	691	1.0+	0.1−
1995 02 06	691	0.2+	0.3+	1995 03 01	691	0.1+	0.0	1999 01 18	691	0.6+	0.3−
1995 02 06	691	0.2−	0.1+	1995 03 01	691	0.1+	0.4+	1999 01 19	691	1.3−	0.2−
1995 02 24	691	0.2−	0.6−	1995 03 01	691	0.1−	0.2+	1999 01 19	691	0.6−	0.4+
1995 02 24	691	0.1+	0.7−	1999 01 18	691	0.9+	0.2−	1999 01 19	691	0.6−	0.3+

1995 EZ₇ = 1987 PJ = 1998 XU₉₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	289.16628		(2000.0)	P		Q		Doppler	
<i>n</i>	0.20533195	ω	332.79484	−0.99619359	+0.03150331				
<i>a</i>	2.8455422	Ω	209.35638	−0.00934937	−0.96564503				
<i>e</i>	0.0715711	<i>i</i>	9.54308	−0.08666559	−0.25794810				
<i>P</i>	4.80	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1987 08 06	010	1.3−	0.3−	1995 03 07	408	0.1+	0.4+	1998 12 15	704	1.3+	0.3−
1987 08 06	010	1.1+	0.5+	1995 03 20	409	0.1+	0.4+	1998 12 15	704	(3.2+	0.8+)
1987 08 06	010	0.1+	0.2+	1995 03 20	409	0.1+	0.5+	1998 12 22	704	0.9−	0.3+
1995 03 05	408	1.3+	0.7−	1995 03 21	409	0.1−	0.5+	1998 12 22	704	0.4−	0.2+
1995 03 05	408	(2.7+	2.2−)	1995 03 21	409	0.2−	0.0	1998 12 22	704	0.8−	0.1−
1995 03 06	408	0.8−	1.3−	1998 12 15	704	1.1+	0.3+	1998 12 22	704	0.8−	0.3+
1995 03 06	408	(2.5−	0.4−)	1998 12 15	704	0.6+	1.0−	1998 12 22	704	0.1+	0.2+
1995 03 07	408	0.3−	0.3+	1998 12 15	704	0.2−	0.3+				

1995 EL₈ = 1999 CU₃₈

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	11.06742		(2000.0)	P		Q		Williams	
<i>n</i>	0.23747589	ω	359.31443	−0.64415156	−0.76190962				
<i>a</i>	2.5825954	Ω	130.78495	+0.70220399	−0.62405786				
<i>e</i>	0.0405155	<i>i</i>	5.11812	+0.30327929	−0.17333643				
<i>P</i>	4.15	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	6		

Residuals in seconds of arc

1995 03 04	033	0.4+	0.1−	1999 02 10	704	0.4−	0.3−	1999 02 12	699	0.7+	0.7+
1995 03 05	033	0.5+	0.6−	1999 02 10	704	0.4+	0.4−	1999 02 13	704	0.6+	0.0
1995 03 07	033	0.5+	0.2+	1999 02 10	704	0.6−	0.5−	1999 02 13	704	1.0+	0.5+
1995 03 23	033	0.5−	0.2+	1999 02 10	704	1.3−	1.1−	1999 02 13	704	0.9−	0.3−
1995 03 23	033	1.0−	0.3+	1999 02 12	699	0.6+	0.1+	1999 02 13	704	0.7−	0.1+
1999 02 10	704	0.1−	0.3+	1999 02 12	699	1.0+	0.8+	1999 02 13	704	0.2−	0.0

1995 FE₁₅ = 1999 CN₁₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	154.01029		(2000.0)	P		Q		Williams	
<i>n</i>	0.21461183	ω	177.05450	+0.97614839	+0.21467861				
<i>a</i>	2.7629113	Ω	170.36372	−0.20293263	+0.95521002				
<i>e</i>	0.1601986	<i>i</i>	11.14779	−0.07715353	+0.20368335				
<i>P</i>	4.59	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	6		

Residuals in seconds of arc

1995 03 27	691	0.3−	0.1+	1995 04 01	691	0.5+	0.4−	1999 02 14	910	0.0	0.3−
1995 03 27	691	0.1−	0.1+	1995 04 07	691	0.2−	0.2+	1999 02 16	910	0.0	0.3+
1995 03 27	691	0.2−	0.2+	1995 04 07	691	0.2+	0.2+	1999 02 16	910	0.2+	0.1+
1995 04 01	691	0.2+	0.3−	1999 02 14	910	0.1−	0.0	1999 02 16	910	0.4−	0.1−
1995 04 01	691	0.1−	0.2−	1999 02 14	910	0.1+	0.0				

1995 FH₁₅ = 1999 CP₁₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	53.03276		(2000.0)	P		Q		Williams	
<i>n</i>	0.21125595	ω	299.18812	+0.39688160	−0.91563634				
<i>a</i>	2.7920943	Ω	127.28795	+0.86759310	+0.35147167				
<i>e</i>	0.0810521	<i>i</i>	4.61348	+0.29961177	+0.19513525				
<i>P</i>	4.67	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	6		

Residuals in seconds of arc

1995 03 27	691	0.2+	0.1+	1995 04 04	691	0.1−	0.1−	1999 02 10	704	0.4+	0.5+
1995 03 27	691	0.1+	0.4+	1995 04 08	691	0.1−	0.2−	1999 02 13	704	1.7+	0.4−
1995 03 27	691	0.5+	0.2+	1995 04 08	691	0.2−	0.1−	1999 02 13	704	0.6−	1.2−
1995 04 01	691	0.2+	0.1−	1995 04 08	691	0.3−	0.5−	1999 02 13	704	1.5−	0.6−
1995 04 01	691	0.1−	0.1+	1999 02 10	704	1.7−	0.1−	1999 02 13	704	0.7−	0.9+
1995 04 01	691	0.3+	0.1+	1999 02 10	704	0.3−	0.2−	1999 02 13	704	0.1+	0.0
1995 04 04	691	0.3−	0.0	1999 02 10	704	1.1+	0.8+				
1995 04 04	691	0.1−	0.0	1999 02 10	704	1.5+	0.4+				

1995 GC₂

Id. T. Kobayashi (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	95.68354		(2000.0)	P		Q		Williams	
<i>n</i>	0.22033787	ω	342.43630	+0.76338027	−0.64339101				
<i>a</i>	2.7148341	Ω	57.74830	+0.60050034	+0.67409651				
<i>e</i>	0.0365950	<i>i</i>	3.89401	+0.23801239	+0.36282488				
<i>P</i>	4.47	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1995 03 24	033	0.8+	0.2+	1999 01 13	699	0.2+	0.2−	1999 02 10	704	0.2−	0.3+
1995 03 24	033	0.9+	0.5+	1999 01 13	699	0.1+	0.3+	1999 02 10	704	0.3−	0.1+
1995 03 27	033	0.0	0.3+	1999 01 13	699	0.8+	0.1−	1999 02 12	699	0.1+	0.5+
1995 03 28	033	1.0+	0.4+	1999 02 05	411	0.6−	0.2+	1999 02 12	699	0.2+	0.5+
1995 04 02	691	0.1−	0.5−	1999 02 05	411	0.6−	0.1−	1999 02 12	699	0.2−	0.1+
1995 04 02	691	0.4−	0.1−	1999 02 06	411	0.0	0.1−	1999 02 13	704	0.6+	0.4−
1995 04 02	691	1.3−	0.3−	1999 02 06	411	0.9−	0.1+	1999 02 13	704	0.3+	0.4−
1995 04 06	691	0.1+	0.0	1999 02 10	704	0.0	0.1−	1999 02 13	704	0.1+	0.1+
1995 04 06	691	0.5−	0.3−	1999 02 10	704	0.1+	0.2−	1999 02 13	704	0.2+	0.7−
1995 04 06	691	0.6−	0.1−	1999 02 10	704	0.4+	0.0	1999 02 13	704	(2.6−	1.2+)

1995 SG₅₁ = 1997 EF₄₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	188.71783		(2000.0)	P		Q		Doppler	
<i>n</i>	0.22732570	ω	269.17729	−0.44649598	−0.89450220				
<i>a</i>	2.6589103	Ω	207.37714	+0.83919784	−0.40989256				
<i>e</i>	0.1101662	<i>i</i>	2.80707	+0.31046469	−0.17847660				
<i>P</i>	4.34	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	6		

Residuals in seconds of arc

1995 09 26	691	0.2+	0.3+	1995 09 29	691	0.7−	0.1−	1997 03 11	704	0.0	0.0
1995 09 26	691	0.2+	0.1−	1995 10 01	691	0.7+	0.3−	1997 03 12	704	0.2+	0.2+
1995 09 26	691	0.7+	0.2+	1995 10 01	691	0.2+	0.2−	1997 03 12	704	0.7+	0.4+
1995 09 29	691	1.3−	0.1+	1995 10 01	691	0.9+	0.1−				
1995 09 29	691	0.9−	0.1+	1997 03 11	704	0.9−	0.5−				

1996 BS₂ = 1984 UQ₁ = 1999 BD₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	111.72170		(2000.0)	P		Q		Doppler	
<i>n</i>	0.29382594	ω	217.71446	+0.95568517	+0.27490290				
<i>a</i>	2.2408320	Ω	126.00442	−0.22834297	+0.91802745				
<i>e</i>	0.2016070	<i>i</i>	7.48123	−0.18580998	+0.28575164				
<i>P</i>	3.35	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	4		

1999 MAR. 2

M.P.C. 33945

Residuals in seconds of arc

1984 10 29	688	0.3−	0.0	1996 01 30	411	0.6−	1.0−	1999 01 18	704	0.6−	1.0−
1984 10 29	688	0.4+	0.1+	1996 02 12	411	0.0	0.1−	1999 01 20	704	0.3+	0.1+
1996 01 26	411	1.4+	0.5−	1996 02 12	411	0.5−	1.0+	1999 01 20	704	0.0	0.3+
1996 01 26	411	0.7+	1.1+	1999 01 18	704	1.0−	0.8+	1999 01 20	704	(2.4+	0.4+)
1996 01 27	411	0.1−	0.6−	1999 01 18	704	1.4+	0.1+	1999 01 20	704	0.6−	0.2−
1996 01 27	411	0.4−	0.2−	1999 01 18	704	0.1−	0.1+	1999 01 20	704	0.1+	0.1−
1996 01 30	411	0.4−	0.3+	1999 01 18	704	0.5+	0.1−				

1996 ED₃ = 1998 XL₃₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	284.81137		(2000.0)	P	Q
<i>n</i>	0.27647934	ω	138.46416	−0.98967336	−0.12838971
<i>a</i>	2.3336063	Ω	34.31559	+0.08226894	−0.87290467
<i>e</i>	0.0773885	<i>i</i>	6.49192	+0.11738166	−0.47069471
<i>P</i>	3.56	<i>H</i>	15.8	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1996 03 09	327	(4.2−	1.8−)	1996 03 11	327	1.2+	0.4+	1998 12 14	704	0.9−	1.0−
1996 03 09	327	(2.8−	1.6−)	1996 03 11	327	1.0+	1.2+	1998 12 14	704	0.3+	0.3+
1996 03 09	327	0.7−	0.7−	1996 03 11	327	(0.5−	2.4+)	1998 12 17	704	0.2−	1.5+
1996 03 10	327	0.7−	0.3−	1998 12 14	704	0.6+	0.7+	1998 12 17	704	0.1+	0.5+
1996 03 10	327	0.0	0.5−	1998 12 14	704	1.2+	0.4+	1998 12 17	704	0.6−	1.5−
1996 03 10	327	0.9−	0.1−	1998 12 14	704	0.1+	0.2−	1998 12 17	704	0.5−	0.7−

1996 FT₁₁ = 1999 CL₈₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	175.47191		(2000.0)	P	Q
<i>n</i>	0.28534409	ω	240.28752	+0.67028783	+0.74143634
<i>a</i>	2.2850207	Ω	71.83659	−0.66893551	+0.62198505
<i>e</i>	0.0608889	<i>i</i>	1.89419	−0.32130907	+0.25180697
<i>P</i>	3.45	<i>H</i>	15.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 03 22	691	0.4+	0.1+	1996 04 20	566	0.2+	0.3−	1999 02 13	704	(2.7+	2.1−)
1996 03 22	691	0.6+	0.1+	1999 02 10	704	1.0+	0.7+	1999 02 13	704	1.6+	0.4−
1996 03 26	691	0.5−	0.0	1999 02 10	704	1.5−	0.6+	1999 02 18	566	0.5−	0.1−
1996 03 26	691	0.4−	0.0	1999 02 10	704	0.5−	0.2+	1999 02 18	566	0.6−	1.0−
1996 03 26	691	0.3−	0.1−	1999 02 10	704	0.7−	0.0	1999 02 18	566	0.3−	0.2−
1996 04 20	566	0.1−	0.2−	1999 02 13	704	1.4+	0.5−				
1996 04 20	566	0.0	0.4+	1999 02 13	704	0.1+	0.6+				

1996 GB₇ = 1999 CW₅₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	23.16856		(2000.0)	P	Q
<i>n</i>	0.30398134	ω	84.12411	−0.48677018	−0.87246165
<i>a</i>	2.1906421	Ω	35.11042	+0.76879833	−0.45136004
<i>e</i>	0.0809909	<i>i</i>	4.30666	+0.41473354	−0.18730935
<i>P</i>	3.24	<i>H</i>	15.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 03 24	566	1.0+	0.5+	1996 04 19	691	0.6−	0.4−	1999 02 13	704	0.1+	0.6−
1996 03 24	566	0.1−	0.7+	1999 02 10	704	1.1+	0.1+	1999 02 13	704	0.3−	0.4+
1996 03 24	566	0.1−	0.5+	1999 02 10	704	0.7+	0.2−	1999 02 13	704	0.2−	0.4+
1996 04 12	691	0.6+	0.0	1999 02 10	704	0.7+	0.4+	1999 02 18	566	1.1−	0.7−
1996 04 12	691	0.4+	0.2−	1999 02 10	704	0.9+	1.2+	1999 02 18	566	1.3−	0.8−
1996 04 12	691	0.4+	0.1−	1999 02 10	704	(0.8+	2.3−)	1999 02 18	566	1.8−	0.9−
1996 04 19	691	0.6−	0.6−	1999 02 13	704	1.2+	0.1+				
1996 04 19	691	0.7−	0.0	1999 02 13	704	0.0	0.2+				

1996 HY₁ = 1999 CK₈₅

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	103.93739		(2000.0)	P	Q
<i>n</i>	0.23356649	ω	356.18053	+0.99876321	+0.04958300
<i>a</i>	2.6113336	Ω	0.99992	−0.03815992	+0.81194697
<i>e</i>	0.1746486	<i>i</i>	12.18813	−0.03187270	+0.58162156
<i>P</i>	4.22	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 04 24	684	0.2+	0.2−	1996 05 06	684	0.5−	0.4+	1999 02 10	704	0.5−	0.1−
1996 04 24	684	0.2+	0.3−	1996 05 06	684	0.1−	0.5+	1999 02 10	704	1.4+	0.2−
1996 04 24	684	0.1+	0.0	1996 05 18	684	0.2−	0.2−	1999 02 10	704	0.4+	0.1−
1996 04 24	381	0.3+	0.0	1996 05 18	684	0.8+	0.1−	1999 02 13	704	(0.5+	2.7+)
1996 04 24	381	0.2+	0.0	1996 06 06	684	0.4+	0.4−	1999 02 13	704	0.3−	1.6+
1996 04 25	684	(3.2+	0.9−)	1996 06 06	684	0.2−	0.1+	1999 02 13	704	0.3−	0.2+
1996 04 25	684	0.4−	0.7+	1998 12 17	699	0.3−	0.7+	1999 02 13	704	0.8−	1.4−
1996 04 25	684	0.7−	0.6−	1998 12 17	699	0.3+	0.2+				
1996 04 26	684	(2.7−	2.2−)	1998 12 17	699	0.1+	1.0−				

1996 HC₂

Id. A. Sugie (1999 observations), Y. Ikari (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	260.27117		(2000.0)	P	Q
<i>n</i>	0.29385731	ω	167.69090	+0.13757425	+0.98691144
<i>a</i>	2.2406725	Ω	110.17001	−0.91619005	+0.15907367
<i>e</i>	0.2422312	<i>i</i>	5.14258	−0.37638958	−0.02648350
<i>P</i>	3.35	<i>H</i>	15.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 04 24	367	0.4+	0.8−	1996 04 27	900	(4.6−	2.4+)	1996 06 05	900	0.6−	0.5+
1996 04 24	367	0.0	0.1+	1996 04 27	900	0.2−	1.0−	1998 12 12	402	1.4−	0.6−
1996 04 24	900	0.4−	1.0−	1996 05 09	900	0.6+	0.4−	1998 12 12	402	0.9+	0.7+
1996 04 24	900	0.9+	0.5+	1996 05 09	900	0.6+	0.1+	1998 12 12	402	0.3+	0.6+
1996 04 24	900	1.9−	0.2+	1996 05 09	897	1.6+	0.1−	1999 02 08	402	0.1−	0.1+
1996 04 26	367	0.1+	0.3−	1996 05 09	897	0.6−	0.3+	1999 02 08	402	0.1+	0.2+
1996 04 26	367	0.0	0.3+	1996 05 25	900	0.2−	0.4+	1999 02 08	402	0.4+	0.0
1996 04 26	900	0.3−	0.2+	1996 05 25	900	0.2+	0.2+	1999 02 16	402	0.3−	0.2−
1996 04 26	900	0.5−	0.4+	1996 06 05	900	0.2+	0.1+	1999 02 16	402	0.1+	0.1−

1996 HV₂₁ = 1981 UK₂ = 1999 CY₅₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	292.61213		(2000.0)	P	Q
<i>n</i>	0.30401622	ω	188.04662	−0.69442040	+0.71796106
<i>a</i>	2.1904745	Ω	37.99329	−0.65576640	−0.60392232
<i>e</i>	0.0991075	<i>i</i>	4.48026	−0.29622751	−0.34613545
<i>P</i>	3.24	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1981 10 30	381	1.1+	1.6+	1996 04 21	566	0.7+	0.7+	1999 02 13	704	0.4−	1.4−
1981 10 30	381	1.9−	0.7+	1996 04 22	566	0.1−	0.1−	1999 02 13	704	1.7−	1.1+
1996 03 24	809	(3.3+	1.5+)	1996 04 22	566	0.1+	0.2+	1999 02 13	704	0.6+	0.7+
1996 03 24	809	2.0+	1.2+	1996 04 22	566	0.7−	0.9+	1999 02 13	704	1.1+	0.3+
1996 03 24	809	(2.3+	0.9+)	1996 05 20	566	0.3−	0.0	1999 02 13	704	0.3+	0.7−
1996 03 26	809	(1.3+	4.0+)	1996 05 20	566	0.4−	0.4−	1999 02 19	365	0.9+	0.8−
1996 03 26	809	(0.9+	3.5+)	1996 05 20	566	0.3−	0.0	1999 02 19	365	0.6+	0.5−
1996 03 26	809	(1.1+	4.1+)	1999 02 10	704	0.1−	0.4−	1999 02 23	365	1.1−	0.2−
1996 04 21	566	0.0	0.2−	1999 02 10	704	0.3+	0.6−	1999 02 23	365	0.4−	0.3+
1996 04 21	566	0.3+	0.2+	1999 02 10	704	0.6−	1.0+				

1996 HO₂₃ = 1999 CK₆₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	359.75418		(2000.0)	P		Q					
<i>n</i>	0.28018874	ω	295.38258	-0.73612061	-0.67604900						
<i>a</i>	2.3129643	Ω	202.12979	+0.64816932	-0.69008220						
<i>e</i>	0.0593933	<i>i</i>	5.01449	+0.19494350	-0.25834918						
<i>P</i>	3.52	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1996 04 20	809	1.1+	0.2+	1998 12 26	699	0.2-	0.7+	1999 02 21	859	0.4-	0.0
1996 04 20	809	0.2+	0.9+	1998 12 26	699	0.0	0.2+	1999 02 21	859	0.3-	0.0
1996 04 20	809	0.8+	0.6+	1999 01 15	699	0.8+	0.1+	1999 02 22	859	0.3-	0.8-
1996 04 21	809	1.4-	0.1-	1999 01 15	699	0.3-	0.1+	1999 02 22	859	0.8-	0.1-
1996 04 21	809	1.4-	0.9+	1999 01 15	699	0.5+	0.4+	1999 02 22	859	0.2-	0.1-
1996 04 21	809	1.5-	0.8+	1999 02 12	704	0.3-	0.2-	1999 02 22	719	(3.0+	1.1+)
1996 05 19	809	1.5+	0.7+	1999 02 12	704	0.3-	0.2-	1999 02 22	719	0.9+	0.9+
1996 05 19	809	1.3+	0.5+	1999 02 12	704	0.2-	0.5+	1999 02 22	684	1.2+	0.2+
1996 05 19	809	0.4+	0.9+	1999 02 12	704	0.0	0.0	1999 02 22	684	1.1+	0.5+
1996 05 22	809	0.5-	1.5-	1999 02 12	704	0.1+	0.4+	1999 02 22	557	0.2-	0.1+
1996 05 22	809	0.5-	1.5-	1999 02 16	704	0.6+	0.5+	1999 02 22	557	0.5-	0.1-
1996 05 22	809	0.0	1.8-	1999 02 16	704	0.9+	0.1+	1999 02 22	557	0.1-	0.5-
1996 05 23	809	(2.9+	0.2-)	1999 02 16	704	0.3-	0.8-	1999 02 23	684	0.5-	0.4-
1996 05 23	809	(3.3+	0.7-)	1999 02 16	704	0.2+	0.5-	1999 02 23	684	0.5-	0.5-
1996 05 23	809	(2.5+	0.4+)	1999 02 16	704	0.0	0.2-	1999 02 23	557	0.3-	0.5-
1998 12 26	699	0.2-	0.7+	1999 02 21	859	0.2-	0.3-	1999 02 23	557	0.4-	0.4-

1996 HL₂₅ = 1999 CO₅₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	244.34171		(2000.0)	P			Q				
<i>n</i>	0.28361205	ω	152.88536	−0.01259359			+0.99963908				
<i>a</i>	2.2943144	Ω	116.38485	−0.92214485			−0.00243434				
<i>e</i>	0.0639593	<i>i</i>	1.51791	−0.38663971			−0.02675418				
<i>P</i>	3.48	<i>H</i>	15.0	<i>G</i>	0.15		<i>U</i>	5			
Residuals in seconds of arc											
1996 04 20	809	0.1+	0.7−	1996 05 22	809	0.6+	1.8+	1999 02 12	699	0.7−	1.0+
1996 04 20	809	0.2+	0.6−	1996 05 22	809	0.1−	1.3+	1999 02 12	699	1.1+	0.1+
1996 04 20	809	0.3−	0.8−	1996 05 24	809	1.7+	1.0+	1999 02 12	699	1.2+	0.5+
1996 04 21	809	0.0	0.2−	1996 05 24	809	1.7+	1.2+	1999 02 13	704	0.3−	0.3−
1996 04 21	809	0.2−	0.0	1996 05 24	809	(2.5+	1.2+)	1999 02 13	704	1.2+	0.1+
1996 04 21	809	0.9−	0.5−	1999 02 10	704	(0.6−	2.6−)	1999 02 13	704	0.7+	1.0+
1996 05 20	691	0.9−	1.0−	1999 02 10	704	0.6−	0.7−	1999 02 13	704	(2.2+	0.0
1996 05 20	691	0.9−	1.2−	1999 02 10	704	0.6−	0.1−	1999 02 13	704	0.4+	0.2−
1996 05 20	691	1.0−	0.7−	1999 02 10	704	1.5−	0.2−				
1996 05 22	809	(0.5+	2.4+)	1999 02 10	704	0.6−	0.5−				

1996 HM₂₅ = 1999 CZ₃₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	217.57163		(2000.0)	P		Q					
<i>n</i>	0.26841533	ω	224.64143	+0.27909586	+0.94940810						
<i>a</i>	2.3801144	Ω	62.06065	−0.82918494	+0.31389508						
<i>e</i>	0.1160802	<i>i</i>	9.37955	−0.48431172	+0.00970202						
<i>P</i>	3.67	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	6				
Residuals in seconds of arc											
1996 04 20	809	0.7+	0.3−	1996 05 15	566	1.1−	0.8−	1999 02 10	704	1.6+	0.5+
1996 04 20	809	1.5+	1.9−	1996 05 22	809	0.6−	0.4+	1999 02 10	704	0.8−	1.9+
1996 04 20	809	2.1+	0.2−	1996 05 22	809	1.1−	0.3+	1999 02 10	704	1.8−	1.0−
1996 04 21	809	0.6+	0.5+	1996 05 22	809	0.4−	0.3+	1999 02 13	704	1.3+	1.1−
1996 04 21	809	0.9+	1.9+	1996 05 24	809	0.5+	0.3+	1999 02 13	704	0.0	0.9−
1996 04 21	809	1.1+	0.4+	1996 05 24	809	0.4−	0.8+	1999 02 13	704	1.1−	1.6+
1996 05 15	566	1.0−	0.6−	1996 05 24	809	1.3−	0.0	1999 02 13	704	1.2+	1.1−
1996 05 15	566	1.2−	0.9−	1999 02 10	704	0.6−	0.2−				

1996 HC₂₆ = 1999 CG₉₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	235.11279		(2000.0)	P		Q					
n	0.27285270	ω	200.69954	+0.19987079	+0.97813981						
a	2.3542389	Ω	80.86437	-0.89059818	+0.20578078						
e	0.2160157	i	3.33262	-0.40851751	+0.02994630						
P	3.61	H	15.6	G	0.15	U	5				
Residuals in seconds of arc											
1996 04 20	809	3.2+	1.3+	1996 05 22	809	0.4-	0.2+	1996 06 07	046	0.4-	0.1+
1996 04 20	809	2.0+	1.1+	1996 05 22	809	0.6-	0.2+	1996 06 07	046	0.5-	0.5-
1996 04 20	809	2.6+	1.8+	1996 05 22	809	0.1-	0.3+	1996 06 07	046	0.5-	0.9-
1996 04 21	809	2.4+	1.0+	1996 05 24	809	0.6-	1.3-	1996 06 07	046	0.2-	0.0
1996 04 21	809	2.0+	0.9+	1996 05 24	809	0.9-	1.7-	1996 06 20	566	0.8+	0.4-
1996 04 21	809	0.0	0.1-	1996 05 24	809	0.4-	1.1-	1996 06 20	566	0.7+	0.6-
1996 05 15	566	0.7-	0.1-	1996 06 06	046	0.4-	0.4+	1996 06 20	566	0.3+	0.9-
1996 05 15	566	0.7-	0.1+	1996 06 06	046	0.2-	0.3+	1999 02 10	704	0.8-	1.8-
1996 05 15	566	0.9-	0.1-	1996 06 06	046	0.8-	0.2-	1999 02 10	704	0.1-	0.2-
1996 05 20	691	1.5-	0.8+	1996 06 06	046	0.5+	0.0	1999 02 10	704	0.4-	1.6+
1996 05 20	691	1.4-	0.7+	1996 06 06	046	0.5-	0.6-	1999 02 10	704	0.9+	0.2-
1996 05 20	691	1.6-	0.2+	1996 06 06	046	0.8+	0.5-	1999 02 13	704	1.0-	0.4-
1996 05 21	566	0.7-	0.1+	1996 06 06	046	0.2-	0.7-	1999 02 13	704	1.5+	0.7-
1996 05 21	566	0.5-	0.1+	1996 06 07	046	0.6+	0.0	1999 02 13	704	1.1-	1.0-
1996 05 21	566	0.9-	0.2-	1996 06 07	046	0.6+	0.7+				

1996 HG₂₆ = 1999 CA₇₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	19.74202		(2000.0)	P		Q					
<i>n</i>	0.28322749	ω	276.15753	-0.48713624	-0.87200882						
<i>a</i>	2.2963907	Ω	203.18631	+0.84168445	-0.45413437						
<i>e</i>	0.0921075	<i>i</i>	6.99474	+0.23294970	-0.18265430						
<i>P</i>	3.48	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1996 04 20	809	1.7+	0.8+	1996 05 22	566	0.7-	1.4-	1999 02 12	704	0.6-	0.3+
1996 04 20	809	0.3+	0.9+	1996 05 22	566	1.1-	1.4-	1999 02 12	704	1.0-	1.0+
1996 04 20	809	0.0	0.3+	1996 05 22	566	1.3-	1.5-	1999 02 16	704	0.2+	0.4-
1996 04 21	809	0.6+	1.2-	1996 05 24	809	0.7+	0.3+	1999 02 16	704	0.8+	0.1-
1996 04 21	809	1.4-	0.1-	1996 05 24	809	0.8+	0.6+	1999 02 16	704	0.1-	0.3-
1996 04 21	809	1.5-	0.5-	1996 05 24	809	0.9+	0.3-	1999 02 16	704	0.9+	0.3+
1996 05 22	809	0.5+	1.9+	1999 02 12	704	0.1+	0.2-	1999 02 16	704	0.8+	0.7-
1996 05 22	809	0.1+	0.8+	1999 02 12	704	0.5-	0.3-				
1996 05 22	809	0.6+	1.0+	1999 02 12	704	0.5-	0.3+				

1996 JJ = 1979 HD₆ = 1999 CA₂

Id. T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	285.42881		(2000.0)	P		Q					
<i>n</i>	0.29100314	ω	122.38108	−0.62396200		+0.77347563					
<i>a</i>	2.2552997	Ω	108.60501	−0.75064475		−0.55361273					
<i>e</i>	0.2224273	<i>i</i>	6.74946	−0.21726452		−0.30862340					
<i>P</i>	3.39	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1979 04 28	095	0.0	0.1−	1999 02 06	106	1.2−	0.8+	1999 02 17	106	0.1+	0.2−
1996 05 08	399	0.6−	0.5+	1999 02 08	106	0.4−	0.0	1999 02 17	106	0.2−	0.4−
1996 05 08	399	0.4+	0.0	1999 02 08	106	0.3−	0.4−	1999 02 18	106	0.0	0.2+
1996 05 11	399	0.8+	0.2−	1999 02 08	106	0.4−	0.2−	1999 02 18	106	0.3+	0.3−
1996 05 11	399	0.6−	0.2−	1999 02 10	704	0.5−	0.0	1999 02 18	106	0.1+	0.4−
1996 05 15	399	0.1+	0.0	1999 02 10	704	0.4+	0.7+	1999 02 18	106	0.3+	0.3−
1996 05 15	399	(0.6−	2.7−)	1999 02 10	704	0.5−	0.2+	1999 02 19	566	0.2+	0.2−
1999 02 06	106	1.1+	0.6+	1999 02 10	704	0.2+	0.7+	1999 02 19	566	0.5+	0.0
1999 02 06	106	0.4+	0.5−	1999 02 10	704	0.2−	0.0	1999 02 19	566	0.2+	0.3−

1999 MAR. 2

M.P.C. 33947

1996 JT = 1999 AF₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	185.35586		(2000.0)		P		Q				
<i>n</i>	0.24595055	ω	72.16211		+0.53682749		+0.84142737				
<i>a</i>	2.5229241	Ω	230.46616		−0.80123430		+0.48550876				
<i>e</i>	0.1385885	<i>i</i>	4.59421		−0.26427230		+0.23723664				
<i>P</i>	4.01	<i>H</i>	15.1		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1996 05 13	566	0.1+	0.5+	1996 05 22	566	1.0+	0.4+	1999 01 16	120	0.8−	0.1−
1996 05 13	566	0.2−	0.4−	1996 05 22	566	0.2−	0.3−	1999 01 21	120	0.8+	0.0
1996 05 13	566	0.1+	0.0	1999 01 14	120	0.6+	1.4+	1999 01 21	120	0.5+	0.3−
1996 05 14	566	0.0	0.1+	1999 01 14	120	0.7−	0.4+	1999 01 21	120	1.0+	0.3−
1996 05 14	566	0.3−	0.2+	1999 01 14	120	0.9+	0.9+	1999 01 25	120	1.1−	0.5−
1996 05 14	566	0.5−	0.4−	1999 01 14	120	1.8−	0.4−				
1996 05 22	566	0.0	0.2−	1999 01 14	120	0.7+	1.0−				

1996 JZ = 1977 EZ₃ = 1999 CD₆₉

Id. G. V. Williams, S. Nakano, E. Howell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	248.85511		(2000.0)			P		Q			
<i>n</i>	0.26473293	ω	97.92469			-0.12638844		+0.99058546			
<i>a</i>	2.4021350	Ω	164.51495			-0.96995878		-0.11229855			
<i>e</i>	0.1323041	<i>i</i>	11.36162			-0.20786037		-0.07829095			
<i>P</i>	3.72	<i>H</i>	14.8		<i>G</i>	0.15		<i>U</i>	3		
Residuals in seconds of arc											
1977 03 15	381	0.2-	0.0	1996 05 15	900	1.0-	0.5+	1999 01 15	699	0.4+	0.5+
1977 03 15	381	0.2+	0.0	1996 05 16	896	0.2+	0.1-	1999 02 12	704	0.1-	0.8+
1996 05 14	900	0.7-	0.0	1996 05 16	896	0.0	0.2-	1999 02 12	704	0.3-	0.6+
1996 05 14	900	1.1+	1.5+	1996 05 19	896	1.4+	0.1+	1999 02 12	704	0.7+	1.1+
1996 05 15	896	0.3+	0.2+	1996 05 19	896	0.2+	0.1+	1999 02 12	704	0.8+	0.1-
1996 05 15	896	0.7+	0.8-	1996 05 19	896	0.7+	0.1+	1999 02 12	704	0.0	0.7-
1996 05 15	896	1.0-	0.8-	1996 05 23	900	0.1+	0.2+	1999 02 16	704	0.4-	0.3-
1996 05 15	896	1.0-	0.4-	1996 05 23	900	0.2+	0.2+	1999 02 16	704	0.2-	0.1-
1996 05 15	867	0.1-	0.3+	1996 06 05	900	0.8-	0.8-	1999 02 16	704	0.3-	0.0
1996 05 15	867	0.3-	0.3+	1996 06 05	900	0.3-	0.7-	1999 02 16	704	1.0-	0.9-
1996 05 15	867	0.1-	0.4+	1999 01 15	699	0.0	0.7-	1999 02 16	704	0.5-	1.0-
1996 05 15	900	0.3+	0.3+	1999 01 15	699	0.9+	0.6+				

1996 JB₅ = 1998 WJ₂₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	11.95838		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$				
n	0.26893747	ω	7.05602		-0.44180982		-0.88773289				
a	2.3770328	Ω	109.23327		+0.81624169		-0.45761372				
e	0.0747240	i	7.87479		+0.37222787		-0.05019966				
P	3.66	H	15.6		G	0.15	U	5			
Residuals in seconds of arc											
1996 05 10	691	0.4+	0.1+	1996 05 17	691	0.3-	0.1+	1998 11 18	691	1.1+	1.5-
1996 05 10	691	0.3+	0.2-	1996 05 17	691	0.0	0.3-	1998 11 22	691	0.2-	0.7+
1996 05 10	691	0.1+	0.1+	1996 05 17	691	0.1-	0.2-	1998 11 22	691	0.1-	0.2+
1996 05 15	691	0.3-	0.2+	1998 11 18	691	0.4-	0.2-	1998 11 22	691	0.2+	0.2+
1996 05 15	691	0.1-	0.1+	1998 11 18	691	0.5-	0.6+				

1996 KW = 1984 UY₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	131.22350	(2000.0)		$\mathbf{P}$	$\mathbf{Q}$
n	0.22519291	ω	278.17045	+0.86212437	+0.47008765
a	2.6756722	Ω	53.99613	-0.32154683	+0.79599957
e	0.2563505	i	13.51813	-0.39159827	+0.38131651
P	4.38	H	13.6	G 0.15	U 1

Residuals in seconds of arc

1984 10 29	688	0.1-	1.5-	1996 07 11	552	0.5+	1.2+	1999 01 15	552	1.0-	0.6+
1984 10 29	688	1.7+	1.0-	1996 07 13	552	0.4+	0.2-	1999 01 15	552	1.2-	0.5+
1996 05 09	691	1.5-	0.6+	1996 07 13	552	1.0+	0.3+	1999 01 15	552	1.4-	0.9+
1996 05 09	691	0.0	1.9+	1996 07 13	552	1.1+	0.2+	1999 01 21	552	0.5-	0.0
1996 05 09	691	0.7-	0.1+	1997 10 05	552	0.5-	0.4+	1999 01 21	552	0.3-	0.3+
1996 05 15	691	0.5-	0.9-	1997 10 05	552	0.8-	1.3+	1999 01 22	552	0.9-	0.3+
1996 05 15	691	0.2-	0.1+	1997 10 25	552	0.6+	0.0	1999 01 22	552	0.2-	1.0-
1996 05 15	691	0.2-	0.1+	1997 10 25	552	0.4+	1.0+	1999 02 10	704	2.2+	0.8-
1996 05 16	552	0.7-	0.8-	1997 10 29	566	1.2-	0.0	1999 02 10	704	0.1-	1.0+
1996 05 16	552	1.1-	0.6-	1997 10 29	566	1.0-	0.0	1999 02 10	704	0.0	0.4+
1996 05 16	552	1.3+	1.6-	1997 10 29	566	0.9-	0.1-	1999 02 10	704	0.3+	0.3+
1996 05 16	552	0.5+	0.7-	1997 11 02	552	0.3-	0.6-	1999 02 13	704	1.0+	0.4+
1996 05 24	552	0.4-	0.5+	1997 11 02	552	0.5-	1.0+	1999 02 13	704	1.0+	0.4+
1996 05 24	552	0.0	0.5+	1997 12 07	552	0.2+	0.0	1999 02 13	704	0.4+	1.2+
1996 06 13	552	0.6+	1.2-	1997 12 07	552	0.3+	0.1+	1999 02 13	704	1.1+	0.4+
1996 06 13	552	1.7-	1.0-	1997 12 25	566	1.4+	1.5-	1999 02 13	704	0.6+	2.0-
1996 07 11	552	1.2+	0.2-	1997 12 25	566	1.7+	0.3-				
1996 07 11	552	0.8+	0.2+	1997 12 25	566	1.2+	0.7-				

1996 NP₄ = 1999 CH₈₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	253.80180		(2000.0) <th></th> <th colspan="2">P</th> <th colspan="4">Q</th>		P		Q				
n	0.23249429	ω	302.11240		-0.20554255		+0.97383882				
a	2.6193560	Ω	315.69120		-0.84465752		-0.22653848				
e	0.1873535	i	7.97409		-0.49427314		-0.01784011				
P	4.24	H	15.0		G	0.15	U	5			
Residuals in seconds of arc											
1996 07 14	809	1.5+	2.1-	1996 08 09	809	1.4-	0.4+	1999 02 10	704	1.0+	0.1-
1996 07 14	809	0.6+	1.6-	1996 08 09	809	0.2+	1.5+	1999 02 10	704	1.1+	0.2-
1996 07 14	809	0.3+	2.3-	1996 08 09	809	1.2-	1.4+	1999 02 10	704	1.2+	0.5-
1996 07 16	809	0.2-	1.6+	1996 08 09	566	0.2+	0.6-	1999 02 10	704	0.5+	0.0
1996 07 16	809	1.2-	2.0+	1996 08 09	566	0.5+	0.4-	1999 02 10	704	3.5-	0.3+
1996 07 16	809	1.1-	2.0+	1996 08 09	566	0.4+	0.5-	1999 02 13	704	1.1+	0.1-
1996 08 08	809	0.2+	1.2+	1996 08 16	566	0.2+	0.9-	1999 02 13	704	0.1-	1.2-
1996 08 08	809	0.6-	0.3-	1996 08 16	566	0.0	1.3-	1999 02 13	704	1.1-	2.1+
1996 08 08	809	0.7+	0.7+	1996 08 16	566	0.7+	0.6-				

1996 NE₅ = 1996 PD₆ = 1986 PK₂ = 1992 WW₉ = 1997 VN₇Id. G. V. Williams (*MPC* 30984, unpublished)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	192.50089		(2000.0)		P		Q			
<i>n</i>	0.19805478	ω	42.26958		+0.64585175		+0.76319060			
<i>a</i>	2.9148250	Ω	267.97048		-0.70580838		+0.58668602			
<i>e</i>	0.0248954	<i>i</i>	1.16891		-0.29104992		+0.27081290			
<i>P</i>	4.98	<i>H</i>	13.5		<i>G</i>	0.15	<i>U</i>	1		
Residuals in seconds of arc										
1986 08 01	675	(3.1- 4.0+)	1996 08 10	566	0.1+	0.3+	1997 12 04	704	1.1-	0.3-
1986 08 01	675	(0.3- 6.0+)	1996 09 11	566	0.4-	0.2-	1998 01 02	704	0.7+	0.8+
1986 08 02	675	(5.4+ 1.0+)	1996 09 11	566	0.5-	0.5-	1998 01 02	704	1.1+	0.5+
1986 08 02	675	(8.7+ 1.9+)	1996 09 11	566	0.6+	0.3+	1998 01 02	704	0.9+	0.8+
1986 08 04	675	0.1- 1.1+	1997 11 02	327	0.0	0.7+	1998 01 02	704	1.8-	0.1+
1986 08 04	675	(6.7- 0.6+)	1997 11 02	327	0.0	0.6+	1999 02 12	704	0.1-	0.0
1992 11 21	399	0.4- 0.7+	1997 11 02	327	0.1-	0.5+	1999 02 12	704	0.3+	0.1+
1992 11 21	399	0.3- 0.6-	1997 11 06	327	0.3-	0.6+	1999 02 12	704	0.3-	0.1+
1996 07 14	809	(3.9+ 2.8+)	1997 11 06	327	0.2-	0.5+	1999 02 12	704	0.6+	0.1-
1996 07 14	809	(4.3+ 3.8+)	1997 11 06	327	0.0	0.5+	1999 02 12	699	0.9+	0.5+
1996 07 14	809	(3.8+ 2.8+)	1997 11 29	704	0.8+	0.6+	1999 02 12	704	0.7+	0.2+
1996 07 15	809	(1.9+ 2.6+)	1997 11 29	704	0.9+	1.4-	1999 02 12	699	(3.3+ 0.2-)	
1996 07 15	809	(3.1+ 2.1+)	1997 11 29	704	0.7+	1.7-	1999 02 12	699	1.2+	1.0+
1996 07 15	809	(2.0+ 3.2+)	1997 11 29	704	0.7-	1.3-	1999 02 16	704	1.4+	0.8+
1996 07 21	809	(0.7+ 3.4+)	1997 11 29	704	(2.7- 1.2-)		1999 02 16	704	0.2-	0.2-
1996 07 21	809	(1.4+ 3.1+)	1997 12 04	704	0.4+	0.4+	1999 02 16	704	0.1-	0.6-
1996 07 21	809	(1.5+ 3.7+)	1997 12 04	704	1.4-	1.1-	1999 02 16	704	1.0-	0.8-

M.P.C. 33948

1996 08 10 566 0.2- 0.2- 1997 12 04 704 0.3- 0.0
 1996 08 10 566 0.0 0.0 1997 12 04 704 1.1+ 0.4-

1996 NR₅ = 1999 CK₆₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22526193	ω	20.23512	+0.43939512	+0.87213394		
<i>a</i>	2.6751256	Ω	276.35154	-0.85109029	+0.32754299		
<i>e</i>	0.1580866	<i>i</i>	12.50570	-0.28736256	+0.36345285		
<i>P</i>	4.38	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 07 12	358	0.1+	0.2-	1996 08 18	358	0.9+	0.7-	1999 02 12	704	0.5+	0.6+
1996 07 12	358	0.9-	0.1+	1996 08 18	358	0.7+	0.8-	1999 02 16	704	0.3+	0.6+
1996 07 16	358	1.2+	2.1+	1996 08 20	358	1.9-	0.0	1999 02 16	704	1.0+	0.4-
1996 07 16	358	2.4+	2.4-	1996 08 20	358	1.2-	0.3-	1999 02 16	704	0.1-	0.3+
1996 07 18	358	0.7-	1.2-	1999 02 12	704	0.3+	0.9-	1999 02 16	704	0.5-	1.0+
1996 07 18	358	3.1-	0.5+	1999 02 12	704	0.4-	0.4-	1999 02 16	704	1.3-	0.2-
1996 08 05	358	0.3+	1.1+	1999 02 12	704	0.2+	0.1-				
1996 08 05	358	2.0+	1.7+	1999 02 12	704	0.1-	0.5-				

1996 OO₁ = 1999 CL₈₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18579641	ω	268.87404	-0.55893857	+0.82558971		
<i>a</i>	3.0416635	Ω	326.76333	-0.69352337	-0.51659848		
<i>e</i>	0.0938978	<i>i</i>	8.11719	-0.45454704	-0.22699700		
<i>P</i>	5.30	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1996 07 20	327	0.0	0.1-	1996 08 06	327	0.6-	1.0+	1999 01 10	699	0.8+	0.3-
1996 07 20	327	0.1+	0.1-	1996 08 06	327	0.6+	0.6+	1999 01 10	699	0.7+	0.5-
1996 07 20	327	0.3+	0.2+	1996 08 13	327	0.5-	0.4+	1999 02 10	704	0.7-	0.2-
1996 07 20	327	0.2+	0.2+	1996 08 13	327	0.3+	0.1+	1999 02 10	704	0.5-	0.9+
1996 07 20	327	0.2-	0.4-	1996 08 13	327	0.2+	0.4+	1999 02 10	704	0.8-	0.6+
1996 07 20	327	0.7-	0.9-	1996 08 20	595	0.6+	0.3+	1999 02 10	704	0.9+	0.2-
1996 07 20	327	0.1-	0.1+	1996 08 20	595	0.8+	0.1+	1999 02 12	699	0.3-	0.6+
1996 07 20	327	0.0	0.1-	1996 08 20	595	0.7+	0.5-	1999 02 12	699	0.1-	0.8+
1996 07 20	327	0.7-	0.4-	1996 08 21	595	0.6-	0.5-	1999 02 12	699	0.2+	0.1-
1996 07 21	327	0.5-	0.3-	1996 08 21	595	0.2+	0.3-	1999 02 13	704	0.2-	0.8+
1996 07 21	327	0.0	0.4-	1998 12 14	699	0.6+	0.5+	1999 02 13	704	0.7+	0.1-
1996 07 21	327	0.2+	0.3-	1998 12 14	699	0.4+	0.6+	1999 02 13	704	0.5-	0.3+
1996 07 21	327	0.1-	0.1-	1998 12 14	699	1.1-	0.6-	1999 02 13	704	0.6-	1.8-
1996 08 06	327	0.1-	0.8+	1999 01 10	699	0.3+	0.3-	1999 02 13	704	0.2+	1.2-

1996 PO₉ = 1999 BV₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22362914	ω	141.43852	+0.13930503	+0.97643961		
<i>a</i>	2.6881311	Ω	135.85633	-0.95707387	+0.17547753		
<i>e</i>	0.1651262	<i>i</i>	13.68764	-0.25417261	-0.12559185		
<i>P</i>	4.41	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 08 11	292	1.0-	0.6+	1999 01 20	120	0.2-	0.3+	1999 02 12	699	0.6-	0.1+
1996 08 11	292	0.2+	1.7-	1999 01 21	120	0.4+	0.0	1999 02 12	699	0.2+	0.1-
1996 08 14	292	0.6-	0.4-	1999 01 21	120	0.3+	0.9-	1999 02 12	699	0.6+	0.8+
1996 08 14	292	0.6+	1.2+	1999 01 22	120	0.6-	0.3-	1999 02 13	704	0.4-	0.2-
1996 08 16	292	0.3+	0.7+	1999 01 22	120	0.1-	0.3-	1999 02 13	704	0.1+	0.1-
1996 08 16	292	0.2-	0.5+	1999 02 10	704	0.1+	0.7-	1999 02 13	704	1.1+	0.2-
1996 08 19	292	0.3-	0.1-	1999 02 10	704	0.5+	0.2+	1999 02 13	704	0.9-	1.1-
1996 08 19	292	1.0+	0.8-	1999 02 10	704	0.2+	0.8+	1999 02 13	704	0.0	0.7+
1999 01 20	120	0.3-	0.1+	1999 02 10	704	0.9-	0.2+	1999 02 15	120	0.1+	0.4-
1999 01 20	120	0.7+	0.7+	1999 02 10	704	0.4-	0.2+	1999 02 15	120	0.0	0.2+

1999 MAR. 2

1996 QT₁ = 1999 BR₁₂

Id. T. B. Spahr, A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17494212	ω	132.97053	+0.42686598	+0.90309206		
<i>a</i>	3.1662106	Ω	162.13047	-0.86788524	+0.42372288		
<i>e</i>	0.1354471	<i>i</i>	8.81295	-0.25408786	+0.06988308		
<i>P</i>	5.63	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 08 23	620	1.4+	2.0-	1996 09 04	620	0.4+	0.8+	1999 01 25	747	1.0+	0.2-
1996 08 23	620	0.1-	3.8+	1996 09 04	620	0.9+	0.1-	1999 01 25	747	0.1-	0.2-
1996 08 23	620	2.1-	0.9-	1996 09 04	620	0.4+	0.2+	1999 01 25	747	0.1-	0.1-
1996 08 24	620	0.8-	0.6-	1996 09 04	620	1.0+	0.5+	1999 01 25	747	0.2+	0.1-
1996 08 24	620	2.5-	0.6-	1996 09 06	620	0.3+	0.8-	1999 01 26	747	0.1+	0.6-
1996 08 30	620	0.4+	0.0	1996 09 06	620	2.1-	1.1-	1999 01 26	747	0.6-	0.2+
1996 08 30	620	1.4+	0.2-	1996 09 06	620	0.5+	1.4-	1999 01 26	747	0.0	0.3-
1996 08 30	620	1.3-	0.0	1996 09 06	620	2.3-	1.7-	1999 01 26	747	0.5-	0.4-
1996 08 30	620	0.4+	0.1+	1996 09 06	620	1.0-	0.4-	1999 02 05	747	0.3-	1.0+
1996 08 30	620	0.5+	1.2+	1999 01 19	747	0.2+	0.5-	1999 02 05	747	0.7+	0.6+
1996 09 04	620	1.4+	0.5+	1999 01 19	747	0.1+	0.5-	1999 02 05	747	0.1-	0.7+
1996 09 04	620	1.0+	0.8+	1999 01 19	747	0.1+	0.4-	1999 02 06	747	0.2-	0.7+
1996 09 04	620	2.4+	2.2+	1999 01 19	747	0.3-	0.4-	1999 02 06	747	0.2-	0.8+

1996 RM₅ = 1999 CP₇₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21176628	ω	132.37076	+0.48308078	+0.87362821		
<i>a</i>	2.7876068	Ω	166.16692	-0.85783878	+0.48559167		
<i>e</i>	0.1598737	<i>i</i>	14.12966	-0.17534420	+0.03121651		
<i>P</i>	4.65	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 09 15	327	0.2+	0.4-	1996 10 07	327	0.2-	0.1-	1999 02 12	704	0.1-	0.4+
1996 09 15	327	0.1+	0.6-	1996 10 07	327	0.5+	0.2+	1999 02 12	704	0.1+	1.3+
1996 09 15	327	0.7-	1.0-	1996 10 07	327	0.2-	0.3-	1999 02 12	704	0.6-	0.2+
1996 09 18	327	0.0	0.1+	1996 10 09	327	0.2-	0.7-	1999 02 12	704	1.0+	0.5-
1996 09 18	327	0.2-	0.3-	1996 10 09	327	0.0	0.1+	1999 02 16	704	0.6-	1.8-
1996 09 18	327	0.1-	0.6+	1996 10 18	327	0.3+	0.4+	1999 02 16	704	0.1-	0.3-
1996 09 20	327	0.3+	0.2+	1996 10 18	327	0.4-	0.1+	1999 02 16	704	0.3+	0.5+
1996 09 20	327	0.2+	0.7+	1996 10 18	327	0.4+	0.0				
1996 09 20	327	0.2+	0.7+	1996 10 18	327	0.2-	0.1+				

1996 RC₂₄ = 1998 YT₂₇

Id. T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17753294	ω	66.24849	-0.62816498	+0.77729975		
<i>a</i>	3.1353311	Ω	164.68096	-0.75324597	-0.59628310		
<i>e</i>	0.1097377	<i>i</i>	7.57794	-0.19501094	-0.20062793		
<i>P</i>	5.55	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 09 03	358	0.6+	1.3+	1998 12 26	120	0.3+	0.2+	1999 02 11	699	1.0+	0.8+
1996 09 03	358	1.4-	1.6-	1999 01 06	120	0.7-	0.0	1999 02 11	699	1.2+	0.8+
1996 09 07	358	1.0-	0.8-	1999 01 06	120	0.1+	0.4-	1999 02 12	704	0.3-	1.5-
1996 09 07	358	0.2+	0.1-	1999 01 07	120	0.1-	0.2+	1999 02 12	704	1.9-	0.3+
1996 10 06	809	(3.0+	2.9+)	1999 01 09	120	0.0	0.0	1999 02 12	704	0.6-	0.0
1996 10 06	809	(2.7+	3.1+)	1999 01 09	120	0.8+	0.7+	1999 02 12	704	0.4-	0.7+
1996 10 06	809	(1.9+	2.8+)	1999 01 09	120	0.4-	0.1-	1999 02 16	704	0.5+	1.1-
1996 10 07	809	0.9+	0.2+	1999 01 09	120	0.2+	0.0	1999 02 16	704	0.4-	0.7-
1996 10 07	809	0.4+	0.1+	1999 01 09	120	0.7-	0.1+	1999 02 16	704	1.4-	0.7+
1996 10 07	809	0.4+	0.6+	1999 02 05	120	1.1+	0.6-	1999 02 16	704	0.1-	0.6-
1998 12 25	120	0.9+	0.1+	1999 02 05	120	0.2+	1.2-	1999 02 16	704	0.6-	0.3-
1998 12 26	120	1.2+	0.7+	1999 02 11	699	0.4+	0.9+				

1999 MAR. 2

M.P.C. 33949

1996 SJ₃ = 1998 XX₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	223.58002	(2000.0)	P			Q		
<i>n</i>	0.18175359	ω	359.67539	-0.06813932	+0.99752800			
<i>a</i>	3.0866026	Ω	266.41744	-0.91531088	-0.06935319			
<i>e</i>	0.1910413	<i>i</i>	0.98592	-0.39694209	-0.01131437			
<i>P</i>	5.42	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	5	

Residuals in seconds of arc

1996 09 13	566	0.2+	0.4-	1996 09 20	691	0.7-	0.2+	1998 12 10	691	0.5+	0.0
1996 09 13	566	0.2+	0.7-	1996 09 21	691	0.2+	0.6+	1998 12 10	691	0.8-	0.7+
1996 09 13	566	0.4+	0.7-	1996 09 21	691	0.3+	0.2+	1998 12 16	691	0.1-	0.0
1996 09 20	691	0.5-	0.3+	1996 09 21	691	0.3+	0.2+	1998 12 16	691	0.1-	0.2-
1996 09 20	691	0.5-	0.4+	1998 12 10	691	0.6+	0.3-	1998 12 16	691	0.1-	0.3-

1997 AP₁₀ = 1999 CE₉

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	265.83600	(2000.0)	P			Q		
<i>n</i>	0.56860667	ω	356.00907	+0.33042748	+0.93781451			
<i>a</i>	1.4429837	Ω	293.25953	-0.86271045	+0.25437708			
<i>e</i>	0.6432348	<i>i</i>	6.65069	-0.38281635	+0.23621227			
<i>P</i>	1.73	<i>H</i>	17.1	<i>G</i>	0.15	<i>U</i>	6	

Residuals in seconds of arc

1997 01 09	691	0.3-	0.3-	1997 01 26	658	1.3+	1.2+	1999 02 15	046	0.8+	0.2-
1997 01 09	691	0.2-	0.2-	1999 02 12	704	0.8+	0.7+	1999 02 15	046	0.8-	0.8+
1997 01 09	691	0.1-	0.1+	1999 02 12	704	0.6+	0.4-	1999 02 15	046	0.1-	0.2+
1997 01 10	691	0.7-	0.1+	1999 02 12	704	0.6+	1.6+	1999 02 15	046	0.7+	0.1+
1997 01 10	691	0.8-	0.1+	1999 02 12	704	1.3-	1.5-	1999 02 15	557	0.1-	0.2-
1997 01 10	691	0.5-	0.0	1999 02 12	704	0.4-	0.1+	1999 02 15	557	0.7-	0.2-
1997 01 11	691	0.9-	0.0	1999 02 13	704	1.9+	0.4+	1999 02 15	557	0.7-	0.4-
1997 01 11	691	0.5-	0.5+	1999 02 13	704	1.4+	0.2-	1999 02 16	704	1.7+	0.0
1997 01 11	691	0.9-	0.5+	1999 02 13	704	(1.1+	2.1+)	1999 02 16	704	0.7-	0.7+
1997 01 14	658	0.8+	0.1+	1999 02 13	704	0.4+	1.5-	1999 02 16	704	(2.2+	1.3+)
1997 01 14	658	1.7+	0.3+	1999 02 13	422	0.3+	0.4+	1999 02 16	704	0.9+	1.7-
1997 01 14	658	1.1+	0.1+	1999 02 13	422	0.4+	0.1+	1999 02 16	704	0.3-	0.3-
1997 01 14	599	1.5+	1.3-	1999 02 13	422	0.4+	0.7+	1999 02 16	426	0.2-	0.1-
1997 01 14	599	1.6-	1.4-	1999 02 13	422	0.5+	0.1+	1999 02 16	426	0.2-	0.0
1997 01 14	599	1.4-	1.1-	1999 02 14	658	0.0	0.0	1999 02 16	426	0.5+	0.3-
1997 01 15	658	0.9+	0.3-	1999 02 14	658	0.4+	0.3-	1999 02 18	587	1.7-	0.6-
1997 01 15	658	0.3+	0.1+	1999 02 14	658	0.1-	0.3-	1999 02 18	587	0.4-	0.4+
1997 01 15	658	0.3-	0.0	1999 02 14	422	0.2-	0.2+	1999 02 18	587	1.1-	1.3+
1997 01 15	599	(1.3+	2.5-)	1999 02 14	422	0.1-	0.2+	1999 02 19	402	0.2-	0.4+
1997 01 15	599	0.5+	0.5-	1999 02 14	422	0.9-	0.3+	1999 02 19	402	0.3-	0.2+
1997 01 16	599	1.6+	0.1+	1999 02 14	422	0.8-	0.5+	1999 02 19	402	0.5-	0.1+
1997 01 16	599	0.0	0.9+	1999 02 15	658	0.5-	0.3-	1999 02 25	402	1.6+	0.9-
1997 01 16	587	0.3+	1.0-	1999 02 15	658	0.5-	0.3-	1999 02 25	402	0.3+	0.3-
1997 01 16	587	0.2+	0.0	1999 02 15	658	0.3-	0.7-	1999 02 25	402	0.3+	0.9-
1997 01 17	599	1.4-	0.0	1999 02 15	422	0.2+	0.3+	1999 02 25	587	0.1-	0.2-
1997 01 17	599	0.6-	1.1+	1999 02 15	422	0.6-	0.1+	1999 02 25	587	0.1-	1.4+
1997 01 26	658	0.1-	1.1+	1999 02 15	422	1.0-	0.4+				

1997 JH₁₃ = 1989 TR₄ = 1998 SZ₁₆₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	90.26165	(2000.0)	P			Q		
<i>n</i>	0.21377903	ω	229.94370	+0.18309948	+0.97510306			
<i>a</i>	2.7700822	Ω	51.05868	-0.84590419	+0.22110328			
<i>e</i>	0.1223354	<i>i</i>	9.25525	-0.50091984	-0.01695147			
<i>P</i>	4.61	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	3	

Residuals in seconds of arc

1989 10 07	809	1.6-	1.0-	1997 05 04	809	0.4-	0.9-	1997 05 07	704	0.1+	0.5+
1989 10 07	809	0.2-	0.5+	1997 05 04	809	0.3+	0.4-	1997 05 07	704	0.0	0.2+
1989 10 07	809	1.4-	0.8+	1997 05 04	809	0.6+	0.4+	1997 05 07	704	0.1+	0.5+

1989 10 08	809	1.4+	0.2-	1997 05 07	704	0.4+	0.1+	1998 09 22	699	0.5-	0.4+
1989 10 08	809	0.2+	0.5-	1997 05 07	704	0.7+	0.4-	1998 09 22	699	1.1+	0.7+
1989 10 08	809	1.4+	0.6+	1997 05 07	704	0.0	0.2-	1998 09 22	699	0.3-	0.4+
1997 05 03	809	1.0-	0.0	1997 05 07	704	0.3+	0.4+	1998 09 27	699	0.3+	0.3-
1997 05 03	809	0.9-	0.6-	1997 05 07	704	0.3+	0.1+	1998 09 27	699	0.1+	0.9-
1997 05 03	809	0.5-	0.3+	1997 05 07	704	0.1+	0.2+	1998 09 27	699	0.7-	0.6-

1997 LQ₂

Id. R. A. Tucker (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	112.01420	(2000.0)	P			Q		
<i>n</i>	0.28390437	ω	89.57333	+0.86141933	+0.35975765			
<i>a</i>	2.2927393	Ω	249.30870	-0.45824633	+0.85491356			
<i>e</i>	0.2821935	<i>i</i>	22.53401	+0.21901381	+0.37376092			
<i>P</i>	3.47	<i>H</i>	15.8	<i>G</i>	0.15	<i>U</i>	3	

Residuals in seconds of arc

1997 06 09	683	0.3-	0.2-	1997 06 17	683	1.4-	0.6+	1997 09 20	683	1.2-	1.2+
1997 06 09	683	0.1-	0.3-	1997 06 17	683	0.6+	0.1+	1997 09 20	683	0.6-	0.1+
1997 06 09	683	0.3-	0.4-	1997 06 24	683	0.4-	0.4+	1997 09 20	683	1.1-	0.4+
1997 06 10	683	0.0	0.6-	1997 06 24	683	0.3-	0.1+	1997 09 21	683	0.0	0.0
1997 06 10	683	0.1-	0.5-	1997 06 24	683	0.1-	0.1-	1997 09 21	683	0.2+	0.2-
1997 06 11	683	0.1-	0.3+	1997 06 26	683	0.1+	0.4+	1997 10 05	683	(2.4+	0.1+)
1997 06 11	683	0.0	0.3+	1997 06 26	683	0.2-	0.5+	1997 10 05	683	(5.4-	2.1+)
1997 06 11	683	0.2+	0.1-	1997 06 26	683	0.1-	0.3+	1997 10 06	683	0.4-	0.5+
1997 06 12	683	0.1+	0.0	1997 06 30	566	0.7+	0.0	1997 10 06	683	0.2+	0.3+
1997 06 12	683	0.0	0.3+	1997 06 30	566	0.4-	0.4-	1997 10 06	683	0.5+	0.2+
1997 06 13	683	0.3+	0.4-	1997 06 30	566	1.2-	0.1-	1997 10 20	683	0.5+	0.7-
1997 06 13	683	0.3+	0.0	1997 07 03	568	0.4+	0.3+	1997 10 20	683	0.7+	0.7-
1997 06 13	683	0.1+	0.3-	1997 07 03	568	0.3+	0.3+	1997 10 20	683	1.1+	1.3-
1997 06 14	683	0.6+	0.1+	1997 07 04	568	0.2+	0.2-	1997 10 21	683	0.6+	0.0
1997 06 14	683	0.5+	0.1+	1997 07 04	568	0.4+	0.0	1997 10 21	683	0.8-	0.2-
1997 06 14	683	0.5+	0.1+	1997 07 05	691	0.5-	0.2+	1997 10 21	683	0.4-	0.5-
1997 06 15	683	0.5+	0.1-	1997 07 05	691	0.7-	0.2+	1999 01 22	683	0.1+	0.0
1997 06 15	683	0.6+	0.4-	1997 07 05	691	0.8-	0.3+	1999 01 22	683	0.4+	0.1-
1997 06 16	683	0.1+	0.2+	1997 07 13	683	0.1+	0.0	1999 02 06	683	1.0-	0.7+
1997 06 16	683	0.3+	0.9-	1997 07 13	683	0.5+	0.0	1999 02 06	683	0.3+	0.9-

1997 LO₃ = 1997 JP₁₇ = 1979 HB₂ = 1979 KZ

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	172.14708	(2000.0)	P			Q		
<i>n</i>	0.27702902	ω	91.98090	-0.58468437	+0.81069703			
<i>a</i>	2.3305184	Ω	142.18572	-0.76255032	-0.53647399			
<i>e</i>	0.2048172	<i>i</i>	2.82722	-0.27687758	-0.23444824			
<i>P</i>	3.56	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	3	

Residuals in seconds of arc

1979 04 20	095	0.0	0.2-	1997 05 04	809	0.5-	1.3+	1997 06 08	809	0.8+	0.7+
1979 05 23	809	0.7-	0.7-	1997 05 04	809	0.1-	1.4+	1997 06 09	809	(2.5+	0.8+)
1979 05 24	809	0.3+	0.4-	1997 06 05	691	0.7-	0.7-	1997 06 09	809	(2.0+	1.4+)
1997 05 03	809	0.3+	0.8-	1997 06 05	691	1.0-	0.8-	1997 06 09	809	0.7+	1.5+
1997 05 03	809	0.2+	0.8-	1997 06 05	691	0.8-	0.3-	1997 06 10	691	0.5-	1.3-
1997 05 03	809	0.4+	0.3-	1997 06 08	809	0.9+	0.5+	1997 06 10	691	0.5-	0.9-
1997 05 04	809	0.6+	1.7+	1997 06 08	809	0.9+	0.4+	1997 06 10	691	0.4-	0.8-

1997 LN₄ = 1994 SA₇ = 1997 JV₁₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	177.75551		(2000.0)	P		Q	
n	0.22626360	ω	11.13405	-0.99312452	+0.11693328		
a	2.6672246	Ω	175.56999	-0.11213202	-0.93673905		
e	0.1475275	i	4.08635	-0.03361692	-0.32991903		
P	4.36	H	15.3	G	0.15	U	5

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Residuals in seconds of arc

1994 09 28	691	0.2+	0.3+	1997 05 03	809	0.7+	0.1+	1997 06 08	809	(1.1-	2.6-)
1994 09 28	691	0.1+	0.0	1997 05 04	809	0.2-	0.6-	1997 06 08	809	(2.0-	1.9-)
1994 09 28	691	0.1+	0.1+	1997 05 04	809	1.3-	0.2-	1997 06 09	809	(3.7+	3.4+)
1994 09 29	691	0.1-	0.0	1997 05 04	809	1.7-	0.5-	1997 06 09	809	(2.7+	3.0+)
1994 09 29	691	0.2-	0.1-	1997 06 07	691	0.7-	0.5+	1997 06 09	809	(3.4+	2.6+)
1994 09 29	691	0.0	0.2-	1997 06 07	691	0.4-	0.1+	1997 06 11	691	0.6+	0.3-
1997 05 03	809	1.1+	0.7+	1997 06 07	691	0.6-	0.1+	1997 06 11	691	0.3+	0.2+
1997 05 03	809	1.7+	0.5+	1997 06 08	809	(0.7-	1.8-)	1997 06 11	691	0.5+	0.6-

1997 MV = 1998 XQ₈₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Doppler			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29461705	ω	19.93594	-0.79897370	-0.58793736		
<i>a</i>	2.2368188	Ω	123.40998	+0.52917272	-0.78719170		
<i>e</i>	0.0428178	<i>i</i>	8.70763	+0.28568734	-0.18616897		
<i>P</i>	3.35	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 06 26	327	0.4-	0.1+	1997 07 13	327	0.0	0.2+	1998 12 15	704	1.4+	0.9+
1997 06 26	327	0.3+	0.2+	1997 07 13	327	0.1+	0.5+	1998 12 15	704	0.6+	0.2-
1997 06 26	327	0.5-	0.2-	1997 07 13	327	0.3+	0.3-	1998 12 22	704	0.2-	0.4-
1997 06 27	327	0.3+	0.1-	1997 07 13	327	0.1+	0.1-	1998 12 22	704	0.4-	0.1+
1997 06 27	327	0.3-	0.0	1998 12 15	704	1.2-	0.9-	1998 12 22	704	0.3-	0.3+
1997 06 27	327	0.1-	0.3-	1998 12 15	704	1.0+	0.8+	1998 12 22	704	0.6-	0.3+
1997 06 27	327	0.2+	0.1+	1998 12 15	704	0.6-	1.1-	1998 12 22	704	0.2+	0.4+

1997 MY₈ = 1999 AM₂₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Doppler			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23568236	ω	120.47045	+0.96515274	-0.25776916		
<i>a</i>	2.5956810	Ω	254.49906	+0.22117130	+0.89565291		
<i>e</i>	0.2061110	<i>i</i>	2.68337	+0.13986936	+0.36243748		
<i>P</i>	4.18	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 06 30	691	0.1-	0.1+	1997 07 07	691	0.2+	0.2+	1999 01 10	691	0.1-	0.0
1997 06 30	691	0.0	0.3+	1997 07 11	691	0.1+	0.3+	1999 01 10	691	0.1+	0.1-
1997 06 30	691	0.2-	0.4+	1997 07 11	691	0.1-	0.7+	1999 01 17	691	0.2-	0.0
1997 07 07	691	0.5+	1.4-	1997 07 11	691	0.5-	0.7+	1999 01 17	691	0.2+	0.2+
1997 07 07	691	0.2+	1.3-	1999 01 10	691	0.0	0.1-				

1997 NZ₃ = 1998 YD₁₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Doppler			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21120747	ω	103.42940	+0.61857938	-0.76134213		
<i>a</i>	2.7925215	Ω	306.64544	+0.59411192	+0.61497108		
<i>e</i>	0.2466330	<i>i</i>	14.00779	+0.51418924	+0.20535027		
<i>P</i>	4.67	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 07 06	691	0.0	0.1+	1997 07 10	691	0.6+	0.3-	1998 12 27	411	0.1-	0.3+
1997 07 06	691	0.0	0.0	1997 07 12	691	0.2-	0.2+	1998 12 28	411	0.4+	0.2-
1997 07 06	691	0.4-	0.0	1997 07 12	691	0.3-	0.1+	1998 12 28	411	0.4-	0.1+
1997 07 10	691	0.5+	0.0	1997 07 12	691	0.5-	0.2-	1998 12 29	411	0.3-	0.2+
1997 07 10	691	0.4+	0.1+	1998 12 27	411	0.2-	0.5-	1998 12 29	411	0.7+	0.1+

1997 OY₁

Id. S. Sposetti (1999 observations)

1999 MAR. 2

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24513727	ω	231.32286	+0.64941726	-0.76041410		
<i>a</i>	2.5285011	Ω	178.15406	+0.73849260	+0.62901728		
<i>e</i>	0.1979222	<i>i</i>	9.39031	+0.18134470	+0.16157865		
<i>P</i>	4.02	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 07 29	132	1.2-	0.8+	1997 08 03	627	1.2+	0.5+	1999 01 20	615	1.2+	0.1-
1997 07 29	132	0.3-	0.5-	1997 08 11	132	0.6+	0.9+	1999 01 21	615	0.8-	0.2+
1997 07 30	132	0.6+	0.0	1997 08 12	132	2.0+	0.0	1999 01 21	615	0.9-	0.0
1997 08 02	132	1.3-	0.1-	1997 08 12	124	(3.1-	0.4+)	1999 02 10	143	0.7-	0.3-
1997 08 02	132	0.4-	0.7-	1997 08 12	124	(4.4-	0.4-)	1999 02 10	143	0.7-	0.7-
1997 08 02	132	1.0-	0.7-	1997 08 29	132	0.2-	0.1-	1999 02 10	143	0.3+	0.3+
1997 08 03	627	0.6+	0.5-	1997 08 29	132	0.1-	0.2-	1999 02 11	143	0.1-	0.2-
1997 08 03	627	0.3-	0.2+	1999 01 20	615	0.7+	0.1-	1999 02 11	143	1.1+	1.0-
1997 08 03	627	0.3-	0.2+	1999 01 20	615	0.7+	0.1-	1999 02 12	143	0.9-	1.7+

1997 OL₂ = 1998 YP₂₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Doppler			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18547171	ω	71.11293	+0.99737472	-0.05642183		
<i>a</i>	3.0452125	Ω	292.10085	+0.03260575	+0.90959699		
<i>e</i>	0.1492079	<i>i</i>	2.80802	+0.06465704	+0.41164293		
<i>P</i>	5.31	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 07 31	910	0.1-	0.0	1997 08 03	910	0.1+	0.1-	1998 12 16	704	0.2+	0.0
1997 07 31	910	0.3-	0.1+	1997 08 04	910	0.1-	0.1+	1998 12 16	704	0.5+	1.0+
1997 07 31	910	0.1+	0.0	1997 08 04	910	0.1-	0.2+	1998 12 16	704	1.5+	1.5+
1997 08 02	910	0.1+	0.1-	1997 08 04	910	0.3-	0.1+	1998 12 17	704	2.0-	0.5-
1997 08 02	910	0.2+	0.2-	1997 08 06	910	0.3+	0.1-	1998 12 17	704	0.6+	1.1-
1997 08 02	910	0.1+	0.2-	1997 08 06	910	0.5+	0.2-	1998 12 17	704	0.3+	1.0-
1997 08 03	910	1.1-	0.9+	1997 08 06	910	0.5+	0.2-	1998 12 17	704	1.2-	0.1-
1997 08 03	910	0.1+	0.1-	1998 12 16	704	0.2+	0.1+				

1997 PL = 1999 CR₆₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29976447	ω	157.65828	+0.88038773	-0.46708561		
<i>a</i>	2.2111385	Ω	230.45035	+0.41742133	+0.84539257		
<i>e</i>	0.1349620	<i>i</i>	6.11583	+0.22511527	+0.25911857		
<i>P</i>	3.29	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 08 01	566	0.5-	0.0	1997 08 12	658	0.2+	0.0	1999 02 12	704	0.5+	0.1+
1997 08 01	566	0.4-	0.3+	1997 08 12	658	0.2+	0.3-	1999 02 12	704	0.5-	0.6+
1997 08 01	566	0.2+	0.4+	1997 08 12	658	0.2+	0.0	1999 02 16	704	0.7-	0.2+
1997 08 03	566	0.2-	0.1+	1999 02 12	704	0.5-	0.2-	1999 02 16	704	0.6+	0.9+
1997 08 03	566	0.3+	0.2-	1999 02 12	704	0.9+	0.4+	1999 02 16	704	0.7+	0.1+
1997 08 03	566	0.1+	0.4-	1999 02 12	704	0.0	0.3+	1999 02 16	704	0.9-	0.8-

1997 PF₁

Id. S. Sposetti (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28105737	ω	59.44906	+0.99558852	-0.07176380		
<i>a</i>	2.3081962	Ω	304.60136	+0.03843957	+0.89962807		
<i>e</i>	0.1625568	<i>i</i>	4.21115	+0.08559142	+0.43071950		
<i>P</i>	3.51	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 08 02	124	0.2-	1.9+	1997 08 13	124	0.8-	0.1+	1997 09 18	132	1.4-	0.5-
1997 08 02	124	0.2-	1.7+	1997 08 23	124	0.6+	0.7+	1997 09 19	132	0.8-	0.6+

1999 MAR. 2

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1997 08 03	124	1.3+	0.6−	1997 08 23	124	1.0+	0.2−	1997 09 19	910	0.5+	0.3+
1997 08 03	124	0.6+	0.4−	1997 08 23	124	0.6−	0.7−	1997 09 19	910	0.5+	0.1+
1997 08 04	124	(2.5+	1.7−)	1997 08 24	132	1.5+	1.3−	1997 09 19	910	0.4+	0.0
1997 08 04	124	1.5+	0.5−	1997 08 24	132	0.9−	0.6−	1999 02 18	143	0.6−	1.2−
1997 08 07	124	1.0−	0.1+	1997 08 24	132	0.1−	1.3+	1999 02 18	143	1.2+	1.5+
1997 08 07	124	(2.3−	1.4−)	1997 08 29	958	(2.4−	0.2−)	1999 02 20	143	(1.7−	2.6+)
1997 08 07	124	1.9−	0.6−	1997 08 29	958	0.9+	0.3+	1999 02 20	143	0.3+	1.9+
1997 08 12	124	0.7−	0.5+	1997 08 30	958	1.2−	0.2−				

1997 PW₃ = 1999 CG₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
(2000.0)				(2000.0)			
P				Q			
<i>M</i>	357.20778						
<i>n</i>	0.28099282	<i>ω</i>	139.88283	−0.69814530	−0.71586727		
<i>a</i>	2.3085497	<i>Ω</i>	354.36208	+0.62393886	−0.60061640		
<i>e</i>	0.0411252	<i>i</i>	6.59179	+0.35113164	−0.35608144		
<i>P</i>	3.51	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 08 10	327	0.2+	0.2+	1997 09 23	691	0.2−	0.2+	1999 01 22	699	0.2+	0.2+
1997 08 10	327	0.6−	0.5−	1997 09 23	691	0.1+	0.2+	1999 02 10	704	0.5−	0.1+
1997 08 11	327	0.3+	0.1−	1997 09 23	691	0.1+	0.0	1999 02 10	704	0.4+	0.1−
1997 08 11	327	0.4−	0.0	1997 09 29	691	0.0	0.1−	1999 02 10	704	1.0−	0.7−
1997 08 11	327	0.4−	0.2+	1997 09 29	691	0.1−	0.0	1999 02 10	704	0.3−	0.2−
1997 08 13	327	0.4−	0.6−	1997 09 29	691	0.1−	0.2−	1999 02 10	704	0.5−	1.8−
1997 08 13	327	0.2−	0.1−	1997 10 06	691	0.4−	0.2−	1999 02 13	704	0.4−	0.5−
1997 08 13	327	0.4−	0.1−	1997 10 06	691	0.5−	0.2−	1999 02 13	704	0.1+	0.4−
1997 09 04	327	1.1+	0.3+	1997 10 06	691	0.5−	0.2−	1999 02 13	704	0.1+	0.3−
1997 09 04	327	1.2+	0.5+	1999 01 22	699	0.1−	0.5+	1999 02 13	704	0.6+	0.9+
1997 09 04	327	1.2+	0.3+	1999 01 22	699	1.1+	0.9+	1999 02 13	704	0.2+	1.0+

1997 PA₄ = 1986 RF₁₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
(2000.0)				(2000.0)			
P				Q			
<i>M</i>	30.79635						
<i>n</i>	0.17504584	<i>ω</i>	93.83071	+0.67033350	−0.66867700		
<i>a</i>	3.1649597	<i>Ω</i>	308.49153	+0.40422051	+0.69265545		
<i>e</i>	0.2628632	<i>i</i>	24.27263	+0.62230120	+0.27036917		
<i>P</i>	5.63	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1986 09 08	095	3.6+	3.6−	1997 08 12	540	1.0+	0.2−	1998 12 12	704	0.6−	0.1+
1997 08 05	691	1.6−	0.2+	1997 08 13	684	0.5+	0.1+	1998 12 12	704	0.6+	0.8−
1997 08 05	691	1.6−	0.1+	1997 08 13	684	0.5+	0.1+	1998 12 25	703	0.4+	0.1+
1997 08 05	691	1.3−	0.1+	1997 08 26	816	0.2−	0.6+	1998 12 25	703	0.3−	0.0
1997 08 07	292	0.8+	1.7−	1997 08 26	816	0.1−	0.5+	1998 12 25	703	0.3−	0.4+
1997 08 07	292	1.1+	0.9−	1997 09 02	566	0.7−	0.5+	1999 01 09	704	0.4+	0.4+
1997 08 07	292	0.5+	0.7−	1997 09 02	566	0.4−	0.4+	1999 01 09	704	0.6−	0.7+
1997 08 09	292	0.0	0.7+	1997 09 02	566	0.5−	0.5+	1999 01 09	704	0.0	0.5+
1997 08 09	292	0.6−	2.3−	1997 09 09	816	0.4−	1.3+	1999 01 09	704	1.3−	1.1+
1997 08 10	816	0.0	0.1+	1997 09 09	816	0.4−	0.8+	1999 01 09	704	0.8−	0.7+
1997 08 10	816	0.1+	0.1+	1997 09 09	816	0.4−	0.9+	1999 01 14	704	0.3+	0.1−
1997 08 10	816	0.2−	0.3+	1997 09 10	816	0.2−	1.0+	1999 01 14	704	0.5+	0.3−
1997 08 12	658	0.4−	0.1+	1997 09 10	816	0.3−	1.1+	1999 01 14	704	0.3+	0.3−
1997 08 12	658	0.1−	0.0	1997 09 10	816	0.3−	1.2+	1999 01 14	704	1.2+	1.8−
1997 08 12	658	0.2−	0.0	1998 12 12	704	0.1−	0.5+	1999 01 14	704	0.7+	1.0−
1997 08 12	540	1.0+	0.7+	1998 12 12	704	0.2−	0.5+				
1997 08 12	540	0.6+	0.3−	1998 12 12	704	0.3+	0.9+				

1997 PM₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
(2000.0)				(2000.0)			
P				Q			
<i>M</i>	110.58395						
<i>n</i>	0.23819375	<i>ω</i>	55.76765	+0.99326844	−0.07377971		
<i>a</i>	2.5774039	<i>Ω</i>	308.29874	+0.02458644	+0.88763260		
<i>e</i>	0.2039772	<i>i</i>	6.53369	+0.11319591	+0.45460414		
<i>P</i>	4.14	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 08 13	557	0.1−	0.3−	1997 08 26	557	0.0	0.1+	1997 10 05	557	0.1+	0.1−
1997 08 14	557	0.5−	0.3−	1997 08 26	557	0.1+	0.0	1997 10 05	557	0.3−	0.0
1997 08 14	557	0.5−	0.2+	1997 08 27	557	0.1+	0.2+	1997 10 17	557	0.3+	0.2−
1997 08 14	557	0.0	0.0	1997 08 27	557	0.1−	0.2+	1997 10 17	557	0.3−	0.5−
1997 08 15	557	0.2+	0.0	1997 08 27	557	0.0	0.0	1997 10 28	557	0.1−	0.2+
1997 08 15	557	0.4+	0.0	1997 08 30	557	0.1−	0.0	1997 10 28	557	0.1−	0.1+
1997 08 16	557	0.3+	0.1+	1997 08 30	557	0.3−	0.3+	1999 02 09	557	0.1−	0.6−
1997 08 16	557	0.0	0.1−	1997 08 30	557	0.0	0.4+	1999 02 09	557	0.6−	0.2+
1997 08 23	557	0.6+	0.3−	1997 09 06	557	0.3−	0.0	1999 02 12	704	1.2+	0.3−
1997 08 23	557	0.0	0.2−	1997 09 06	557	0.0	0.1+	1999 02 12	704	1.1−	0.7−
1997 08 23	557	0.2−	0.1−	1997 09 12	557	0.3+	0.1+	1999 02 12	704	1.0+	1.5+
1997 08 26	557	0.0	0.1−	1997 09 12	557	0.4+	0.2+	1999 02 12	704	0.7+	0.7−
1997 08 26	557	0.2−	0.0	1997 09 12	557	0.2+	0.1+	1999 02 15	557	0.2−	0.3+
1997 08 26	557	0.1+	0.0	1997 09 25	557	0.2+	0.1−	1999 02 16	557	0.9−	0.4+
1997 08 26	557	0.0	0.1+	1997 09 25	557	0.0	0.1−				
1997 08 26	557	0.3−	0.0	1997 10 05	557	0.0	0.1+				

1997 PD₅ = 1999 CP₄₇

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
(2000.0)				(2000.0)			
P				Q			
<i>M</i>	206.99606						
<i>n</i>	0.30563859	<i>ω</i>	339.51814	+0.27811790	+0.95961020		
<i>a</i>	2.1827161	<i>Ω</i>	306.60637	−0.87376783	+0.23440558		
<i>e</i>	0.0326197	<i>i</i>	3.02847	−0.39897394	+0.15557085		
<i>P</i>	3.22	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 08 11	327	0.0	0.5+	1997 09 04	327	0.5−	0.7−	1999 02 13	327	0.0	0.1−
1997 08 11	327	0.1−	0.0	1997 09 04	327	0.3−	0.2−	1999 02 13	327	0.5+	0.3+
1997 08 11	327	0.3−	0.4−	1997 09 04	327	0.1−	0.2−	1999 02 13	327	0.6−	0.1−
1997 08 13	327	0.3+	0.3+	1997 09 17	327	0.1+	0.0	1999 02 15	327	0.0	0.2+
1997 08 13	327	0.1−	0.1+	1997 09 17	327	0.4+	0.4+	1999 02 15	327	0.5+	0.1+
1997 08 13	327	0.4+	0.1+	1997 09 17	327	0.2+	0.3+	1999 02 15	327	0.3−	0.4−

1997 PV₅ = 1997 SZ₃₄ = 1999 CN₅₉

Id. A. Gnädig (d, MPC 32093), G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
(2000.0)				(2000.0)			
P				Q			
<i>M</i>	56.21342						
<i>n</i>	0.30508950	<i>ω</i>	93.56548	+0.04029834	−0.99916553		
<i>a</i>	2.1853342	<i>Ω</i>	354.11261	+0.88905559	+0.03889516		
<i>e</i>	0.0311567	<i>i</i>	3.71949	+0.45602216	+0.01246595		
<i>P</i>	3.23	<i>H</i>	15.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 08 03	327	0.1−	0.3−	1997 09 29	691	0.4−	0.0	1999 02 10	704	0.3+	0.8+
1997 08 03	327	0.4−	0.0	1997 09 29	691	0.3−	0.2+	1999 02 10	704	1.4−	0.9+
1997 08 03	327	0.3−	0.2−	1997 10 05	691	0.2+	0.1−	1999 02 13	704	0.9+	1.0−
1997 08 10	327	0.5+	0.1+	1997 10 05	691	0.3+	0.1+	1999 02 13	704	0.5−	1.5−
1997 08 10	327	0.1+	0.1+	1997 10 05	691	0.2+	0.3−	1999 02 13	704	1.8−	0.0
1997 08 10	327	0.1+	0.3+	1999 02 10	704	1.3+	0.5+	1999 02 13	704	1.2+	0.3+

M.P.C. 33952

1997 08 23	684	0.5+	0.1+	1997 09 05	684	0.4-	0.3-	1997 10 21	684	0.1+	0.2-
1997 08 25	684	0.3+	0.1-	1997 09 05	684	0.2-	0.1-	1997 10 21	684	0.9-	0.2+
1997 08 25	684	0.1+	0.3+	1997 09 24	684	0.2-	0.5-	1997 10 21	684	0.2+	0.1+
1997 08 25	684	0.1+	0.3+	1997 09 24	684	0.3-	0.4-	1999 02 12	684	0.4+	0.0
1997 08 29	684	0.2-	0.1-	1997 09 24	684	0.0	0.2-	1999 02 13	684	0.4-	0.4-
1997 08 29	684	0.2-	0.1+	1997 10 02	684	0.3-	0.3-	1999 02 13	684	0.1-	0.2+
1997 09 01	566	0.2-	0.1+	1997 10 02	684	0.2-	0.0				
1997 09 01	566	0.4-	0.3+	1997 10 02	684	0.1-	0.3-				

1997 QQ₄ = 1999 CV₃₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
<i>M</i>	130.29531	(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.22558373	ω	337.30734	+0.99956691	-0.02190083		
<i>a</i>	2.6725810	Ω	23.97274	+0.02829891	+0.89859367		
<i>e</i>	0.0827172	<i>i</i>	2.77292	-0.00807300	+0.43823484		
<i>P</i>	4.37	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 08 30	910	0.2+	0.1+	1997 10 11	691	0.5-	0.3-	1999 02 10	704	0.4+	0.9-
1997 08 30	910	0.4+	0.2-	1997 10 23	691	0.1-	0.1+	1999 02 10	704	0.2+	0.7-
1997 08 30	910	0.2+	0.1-	1997 10 23	691	0.1+	0.1+	1999 02 10	704	0.5-	0.8-
1997 09 09	910	0.1-	0.5-	1997 10 23	691	0.1+	0.1+	1999 02 13	704	1.8-	2.0+
1997 09 09	910	0.0	0.3-	1997 11 02	691	0.1+	0.1+	1999 02 13	704	0.6+	1.0-
1997 09 09	910	0.2+	0.3-	1997 11 02	691	0.3+	0.3+	1999 02 13	704	1.4-	0.1+
1997 10 11	691	0.5-	0.1-	1997 11 02	691	0.1+	0.3+	1999 02 13	704	1.0+	1.3+
1997 10 11	691	0.4-	0.4+	1999 02 10	704	1.4+	0.2-				

1997 RV₂ = 1999 CB₈₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
<i>M</i>	58.83944	(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.26642502	ω	268.60213	+0.15726125	-0.98712853		
<i>a</i>	2.3919534	Ω	172.16769	+0.96954354	+0.14872548		
<i>e</i>	0.1333897	<i>i</i>	12.32510	+0.18776106	+0.05880472		
<i>P</i>	3.70	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 09 03	620	0.2+	1.0-	1997 10 11	620	0.2+	0.1+	1999 02 16	704	0.4-	1.0+
1997 09 03	620	0.7-	1.5+	1997 10 11	620	0.1+	0.1-	1999 02 16	704	0.6-	1.1+
1997 09 05	620	0.2+	0.5-	1997 10 11	620	0.0	0.1-	1999 02 16	704	0.5+	0.7+
1997 09 06	620	0.3+	0.3-	1999 02 12	704	0.2+	0.5-	1999 02 17	620	0.1+	0.4-
1997 09 06	620	0.3+	0.1-	1999 02 12	704	0.1-	0.7-	1999 02 17	620	0.0	0.7-
1997 09 06	620	0.4+	0.1-	1999 02 12	704	1.1+	0.3-	1999 02 19	620	0.3-	0.9-
1997 09 22	620	0.1-	0.8+	1999 02 12	704	0.8+	0.4-	1999 02 20	620	0.4-	0.4-
1997 09 22	620	0.6-	0.1+	1999 02 16	704	0.0	0.4+	1999 02 20	620	0.5-	0.3+
1997 09 22	620	0.2-	0.3-	1999 02 16	704	0.3-	0.6+				

1997 RK₃ = 1986 TB₂ = 1999 BO₂

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
<i>M</i>	145.09429	(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.26830330	ω	262.76710	+0.96964806	+0.20860691		
<i>a</i>	2.3807769	Ω	85.13171	-0.14119446	+0.90358560		
<i>e</i>	0.1319479	<i>i</i>	7.35399	-0.19961656	+0.37418741		
<i>P</i>	3.67	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1986 10 07	688	0.8+	0.4-	1997 09 07	327	0.1-	0.3+	1999 02 10	704	(3.7-	1.7-)
1986 10 07	688	0.9-	0.7+	1997 09 07	327	0.3+	0.2+	1999 02 12	411	0.3-	0.5-
1997 09 03	327	0.1-	0.2+	1999 01 18	411	1.0+	1.4-	1999 02 12	411	0.1-	1.1+
1997 09 03	327	0.1-	0.1-	1999 01 18	411	0.9+	0.2+	1999 02 13	704	0.9+	0.2+
1997 09 03	327	0.1+	0.1-	1999 01 19	411	1.5-	0.2+	1999 02 13	704	0.0	0.5+
1997 09 04	327	0.1-	0.1+	1999 01 19	411	1.4-	0.9-	1999 02 13	704	0.3-	0.3+
1997 09 04	327	0.1+	0.1+	1999 01 27	411	0.7+	0.1+	1999 02 13	704	0.9-	0.7-
1997 09 04	327	0.1+	1.0-	1999 01 27	411	1.5+	0.9+	1999 02 13	704	0.8-	0.7-

1999 MAR. 2

1997 09 07	327	0.0	0.3+	1999 02 10	704	0.0	0.1-
1997 09 07	327	0.1+	0.3-	1999 02 10	704	0.0	0.5+

1997 RS₃ = 1999 CE₂₇

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
<i>M</i>	30.84808	(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.18499502	ω	73.74752	-0.10893818	-0.99346310		
<i>a</i>	3.0504414	Ω	22.59057	+0.87475186	-0.11210735		
<i>e</i>	0.1000889	<i>i</i>	5.09440	+0.47216697	-0.02151769		
<i>P</i>	5.33	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 09 01	910	0.4-	0.1+	1997 09 25	557	0.6+	0.4-	1999 02 10	704	0.0	0.6-
1997 09 01	910	0.3-	0.0	1997 09 30	691	0.5-	0.1-	1999 02 12	699	1.0+	0.5+
1997 09 01	910	0.0	0.2-	1997 09 30	691	0.6-	0.2-	1999 02 12	699	1.1+	0.3-
1997 09 09	910	0.1+	0.1+	1997 09 30	691	0.5-	0.1-	1999 02 12	699	0.5+	0.1+
1997 09 09	910	0.1+	0.0	1997 10 11	691	0.6-	0.0	1999 02 13	704	1.0-	0.7+
1997 09 09	910	0.1-	0.2+	1997 10 11	691	0.9-	0.0	1999 02 13	704	0.3-	0.3+
1997 09 12	910	0.0	0.3+	1997 10 11	691	0.9-	0.1+	1999 02 13	704	0.0	0.1-
1997 09 12	910	0.2+	0.1+	1997 10 23	691	0.4+	0.0	1999 02 13	704	0.6-	0.5+
1997 09 12	910	0.1+	0.2+	1997 10 23	691	0.4+	0.3+	1999 02 13	704	0.1-	0.1+
1997 09 23	557	1.0+	0.1+	1997 10 23	691	0.5+	0.1+	1999 02 19	566	0.1-	0.6-
1997 09 23	557	0.5+	0.2+	1999 02 10	704	0.2-	0.2+	1999 02 19	566	0.2+	0.4-
1997 09 23	557	0.0	0.5-	1999 02 10	704	0.4+	0.1-	1999 02 19	566	0.0	0.3-
1997 09 25	557	0.6+	0.2-	1999 02 10	704	0.5-	0.0				
1997 09 25	557	0.5+	0.0	1999 02 10	704	0.5-	0.1+				

1997 RV₈ = 1999 CS₂₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
<i>M</i>	148.01980	(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.25212991	ω	296.13645	+0.88752874	+0.45729814		
<i>a</i>	2.4815315	Ω	36.72605	-0.38192655	+0.79853999		
<i>e</i>	0.1875856	<i>i</i>	5.40357	-0.25773017	+0.39142341		
<i>P</i>	3.91	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 09 01	327	0.1+	0.1-	1997 09 23	327	0.5-	0.5-	1999 02 10	704	0.5-	0.5+
1997 09 01	327	0.1+	0.2-	1997 09 23	327	0.4-	0.4-	1999 02 10	704	0.3-	1.4-
1997 09 01	327	0.2-	0.3-	1997 10 31	138	2.1+	0.5+	1999 02 10	704	0.0	0.6-
1997 09 12	327	0.2+	0.3-	1997 10 31	138	0.2+	1.4+	1999 02 10	704	1.5+	0.2+
1997 09 12	327	0.2+	0.3-	1997 10 31	138	1.0+	0.2+	1999 02 10	704	0.6+	0.2+
1997 09 12	327	0.1+	0.3-	1997 12 03	910	0.4-	0.3+	1999 02 13	704	2.0-	1.8-
1997 09 13	327	0.3+	0.1+	1997 12 03	910	0.3-	0.4+	1999 02 13	704	0.6+	0.5+
1997 09 13	327	0.2+	0.1-	1997 12 03	910	0.5-	0.3+	1999 02 13	704	0.5-	0.1+
1997 09 13	327	0.3+	0.2-	1997 12 05	910	0.9-	0.0	1999 02 13	704	0.0	0.7+
1997 09 13	327	0.1+	0.1-	1997 12 05	910	0.8-	0.1-				
1997 09 23	327	0.4-	0.4-	1997 12 05	910	1.1-	0.0				

1997 SX = 1999 CP₃₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
<i>M</i>	129.42643	(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.18398618	ω	312.94800	+0.99095910	+0.01590166		
<i>a</i>	3.0615821	Ω	46.62156	+0.05428711	+0.86050891		
<i>e</i>	0.1019929	<i>i</i>	10.56124	-0.12269053	+0.50918715		
<i>P</i>	5.36	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 09 07	910	(2.7- 2.0-)	1997 09 27	327	0.2- 0.5-	1998 01 02	691	0.4+ 0.2-
1997 09 07	910	(2.3- 1.9-)	1997 09 27	327	0.2- 0.5-	1999 02 10	704	0.2- 0.3-
1997 09 07	910	(2.6- 1.8-)	1997 09 27	327	0.3- 0.4-	1999 02 10	704	0.6- 0.3+
1997 09 17	327	0.5+ 0.1+	1997 11 01	411	0.6- 0.0	1999 02 10	704	0.5- 0.5+
1997 09 17	327	0.3+ 0.0	1997 11 01	411	1.1- 0.3+	1999 02 10	704	0.8+ 1.4+
1997 09 17	327	0.3+ 0.3+	1997 12 04	704	0.1+ 0.1-	1999 02 10	704	1.0- 0.5-
1997 09 19	327	0.1+ 0.4+	1997 12 04	704	0.5- 0.3-	1999 02 13	704	0.9- 0.2+

1999 MAR. 2

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1997 09 19	327	0.7+	0.3−	1997 12 04	704	0.2−	0.2+	1999 02 13	704	0.2−	1.7+
1997 09 19	327	0.1+	0.0	1997 12 04	704	0.6−	0.1+	1999 02 13	704	1.1+	1.0+
1997 09 26	327	0.4+	0.0	1997 12 04	704	0.7+	0.7+	1999 02 18	566	0.6+	1.2−
1997 09 26	327	0.2+	0.1+	1998 01 02	691	0.2+	0.1+	1999 02 18	566	0.4+	1.4−
1997 09 26	327	(1.4−	2.3+)	1998 01 02	691	0.3+	0.0	1999 02 18	566	0.7+	1.7−

1997 SE₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	84.88629		(2000.0)	P	Q
<i>n</i>	0.20298360	ω	139.10227	+0.74868605	−0.66271674
<i>a</i>	2.8674472	Ω	262.41317	+0.60377576	+0.69201339
<i>e</i>	0.0675380	<i>i</i>	0.95983	+0.27372253	+0.28622368
<i>P</i>	4.86	<i>H</i>	15.2	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1997 09 23	557	0.1+	0.2−	1997 10 11	691	0.8−	0.1−	1997 11 01	691	0.5−	0.6−
1997 09 23	557	0.1+	0.5+	1997 10 11	691	0.9−	0.1−	1997 11 01	691	0.8+	0.4+
1997 09 25	557	0.0	0.2−	1997 10 11	691	0.7−	0.3−	1997 11 01	691	0.3−	0.1+
1997 09 25	557	0.1−	0.1+	1997 10 21	557	0.4+	0.4+	1997 11 10	557	0.1−	0.0
1997 09 25	557	0.3−	0.2+	1997 10 21	557	0.2+	0.5+	1997 11 10	557	0.5+	0.0
1997 09 28	557	0.2+	0.1−	1997 10 21	557	0.8+	0.5+	1999 02 09	557	0.2−	0.6−
1997 09 28	557	0.1+	0.7+	1997 10 23	691	1.2−	0.1−	1999 02 09	557	0.2−	0.2−
1997 10 05	557	1.1+	0.2−	1997 10 23	691	1.1−	0.2−	1999 02 15	557	0.2−	0.9+
1997 10 05	557	1.6+	0.3−	1997 10 23	691	1.0−	0.1−	1999 02 16	557	0.6+	0.1−
1997 10 11	557	0.1+	0.2−	1997 10 31	557	0.6+	0.1−				
1997 10 11	557	0.3−	0.1+	1997 10 31	557	1.2+	0.5−				

1997 SG₂ = 1999 CC₅₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	155.81990		(2000.0)	P	Q
<i>n</i>	0.29756771	ω	13.38735	+0.98874842	+0.14143627
<i>a</i>	2.2220075	Ω	338.30022	−0.14649339	+0.84964079
<i>e</i>	0.0745893	<i>i</i>	7.56963	−0.03026943	+0.50804164
<i>P</i>	3.31	<i>H</i>	14.6	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1997 09 19	402	0.7−	0.4+	1997 09 29	402	0.2−	0.1+	1997 12 28	566	0.3+	0.0
1997 09 19	402	0.7−	0.4+	1997 09 29	402	0.2−	0.0	1997 12 28	566	0.2+	0.0
1997 09 19	402	0.8−	0.3+	1997 09 29	402	0.2−	0.1+	1999 02 10	704	0.4−	0.2−
1997 09 24	402	0.5+	0.0	1997 10 23	402	0.3−	0.1+	1999 02 10	704	0.8−	0.3+
1997 09 24	402	0.4+	0.1−	1997 10 23	402	0.1−	0.1+	1999 02 10	704	0.5−	0.1+
1997 09 24	402	0.0	0.1−	1997 10 23	402	0.1−	0.0	1999 02 10	704	0.2+	1.1+
1997 09 24	900	0.2−	0.6+	1997 10 29	402	0.1+	0.1+	1999 02 10	704	0.2−	1.9+
1997 09 24	900	0.0	0.3+	1997 10 29	402	0.1+	0.0	1999 02 13	704	0.8+	0.6−
1997 09 28	402	0.5+	0.3−	1997 10 29	402	0.1+	0.2+	1999 02 13	704	0.9+	1.1−
1997 09 28	402	0.5+	0.3−	1997 11 19	402	0.0	0.1−	1999 02 13	704	0.3+	0.4−
1997 09 28	402	0.3+	0.4−	1997 11 19	402	0.1−	0.6−	1999 02 13	704	0.4+	0.5−
1997 09 28	900	0.3+	0.2−	1997 11 19	402	0.1+	0.2−	1999 02 13	704	0.4−	0.0
1997 09 28	900	0.1+	0.3−	1997 12 28	566	0.1−	0.0				

1997 SF₃ = 1999 CX₄₅

Id. G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	123.86332		(2000.0)	P	Q
<i>n</i>	0.28603333	ω	22.63767	+0.98454252	−0.17314059
<i>a</i>	2.2813484	Ω	347.24757	+0.13670244	+0.85396857
<i>e</i>	0.1285446	<i>i</i>	6.87582	+0.10949182	+0.49067302
<i>P</i>	3.45	<i>H</i>	15.3	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1997 09 25	046	0.0	0.1+	1997 10 04	046	0.0	0.2−	1999 02 10	704	1.1−	0.9−
1997 09 25	046	0.1−	0.1+	1997 10 04	046	0.6+	0.3−	1999 02 10	704	(2.5−	0.6−)
1997 09 25	046	0.1+	0.1−	1997 10 04	046	0.3−	0.5−	1999 02 13	704	0.4+	1.0+
1997 09 26	046	0.2−	0.0	1997 10 06	046	0.1+	0.3+	1999 02 13	704	1.0+	0.9+
1997 09 26	046	0.2+	0.1−	1997 10 06	046	0.2+	0.3+	1999 02 13	704	0.8+	0.2−

1997 09 26	046	0.2+	0.1−	1997 10 06	046	0.1+	0.2+	1999 02 13	704	0.7+	1.2+
1997 09 26	046	0.1−	0.1+	1997 10 22	046	0.3−	0.0	1999 02 13	704	0.5+	0.2−
1997 09 26	046	0.1+	0.1−	1997 10 22	046	0.4−	0.1+	1999 02 25	046	0.4−	0.1−
1997 09 27	046	0.4+	0.2−	1997 10 22	046	0.4−	0.1+	1999 02 25	046	0.6−	0.4+
1997 09 27	046	0.2+	0.3−	1997 10 23	046	0.1−	0.3+	1999 02 25	046	0.0	0.1+
1997 09 27	046	0.3+	0.0	1997 10 23	046	0.3+	0.1+	1999 02 26	046	0.0	0.1+
1997 09 28	046	0.1−	0.2−	1997 10 23	046	0.4−	0.5+	1999 02 26	046	0.2−	0.1−
1997 09 28	046	0.3−	0.1+	1999 02 10	704	0.3+	1.3−				
1997 09 28	046	0.0	0.3−	1999 02 10	704	1.6−	1.4−				

1997 SC₄ = 1999 CB₁₀₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	72.97551		(2000.0)	P	Q
<i>n</i>	0.19575282	ω	203.10050	+0.56223549	−0.82687054
<i>a</i>	2.9376319	Ω	212.69340	+0.76252223	+0.52456331
<i>e</i>	0.0740145	<i>i</i>	1.40885	+0.32007983	+0.20277684
<i>P</i>	5.03	<i>H</i>	14.8	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1997 09 26	557	0.0	0.2+	1997 10 29	704	1.9−	0.7−	1997 11 06	704	0.9+	1.2+
1997 09 27	557	0.1−	0.0	1997 10 29	704	0.1+	1.4−	1997 11 06	704	0.1−	0.3+
1997 09 27	557	0.1−	0.2+	1997 10 29	704	(2.8−	1.6−)	1997 11 06	704	0.8+	0.9+
1997 09 28	557	0.0	0.0	1997 10 29	704	0.9−	0.3−	1997 11 06	704	(0.8−	2.1+)
1997 09 28	557	0.4+	0.3+	1997 10 29	704	0.4+	0.9−	1997 11 10	557	0.2−	1.4+
1997 10 05	557	0.9+	0.5+	1997 10 30	704	(2.1+	0.2−)	1997 11 10	557	0.3+	0.7+
1997 10 05	557	0.4+	0.6+	1997 10 30	704	0.2−	1.4−	1999 02 12	704	1.6+	0.7+
1997 10 05	557	0.5−	0.7+	1997 10 30	704	0.8+	1.7−	1999 02 12	704	0.4−	0.2−
1997 10 05	557	0.0	0.7+	1997 10 30	704	0.3−	1.3−	1999 02 12	704	0.5+	0.9+
1997 10 05	557	0.2+	0.6+	1997 10 30	704	(4.9−	0.8−)	1999 02 12	704	0.3−	0.3+
1997 10 06	557	0.2−	0.5+	1997 10 31	557	0.1+	0.2−	1999 02 16	704	1.4−	0.3−
1997 10 06	557	0.6−	0.1+	1997 10 31	557	0.2+	0.2−	1999 02 16	704	0.5+	0.1+
1997 10 20	557	0.2−	0.5−	1997 11 03	704	0.1−	1.6+	1999 02 16	704	0.3+	2.0−
1997 10 20	557	0.5−	0.8−	1997 11 03	704	0.2−	0.1−	1999 02 23	557	0.2−	1.1+
1997 10 22	557	0.5−	0.0	1997 11 03	704	0.8+	0.6+	1999 02 23	557	0.6−	0.4−
1997 10 22	557	0.3−	0.5−	1997 11 03	704	0.6+	0.4−				

1997 SV₄ = 1999 BM

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	314.67512		(2000.0)	P	Q
<i>n</i>	0.27988991	ω	196.53899	−0.99903908	+0.03306788
<i>a</i>	2.3146104	Ω	345.26632	−0.01447600	−0.86844044
<i>e</i>	0.1065765	<i>i</i>	6.49419	−0.04136850	−0.49468951
<i>P</i>	3.52	<i>H</i>	15.1	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1997 09 25	560	(1.9+	2.6−)	1997 10 04	589	0.6−	0.7−	1999 01 25	411	0.1−	0.5+
1997 09 25	560	0.9+	1.8+	1997 10 04	589	1.3+	0.1+	1999 02 05	411	0.1−	0.5−
1997 09 25	560	0.2+	1.4+	1997 10 04	589	0.8+	0.2+	1999 02 05	411	0.4−	1.1−
1997 09 26	560	0.8−	1.4−	1997 10 09	691	1.3−	0.2−	1999 02 10	704	0.5+	0.1+
1997 09 26	560	(0.8+	2.0−)	1997 10 09	691	1.5−	1.0+	1999 02 10	704	0.4−	1.0+
1997 09 26	560	1.0+	0.4−	1997 10 09	691	1.4−	0.4−	1999 02 10	704	0.4+	0.6+
1997 09 27	560	0.4+	0.9+	1999 01 16	411	0.7−	1.2+	1999 02 10	704	0.3+	0.3+
1997 09 27	560	0.3−	0.2−	1999 01 16	411	0.1−	0.2−	1999 02 10	704	1.3−	0.9+
1997 09 27	560	1.1+	0.2−	1999 01 17	411	0.7−	1.3−	1999 02 13	704	0.1−	0.6−
1997 10 03	589	1.0+	0.6+	1999 01 17	411	0.1+	0.0	1999 02 13	704	0.3−	0.2+
1997 10 03	589	0.9+	0.3−	1999 01 22	699	0.4−	0.3−	1999 02 13	704	1.4+	0.1−
1997 10 04	691	0.6−	0.5−	1999 01 22	699	0.7+	0.4−	1999 02 13	704	0.6+	0.4−
1997 10 04	691	0.4−	0.9−	1999 01 22	699	0.0	0.5+	1999 02 13	704	0.4+	0.0
1997 10 04	691	0.7−	0.7−	1999 01 25	411	0.2+	0.3−				

1997 SJ₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	133.91789	(2000.0)	P		Q	
<i>n</i>	0.26230292	ω	337.09042	+0.99187510	-0.12493984	
<i>a</i>	2.4169480	Ω	30.11730	+0.12285817	+0.89190647	
<i>e</i>	0.2198547	<i>i</i>	2.73634	+0.03300995	+0.43461809	
<i>P</i>	3.76	<i>H</i>	15.8	<i>G</i> 0.15	<i>U</i> 4	

Residuals in seconds of arc

1997 09 30	684	0.2+	0.4-	1997 10 23	684	0.2-	0.1-	1997 11 19	684	0.0	0.2-
1997 09 30	684	0.2+	0.3-	1997 10 23	684	0.2-	0.3-	1997 11 19	684	0.3+	0.0
1997 10 01	684	0.2+	0.0	1997 10 23	684	0.2-	0.1-	1997 11 30	684	0.3-	0.1+
1997 10 01	684	0.3+	0.4-	1997 10 24	684	0.1+	0.2-	1997 11 30	684	0.4-	0.0
1997 10 01	684	0.1+	0.3-	1997 10 27	684	0.5-	1.0+	1997 12 01	684	0.5-	0.4-
1997 10 02	684	0.0	0.0	1997 10 27	684	0.2-	0.4+	1997 12 01	684	0.5-	0.5-
1997 10 02	684	0.0	0.0	1997 10 27	684	0.2-	1.5+	1999 02 20	684	0.0	0.0
1997 10 02	684	0.1-	0.0	1997 11 18	684	0.9+	0.6+	1999 02 20	684	0.8+	0.6-
1997 10 05	684	0.1+	0.4-	1997 11 18	684	0.6+	0.1+	1999 02 21	684	0.3+	0.7-
1997 10 05	684	0.1-	0.4-	1997 11 18	684	0.5+	0.1+	1999 02 21	684	1.3-	0.8+
1997 10 05	684	0.0	0.2-	1997 11 19	684	0.0	0.0				

1997 SD₁₃ = 1999 CU₁₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	40.70805	(2000.0)	P		Q	
<i>n</i>	0.28318025	ω	285.20185	-0.14708637	-0.98902494	
<i>a</i>	2.2966461	Ω	173.20995	+0.94681742	-0.14486867	
<i>e</i>	0.0674671	<i>i</i>	6.78751	+0.28618592	-0.02902976	
<i>P</i>	3.48	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 5	

Residuals in seconds of arc

1997 09 28	691	0.3-	0.2+	1999 02 12	704	0.1-	0.2+	1999 02 16	910	1.0+	0.7-
1997 09 28	691	0.2-	0.2+	1999 02 12	704	0.4-	0.5+	1999 02 16	910	0.9+	0.8-
1997 09 28	691	0.1-	0.2+	1999 02 12	704	1.1-	0.2-	1999 02 16	704	1.2-	0.1+
1997 09 30	691	0.1+	0.0	1999 02 12	704	0.3-	0.8-	1999 02 16	704	1.4-	0.7+
1997 09 30	691	0.2+	0.3+	1999 02 12	704	0.5-	0.2-	1999 02 16	704	0.1-	0.8+
1997 09 30	691	0.2+	0.1+	1999 02 14	910	1.0+	0.5-	1999 02 16	704	0.2-	1.2+
1997 10 06	691	0.1+	0.2-	1999 02 14	910	1.1+	0.4-	1999 02 16	704	0.4-	1.5+
1997 10 06	691	0.2-	0.4-	1999 02 14	910	0.8+	0.4-				
1997 10 06	691	0.1+	0.3-	1999 02 16	910	0.9+	0.7-				

1997 SE₁₅ = 1999 BX₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Spahr

<i>M</i>	40.31075	(2000.0)	P		Q	
<i>n</i>	0.17644179	ω	187.95644	+0.23944792	-0.96887237	
<i>a</i>	3.1482442	Ω	248.20700	+0.89447763	+0.24531325	
<i>e</i>	0.1257510	<i>i</i>	3.88163	+0.37759034	+0.03328277	
<i>P</i>	5.59	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 4	

Residuals in seconds of arc

1997 09 28	691	0.3+	0.5-	1999 01 09	120	0.4-	0.1-	1999 01 22	120	0.8-	0.2+
1997 09 28	691	0.4+	0.2-	1999 01 09	120	1.0+	0.4-	1999 01 22	120	0.3+	0.0
1997 09 28	691	0.6-	0.2-	1999 01 19	120	1.6+	0.8+	1999 01 25	120	0.4-	0.1+
1997 09 30	691	0.1-	0.1-	1999 01 19	120	1.1+	1.0+	1999 01 25	120	2.3-	2.0-
1997 09 30	691	0.3-	0.2-	1999 01 21	120	0.1+	0.7+	1999 02 05	120	0.4+	0.0
1997 10 05	691	0.1-	0.1+	1999 01 21	120	0.6-	0.3-	1999 02 05	120	0.7+	0.1+
1997 10 05	691	0.1+	0.1+	1999 01 21	120	1.9-	0.2-				
1997 10 05	691	0.3+	0.9+	1999 01 22	120	1.4+	0.1-				

1997 SZ₁₅ = 1999 CY₆₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	211.69072	(2000.0)	P		Q	
<i>n</i>	0.25280269	ω	53.31344	+0.32212769	+0.94561993	
<i>a</i>	2.4771269	Ω	235.53820	-0.88510251	+0.28391300	
<i>e</i>	0.1050685	<i>i</i>	3.13769	-0.33589774	+0.15873359	
<i>P</i>	3.90	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 4	

Residuals in seconds of arc

1997 09 27	910	0.0	0.1-	1997 10 29	566	0.4+	0.6+	1999 02 12	704	0.5+	0.1+
1997 09 27	910	0.1-	0.0	1997 11 28	691	0.6-	0.6-	1999 02 12	704	0.3+	0.2-
1997 09 27	910	0.6-	0.2-	1997 11 28	691	0.3-	0.1-	1999 02 12	704	0.4+	0.2-
1997 09 30	910	0.1-	0.0	1997 11 28	691	0.7-	0.5-	1999 02 12	704	0.4+	0.2-
1997 09 30	910	0.6-	0.4+	1997 12 04	691	0.1+	0.2-	1999 02 16	704	0.0	0.9-
1997 10 01	910	0.0	0.0	1997 12 04	691	0.0	0.3+	1999 02 16	704	0.3-	0.4+
1997 10 29	566	0.9+	0.4-	1997 12 04	691	0.3+	0.3+	1999 02 16	704	0.7-	0.1-
1997 10 29	566	1.1+	0.4+	1999 02 12	704	0.2+	0.2+	1999 02 16	704	0.9-	1.0+

1997 SJ₁₆

Id. A. Nakamura (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	93.74573	(2000.0)	P		Q	
<i>n</i>	0.22597064	ω	335.57437	+0.86778749	-0.48749826	
<i>a</i>	2.6695294	Ω	53.94701	+0.47329024	+0.75168198	
<i>e</i>	0.0777161	<i>i</i>	6.84710	+0.15146357	+0.44420676	
<i>P</i>	4.36	<i>H</i>	16.0	<i>G</i> 0.15	<i>U</i> 4	

Residuals in seconds of arc

1997 09 29	360	0.2-	0.2-	1997 10 22	360	0.1-	0.3+	1999 02 09	360	0.1-	0.2+
1997 09 29	360	0.2-	0.1+	1997 10 22	360	1.0-	0.3-	1999 02 09	360	0.1+	0.1-
1997 09 29	360	0.2-	0.0	1997 10 22	360	0.4-	0.4+	1999 02 09	360	0.5-	0.2-
1997 09 30	360	0.3+	0.1-	1997 10 27	360	0.6-	0.9+	1999 02 14	360	0.4-	0.3+
1997 09 30	360	0.9+	0.3-	1997 10 27	360	0.3+	0.1-	1999 02 14	360	0.4+	0.6-
1997 09 30	360	0.4+	0.0	1997 10 27	360	0.1-	0.4+	1999 02 14	360	0.9-	0.4+
1997 10 12	360	0.2-	0.1+	1997 11 05	360	0.3+	0.7-	1999 02 17	360	1.1+	0.2+
1997 10 12	360	0.2-	0.2-	1997 11 05	360	0.8+	0.3-	1999 02 17	360	0.4-	0.1+
1997 10 12	360	0.0	0.3+	1997 11 05	360	0.2+	0.4-	1999 02 17	360	0.7+	0.3-

1997 SD₂₅ = 1999 AT₃₄ = 1999 CS₁₀₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	31.37124	(2000.0)	P		Q	
<i>n</i>	0.18615121	ω	252.89051	+0.03589071	-0.99822249	
<i>a</i>	3.0377974	Ω	195.28978	+0.97173105	+0.04597563	
<i>e</i>	0.0691514	<i>i</i>	10.39457	+0.23334656	-0.03792228	
<i>P</i>	5.29	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 3	

Residuals in seconds of arc

1997 09 30	376	0.8+	0.8+	1997 11 01	426	0.4+	0.1-	1999 02 12	704	0.2+	0.5+
1997 09 30	376	0.0	0.8+	1997 11 01	426	0.1-	0.3+	1999 02 12	704	0.6-	0.5+
1997 10 03	376	0.0	0.5+	1997 11 02	426	0.4+	0.3+	1999 02 12	704	0.3+	0.6+
1997 10 03	376	0.3+	0.1-	1997 11 02	426	0.1+	0.0	1999 02 12	704	0.3-	0.7+
1997 10 08	376	0.8-	0.1+	1997 12 31	376	1.2-	0.0	1999 02 12	704	0.2+	0.2+
1997 10 08	376	0.5-	0.6-	1997 12 31	376	0.6+	1.7-	1999 02 16	704	0.3-	0.3-
1997 10 10	376	0.8-	0.9-	1999 01 13	376(48.5-	19.5+)		1999 02 16	704	0.8+	1.0-
1997 10 27	376	0.5+	0.2+	1999 01 13	376(47.0-	19.0+)		1999 02 16	704	0.4-	1.0+
1997 10 27	376	0.1+	0.0	1999 01 16	376	0.2-	0.1-	1999 02 16	704	0.5+	1.5-
1997 11 01	426	0.0	0.2+	1999 01 16	376	0.1-	0.2-				

1997 SF₂₅

Id. T. Kagawa (1999 observations)

1999 MAR. 2

M.P.C. 33955

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Urata

<i>M</i>	110.00302		(2000.0)	P	Q
<i>n</i>	0.26522692	ω	11.02864	+0.85855644	-0.51119599
<i>a</i>	2.3991513	Ω	19.86566	+0.46112507	+0.73619499
<i>e</i>	0.1316015	<i>i</i>	6.67350	+0.22415286	+0.44350378
<i>P</i>	3.72	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 09 29	905	0.1-	0.3+	1997 10 28	704	(2.2+	2.4-)	1997 11 19	385	1.1+	0.0
1997 09 29	905	0.3+	0.2+	1997 10 28	704	(4.2+	1.2-)	1997 12 24	385	1.2-	0.7-
1997 09 30	905	0.5+	0.0	1997 10 28	704	(1.1+	1.9-)	1997 12 24	385	0.8+	0.3+
1997 09 30	905	0.2-	0.1-	1997 10 30	704	0.0	0.7-	1999 02 16	888	0.3+	0.4-
1997 10 05	905	1.4-	0.9-	1997 10 30	704	0.0	0.4+	1999 02 16	888	0.1-	0.8+
1997 10 05	905	0.6+	0.0	1997 10 30	704	0.6+	0.1+	1999 02 16	888	0.4+	0.3-
1997 10 25	385	0.4-	0.1+	1997 10 30	704	0.3-	0.2-	1999 02 17	888	0.9-	0.3+
1997 10 25	385	0.4-	0.6+	1997 10 30	704	0.4-	0.5+	1999 02 17	888	0.4+	0.4-
1997 10 28	704	(3.2+	3.1-)	1997 11 19	385	0.4+	0.2+				

1997 SP₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Spahr

<i>M</i>	147.32499		(2000.0)	P	Q
<i>n</i>	0.22262343	ω	161.16696	+0.89433120	+0.44727554
<i>a</i>	2.6962209	Ω	172.23787	-0.42005779	+0.84771914
<i>e</i>	0.0943527	<i>i</i>	4.57982	-0.15402325	+0.28516110
<i>P</i>	4.43	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 09 29	557	0.1+	0.1-	1997 10 06	557	0.1+	0.5+	1997 10 23	557	0.3+	0.2-
1997 09 29	557	0.3-	0.5-	1997 10 07	557	0.5-	0.3+	1997 10 23	557	0.4-	0.0
1997 10 02	557	0.3-	0.1-	1997 10 07	557	0.3-	0.2+	1997 11 01	557	0.1+	0.1-
1997 10 04	557	0.8+	0.0	1997 10 07	557	0.2-	0.3+	1997 11 01	557	0.1-	0.1-
1997 10 04	557	0.2+	0.5-	1997 10 19	557	0.1+	0.4-	1999 01 12	557	0.0	0.1-
1997 10 05	557	0.1+	0.3+	1997 10 19	557	0.1-	0.1-	1999 01 12	557	0.2-	0.2-
1997 10 05	557	0.1+	0.0	1997 10 21	557	0.1-	0.2+	1999 02 11	557	0.7-	0.1+
1997 10 05	557	0.3+	0.1-	1997 10 21	557	0.1+	0.1+	1999 02 11	557	1.0+	0.1+
1997 10 06	557	0.2-	0.3+	1997 10 21	557	0.1-	0.0				

1997 SK₃₁ = 1999 CW₄₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	30.97911		(2000.0)	P	Q
<i>n</i>	0.23764214	ω	105.48581	-0.12944207	-0.99156139
<i>a</i>	2.5813907	Ω	351.94145	+0.88917226	-0.11288993
<i>e</i>	0.1787084	<i>i</i>	2.91296	+0.43888204	-0.06373276
<i>P</i>	4.15	<i>H</i>	16.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 09 28	691	0.3-	0.2-	1997 10 09	691	0.0	0.1+	1999 02 13	704	(0.1-	2.3-)
1997 09 28	691	0.0	0.3-	1997 10 09	691	0.0	0.1+	1999 02 13	704	1.4-	0.8-
1997 09 28	691	0.1-	0.3-	1999 02 10	704	0.0	0.3+	1999 02 13	704	0.5-	0.8+
1997 10 07	691	0.3-	0.1+	1999 02 10	704	1.3+	0.3+	1999 02 18	566	0.3-	0.4-
1997 10 07	691	0.4-	0.2+	1999 02 10	704	1.7+	0.2+	1999 02 18	566	0.1+	0.7-
1997 10 07	691	1.3+	0.1-	1999 02 10	704	1.0-	0.3+	1999 02 18	566	0.2-	0.8-
1997 10 09	691	0.2-	0.1+	1999 02 13	704	0.1+	0.6+				

1997 TT₃ = 1999 CQ₈₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	27.29034		(2000.0)	P	Q
<i>n</i>	0.21466115	ω	270.68983	-0.41549900	-0.90500955
<i>a</i>	2.7624881	Ω	204.50206	+0.89725215	-0.39133447
<i>e</i>	0.1796503	<i>i</i>	12.70408	+0.14932905	-0.16677843
<i>P</i>	4.59	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 10 03	910	0.0	0.3+	1997 10 30	704	0.1+	0.0	1999 02 16	704	0.5-	0.6+
1997 10 03	910	0.2+	0.3+	1997 10 30	704	0.5-	0.5-	1999 02 16	704	0.6-	0.8+
1997 10 03	910	0.0	0.3+	1997 10 30	704	0.0	0.2-	1999 02 16	704	0.0	0.8+
1997 10 04	910	0.0	0.3-	1997 10 30	704	0.6-	0.5+	1999 02 16	704	0.8-	0.2-
1997 10 04	910	0.1+	0.3-	1997 10 30	704	1.5+	0.1-	1999 02 16	704	0.1-	0.4-
1997 10 04	910	0.0	0.3-	1997 11 02	358	(0.7-	2.8-)	1999 02 18	566	0.4+	0.9-
1997 10 22	358	0.0	0.3-	1997 11 02	358	0.1+	0.0	1999 02 18	566	0.4+	0.3-
1997 10 22	358	0.9-	0.4+	1999 02 12	704	1.3-	0.2-	1999 02 18	566	1.3+	1.0-
1997 10 23	358	(1.3+	3.7-)	1999 02 12	704	1.8+	0.0				
1997 10 23	358	(0.4-	2.0+)	1999 02 12	704	0.8-	0.8+				

1997 TZ₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	110.65610		(2000.0)	P	Q
<i>n</i>	0.22955702	ω	356.29824	+0.90537429	-0.42111734
<i>a</i>	2.6416524	Ω	28.80118	+0.39241773	+0.78091056
<i>e</i>	0.1193875	<i>i</i>	6.48151	+0.16219039	+0.46134465
<i>P</i>	4.29	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1997 10 03	691	0.6-	0.3-	1997 10 19	658	0.0	0.2-	1997 11 19	557	0.8+	0.1-
1997 10 03	691	0.9-	0.0	1997 10 19	658	0.1+	0.3-	1997 11 19	557	0.7+	0.0
1997 10 03	691	0.6-	0.5-	1997 10 22	557	0.4+	0.2+	1997 11 20	557	1.1+	0.0
1997 10 05	557	0.5+	0.0	1997 10 22	557	0.6+	0.0	1997 11 28	691	0.7-	0.0
1997 10 05	557	0.4+	0.2-	1997 10 23	691	0.3-	0.2+	1997 11 28	691	0.7-	0.1+
1997 10 05	557	0.4+	0.1-	1997 10 23	691	0.2-	0.2-	1997 11 28	691	0.7-	0.1+
1997 10 06	557	0.2+	0.1+	1997 10 23	691	0.4-	0.0	1997 12 04	691	0.4-	0.0
1997 10 06	557	0.6+	0.2+	1997 10 31	557	0.8+	0.1+	1997 12 04	691	0.4-	0.1-
1997 10 07	557	0.7+	0.0	1997 10 31	557	0.8+	0.1+	1997 12 04	691	0.6-	0.1+
1997 10 07	557	0.4+	0.2-	1997 11 02	691	0.8-	0.1-	1999 02 09	557	0.2-	0.0
1997 10 10	691	0.4-	0.0	1997 11 02	691	0.6-	0.2+	1999 02 09	557	0.3+	0.5-
1997 10 10	691	0.6-	0.0	1997 11 02	691	0.7-	0.2+	1999 02 21	557	0.2-	0.2+
1997 10 10	691	0.4-	0.0	1997 11 04	557	0.7+	0.3+	1999 02 21	557	0.0	0.0
1997 10 19	658	0.0	0.1-	1997 11 04	557	0.5+	0.2+				

1997 TJ₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	167.70365		(2000.0)	P	Q
<i>n</i>	0.23857474	ω	173.66398	+0.89503153	+0.44599277
<i>a</i>	2.5746591	Ω	159.84831	-0.40958111	+0.82458565
<i>e</i>	0.0755417	<i>i</i>	0.49914	-0.17652728	+0.34806458
<i>P</i>	4.13	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 10 06	557	0.3-	0.0	1997 10 31	704	(2.2+	1.7+)	1997 12 04	691	0.2-	0.0
1997 10 06	557	0.1-	0.1-	1997 10 31	704	1.2+	0.8+	1997 12 04	691	0.1+	0.5-
1997 10 06	557	0.2-	0.5-	1997 11 01	557	0.2-	0.1+	1997 12 04	691	0.4-	0.1+
1997 10 07	557	0.3-	0.3-	1997 11 01	557	0.0	0.4-	1999 02 09	557	0.3-	0.1-
1997 10 07	557	0.1-	0.3-	1997 11 04	557	0.1+	0.1+	1999 02 09	557	0.2+	0.1-
1997 10 20	557	0.1+	1.0+	1997 11 04	557	0.2-	0.2+	1999 02 09	557	0.3-	0.1-
1997 10 20	557	0.2+	0.7+	1997 11 04	557	0.0	0.2+	1999 02 09	557	0.3-	0.5+
1997 10 20	557	0.3-	0.3+	1997 11 04	557	0.0	0.0	1999 02 10	704	0.3+	1.5-
1997 10 23	557	0.2+	0.2-	1997 11 06	704	2.0-	1.1+	1999 02 10	704	1.6+	1.4+
1997 10 23	557	0.5+	0.0	1997 11 06	704	1.4-	1.0-	1999 02 10	704	0.5+	0.2-
1997 10 29	557	0.5+	0.1-	1997 11 06	704	1.0+	0.4-	1999 02 13	704	0.8-	0.5+
1997 10 29	557	0.6+	0.4-	1997 11 06	704	(3.1-	0.0)	1999 02 13	704	0.2+	1.1-
1997 10 31	704	(3.1-	1.5+)	1997 11 06	704	(3.0-	1.2+)	1999 02 13	704	1.0-	0.8+
1997 10 31	704	(2.2+	2.9+)	1997 11 20	557	0.7+	0.1-				
1997 10 31	704	(2.4+	1.7+)	1997 11 20	557	0.5+	0.3-				

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1999 MAR. 2

1997 TK₁₁ = 1999 CK₉₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23366106	ω	157.21458	-0.93385803	-0.35755471		
<i>a</i>	2.6106290	Ω	1.89084	+0.27935763	-0.74320627		
<i>e</i>	0.0997951	<i>i</i>	14.01089	+0.22331256	-0.56550780		
<i>P</i>	4.22	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 10 03	691	0.2-	0.1-	1997 10 11	691	0.3+	0.3+	1999 02 13	704	1.3-	1.5-
1997 10 03	691	0.3-	0.5-	1997 10 11	691	0.3+	0.5+	1999 02 13	704	0.1-	0.0
1997 10 03	691	0.1-	0.4-	1999 02 10	704	0.5-	1.4+	1999 02 13	704	0.5-	0.3+
1997 10 08	691	0.0	0.2+	1999 02 10	704	0.8+	0.1-	1999 02 13	704	0.7-	0.0
1997 10 08	691	0.1-	0.4-	1999 02 10	704	0.7+	0.6-	1999 02 13	704	0.3+	0.4+
1997 10 08	691	0.0	0.1+	1999 02 10	704	1.5+	0.6+				
1997 10 11	691	0.1+	0.3+	1999 02 10	704	0.1-	0.7-				

1997 TY₁₁ = 1999 AV₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30318422	ω	228.15864	+0.99318602	-0.11269409		
<i>a</i>	2.1944801	Ω	138.28651	+0.11570407	+0.92306831		
<i>e</i>	0.2018897	<i>i</i>	2.55745	+0.01393160	+0.36775663		
<i>P</i>	3.25	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 10 07	327	0.1-	0.0	1997 10 08	327	0.1-	0.2-	1999 01 15	910	0.2-	0.1+
1997 10 07	327	0.6+	0.4-	1997 10 09	327	0.1+	0.1+	1999 01 15	910	0.2+	0.0
1997 10 07	327	0.2-	0.1-	1997 10 09	327	0.1-	0.1+	1999 01 20	910	0.2-	0.1+
1997 10 08	327	0.1+	0.3+	1997 10 09	327	0.0	0.0	1999 01 20	910	0.1+	0.0
1997 10 08	327	0.2-	0.1+	1999 01 15	910	0.0	0.3-	1999 01 20	910	0.2+	0.1+

1997 TU₁₇ = 1999 CY₇₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28865533	ω	63.70833	+0.01323150	+0.99895094		
<i>a</i>	2.2675123	Ω	207.15821	-0.94824614	-0.00137538		
<i>e</i>	0.1003724	<i>i</i>	5.51151	-0.31726044	+0.04577255		
<i>P</i>	3.41	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 06	400	0.1+	0.0	1997 10 30	704	0.7+	0.6+	1999 02 12	704	0.2-	0.2-
1997 10 06	400	1.1-	0.1+	1997 10 30	704	1.4+	0.6-	1999 02 12	704	0.1+	0.5+
1997 10 09	400	0.6+	0.2+	1997 10 30	400	0.4-	0.5-	1999 02 12	704	0.2-	0.4-
1997 10 09	400	0.5+	0.0	1997 10 30	400	0.0	1.0-	1999 02 12	704	1.8-	0.0
1997 10 25	400	0.4-	0.3-	1997 11 03	704	0.4-	0.6-	1999 02 16	704	0.2-	0.5-
1997 10 25	400	0.5-	0.2+	1997 11 03	704	0.8-	0.7+	1999 02 16	704	0.2-	0.2+
1997 10 30	704	1.1+	0.6+	1997 11 03	704	1.2-	0.1-	1999 02 16	704	0.6+	0.4+
1997 10 30	704	0.3-	0.2+	1997 11 03	704	0.7-	0.0	1999 02 16	704	1.2+	0.3-
1997 10 30	704	1.4+	0.4+	1999 02 12	704	0.1-	0.1-	1999 02 16	704	0.8+	0.3+

1997 TW₁₈ = 1999 CL₅₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26567904	ω	70.12494	-0.88232169	-0.46751792		
<i>a</i>	2.3964288	Ω	81.96907	+0.40875291	-0.81825892		
<i>e</i>	0.1024382	<i>i</i>	3.13658	+0.23330130	-0.33448370		
<i>P</i>	3.71	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 10 07	327	0.9-	0.6-	1997 10 11	327	0.5+	0.5+	1999 02 13	704	0.6-	0.6-
1997 10 07	327	0.5+	0.2+	1999 02 10	704	0.2-	0.1-	1999 02 13	704	0.5+	0.8+
1997 10 07	327	0.5-	0.0	1999 02 10	704	0.3-	0.2+	1999 02 22	757	0.1+	0.3+
1997 10 09	327	0.5-	0.1+	1999 02 10	704	0.1+	0.8+	1999 02 22	757	0.4+	0.3-

1997 10 09	327	0.2-	0.0	1999 02 10	704	0.3+	0.5+	1999 02 23	757	0.1-	0.5-
1997 10 09	327	0.2-	0.3-	1999 02 10	704	0.4+	0.6-	1999 02 23	757	0.5-	1.6+
1997 10 11	327	0.8+	0.1-	1999 02 13	704	0.5+	0.9-				
1997 10 11	327	0.7+	0.2+	1999 02 13	704	0.8-	1.3-				

1997 TD₁₉ = 1999 AB₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19551227	ω	140.89505	+0.65451059	+0.75602295		
<i>a</i>	2.9400409	Ω	169.98129	-0.70299912	+0.61183019		
<i>e</i>	0.1055716	<i>i</i>	2.21449	-0.27822315	+0.23257929		
<i>P</i>	5.04	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 10 08	376	0.5+	0.3+	1997 10 27	376	0.1+	0.0	1999 01 09	327	0.4+	0.1+
1997 10 08	376	0.7+	0.2+	1997 10 27	376	0.1-	0.3+	1999 01 12	327	0.2+	0.4-
1997 10 10	376	0.9-	0.7-	1999 01 09	327	0.1+	0.4+	1999 01 12	327	0.4-	0.1-
1997 10 10	376	0.2-	0.2-	1999 01 09	327	0.6-	0.9+	1999 01 12	327	0.4+	0.9-

1997 TS₁₉ = 1999 CR₇₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25368602	ω	300.54316	-0.99329658	+0.10786471		
<i>a</i>	2.4713733	Ω	245.67685	-0.08412057	-0.92110035		
<i>e</i>	0.1680896	<i>i</i>	2.61397	-0.07928193	-0.37408469		
<i>P</i>	3.89	<i>H</i>	16.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 10 02	691	0.3+	0.4-	1997 10 31	910	0.0	0.6+	1999 02 12	704	0.4-	0.1-
1997 10 02	691	0.4+	0.0	1997 10 31	910	0.1-	0.3+	1999 02 12	704	0.2+	0.9-
1997 10 02	691	0.6+	0.0	1997 10 31	910	0.3+	0.3+	1999 02 16	704	0.3-	0.2+
1997 10 11	691	0.8-	0.4-	1999 02 12	704	0.3+	0.7-	1999 02 16	704	0.8-	0.4-
1997 10 11	691	0.7-	0.1-	1999 02 12	704	0.7-	0.5-	1999 02 16	704	1.1-	1.9+
1997 10 11	691	0.0	0.3-	1999 02 12	704	1.7+	0.3+	1999 02 16	704	1.2+	0.1+

1997 TK₂₄ = 1999 CA₂₆

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Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21791419	ω	87.82427	+0.64139531	-0.76615646		
<i>a</i>	2.7349268	Ω	322.18125	+0.67526794	+0.58862902		
<i>e</i>	0.0519050	<i>i</i>	3.75943	+0.36417751	+0.25791503		
<i>P</i>	4.52	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 05	327	0.5-	0.1+	1997 10 20	327	0.3+	0.3+	1999 02 10	704	0.2+	0.3+
1997 10 05	327	0.6+	0.2+	1997 10 21	327	0.3+	0.4+	1999 02 10	704	0.0	1.1+
1997 10 05	327	0.1-	0.3-	1997 10 21	327	0.2+	0.1-	1999 02 12	699	0.5-	0.3+
1997 10 08	691	0.2-	1.0-	1997 10 21	327	0.3+	0.2+	1999 02 12	699	1.2+	0.8+
1997 10 08	691	0.8-	0.4+	1997 11 02	327	0.3-	0.7-	1999 02 12	699	0.7+	0.2-
1997 10 08	691	0.6-	0.1+	1997 11 02	327	0.4-	0.1-	1999 02 13	704	1.2-	1.2-
1997 10 11	327	0.1+	0.6+	1997 11 02	327	0.4-	0.4-	1999 02 13	704	1.2+	1.1+
1997 10 11	327	0.1+	0.4+	1997 11 19	327	0.1+	0.2-	1999 02 13	704	0.7-	0.9-
1997 10 11	327	0.0	0.2+	1997 11 19	327	0.8+	0.2+	1999 02 13	704	0.5-	0.8-
1997 10 11	327	0.2+	0.4+	1997 11 19	327	0.2-	0.6-	1999 02 13	704	1.0-	0.6-
1997 10 20	327	0.4+	0.1-	1999 02 10	704	0.4-	0.0				
1997 10 20	327	0.1+	0.1-	1999 02 10	704	1.0+	0.5+				

1999 MAR. 2

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1997 TR₂₄ = 1988 AB₁ = 1999 CE₁₀₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.18346770	ω	265.91090	−0.15566293	−0.98777782				
<i>a</i>	3.0673474	Ω	193.05255	+0.91977627	−0.14198272				
<i>e</i>	0.2137093	<i>i</i>	2.03056	+0.36025084	−0.06431089				
<i>P</i>	5.37	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	4		
Residuals in seconds of arc									
1988 01 11	033	0.3−	0.3−	1997 10 18	327	0.3−	0.5−	1999 02 12	704 0.4+ 0.0
1988 01 11	033	0.3+ 0.3−	0.3−	1997 10 18	327	0.2−	0.3−	1999 02 12	704 0.3+ 0.2+
1997 10 09	327	0.3+ 0.2+	0.2+	1997 10 19	327	0.6+ 0.1+	0.1+	1999 02 12	704 0.4+ 0.2−
1997 10 09	327	0.0 0.5+	0.5+	1997 10 19	327	0.2+ 0.6−	0.6−	1999 02 12	704 0.0 0.6−
1997 10 09	327	0.0 0.5+	0.5+	1997 10 19	327	0.0 0.4+	0.4+	1999 02 16	704 0.6+ 0.6−
1997 10 10	327	0.3− 0.1−	0.1−	1999 01 10	699	0.2− 1.2+	1.2+	1999 02 16	704 0.0 0.9+
1997 10 10	327	0.3− 0.1−	0.1−	1999 01 10	699	0.3− 0.2+	0.2+	1999 02 16	704 0.2− 0.5+
1997 10 10	327	0.1− 0.2+	0.2+	1999 01 10	699	0.3+ 0.1+	0.1+	1999 02 16	704 1.4− 0.8−
1997 10 18	327	0.0 0.1−	0.1−	1999 02 12	704	0.4+ 0.7−	0.7−	1999 02 16	704 0.1+ 0.7+

1997 TN₂₆ = 1980 TG₁₅ = 1999 CL₉₂

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Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.23431970	ω	308.01284	+0.90644384	+0.40852966				
<i>a</i>	2.6057346	Ω	28.34653	−0.28085412	+0.77243951				
<i>e</i>	0.1920479	<i>i</i>	13.03199	−0.31540533	+0.48625171				
<i>P</i>	4.21	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	3		
Residuals in seconds of arc									
1980 10 05	414	0.2− 0.7−	0.7−	1997 10 30	566	0.5+ 0.5−	0.5−	1998 12 27	699 0.4+ 0.4−
1980 10 05	414	1.2+ 0.7−	0.7−	1997 10 30	566	0.5+ 0.3−	0.3−	1998 12 27	699 0.1+ 1.3+
1997 10 11	691	0.5− 0.7−	0.7−	1997 11 02	399	0.6− 0.9−	0.9−	1999 02 10	704 1.0− 0.3−
1997 10 11	691	0.4− 0.7−	0.7−	1997 11 02	399	1.9− 1.2+	1.2+	1999 02 10	704 0.0 0.5−
1997 10 11	691	0.3− 0.9−	0.9−	1997 11 03	704	0.4− 1.2+	1.2+	1999 02 10	704 0.3− 0.5+
1997 10 11	399	1.6− 0.9−	0.9−	1997 11 03	704	0.7− 1.7+	1.7+	1999 02 10	704 0.3− 0.6+
1997 10 11	399	1.2+ 0.0	0.0	1997 11 03	704	0.2+ 1.5+	1.5+	1999 02 10	704 0.1− 0.7+
1997 10 23	399	0.6− 1.2−	1.2−	1997 11 03	704	0.4− 1.6+	1.6+	1999 02 13	704 1.6+ 0.9+
1997 10 23	399	1.5+ 0.3+	0.3+	1998 01 24	566	0.8+ 1.3−	1.3−	1999 02 13	704 0.2− 0.7−
1997 10 25	399	0.1+ 1.3+	1.3+	1998 01 24	566	0.1+ 1.7−	1.7−	1999 02 13	704 0.6+ 0.1+
1997 10 25	399	0.9+ 1.4+	1.4+	1998 01 24	566	0.5+ 1.5−	1.5−	1999 02 13	704 1.7− 1.1−
1997 10 30	566	0.7+ 0.3−	0.3−	1998 12 27	699	1.1+ 1.2−	1.2−		

1997 UE

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q		Marsden	
<i>n</i>	0.26861507	ω	256.59192	+0.13874139	−0.99032829				
<i>a</i>	2.3789344	Ω	185.43327	+0.91202139	+0.12810278				
<i>e</i>	0.0905809	<i>i</i>	0.51049	+0.38596349	+0.05328755				
<i>P</i>	3.67	<i>H</i>	15.9	<i>G</i>	0.15	<i>U</i>	4		
Residuals in seconds of arc									
1997 10 20	684	0.7− 0.2−	0.2−	1997 10 29	684	0.1+ 0.2+	0.2+	1997 12 17	684 0.1+ 0.1+
1997 10 20	684	0.1+ 0.1+	0.1+	1997 11 21	684	0.4− 0.5−	0.5−	1997 12 18	684 0.9− 0.0
1997 10 20	684	0.5− 0.4−	0.4−	1997 11 21	684	0.2+ 0.3−	0.3−	1997 12 18	684 0.4+ 1.1+
1997 10 21	684	0.5+ 0.3−	0.3−	1997 11 21	684	0.7+ 0.2−	0.2−	1999 02 22	684 0.0 0.2+
1997 10 21	684	0.1− 0.2+	0.2+	1997 11 22	684	0.4− 0.6−	0.6−	1999 02 22	684 0.1+ 0.0
1997 10 21	684	0.4+ 0.1+	0.1+	1997 11 22	684	0.0 0.5−	0.5−	1999 02 22	684 0.1+ 0.0
1997 10 29	684	0.1+ 0.5+	0.5+	1997 11 22	684	0.2+ 0.2−	0.2−	1999 02 23	684 0.0 0.1−
1997 10 29	684	0.3+ 0.6+	0.6+	1997 12 17	684	0.1− 0.5+	0.5+	1999 02 23	684 0.2− 0.3−

1997 UC₁ = 1999 CT₁₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.21100490	ω	201.86256	+0.78174394	−0.62236820				
<i>a</i>	2.7943086	Ω	196.80801	+0.59033109	+0.75881907				
<i>e</i>	0.2223359	<i>i</i>	7.78501	+0.20096173	+0.19196731				
<i>P</i>	4.67	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5		
Residuals in seconds of arc									
1997 10 22	540	0.3− 0.6−	0.6−	1997 10 27	540	0.2− 0.2+	0.2+	1999 02 12	704 1.4+ 0.9+
1997 10 22	540	0.0 0.4+	0.4+	1997 11 01	540	0.6+ 0.8+	0.8+	1999 02 12	704 1.6+ 0.6+
1997 10 22	540	0.3+ 0.6−	0.6−	1997 11 01	540	0.0 0.1−	0.1−	1999 02 12	704 1.0− 1.1−
1997 10 22	540	0.3+ 0.3+	0.3+	1997 12 05	709	0.0 0.2−	0.2−	1999 02 16	704 1.5− 1.4+
1997 10 23	540	0.5− 0.2+	0.2+	1997 12 05	709	0.2− 0.4−	0.4−	1999 02 16	704 0.5− 0.3−
1997 10 23	540	0.1− 0.1−	0.1−	1997 12 05	709	0.0 0.4−	0.4−	1999 02 16	704 0.1− 0.1+
1997 10 23	540	0.2+ 0.1−	0.1−	1997 12 05	709	0.2+ 0.3−	0.3−	1999 02 16	704 0.9− 0.8−
1997 10 27	540	0.0 0.6+	0.6+	1997 12 05	709	0.1+ 0.4−	0.4−		
1997 10 27	540	0.5− 0.4+	0.4+	1999 02 12	704	1.1+ 0.4−	0.4−		

1997 UK₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q		Marsden	
<i>n</i>	0.23318021	ω	47.56543	+0.21993085	−0.97410842				
<i>a</i>	2.6142167	Ω	29.84936	+0.86128338	+0.16868631				
<i>e</i>	0.1159525	<i>i</i>	6.04046	+0.45806262	+0.15052479				
<i>P</i>	4.23	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	4		
Residuals in seconds of arc									
1997 10 11	691	1.0− 0.2−	0.2−	1997 10 29	684	0.2+ 0.0	0.0	1997 12 04	691 1.2− 0.3−
1997 10 11	691	1.0− 0.5−	0.5−	1997 10 30	684	0.3+ 0.3−	0.3−	1997 12 04	691 1.9− 0.2−
1997 10 11	691	1.2− 0.9−	0.9−	1997 10 30	684	0.3+ 0.2−	0.2−	1997 12 28	684 0.7− 0.3+
1997 10 23	691	0.3− 0.2+	0.2+	1997 10 30	684	0.4+ 0.2−	0.2−	1997 12 28	684 0.0 0.4+
1997 10 23	684	0.4+ 0.1+	0.1+	1997 10 30	684	0.1+ 0.2−	0.2−	1997 12 28	684 0.4+ 0.4+
1997 10 23	691	0.1− 0.4−	0.4−	1997 11 03	704	1.0+ 0.8−	0.8−	1997 12 29	684 0.4− 0.2+
1997 10 23	684	1.0+ 0.0	0.0	1997 11 03	704	0.9+ 1.4+	1.4+	1997 12 29	684 0.6− 0.4+
1997 10 23	691	0.1− 0.0	0.0	1997 11 03	704	1.4+ 1.0−	1.0−	1999 02 13	684 0.9− 0.5−
1997 10 24	684	0.5+ 0.1+	0.1+	1997 11 03	704	1.1+ 0.9−	0.9−	1999 02 13	684 0.1+ 0.6−
1997 10 24	684	0.6+ 0.1−	0.1−	1997 11 18	684	0.0 0.1+	0.1+	1999 02 14	684 0.1+ 0.1−
1997 10 24	684	0.6+ 0.1+	0.1+	1997 11 18	684	0.3− 0.2+	0.2+	1999 02 14	684 0.0 0.0
1997 10 29	684	0.2+ 0.0	0.0	1997 11 18	684	0.1− 1.2+	1.2+		
1997 10 29	684	0.2+ 0.1+	0.1+	1997 12 04	691	1.6− 0.4+	0.4+		

1997 UJ₃ = 1990 DW₅

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	190.88054		(2000.0)		P		Q		
n	0.21851005	ω	359.49340		+0.56481266		+0.82421694		
a	2.7299526	Ω	304.89526		−0.75694932		+0.49783456		
e	0.0834917	i	2.84138		−0.32865541		+0.26986511		
P	4.51	H	13.2		G	0.15	U	4	
Residuals in seconds of arc									
1990 02 23	033	0.6−	0.1−	1997 11 06	411	0.2−	0.2+	1999 01 19	120 0.1− 0.2−
1990 02 23	033	0.4+	0.5−	1997 11 19	411	0.2+	1.4+	1999 01 20	120 0.3+ 0.3−
1997 10 26	411	0.0	1.1+	1997 11 19	411	0.6−	0.3+	1999 02 12	699 0.2− 0.2+
1997 10 26	411	0.4−	0.3+	1997 11 30	411	0.1−	0.0	1999 02 12	699 0.4+ 1.0+
1997 10 27	411	0.3+	0.0	1997 11 30	411	0.6+	0.3+	1999 02 12	699 0.8+ 0.0
1997 10 27	411	0.3−	0.4−	1997 12 17	327	0.0	0.1+	1999 02 12	704 0.1− 0.7−
1997 10 29	704	1.7−	0.2+	1997 12 17	327	0.4−	0.1−	1999 02 12	704 0.5− 0.6+
1997 10 29	704	0.0	0.5+	1997 12 17	327	0.3−	0.1+	1999 02 12	704 0.7− 0.1+
1997 10 29	704	0.4−	0.2−	1997 12 19	426	0.6+	0.5−	1999 02 12	704 0.3− 0.0
1997 10 29	704	0.1−	0.0	1997 12 19	426	0.1−	0.8+	1999 02 12	704 0.5+ 0.2−
1997 10 29	704	0.1+	0.6−	1997 12 19	426	0.1−	0.4−	1999 02 15	120 0.1+ 0.0
1997 10 30	704	0.8+	1.2−	1997 12 22	327	0.3+	0.4+	1999 02 15	120 0.1− 0.6+
1997 10 30	704	0.3+	0.8−	1997 12 22	327	0.3+	0.5+	1999 02 16	704 0.5− 0.1−

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1997 10 30	704	0.8+	0.7−	1997 12 22	327	0.2+	0.4+	1999 02 16	704	0.6−	0.6−
1997 10 30	704	0.6+	1.0−	1997 12 24	426	0.1+	0.2−	1999 02 16	704	0.1+	0.1−
1997 11 01	411	0.9−	0.5+	1997 12 24	426	0.4+	0.1−	1999 02 16	704	0.0	0.7+
1997 11 01	411	0.1−	0.1−	1997 12 24	426	0.3−	0.7−	1999 02 16	704	0.7+	0.4−
1997 11 06	411	0.6+	0.1−	1999 01 19	120	0.4+	0.2−				

1997 UR₃ = 1999 CD₄₂

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	174.28294	(2000.0)		P	Q		
<i>n</i>	0.22626206	<i>ω</i>	291.88977	+0.85907370	+0.51062927		
<i>a</i>	2.6672367	<i>Ω</i>	37.43004	−0.44552461	+0.77997389		
<i>e</i>	0.0503353	<i>i</i>	3.33496	−0.25199247	+0.36179895		
<i>P</i>	4.36	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 08 31	910	0.1+	0.2−	1997 11 06	704	1.0−	0.2−	1999 02 10	704	1.1+	0.9+
1997 08 31	910	0.0	0.2−	1997 11 06	411	0.4+	0.7−	1999 02 10	704	0.8+	1.2+
1997 08 31	910	0.1+	0.2−	1997 11 06	411	0.2−	0.1−	1999 02 12	699	0.3+	0.1+
1997 10 26	411	0.5+	0.1−	1997 11 19	411	0.1+	1.4−	1999 02 12	699	1.2+	0.9+
1997 10 26	411	0.7−	0.5−	1997 11 19	411	0.3+	0.1+	1999 02 12	699	0.8+	0.8−
1997 10 27	411	0.7+	0.7+	1997 11 29	704	0.7+	0.5+	1999 02 13	704	0.7−	0.5−
1997 10 27	411	0.7+	1.1+	1997 11 29	704	1.9+	1.6+	1999 02 13	704	1.1−	1.4−
1997 11 01	411	0.1+	0.0	1997 11 29	704	0.6+	0.9−	1999 02 13	704	0.8−	1.1−
1997 11 01	411	0.9+	0.2+	1997 11 29	704	0.1−	0.7+	1999 02 13	704	1.0−	0.4−
1997 11 06	704	1.0−	1.0+	1997 11 30	411	0.4−	0.4−	1999 02 13	704	0.4−	0.3+
1997 11 06	704	0.5−	0.5+	1997 11 30	411	0.9−	1.3−	1999 02 18	566	0.5−	0.0
1997 11 06	704	0.8−	0.2−	1999 02 10	704	1.1+	0.1+	1999 02 18	566	0.5−	0.0
1997 11 06	704	1.3−	0.2−	1999 02 10	704	0.3+	0.2+	1999 02 18	566	0.5−	0.4+

1997 UF₅ = 1989 GP₇ = 1999 CD₈₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	236.61331	(2000.0)		P	Q		
<i>n</i>	0.28236867	<i>ω</i>	263.99325	−0.16490559	+0.98628588		
<i>a</i>	2.3010446	<i>Ω</i>	356.49307	−0.85520356	−0.14641899		
<i>e</i>	0.1170334	<i>i</i>	6.38696	−0.49135833	−0.07616847		
<i>P</i>	3.49	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1989 04 09	809	1.1−	0.1−	1997 10 30	704	0.2+	2.8−	1999 02 10	704	1.6+	0.6−
1989 04 09	809	0.1−	0.1+	1997 10 30	704	2.0+	0.2−	1999 02 10	704	0.0	0.5+
1989 04 09	809	1.0+	0.2−	1997 10 30	704	0.5−	1.2−	1999 02 10	704	1.9+	0.7−
1997 10 24	587	0.3−	0.7−	1997 10 30	704	0.1−	2.6+	1999 02 10	704	0.0	0.2−
1997 10 25	587	1.1−	0.3−	1997 11 02	587	0.7−	0.7+	1999 02 10	704	0.0	0.4+
1997 10 25	587	1.0+	0.2−	1997 11 02	587	0.3−	0.6+	1999 02 13	704	0.4−	0.3−
1997 10 25	587	0.4−	0.3−	1997 11 08	587	0.4+	1.2+	1999 02 13	704	0.0	0.5+
1997 10 26	587	0.5+	1.0−	1997 11 08	587	0.3+	0.4+	1999 02 13	704	1.0−	0.6+
1997 10 26	587	0.1−	0.5+	1997 11 18	587	0.4−	1.0+	1999 02 13	704	2.2−	0.4−
1997 10 26	587	0.4+	0.6−	1997 11 18	587	0.9−	0.2+				

1997 UK₅ = 1999 CN₁₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	137.38781	(2000.0)		P	Q		
<i>n</i>	0.24173177	<i>ω</i>	30.07220	+0.97773608	+0.14830444		
<i>a</i>	2.5521933	<i>Ω</i>	320.51703	−0.20636097	+0.80783000		
<i>e</i>	0.2199726	<i>i</i>	13.50147	+0.03804341	+0.57045287		
<i>P</i>	4.08	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 10 25	104	0.3+	0.2+	1997 11 16	104	0.6−	0.8−	1998 02 12	104	0.3−	0.2−
1997 10 25	104	0.5−	0.3+	1997 11 16	104	0.7−	0.9−	1998 02 12	104	0.1−	0.2−
1997 10 25	104	0.5−	0.2+	1997 11 24	104	0.1+	0.6−	1998 02 12	104	0.2−	0.3−
1997 10 25	104	0.2−	0.2−	1997 11 24	104	0.1+	0.5−	1999 02 12	704	0.2+	1.0+
1997 10 26	104	0.0	0.4−	1997 11 24	104	0.3−	0.7−	1999 02 12	704	2.0−	0.3−
1997 10 26	104	0.2+	0.1−	1997 12 07	104	0.0	0.1−	1999 02 12	704	0.2−	0.1+

1999 MAR. 2

1997 10 26	104	0.2+	0.5+	1997 12 07	104	0.1+	0.0	1999 02 12	704	0.2−	1.9−
1997 11 02	104	0.8+	0.7+	1997 12 07	104	0.2+	0.2+	1999 02 16	704	0.2+	0.4+
1997 11 02	104	0.9+	0.5+	1997 12 24	104	0.2−	0.2−	1999 02 16	704	1.1−	1.3−
1997 11 02	104	0.9+	0.5+	1997 12 24	104	0.1−	0.1−	1999 02 16	704	0.3−	1.0+
1997 11 03	104	0.0	0.3+	1997 12 24	104	0.1−	0.1−	1999 02 16	704	0.2−	0.9−
1997 11 03	104	0.0	0.2+	1998 01 21	104	0.3+	0.7+	1999 02 23	104	0.9+	0.6+
1997 11 03	104	0.0	0.3+	1998 01 21	104	0.2+	0.8+	1999 02 23	104	1.3+	0.6+
1997 11 16	104	0.7−	0.7−	1998 01 21	104	0.3+	1.0+	1999 02 23	104	1.3+	0.6+

1997 UM₅ = 1986 EX₃ = 1999 DC₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	265.28147	(2000.0)		P	Q		
<i>n</i>	0.29913273	<i>ω</i>	220.23787	−0.34015722	+0.93953845		
<i>a</i>	2.2142505	<i>Ω</i>	29.93730	−0.84115520	−0.28521903		
<i>e</i>	0.1743637	<i>i</i>	4.54019	−0.42041765	−0.18951943		
<i>P</i>	3.29	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1986 03 12	809	0.2+	0.5+	1997 10 31	910	(3.3+	0.1+)	1999 02 13	704	0.0	0.2+
1997 10 10	691	0.2+	0.0	1997 10 31	910	(3.2+	0.3+)	1999 02 13	704	0.3+	0.6+
1997 10 10	691	0.0	0.1−	1999 02 10	704	0.5−	0.3+	1999 02 13	704	0.1−	0.5+
1997 10 10	691	0.0	0.1−	1999 02 10	704	0.7+	0.8+	1999 02 13	704	0.2+	0.3−
1997 10 21	691	0.5+	0.2+	1999 02 10	704	0.2+	0.7−	1999 02 18	566	0.0	1.0−
1997 10 21	691	0.4+	0.2+	1999 02 10	704	0.5−	0.1+	1999 02 18	566	0.1−	1.1−
1997 10 21	691	0.8+	0.3+	1999 02 10	704	0.2−	0.6−	1999 02 18	566	0.6−	1.0−
1997 10 28	691	0.5−	0.1−	1999 02 12	699	0.1+	0.2−	1999 02 19	566	0.4−	0.6+
1997 10 28	691	0.4−	0.1+	1999 02 12	699	0.1+	0.0	1999 02 19	566	0.2+	0.8+
1997 10 28	691	1.0−	0.2−	1999 02 12	699	0.1+	0.0	1999 02 19	566	0.1−	0.9+
1997 10 31	910	(3.1+	0.4+)	1999 02 13	704	0.5+	0.5−				

1997 UA₇ = 1929 SE = 1971 UB₃ = 1999 CA₅₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	100.70019	(2000.0)		P	Q		
<i>n</i>	0.18870866	<i>ω</i>	316.43699	+0.98008196	−0.16092142		
<i>a</i>	3.0102888	<i>Ω</i>	53.18132	+0.19717295	+0.85845019		
<i>e</i>	0.3439674	<i>i</i>	8.35894	−0.02371049	+0.48699853		
<i>P</i>	5.22	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1929 09 29	024	1.1−	1.0+	1997 10 30	704	(3.4+	2.1−)	1997 12 04	900	0.2+	0.3+
1971 10 28	095	1.0+	1.3+	1997 10 30	704	(3.6+	0.1+)	1997 12 04	900	0.2+	0.4+
1997 10 25	691	0.2−	0.2−	1997 10 30	704	2.0+	1.9−	1997 12 08	327	0.2+	0.6+
1997 10 25	691	0.2−	0.6−	1997 10 31	704	0.5+	0.2−	1997 12 08	327	0.1+	0.3+
1997 10 25	691	0.1−	0.4−	1997 10 31	704	0.2+	1.3−	1997 12 08	327	0.3+	0.2+
1997 10 28	691	1.2−	0.4−	1997 10 31	704	0.3+	1.3−	1999 02 10	704	(3.2−	0.1−)
1997 10 28	691	1.2−	0.6−	1997 10 31	704	0.5+	0.5−	1999 02 10	704	2.6−	1.6−
1997 10 28	691	1.5−	0.4−	1997 10 31	704	0.5−	0.9−	1999 02 10	704	0.4−	1.1+
1997 10 29	704	0.2−	0.7−	1997 11 05	905	0.4+	0.6+	1999 02 10	704	0.0	0.1+
1997 10 29	704	0.5+	0.5+	1997 11 05	905	0.6+	0.2+	1999 02 13	704	1.2+	1.5−
1997 10 29	704	0.2+	0.5+	1997 11 08	905	0.9+	0.0	1999 02 13	704	2.2+	0.7−
1997 10 29	704	0.2+	0.4+	1997 11 08	905	0.3+	0.1+	1999 02 13	704	1.1−	1.0+
1997 10 29	704	0.1−	0.3+	1997 11 30	566	1.0−	1.1+	1999 02 13	704	0.3−	0.8+
1997 10 30	704	(3.1+	1.8−)	1997 11 30	566	0.9−	1.0+	1999 02 13	704	0.6−	1.5+
1997 10 30	704	(2.7+	1.4−)	1997 11 30	566	0.8−	1.3+				
1997 10 30	704	(2.7+	1.8−)	1997 12 04	900	0.3+	0.2+				

1999 MAR. 2

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Residuals in seconds of arc

1997 10 21	966	0.8+	0.5-	1997 11 03	704	0.5-	0.8+	1999 02 10	704	0.5-	1.4+
1997 10 22	966	0.3-	0.2+	1997 11 03	704	0.0	0.5-	1999 02 12	699	0.9-	1.2-
1997 10 22	966	0.2+	1.3-	1997 11 03	704	1.2-	0.6+	1999 02 12	699	1.0+	0.2-
1997 10 23	966	0.2-	1.2+	1997 12 02	658	0.2+	0.1-	1999 02 12	699	1.5-	0.2-
1997 10 23	966	0.1-	0.3-	1997 12 02	658	0.3-	0.1+	1999 02 13	704	0.3-	0.9+
1997 10 28	966	0.6-	0.3+	1999 02 10	704	0.4-	0.0	1999 02 13	704	1.5+	0.7-
1997 10 29	966	1.1+	0.9-	1999 02 10	704	0.2-	0.2-	1999 02 13	704	0.2+	0.4+
1997 11 03	704	0.2+	0.6+	1999 02 10	704	0.6-	0.0	1999 02 13	704	1.2+	0.6-
1997 11 03	704	0.6+	0.2-	1999 02 10	704	0.3+	0.5+				

1997 UT₈ = 1999 CW₁₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	164.47345		(2000.0)	P	Q
<i>n</i>	0.24467207	ω	122.64319	+0.88877821	+0.45575233
<i>a</i>	2.5317051	Ω	210.32487	-0.44613431	+0.83592373
<i>e</i>	0.1448405	<i>i</i>	5.52498	-0.10505937	+0.30581256
<i>P</i>	4.03	<i>H</i>	14.4	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1997 10 25	400	1.6+	0.0	1997 10 30	704	1.8+	1.1+	1997 11 28	400	0.4+	0.4+
1997 10 25	400	0.4+	0.6-	1997 10 31	704	0.7+	0.0	1997 11 28	400	0.2+	0.6+
1997 10 28	400	0.4+	2.0-	1997 10 31	704	0.5+	0.1+	1999 02 12	704	0.6-	0.3+
1997 10 28	400	0.5-	1.3-	1997 10 31	704	0.0	0.2-	1999 02 12	704	0.4+	0.3-
1997 10 29	704	1.0-	0.4+	1997 10 31	704	0.4+	0.2+	1999 02 12	704	1.2-	1.2-
1997 10 29	704	0.2-	1.1+	1997 10 31	704	0.9-	1.6-	1999 02 12	704	0.1-	0.5+
1997 10 29	704	0.4-	0.5+	1997 11 06	704	2.5-	1.4+	1999 02 16	704	0.2+	1.1+
1997 10 29	704	0.1-	0.8+	1997 11 06	704	2.3-	1.3+	1999 02 16	704	1.4+	1.3+
1997 10 29	704	0.2-	0.2+	1997 11 06	704	3.1-	2.0+	1999 02 16	704	0.5+	0.8-
1997 10 30	704	2.1+	1.1-	1997 11 06	704	2.8-	1.1+	1999 02 16	704	0.4+	0.5-
1997 10 30	704	2.0+	0.8-	1997 11 06	704	2.5-	0.8+	1999 02 16	704	1.1-	0.5-
1997 10 30	704	1.4+	1.2-	1997 11 25	400	1.8+	0.7-				
1997 10 30	704	1.8+	1.4-	1997 11 25	400	1.3+	1.0-				

1997 UV₈ = 1987 QW₃ = 1999 CY₆₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	115.82916		(2000.0)	P	Q
<i>n</i>	0.20289375	ω	160.86716	+0.97983475	-0.16976188
<i>a</i>	2.8682936	Ω	209.53337	+0.14380831	+0.96531214
<i>e</i>	0.1320919	<i>i</i>	12.34402	+0.13871922	+0.19837683
<i>P</i>	4.86	<i>H</i>	13.7	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1987 08 31	010	0.1-	0.9+	1997 10 30	704	1.9+	1.7-	1997 11 06	704	(4.9-	0.1+)
1987 08 31	010	0.3+	0.1+	1997 10 30	704	1.2+	0.9-	1997 11 06	704	2.6-	1.6+
1987 08 31	010	0.1-	1.2-	1997 10 30	704	1.6+	1.9-	1997 11 06	704	(4.5-	0.3-)
1997 10 25	400	0.4+	1.5-	1997 10 31	704	0.5+	1.0+	1997 11 25	400	0.1+	1.4-
1997 10 25	400	0.5+	1.0+	1997 10 31	704	0.5+	2.1+	1997 11 25	400	1.2+	1.7-
1997 10 28	400	2.0-	1.7-	1997 10 31	704	0.1-	1.1+	1999 02 12	704	0.7+	0.3+
1997 10 28	400	0.4+	1.0-	1997 10 31	704	0.2+	1.7+	1999 02 12	704	0.5+	0.1-
1997 10 28	400	0.4+	1.1-	1997 10 31	704	1.2+	0.8+	1999 02 12	704	0.7-	1.1-
1997 10 29	704	0.1-	0.5+	1997 11 02	400	0.8+	0.2-	1999 02 12	704	0.4+	0.3+
1997 10 29	704	0.5-	1.4+	1997 11 02	400	0.3-	0.4-	1999 02 12	704	0.8-	0.8+
1997 10 29	704	0.1-	1.2+	1997 11 06	704	3.0-	1.7+	1999 02 16	704	0.4-	0.6-
1997 10 29	704	0.4+	0.0	1997 11 06	704	(4.7-	0.3-)	1999 02 16	704	0.2-	0.1-
1997 10 29	704	0.1+	0.2-	1997 11 06	704	3.2-	0.9+	1999 02 16	704	0.1+	0.4+
1997 10 30	704	2.0+	1.3-	1997 11 06	704	(4.3-	0.2-)	1999 02 16	704	0.1-	0.3+
1997 10 30	704	1.2+	1.0-	1997 11 06	704	2.6-	0.8+	1999 02 16	704	1.4+	0.2-

1997 UN₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	163.65234		(2000.0)	P	Q
<i>n</i>	0.23122895	ω	349.08785	+0.79712368	+0.60371093
<i>a</i>	2.6289031	Ω	333.76587	-0.55205341	+0.72110374
<i>e</i>	0.1386625	<i>i</i>	1.46055	-0.24460349	+0.33991544
<i>P</i>	4.26	<i>H</i>	14.7	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1997 10 01	910	0.7+	0.3-	1997 11 01	557	0.6-	0.2+	1998 01 10	557	0.3+	1.4+
1997 10 01	910	0.6+	0.1-	1997 11 01	557	0.6-	0.3+	1998 01 10	557	0.6-	0.4+
1997 10 01	910	1.0+	0.4-	1997 11 03	704	0.8-	1.9+	1998 01 10	557	0.2-	0.7-
1997 10 22	704	0.2-	0.0	1997 11 03	704	(0.5-	2.1+)	1998 01 31	557	0.7+	0.2+
1997 10 22	704	0.2+	0.0	1997 11 03	704	1.2-	0.2+	1998 01 31	557	0.6-	0.5-
1997 10 22	704	0.3+	1.8-	1997 11 03	704	0.7-	0.4+	1999 01 12	557	0.0	0.1+
1997 10 22	704	(5.4-	0.5-)	1997 11 03	557	0.1+	0.1+	1999 01 13	557	0.2-	0.6+
1997 10 29	557	0.8+	0.1-	1997 11 03	557	0.2+	0.3+	1999 01 13	557	0.4-	0.4+
1997 10 29	557	0.8+	0.2-	1997 11 03	557	0.0	0.3+	1999 01 13	557	0.4-	0.0
1997 10 29	557	0.7+	0.2-	1997 11 10	557	0.4+	0.3+	1999 02 09	557	0.1+	0.4-
1997 10 30	557	0.1-	0.4-	1997 11 10	557	0.3+	0.4+	1999 02 09	557	0.3-	0.5-
1997 10 30	557	0.8-	0.5-	1997 11 20	557	0.4+	0.2-	1999 02 23	557	0.1+	0.6-
1997 10 30	557	0.8-	0.5-	1997 11 20	557	0.7+	0.4-	1999 02 23	557	1.1+	0.1-
1997 11 01	557	0.7-	0.2+	1997 11 20	557	0.1-	0.4-				

1997 UR₉ = 1999 AX₁₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	139.63884		(2000.0)	P	Q
<i>n</i>	0.21714261	ω	16.70313	+0.98399937	+0.17773448
<i>a</i>	2.7414017	Ω	333.04946	-0.16645588	+0.89206069
<i>e</i>	0.1426012	<i>i</i>	1.57766	-0.06354277	+0.41549751
<i>P</i>	4.54	<i>H</i>	14.3	<i>G</i>	0.15
				<i>U</i>	6

Residuals in seconds of arc

1997 10 29	132	0.3+	0.6-	1997 11 06	704	(4.6-	0.6+)	1997 11 20	132	0.1-	1.0+
1997 10 29	132	0.9+	1.5-	1997 11 06	704	(5.0-	0.7+)	1997 11 20	132	1.5-	0.1-
1997 10 30	132	1.3+	0.5-	1997 11 06	704	(5.6-	0.8+)	1997 11 20	132	0.2+	1.3+
1997 10 30	132	1.0-	0.6-	1997 11 06	704	(5.4-	0.9+)	1999 01 13	691	0.3+	0.1-
1997 10 30	132	0.3+	1.1+	1997 11 10	958	1.3-	0.4-	1999 01 13	691	0.3+	0.5-
1997 10 30	132	0.8-	0.1-	1997 11 10	958	0.1+	0.3-	1999 01 15	691	0.2-	0.3+
1997 11 01	132	0.3+	0.1+	1997 11 11	958	0.4+	1.0+	1999 01 15	691	0.3-	0.2+
1997 11 01	132	0.9-	0.2+	1997 11 11	958	1.3+	0.2-	1999 01 15	691	0.2-	0.1-
1997 11 01	132	0.6-	0.0	1997 11 11	958	0.9+	0.6-				

1997 UN₁₀ = 1999 CC₁₀₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	21.28430		(2000.0)	P	Q
<i>n</i>	0.18651626	ω	239.20068	-0.31450034	-0.94202180
<i>a</i>	3.0338324	Ω	229.59922	+0.91495774	-0.26799829
<i>e</i>	0.0451980	<i>i</i>	8.83635	+0.25286731	-0.20192037
<i>P</i>	5.28	<i>H</i>	14.0	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1997 10 22	704	0.7+	0.1-	1997 10 30	566	0.9+	0.6-	1997 12 05	691	0.0	0.1-
1997 10 22	704	1.2-	0.7-	1997 10 31	704	0.8+	0.3-	1997 12 05	691	0.0	1.9-
1997 10 22	704	0.8-	0.5-	1997 10 31	704	0.3+	1.2+	1997 12 05	691	0.0	0.2-
1997 10 22	704	(2.9-	0.9-)	1997 10 31	704	0.9+	1.3+	1999 01 15	699	1.6-	0.4+
1997 10 29	704	1.0+	0.7-	1997 10 31	704	0.3+	0.8+	1999 01 15	699	0.4-	0.4+
1997 10 29	704	(2.3+	2.0-)	1997 10 31	704	0.0	0.4+	1999 01 15	699	1.0+	0.5+
1997 10 29	704	(0.9-	2.4-)	1997 11 06	704	1.6-	0.3+	1999 02 12	704	0.3+	0.4+
1997 10 29	704	0.6-	0.3-	1997 11 06	704	0.6-	1.6+	1999 02 12	704	0.2-	0.0
1997 10 29	704	0.0	1.6-	1997 11 06	704	0.3-	0.9+	1999 02 12	704	1.0+	0.2+
1997 10 29	566	0.3+	0.3+	1997 11 06	704	1.3-	0.9+	1999 02 12	704	0.2+	0.7+
1997 10 29	566	0.6+	0.1-	1997 11 06	704	1.8-	0.4+	1999 02 12	704	0.5+	0.1-
1997 10 29	566	0.3+	0.4-	1997 11 29	691	0.1+	0.0	1999 02 16	704	0.1-	0.7-

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1997 10 30 566 0.6+ 0.4− 1997 11 29 691 0.2− 0.1+ 1999 02 16 704 0.7− 1.8−
 1997 10 30 566 1.4+ 0.7− 1997 11 29 691 0.1+ 0.0 1999 02 16 704 (0.1+ 3.9−)

1997 UQ₁₀

Id. F. B. Zoltowski (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	112.18935		(2000.0)	P		Q	
<i>n</i>	0.23409859	ω	233.58477	+0.94522495	−0.32291921		
<i>a</i>	2.6073752	Ω	145.18314	+0.31979902	+0.88685513		
<i>e</i>	0.2526934	<i>i</i>	4.78987	+0.06540932	+0.33047113		
<i>P</i>	4.21	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 29 426 0.0 0.3− 1997 11 06 327 0.3− 0.2+ 1997 12 02 426 0.4− 0.4−
 1997 10 29 426 1.0+ 0.1+ 1997 11 06 327 0.2− 0.1− 1997 12 02 426 0.4+ 0.5−
 1997 10 29 426 1.1+ 0.3− 1997 11 16 327 0.3− 0.2+ 1997 12 18 426 0.2− 0.1+
 1997 10 31 426 0.1+ 0.2− 1997 11 16 327 0.3− 0.1+ 1997 12 18 426 0.6+ 0.8−
 1997 10 31 426 0.1− 0.2− 1997 11 16 327 0.1+ 0.2+ 1997 12 18 426 0.7+ 0.1−
 1997 10 31 426 0.1+ 0.0 1997 11 19 327 0.1− 0.1+ 1997 12 19 426 0.7+ 0.4−
 1997 11 03 327 0.3− 0.1+ 1997 11 19 327 0.1+ 0.4+ 1997 12 19 426 0.6− 0.8−
 1997 11 03 327 0.4− 0.0 1997 11 19 327 0.0 0.2+ 1997 12 19 426 0.8+ 0.3+
 1997 11 03 327 0.0 0.0 1997 11 22 426 0.3− 0.9+ 1999 02 09 426 0.4− 0.4−
 1997 11 03 327 0.4− 0.1+ 1997 11 22 426 0.1− 1.0+ 1999 02 09 426 0.4+ 0.9+
 1997 11 04 426 0.1+ 0.2+ 1997 11 23 426 0.2− 1.0− 1999 02 10 426 0.6− 0.5−
 1997 11 04 426 0.1+ 0.2+ 1997 11 23 426 0.7− 0.3− 1999 02 10 426 0.0 0.1+
 1997 11 04 426 0.3+ 0.2+ 1997 11 23 426 0.4− 0.3+ 1999 02 10 426 0.7+ 0.4+
 1997 11 06 327 0.2− 0.3+ 1997 12 02 426 0.5− 0.0

1997 UX₁₄ = 1999 CX₄₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	96.90571		(2000.0)	P		Q	
<i>n</i>	0.21770163	ω	347.79747	+0.85493340	−0.50438738		
<i>a</i>	2.7367067	Ω	43.19686	+0.48957618	+0.70733532		
<i>e</i>	0.1047594	<i>i</i>	10.19614	+0.17147606	+0.49524753		
<i>P</i>	4.53	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 30 704 0.6− 0.6− 1997 11 03 704 (0.0 2.4+) 1999 02 09 557 0.0 0.3−
 1997 10 30 704 0.3− 0.4− 1997 11 03 704 1.7+ 0.6+ 1999 02 09 557 0.2− 0.3−
 1997 10 30 704 0.2+ 0.5− 1997 11 03 704 1.7+ 0.3+ 1999 02 10 704 0.6− 0.6+
 1997 10 30 704 0.0 0.0 1997 11 03 557 0.2− 0.0 1999 02 10 704 0.6+ 0.7−
 1997 10 30 704 0.2+ 0.2− 1997 11 03 557 0.2− 0.1− 1999 02 10 704 1.2+ 0.2−
 1997 10 31 557 0.6− 0.0 1997 11 18 557 0.5+ 0.0 1999 02 10 704 0.2− 0.0
 1997 10 31 557 0.6− 0.3− 1997 11 18 557 0.5− 0.0 1999 02 13 704 0.1+ 0.7+
 1997 10 31 557 0.7− 0.1+ 1997 11 18 557 0.1+ 0.7+ 1999 02 13 704 1.8+ 0.5−
 1997 10 31 557 0.3− 0.1+ 1997 12 30 557 0.2+ 0.1− 1999 02 13 704 0.7− 0.0
 1997 11 01 557 0.4− 0.2− 1997 12 30 557 0.9− 0.2+ 1999 02 13 704 1.7− 1.1+
 1997 11 01 557 0.4− 0.5− 1998 01 11 557 0.6− 0.9+ 1999 02 20 557 0.2− 0.6−
 1997 11 03 704 1.2+ 0.7+ 1998 01 11 557 0.2+ 0.5− 1999 02 20 557 0.3− 0.1−

1997 UW₁₇ = 1999 CK₅₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	269.36220		(2000.0)	P		Q	
<i>n</i>	0.24122609	ω	187.81743	−0.45229491	+0.88331485		
<i>a</i>	2.5557588	Ω	55.37260	−0.80995771	−0.34897677		
<i>e</i>	0.0243641	<i>i</i>	8.61245	−0.37336016	−0.31300175		
<i>P</i>	4.09	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 28 691 0.8+ 0.6− 1997 11 30 566 0.9+ 0.2+ 1997 12 07 910 0.4− 0.5+
 1997 10 28 691 0.8+ 0.8− 1997 11 30 566 0.3− 0.6− 1999 02 10 704 0.9+ 1.0−
 1997 10 28 691 0.7+ 0.6− 1997 11 30 566 1.1+ 0.1+ 1999 02 10 704 0.3+ 1.0−
 1997 11 02 691 0.8+ 0.1− 1997 11 30 566 0.1− 0.7− 1999 02 10 704 0.1+ 1.1−
 1997 11 02 691 0.9+ 0.1+ 1997 11 30 566 1.4+ 0.5− 1999 02 10 704 0.5− 0.6−
 1997 11 02 691 0.8+ 0.0 1997 11 30 566 0.5+ 0.6− 1999 02 10 704 0.2+ 1.1−

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1997 11 06 704 1.5− 0.4+ 1997 12 05 910 0.0 0.1− 1999 02 13 704 0.8− 0.4+
 1997 11 06 704 1.0− 0.1− 1997 12 05 910 0.2− 0.0 1999 02 13 704 0.3− 0.7+
 1997 11 06 704 1.0− 0.7+ 1997 12 05 910 0.0 0.2− 1999 02 13 704 0.2+ 3.0+
 1997 11 06 704 1.0− 1.0+ 1997 12 07 910 0.3− 0.5+ 1999 02 13 704 0.1− 0.7+
 1997 11 06 704 2.2− 1.0+ 1997 12 07 910 0.3− 0.4+

1997 UW₁₈ = 1999 CL₁₇

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	325.09971		(2000.0)	P		Q	
<i>n</i>	0.15722106	ω	92.30216	−0.89501066	−0.42257335		
<i>a</i>	3.3998694	Ω	62.72999	+0.31797599	−0.82895250		
<i>e</i>	0.0117233	<i>i</i>	9.24401	+0.31280537	−0.36642805		
<i>P</i>	6.27	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 28 691 0.6− 0.5− 1997 11 29 704 0.5+ 1.1− 1999 02 10 704 0.2− 0.5−
 1997 10 28 691 0.6− 0.2− 1997 11 29 704 0.4+ 0.3− 1999 02 10 704 0.4− 0.3−
 1997 10 28 691 0.5− 0.5− 1997 11 29 704 0.1− 0.2+ 1999 02 10 704 0.8− 0.5−
 1997 11 01 358 1.3+ 0.7− 1997 11 29 704 0.2− 1.3− 1999 02 10 704 0.8− 0.3−
 1997 11 01 358 (2.5+ 1.2−) 1997 12 05 910 0.4+ 0.3+ 1999 02 10 704 0.6− 0.2+
 1997 11 02 691 0.6− 0.1− 1997 12 05 910 0.4+ 0.3+ 1999 02 12 699 0.2− 0.5+
 1997 11 02 691 0.7− 0.0 1997 12 05 910 0.2+ 0.4+ 1999 02 12 699 0.7+ 0.7+
 1997 11 02 691 0.8− 0.1− 1997 12 06 428 0.1− 0.6+ 1999 02 12 699 0.2− 0.1−
 1997 11 02 358 1.0+ 0.1+ 1997 12 07 910 0.3+ 0.9+ 1999 02 13 704 (0.0 2.8−)
 1997 11 02 358 1.0− 0.3− 1997 12 07 910 0.4+ 0.8+ 1999 02 13 704 0.3+ 1.1+
 1997 11 03 358 0.8− 0.6+ 1997 12 07 910 0.4+ 0.7+ 1999 02 13 704 0.7+ 0.4+
 1997 11 03 358 (2.9+ 0.4−) 1998 12 18 699 0.1+ 0.3− 1999 02 13 704 1.1− 0.2−
 1997 11 26 428 1.1+ 0.3+ 1998 12 18 699 0.6+ 0.4+ 1999 02 13 704 0.2+ 0.7−
 1997 11 29 704 0.5− 0.1+ 1998 12 18 699 1.6+ 0.6−

1997 UE₂₁ = 1999 CQ₈₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	359.84421		(2000.0)	P		Q	
<i>n</i>	0.17686651	ω	111.22056	−0.51387579	−0.85704580		
<i>a</i>	3.1432021	Ω	9.95794	+0.68459167	−0.43601440		
<i>e</i>	0.1500339	<i>i</i>	12.51505	+0.51697767	−0.27452493		
<i>P</i>	5.57	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 22 867 0.8− 1.2− 1997 11 19 867 0.3+ 1.1+ 1999 02 10 704 1.7+ 0.1+
 1997 10 22 867 1.4− 1.5− 1997 11 19 867 1.8− 3.0+ 1999 02 10 704 1.1+ 1.1+
 1997 10 22 867 0.8− 1.0− 1997 12 05 867 0.5+ 0.3− 1999 02 10 704 0.8+ 0.5+
 1997 10 29 867 1.8+ 0.4+ 1997 12 05 867 0.2+ 0.4− 1999 02 10 704 0.8+ 0.8−
 1997 10 29 867 1.7+ 0.3+ 1997 12 05 867 0.0 0.6− 1999 02 13 704 1.9− 0.5+
 1997 10 29 867 2.1+ 0.5+ 1997 12 25 867 1.1− 0.5+ 1999 02 13 704 0.4+ 1.2−
 1997 11 05 867 0.3− 0.4− 1997 12 25 867 0.4− 0.2− 1999 02 13 704 1.8− 0.2+
 1997 11 05 867 0.1− 0.1− 1999 02 10 704 0.4− 0.6+ 1999 02 13 704 0.9− 1.4−

1997 VP

Id. A. Nakamura (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	216.30919		(2000.0)	P		Q	
<i>n</i>	0.27977330	ω	63.33159	+0.41617956	+0.90508649		
<i>a</i>	2.3152534	Ω	231.53693	−0.86884254	+0.36753635		
<i>e</i>	0.1187697	<i>i</i>	6.39790	−0.26815519	+0.21385856		
<i>P</i>	3.52	<i>H</i>	15.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 11 01 360 0.2− 0.0 1997 11 22 691 0.4− 0.5− 1997 12 04 691 0.6− 0.3+
 1997 11 01 360 0.0 0.2− 1997 11 22 691 0.5− 0.4− 1997 12 04 691 0.5− 0.3+
 1997 11 01 360 0.1− 0.3+ 1997 11 23 360 0.6+ 0.2+ 1997 12 04 360 0.7+ 0.4+
 1997 11 02 360 0.2− 0.0 1997 11 23 360 0.3+ 0.4− 1997 12 04 360 0.8+ 0.3+
 1997 11 02 360 0.3− 0.1+ 1997 11 23 360 0.6+ 0.4− 1999 02 09 360 0.1− 0.2+
 1997 11 02 360 0.2− 0.1− 1997 11 28 691 0.6− 0.2+ 1999 02 09 360 0.0 0.4+

1999 MAR. 2

1997 11 05	360	0.1−	0.4−	1997 11 28	691	1.1−	0.2+	1999 02 09	360	0.1+	0.3+
1997 11 05	360	0.1+	0.2−	1997 11 28	691	0.7−	0.4−	1999 02 14	360	0.2+	0.4−
1997 11 07	360	0.9+	0.8+	1997 11 30	360	1.3+	0.2+	1999 02 14	360	0.0	0.4−
1997 11 07	360	0.7+	0.4+	1997 11 30	360	0.7+	0.5−	1999 02 14	360	0.1−	0.1−
1997 11 22	691	0.7−	0.2−	1997 12 04	691	0.5−	0.0				

1997 VH₁ = 1999 DT₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Urata							
<i>M</i>	103.34874	(2000.0)	P	Q			
<i>n</i>	0.23380990	ω	97.37297	+0.76264570	−0.61683726		
<i>a</i>	2.6095209	Ω	300.92185	+0.46687493	+0.73322884		
<i>e</i>	0.0853611	<i>i</i>	13.11367	+0.44765985	+0.28615950		
<i>P</i>	4.22	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 11 01	385	0.2−	0.4−	1997 11 06	385	(2.4−	2.4−)	1999 02 14	888	0.8+	0.6−
1997 11 01	385	0.2−	0.5+	1997 11 19	385	0.5+	0.0	1999 02 14	888	0.4−	0.1−
1997 11 04	385	0.5+	0.2−	1997 11 19	385	0.1−	1.3+	1999 02 20	385	0.4−	0.6+
1997 11 04	385	0.3+	0.5−	1998 01 02	385	0.4+	1.0−	1999 02 20	385	0.0	0.1+
1997 11 06	385	0.8−	0.1−	1998 01 02	385	0.5−	0.4+				

1997 VV₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams							
<i>M</i>	94.08477	(2000.0)	P	Q			
<i>n</i>	0.23822442	ω	198.70929	+0.78539530	−0.61657467		
<i>a</i>	2.5771826	Ω	199.66604	+0.58663092	+0.76961133		
<i>e</i>	0.1700246	<i>i</i>	9.35076	+0.19753071	+0.16593396		
<i>P</i>	4.14	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 30	704	0.1+	0.1+	1997 11 04	557	0.1−	0.1−	1997 12 30	557	0.4+	0.9+
1997 10 30	704	0.1−	0.1+	1997 11 05	557	0.0	0.4−	1998 01 10	557	0.3−	0.8−
1997 10 30	704	0.5−	0.9+	1997 11 05	557	0.1+	0.5−	1998 01 10	557	0.6+	0.4−
1997 10 30	704	1.0−	0.5−	1997 11 05	557	0.1+	0.4−	1999 02 16	557	0.4+	0.1−
1997 10 30	704	(3.2−	0.7−)	1997 11 19	557	1.7+	1.0+	1999 02 16	557	0.3+	0.2−
1997 11 04	557	0.1−	0.1+	1997 11 19	557	0.1+	0.4−	1999 02 20	557	0.6+	0.3+
1997 11 04	557	0.3+	0.2−	1997 12 30	557	1.2−	0.4+	1999 02 20	557	1.3−	0.0

1997 VE₃ = 1999 CB₆₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams							
<i>M</i>	157.58336	(2000.0)	P	Q			
<i>n</i>	0.19187441	ω	104.59042	+0.90718304	+0.39996738		
<i>a</i>	2.9770858	Ω	232.00482	−0.42066687	+0.85662750		
<i>e</i>	0.1158984	<i>i</i>	9.53603	−0.00763658	+0.32590706		
<i>P</i>	5.14	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 11 06	411	0.2−	0.2−	1997 11 29	704	1.3−	0.4+	1999 02 12	704	0.6+	0.2+
1997 11 06	411	0.3+	0.1+	1997 11 30	566	1.0+	0.3−	1999 02 12	704	1.2+	2.4+
1997 11 07	411	1.1−	0.7−	1997 11 30	566	0.8+	0.2+	1999 02 12	704	0.6+	2.9+
1997 11 07	411	0.4−	0.3−	1997 11 30	566	1.2+	0.3−	1999 02 12	704	1.0+	0.7−
1997 11 09	411	0.2+	1.1+	1997 11 30	411	0.0	0.3+	1999 02 16	704	1.5−	0.1−
1997 11 09	411	1.2+	0.3−	1997 11 30	411	0.0	0.5+	1999 02 16	704	0.8−	1.8−
1997 11 19	411	0.2+	0.1−	1997 12 04	704	0.5+	2.3−	1999 02 16	704	0.9−	1.0−
1997 11 19	411	0.3+	0.3+	1997 12 04	704	0.1+	0.5−	1999 02 16	704	0.7+	2.3−
1997 11 29	704	1.8−	2.3+	1997 12 04	704	0.1+	0.3−	1999 02 16	704	0.8−	0.5+
1997 11 29	704	2.6−	0.5−	1997 12 04	704	0.4−	1.0−				
1997 11 29	704	0.6+	0.6+	1997 12 04	704	1.3+	1.1+				

1997 VW₃ = 1978 YU₁ = 1999 CM₁₄

Id. G. V. Williams, S. Nakano

M.P.C. 33961

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams							
<i>M</i>	128.42235	(2000.0)	P	Q			
<i>n</i>	0.20551635	ω	219.88953	+0.96740412	−0.25254209		
<i>a</i>	2.8438398	Ω	154.71974	+0.24210307	+0.90060859		
<i>e</i>	0.0857499	<i>i</i>	2.51719	+0.07426561	+0.35373248		
<i>P</i>	4.80	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1978 12 22	095	0.2−	2.2+	1997 11 29	704	0.3+	0.6−	1999 02 10	704	0.0	0.1−
1997 11 06	411	1.3+	0.9−	1997 11 29	704	0.7+	0.9−	1999 02 10	704	0.5+	0.4+
1997 11 06	411	0.2−	0.4−	1997 11 30	411	0.3−	0.4+	1999 02 12	699	0.8+	0.3+
1997 11 07	411	0.1−	0.1+	1997 11 30	411	0.2−	0.3+	1999 02 12	699	1.2+	0.7−
1997 11 07	411	0.6−	0.3−	1997 12 04	704	0.2+	0.0	1999 02 12	699	0.5−	1.4+
1997 11 09	411	0.1+	0.3−	1997 12 04	704	1.3+	0.5+	1999 02 13	704	0.4+	0.2−
1997 11 09	411	0.1−	0.1−	1997 12 04	704	0.2+	1.7+	1999 02 13	704	1.5−	1.3−
1997 11 19	411	0.3−	0.0	1997 12 04	704	0.2−	0.1−	1999 02 13	704	1.2+	0.2+
1997 11 19	411	0.3−	0.1+	1997 12 04	704	0.8+	0.3+	1999 02 13	704	0.8−	0.4+
1997 11 26	704	(3.9−	1.3−)	1998 02 13	327	0.5−	0.3−	1999 02 13	704	0.1+	0.2+
1997 11 26	704	(3.7−	0.3−)	1998 02 13	327	0.7+	0.5−	1999 02 15	120	1.1−	0.3+
1997 11 26	704	(4.6−	0.4−)	1998 02 13	327	0.1−	0.0	1999 02 15	120	0.9−	0.1+
1997 11 29	704	0.7−	0.1−	1999 02 10	704	0.1−	0.6−	1999 02 17	120	0.1−	0.0
1997 11 29	704	1.5−	0.9−	1999 02 10	704	0.2−	0.4−	1999 02 17	120	0.2+	0.3−
1997 11 29	704	0.0	0.4−	1999 02 10	704	0.5+	0.4−				

1997 VE₄ = 1976 WT = 1999 CW₇₂

Id. G. V. Williams, S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams							
<i>M</i>	150.49165	(2000.0)	P	Q			
<i>n</i>	0.23691401	ω	108.55802	+0.94641474	+0.28494502		
<i>a</i>	2.5866771	Ω	235.15635	−0.31852982	+0.90122969		
<i>e</i>	0.3020433	<i>i</i>	10.67340	+0.05327183	+0.32648335		
<i>P</i>	4.16	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1976 11 18	381	0.0	0.6+	1997 11 29	704	2.5−	0.5−	1997 12 25	566	0.3+	0.3+
1976 11 18	381	0.1−	0.1−	1997 11 29	704	3.0−	1.1−	1997 12 25	566	0.5−	0.3−
1997 11 04	888	0.8+	0.3−	1997 11 29	704	1.6−	0.2−	1997 12 27	888	0.1+	0.5−
1997 11 04	888	0.2−	1.9+	1997 11 29	704	3.5−	0.4−	1997 12 27	888	0.9+	0.2+
1997 11 06	888	0.1−	0.1−	1997 12 04	704	2.5+	1.1+	1998 01 26	385	0.6−	1.3−
1997 11 06	888	0.5+	0.1−	1997 12 04	704	2.5+	1.4+	1998 01 26	385	0.4−	0.5+
1997 11 08	888	0.6+	0.5−	1997 12 04	704	3.2+	1.1+	1999 02 12	704	0.8+	0.8−
1997 11 08	888	0.8+	0.4−	1997 12 04	704	2.5+	1.3+	1999 02 12	704	1.6+	0.5−
1997 11 19	886	0.4+	0.3−	1997 12 04	704	1.8+	1.0+	1999 02 12	704	1.6+	0.1−
1997 11 19	886	0.0	0.5−	1997 12 04	886	0.1−	0.4−	1999 02 12	704	0.1−	0.1+
1997 11 24	888	0.1+	0.2−	1997 12 04	886	0.7−	0.4−	1999 02 16	704	0.6−	1.0−
1997 11 24	888	0.3−	0.3−	1997 12 25	566	0.3+	0.0	1999 02 16	704	1.9−	2.4+
1997 11 27	888	0.1−	0.4−	1997 12 25	566	0.5−	0.3−	1999 02 16	704	0.4−	0.6+
1997 11 27	888	0.2−	0.5−	1997 12 25	566	0.0	0.3−	1999 02 16	704	0.6+	0.2+
1997 11 29	704	2.6−	0.7−	1997 12 25	566	0.4−	0.2+	1999 02 16	704	1.3−	0.5−

1997 VD₆

Id. T. Kobayashi (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano							
<i>M</i>	346.83465	(2000.0)	P	Q			
<i>n</i>	0.18529544	ω	91.19917	−0.97254822	−0.14520055		
<i>a</i>	3.0471434	Ω	80.47243	+0.05696242	−0.90621696		
<i>e</i>	0.0481830	<i>i</i>	10.62534	+0.22562189	−0.39709900		
<i>P</i>	5.32	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 11 09	411	0.0	0.2+	1997 12 03	411	0.4−	0.2+	1999 02 13	411	0.5−	0.4+
1997 11 09	411	0.3+	0.1+	1997 12 03	411	0.4+	0.8+	1999 02 13	411	0.3+	0.7−
1997 11 10	411	0.4−	0.1+	1998 01 02	704	0.2−	0.1+	1999 02 14	411	0.5+	0.3+
1997 11 10	411	0.7+	0.5−	1998 01 02	704	0.1−	0.2+	1999 02 14	411	0.3−	0.0

M.P.C. 33962

1997 11 24 411 0.4− 0.2− 1998 01 02 704 0.2− 0.2+
 1997 11 24 411 0.4− 0.6− 1998 01 02 704 0.8+ 0.7−

1997 VH₆ = 1987 KD₂

Id. T. Kobayashi (1999 observations), G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	183.18667		(2000.0)		P		Q
<i>n</i>	0.22984003	ω	267.49899		+0.72891881		+0.68166934
<i>a</i>	2.6394834	Ω	49.51777		−0.59040012		+0.67272110
<i>e</i>	0.0426638	<i>i</i>	4.77228		−0.34656178		+0.28770337
<i>P</i>	4.29	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 05 30	413	0.1+	0.3−	1997 11 06	704	1.4−	0.3+	1998 01 17	557	1.1+	0.4−
1987 05 30	413	0.4−	0.3−	1997 11 06	704	0.8−	0.2+	1998 01 31	557	1.7+	0.9−
1997 10 29	704	(1.7− 2.6+)		1997 11 09	557	0.4−	0.3−	1998 01 31	557	0.5−	0.2−
1997 10 29	704	0.1−	1.3+	1997 11 09	557	0.3−	0.5−	1999 02 05	411	0.4−	0.3−
1997 10 29	704	0.2−	0.5+	1997 11 09	557	0.1−	0.4−	1999 02 05	411	0.6+	0.2+
1997 10 29	704	0.3+	0.2+	1997 11 09	557	0.5+	0.4−	1999 02 09	557	0.1−	0.1−
1997 10 29	704	0.3−	1.3+	1997 11 10	557	0.5+	0.2−	1999 02 09	557	0.0	0.0
1997 10 30	704	(3.7+ 1.0−)		1997 11 10	557	0.4+	0.3−	1999 02 10	704	0.2+	1.0−
1997 10 30	704	(2.4+ 2.0−)		1997 11 10	557	0.4+	0.3−	1999 02 10	704	0.8+	1.1+
1997 10 30	704	(3.3+ 1.4−)		1997 11 19	557	1.0+	0.4+	1999 02 10	704	0.9+	0.4−
1997 10 30	704	(3.5+ 1.2−)		1997 11 19	557	0.9+	0.1−	1999 02 10	704	0.2−	1.4−
1997 10 31	704	0.8+	0.8+	1997 11 28	691	0.5−	0.2+	1999 02 10	704	1.3−	0.4+
1997 10 31	704	1.7+	0.5−	1997 11 28	691	0.7−	0.3−	1999 02 13	704	0.7+	0.8+
1997 10 31	704	0.3+	1.4+	1997 11 28	691	0.6−	0.4−	1999 02 13	704	1.1−	1.8+
1997 10 31	704	0.6+	0.3+	1997 12 05	691	1.2−	0.2−	1999 02 13	704	(1.2+ 2.5+)	
1997 10 31	704	0.7+	0.9+	1997 12 05	691	1.2−	2.0−	1999 02 13	704	0.3+	0.3+
1997 11 06	704	0.7−	1.1−	1998 01 17	557	0.4+	0.9−	1999 02 13	704	0.1−	0.2+
1997 11 06	704	1.3−	0.3+	1998 01 17	557	0.3+	0.3−				

1997 VW₆ = 1999 CH₁₀₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	104.95229		(2000.0)		P		Q
<i>n</i>	0.19605915	ω	118.08749		+0.89250943		−0.45080149
<i>a</i>	2.9345711	Ω	268.71073		+0.40862337		+0.82162508
<i>e</i>	0.1140525	<i>i</i>	0.82046		+0.19092894		+0.34886996
<i>P</i>	5.03	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 10 29	566	0.1+	0.3−	1997 11 19	369	0.6−	0.3−	1997 12 04	704	2.8−	2.1+
1997 10 29	566	0.2+	0.1−	1997 11 29	704	0.4−	0.6−	1999 02 12	704	0.4+	0.7−
1997 10 29	566	0.6+	0.2−	1997 11 29	704	0.5+	1.0+	1999 02 12	704	0.5−	0.5−
1997 11 06	369	0.5−	0.5−	1997 11 29	704	0.8+	0.0	1999 02 12	704	0.7+	0.4−
1997 11 06	369	0.2−	0.7+	1997 11 29	704	1.7+	0.3−	1999 02 12	704	0.5+	0.2−
1997 11 06	369	0.7+	0.3+	1997 12 02	369	0.3−	0.3+	1999 02 16	704	0.1+	1.3−
1997 11 07	369	0.1−	0.0	1997 12 02	369	0.6−	2.8−	1999 02 16	704	1.7−	0.1+
1997 11 07	369	0.1−	0.9−	1997 12 04	704	1.0+	1.5+	1999 02 16	704	0.8+	1.1+
1997 11 07	369	0.6−	0.2+	1997 12 04	704	0.5+	0.3+	1999 02 16	704	0.9−	0.1+
1997 11 19	369	0.8−	0.1−	1997 12 04	704	1.0+	0.2−	1999 02 16	704	0.5+	1.8+

1997 WL = 1999 CN₅₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	286.38984		(2000.0)		P		Q
<i>n</i>	0.20978965	ω	168.26392		−0.63304655		+0.76495996
<i>a</i>	2.8050892	Ω	62.34045		−0.72063758		−0.52634724
<i>e</i>	0.0341109	<i>i</i>	7.70129		−0.28272521		−0.37120728
<i>P</i>	4.70	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 11 18	411	0.1+	1.3+	1997 11 29	704	1.3−	0.2+	1999 02 10	704	0.7−	0.3+
1997 11 18	411	1.3+	0.4+	1997 12 04	411	0.3−	0.1−	1999 02 10	704	0.3−	1.3+
1997 11 19	411	0.5+	0.7−	1997 12 04	411	0.6+	0.1+	1999 02 10	704	0.9+	0.4+
1997 11 19	411	0.9+	0.3−	1997 12 21	411	1.6−	0.0	1999 02 13	704	0.6−	0.6−

1999 MAR. 2

1997 11 24 411 0.7+ 0.1− 1997 12 21 411 1.5− 0.5− 1999 02 13 704 0.2− 0.8−
 1997 11 24 411 0.6+ 0.2+ 1997 12 30 566 1.5+ 0.4− 1999 02 13 704 0.3− 0.2+
 1997 11 29 704 0.7− 0.0 1997 12 30 566 1.0+ 0.3− 1999 02 13 704 0.5+ 1.7−
 1997 11 29 704 0.8− 0.0 1997 12 30 566 1.8+ 0.2− 1999 02 13 704 0.2+ 0.3+
 1997 11 29 704 1.2− 0.3+ 1999 02 10 704 0.4+ 0.2+
 1997 11 29 704 1.3− 0.1+ 1999 02 10 704 0.4+ 0.4+

1997 WP₁ = 1999 CJ₁₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	118.40038		(2000.0)		P		Q
<i>n</i>	0.20285527	ω	111.27381		+0.96995726		−0.24274258
<i>a</i>	2.8686564	Ω	262.77746		+0.21675692		+0.89236553
<i>e</i>	0.0833619	<i>i</i>	0.92943		+0.11045070		+0.38047312
<i>P</i>	4.86	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 10 29	704	3.3+	2.3−	1997 11 21	327	0.5+	0.7+	1997 11 29	704	0.9−	1.3+
1997 10 29	704	1.6+	0.5−	1997 11 21	327	0.4+	0.1+	1997 11 29	704	0.4+	0.6−
1997 10 29	704	0.5+	1.2−	1997 11 21	327	0.5+	0.3+	1997 11 29	704	1.5−	0.2−
1997 10 29	704	0.5+	1.2−	1997 11 22	327	0.7+	0.3+	1997 12 01	327	0.1+	0.2+
1997 10 29	704	1.3+	1.3−	1997 11 22	327	0.2+	0.2+	1997 12 01	327	0.3−	0.1+
1997 11 06	704	1.2−	0.2+	1997 11 22	327	0.4+	0.0	1997 12 01	327	0.1+	0.1+
1997 11 06	704	0.5−	0.9+	1997 11 22	327	0.1−	0.2+	1999 02 12	704	0.8+	0.8+
1997 11 06	704	1.8−	0.7+	1997 11 26	566	1.2+	0.9−	1999 02 12	704	0.8+	1.0+
1997 11 06	704	1.2−	0.9+	1997 11 26	566	0.6+	0.8−	1999 02 12	704	0.9+	1.0+
1997 11 06	704	1.5−	0.4+	1997 11 26	566	1.1+	0.9−	1999 02 12	704	0.9+	1.9−
1997 11 06	704	0.9−	1.2+	1997 11 28	327	0.4−	1.3+	1999 02 16	704	0.6−	0.1−
1997 11 06	704	1.8−	0.5−	1997 11 28	327	0.1+	0.4+	1999 02 16	704	2.6−	0.1−
1997 11 06	704	0.6+	1.4+	1997 11 28	327	0.4+	0.2+	1999 02 16	704	0.2−	0.9−
1997 11 06	704	2.1−	0.6+	1997 11 29	704	0.8+	1.7−				
1997 11 06	704	0.6−	1.3+	1997 11 29	704	0.3−	1.1−				

1997 WX₁ = 1999 BJ₃₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	184.90269		(2000.0)		P		Q
<i>n</i>	0.23471365	ω	324.38378		+0.46017320		+0.88768334
<i>a</i>	2.6028181	Ω	333.00378		−0.80613585		+0.41016804
<i>e</i>	0.1648900	<i>i</i>	2.03141		−0.37200218		+0.20923782
<i>P</i>	4.20	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	7

Residuals in seconds of arc

1997 11 20	426	0.5−	0.2+	1997 11 21	426	0.9+	1.2+	1999 01 19	691	0.1−	1.1−
1997 11 20	426	0.8−	0.1+	1997 11 23	426	0.9−	1.5−	1999 01 19	691	0.6−	0.8−
1997 11 20	426	0.4−	0.7+	1997 11 23	426	0.5−	1.3−	1999 01 23	691	0.7+	0.3+
1997 11 21	426	1.6+	0.4+	1997 11 23	426	0.1+	0.5−	1999 01 23	691	0.4+	1.3+
1997 11 21	426	0.4+	0.6+	1999 01 19	691	0.6−	1.1−	1999 01 23	691	0.1+	1.4+

1997 WC₂ = 1999 CS₉₆

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	78.87288		(2000.0)		P		Q
<i>n</i>	0.18590056	ω	10.72941		+0.62603682		−0.77832642
<i>a</i>	3.0405274	Ω	40.53634		+0.70988850		+0.54347038
<i>e</i>	0.1155462	<i>i</i>	4.21867		+0.32270142		+0.31440092
<i>P</i>	5.30	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 08 01	688	0.8−	1.2+	1997 11 06	704	0.4+	0.2−	1997 12 04	358	1.5+	1.1−
1997 08 01	688	0.3−	0.8+	1997 11 06	704	0.6+	0.2+	1997 12 04	358	0.3+	1.3+
1997 10 29	704	0.5−	0.2−	1997 11 19	358	0.9−	0.3+	1999 02 10	704	0.4−	0.1+
1997 10 29	704	0.0	0.7+	1997 11 19	358	1.0−	0.4+	1999 02 10	704	0.5−	0.0
1997 10 29	704	0.4−	0.7−	1997 11 23	358	0.4−	0.5−	1999 02 10	704	0.5−	0.6+
1997 10 29	704	1.3+	0.7+	1997 11 23	358	0.1+	0.2−	1999 02 10	704	0.4+	0.9+
1997 10 29	704	1.2+	1.3−	1997 11 26	566	0.3−	0.6−	1999 02 12	699	0.8+	0.3+
1997 10 30	704	0.3−	0.3+	1997 11 26	566	0.0	0.7−	1999 02 12	699	0.0	0

1999 MAR. 2

M.P.C. 33963

1997 10 30	704	0.7−	0.7+	1997 11 26	566	0.5+	0.5−	1999 02 12	699	0.6−	0.4−
1997 10 30	704	0.0	0.2+	1997 11 28	358	1.9−	1.5+	1999 02 13	704	0.2+	0.4−
1997 10 30	704	0.5−	0.2+	1997 11 28	358	(0.5+	2.1−)	1999 02 13	704	1.6+	0.5+
1997 11 06	704	1.2+	0.1+	1997 11 30	566	0.6+	0.8−	1999 02 13	704	1.4−	0.4+
1997 11 06	704	0.8−	0.1−	1997 11 30	566	0.2−	0.2−	1999 02 13	704	0.1−	0.7−
1997 11 06	704	0.6+	0.1−	1997 11 30	566	0.4+	0.3−	1999 02 13	704	0.7+	1.0−

1997 WO₃ = 1999 CM₇₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		Williams	
<i>M</i>		(2000.0)		P	Q
<i>n</i>	0.23081411	<i>ω</i>	339.05921	+0.02414381	+0.99889180
<i>a</i>	2.6320521	<i>Ω</i>	292.30619	−0.91089456	+0.00532869
<i>e</i>	0.0506701	<i>i</i>	2.50284	−0.41193224	+0.04676298
<i>P</i>	4.27	<i>H</i>	13.6	<i>G</i>	0.15

Residuals in seconds of arc

1997 11 16	327	0.0	0.7+	1997 11 29	704	1.2+	0.1−	1999 02 12	704	0.2+	0.9−
1997 11 16	327	0.1−	0.2−	1997 12 04	704	0.8−	0.4+	1999 02 12	704	0.2+	0.4−
1997 11 16	327	0.1−	0.6+	1997 12 04	704	0.1+	1.4−	1999 02 12	704	0.9−	0.3−
1997 11 22	327	0.2−	0.6+	1997 12 04	704	0.7−	0.9−	1999 02 12	704	0.6+	0.3−
1997 11 22	327	1.0−	0.2+	1997 12 08	327	0.5−	0.0	1999 02 12	704	0.5+	1.3+
1997 11 22	327	1.0−	0.9+	1997 12 08	327	0.1−	0.5+	1999 02 16	704	0.1+	0.5−
1997 11 29	704	0.5+	0.1+	1997 12 08	327	0.2−	0.0	1999 02 16	704	0.2−	0.2+
1997 11 29	704	0.7+	1.0−	1997 12 23	327	0.0	0.5+	1999 02 16	704	1.1−	0.4−
1997 11 29	704	1.3+	1.3−	1997 12 23	327	0.3−	0.2+	1999 02 16	704	0.2+	0.5+
1997 11 29	704	0.9+	0.5−	1997 12 23	327	0.2+	0.9+	1999 02 16	704	0.4+	0.8+

1997 WK₇ = 1985 FN₁

Id. T. Kagawa (1999 observations), S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		Nakano	
<i>M</i>		(2000.0)		P	Q
<i>n</i>	0.28834168	<i>ω</i>	108.56273	−0.87814279	−0.47554411
<i>a</i>	2.2691564	<i>Ω</i>	43.08387	+0.40505662	−0.79711920
<i>e</i>	0.0903552	<i>i</i>	4.38137	+0.25454739	−0.37210050
<i>P</i>	3.42	<i>H</i>	13.8	<i>G</i>	0.15

Residuals in seconds of arc

1985 03 22	688	0.4−	1.1+	1997 11 29	704	0.2+	0.8−	1997 12 31	385	0.6−	0.6−
1985 03 22	688	0.8+	0.3−	1997 12 02	886	1.7+	0.4−	1997 12 31	385	0.5+	0.7−
1997 11 19	905	0.6+	0.9−	1997 12 02	886	0.3−	1.0−	1998 01 19	385	0.0	0.1−
1997 11 19	905	1.0−	0.5−	1997 12 04	704	1.1−	0.7+	1998 01 19	385	0.2+	0.2−
1997 11 23	905	0.7−	0.3+	1997 12 04	704	1.0−	1.5+	1999 02 16	888	0.1+	0.7−
1997 11 23	905	0.5−	0.5−	1997 12 04	704	0.8−	1.5+	1999 02 16	888	0.2−	0.4−
1997 11 29	704	0.6+	0.3−	1997 12 04	704	(1.3−	2.4+)	1999 02 17	888	0.8+	0.8−
1997 11 29	704	0.5+	0.2+	1997 12 04	704	0.7+	2.0+	1999 02 17	888	1.4−	0.1−
1997 11 29	704	1.0+	0.3−	1997 12 04	905	0.7+	0.5−				
1997 11 29	704	0.1−	0.4−	1997 12 04	905	0.2−	0.1+				

1997 WZ₇ = 1999 CQ₃₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		Williams	
<i>M</i>		(2000.0)		P	Q
<i>n</i>	0.19184540	<i>ω</i>	252.78301	+0.77938617	+0.59903185
<i>a</i>	2.9773859	<i>Ω</i>	70.03183	−0.47452097	+0.75573525
<i>e</i>	0.1207206	<i>i</i>	11.26633	−0.40912961	+0.26462252
<i>P</i>	5.14	<i>H</i>	12.9	<i>G</i>	0.15

Residuals in seconds of arc

1997 11 23	369	1.4+	0.3−	1997 12 03	369	0.7−	0.3+	1999 02 10	704	0.3−	0.2−
1997 11 23	369	1.3+	0.2+	1997 12 03	369	0.7−	0.5+	1999 02 10	704	0.0	0.0
1997 11 23	369	1.0+	1.0+	1997 12 04	704	1.1+	0.6+	1999 02 10	704	0.3+	0.5−
1997 11 24	369	0.5+	1.1+	1997 12 04	704	1.5+	0.7+	1999 02 10	704	0.3−	0.6−
1997 11 24	369	0.8+	0.3+	1997 12 04	704	1.0+	1.0+	1999 02 13	704	0.3+	0.1−
1997 11 29	704	1.8−	0.6−	1997 12 04	704	1.1+	0.4−	1999 02 13	704	0.1+	0.7−
1997 11 29	704	1.5−	1.2−	1997 12 21	369	0.5+	0.8+	1999 02 13	704	1.3+	0.1−
1997 11 29	704	0.7+	1.0−	1997 12 21	369	1.5+	0.9−	1999 02 13	704	1.4−	2.0+

1997 11 29	704	3.9−	2.0−	1997 12 31	369	0.9−	0.0
1997 11 29	704	2.7−	0.3−	1997 12 31	369	0.4−	0.2+

1997 WU₈ = 1999 CQ₄₇

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		Williams	
<i>M</i>		(2000.0)		P	Q
<i>n</i>	0.21896194	<i>ω</i>	212.91203	+0.99488878	−0.09880646
<i>a</i>	2.7261953	<i>Ω</i>	152.73553	+0.09965475	+0.92750008
<i>e</i>	0.1254372	<i>i</i>	2.60528	+0.01628624	+0.36052862
<i>P</i>	4.50	<i>H</i>	14.6	<i>G</i>	0.15

Residuals in seconds of arc

1997 10 30	566	0.5−	0.4−	1997 11 29	704	1.3+	0.3+	1999 02 10	704	(1.1−	2.3−)
1997 10 30	566	0.0	0.2−	1997 11 29	704	1.1+	0.4+	1999 02 10	704	1.5−	1.1−
1997 10 30	566	0.3−	0.0	1998 01 22	691	0.7−	1.7+	1999 02 10	704	0.9+	1.6−
1997 11 20	691	0.3+	0.1−	1998 01 22	691	0.8−	0.0	1999 02 12	699	0.4+	0.5+
1997 11 20	691	0.4+	0.1+	1998 01 22	691	0.9−	0.5−	1999 02 12	699	0.3+	0.5+
1997 11 20	691	0.8+	0.1+	1998 02 22	327	0.1+	0.4−	1999 02 12	699	0.1+	0.4+
1997 11 28	691	1.3−	0.0	1998 02 22	327	0.4+	0.3−	1999 02 13	704	1.5−	0.2+
1997 11 28	691	1.1−	0.0	1998 02 22	327	0.0	0.2+	1999 02 13	704	0.2−	0.9+
1997 11 28	691	1.2−	0.1−	1998 02 23	327	0.4+	0.1+	1999 02 13	704	1.2+	1.2−
1997 11 29	704	0.2+	0.3−	1998 02 23	327	0.0	0.5−	1999 02 13	704	0.2+	1.2+
1997 11 29	704	1.1+	0.3−	1998 02 23	327	0.4+	0.1−				

1997 WR₁₁ = 1999 CL₁₁₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		Williams	
<i>M</i>		(2000.0)		P	Q
<i>n</i>	0.23757130	<i>ω</i>	309.80652	−0.99295221	−0.10474055
<i>a</i>	2.5819038	<i>Ω</i>	224.26264	+0.11748533	−0.93147495
<i>e</i>	0.1204675	<i>i</i>	4.55725	−0.01559202	−0.34840183
<i>P</i>	4.15	<i>H</i>	15.2	<i>G</i>	0.15

Residuals in seconds of arc

1997 11 01	691	0.1−	0.4+	1997 11 28	691	0.3−	0.3+	1999 02 12	704	0.9−	0.8−
1997 11 01	691	0.1+	0.2+	1997 11 28	691	0.0	0.7+	1999 02 16	704	0.5+	0.9+
1997 11 01	691	0.0	0.4+	1997 12 04	691	0.1+	0.3−	1999 02 16	704	0.1+	1.6+
1997 11 22	691	0.1−	0.4−	1997 12 04	691	0.2+	0.3−	1999 02 16	704	1.4+	0.1+
1997 11 22	691	0.2−	0.4−	1997 12 04	691	0.0	0.1+	1999 02 16	704	0.3−	0.0
1997 11 22	691	0.1−	0.3−	1999 02 12	704	1.9−	1.0−	1999 02 16	704	1.8+	0.5+
1997 11 28	691	0.4+	0.2−	1999 02 12	704	0.7−	1.1−				

1997 WO₁₂ = 1999 CG₁₁₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		Williams	
<i>M</i>		(2000.0)		P	Q
<i>n</i>	0.28306080	<i>ω</i>	354.61057	−0.66959407	+0.73656744
<i>a</i>	2.2972921	<i>Ω</i>	233.31236	−0.67691430	−0.65809315
<i>e</i>	0.1928995	<i>i</i>	6.83663	−0.30566454	−0.15614677
<i>P</i>	3.48	<i>H</i>	15.2	<i>G</i>	0.15

Residuals in seconds of arc

1997 11 23	691	0.2−	0.2−	1997 12 04	691	0.0	0.1+	1999 02 16	704	0.2−	0.7+
1997 11 23	691	0.1+	0.3−	1997 12 04	691	0.0	0.1+	1999 02 16	704	0.0	0.1−
1997 11 23	691	0.1+	0.4−	1999 02 12	704	1.0+	0.4−	1999 02 16	704	0.2−	0.4+
1997 11 28	691	0.2+	0.2+	1999 02 12	704	0.4+	0.6−	1999 02 16	704	0.2+	0.3+
1997 11 28	691	0.2−	0.1−	1999 02 12	704	1.3+	0.6−	1999 02 16	704	0.0	0.0
1997 11 28	691	0.0	0.3+	1999 02 12	704	0.1−	1.3−				
1997 12 04	691	0.1−	0.4+	1999 02 12	704	2.4−	1.5+				

1997 WJ₁₃

Id. T. Kagawa (1999 observations)

M.P.C. 33964

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	119.18883		(2000.0)	P	Q
n	0.19001333	ω	122.78094	+0.89231551	-0.42978138
a	2.9964935	Ω	263.00471	+0.35350486	+0.85549523
e	0.0441181	i	7.99560	+0.28072646	+0.28881807
P	5.19	H	13.5	G 0.15	U 4

Residuals in seconds of arc

1997 11 24	905	1.7+	0.3+	1997 12 04	886	1.1+	0.1+	1998 01 26	385	1.9+	0.9-
1997 11 24	905	1.2+	0.6+	1997 12 04	886	0.9-	0.0	1998 01 26	385	0.1+	0.5-
1997 11 27	905	0.2+	1.3-	1997 12 05	704	0.9-	0.5+	1998 03 23	327	0.4+	0.2+
1997 11 27	905	1.8+	0.5-	1997 12 05	704	0.2+	0.5+	1998 03 23	327	0.1+	0.5+
1997 11 29	704	0.3-	0.6+	1997 12 05	704	0.7-	1.1+	1998 03 23	327	1.5-	1.3-
1997 11 29	704	0.5+	0.0	1997 12 05	704	0.7-	1.4+	1999 02 07	888	0.6+	0.6+
1997 11 29	704	0.1-	1.0-	1997 12 05	704	0.7-	0.6+	1999 02 07	888	0.1+	0.3+
1997 11 29	704	1.6-	0.7-	1997 12 24	905	0.7-	0.8-	1999 02 08	888	0.3+	0.5-
1997 11 29	704	2.0-	0.7-	1997 12 24	905	0.9+	0.6+	1999 02 08	888	0.9-	0.1-

1997 WK₂₁ = 1996 QR₂

Id. S. Nakano, A. Gnädig

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	206.52611		(2000.0)	P	Q
n	0.21444890	ω	118.30973	+0.69551853	+0.71815184
a	2.7643105	Ω	195.82487	-0.68485873	+0.65309323
e	0.0468968	i	4.75924	-0.21730739	+0.24026476
P	4.60	H	13.6	G 0.15	U 5

Residuals in seconds of arc

1996 08 18	010	1.3+	1.2+	1997 11 30	411	0.3-	0.1+	1999 02 17	620	(3.5-	1.2+)
1996 08 18	010	0.8+	1.7+	1997 12 02	411	0.3+	0.3-	1999 02 17	620	1.6-	0.2-
1996 08 18	010	1.3+	1.5+	1997 12 02	411	1.0-	0.8+	1999 02 19	620	0.3+	0.5+
1996 08 20	010	0.7-	0.6-	1997 12 05	411	0.0	0.0	1999 02 20	620	0.4+	0.0
1996 08 20	010	0.5-	2.5-	1997 12 05	411	0.2+	0.0	1999 02 20	620	0.8+	0.6-
1996 08 20	010	2.1-	1.7-	1997 12 21	411	0.1+	0.2+				
1997 11 30	411	0.3+	1.5-	1997 12 21	411	0.5+	0.7+				

1997 WD₃₀ = 1999 CF₄₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	101.26063		(2000.0)	P	Q
n	0.19173047	ω	337.31553	+0.89118466	-0.42822535
a	2.9785756	Ω	48.92112	+0.44069887	+0.73898940
e	0.1276846	i	11.45539	+0.10758441	+0.52011318
P	5.14	H	13.1	G 0.15	U 4

Residuals in seconds of arc

1997 10 24	327	1.6+	0.1-	1997 11 26	566	0.3+	0.0	1997 12 25	327	0.6-	0.0
1997 10 24	327	1.7+	0.3-	1997 11 26	566	0.4+	0.1+	1999 02 10	704	0.2+	0.2-
1997 10 24	327	1.9+	0.2-	1997 11 28	327	0.4+	0.0	1999 02 10	704	0.7-	0.4-
1997 11 06	704	1.7-	0.8+	1997 11 28	327	0.3+	0.0	1999 02 10	704	0.2-	0.2+
1997 11 06	704	1.7-	0.3+	1997 11 28	327	0.3+	0.0	1999 02 10	704	0.4-	0.2-
1997 11 06	704	1.9-	0.5-	1997 11 29	704	0.3+	0.7+	1999 02 10	704	1.1-	0.5-
1997 11 06	704	2.1-	0.1-	1997 11 29	704	0.1+	0.4-	1999 02 13	704	0.3-	0.0
1997 11 06	704	1.8-	0.2+	1997 11 29	704	0.4+	0.0	1999 02 13	704	0.5-	0.9+
1997 11 21	327	0.5+	0.2-	1997 11 29	704	0.4+	0.5-	1999 02 13	704	0.8+	0.6-
1997 11 21	327	0.7+	0.0	1997 11 29	704	0.2+	0.2+	1999 02 13	704	1.1+	1.6+
1997 11 21	327	0.5+	0.2-	1997 12 25	327	0.1+	0.2+	1999 02 13	704	1.0+	0.9-
1997 11 26	566	0.3+	0.0	1997 12 25	327	0.3-	0.0				

1997 WZ₃₀ = 1999 CN₄₂

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1999 MAR. 2

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	128.51276		(2000.0)	P	Q
n	0.20981648	ω	288.10158	+0.98492525	-0.16497322
a	2.8048501	Ω	81.41882	+0.17182143	+0.89828452
e	0.0846362	i	3.01566	+0.01999107	+0.40726987
P	4.70	H	13.9	G 0.15	U 4

Residuals in seconds of arc

1997 10 30	566	0.0	0.1-	1998 01 17	910	1.2-	0.5+	1999 02 10	704	0.7-	0.0
1997 10 30	566	0.2-	0.1-	1998 01 17	910	1.1-	0.5+	1999 02 10	704	1.6-	0.2-
1997 10 30	566	0.4-	0.3-	1998 01 25	566	0.2-	0.1-	1999 02 12	699	0.8+	0.7+
1997 11 29	704	0.1-	0.1-	1998 01 25	566	0.1+	0.3-	1999 02 12	699	1.5+	0.3+
1997 11 29	704	1.3+	0.3-	1998 01 25	566	0.2+	0.3+	1999 02 12	699	(2.2+	1.4+)
1997 11 29	704	(0.2-	2.4-)	1998 01 27	910	0.1-	0.8-	1999 02 13	704	1.4+	0.5+
1997 11 29	704	0.4+	1.0-	1998 01 27	910	0.7-	0.4-	1999 02 13	704	0.3+	0.0
1997 11 29	704	0.2-	0.7-	1998 01 27	910	0.2-	0.6-	1999 02 13	704	0.1-	1.6+
1997 12 04	704	(2.5+	1.3+)	1998 02 16	327	0.4+	0.2+	1999 02 13	704	0.3+	1.0+
1997 12 04	704	(1.4-	2.4+)	1998 02 16	327	1.0+	0.5+	1999 02 13	704	1.8-	0.2+
1997 12 04	704	1.2+	1.6+	1998 02 16	327	0.5+	0.7+	1999 02 18	566	0.2-	1.3-
1997 12 04	704	(0.2+	4.7+)	1999 02 10	704	0.2-	0.3+	1999 02 18	566	0.1-	1.6-
1997 12 04	704	(0.9-	2.7+)	1999 02 10	704	0.6-	0.4-	1999 02 18	566	0.0	1.3-
1998 01 17	910	1.2-	0.7+	1999 02 10	704	0.8+	0.2-				

1997 WQ₃₁ = 1999 CH₃₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	118.89082		(2000.0)	P	Q
n	0.19482286	ω	291.03902	+0.97976760	-0.19274510
a	2.9469727	Ω	80.10494	+0.19785811	+0.89228510
e	0.1170101	i	3.13621	+0.03012675	+0.40826048
P	5.06	H	13.6	G 0.15	U 4

Residuals in seconds of arc

1997 11 29	704	0.1+	0.3-	1997 12 04	704	0.8+	1.6-	1999 02 10	704	0.1+	1.0+
1997 11 29	704	1.8-	0.5-	1998 01 17	910	0.3-	0.6+	1999 02 10	704	0.1+	0.1-
1997 11 29	704	0.1-	0.3+	1998 01 17	910	0.3-	0.6+	1999 02 13	704	0.0	0.5-
1997 11 29	704	0.1-	0.4-	1998 01 17	910	0.3-	0.6+	1999 02 13	704	0.7+	0.1-
1997 11 29	704	0.6-	0.3+	1998 02 20	910	0.0	0.5+	1999 02 13	704	0.2+	0.0
1997 12 04	704	0.1-	0.2+	1998 02 20	910	0.4-	0.8+	1999 02 13	704	1.1-	1.3-
1997 12 04	704	1.1+	0.4-	1998 02 20	910	0.2-	0.4+	1999 02 13	704	0.9-	0.7+
1997 12 04	704	1.2+	1.0-	1999 02 10	704	0.9+	0.2+				
1997 12 04	704	0.6+	1.1+	1999 02 10	704	0.1-	0.5-				

1997 WC₃₅ = 1999 CS₄₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	352.12785		(2000.0)	P	Q
n	0.19687792	ω	48.31806	-0.90755197	-0.41601166
a	2.9264293	Ω	107.02686	+0.36528832	-0.84937206
e	0.0212094	i	3.43584	+0.20715663	-0.32480980
P	5.01	H	13.5	G 0.15	U 4

Residuals in seconds of arc

1997 11 26	704	0.1+	0.5-	1997 12 04	704	0.6-	0.1-	1999 01 14	699	1.1-	0.5-
1997 11 26	704	0.7+	1.7+	1997 12 04	704	0.5-	0.5-	1999 01 14	699	0.2+	0.1-
1997 11 26	704	1.2-	0.7+	1997 12 04	704	0.8-	0.7-	1999 02 10	704	0.2+	0.5-
1997 11 28	566	0.3+	1.4-	1998 02 22	327	0.0	0.3+	1999 02 10	704	0.2+	0.8-
1997 11 28	566	0.1-	1.6-	1998 02 22	327	0.4+	0.6+	1999 02 10	704	0.1-	0.4-
1997 11 28	566	1.3+	0.5-	1998 02 22	327	0.0	0.3+	1999 02 10	704	0.9+	0.1-
1997 11 29	704	0.6+	1.3+	1998 02 23	327	0.4-	0.6+	1999 02 10	704	0.2+	1.3-
1997 11 29	704	0.0	1.0+	1998 02 23	327	0.2-	0.5+	1999 02 13	704	0.4-	0.5-
1997 11 29	704	0.4-	0.3+	1998 02 23	327	0.1-	0.1+	1999 02 13	704	0.2-	0.4-
1997 11 29	704	1.7+	1.0-	1998 12 17	699	0.7-	0.9+	1999 02 13	704	0.5-	0.5+
1997 11 29	704	0.0	0.6-	1998 12 17	699	0.1+	0.3+	1999 02 13	704	0.4+	0.9+
1997 12 04	704	0.5-	0.6+	1998 12 17	699	0.4+	1.2+	1999 02 13	704	0.1-	1.1+
1997 12 04	704	0.2-	0.1-	1999 01 14	699	0.1+	0.4-				

1999 MAR. 2

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1997 WD₃₆ = 1999 CK₅₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20050213	ω	144.03039	−0.63212485	−0.77484570		
<i>a</i>	2.8910574	Ω	345.17393	+0.70563574	−0.57260118		
<i>e</i>	0.0310680	<i>i</i>	1.27278	+0.32015054	−0.26784701		
<i>P</i>	4.92	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 11 26	704	0.6−	0.0	1997 11 30	566	0.0	0.5−	1999 02 10	704	0.6−	0.8−
1997 11 26	704	0.1+	0.2−	1997 11 30	566	0.2−	0.2−	1999 02 10	704	0.5+	0.5+
1997 11 26	704	1.1−	1.3+	1997 11 30	566	0.5+	0.3−	1999 02 10	704	1.4−	0.2+
1997 11 29	704	0.2−	1.1+	1997 12 04	704	0.0	0.7−	1999 02 13	704	0.1+	0.2−
1997 11 29	704	0.5+	0.2−	1997 12 04	704	0.4−	0.5−	1999 02 13	704	1.1+	0.3+
1997 11 29	704	0.3+	1.1−	1997 12 04	704	1.0+	1.0+	1999 02 13	704	0.9−	0.4+
1997 11 29	704	1.6+	0.3+	1997 12 04	704	1.5−	0.2+				
1997 11 29	704	0.0	0.4−	1999 02 10	704	1.3+	0.4−				

1997 WP₃₈ = 1999 AU₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18264261	ω	84.00738	+0.92843699	−0.37127327		
<i>a</i>	3.0765784	Ω	297.78620	+0.33491169	+0.85130722		
<i>e</i>	0.1815322	<i>i</i>	0.82157	+0.16074489	+0.37071845		
<i>P</i>	5.40	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1997 11 26	704	1.6+	0.2+	1997 11 29	704	1.6−	1.1+	1997 12 04	704	1.0+	0.4+
1997 11 26	704	0.8−	0.6+	1997 11 30	566	0.8+	0.5+	1999 01 15	910	0.5−	0.2−
1997 11 26	704	0.1−	1.1+	1997 11 30	566	1.0+	0.3+	1999 01 15	910	0.3−	0.1+
1997 11 29	704	0.6−	0.2−	1997 11 30	566	0.9+	0.6+	1999 01 15	910	0.0	0.4−
1997 11 29	704	0.0	0.6−	1997 12 04	704	0.1+	1.2−	1999 01 19	910	0.3+	0.2+
1997 11 29	704	0.6−	0.5+	1997 12 04	704	1.1+	1.7−	1999 01 19	910	0.3+	0.3+
1997 11 29	704	1.1−	1.0−	1997 12 04	704	1.7−	0.5−	1999 01 19	910	0.4+	0.1+

1997 WD₄₁ = 1999 CG₈

Id. T. Urata

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18264075	ω	251.41711	−0.84970013	−0.51035084		
<i>a</i>	3.0765993	Ω	257.70391	+0.52028954	−0.77081891		
<i>e</i>	0.0514483	<i>i</i>	7.79293	+0.08548969	−0.38128761		
<i>P</i>	5.40	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 11 29	704	0.4−	0.3−	1997 12 31	704	0.2+	0.3−	1999 02 11	385	1.0−	0.2+
1997 11 29	704	0.1−	0.4+	1997 12 31	704	0.2+	0.1−	1999 02 12	385	0.4+	0.6+
1997 11 29	704	0.3−	0.5−	1997 12 31	704	0.4−	0.5−	1999 02 12	385	0.1−	0.1+
1997 11 29	704	0.7−	0.3+	1997 12 31	704	0.4+	0.0	1999 02 14	385	0.5+	0.0
1997 11 29	704	1.1−	0.7+	1998 01 02	704	0.4−	0.4−	1999 02 14	385	0.2+	0.3+
1997 12 04	704	1.7+	0.3−	1998 01 02	704	0.4−	0.2+	1999 02 14	385	0.4+	0.9+
1997 12 04	704	0.4+	0.0	1998 01 02	704	0.6+	0.4+	1999 02 18	566	0.7+	0.3−
1997 12 04	704	0.6+	0.2−	1998 01 02	704	1.2−	0.3−	1999 02 18	566	0.2+	0.6−
1997 12 04	704	0.9+	0.9+	1999 02 11	385	1.9−	0.3−	1999 02 18	566	0.6+	0.8−

1997 WZ₄₂ = 1999 CG₃₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17137638	ω	267.03589	+0.99344160	−0.10865070		
<i>a</i>	3.2099781	Ω	99.19973	+0.11389356	+0.91279118		
<i>e</i>	0.1681911	<i>i</i>	2.06794	+0.01010158	+0.39370965		
<i>P</i>	5.75	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 11 29	704	0.5−	0.2+	1997 12 04	704	0.7−	0.3+	1998 01 02	704	2.5−	1.1+
1997 11 29	704	0.4+	0.1−	1997 12 31	704	0.7+	1.4+	1999 02 10	704	1.2−	0.1−
1997 11 29	704	1.2−	0.0	1997 12 31	704	0.1−	1.0−	1999 02 10	704	0.3−	0.2−
1997 11 29	704	0.8+	1.1−	1997 12 31	704	0.4+	0.1+	1999 02 10	704	0.3−	0.1+
1997 11 29	704	0.1+	0.4+	1997 12 31	704	0.9+	0.4−	1999 02 10	704	0.9+	0.7−
1997 12 04	704	1.0+	1.0−	1998 01 02	704	0.0	0.2−	1999 02 13	704	0.6−	0.3−
1997 12 04	704	0.4+	0.5+	1998 01 02	704	0.1+	0.9−	1999 02 13	704	0.2−	0.7+
1997 12 04	704	0.2−	0.4+	1998 01 02	704	0.3+	0.5+	1999 02 13	704	1.8+	0.4+

1997 WE₄₇ = 1999 CP₅₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18359741	ω	338.30321	+0.40614542	−0.89075537		
<i>a</i>	3.0659025	Ω	87.24508	+0.86556572	+0.30343542		
<i>e</i>	0.0675468	<i>i</i>	11.78259	+0.29298786	+0.33835161		
<i>P</i>	5.37	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 11 26	704	1.8−	0.7+	1997 11 29	704	0.3+	0.2−	1999 02 10	704	0.3−	1.5−
1997 11 26	704	1.5−	0.6+	1998 02 19	910	0.1−	0.3+	1999 02 10	704	0.7+	0.5+
1997 11 26	704	2.0−	1.0−	1998 02 19	910	0.3+	0.2+	1999 02 10	704	0.4+	1.6−
1997 11 29	704	1.2+	0.4+	1998 02 19	910	0.0	0.2+	1999 02 13	704	0.4+	0.5−
1997 11 29	704	1.3+	0.2+	1998 02 20	910	0.1+	0.0	1999 02 13	704	0.0	2.0+
1997 11 29	704	1.6+	0.5−	1998 02 20	910	0.2−	0.2+	1999 02 13	704	0.3−	1.1+
1997 11 29	704	1.3+	0.6−	1998 02 20	910	0.7−	0.2−	1999 02 13	704	1.0−	0.2−

1997 WO₅₁ = 1999 CG₅₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17910959	ω	53.42813	−0.85477007	−0.50635561		
<i>a</i>	3.1169045	Ω	95.89115	+0.43206784	−0.81582498		
<i>e</i>	0.1296326	<i>i</i>	6.57478	+0.28755088	−0.27934494		
<i>P</i>	5.50	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 11 29	704	0.6−	0.6−	1998 02 22	327	0.3−	0.1+	1998 02 27	327	0.2−	0.1+
1997 11 29	704	0.0	0.4−	1998 02 22	327	0.1−	0.1−	1999 02 10	704	0.2+	0.3−
1997 11 29	704	0.9−	0.4+	1998 02 22	327	0.1−	0.3+	1999 02 10	704	0.3−	1.0−
1997 11 29	704	0.5−	0.5−	1998 02 23	327	0.2+	0.1+	1999 02 10	704	0.7+	0.2−
1997 11 29	704	(3.4−	1.4−)	1998 02 23	327	0.4−	0.0	1999 02 10	704	0.5−	1.1−
1997 12 04	704	1.3+	0.9−	1998 02 23	327	0.1+	0.2+	1999 02 10	704	0.8−	0.1+
1997 12 04	704	0.5−	0.2+	1998 02 24	327	1.0+	0.5−	1999 02 13	704	0.0	0.4−
1997 12 04	704	(2.6−	1.3−)	1998 02 24	327	0.9−	0.6−	1999 02 13	704	1.1−	0.6+
1997 12 04	704	(2.2−	1.3−)	1998 02 24	327	0.1−	0.1+	1999 02 13	704	0.8+	1.1+
1997 12 05	704	0.6−	0.6+	1998 02 26	327	0.4−	1.0+	1999 02 13	704	0.1+	0.7+
1997 12 05	704	(3.6+	0.8−)	1998 02 26	327	0.2−	0.2+	1999 02 13	704	0.7−	1.0−
1997 12 05	704	(5.6+	3.7−)	1998 02 26	327	0.3+	0.6+	1999 02 19	566	0.5+	0.2+
1997 12 05	704	1.2+	0.4+	1998 02 27	327	0.3+	0.0	1999 02 19	566	0.7+	0.5+
1997 12 05	704	1.3+	0.5−	1998 02 27	327	0.3−	0.4+	1999 02 19	566	0.3+	0.3+

1997 XA = 1999 DT₂

Id. T. Urata

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21231357	ω	202.36783	+0.02491164	−0.98941151		
<i>a</i>	2.7828142	Ω	246.44939	+0.93918981	+0.07216474		
<i>e</i>	0.1948191	<i>i</i>	8.97335	+0.34249365	−0.12592502		
<i>P</i>	4.64	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 11 29	704	0.2−	0.2+	1997 12 04	704	0.4+	0.3+	1998 01 15	910	0.5−	0.1−
1997 11 29	704	0.5−	0.8+	1997 12 04	704	1.0+	0.4−	1998 01 15	910	0.4−	0.1+
1997 11 29	704	0.5+	0.4−	1997 12 04	704	0.1+	0.8+	1998 01 15	910	0.4−	0.2−
1997 11 29	704	0.4−	0.6−	1997 12 04	704	(3.1−	3.3−)	1998 01 17	910	0.3+	0.2+

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1997 11 29	704	0.2−	0.1−	1997 12 04	886	1.1−	0.6+	1998 01 17	910	0.4+	0.1+
1997 12 02	886	0.7−	1.4−	1997 12 04	886	0.3−	0.0	1998 01 17	910	0.2+	0.2+
1997 12 02	886	1.9+	1.0+	1997 12 10	886	0.6−	0.8+	1999 02 19	385	0.2+	0.2+
1997 12 03	886	0.6−	0.2+	1997 12 10	886	0.1+	1.4−	1999 02 20	385	0.3+	0.7−
1997 12 03	886	(2.4−	0.3+)	1997 12 31	385	0.6+	0.1+	1999 02 20	385	0.5−	0.5+
1997 12 04	704	0.4+	0.1−	1997 12 31	385	0.0	0.7−				

1997 XU₁ = 1999 CD₁₀₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	132.54220		(2000.0)	P		Q	
<i>n</i>	0.19316722	ω	270.72877	+0.97215799		−0.12056911	
<i>a</i>	2.9637878	Ω	96.21124	+0.18920081		+0.90976335	
<i>e</i>	0.1396654	<i>i</i>	11.66062	−0.13824580		+0.39723261	
<i>P</i>	5.10	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 12 02	905	0.4−	0.6−	1997 12 31	385	0.1+	0.2+	1999 02 13	704	0.2+	0.2+
1997 12 02	905	0.5+	0.6+	1997 12 31	385	0.2−	0.2−	1999 02 13	704	0.0	0.4−
1997 12 03	905	0.1+	0.3−	1999 02 10	704	0.3+	0.8+	1999 02 13	704	0.2−	1.5−
1997 12 03	905	0.4−	0.3+	1999 02 10	704	0.4−	0.1−	1999 02 13	704	0.8−	0.5+
1997 12 10	886	0.3−	1.0−	1999 02 10	704	0.2−	0.2+				
1997 12 10	886	0.6+	1.0+	1999 02 10	704	1.0+	0.3+				

1997 XF₂ = 1999 CS₁₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	216.35098		(2000.0)	P		Q	
<i>n</i>	0.18329716	ω	22.38653	+0.38718481		+0.91060125	
<i>a</i>	3.0692497	Ω	270.64170	−0.86631021		+0.30563830	
<i>e</i>	0.0912070	<i>i</i>	8.31146	−0.31558603		+0.27819164	
<i>P</i>	5.38	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 12 03	369	0.3+	0.1−	1997 12 21	369	0.6−	0.1−	1999 02 12	704	1.3+	0.5−
1997 12 03	369	0.6+	0.2+	1997 12 21	369	0.3+	1.0−	1999 02 16	704	1.0+	0.6+
1997 12 03	369	0.8+	1.0−	1997 12 27	369	0.5+	0.1−	1999 02 16	704	0.3−	1.1+
1997 12 05	369	0.4−	0.0	1997 12 27	369	0.2−	1.1+	1999 02 16	704	1.1−	0.9−
1997 12 05	369	1.0−	0.4+	1999 02 12	704	0.0	0.4+	1999 02 16	704	0.7+	0.0
1997 12 05	369	0.3−	0.6+	1999 02 12	704	1.9−	0.4−	1999 02 16	704	0.2+	0.3−

1997 XY₆ = 1999 CF₂₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	175.81205		(2000.0)	P		Q	
<i>n</i>	0.23496783	ω	186.23877	+0.75950788		+0.65041786	
<i>a</i>	2.6009406	Ω	133.18275	−0.59621301		+0.70232135	
<i>e</i>	0.1493213	<i>i</i>	0.80285	−0.26014963		+0.28931182	
<i>P</i>	4.19	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 10 24	327	0.5−	0.2+	1997 11 24	358	0.5+	0.4−	1997 12 07	910	0.4+	0.2−
1997 10 24	327	0.5−	0.6+	1997 11 28	327	0.6+	0.1+	1997 12 07	910	0.3+	0.2−
1997 10 24	327	0.3−	0.3+	1997 11 28	327	0.1+	0.2−	1999 02 10	704	0.0	0.1−
1997 11 06	704	1.3+	1.0−	1997 11 28	327	0.2+	0.6+	1999 02 10	704	0.4+	1.2−
1997 11 06	704	0.7+	0.3−	1997 11 29	704	1.2−	1.3−	1999 02 10	704	0.4−	0.1+
1997 11 06	704	0.6+	1.1−	1997 11 29	704	0.4−	1.8+	1999 02 10	704	0.3+	0.1−
1997 11 06	704	0.9+	0.3−	1997 11 29	704	0.3+	0.9+	1999 02 10	704	0.3+	0.2−
1997 11 06	704	0.2+	0.8−	1997 11 29	704	0.1+	0.1−	1999 02 13	704	0.2−	0.7−
1997 11 07	358	0.3+	0.6−	1997 11 29	704	0.5−	0.9−	1999 02 13	704	0.1+	0.1+
1997 11 07	358	3.0−	0.4−	1997 12 05	910	0.0	0.1−	1999 02 13	704	0.1+	1.0+
1997 11 09	358	0.2−	0.3+	1997 12 05	910	0.0	0.2−	1999 02 13	704	0.4−	1.0+
1997 11 09	358	1.4+	3.0+	1997 12 05	910	0.1−	0.2−				
1997 11 24	358	1.6−	0.4+	1997 12 07	910	0.3+	0.0				

1999 MAR. 2

1997 XR₉ = 1978 GH₄ = 1978 JZ₃ = 1980 UT = 1999 CB₁₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	177.27878		(2000.0)	P		Q	
<i>n</i>	0.17567076	ω	267.38843	+0.54972719		+0.83132048	
<i>a</i>	3.1574493	Ω	36.35024	−0.70097877		+0.51240188	
<i>e</i>	0.1480488	<i>i</i>	7.94156	−0.45434434		+0.21529184	
<i>P</i>	5.61	<i>H</i>	12.0	<i>G</i>	0.15	<i>U</i>	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−

1997 XC₁₀ = 1986 RX₁₅ = 1999 CY₁₁₁

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Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	185.22576		(2000.0)	P		Q	
<i>n</i>	0.19097315	ω	86.55426	+0.75975688		+0.63719493	
<i>a</i>	2.9864449	Ω	233.81609	−0.64186563		+0.70321677	
<i>e</i>	0.1093951	<i>i</i>	9.22774	−0.10381715		+0.31538674	
<i>P</i>	5.16	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1986 09 12	095	0.0	0.2+	1997 12 10	411	0.2−	0.2+	1999 02 12	704	1.3−	0.3+
1997 12 04	704	0.0	0.0	1997 12 21	411	0.0	0.1+	1999 02 12	704	0.4+	1.8−
1997 12 04	704	0.5−	0.1+	1997 12 21	411	0.4−	0.6+	1999 02 12	704	0.5−	1.1−
1997 12 04	704	0.4−	0.6−	1997 12 31	411	0.1+	0.3+	1999 02 12	704	1.5−	0.5−
1997 12 04	704	0.3+	1.0−	1997 12 31	411	0.2+	0.4+	1999 02 16	704	0.2−	0.8−
1997 12 04	704	0.4+	0.5−	1998 12 26	699	0.2+	0.4−	1999 02 16	704	0.3+	1.4−
1997 12 05	411	0.6−	0.3−	1998 12 26	699	0.8+	1.1+	1999 02 16	704	0.8+	1.5+
1997 12 05	411	0.3+	0.1−	1998 12 26	699	1.8+	1.6+	1999 02 16	704	0.1+	0.6+
1997 12 10	411	0.7+	0.3+	1999 02 12	704	0.4−	0.4+	1999 02 16	704	0.1+	0.9+

1997 XS₁₁ = 1999 CN₅

Id. T. Urata

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	61.22867		(2000.0)	P		Q	
<i>n</i>	0.18505210	ω	182.17468	+0.06252508		−0.98789357	
<i>a</i>	3.0498141	Ω	264.26274	+0.91782721		+0.11279121	
<i>e</i>	0.0479448	<i>i</i>	8.20352	+0.39202528		−0.10651027	
<i>P</i>	5.33	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 11 29	704	1.6−	0.4+	1997 12 05	905	0.4+	0.0	1999 02 12	385	1.1−	0.5−
1997 11 29	704	1.0−	0.3−	1997 12 21	905	0.0	1.1+	1999 02 13	385	0.2+	1.2+
1997 11 29	704	0.8−	0.4+	1997 12 21	905	1.6−	0.4+	1999 02 13	385	0.6+	0.1−
1997 11 29	704	(2.5−	2.1+)	1997 12 24	385	1.7+	1.0+	1999 02 13	385	0.1+	0.4+
1997 12 04	704	1.3+	0.8−	1997 12 24	385	0.1−	0.4−	1999 02 18	566	0.1+	0.1+
1997 12 04	704	0.5+	0.2+	1998 01 02	385	0.5−	1.4−	1999 02 18	566	0.4−	0.5−
1997 12 04	704	0.6−	0.4+	1998 01 02	385	0.3−	0.6−	1999 02 18	566	0.1+	0.2+
1997 12 04	704	1.5+	1.5−	1999 02 12	385	0.7+	0.6−				
1997 12 05	905	1.1+	0.9+	1999 02 12	385	0.2−	0.0				

1999 MAR. 2

M.P.C. 33967

1997 YR₂ = 1989 TM₉ = 1999 CS₅₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	187.31960		(2000.0)	P		Q	
<i>n</i>	0.25785946	ω	247.69263	+0.85667154		+0.51240108	
<i>a</i>	2.4446349	Ω	81.43784	−0.44831404		+0.79671308	
<i>e</i>	0.1890562	<i>i</i>	3.45874	−0.25520266		+0.32045811	
<i>P</i>	3.82	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1989 10 07	809	0.6+	0.0	1997 12 24	369	0.0	0.2−	1998 01 02	704	0.2+	1.0+
1989 10 07	809	0.2−	0.5+	1997 12 24	369	0.2+	1.2−	1998 01 07	699	1.1−	1.7+
1989 10 07	809	0.8−	0.5+	1997 12 27	369	0.9+	0.2−	1998 01 07	699	0.4−	0.2+
1997 11 29	704	3.4−	2.4+	1997 12 27	369	0.7+	1.2−	1998 01 07	699	0.2+	1.6+
1997 11 29	704	1.5−	0.8−	1997 12 31	704	1.1+	0.1−	1999 02 10	704	0.2+	0.0
1997 11 29	704	1.8−	0.7−	1997 12 31	704	1.2+	0.0	1999 02 10	704	0.9−	0.6+
1997 11 29	704	1.3−	0.3−	1997 12 31	704	0.9+	0.2−	1999 02 10	704	0.4−	0.6−
1997 11 29	704	2.0−	0.3−	1997 12 31	704	1.0+	0.5−	1999 02 10	704	0.5−	0.5−
1997 12 04	704	0.6+	0.3−	1997 12 31	369	0.4+	0.2+	1999 02 10	704	0.9+	0.0
1997 12 04	704	0.4+	0.1−	1997 12 31	369	0.5+	0.2−	1999 02 13	704	0.7+	1.0−
1997 12 04	704	2.2+	0.3−	1997 12 31	369	0.4+	0.4−	1999 02 13	704	1.6+	0.6+
1997 12 04	704	0.7−	0.9+	1998 01 02	704	0.9+	0.2+	1999 02 13	704	0.2+	1.2+
1997 12 21	369	0.4−	0.4−	1998 01 02	704	0.9+	0.3+	1999 02 13	704	0.2+	1.0+
1997 12 21	369	0.4−	0.7−	1998 01 02	704	1.2+	0.3−	1999 02 13	704	1.5−	0.1+

1997 YH₃ = 1999 CQ₂₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	130.46367		(2000.0)	P		Q	
<i>n</i>	0.23558106	ω	31.65518	+0.99736692		+0.06928213	
<i>a</i>	2.5964251	Ω	324.35280	−0.07181339		+0.90237675	
<i>e</i>	0.1706204	<i>i</i>	2.10723	−0.01010238		+0.42534244	
<i>P</i>	4.18	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 30	704	0.8+	0.1−	1997 12 16	327	0.3+	0.0	1998 01 11	046	0.1−	0.4−
1997 10 30	704	0.1+	0.2+	1997 12 16	327	0.0	0.5−	1998 01 11	046	0.6−	0.2−
1997 10 30	704	1.6+	0.1−	1997 12 24	327	0.2+	0.1+	1998 01 11	046	0.8−	0.3−
1997 10 30	704	1.0+	0.0	1997 12 24	327	0.6+	0.0	1998 01 11	046	0.8−	0.1+
1997 10 30	704	0.4+	0.2+	1997 12 24	327	0.4+	0.2+	1999 02 10	704	0.0	0.0
1997 10 31	910	0.5+	0.1−	1997 12 30	327	0.7+	0.3+	1999 02 10	704	0.9−	0.7+
1997 10 31	910	0.5+	0.3−	1997 12 30	327	0.4+	0.1+	1999 02 10	704	0.6−	0.1+
1997 10 31	910	0.9+	0.0	1997 12 30	327	0.5+	0.4+	1999 02 10	704	0.3+	0.7+
1997 11 03	704	1.0−	0.7+	1998 01 10	046	0.1+	0.1+	1999 02 13	704	0.4−	0.8+
1997 11 03	704	1.5−	0.9+	1998 01 10	046	0.6−	0.3−	1999 02 13	704	2.2+	2.0−
1997 11 03	704	0.2−	0.1+	1998 01 10	046	0.0	0.3+	1999 02 13	704	0.6+	0.7−
1997 11 03	704	1.5−	0.8−	1998 01 10	046	0.7+	0.0	1999 02 13	704	1.1−	0.6+
1997 11 03	704	2.9−	0.3−	1998 01 10	046	0.1−	0.2+				
1997 12 16	327	0.6+	0.1+	1998 01 11	046	0.1−	0.7−				

1998 AA

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	185.16390		(2000.0)	P		Q	
<i>n</i>	0.26908775	ω	85.30195	+0.80606614		+0.46511295	
<i>a</i>	2.3761477	Ω	246.57616	−0.56040471		+0.79865533	
<i>e</i>	0.2451355	<i>i</i>	23.50497	+0.19027333		+0.38186334	
<i>P</i>	3.66	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 11 29	704	0.5−	0.4+	1997 12 06	292	0.3+	0.1+	1998 01 02	684	0.1+	0.4+
1997 11 29	704	0.5−	0.2−	1997 12 06	292	0.2+	1.2+	1998 01 14	292	0.3+	0.0
1997 11 29	704	0.3−	0.0	1997 12 07	292	0.3−	0.1−	1998 01 14	292	0.0	0.7−
1997 11 29	704	1.1−	0.0	1997 12 07	292	0.1+	0.2+	1998 01 16	735	1.0+	0.9−
1997 11 29	704	0.8−	0.5+	1997 12 07	292	0.5−	0.1−	1998 01 16	735	0.3+	0.5−
1997 12 02	292	0.2−	1.6−	1997 12 16	292	0.8−	0.5+	1998 01 16	735	1.0+	0.5−
1997 12 02	292	0.3+	1.9−	1997 12 16	292	1.6−	0.0	1998 01 28	735	1.1+	0.0
1997 12 02	292	(0.7+	3.3−)	1997 12 16	292	0.2−	0.4+	1998 01 28	735	0.8+	0.1+

1997 12 03	292	0.7+	0.4+	1997 12 21	292	0.4−	0.8−	1998 01 28	735	1.0+	0.0
1997 12 03	292	0.9+	0.3+	1997 12 21	292	1.0−	0.6−	1998 02 18	735	1.0−	0.1+
1997 12 03	292	0.7+	0.1+	1997 12 29	292	0.9−	0.3−	1998 02 18	735	1.1−	0.2+
1997 12 04	704	0.9+	0.6+	1997 12 29	292	0.1+	0.5+	1998 02 18	735	0.7−	0.0
1997 12 04	704	1.3+	0.2−	1997 12 29	292	0.4−	0.9+	1999 02 14	735	0.9+	0.1+
1997 12 04	704	(2.6+	0.7+)	1998 01 01	735	0.1+	0.0	1999 02 14	735	0.1−	0.0
1997 12 04	704	(3.3−	1.9−)	1998 01 01	735	0.8−	0.4−	1999 02 22	735	0.1+	0.5+
1997 12 04	704	0.5+	0.5−	1998 01 02	684	0.1+	0.3+	1999 02 22	735	0.3−	0.3−
1997 12 06	292	1.1+	1.0+	1998 01 02	684	0.1−	0.7+	1999 02 22	735	0.6−	0.2−

1998 AM₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	257.22073		(2000.0)	P		Q	
<i>n</i>	0.25645599	ω	174.33432	+0.76967938		+0.63378645	
<i>a</i>	2.4535457	Ω	145.94385	−0.59100687		+0.75285959	
<i>e</i>	0.0898319	<i>i</i>	7.88930	−0.24146331		+0.17753077	
<i>P</i>	3.84	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 12 26	566	0.5+	0.0	1998 02 19	428	0.4−	0.4+	1998 03 27	910	0.1+	0.2+
1997 12 26	566	0.5+	0.0	1998 02 19	428	1.3+	0.0	1998 03 27	910	1.0+	0.0
1997 12 26	566	0.6+	0.1+	1998 02 25	566	1.4−	0.7−	1998 03 28	910	0.0	0.9−
1998 01 02	428	0.4−	0.9+	1998 02 25	566	0.4−	0.4−	1998 03 28	910	0.3+	0.5−
1998 01 03	428	0.1−	0.2+	1998 02 25	566	1.2−	0.3+	1998 03 28	910	0.3+	0.7−
1998 01 05	428	0.6−	0.4+	1998 03 03	428	0.3−	0.0	1999 02 12	428	0.6+	0.3+
1998 01 19	428	0.5+	0.2−	1998 03 19	428	0.2+	0.5−	1999 02 12	428	0.4−	0.8+
1998 02 02	428	0.5+	0.0	1998 03 19	428	0.1+	0.3+	1999 02 15	428	0.1−	0.7−
1998 02 02	428	0.5−	0.1+	1998 03 27	910	0.1+	0.5+	1999 02 15	428	0.1+	0.3+

1998 BS₁₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	49.64723		(2000.0)	P		Q	
<i>n</i>	0.21199464	ω	254.40310	−0.88031305		−0.47148676	
<i>a</i>	2.7856045	Ω	257.44143	+0.45323176		−0.80324918	
<i>e</i>	0.0455086	<i>i</i>	3.07929	+0.14010678		−0.36399313	
<i>P</i>	4.65	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 12 28	566	0.6+	1.8−	1998 02 01	540	0.5+	0.1+	1998 03 28	540	0.7+	0.1+
1997 12 28	566	0.5+	1.8−	1998 02 02	428	0.7−	0.2+	1998 03 28	540	0.0	0.4−
1997 12 28	566	0.7+	1.9−	1998 02 03	428	0.2+	0.1+	1998 04 14	704	(0.5+	2.3+)
1998 01 18	910	0.0	0.6+	1998 02 04	540	1.1+	0.7−	1998 04 14	704	(0.6−	2.4+)
1998 01 18	910	0.1−	0.7+	1998 02 04	540	0.3+	0.0	1998 04 14	704	1.1−	0.9+
1998 01 18	910	0.0	0.7+	1998 02 04	540	0.3−	0.0	1998 04 14	704	1.5+	0.2+
1998 01 24	566	1.3−	0.1−	1998 02 17	540	0.7+	0.1+	1998 04 14	704	(4.1−	1.2−)
1998 01 24	566	1.2−	0.1−	1998 02 17	540	1.0+	0.1+	1998 04 19	540	1.3+	0.4+
1998 01 24	566	1.2−	0.1+	1998 02 17	540	0.0	0.3+	1998 04 19	540	0.3−	0.7−
1998 01 26	540	0.7−	0.1−	1998 02 19	428	0.2+	0.1−	1998 04 20	540	0.8−	0.2+
1998 01 26	540	0.3−	0.6+	1998 02 19	428	0.0	0.3+	1998 04 20	540	0.4−	0.3+
1998 01 26	540	0.6−	0.1+	1998 02 27	428	0.2+	0.2−	1998 04 20	540	0.4−	0.6+
1998 01 26	540	0.3−	0.3+	1998 02 27	428	0.7+	0.2−	1998 05 14	540	(4.2−	0.6+)
1998 01 27	540	0.0	0.6+	1998 03 05	428	0.8+	0.2+	1998 05 14	540	(3.7−	0.6+)
1998 01 27	540	0.1−	0.1+	1998 03 25	540	0.2−	0.1−	1999 02 12	428	1.0+	0.6−
1998 01 27	540	0.5−	0.4+	1998 03 25	540	0.2+	0.3−	1999 02 15	428	0.3−	0.2−
1998 02 01	540	0.3+	0.2+	1998 03 25	540	0.9+	0.4+	1999 02 15	428	0.9−	0.3−
1998 02 01	540	0.3−	1.0+	1998 03 28	540	1.1−	1.3−	1999 02 15	428	0.0	0.1+

1998 BT₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	16.05778		(2000.0)	P	Q
<i>n</i>	0.17413973	ω	138.70246	-0.41827057	-0.90143837
<i>a</i>	3.1759292	Ω	335.39026	+0.74704948	-0.27149833
<i>e</i>	0.0724126	<i>i</i>	15.54720	+0.51668831	-0.33719063
<i>P</i>	5.66	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1998 01 29	118	0.2-	0.2+	1998 02 07	118	0.2-	0.0	1999 02 09	118	0.3-	0.4-
1998 01 29	118	0.4-	0.2+	1998 02 10	118	0.3+	0.3-	1999 02 09	118	0.0	0.4-
1998 01 29	118	0.6-	0.1-	1998 02 10	118	0.9+	0.2+	1999 02 10	704	0.1-	0.0
1998 01 30	118	0.9+	0.9+	1998 02 10	118	0.3+	0.1+	1999 02 10	704	0.3+	0.3+
1998 01 30	118	0.8+	0.7-	1998 02 19	118	0.3-	0.3-	1999 02 10	704	0.9-	0.5+
1998 01 30	118	0.5-	0.3-	1998 02 19	118	0.4-	0.1+	1999 02 10	704	0.1-	0.2-
1998 01 31	118	0.5-	0.6+	1998 02 27	118	0.6+	0.2+	1999 02 10	704	0.5-	0.0
1998 01 31	118	0.2-	0.6+	1998 02 27	118	0.6+	0.4-	1999 02 12	699	0.6+	0.0
1998 01 31	118	0.4-	0.2+	1998 02 27	118	0.6+	0.3-	1999 02 12	699	0.8+	0.3+
1998 02 01	118	0.3-	0.1+	1998 03 01	118	0.9-	0.1+	1999 02 12	699	1.1+	0.1+
1998 02 01	118	0.8-	0.2-	1998 03 01	118	0.1+	0.1-	1999 02 13	704	0.2-	1.1+
1998 02 01	118	0.1-	0.0	1998 03 23	118	0.3-	0.5-	1999 02 13	704	0.2-	1.5+
1998 02 03	118	0.5+	0.1+	1998 03 23	118	0.3-	0.2+	1999 02 13	704	(0.0	3.0+)
1998 02 03	118	0.5+	0.1-	1999 01 22	699	0.3+	0.4+	1999 02 15	118	0.0	0.4-
1998 02 04	118	0.1-	0.2-	1999 01 22	699	0.3-	0.6-	1999 02 15	118	0.1+	0.7-
1998 02 04	118	0.1+	0.3-	1999 01 22	699	0.0	0.2-	1999 02 15	118	0.0	0.7-
1998 02 07	118	0.0	0.1-	1999 02 09	118	0.5-	0.4-				

1998 BC₃₅ = 1999 CM₃₄

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	332.36799		(2000.0)	P	Q
<i>n</i>	0.19440627	ω	62.34899	-0.98691337	-0.15240284
<i>a</i>	2.9511811	Ω	108.84533	+0.12124500	-0.91673069
<i>e</i>	0.0435436	<i>i</i>	3.19107	+0.10630924	-0.36929423
<i>P</i>	5.07	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 11 28	691	0.3-	0.6-	1998 02 02	691	0.3-	0.0	1999 02 10	704	0.3+	0.0
1997 11 28	691	0.3-	0.6-	1998 02 16	327	0.3+	0.9+	1999 02 10	704	0.3-	0.2+
1997 11 28	691	0.5-	0.6-	1998 02 16	327	0.0	0.7+	1999 02 10	704	1.6-	1.0+
1997 12 04	704	0.6+	0.9-	1998 02 16	327	0.3+	0.7+	1999 02 12	699	0.5+	0.0
1997 12 04	704	0.6+	1.8+	1998 02 16	327	0.3+	1.2+	1999 02 12	699	0.4+	0.1+
1997 12 04	704	0.7+	0.9-	1999 01 13	699	(0.2+	2.2-)	1999 02 12	699	0.1-	0.7+
1997 12 04	704	1.0+	1.1+	1999 01 13	699	1.4+	0.2+	1999 02 13	704	0.2+	0.5+
1997 12 04	704	0.7-	0.2+	1999 01 13	699	0.4-	0.5-	1999 02 13	704	0.8+	0.2+
1998 01 26	691	0.2-	0.6-	1999 01 18	859	0.7-	0.6-	1999 02 13	704	1.1+	0.4+
1998 01 26	691	0.6-	0.7-	1999 01 18	859	0.8-	0.6-	1999 02 13	704	0.3-	0.3-
1998 01 26	691	0.5-	0.9-	1999 01 18	859	1.1-	0.6-	1999 02 13	704	0.8+	1.5-
1998 02 02	691	0.5-	0.3-	1999 02 10	704	0.0	0.1+				
1998 02 02	691	0.3-	0.3+	1999 02 10	704	0.4-	0.3+				

1998 CS₂

Id. T. Kobayashi (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	106.10854		(2000.0)	P	Q
<i>n</i>	0.20190558	ω	295.20164	+0.83668880	-0.53492831
<i>a</i>	2.8776447	Ω	97.33929	+0.53540377	+0.75373155
<i>e</i>	0.0781754	<i>i</i>	6.80318	+0.11530241	+0.38175968
<i>P</i>	4.88	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 11 07	704(20.8+	64.1-)	1998 02 21	327	0.0	0.0	1999 02 07	411	0.1+	0.2-
1997 11 07	704(20.8+	64.8-)	1998 02 21	327	0.5+	0.0	1999 02 07	411	0.3+	0.1+
1997 11 07	704(20.5+	64.7-)	1998 02 22	327	0.5+	0.1+	1999 02 08	411	0.2+	0.3+
1997 11 07	704(20.1+	64.4-)	1998 02 22	327	0.1-	0.3+	1999 02 08	411	0.1+	0.9+
1997 11 07	704(20.2+	64.6-)	1998 02 22	327	0.2-	0.4+	1999 02 10	704	0.2-	0.1+

1998 01 30	691	0.0	0.5-	1998 02 23	327	0.1+	0.2+	1999 02 10	704	0.4+	0.3-
1998 01 30	691	0.3-	0.2-	1998 02 23	327	0.1-	0.7+	1999 02 10	704	0.7+	1.0+
1998 01 30	691	0.4-	0.6-	1998 02 23	327	0.5-	0.2-	1999 02 10	704	1.0-	0.7-
1998 02 15	327	0.3+	0.2+	1998 02 23	327	0.0	0.3-	1999 02 13	704	0.6+	0.3+
1998 02 15	327	0.1+	0.4+	1998 02 26	327	0.3-	0.6-	1999 02 13	704	0.5+	0.4-
1998 02 15	327	0.2-	0.5+	1998 02 26	327	0.0	0.4-	1999 02 13	704	0.8-	1.1-
1998 02 17	327	0.6+	0.7+	1998 02 26	327	0.0	0.3-	1999 02 13	704	1.0-	0.3-
1998 02 17	327	0.3+	1.0+	1998 03 01	327	0.2+	0.2-	1999 02 13	704	0.2+	0.2+
1998 02 17	327	0.4+	0.8+	1998 03 01	327	0.9-	1.0-				
1998 02 21	327	0.5+	0.5-	1998 03 01	327	0.5-	0.4-				

1998 DS₈ = 1997 WK₃₄ = 1999 BZ₆

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	283.93481		(2000.0)	P	Q
<i>n</i>	0.19581423	ω	100.59782	-0.75297989	+0.65647574
<i>a</i>	2.9370176	Ω	120.45053	-0.62246231	-0.68819044
<i>e</i>	0.0650206	<i>i</i>	3.01863	-0.21345248	-0.30892318
<i>P</i>	5.03	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 11 29	704	0.8+	0.7-	1998 02 23	327	0.8-	0.5+	1999 02 10	704	1.0-	1.5+
1997 11 29	704	0.9+	0.0	1998 02 23	327	0.5+	1.0+	1999 02 12	699	0.9+	0.5+
1997 11 29	704	0.1+	0.2-	1998 02 23	327	0.0	0.8+	1999 02 12	699	0.0	0.9+
1997 11 29	704	0.1-	1.5-	1998 03 01	327	0.1-	0.4+	1999 02 12	699	0.2+	0.2+
1997 12 04	704	0.5-	0.1-	1998 03 01	327	0.4-	0.6+	1999 02 13	704	0.9+	0.2+
1997 12 04	704	(0.5-	3.2-)	1998 03 01	327	(2.2-	0.2+)	1999 02 13	704	0.4-	0.8-
1997 12 04	704	0.3+	1.2-	1999 01 19	132	(2.7-	0.9+)	1999 02 13	704	0.6+	0.2-
1997 12 04	704	0.6-	0.1+	1999 01 19	132	0.8-	0.1+	1999 02 13	704	0.3+	0.3-
1997 12 04	704	0.2+	0.7+	1999 01 21	132	0.6-	0.6-	1999 02 13	704	0.1+	0.1+
1998 02 22	327	0.5-	0.7+	1999 01 21	132	0.1+	1.7-	1999 02 18	566	0.3+	0.4-
1998 02 22	327	0.1-	0.5+	1999 02 10	704	0.6-	0.1-	1999 02 18	566	0.3+	0.2-
1998 02 22	327	0.1+	0.0	1999 02 10	704	0.4-	0.0	1999 02 18	566	0.3+	0.1+
1998 02 23	327	0.3-	0.2+	1999 02 10	704	0.6-	0.2+				

1998 EG₉

Id. C. W. Juels (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	182.22928		(2000.0)	P	Q
<i>n</i>	0.25403753	ω	214.07305	+0.89873652	+0.43228573
<i>a</i>	2.4690930	Ω	120.14945	-0.38098521	+0.85280651
<i>e</i>	0.0966916	<i>i</i>	4.87571	-0.21707817	+0.29300187
<i>P</i>	3.88	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 03 08	327	0.2-	0.1+	1998 03 14	327	0.4+	0.2-	1998 12 16	699	0.2+	1.0+
1998 03 08	327	0.2-	0.1+	1998 03 22	327	0.6+	0.4+	1999 02 08	678	0.5-	0.6-
1998 03 08	327	0.4-	0.2-	1998 03 22	327	0.7+	0.2-	1999 02 08	678	0.6+	0.7+
1998 03 14	327	0.2-	0.0	1998 03 22	327	0.0	0.1-	1999 02 09	678	0.6+	0.0
1998 03 14	327	0.1-	0.0	1998 12 16	699	0.6-	0.3-	1999 02 09	678	0.5-	0.8-
1998 03 14	327	0.3-	0.1-	1998 12 16	699	0.1+	0.2+				

1998 FY₃₅ = 1998 KO₉ = 1989 TW₁₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	8.36105		(2000.0)	P	Q
<i>n</i>	0.30210229	ω	269.50985	+0.22128496	+0.97492985
<i>a</i>	2.1997165	Ω	13.34419	-0.84968974	+0.20449373
<i>e</i>	0.1798170	<i>i</i>	5.80400	-0.47860246	+0.08771599
<i>P</i>	3.26	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1989 10 07	809	0.7-	0.5+	1998 03 20	704	0.6-	0.2-	1998 05 16	327	0.8+	0.2-
1989 10 07	809	0.3-	0.6+	1998 03 20	704	0.1-	0.3-	1998 05 16	327	0.2+	0.2+
1989 10 07	809	0.2+	0.4+	1998 03 20	704	0.2-	0.9-	1998 05 16	327	0.4+	0.8-
1989 10 08	809	0.1+	0.8-	1998 03 22	704	0.8+	0.2+	1998 05 24	327	0.1-	0.4-

1999 MAR. 2

M.P.C. 33969

1989 10 08	809	0.5+	0.9-	1998 03 22	704	0.1-	0.1-	1998 05 24	327	0.4-	0.1-
1989 10 08	809	0.8+	1.0-	1998 03 22	704	0.1-	0.1+	1998 05 24	327	0.4-	0.2+
1998 03 20	704	0.1-	0.3+	1998 03 22	704	0.1-	0.2+	1998 05 24	327	0.6-	0.2+
1998 03 20	704	0.2+	0.6-	1998 03 22	704	0.0	0.8+				

1998 MR₂ = 1994 NA₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Doppler			
				P	Q		
<i>M</i>	4.34022		(2000.0)				
<i>n</i>	0.23346246	ω	240.71758	+0.87860115	+0.16229355		
<i>a</i>	2.6121093	Ω	106.74911	-0.06331048	+0.97176537		
<i>e</i>	0.4644934	<i>i</i>	27.97146	-0.47334111	+0.17126839		
<i>P</i>	4.22	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1994 07 08	809	0.5+	0.1-	1998 06 20	046	0.1-	0.4+	1998 06 22	426	1.1+	0.4+
1994 07 08	809	(0.3-	2.5-)	1998 06 20	046	0.1-	0.4+	1998 06 22	426	0.7+	0.4-
1994 07 08	809	0.2+	0.4-	1998 06 20	046	1.0-	0.3+	1998 06 22	426	0.5-	0.6+
1994 07 09	809	0.1+	0.8+	1998 06 21	658	0.7-	0.5+	1998 06 22	426	0.2-	0.3-
1994 07 09	809	0.5+	0.5+	1998 06 21	658	0.4-	0.3+	1998 06 22	046	0.5+	0.5-
1994 07 09	809	1.2-	0.8-	1998 06 21	658	0.5-	1.0+	1998 06 22	046	0.4+	1.1-
1998 06 19	704	1.2+	0.2+	1998 06 21	104	0.4-	0.3+	1998 06 22	046	0.0	0.7-
1998 06 19	704	1.5+	0.6-	1998 06 21	104	0.7+	0.5-	1998 06 22	046	0.2+	0.4-
1998 06 19	704	1.5-	0.9-	1998 06 21	104	1.3+	0.0	1998 07 01	426	0.1+	0.5+
1998 06 19	704	(4.6-	1.0+)	1998 06 21	046	0.2+	0.9-	1998 07 01	426	0.7-	0.9+
1998 06 20	658	0.1+	0.2+	1998 06 21	046	0.4+	0.9-	1998 07 25	598	0.2-	0.3-
1998 06 20	658	1.2-	0.6+	1998 06 21	046	0.6-	0.4-	1998 07 25	598	0.4+	0.3+
1998 06 20	658	1.7-	0.5+	1998 06 21	046	0.8+	0.3+	1998 07 25	598	0.2+	0.4-
1998 06 20	046	0.3-	0.2+	1998 06 21	046	0.6+	0.2+	1998 07 25	598	0.3-	0.0

1998 RX₇₁ = 1970 GR = 1979 SG₁₃ = 1981 EN₄₈ = 1989 GZ₅

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
				P	Q		
<i>M</i>	281.40049		(2000.0)				
<i>n</i>	0.25995088	ω	104.68029	-0.54820174	-0.83546978		
<i>a</i>	2.4315051	Ω	18.71541	+0.71409114	-0.49140093		
<i>e</i>	0.0905961	<i>i</i>	6.85119	+0.43537191	-0.24599872		
<i>P</i>	3.79	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1970 04 10	805	0.1+	1.5+	1989 04 10	809	0.3-	0.0	1998 09 26	704	0.3-	0.3+
1970 04 10	805	0.6+	0.8+	1989 04 10	809	0.1-	0.1-	1998 09 26	704	0.0	0.1+
1970 04 10	805	0.3+	0.7+	1998 09 14	704	0.8-	0.4+	1998 09 26	704	0.2-	0.1+
1979 09 20	675	0.2+	0.3-	1998 09 14	704	1.0-	0.2+	1998 09 26	704	0.6-	0.5-
1979 09 21	675	0.7+	0.2-	1998 09 14	704	0.8-	0.6-	1998 09 26	704	0.6-	1.6+
1981 03 01	095	0.9+	1.3+	1998 09 17	699	0.1-	0.2-	1998 09 27	704	0.3-	1.5+
1989 04 05	809	(3.2-	2.0-)	1998 09 17	699	0.8+	0.5-	1998 09 27	704	0.1+	1.2+
1989 04 05	809	(2.9-	2.1-)	1998 09 17	699	0.2+	0.1-	1998 09 27	704	0.8+	1.5+
1989 04 05	809	(3.5-	1.8-)	1998 09 18	704	0.5+	0.6-	1998 09 27	704	0.3+	0.1+
1989 04 08	809	0.0	0.2-	1998 09 18	704	0.4+	0.2+	1998 12 15	699	0.6-	0.5-
1989 04 08	809	0.4-	0.5-	1998 09 18	704	0.0	0.7-	1998 12 15	699	0.3-	1.0-
1989 04 08	809	0.3+	0.2-	1998 09 18	704	0.8-	1.4+	1998 12 15	699	0.8+	0.9-
1989 04 10	809	0.3+	0.2+	1998 09 18	704	0.3-	0.3-				

1998 RA₇₃ = 1998 SA₉₉ = 1993 TV₄₄Id. S. Nakano (d, *MPC* 33590), A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Doppler			
				P	Q		
<i>M</i>	263.57535		(2000.0)				
<i>n</i>	0.19402926	ω	221.60148	-0.67865674	-0.73433675		
<i>a</i>	2.9550028	Ω	271.14181	+0.67729186	-0.61877657		
<i>e</i>	0.0374642	<i>i</i>	0.75719	+0.28407879	-0.27904317		
<i>P</i>	5.08	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1993 10 10	809	0.8-	0.6+	1998 09 14	704	0.1-	1.5-	1998 09 26	704	1.7+	1.8-
1993 10 10	809	0.3-	0.9+	1998 09 18	704	0.1+	1.2+	1998 09 26	704	1.4-	1.4-

1993 10 10	809	0.2-	0.2+	1998 09 18	704	0.8-	0.6+	1998 09 27	704	0.1+	0.0
1993 10 22	809	(2.7+	1.4-)	1998 09 18	704	0.4+	0.4-	1998 09 27	704	1.0-	0.3+
1993 10 22	809	0.8+	1.1-	1998 09 18	704	0.1+	0.7+	1998 09 27	704	0.1-	0.8+
1993 10 22	809	0.3+	0.2-	1998 09 18	704	0.1+	1.8+	1998 09 27	704	(2.4-	0.8+)
1998 09 14	704	0.7-	0.6-	1998 09 26	704	1.6+	0.3+	1998 09 27	704	0.0	0.9+
1998 09 14	704	0.4+	0.3-	1998 09 26	704	0.2-	1.3-				

1998 SG₁ = 1998 UA₃₉ = 1094 T-2

Id. A. Doppler (d), G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
				P	Q		
<i>M</i>	339.51440		(2000.0)				
<i>n</i>	0.23821905	ω	271.99910	+0.01511057	-0.99988390		
<i>a</i>	2.5772214	Ω	177.13288	+0.93227828	+0.01337890		
<i>e</i>	0.1889342	<i>i</i>	2.25006	+0.36142618	+0.00729321		
<i>P</i>	4.14	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1973 09 24	675	0.5-	0.6-	1998 09 16	910	0.0	0.2+	1998 10 28	704	0.7+	0.0
1973 09 24	675	0.5+	3.0-	1998 09 18	910	0.3-	0.2-	1998 10 28	704	0.1+	0.3-
1973 09 29	675	0.5-	1.8-	1998 09 18	910	0.3+	0.3+	1998 10 28	704	0.4-	0.3+
1973 09 29	675	1.8+	0.5-	1998 09 18	910	0.0	0.0	1998 10 28	704	0.2-	0.8-
1973 10 05	675	0.9-	2.4+	1998 09 20	910	0.2+	0.2+	1998 10 29	704	0.2-	0.2-
1973 10 05	675	0.2-	0.8+	1998 09 20	910	0.1+	0.1-	1998 10 29	704	0.5+	1.0-
1973 10 05	675	0.6+	0.8+	1998 09 20	910	0.1+	0.2+	1998 10 29	704	0.9-	2.0-
1973 10 05	675	0.1-	0.0	1998 09 21	809	0.1-	1.2+	1998 10 29	704	0.9+	0.2+
1998 09 16	910	0.4+	0.7+	1998 09 21	809	1.1-	1.5+	1998 10 29	704	0.0	0.2+
1998 09 16	910	0.6+	0.1-	1998 09 21	809	1.1-	2.1+				

1998 SP₁₂ = 1994 NW₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Spahr			
				P	Q		
<i>M</i>	3.76658		(2000.0)				
<i>n</i>	0.28023061	ω	119.90554	+0.57367442	-0.71769785		
<i>a</i>	2.3127339	Ω	289.64052	+0.52901323	+0.69256852		
<i>e</i>	0.1949408	<i>i</i>	24.77830	+0.62533404	+0.07251642		
<i>P</i>	3.52	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 07 11	809	0.2-	0.8-	1998 09 21	703	0.3-	0.3-	1998 09 28	704	0.6-	0.7+
1994 07 11	809	0.2-	1.6-	1998 09 22	703	0.7-	0.1-	1998 10 25	704	0.1+	0.1+
1994 07 11	809	0.2-	1.6-	1998 09 23	703	0.1-	0.5-	1998 10 25	704	0.0	0.6-
1994 07 12	809	0.3+	2.3+	1998 09 23	703	0.4-	0.2+	1998 10 25	704	0.9+	0.4+
1994 07 12	809	0.2-	1.4+	1998 09 28	704	0.8-	0.1-	1998 10 25	704	0.8-	0.4+
1994 07 12	809	0.6+	0.4+	1998 09 28	704	0.3+	1.3-	1998 10 25	704	0.5-	0.4-
1998 09 21	703	1.6+	0.1-	1998 09 28	704	0.9+	0.6+				
1998 09 21	703	0.4-	0.2-	1998 09 28	704	0.7+	1.3+				

1998 ST₇₂ = 1998 UV₃₇ = 1990 DR₆ = 1996 LN₄Id. A. Doppler (d, *MPC* 33785), S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Nakano			
				P	Q		
<i>M</i>	359.96955		(2000.0)				
<i>n</i>	0.19475208	ω	313.33595	+0.65619906	-0.75257694		
<i>a</i>	2.9476867	Ω	95.56922	+0.70733935	+0.58806156		
<i>e</i>	0.0876449	<i>i</i>	3.17084	+0.26281902	+0.29633013		
<i>P</i>	5.06	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 02 21	046	0.0	0
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1998 SH₁₄₅ = 1998 UM₃₉ = 1983 TZId. A. Doppler (d, *MPC* 33758), S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 25.12034 (2000.0)			<i>P</i>			<i>Q</i>		
<i>n</i>	0.26386503	ω	358.01038	+0.88000313		-0.47433794		
<i>a</i>	2.4073995	Ω	30.34440	+0.43644026		+0.78723546		
<i>e</i>	0.2011817	<i>i</i>	2.77450	+0.18738831		+0.39403535		
<i>P</i>	3.74	<i>H</i>	15.9	<i>G</i> 0.15		<i>U</i> 5		

Residuals in seconds of arc

1983 10 08	801	0.1+	0.7+	1998 09 20	809	0.1+	0.7+	1998 10 28	704	0.2-	0.0
1983 10 09	801	0.6-	0.1+	1998 09 20	809	0.1-	0.8+	1998 10 28	704	0.3-	0.2-
1983 10 10	801	0.7+	1.1-	1998 09 21	809	0.2+	0.5+	1998 10 29	704	0.0	0.7+
1998 09 18	910	0.1-	1.4-	1998 09 21	809	0.5+	0.7+	1998 10 29	704	0.6+	0.1+
1998 09 18	910	0.1-	1.4-	1998 09 21	809	1.2-	0.2+	1998 10 29	704	0.1-	0.7-
1998 09 18	910	0.1+	1.3-	1998 10 28	704	0.5-	0.8+	1998 10 29	704	0.3+	0.4-
1998 09 20	809	0.5+	1.7+	1998 10 28	704	0.5-	0.0	1998 10 29	704	0.6+	0.6-

1998 TU₃

Id. D. J. Asher (1982 observations), G. V. Williams (1995 observations), S. Nakano (1995 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 286.48175 (2000.0)			<i>P</i>			<i>Q</i>		
<i>n</i>	1.41106984	ω	84.50039	-0.98842706		+0.12056174		
<i>a</i>	0.7872338	Ω	102.40007	-0.14668282		-0.91434584		
<i>e</i>	0.4838811	<i>i</i>	5.40923	+0.03867948		-0.38657025		
<i>P</i>	0.70	<i>H</i>	15.0	<i>G</i> 0.15		<i>U</i> 5		

Residuals in seconds of arc

1982 12 04	413	1.2-	0.5-	1998 10 17	046	0.1-	0.6+	1998 11 28	104	0.6+	0.7+
1982 12 04	413	0.6-	0.3+	1998 10 17	046	0.4+	0.1-	1998 12 01	426	0.2+	0.7+
1982 12 05	413	(0.6-	3.3-)	1998 10 17	046	0.4-	0.1+	1998 12 01	426	0.1-	0.4+
1982 12 05	413	0.1+	1.2-	1998 10 17	046	0.6-	0.3+	1998 12 01	426	0.1+	0.6+
1995 11 21	692	0.4-	0.6-	1998 10 17	046	0.0	0.5+	1998 12 01	426	0.2+	0.3+
1995 11 21	692	0.1-	1.7-	1998 10 18	670	0.4+	0.9+	1998 12 04	428	0.6+	0.2-
1995 11 21	692	0.2+	0.7-	1998 10 18	670	0.2-	0.7-	1998 12 04	428	1.0+	0.2-
1998 10 13	704	1.3+	0.3+	1998 10 18	670	0.2-	0.5+	1998 12 09	118	0.3-	1.8+
1998 10 13	704	0.6+	0.4+	1998 10 18	673	0.9-	0.0	1998 12 09	118	0.3-	1.8+
1998 10 13	704	0.8+	0.7+	1998 10 18	673	1.3-	0.2+	1998 12 09	118	0.6-	1.8+
1998 10 13	704	(0.5+	2.5+)	1998 10 18	673	1.2-	0.3+	1998 12 11	360	0.0	0.2-
1998 10 13	844	0.5+	0.1+	1998 10 18	428	0.1-	0.1+	1998 12 11	360	0.0	0.5-
1998 10 14	844	0.1+	0.0	1998 10 18	428	0.5-	0.3+	1998 12 11	360	0.1+	0.2-
1998 10 14	844	0.6+	0.2+	1998 10 18	360	0.2-	0.3+	1998 12 12	422	0.5-	0.7-
1998 10 14	844	0.1+	0.0	1998 10 18	360	0.8-	0.1-	1998 12 12	422	0.7-	0.5-
1998 10 14	844	0.3+	0.1-	1998 10 18	360	0.9-	0.1-	1998 12 12	422	0.7-	0.5-
1998 10 14	844	0.0	0.1-	1998 10 21	428	0.2-	0.4+	1998 12 13	104	1.0-	0.7-
1998 10 14	704	0.2-	0.6-	1998 10 21	428	0.3-	0.0	1998 12 13	104	0.8+	1.2+
1998 10 14	704	0.7+	0.2-	1998 10 21	360	0.7-	0.4+	1998 12 13	104	(2.8+	2.9+)
1998 10 14	704	0.4-	0.4+	1998 10 21	360	0.7-	0.4+	1998 12 21	422	0.3-	0.2+
1998 10 14	704	0.6-	0.7+	1998 10 21	360	0.7-	0.1+	1998 12 21	422	0.0	0.2+
1998 10 14	422	0.3+	0.0	1998 10 21	422	0.3-	0.3+	1998 12 21	422	0.1+	0.2+
1998 10 14	422	0.4+	0.0	1998 10 21	422	0.5-	0.5+	1998 12 23	118	0.4+	0.1-
1998 10 14	422	0.3+	0.0	1998 10 21	422	0.4-	0.4+	1998 12 23	118	0.2+	0.3-
1998 10 14	422	0.3+	0.0	1998 10 22	587	0.7-	0.0	1998 12 26	428	0.7-	0.1-
1998 10 14	104	0.3+	0.7+	1998 10 24	426	0.3-	0.0	1998 12 26	428	0.2-	0.0
1998 10 14	104	0.4+	0.5+	1998 10 24	426	0.4-	0.2+	1998 12 26	428	0.1-	0.2+
1998 10 14	104	0.4+	0.2+	1998 10 24	426	0.4-	0.1+	1998 12 28	046	0.8-	0.3-
1998 10 14	104	0.5+	0.4+	1998 10 28	587	0.6+	0.6-	1998 12 28	046	0.4-	0.1-
1998 10 15	670	0.5+	0.1-	1998 10 28	587	1.6+	1.4-	1998 12 28	046	0.6-	0.1-
1998 10 15	670	0.6+	0.2-	1998 11 01	860	0.3+	0.6-	1998 12 28	046	0.7-	0.3-
1998 10 15	844	0.0	0.1+	1998 11 02	860	0.6+	0.4-	1999 01 06	428	0.2-	0.3+
1998 10 15	670	0.0	0.6-	1998 11 02	860	0.6+	0.0	1999 01 06	428	0.2-	0.2-
1998 10 15	844	0.7+	0.5+	1998 11 04	428	0.8-	1.1-	1999 01 06	428	0.0	0.0
1998 10 15	844	0.1-	0.6-	1998 11 04	428	0.2-	1.2-	1999 01 06	422	1.4-	0.2+
1998 10 15	844	0.3-	0.6-	1998 11 04	428	0.3-	1.5-	1999 01 06	046	0.3+	0.6+

1998 10 15	428	0.1+	0.1+	1998 11 04	428	0.2-	0.8-	1999 01 06	046	0.2+	0.7+
1998 10 15	428	0.1-	0.3+	1998 11 08	360	0.0	0.6-	1999 01 06	046	0.5+	0.4+
1998 10 15	422	0.2+	0.3+	1998 11 08	360	0.2+	0.6-	1999 01 06	046	0.0	0.6+
1998 10 15	422	0.2+	0.3+	1998 11 08	360	0.0	0.6-	1999 01 14	428	0.5+	0.5-
1998 10 15	422	0.3+	0.2+	1998 11 08	426	0.7+	0.4-	1999 01 15	428	0.0	0.1+
1998 10 15	422	0.4+	0.1+	1998 11 08	426	0.4+	0.6-	1999 01 15	422	0.2+	0.3+
1998 10 15	428	0.0	0.1+	1998 11 08	426	0.4+	0.4-	1999 01 15	422	0.3+	0.4+
1998 10 16	758	0.2+	1.0+	1998 11 11	046	0.2+	0.5-	1999 01 15	422	0.5+	0.2+
1998 10 16	758	1.0-	1.2+	1998 11 11	046	0.2+	0.1-	1999 01 18	428	0.1+	0.0
1998 10 16	758	0.4-	0.2+	1998 11 11	046	0.1+	0.2-	1999 01 18	428	0.6-	0.7-
1998 10 16	758	0.3-	0.3+	1998 11 12	360	0.2+	0.2-	1999 01 19	428	0.5+	0.3+
1998 10 16	758	0.4-	0.1+	1998 11 12	360	0.3+	0.2-	1999 01 19	428	0.4+	0.6+
1998 10 16	758	0.3-	0.4+	1998 11 12	360	0.4+	0.3-	1999 01 19	428	0.1+	0.5+
1998 10 16	670	1.0+	1.6-	1998 11 15	428	0.6+	0.5+	1999 01 22	428	1.1-	0.2-
1998 10 16	670	0.3+	1.2-	1998 11 15	428	1.0+	0.5+	1999 01 22	428	0.0	0.2-
1998 10 16	670	0.3-	0.7-	1998 11 15	587	0.3+	0.4-	1999 01 23	428	0.2-	0.4-
1998 10 16	422	0.2-	0.4-	1998 11 15	587	0.8+	0.4+	1999 01 23	428	0.1+	0.5-
1998 10 16	422	0.1-	0.6-	1998 11 21	426	0.7+	0.5+	1999 01 26	428	0.5-	1.0-
1998 10 16	422	0.4-	0.4-	1998 11 21	426	0.6+	0.2+	1999 01 26	428	0.5+	0.7-
1998 10 17	428	0.2-	0.1-	1998 11 21	426	0.3+	0.4+	1999 01 26	428	0.6-	0.8-
1998 10 17	428	0.6-	0.6-	1998 11 28	104	1.2+	0.0	1999 02 03	428	0.9+	0.3-
1998 10 17	428	0.5-	0.2-	1998 11 28	104	0.4+	0.8+	1999 02 03	428	1.1+	0.0

1998 UR₁ = 1995 YT₁₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 106.92332 (2000.0)			<i>P</i>			<i>Q</i>		
<i>n</i>	0.30463756	ω	82.81726	+0.36895297		+0.92855465		
<i>a</i>	2.1874951	Ω	208.93893	-0.88253069		+0.33624063		
<i>e</i>	0.2103281	<i>i</i>	4.83006	-0.29157040		+0.15725301		
<i>P</i>	3.24	<i>H</i>	17.0	<i>G</i> 0.15		<i>U</i> 5		

Residuals in seconds of arc

1995 12 22	691	0.2-	0.1-	1995 12 27	691	0.2-	0.0	1998 10 21	658	0.0	0.1+
1995 12 22	691	0.5+	0.1+	1998 10 17	691	0.3-	0.0	1998 10 21	658	0.0	0.2+
1995 12 22	691	0.0	0.1-	1998 10 17	691	1.3+	0.1+	1998 10 22	658	0.9-	0.2-
1995 12 27	691	0.5-	0.1-	1998 10 17	691	1.3-	0.1+	1998 10 22	658	0.3+	0.5-
1995 12 27	691	0.2+	0.2+	1998 10 21	658	0.2+	0.1+	1998 10 22	658	0.8+	0.0

1998 UK₆ = 1995 JA

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 47.10649 (2000.0)			<i>P</i>			<i>Q</i>		
<i>n</i>	0.19890646	ω	229.59576	+0.23566687		-0.97177029		
<i>a</i>	2.9064986	Ω	206.77946	+0.89894826		+0.22232509		
<i>e</i>	0.0154102	<i>i</i>	1.41404	+0.36926027		+0.07895599		
<i>P</i>	4.96	<i>H</i>	13.7	<i>G</i> 0.15		<i>U</i> 5		

Residuals in seconds of arc

1995 05 01	557	0.3+	0.3-	1998 10 22	910	0.6-	0.5+	1999 02 12	704	0.5-	1.2+
1995 05 01	557	0.1-	0.3+	1998 10 23	910	0.8+	0.1-	1999 02 16	704	1.0+	1.1-
1995 05 02	557	0.0	0.1+	1998 10 23	910	0.9+	0.1-	1999 02 16	704	0.4+	0.5+
1995 05 02	557	0.1-	0.2+	1998 10 23	910	1.0+	0.2-	1999 02 16	704	0.7-	0.4+
1995 05 02	557	0.2+	0.1+	1999 02 12	704	0.2-	0.2-	1999 02 16	704	0.2+	1.8-
1995 05 02	557	0.3-	0.1-	1999 02 12	704	0.4+	0.0	1999 02 16	704	0.7-	

1999 MAR. 2

M.P.C. 33971

Residuals in seconds of arc

1975 10 03	095	0.1−	0.3+	1998 10 28	704	0.7+	0.4−	1998 11 10	704	0.1−	0.3+
1997 04 30	704	0.6−	0.1+	1998 10 28	704	0.7−	0.1−	1998 11 11	704	0.5+	0.7−
1997 04 30	704	0.3+	0.2−	1998 10 28	704	0.7−	0.5−	1998 11 11	704	0.7−	0.2+
1997 04 30	704	0.3−	0.6+	1998 10 29	704	0.4+	0.2+	1998 11 11	704	0.0	0.7+
1997 04 30	704	0.0	0.2−	1998 10 29	704	0.4+	0.0	1998 11 11	704	0.3+	1.3+
1997 04 30	704	0.6+	0.9−	1998 10 29	704	0.6+	0.3−	1998 11 11	704	1.7−	0.7+
1997 05 01	704	0.4−	0.2+	1998 10 29	704	0.2+	0.1−	1998 11 14	327	0.4−	0.3+
1997 05 01	704	0.3+	0.4+	1998 10 29	704	0.6+	0.1−	1998 11 14	327	0.6−	0.0
1997 05 01	704	0.2+	0.2+	1998 11 10	704	0.4+	0.1−	1998 11 14	327	0.8−	0.3+
1997 05 01	704	0.0	0.2+	1998 11 10	704	0.8+	0.8−				
1998 10 28	704	0.0	0.2−	1998 11 10	704	0.6+	0.4−				

1998 VL₂₇ = 1996 QP₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Spahr

<i>M</i>	354.48638		(2000.0)	P	Q
<i>n</i>	0.08564976	<i>ω</i>	129.77541	+0.48591640	−0.87230133
<i>a</i>	5.0970466	<i>Ω</i>	291.07163	+0.78295233	+0.46218286
<i>e</i>	0.0528501	<i>i</i>	3.35134	+0.38842104	+0.15961641
<i>P</i>	11.51	<i>H</i>	11.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 08 18	010	0.8−	0.8+	1998 10 19	699	0.8+	0.4−	1998 11 11	704	0.9−	0.8+
1996 08 18	010	0.5−	1.1+	1998 10 19	699	0.1−	0.2+	1998 11 11	704	0.3−	0.2−
1996 08 18	010	0.6+	1.8+	1998 10 19	699	1.0+	1.9−	1998 11 11	704	2.6−	1.6+
1996 08 20	010	0.5+	1.2−	1998 11 10	704	1.1+	0.9−	1998 12 16	699	1.0+	0.3−
1996 08 20	010	0.0	0.8−	1998 11 10	704	1.2−	0.2+	1998 12 16	699	0.0	0.3+
1996 08 20	010	0.2+	1.7−	1998 11 10	704	1.4+	0.9+	1998 12 16	699	0.0	0.4−

1998 VQ₂₇ = 1139 T-1

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	80.91766		(2000.0)	P	Q
<i>n</i>	0.19928995	<i>ω</i>	340.95483	+0.87441040	+0.48516284
<i>a</i>	2.9027688	<i>Ω</i>	350.01783	−0.44144433	+0.79139409
<i>e</i>	0.0917051	<i>i</i>	1.60141	−0.20132897	+0.37190377
<i>P</i>	4.95	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1971 03 24	675	0.9+	1.6−	1998 11 10	704	2.3+	0.5−	1998 11 16	566	0.9−	0.2−
1971 03 25	675	0.7−	0.6+	1998 11 10	704	0.4−	0.4+	1999 01 06	699	1.4−	0.4+
1971 03 25	675	1.1−	0.7+	1998 11 10	704	0.1−	0.4+	1999 01 06	699	0.5+	0.0
1971 03 26	675	1.5+	0.6+	1998 11 10	699	0.1+	0.2+	1999 01 06	699	1.6+	0.1−
1971 03 27	675	0.9−	0.6−	1998 11 10	699	0.5+	0.1+	1999 01 13	910	0.2−	0.1+
1971 03 27	675	0.1+	0.1+	1998 11 11	704	0.2+	0.4−	1999 01 13	910	0.3−	0.3+
1998 10 18	699	0.3+	0.3−	1998 11 11	704	0.3+	1.0+	1999 01 13	910	0.2−	0.2+
1998 10 18	699	0.5−	0.2−	1998 11 11	704	0.5−	0.3+	1999 01 14	910	0.0	0.0
1998 10 18	699	0.2+	0.3−	1998 11 11	704	3.1−	0.1−	1999 01 14	910	0.1+	0.2−
1998 11 10	704	1.3+	0.0	1998 11 16	566	0.3−	0.4−	1999 01 14	910	0.1−	0.2−
1998 11 10	699	1.1+	0.3−	1998 11 16	566	0.5−	0.4−				

1998 VA₃₂ = 1976 KG₂ = 1988 XC₄

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	333.00117		(2000.0)	P	Q
<i>n</i>	0.29356374	<i>ω</i>	251.29849	−0.80095700	−0.49305963
<i>a</i>	2.2421660	<i>Ω</i>	257.86535	+0.58980408	−0.74732600
<i>e</i>	0.3978687	<i>i</i>	20.32894	−0.10295159	−0.44541672
<i>P</i>	3.36	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1976 05 29	413	(3.9−	1.0+)	1998 11 16	704	0.1−	0.4−	1999 01 07	704	0.7−	0.1+
1976 05 29	413	0.4+	1.0−	1998 11 16	704	0.7−	0.6+	1999 01 11	704	0.2−	0.1+
1976 05 30	413	0.1+	0.2−	1998 11 16	704	1.3−	0.1+	1999 01 11	704	0.1−	0.4−
1976 05 30	413	0.4+	0.7−	1998 11 16	704	0.7−	0.7+	1999 01 11	704	0.5+	0.2−

1979 05 20	413	(4.0+	0.5+)	1998 12 14	704	0.6−	0.1−	1999 01 11	704	0.4−	1.2−
1979 05 20	413	0.7−	0.9−	1998 12 14	704	0.6+	0.6−	1999 01 11	704	0.1+	0.9−
1988 12 01	054	0.1+	0.5−	1998 12 14	704	0.7+	0.4−	1999 01 15	699	0.3−	0.2+
1988 12 01	054	0.1−	0.2−	1998 12 14	704	0.8+	0.3+	1999 01 15	699	0.2+	0.3+
1988 12 01	054	0.1−	0.1+	1998 12 14	704	0.6+	0.4−	1999 01 15	699	0.1−	0.1−
1998 11 14	704	0.1−	1.0−	1999 01 06	699	0.2−	0.5+	1999 02 04	704	0.6+	0.7−
1998 11 14	704	0.4+	0.4−	1999 01 06	699	0.4+	0.8+	1999 02 04	704	1.3+	0.2+
1998 11 14	704	(0.8+	2.7−)	1999 01 06	699	0.2+	0.2+	1999 02 04	704	0.2−	0.4−
1998 11 14	704	(1.2+	2.8−)	1999 01 07	704	0.3−	1.1+	1999 02 04	704	0.7+	0.1−
1998 11 14	704	0.7−	0.3−	1999 01 07	704	0.0	0.1+	1999 02 04	704	0.7−	0.4+
1998 11 16	704	0.7−	0.5−	1999 01 07	704	0.9+	0.8+				

1998 WC₃ = 1991 LK₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	45.80192		(2000.0)	P	Q
<i>n</i>	0.21937900	<i>ω</i>	341.01433	−0.10357717	−0.98968839
<i>a</i>	2.7227390	<i>Ω</i>	114.82951	+0.92607454	−0.13224908
<i>e</i>	0.0190726	<i>i</i>	6.25853	+0.36284668	+0.05501880
<i>P</i>	4.49	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1991 06 06	809	0.6+	0.2+	1998 11 20	910	0.3+	0.2+	1999 02 10	704	0.6−	0.4+
1991 06 06	809	0.7+	0.2+	1998 11 20	910	0.6+	0.2+	1999 02 10	704	(2.5−	0.7+)
1991 06 06	809	0.5−	0.3+	1998 11 20	910	0.6+	0.4−	1999 02 13	704	0.2−	0.0
1991 06 08	809	0.2−	0.4−	1999 01 22	699	0.7+	0.2−	1999 02 13	704	0.3−	0.0
1991 06 08	809	0.5−	0.2−	1999 01 22	699	0.3+	0.8+	1999 02 13	704	0.3+	0.5−
1991 06 08	809	0.1−	0.0	1999 01 22	699	0.6+	0.2−	1999 02 13	704	0.5+	0.5−
1998 11 19	910	0.5−	0.0	1999 02 10	704	0.1+	0.5−	1999 02 13	704	0.9−	0.2+
1998 11 19	910	0.4−	0.3−	1999 02 10	704	0.2+	0.1−				
1998 11 19	910	0.7−	0.6+	1999 02 10	704	0.5−	0.4+				

1998 WE₅ = 1987 YW₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	33.19643		(2000.0)	P	Q
<i>n</i>	0.17556630	<i>ω</i>	242.29799	+0.80814134	−0.57798040
<i>a</i>	3.1587016	<i>Ω</i>	152.55006	+0.58871443	+0.78679722
<i>e</i>	0.1467668	<i>i</i>	14.23347	+0.01796901	+0.21653822
<i>P</i>	5.61	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1987 12 17	809	1.5−	1.0−	1998 11 21	683	0.2+	0.5−	1998 11 26	683	0.9−	0.2+
1987 12 17	809	0.3+	0.4−	1998 11 21	683	1.5+	0.8−	1998 11 26	683	0.3−	0.1+
1987 12 20	809	0.7−	1.2+	1998 11 21	683	0.7+	0.9−	1998 11 27	683	0.2−	0.7+
1987 12 20	809	(4.1−	1.3+)	1998 11 22	683	0.2+	0.2−	1998 11 27	683	0.3−	0.6+
1987 12 23	809	1.1+	0.5−	1998 11 22	683	0.3−	0.8−	1998 11 27	683	0.4−	0.2+
1987 12 23	809	0.8+	0.7+	1998 11 26	683	0.2−	1.6+				

1998 WB₈ = 1996 ED₁₄

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	287.11712		(2000.0)	P	Q
<i>n</i>	0.27813544	<i>ω</i>	141.82065	−0.97540156	−0.22027374
<i>a</i>	2.3243338	<i>Ω</i>	25.45807	+0.19710933	−0.88869334
<i>e</i>	0.1438104	<i>i</i>	1.12543	+0.09869000	−0.40212388
<i>P</i>	3.54	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 03 12	691	0.5+	0.1+	1998 11 19	399	1.5−	0.6−	1998 11 24	704	0.2+	0.4−
1996 03 12	691	0.5+	0.2+	1998 11 19	399	1.9−	0.9−	1998 11 24	704	0.6+	0.3−
1996 03 12	691	0.2+	0.0	1998 11 21	704	0.1+	0.4+	1998 11 24	704	0.4+	0.0
1996 03 17	691	0.2−	0.2−	1998 11 21	704	1.0+	0.1−	1998 11 24	704	0.6+	0.1−
1996 03 17	691	0.5−	0.2−	1998 11 21	704	1.0+	0.8+	1998 12 11	699	0.4−	0.1−
1996 03 17	691	0.5−	0.0	1998 11 21	704	1.0+	1.1+	1998 12 11	699	0.4−	0.3+
1998 11 18	399	(2.3−	1.1−)	1998 11 21	704	0.8+	0.9+	1998 12 11	699	0.3−	0.3+
1998 11 18	399	1.5−	1.5−	1998 11 24	704	0.0	0.2+				

1998 WR₉ = 1993 SO₁₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	91.16277		(2000.0)	P	Q	Doppler			
<i>n</i>	0.21696700	ω	108.92999	+0.83335869	+0.55254347				
<i>a</i>	2.7428807	Ω	217.53215	-0.51563307	+0.76773645				
<i>e</i>	0.1082526	<i>i</i>	1.35983	-0.1908752	+0.32446333				
<i>P</i>	4.54	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	6		

Residuals in seconds of arc

1993 09 16	809	0.2-	1.0-	1998 11 18	704	0.2+	0.1-	1998 11 21	704	0.9-	0.6+
1993 09 16	809	0.4-	0.5-	1998 11 18	704	(0.3+	2.2+)	1998 11 28	120	0.7+	0.2-
1993 09 16	809	0.6+	0.2+	1998 11 18	704	0.7-	1.7+	1998 11 28	120	0.1+	0.7-
1993 09 23	809	1.1+	1.8+	1998 11 18	704	0.5+	1.0+	1998 11 29	120	1.1-	0.6+
1993 09 23	809	0.4-	0.1-	1998 11 21	704	1.3+	0.4-	1998 11 29	120	1.3-	1.0-
1993 09 23	809	0.8-	0.4-	1998 11 21	704	0.6+	1.0-				
1998 11 18	704	0.6+	0.5-	1998 11 21	704	(0.3+	2.0-)				

1998 WM₁₉ = 1993 PC₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	29.89843		(2000.0)	P	Q	Williams			
<i>n</i>	0.23765654	ω	230.04070	+0.18482773	-0.98224839				
<i>a</i>	2.5812864	Ω	209.35506	+0.92043212	+0.18443955				
<i>e</i>	0.2409617	<i>i</i>	3.74789	+0.34444655	+0.03420749				
<i>P</i>	4.15	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1993 08 15	010	0.9+	0.6+	1998 11 25	704	1.6-	1.2-	1999 02 12	704	0.4-	0.0
1993 08 15	010	1.2-	0.9+	1998 11 25	704	0.2+	1.9-	1999 02 12	704	0.5-	0.1-
1993 08 16	010	0.1-	0.0	1998 12 24	699	0.3+	0.7+	1999 02 12	704	0.4-	0.1+
1993 08 16	010	0.6-	0.3-	1998 12 24	699	0.7-	0.3-	1999 02 12	704	0.0	0.1-
1993 08 16	010	0.5+	0.2+	1998 12 24	699	0.1-	0.3+	1999 02 12	704	0.1+	0.1+
1998 11 23	704	0.5+	0.6-	1999 01 14	699	0.6+	0.1-	1999 02 16	704	0.6+	0.5+
1998 11 23	704	1.6-	0.5+	1999 01 14	699	0.5+	0.6+	1999 02 16	704	0.1-	0.2-
1998 11 23	704	0.6+	1.5+	1999 01 14	699	0.7+	0.6+	1999 02 16	704	0.0	0.1+
1998 11 23	704	1.3+	0.4+	1999 02 11	699	0.7+	0.1+	1999 02 16	704	1.7-	0.3+
1998 11 25	704	0.4-	0.1+	1999 02 11	699	0.7+	0.2-				
1998 11 25	704	0.2-	0.6-	1999 02 11	699	0.6+	0.2+				

1998 WP₁₉ = 1988 OK

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	293.94918		(2000.0)	P	Q	Williams			
<i>n</i>	0.23345212	ω	301.67142	-0.92591538	+0.30097648				
<i>a</i>	2.6121864	Ω	256.70315	-0.21482822	-0.91659668				
<i>e</i>	0.0446608	<i>i</i>	13.56381	-0.31069203	-0.26317995				
<i>P</i>	4.22	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	6		

Residuals in seconds of arc

1988 07 22	033	0.3-	0.3-	1998 11 25	704	1.8-	0.1+	1999 02 12	704	0.1-	0.0
1988 07 23	033	0.1+	0.3-	1998 11 25	704	2.1+	1.0+	1999 02 16	704	0.4-	0.1-
1988 07 23	033	0.3-	0.4+	1998 11 25	704	0.8-	1.8+	1999 02 16	704	0.1+	0.4-
1988 07 24	033	0.7+	0.1-	1998 11 25	704	0.6+	0.6-	1999 02 16	704	0.4-	0.1-
1998 11 23	704	1.1+	0.5-	1998 11 25	704	1.8+	0.8-	1999 02 16	704	0.3+	0.8-
1998 11 23	704	1.7-	0.9-	1999 02 12	704	0.2-	0.5+	1999 02 16	704	1.3+	0.3+
1998 11 23	704	1.2+	0.2-	1999 02 12	704	0.4-	0.2+				
1998 11 23	704	1.9-	0.1-	1999 02 12	704	0.8-	0.3+				

1998 WT₁₉ = 1992 OO₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	26.36034		(2000.0)	P	Q	Williams			
<i>n</i>	0.23834523	ω	185.04198	-0.43584287	-0.87400204				
<i>a</i>	2.5763117	Ω	290.93718	+0.83358838	-0.30198794				
<i>e</i>	0.1124737	<i>i</i>	13.29949	+0.33936914	-0.38068847				
<i>P</i>	4.14	<i>H</i>	12.3	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1992 07 20	809	0.0	0.3-	1998 11 25	704	0.0	1.0-	1999 02 12	704	0.4+	0.5-
1992 07 20	809	0.2+	0.1-	1998 11 25	704	0.4+	0.5-	1999 02 12	704	0.2+	0.1-
1992 07 20	809	0.2+	0.1-	1998 12 01	704	0.2-	0.4+	1999 02 16	704	0.3-	0.0
1992 07 21	809	0.4-	0.3+	1998 12 01	704	0.2+	0.6+	1999 02 16	704	1.0-	0.5-
1992 07 21	809	0.2-	0.3+	1998 12 01	704	0.2-	1.0+	1999 02 16	704	0.5-	0.2+
1992 07 21	809	0.1+	0.2+	1998 12 01	704	0.4-	0.1+	1999 02 16	704	0.0	0.3+
1998 11 25	704	0.2+	0.0	1999 02 12	704	0.1-	0.2+	1999 02 16	704	0.5+	0.8+
1998 11 25	704	0.6-	0.7+	1999 02 12	704	0.0	0.7-				
1998 11 25	704	1.2+	0.6-	1999 02 12	704	0.6+	0.1-				

1998 WA₂₃ = 1998 XT₂₈ = 1978 EA₉ = 1979 MZ = 1989 CC₈Id. A. Doppler (d, *MPC* 33786), S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	239.44057		(2000.0)	P	Q	Nakano			
<i>n</i>	0.17763682	ω	156.03865	-0.91537259	+0.40251275				
<i>a</i>	3.1341087	Ω	47.69966	-0.37126961	-0.83551894				
<i>e</i>	0.1389788	<i>i</i>	0.67761	-0.15573022	-0.37402085				
<i>P</i>	5.55	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	2		

Residuals in seconds of arc

1978 03 15	675	0.3-	0.4-	1989 02 12	809	0.1+	0.0	1998 11 21	704	1.7-	0.1+
1978 03 16	675	0.1-	0.5-	1989 02 12	809	0.0	0.0	1998 12 14	704	0.0	0.2-
1979 06 22	805	1.3+	1.6+	1989 02 13	809	0.0	0.9+	1998 12 14	704	0.1+	0.0
1979 06 22	805	0.1-	0.4-	1989 02 13	809	0.2+	0.8+	1998 12 14	704	0.0	0.9+
1979 06 25	805	1.2-	0.2-	1989 02 13	809	0.4+	0.8+	1998 12 14	704	0.1-	0.2-
1989 02 07	809(20.4-	1.3+)		1998 11 18	704	0.3+	0.0	1998 12 14	704	0.2-	2.1+
1989 02 07	809(20.7-	1.0+)		1998 11 18	704	0.3+	0.1-	1998 12 17	704	0.2+	1.4-
1989 02 07	809(20.8-	0.7+)		1998 11 18	704	(0.0	2.8-)	1998 12 17	704	0.4-	0.9+
1989 02 10	809	0.4+	0.2-	1998 11 18	704	0.3-	1.2-	1998 12 17	704	1.0+	0.6-
1989 02 10	809	0.1-	0.3-	1998 11 21	704	0.5+	0.7-	1998 12 17	704	1.0+	1.5-
1989 02 10	809	0.3-	0.6-	1998 11 21	704	0.3+	1.9+				
1989 02 12	809	0.2-	0.0	1998 11 21	704	0.9-	0.4+				

1998 WT₂₃ = 1990 KU₃ = 1991 OG

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	37.68493		(2000.0)	P	Q	Williams			
<i>n</i>	0.19778291	ω	33.50755	-0.09860305	-0.97880217				
<i>a</i>	2.9174955	Ω	62.73362	+0.86291700	-0.17394469				
<i>e</i>	0.1151624	<i>i</i>	11.65096	+0.49563261	+0.10811828				
<i>P</i>	4.98	<i>H</i>	11.9	<i>G</i>	0.15	<i>U</i>	2		

Residuals in seconds of arc

1990 05 28	372	0.2+	0.5+	1998 11 25	704	0.0	0.9-	1998 12 27	699	0.6+	0.4-
1990 05 28	372	(5.8-	4.1+)	1998 11 25	704	0.7+	0.6-	1998 12 27	699	0.7+	0.9-
1991 07 13	675	0.9-	0.9-	1998 11 25	704	0.1+	0.3-	1998 12 27	699	0.4+	0.4-
1991 07 13	675	0.1+	1.2-	1998 12 01	704	0.2+	0.2+	1999 02 07	905	0.1+	0.9-
1991 07 16	675	0.0	0.2+	1998 12 01	704	0.4-	0.8+	1999 02 07	905	0.6-	0.3+
1991 07 16	675	1.2+	0.0	1998 12 01	704	1.1-	0.4+	1999 02 10	888	0.0	0.1-
1998 11 25	704	1.1-	0.7+	1998 12 01	704	0.1-	0.1+	1999 02 10	888	0.2-	0.1+
1998 11 25	704	0.6-	0.2-	1998 12 01	704	0.3+	0.1+				

**1998 WU₂₃ = 1953 FG₁ = 1971 BT = 1976 GL₁ = 1990 FW₃
= 1997 WR₁₇**

Id. T. Kobayashi, S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	356.10148		(2000.0)	P	Q	Williams			
<i>n</i>	0.21278349	ω	129.62642	-0.84993911	-0.52419066				
<i>a</i>	2.7787156	Ω	18.94772	+0.41917279	-0.73388326				
<i>e</i>	0.0751352	<i>i</i>	9.42557	+0.31921418	-0.43201795				
<i>P</i>	4.63	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	2		

1999 MAR. 2

M.P.C. 33973

Residuals in seconds of arc

1953 03 21	760 (17.8– 67.0+)	X	1998 11 25	704	1.0–	0.6+	1999 02 10	704	(0.9+ 2.7+)	
1953 04 05	760	0.8+	1.2+	1998 11 25	704	0.4–	0.9–	1999 02 10	704	(0.5+ 3.1+)
1953 04 05	760	0.3–	1.0–	1998 11 25	704	1.0–	0.2–	1999 02 10	704	(0.5– 2.9+)
1971 01 25	095	(3.0– 4.4+)		1998 11 25	704	0.9–	0.2+	1999 02 10	704	(0.4+ 3.4+)
1976 04 01	095	(5.5+ 3.7+)		1998 11 25	704	1.1–	1.0+	1999 02 10	704	(0.2+ 3.3+)
1976 04 02	095	0.9+	2.4+	1998 12 01	704	0.1–	0.4–	1999 02 13	704	0.8+ 0.1+
1976 04 04	095	(4.3+ 3.8+)		1998 12 01	704	0.8–	0.4–	1999 02 13	704	(0.2– 2.6+)
1990 03 30	095	0.3+	1.2+	1998 12 01	704	0.3+	0.9–	1999 02 13	704	0.8+ 1.6+
1990 03 30	095	(2.2– 5.6–)		1998 12 01	704	0.2+	0.6–	1999 02 13	704	0.2– 0.0
1997 11 23	691	0.3+	0.5+	1998 12 01	704	0.1–	1.2–	1999 02 13	704	0.3– 0.3–
1997 11 23	691	0.1+	0.4+	1998 12 27	699	0.5+	0.2+	1999 02 19	566	0.3+ 0.3–
1997 11 23	691	0.2+	0.5+	1998 12 27	699	0.4+	0.0	1999 02 19	566	0.3+ 0.3–
1997 11 30	691	0.7–	0.4+	1998 12 27	699	0.1+	0.1–	1999 02 19	566	0.1+ 0.3–
1997 11 30	691	0.6–	0.6+	1999 02 07	411	0.3–	0.3–			
1997 11 30	691	0.9–	0.5+	1999 02 07	411	0.1–	1.0–			

1998 WV₂₃ = 1986 EM₅

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M		(2000.0)		P		Q	
M	320.58361	ω	198.14570	Ω	352.53629	i	13.36439
n	0.22228391	ω	198.14570	Ω	352.53629	i	13.36439
a	2.6989657	ω	198.14570	Ω	352.53629	i	13.36439
e	0.1063171	ω	198.14570	Ω	352.53629	i	13.36439
P	4.43	H	13.1	G	0.15	U	4

Residuals in seconds of arc

1986 03 06	809	0.8–	0.4–	1998 12 01	704	0.9–	0.1–	1999 02 10	704	0.0	1.0+
1986 03 06	809	0.1+	0.0	1998 12 27	699	0.6+	0.7–	1999 02 13	704	0.3+	0.3+
1986 03 07	809	0.1+	0.3–	1998 12 27	699	0.7+	0.3+	1999 02 13	704	0.4–	0.1–
1986 03 07	809	0.4+	0.5+	1998 12 27	699	0.5+	0.5+	1999 02 13	704	0.7+	0.1+
1998 11 25	704	0.5–	0.5–	1999 01 15	411	0.3–	0.2–	1999 02 13	704	0.7+	0.9+
1998 11 25	704	(1.5– 2.2+)		1999 01 15	411	0.4+	0.0	1999 02 13	704	0.8–	0.7+
1998 11 25	704	0.3+	0.8+	1999 02 06	411	0.4–	0.3–	1999 02 14	372	0.4–	0.3–
1998 11 25	704	0.7+	0.9–	1999 02 06	411	0.2–	0.0	1999 02 18	566	0.2+	1.2–
1998 12 01	704	0.2+	0.2–	1999 02 10	704	0.2–	0.5+	1999 02 18	566	0.4+	1.1–
1998 12 01	704	0.0	0.5–	1999 02 10	704	0.3–	0.5+	1999 02 18	566	0.3+	1.1–
1998 12 01	704	0.5–	0.8+	1999 02 10	704	0.2–	0.2+	1999 02 19	372	0.2+	0.3+
1998 12 01	704	0.7–	0.6–	1999 02 10	704	0.6+	0.6+	1999 02 22	372	0.6–	0.6+

1998 WE₂₄ = 1976 YR₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M		(2000.0)		P		Q	
M	43.64720	ω	169.73765	Ω	282.34674	i	12.37540
n	0.18478684	ω	169.73765	Ω	282.34674	i	12.37540
a	3.0527321	ω	169.73765	Ω	282.34674	i	12.37540
e	0.1678624	ω	169.73765	Ω	282.34674	i	12.37540
P	5.33	H	12.8	G	0.15	U	4

Residuals in seconds of arc

1976 12 16	095	0.2–	1.0+	1998 12 01	704	0.3–	1.4–	1999 02 12	704	0.4+	0.3+
1976 12 18	095	0.1–	0.8–	1998 12 01	704	0.5–	1.1+	1999 02 16	704	0.0	0.1+
1976 12 20	095	0.3+	0.1–	1998 12 01	704	1.1+	1.3–	1999 02 16	704	0.3+	0.0
1998 11 25	704	1.3–	0.5–	1999 02 12	704	0.0	0.5–	1999 02 16	704	1.2+	0.9+
1998 11 25	704	0.3–	1.2+	1999 02 12	704	0.1–	0.2–	1999 02 16	704	0.8–	0.1–
1998 11 25	704	0.7+	0.2+	1999 02 12	704	0.3–	0.4+	1999 02 16	704	0.6–	0.7–
1998 12 01	704	0.0	0.1–	1999 02 12	704	0.3+	0.4+				

1998 XV₁₀ = 1979 OF₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M		(2000.0)		P		Q	
M	301.05642	ω	84.02844	Ω	118.66800	i	4.70527
n	0.28319169	ω	84.02844	Ω	118.66800	i	4.70527
a	2.2965842	ω	84.02844	Ω	118.66800	i	4.70527
e	0.1143625	ω	84.02844	Ω	118.66800	i	4.70527
P	3.48	H	14.9	G	0.15	U	5

Residuals in seconds of arc

1979 07 24	675	0.5–	1.2+	1998 12 16	910	0.1+	0.0	1999 02 12	699	0.1–	0.2–
1979 07 24	413	1.7–	1.0–	1999 01 13	699	0.8+	1.2+	1999 02 12	699	0.0	0.2+
1979 07 25	675	1.3+	1.3+	1999 01 13	699	0.2–	0.4+	1999 02 12	699	0.2+	0.1+
1979 07 27	675	0.6+	0.9+	1999 01 13	699	0.4+	0.6+	1999 02 13	704	0.5+	0.7+
1998 12 15	910	0.1–	0.4+	1999 02 10	704	0.5–	1.0–	1999 02 13	704	0.1+	0.2+
1998 12 15	910	0.3–	0.4+	1999 02 10	704	0.0	0.1+	1999 02 13	704	0.9+	0.9–
1998 12 15	910	0.2–	0.4+	1999 02 10	704	0.4–	0.2–	1999 02 13	704	0.1+	0.0
1998 12 16	910	0.0	0.3+	1999 02 10	704	0.6–	0.4–	1999 02 13	704	0.0	0.2–
1998 12 16	910	0.1+	0.1+	1999 02 10	704	0.2–	0.3+				

1998 XN₁₆ = 1992 BB₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M		(2000.0)		P		Q	
M	14.71514	ω	162.60381	Ω	285.95586	i	24.84074
n	0.27736743	ω	162.60381	Ω	285.95586	i	24.84074
a	2.3286224	ω	162.60381	Ω	285.95586	i	24.84074
e	0.1860645	ω	162.60381	Ω	285.95586	i	24.84074
P	3.55	H	14.2	G	0.15	U	3

Residuals in seconds of arc

1992 01 29	675	0.5–	1.1–	1998 12 14	704	0.5–	0.5+	1999 01 18	704	1.9+	0.7–
1992 01 29	675	1.9–	1.9–	1998 12 14	704	0.5+	1.4+	1999 01 20	704	0.2–	0.5–
1992 01 29	675	0.4+	0.0	1998 12 17	704	0.3–	0.1+	1999 01 20	704	0.2–	0.7–
1992 01 30	675	0.1+	0.1–	1998 12 17	704	0.8–	0.2+	1999 01 20	704	0.5+	0.1+
1992 01 31	675	0.7–	0.1+	1998 12 17	704	0.7–	0.7–	1999 01 20	704	0.6–	0.1–
1992 01 31	675	0.3+	0.9+	1998 12 17	704	0.8–	0.2–	1999 02 04	704	0.0	1.4+
1992 02 02	675	0.1–	0.3–	1998 12 17	704	2.2–	0.6–	1999 02 04	704	1.5+	0.6+
1992 02 02	675	0.6+	0.1–	1999 01 18	704	0.3+	0.5+	1999 02 04	704	0.9+	3.0+
1998 12 14	704	0.3–	0.5+	1999 01 18	704	0.8+	0.7–	1999 02 04	704	1.2+	0.7+
1998 12 14	704	0.0	0.1–	1999 01 18	704	0.9–	0.3–	1999 02 04	704	1.9+	0.3–
1998 12 14	704	0.5+	0.6+	1999 01 18	704	0.3–	1.0–				

1998 XG₄₉ = 1999 BT₁₆ = 1990 VP₁₄ = 1992 FA₄ = 1994 WM₁₁

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M		(2000.0)		P		Q	
M	49.70761	ω	337.98137	Ω	68.33402	i	7.80276
n	0.25654702	ω	337.98137	Ω	68.33402	i	7.80276
a	2.4529653	ω	337.98137	Ω	68.33402	i	7.80276
e	0.1194134	ω	337.98137	Ω	68.33402	i	7.80276
P	3.84	H	14.4	G	0.15	U	4

Residuals in seconds of arc

1990 11 15	095	(5.3+ 5.1+)		1998 12 14	704	0.7–	0.3–	1999 01 16	704	0.0	0.3+
1990 11 15	095	(2.1+ 5.4–)		1998 12 14	704	0.1–	0.3–	1999 01 16	704	0.0	1.7–
1992 03 30	033	0.0	0.0	1998 12 14	704	0.5–	0.7–	1999 01 16	704	0.2–	0.6+
1992 03 31	033	0.3–	0.4+	1998 12 14	704	0.1+	0.8–	1999 01 16	704	(2.6– 1.9–)	
1992 04 03	033	0.3+	0.2–	1998 12 14	704	0.3–	0.8–	1999 01 19	704	0.1–	0.1–
1994 11 27	010	0.1–	1.0+	1998 12 17	704	0.3+	0.5–	1999 01 19	704	0.3+	0.5+
1994 11 27	010	0.9–	1.1+	1998 12 17	704	0.4+	0.4–	1999 01 19	704	0.6+	0.2+
1994 11 28	010	0.0	0.7+	1998 12 17	704	0.6+	0.1–	1999 01 19	704	0.5–	0.1+
1994 11 28	010	0.3+	0.2–	1998 12 17	704	0.8+	0.2+	1999 01 19	704	0.8–	1.8+
1994 11 28	010	0.1+	0.4–	1998 12 17	704	0.3+	0.3–				
1994 11 29	010	0.3+	0.8–	1999 01 16	704	0.5–	0.7+				

1998 XZ₇₃ = 1999 BC₁₇ = 1970 PV = 1977 DQ₁ = 1979 QC₆Id. A. Doppler (d), G. V. Williams; 1931 TC₂ = 1977 DQ₁ (*MPC* 12578) and1998 FC₃₀ = 1979

M.P.C. 33974

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	89.65185	(2000.0)	P		Q	
<i>n</i>	0.21882372	ω	7.67706	+0.99987758	-0.00343073	
<i>a</i>	2.7273432	Ω	352.46885	-0.00468028	+0.86542544	
<i>e</i>	0.1397433	<i>i</i>	6.68899	+0.01493084	+0.50102599	
<i>P</i>	4.50	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>
Residuals in seconds of arc						
1970 08 10	095	0.1-	1.1-	1998 12 14	704	0.1+
1970 08 28	095	1.4+	1.8-	1998 12 14	704	0.6-
1977 02 18	381	1.5-	1.3-	1998 12 14	704	0.3+
1977 02 18	381	0.7+	1.4-	1998 12 17	704	0.5+
1977 02 19	381	0.2-	0.4-	1998 12 17	704	0.6+
1977 02 19	381	0.9-	0.9-	1998 12 17	704	0.2+
1979 08 19	095	0.1-	0.7+	1998 12 17	704	1.2+
1998 12 14	704	0.6-	0.4-	1998 12 17	704	1.2+
1998 12 14	704	0.8-	0.5-	1999 01 16	704	0.3-

1998 XF₇₇ = 1997 SZ₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	36.86815	(2000.0)	P		Q	
<i>n</i>	0.21883751	ω	267.09648	+0.60665450	-0.78337224	
<i>a</i>	2.7272285	Ω	144.39956	+0.78990913	+0.57484344	
<i>e</i>	0.1607399	<i>i</i>	13.43681	+0.08952028	+0.23639578	
<i>P</i>	4.50	<i>H</i>	18.5	<i>G</i>	0.15	<i>U</i>
Residuals in seconds of arc						
1997 09 27	691	0.3-	0.2-	1998 12 15	825	1.5+
1997 09 27	691	0.3+	0.3+	1998 12 15	825	0.7-
1997 09 27	691	0.3+	0.3+	1998 12 15	704	1.1+
1997 10 04	691	0.3-	0.0	1998 12 15	704	0.6-
1997 10 04	691	0.1-	0.1-	1998 12 15	704	(2.3+ 0.5-)
1997 10 04	691	0.1+	0.3-	1998 12 15	704	0.6+
1998 12 15	825	(0.4+ 2.6-)		1998 12 16	825	0.2-

1998 XG₈₀ = 1991 NL₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	77.12831	(2000.0)	P		Q	
<i>n</i>	0.17531999	ω	232.17682	+0.95758261	+0.16208139	
<i>a</i>	3.1616595	Ω	117.33459	-0.09493954	+0.95810863	
<i>e</i>	0.1525456	<i>i</i>	15.55729	-0.27206992	+0.23613022	
<i>P</i>	5.62	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>
Residuals in seconds of arc						
1991 07 06	809	0.1-	0.5+	1998 12 15	704	1.4+
1991 07 06	809	0.1-	0.4+	1998 12 22	704	0.1-
1991 07 06	809	0.1-	0.1+	1998 12 22	704	0.2+
1991 07 07	809	0.3+	0.6-	1998 12 22	704	0.2-
1998 12 15	704	0.2-	0.3-	1998 12 22	704	0.3+
1998 12 15	704	0.9-	0.5-	1998 12 22	704	0.8-
1998 12 15	704	0.3+	0.2+	1999 01 14	699	0.1-
1998 12 15	704	0.3-	0.2-	1999 01 14	699	0.4+

1998 XQ₈₇ = 1999 BP₂₁ = 1981 UM = 1981 WZ₁

Id. A. Doppler, G. V. Williams (d)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	66.61282	(2000.0)	P		Q	
<i>n</i>	0.29378544	ω	166.48933	+0.96432023	-0.26433261	
<i>a</i>	2.2410379	Ω	208.85083	+0.23998325	+0.89618009	
<i>e</i>	0.1631758	<i>i</i>	1.74036	+0.11177892	+0.35635588	
<i>P</i>	3.35	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>

1999 MAR. 2

Residuals in seconds of arc

1981 10 23	095	(4.9+ 0.9+)	1998 12 15	704	0.3+	0.4-	1999 01 18	704	0.9+	0.9-
1981 10 25	046	0.7-	0.3-	1998 12 15	704	1.1+	0.0	1999 01 18	704	0.6+
1981 10 25	046	0.9+	0.4-	1998 12 22	704	1.2-	0.2-	1999 01 18	704	0.6-
1981 11 23	046	(6.4+ 3.4+)	1998 12 22	704	0.9-	0.3-	1999 01 23	704	0.1-	0.1+
1981 11 23	046	(1.9+ 3.0+)	1998 12 22	704	0.2-	1.8+	1999 01 23	704	1.2+	0.5-
1998 12 15	704	0.1+	1.1+	1998 12 22	704	0.6-	0.1-	1999 01 23	704	(2.0+ 2.2-)
1998 12 15	704	0.0	1.8+	1999 01 18	704	0.1-	0.1-	1999 01 23	704	0.9-
1998 12 15	704	0.9+	0.1+	1999 01 18	704	0.6+	0.5-	1999 01 23	704	0.9-

1998 XA₉₀ = 1999 BT₂₁ = 1996 HE₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	14.08813	(2000.0)	P		Q	
<i>n</i>	0.24294573	ω	222.86324	+0.12878878	-0.98219651	
<i>a</i>	2.5436843	Ω	220.31141	+0.95742566	+0.15908242	
<i>e</i>	0.1452451	<i>i</i>	12.20415	+0.25835934	-0.09991393	
<i>P</i>	4.06	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>
Residuals in seconds of arc						
1996 04 20	809	1.5+	0.5-	1998 12 15	704	0.2-
1996 04 20	809	0.2-	0.6-	1998 12 15	704	0.5+
1996 04 20	809	0.2+	0.5-	1998 12 15	704	0.6-
1996 04 21	809	0.1+	0.5+	1998 12 22	704	1.0+
1996 04 21	809	0.8-	0.8+	1998 12 22	704	1.9-
1996 04 21	809	0.7-	0.2+	1998 12 22	704	0.2-
1998 12 15	704	0.5+	0.0	1999 01 18	704	0.7+
1998 12 15	704	0.5+	0.2+	1999 01 18	704	0.1-

1998 XC₉₆ = 1990 SN₁₉ = 1997 WV₄₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	207.80829	(2000.0)	P		Q	
<i>n</i>	0.17252091	ω	335.97320	+0.37150652	+0.92720193	
<i>a</i>	3.1957654	Ω	315.79424	-0.84034360	+0.31395106	
<i>e</i>	0.1340550	<i>i</i>	3.92646	-0.39472211	+0.20428245	
<i>P</i>	5.71	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>
Residuals in seconds of arc						
1990 09 18	675	0.6+	0.7-	1997 12 04	704	2.6+
1990 09 18	675	0.8+	2.4-	1997 12 04	704	1.5+
1997 11 29	704	0.9+	1.5-	1997 12 04	704	0.8+
1997 11 29	704	2.1-	2.8+	1998 12 12	303	0.8+
1997 11 29	704	2.3-	0.1+	1998 12 12	303	1.3-
1997 11 29	704	2.2-	1.5-	1998 12 13	303	0.5-
1997 11 29	704	0.6-	0.2+	1999 02 10	704	0.8-
1997 12 04	704	1.5+	0.8+	1999 02 10	704	0.8+

1998 XD₉₆ = 1984 BM₃ = 1989 CU₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	83.47696	(2000.0)	P		Q	
<i>n</i>	0.19855985	ω	282.73503	+0.76127122	-0.64661504	
<i>a</i>	2.9098801	Ω	117.57386	+0.61414712	+0.69498214	
<i>e</i>	0.0766455	<i>i</i>	3.13841	+0.20806116	+0.31446592	
<i>P</i>	4.96	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>
Residuals in seconds of arc						
1984 01 25	675	0.6-	1.0-	1999 02 10	704	0.3-
1984 01 26	675	0.0	1.2-	1999 02 10	704	1.1-
1989 02 02	033	0.1-	0.5-	1999 02 10	704	1.0+
1989 02 03	033	0.3+	0.1+	1999 02 10	704	1.0+
1998 12 12	303	0.1+	1.2+	1999 02 10	704	0.9-
1998 12 12	303	0.2-	0.6+	1999 02 12	699	0.7+
1998 12 13	303	0.4+	1.1+	1999 02 12	699	0.3+

1999 MAR. 2

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1998 XH₉₆ = 1996 OH₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>		<i>ω</i>		136.27693		−0.21963772	
<i>a</i>		<i>Ω</i>		120.50803		−0.93587426	
<i>e</i>		<i>i</i>		9.95663		−0.20777625	
<i>P</i>		<i>H</i>		13.5		<i>U</i>	
Residuals in seconds of arc				0.15		4	
1996 07 20	327	0.1−	0.1+	1998 12 13	303	0.3−	0.3−
1996 07 20	327	0.1+	0.3+	1998 12 13	303	0.3+	0.5+
1996 07 20	327	0.3+	0.4−	1999 01 10	699	0.1+	0.1+
1996 07 20	327	0.6+	0.1−	1999 01 10	699	0.4−	0.8−
1996 07 21	327	0.2−	0.1−	1999 01 10	699	0.0	0.0
1996 07 21	327	0.1+	0.2+	1999 02 10	704	0.2−	0.2−
1996 07 21	327	0.5−	0.3−	1999 02 10	704	(2.6−	1.1−)
1996 07 21	327	0.2−	0.0	1999 02 10	704	0.3−	0.7−
1998 12 11	303	0.3+	0.3+	1999 02 10	704	(2.2−	0.4+)
1998 12 12	303	0.0	0.4+	1999 02 11	699	0.7+	0.1+
1998 12 12	303	0.0	0.4−	1999 02 11	699	0.0	1.3+

1998 XN₉₆ = 1982 DU₅ = 1982 HN₂

Id. B. G. Marsden, S. Nakano (d)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>		<i>ω</i>		346.37400		−0.21095958	
<i>a</i>		<i>Ω</i>		115.79353		+0.90074014	
<i>e</i>		<i>i</i>		2.41738		+0.37968836	
<i>P</i>		<i>H</i>		14.4		<i>U</i>	
Residuals in seconds of arc				0.15		4	
1982 02 25	010	0.2−	0.1−	1998 12 13	303	1.4−	1.7+
1982 02 26	010	1.7+	0.4−	1998 12 14	303	0.8−	0.5−
1982 02 27	010	0.8+	0.1−	1998 12 14	303	0.5−	0.6−
1982 02 28	010	0.4+	1.8+	1999 01 10	699	0.8+	0.4−
1982 04 27	033	1.7−	0.0	1999 01 10	699	0.2+	0.1−
1982 04 27	033	1.5−	0.6−	1999 01 10	699	0.3+	0.3−
1998 12 11	303	0.6−	0.5−	1999 02 10	704	0.2−	0.3−
1998 12 12	303	1.6−	0.1−	1999 02 10	704	0.4−	0.3+
1998 12 12	303	0.1−	1.1+	1999 02 10	704	0.0	0.1+
1998 12 13	303	0.5+	0.6+	1999 02 10	704	0.4−	0.1+

1998 YR₁ = 1990 EV₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>		<i>ω</i>		130.91940		+0.32707201	
<i>a</i>		<i>Ω</i>		157.75206		−0.91940931	
<i>e</i>		<i>i</i>		12.63738		−0.21842714	
<i>P</i>		<i>H</i>		12.6		<i>U</i>	
Residuals in seconds of arc				0.15		5	
1990 03 02	809	0.2+	0.2+	1990 03 04	809	0.6+	0.0
1990 03 02	809	0.6+	0.3+	1998 12 16	120	0.0	1.2+
1990 03 02	809	0.3+	0.1+	1998 12 16	120	0.9+	0.4+
1990 03 03	809	0.7−	0.5−	1998 12 16	120	0.1+	0.0
1990 03 03	809	0.7−	0.1−	1998 12 18	120	0.8+	1.0−
1990 03 03	809	0.7−	0.1−	1998 12 18	120	0.9−	0.1+
1990 03 04	809	0.1+	0.3−	1998 12 18	120	1.4+	0.3−
1990 03 04	809	0.3+	0.2−	1998 12 23	120	2.9−	3.0−

1998 YE₂ = 1996 NZ₂

Id. T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>		<i>ω</i>		250.75107		−0.93065084	
<i>a</i>		<i>Ω</i>		309.45327		−0.25612353	
<i>e</i>		<i>i</i>		8.39772		−0.26132309	
<i>P</i>		<i>H</i>		13.9		<i>U</i>	
Residuals in seconds of arc				0.15		4	
1996 07 14	809	1.6−	1.3+	1998 12 17	910	0.3+	0.2−
1996 07 14	809	0.5−	1.8+	1998 12 18	910	0.2+	0.1−
1996 07 14	809	1.2−	1.9+	1998 12 18	910	0.1+	0.2−
1996 07 16	809	(0.6+	2.8−)	1999 01 14	699	1.7+	0.3−
1996 07 16	809	1.5+	1.6−	1999 01 14	699	1.1+	0.4−
1996 07 16	809	(0.1+	2.0−)	1999 01 14	699	1.0+	0.6−
1998 12 17	910	0.3−	0.1+	1999 02 05	327	0.6−	0.1−
1998 12 17	910	0.0	0.2−	1999 02 05	327	1.8−	0.2−
1998 12 17	910	0.0	0.0	1999 02 05	327	1.9−	0.1−

1998 YL₂ = 1977 DW₇ = 1977 EJ₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>		<i>ω</i>		93.89437		−0.98981870	
<i>a</i>		<i>Ω</i>		93.98670		−0.14101622	
<i>e</i>		<i>i</i>		2.20376		−0.01932293	
<i>P</i>		<i>H</i>		16.4		<i>U</i>	
Residuals in seconds of arc				0.15		5	
1977 02 19	381	0.2+	0.4+	1998 12 18	910	1.1+	0.4−
1977 02 19	381	0.9+	0.4−	1998 12 18	910	1.0+	0.6−
1977 03 12	381	1.4−	0.7−	1998 12 21	910	0.0	0.1−
1977 03 12	381	0.1−	0.5−	1998 12 22	910	0.3+	0.1+
1998 12 17	910	0.8−	0.1−	1998 12 22	910	0.3+	0.5+
1998 12 17	910	0.7−	0.2−	1998 12 22	910	0.2+	0.1−
1998 12 17	910	1.2−	0.1+	1998 12 22	910	0.9+	0.2+
1998 12 17	910	0.9−	0.2−	1998 12 22	910	0.2+	0.1+
1998 12 18	910	0.9−	0.5−	1999 02 10	704	0.6+	0.3−
1998 12 18	910	0.7−	0.3−	1999 02 10	704	0.5+	0.1−
1998 12 18	910	1.0+	0.2−	1999 02 10	704	0.8−	0.0

1998 YO₅ = 1982 BV₁₁ = 1991 BZ₃ = 1991 GL₁₂

Id. T. B. Spahr, S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>		<i>ω</i>		337.26129		+0.05100697	
<i>a</i>		<i>Ω</i>		295.03428		−0.87390204	
<i>e</i>		<i>i</i>		14.36690		−0.48341858	
<i>P</i>		<i>H</i>		13.3		<i>U</i>	
Residuals in seconds of arc				0.15		4	
1982 01 20	095	0.3+	0.7+	1999 01 09	411	0.3−	0.2−
1991 01 20	413	1.2−	1.8−	1999 01 18	704	0.4−	0.6−
1991 01 20	413	0.7+	1.3+	1999 01 18	704	0.9−	0.2+
1991 04 10	413	0.2+	0.2−	1999 01 18	704	1.1−	1.1−
1991 04 10	413	0.1+	0.4+	1999 01 18	704	0.1−	1.1−
1998 12 21	411	0.1−	0.0	1999 01 18	704	0.2−	1.0−
1998 12 21	411	0.5+	0.2−	1999 01 18	411	0.1−	0.7−
1998 12 22	411	0.5+	0.1−	1999 01 18	411	0.2−	0.0
1998 12 22	411	0.5−	0.1−	1999 01 20	704	0.5+	0.5−
1998 12 28	411	0.4+	1.1+	1999 01 20	704	0.5−	0.1+
1998 12 28	411	0.4+	0.8+	1999 01 20	704	0.2−	1.9+
1999 01 09	411	0.2−	0.4−	1999 01 20	704	1.0+	0.4−

1998 YN₆ = 1995 MU₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	334.83253		(2000.0)		P		Q				
n	0.17105617	ω	38.37103		-0.92071696		-0.22697161				
a	3.2139828	Ω	125.51781		+0.18450402		-0.96998280				
e	0.0695971	i	22.95443		+0.34385833		-0.08727687				
P	5.76	H	13.4	G	0.15	U	4				
Residuals in seconds of arc											
1995 06 22	327	0.5+	0.0	1998 12 18	910	1.2+	0.4-	1999 02 12	699	0.5-	0.4+
1995 06 22	327	0.8+	0.4-	1998 12 23	910	1.0-	0.2-	1999 02 12	699	0.2-	0.5+
1995 06 22	327	0.7+	0.2+	1998 12 23	910	0.9-	0.0	1999 02 13	704	0.4-	0.4-
1995 06 22	327	0.5-	0.7+	1998 12 23	910	0.8-	0.0	1999 02 13	704	0.1+	0.3+
1995 06 26	327	0.2+	0.1-	1999 02 10	704	0.7+	0.2-	1999 02 13	704	0.3-	0.6+
1995 06 26	327	0.2-	0.6-	1999 02 10	704	0.5+	0.1-	1999 02 13	704	0.0	0.1-
1995 06 26	327	0.9-	0.2-	1999 02 10	704	0.6-	0.7+	1999 02 13	704	0.4-	0.2+
1995 06 26	327	0.6-	0.2+	1999 02 10	704	0.7+	0.3+	1999 02 19	566	0.1+	1.0-
1998 12 18	910	1.1+	0.2-	1999 02 10	704	0.4-	0.6+	1999 02 19	566	0.3+	0.8-
1998 12 18	910	1.2+	0.2-	1999 02 12	699	0.0	0.5+	1999 02 19	566	0.2-	0.9-

1998 YD₁₀ = 1994 ET₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	45.87044		(2000.0)		P		Q				
<i>n</i>	0.19885868	ω	319.40828		+0.61404634		-0.78718939				
<i>a</i>	2.9069642	Ω	92.63141		+0.73817027		+0.54709256				
<i>e</i>	0.0845298	<i>i</i>	3.28665		+0.27937742		+0.28464469				
<i>P</i>	4.96	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1994 03 11	589	0.3-	0.5+	1998 12 25	104	0.2+	0.7+	1999 01 14	104	0.1+	0.2-
1994 03 11	589	0.3+	0.2+	1998 12 26	104	0.4+	0.6+	1999 01 14	104	0.4-	0.3+
1994 03 11	589	0.4-	0.6+	1998 12 26	104	0.0	0.4+	1999 01 14	104	0.4-	0.1+
1994 03 12	589	0.5+	0.7+	1999 01 04	104	0.7-	0.4-	1999 01 14	104	0.8+	0.3-
1994 03 12	589	0.1-	0.1+	1999 01 04	104	0.4-	0.5-	1999 01 18	104	0.6-	0.1-
1994 03 30	589	0.7-	1.3-	1999 01 04	104	0.1-	0.6-	1999 01 18	104	0.4-	0.2-
1994 03 30	589	0.7+	0.2+	1999 01 05	108	(2.2+	3.2-)	1999 01 18	104	0.7-	0.1-
1998 12 25	104	0.4+	0.2+	1999 01 05	108	(0.7-	2.5-)				
1998 12 25	104	0.7+	0.5+	1999 01 05	108	1.1+	1.3-				

1998 YQ₁₂ = 1980 WF₄

Id. S. Nakano, T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	221.72717		(2000.0)		P		Q				
<i>n</i>	0.28233337	ω	165.86049		-0.02164055		+0.98989063				
<i>a</i>	2.3012365	Ω	102.75774		-0.93066682		+0.03127280				
<i>e</i>	0.1024085	<i>i</i>	8.26318		-0.36522728		-0.13834218				
<i>P</i>	3.49	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1980 11 29	675	1.7+	0.1-	1999 01 21	411	0.8-	0.7+	1999 02 10	704	0.5+	1.4+
1980 12 01	675	1.7-	0.1+	1999 01 21	411	0.0	0.1+	1999 02 13	704	1.0-	1.8-
1998 12 28	411	0.2+	0.1-	1999 02 06	120	0.2+	0.0	1999 02 13	704	0.4+	1.0-
1998 12 28	411	0.2+	0.8+	1999 02 06	120	0.8+	0.8-	1999 02 13	704	1.6-	0.0
1998 12 29	411	0.1+	0.0	1999 02 06	120	0.8+	0.2-	1999 02 13	704	(1.2-	2.2-
1998 12 29	411	0.3-	0.4-	1999 02 10	704	1.6+	0.6-	1999 02 13	704	(0.2-	2.6-
1999 01 07	411	0.1+	0.5-	1999 02 10	704	0.4+	0.3-	1999 02 18	566	0.4+	0.0
1999 01 07	411	0.1-	0.4-	1999 02 10	704	0.8-	0.3+	1999 02 18	566	0.2+	0.5+
1999 01 07	411	0.2+	0.1-	1999 02 10	704	1.6-	1.6+	1999 02 18	566	0.1+	0.5+

1998 YU₁₉ = 1996 HW₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	2.75622		(2000.0)		P		Q				
n	0.27786237	ω	50.61525		-0.43579796		-0.89962934				
a	2.3258564	Ω	65.24107		+0.81624413		-0.40783682				
e	0.1552689	i	1.72497		+0.37924353		-0.15600059				
P	3.55	H	15.7	G	0.15	U	4				
Residuals in seconds of arc											
1996 04 17	809	(0.9-	2.5+)	1998 12 16	699	0.7+	0.5+	1999 02 10	704	0.0	1.4+
1996 04 17	809	0.5-	1.5+	1998 12 25	691	0.7+	0.2-	1999 02 10	704	0.0	0.2-
1996 04 17	809	0.9-	0.5+	1998 12 25	691	0.5+	0.1+	1999 02 10	704	(2.7+	0.7-)
1996 04 18	809	0.2+	0.9-	1998 12 25	691	0.4+	0.0	1999 02 10	704	1.3+	1.4-
1996 04 18	809	0.4+	0.1-	1998 12 28	691	0.6-	0.1-	1999 02 13	704	1.0+	1.0-
1996 04 18	809	1.0+	0.6-	1998 12 28	691	0.5-	0.2-	1999 02 13	704	0.0	0.1+
1998 12 16	699	0.9-	0.6+	1998 12 28	691	0.4-	0.2-	1999 02 13	704	1.6-	0.1-
1998 12 16	699	0.0	0.5+	1999 02 10	704	0.0	0.5-	1999 02 13	704	0.6-	0.7+

1998 YT₂₀ = 1953 PM₁ = 1996 NJ₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	187.30870		(2000.0)		P		Q				
n	0.18404478	ω	345.80926		+0.41258710		+0.90171459				
a	3.0609322	Ω	308.39307		-0.81885864		+0.30502674				
e	0.1168680	i	9.48535		-0.39905189		+0.30638127				
P	5.36	H	12.9	G	0.15	U	4				
Residuals in seconds of arc											
1953 08 15	675	0.1-	0.7-	1996 07 16	809	0.9-	0.2+	1999 02 10	704	1.0+	0.4-
1953 08 15	675	0.2+	0.4+	1998 12 25	691	0.7-	0.5+	1999 02 10	704	0.9+	0.3-
1996 07 14	809	0.9+	0.6-	1998 12 25	691	0.7-	0.3+	1999 02 10	704	0.1+	0.3-
1996 07 14	809	0.5+	0.5-	1998 12 28	691	0.6-	0.4+	1999 02 10	704	0.9-	0.2-
1996 07 14	809	0.0	0.0	1998 12 28	691	0.5-	0.5+	1999 02 13	704	0.5+	0.4+
1996 07 16	809	0.5-	0.5+	1998 12 28	691	0.6-	0.4+	1999 02 13	704	0.5+	1.8-
1996 07 16	809	0.0	0.3+	1999 02 10	704	1.0+	0.0	1999 02 13	704	0.2-	0.2+

1998 YL₂₇ = 1983 RP₁ = 1988 VW₄

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	152.80072		(2000.0)		P		Q				
<i>n</i>	0.21501881	ω	120.43518		+0.79833317		+0.60201736				
<i>a</i>	2.7594239	Ω	202.56164		-0.56542762		+0.74047746				
<i>e</i>	0.0742824	<i>i</i>	2.31046		-0.20725770		+0.29877789				
<i>P</i>	4.58	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1983 09 09	801	0.1-	0.2+	1988 11 10	046	(1.2-	2.7-)	1999 01 07	120	0.3-	0.0
1988 11 02	372	2.0+	0.0	Y 1988 11 10	046	(6.9-	0.5-)	1999 01 13	691	1.1-	0.0
1988 11 02	372	0.6-	0.9+	Y 1988 12 25	120	0.1+	0.7+	1999 01 13	691	1.0-	0.2+
1988 11 04	046	0.1-	1.2+	1998 12 25	120	1.4+	0.6+	1999 01 13	691	1.2-	0.0
1988 11 04	046	1.0-	1.1-	1998 12 26	120	0.9-	0.3+	1999 01 16	120	1.2+	0.1+
1988 11 05	372	(2.5+	3.8+)	Y 1999 01 05	120	1.2+	0.0	1999 01 21	120	0.5-	0.5-
1988 11 05	046	0.4+	0.8-	1999 01 05	120	0.1-	0.1+	1999 01 21	120	0.5-	0.7-
1988 11 05	046	0.7-	0.6-	1999 01 06	120	0.6-	0.3+	1999 01 23	120	1.1+	0.4-
1988 11 06	372	(0.3+	5.2+)	Y 1999 01 06	120	0.0	0.6+	1999 01 23	120	1.3+	0.7-

1998 YW₂₉ = 1993 TR₁₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	31.57426		(2000.0)		P		Q	
<i>n</i>	0.24066690	ω	72.09958		-0.12970712		-0.98873942	
<i>a</i>	2.5597161	Ω	25.70893		+0.83211998		-0.14947567	
<i>e</i>	0.0683845	<i>i</i>	9.90703		+0.53921462		-0.00716756	
<i>P</i>	4.10	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	5	

1999 MAR. 2

M.P.C. 33977

Residuals in seconds of arc

1993 10 09	809	0.6+	0.1-	1993 10 20	809	0.7+	0.7+	1999 02 10	704	0.7+	0.3+
1993 10 09	809	0.2-	0.0	1998 12 27	699	0.1-	0.7-	1999 02 10	704	0.1-	1.6+
1993 10 09	809	2.0-	0.1+	1998 12 27	699	0.4-	0.2-	1999 02 10	704	1.0+	0.6+
1993 10 11	809	0.2-	0.3-	1998 12 27	699	0.2-	0.3-	1999 02 13	704	0.2+	0.9-
1993 10 11	809	0.4+	0.8-	1999 01 09	699	0.3-	0.1+	1999 02 13	704	0.1+	1.6+
1993 10 11	809	0.1+	1.5-	1999 01 09	699	0.3+	0.8-	1999 02 13	704	0.1-	0.9+
1993 10 20	809	0.0	1.3+	1999 01 09	699	0.3-	0.6+	1999 02 13	704	0.6-	0.4-
1993 10 20	809	0.4+	0.8+	1999 02 10	704	0.4+	0.8-	1999 02 13	704	0.8-	1.8-

1999 AD = 1972 AK

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 14.74855			(2000.0)			P		Q	
<i>n</i>	0.28923152	ω	237.14182	+0.37346721	-0.92756356				
<i>a</i>	2.2644999	Ω	190.94881	+0.87107103	+0.35517219				
<i>e</i>	0.1042950	<i>i</i>	3.67350	+0.31899451	+0.11609720				
<i>P</i>	3.41	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1972 01 14	029	0.8-	0.6-	1998 11 24	704	0.4-	0.2+	1998 12 15	704	0.1+	1.5+
1972 01 15	029	1.4-	1.6+	1998 11 24	704	0.3-	1.0-	1998 12 22	704	0.5-	0.1+
1972 01 16	029	1.8-	1.1-	1998 11 24	704	0.1+	0.9-	1998 12 22	704	1.2-	0.7+
1972 01 17	029	3.8+	0.7-	1998 11 24	704	1.0-	1.6-	1998 12 22	704	1.4-	1.3+
1998 08 31	704	0.9-	0.1-	1998 12 15	704	0.3-	0.6+	1999 01 05	120	0.5+	0.3-
1998 08 31	704	1.5+	2.1-	1998 12 15	704	0.9+	1.1+	1999 01 05	120	0.6+	0.3-
1998 08 31	704	0.6-	1.0+	1998 12 15	704	1.5+	0.4+	1999 01 05	120	0.7+	0.7-
1998 08 31	704	0.4+	0.3+	1998 12 15	704	0.0	0.5+	1999 01 06	120	0.5+	0.5-

1999 AJ = 1990 SV₂₇ = 1990 SP₂₈

Id. T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 64.56226			(2000.0)			P		Q	
<i>n</i>	0.26378570	ω	228.50103	+0.85032816	-0.52609773				
<i>a</i>	2.4078821	Ω	163.22851	+0.49505793	+0.79145346				
<i>e</i>	0.2140855	<i>i</i>	2.53747	+0.17849278	+0.31116329				
<i>P</i>	3.74	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	1		

Residuals in seconds of arc

1990 09 23	095	(0.4+	7.9-)	1999 01 05	120	0.9+	0.2-	1999 01 18	691	0.9-	0.1-
1990 09 24	095	1.1-	1.6+	1999 01 05	120	1.8+	0.5+	1999 01 18	691	0.8-	0.1+
1990 09 24	095	0.8+	0.9-	1999 01 06	120	0.8+	0.3-	1999 01 18	691	0.6-	0.2+
1992 04 09	691	0.1+	0.4+	1999 01 06	120	0.1+	0.6-	1999 01 21	120	0.4+	0.4+
1992 04 09	691	0.1+	0.2+	1999 01 07	120	0.5+	0.1-	1999 01 21	120	0.1-	0.0
1992 04 09	691	0.0	0.0	1999 01 10	691	0.8-	0.1+	1999 01 21	120	0.5+	0.0
1997 07 02	704	0.2-	0.7+	1999 01 10	699	1.1+	0.8-	1999 01 22	120	0.4-	0.2+
1997 07 02	704	0.3-	1.6+	1999 01 10	691	0.6-	0.1+	1999 01 22	120	1.0-	0.2-
1997 07 02	704	0.2+	0.0	1999 01 10	699	0.7+	0.3+	1999 01 22	120	0.1+	0.2+
1997 07 02	704	0.1+	0.2-	1999 01 10	691	0.5-	0.2-	1999 01 23	120	0.8+	0.1+
1998 12 16	699	0.3-	1.1+	1999 01 10	699	0.2+	0.1+	1999 01 23	120	0.5+	0.1+
1998 12 16	699	0.2-	1.5+	1999 01 13	691	1.2-	0.4+	1999 02 06	120	0.1+	0.2+
1998 12 16	699	1.2+	0.8-	1999 01 13	691	1.5-	0.2+	1999 02 06	120	0.5-	0.3-
1999 01 05	120	(2.6+	0.5+)	1999 01 13	691	1.4-	0.2+	1999 02 06	120	1.7+	0.1+

1999 AU₂ = 1982 BK₄

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 75.81510			(2000.0)			P		Q	
<i>n</i>	0.23474187	ω	16.73836	+0.62464106	-0.77805798				
<i>a</i>	2.6026095	Ω	34.68863	+0.70237603	+0.52243513				
<i>e</i>	0.1291753	<i>i</i>	6.73082	+0.34130845	+0.34883709				
<i>P</i>	4.20	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1982 01 26	381	0.7+	0.8-	1999 01 21	411	0.2+	1.4-	1999 02 10	704	0.4-	0.2-
1982 01 26	381	0.1-	0.1+	1999 01 22	699	0.1+	0.2+	1999 02 10	704	0.4+	0.8+
1982 01 28	381	0.8-	0.1+	1999 01 22	699	0.9+	0.5+	1999 02 10	704	1.1+	0.3-
1999 01 09	411	0.3+	0.2-	1999 01 22	699	0.6-	0.1+	1999 02 13	704	0.1-	0.0
1999 01 09	411	0.4-	0.3+	1999 02 09	411	0.9-	0.0	1999 02 13	704	1.1-	0.6+
1999 01 10	411	0.9+	0.5+	1999 02 09	411	0.2-	0.1+	1999 02 13	704	0.5+	1.3-
1999 01 10	411	0.4-	1.9+	1999 02 10	704	0.5-	0.6+	1999 02 13	704	0.2+	0.3-
1999 01 21	411	0.5+	0.7-	1999 02 10	704	0.4-	0.0	1999 02 13	704	0.3+	0.4-

1999 AC₃ = 1995 FR

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 109.20762			(2000.0)			P		Q	
<i>n</i>	0.22919249	ω	212.08999	+0.95075086	+0.24606885				
<i>a</i>	2.6444526	Ω	132.43598	-0.20172527	+0.95289557				
<i>e</i>	0.2023627	<i>i</i>	14.79584	-0.23532897	+0.17731373				
<i>P</i>	4.30	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1995 03 22	104	0.3+	0.8+	1995 03 24	104	0.8+	0.6-	1999 01 11	747	0.2-	0.7-
1995 03 22	104	0.0	0.5+	1995 03 30	104	0.7-	0.7+	1999 01 11	747	0.1-	0.3+
1995 03 22	104	0.4-	0.3+	1995 03 30	104	0.3-	0.6+	1999 01 19	747	0.2-	0.1-
1995 03 22	104	0.5-	0.6-	1995 03 30	104	0.2+	0.4+	1999 01 19	747	0.1+	0.2-
1995 03 23	104	0.3-	0.6-	1995 03 30	104	0.7+	0.5-	1999 01 25	747	0.1+	0.4-
1995 03 23	104	0.3-	0.4-	1995 04 04	104	0.9-	0.9+	1999 01 25	747	0.3-	0.2-
1995 03 23	104	0.4-	0.6-	1995 04 04	104	0.5-	0.6+	1999 02 06	747	0.3-	0.3+
1995 03 23	104	0.5-	0.7-	1995 04 04	104	0.1-	0.4+	1999 02 06	747	0.1+	0.1-
1995 03 24	104	0.7+	0.3-	1995 04 04	104	0.4+	0.1+	1999 02 08	747	0.5+	0.1+
1995 03 24	104	0.8+	0.5-	1999 01 10	747	0.1-	0.0	1999 02 08	747	0.2+	0.1+
1995 03 24	104	0.7+	0.3-	1999 01 10	747	0.1-	0.5+	1999 02 08	747	0.4+	0.6+

1999 AK₃ = 1991 CK₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 349.23681			(2000.0)			P		Q	
<i>n</i>	0.21588788	ω	176.33508	+0.49724361	-0.84199700				
<i>a</i>	2.7520134	Ω	243.74256	+0.78996693	+0.53910871				
<i>e</i>	0.1647207	<i>i</i>	13.49362	+0.35874927	-0.02007093				
<i>P</i>	4.57	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	6		

Residuals in seconds of arc

1991 02 11	413	0.3-	0.6-	1999 01 08	704	0.1-	0.2+	1999 01 11	704	0.2+	0.6-
1991 02 12	413	0.3+	0.6+	1999 01 08	704	0.8-	0.6+	1999 01 11	704	1.0-	1.1-
1999 01 02	699	0.7-	0.7+	1999 01 08	704	2.1+	0.1+	1999 01 11	704	0.3+	1.7+
1999 01 02	699	0.3+	1.1-	1999 01 08	704	(1.2-	2.6-)	1999 01 11	704	0.0	0.7-
1999 01 02	699	0.3+	0.7-	1999 01 08	704	0.6-	0.8+				

1999 AA₄ = 1988 KU

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 240.18817			(2000.0)			P		Q	
<i>n</i>	0.25235367	ω	283.75820	-0.01783131	+0.99951909				
<i>a</i>	2.4800645	Ω	345.15002	-0.87483863	-0.02788214				
<i>e</i>	0.1768170	<i>i</i>	5.68100	-0.48408617	+0.01357122				
<i>P</i>	3.91	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1988 05 21	474	0.3-	1.3+	1999 01 10	411	0.6+	0.5-	1999 02 08	411	0.0	0.1-
1988 05 21	474	(3.4+	0.9+)	1999 01 11	411	1.0-	0.9+	1999 02 08	411	0.4-	0.5-
1988 05 24	474	0.3+	1.7-	1999 01 11	411	0.9-	0.5+	1999 02 12	699	0.5+	0.1+
1988 05 24	474	0.0	0.4+	1999 01 18	411	0.5-	0.4+	1999 02 12	699	0.1-	0.1+
1999 01 10	411	0.5+	0.1+	1999 01 18	411	1.0+	1.2-	1999 02 12	699	0.1+	0.3+

M.P.C. 33978

1999 AR₄ = 1989 YS₂

Id. S. Nakano, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22051473	ω	330.53447	+0.16210394	−0.97496252		
<i>a</i>	2.7133823	Ω	109.78234	+0.93405076	+0.10185821		
<i>e</i>	0.1972489	<i>i</i>	9.30934	+0.31823181	+0.19766888		
<i>P</i>	4.47	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1989 12 30	413	0.7−	0.8+	1999 01 18	411	0.7+	0.4+	1999 02 10	704	0.1+	0.8−
1989 12 30	413	0.3−	1.1+	1999 01 22	699	0.3+	0.3+	1999 02 10	704	0.2−	0.8−
1989 12 31	413	0.1+	1.1−	1999 01 22	699	0.6−	0.7+	1999 02 10	704	0.9+	0.4−
1989 12 31	413	0.9+	0.9−	1999 01 22	699	0.7−	0.4+	1999 02 10	704	0.2−	0.5−
1999 01 11	411	0.4−	0.1+	1999 01 28	411	0.2−	0.5+	1999 02 13	704	0.8+	0.3−
1999 01 11	411	0.0	0.4−	1999 01 28	411	0.4−	0.3+	1999 02 13	704	0.0	0.1+
1999 01 12	411	0.7+	0.5−	1999 02 06	411	0.6−	0.0	1999 02 13	704	0.3+	0.7+
1999 01 12	411	0.5−	0.3−	1999 02 06	411	0.5−	0.3−	1999 02 13	704	0.0	0.3+
1999 01 18	411	0.8+	0.0	1999 02 10	704	0.4+	0.1−	1999 02 13	704	0.6−	0.7+

1999 AZ₅ = 1988 DH₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	6.17453	ω	359.66109	−0.65095618	−0.75884882		
<i>a</i>	3.0703631	Ω	130.95253	+0.69653732	−0.60761871		
<i>e</i>	0.0865895	<i>i</i>	1.52600	+0.30181420	−0.23440983		
<i>P</i>	5.38	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1988 02 17	809	0.4+	0.0	1999 01 15	691	0.2+	0.0	1999 02 12	699	0.1+	0.2−
1988 02 17	809	0.0	0.4+	1999 01 15	691	0.6+	0.0	1999 02 12	699	0.3+	0.0
1988 02 17	809	0.8−	1.7+	1999 01 23	691	0.9−	0.1+	1999 02 12	699	1.0+	1.1+
1988 02 21	809	0.0	0.6−	1999 01 23	691	1.0−	0.1+	1999 02 13	704	0.1−	0.7−
1988 02 21	809	0.4−	0.2+	1999 01 23	691	1.0−	0.1−	1999 02 13	704	1.3+	0.2+
1988 02 21	809	(3.3−	2.2+)	1999 02 10	704	0.3+	0.1+	1999 02 13	704	1.5−	0.3−
1988 02 23	809	0.9+	0.7−	1999 02 10	704	0.4−	0.5−	1999 02 13	704	0.2+	0.4+
1988 02 23	809	0.3+	1.0−	1999 02 10	704	0.9+	0.0	1999 02 13	704	0.4−	0.2−
1988 02 23	809	0.5−	0.1−	1999 02 10	704	0.1−	0.1+				
1999 01 15	691	0.4+	0.0	1999 02 10	704	(3.1−	0.3+)				

1999 AV₆ = 1996 LP₃

Id. T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26363574	ω	34.69733	−0.93307455	−0.34401408		
<i>a</i>	2.4087951	Ω	124.84228	+0.29419683	−0.89790239		
<i>e</i>	0.0718043	<i>i</i>	7.35070	+0.20693023	−0.27463723		
<i>P</i>	3.74	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 06 11	691	0.3−	0.0	1999 01 13	120	0.0	0.6+	1999 02 08	120	1.2+	0.2−
1996 06 11	691	0.2+	0.0	1999 01 13	120	0.2−	0.2−	1999 02 10	704	0.0	0.3−
1996 06 11	691	0.3+	0.4−	1999 01 13	120	0.4−	0.4+	1999 02 10	704	0.3+	0.6+
1996 06 17	691	0.0	0.3+	1999 01 13	120	0.5+	0.3−	1999 02 10	704	0.5−	0.5−
1996 06 17	691	0.1−	0.1+	1999 01 15	120	0.0	1.7−	1999 02 13	704	0.7−	1.1−
1999 01 09	120	0.4−	0.5+	1999 01 15	120	0.8−	0.3+	1999 02 13	704	0.1−	0.1−
1999 01 09	120	0.2−	0.6+	1999 01 21	120	0.5+	0.3−	1999 02 13	704	0.7−	0.5+
1999 01 09	120	0.2+	0.2−	1999 01 21	120	0.5+	0.6−	1999 02 13	704	0.0	0.7+
1999 01 11	120	0.1+	0.4+	1999 02 08	120	0.8+	0.2−	1999 02 13	704	0.3−	1.0+

1999 AY₆ = 1952 UM₁ = 1978 ND₂ = 1982 RG₁

Id. T. B. Spahr, A. Doppler

1999 MAR. 2

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26182734	ω	129.68461	+0.92520908	+0.37925171		
<i>a</i>	2.4198738	Ω	208.03462	−0.35578126	+0.85555357		
<i>e</i>	0.2176110	<i>i</i>	1.52422	−0.13193881	+0.35241484		
<i>P</i>	3.76	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1952 10 17	024	0.9−	2.3+	1982 09 21	095	(1.2+	3.3+)	1999 01 15	120	0.9−	0.4+
1978 07 06	095	0.2−	1.1+	1999 01 09	120	0.4−	0.0	1999 01 15	120	0.5+	0.2−
1982 09 14	046	0.2+	0.1+	1999 01 09	120	0.2+	0.3−	1999 01 23	120	1.6+	0.3−
1982 09 14	046	1.9+	1.6−	1999 01 10	120	0.8−	0.3+	1999 01 23	120	1.1−	0.1−
1982 09 15	046	0.2−	0.4+	1999 01 10	699	0.2+	0.2−	1999 02 06	120	0.3−	0.0
1982 09 15	046	0.3+	0.0	1999 01 10	699	0.1−	0.2−	1999 02 06	120	0.6−	0.0
1982 09 16	046	1.5−	0.4−	1999 01 10	699	0.3+	0.9+	1999 02 11	699	0.4+	0.6−
1982 09 16	046	0.4+	0.8−	1999 01 13	120	0.4+	0.6−	1999 02 11	699	1.6+	1.0+
1982 09 19	095	(3.2+	3.8+)	1999 01 14	120	0.2+	0.2−	1999 02 11	699	1.2−	0.0

1999 AA₇ = 1990 WF₁₄

Id. T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26223463	ω	147.99322	+0.96987428	−0.24271897		
<i>a</i>	2.4173676	Ω	226.06885	+0.21698346	+0.89949125		
<i>e</i>	0.2125704	<i>i</i>	1.65261	+0.11073414	+0.36332215		
<i>P</i>	3.76	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1990 11 21	095	0.5+	0.4+	1999 01 13	120	(3.1+	0.7−)	1999 01 15	120	1.1+	0.0
1990 11 21	095	0.0	1.6−	1999 01 13	120	1.0−	0.8+	1999 01 23	120	1.8−	0.4−
1990 11 23	095	0.6−	1.3+	1999 01 14	120	0.6+	0.5+	1999 02 06	120	0.4+	0.2−
1990 11 23	095	(3.1+	0.7−)	1999 01 14	120	0.0	0.4+	1999 02 06	120	0.8+	1.3+
1999 01 09	120	0.5+	0.6−	1999 01 15	120	(1.3−	3.4+)	1999 02 11	699	0.2+	1.2−
1999 01 09	120	0.3−	0.1+	1999 01 15	120	0.3+	1.0−	1999 02 11	699	0.5−	0.9+
1999 01 10	120	0.6+	0.6−	1999 01 15	120	1.1−	0.2+	1999 02 11	699	0.2+	0.1−

1999 AC₇ = 1996 LE₃

Id. T. B. Spahr, A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26369066	ω	359.07045	−0.76228967	−0.64184149		
<i>a</i>	2.4084606	Ω	140.58811	+0.59467181	−0.74540457		
<i>e</i>	0.0764308	<i>i</i>	7.54738	+0.25549932	−0.18003199		
<i>P</i>	3.74	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 06 08	691	0.1−	0.4+	1999 01 09	120	0.3−	0.3+	1999 01 16	120	0.0	0.3−
1996 06 08	691	0.0	1.0−	1999 01 10	120	0.4−	0.4−	1999 01 16	120	0.3+	0.1+
1996 06 08	691	0.0	0.1+	1999 01 13	120	0.3−	0.1−	1999 01 20	120	0.4−	0.8+
1996 06 16	691	0.2+	0.0	1999 01 14	120	0.2+	0.3−	1999 01 20	120	0.8+	1.1+
1996 06 16	691	0.0	0.3+	1999 01 14	120	0.1+	1.0−	1999 02 06	120	0.5−	0.1−
1996 06 16	691	0.1−	0.2+	1999 01 14	120	1.0+	0.0	1999 02 06	120	0.1−	0.4−
1999 01 09	120	0.2−	0.2−	1999 01 15	120	0.2−	0.4+				

1999 AS₉ = 1978 WP₁₃ = 1993 KP₁ = 1996 JG₁₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30535398	ω	179.66494	+0.03501402	+0.99395811		
<i>a</i>	2.1840722	Ω	92.33981	−0.91716149	+0.07330481		
<i>e</i>	0.1022702	<i>i</i>	5.97602	−0.39697458	−0.08169259		
<i>P</i>	3.23	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	3

1999 MAR. 2

M.P.C. 33979

Residuals in seconds of arc

1978 11 29	675	0.7−	0.3−	1996 05 21	327	0.2+	0.4−	1999 01 17	327	0.1−	0.3−
1978 11 30	675	0.6+	0.5+	1996 05 21	327	0.0	0.1−	1999 02 10	704	1.1−	0.7+
1993 05 25	691	0.3−	0.4+	1996 05 21	327	2.0−	1.1−	1999 02 10	704	0.5+	0.4−
1993 05 25	691	0.0	0.3+	1999 01 10	327	0.0	0.5−	1999 02 10	704	0.4+	0.2+
1993 05 25	691	0.6+	0.0	1999 01 10	327	0.5+	0.9+	1999 02 10	704	1.0−	0.5+
1993 05 26	691	0.0	0.1−	1999 01 10	327	0.2−	0.3+	1999 02 10	704	1.9+	1.9+
1993 05 26	691	0.1−	0.1+	1999 01 11	327	0.3−	0.2−	1999 02 13	704	1.0+	0.5+
1993 05 26	691	0.0	0.3+	1999 01 11	327	0.7+	0.7−	1999 02 13	704	0.8−	1.2−
1996 05 15	327	0.4+	0.2+	1999 01 11	327	0.3+	0.2−	1999 02 13	704	0.2−	0.8+
1996 05 15	327	0.7+	0.1−	1999 01 17	327	0.0	1.0−	1999 02 13	704	0.4+	1.5−
1996 05 15	327	0.1+	0.2+	1999 01 17	327	0.5−	0.0	1999 02 13	704	1.2−	0.5+

1999 AU₉ = 1978 WO₆

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	105.72265	(2000.0)	P	Q	
<i>n</i>	0.30339389	<i>ω</i>	308.41153	+0.90514284	−0.41518794
<i>a</i>	2.1934690	<i>Ω</i>	76.28797	+0.41342379	+0.80971970
<i>e</i>	0.1282213	<i>i</i>	5.39244	+0.09898090	+0.41469625
<i>P</i>	3.25	<i>H</i>	14.8	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1978 11 29	675	0.4−	0.3−	1999 01 18	327	0.3−	0.7+	1999 02 10	704	0.9−	0.6−
1978 11 30	675	0.4+	0.3+	1999 01 18	327	0.8+	0.1−	1999 02 10	704	1.0−	0.0
1999 01 10	327	0.1+	0.3−	1999 01 26	327	0.4+	0.1−	1999 02 13	704	0.4+	0.6+
1999 01 10	327	0.1+	0.2−	1999 01 26	327	0.3−	0.4+	1999 02 13	704	0.2+	0.0
1999 01 10	327	0.1−	0.1−	1999 01 26	327	0.2+	0.4+	1999 02 13	704	0.8−	1.7−
1999 01 11	327	0.6−	0.3−	1999 02 10	704	0.0	0.5+	1999 02 13	704	0.7+	0.2+
1999 01 11	327	0.3+	0.1+	1999 02 10	704	0.2+	0.0	1999 02 13	704	0.1+	0.3−
1999 01 11	327	0.3−	0.4+	1999 02 10	704	0.8+	0.4+				

1999 AD₁₀ = 1997 XL₆

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	5.95074	(2000.0)	P	Q	
<i>n</i>	0.12483283	<i>ω</i>	253.85806	−0.46765433	−0.88231083
<i>a</i>	3.9650638	<i>Ω</i>	224.15070	+0.83734434	−0.42294789
<i>e</i>	0.2103088	<i>i</i>	4.37783	+0.28311461	−0.20650106
<i>P</i>	7.90	<i>H</i>	14.3	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1997 12 05	910	0.0	0.6−	1997 12 07	910	0.1+	0.6+	1999 01 14	120	0.4−	1.2+
1997 12 05	910	0.1−	0.3−	1999 01 13	120	1.1+	0.1+	1999 01 16	120	0.6−	0.2+
1997 12 05	910	0.3−	0.4−	1999 01 14	120	1.0−	0.9−	1999 01 17	120	0.1+	0.8+
1997 12 07	910	0.1+	0.5+	1999 01 14	120	0.8+	0.1−	1999 01 20	120	0.1−	1.2−
1997 12 07	910	0.2+	0.3+	1999 01 14	120	(2.5−	0.8+)	1999 01 20	120	(3.9+	0.1−)

1999 AH₁₃ = 1996 RE₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Doppler		
<i>M</i>	322.42556	(2000.0)	P	Q	
<i>n</i>	0.17517737	<i>ω</i>	22.64526	−0.98443196	−0.17418637
<i>a</i>	3.1633752	<i>Ω</i>	147.29594	+0.15386307	−0.91868002
<i>e</i>	0.0857765	<i>i</i>	2.49412	+0.08496980	−0.35452240
<i>P</i>	5.63	<i>H</i>	15.4	<i>G</i>	0.15
				<i>U</i>	6

Residuals in seconds of arc

1996 09 07	691	0.2−	0.0	1996 09 08	691	0.2+	0.0	1999 01 14	691	0.7+	0.2+
1996 09 07	691	0.3−	0.2+	1999 01 07	691	0.1+	0.1+	1999 01 14	691	0.6+	0.2+
1996 09 07	691	0.2−	0.1+	1999 01 07	691	0.2−	0.0	1999 01 17	691	0.8−	0.3−
1996 09 08	691	0.3+	0.5−	1999 01 07	691	0.3−	0.1+	1999 01 17	691	0.6−	0.4−
1996 09 08	691	0.2+	0.1+	1999 01 14	691	0.5+	0.2+				

1999 AR₁₅ = 1997 UK₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Doppler		
<i>M</i>	186.35421	(2000.0)	P	Q	
<i>n</i>	0.28654784	<i>ω</i>	338.49733	+0.44510781	+0.89483615
<i>a</i>	2.2786168	<i>Ω</i>	317.91282	−0.81404004	+0.38857816
<i>e</i>	0.1632816	<i>i</i>	2.89671	−0.37311908	+0.21971636
<i>P</i>	3.44	<i>H</i>	15.5	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1997 10 17	327	0.1+	0.2+	1999 01 09	691	0.1+	0.3+	1999 01 19	691	0.2−	0.1−
1997 10 17	327	0.2−	0.2−	1999 01 09	691	0.3−	0.2−	1999 01 19	691	0.3−	0.2−
1997 10 17	327	0.1−	0.2+	1999 01 09	691	0.5−	0.3+	1999 01 23	691	0.1−	0.3−
1997 10 17	327	0.4−	0.2−	1999 01 15	691	0.7+	0.1−	1999 01 23	691	0.0	0.1−
1997 10 19	327	0.5+	0.0	1999 01 15	691	0.5+	0.2+	1999 01 23	691	0.1−	0.1+
1997 10 19	327	0.0	0.1+	1999 01 15	691	0.6+	0.1+				
1997 10 19	327	0.1+	0.2−	1999 01 19	691	0.4−	0.0				

1999 AB₁₆ = 1995 DM₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Doppler		
<i>M</i>	328.59697	(2000.0)	P	Q	
<i>n</i>	0.23976206	<i>ω</i>	222.62479	−0.96700163	−0.25254076
<i>a</i>	2.5661522	<i>Ω</i>	302.71799	+0.24319147	−0.87563338
<i>e</i>	0.1797024	<i>i</i>	2.29087	+0.07593260	−0.41169083
<i>P</i>	4.11	<i>H</i>	20.4	<i>G</i>	0.15
				<i>U</i>	6

Residuals in seconds of arc

1995 02 21	691	0.2+	0.4+	1999 01 09	691	0.1−	0.7−	1999 01 15	691	1.0−	0.2+
1995 02 21	691	0.2−	0.1−	1999 01 09	691	0.1−	0.2+	1999 01 16	691	1.0+	0.1+
1995 02 21	691	0.0	0.2−	1999 01 09	691	0.3+	0.2−	1999 01 16	691	1.0+	0.1+
1995 03 01	691	0.4−	0.6−	1999 01 15	691	1.0−	0.2+	1999 01 16	691	0.9+	0.2+
1995 03 01	691	0.4+	0.4+	1999 01 15	691	1.0−	0.0				

1999 AX₁₈ = 1997 TY₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Doppler		
<i>M</i>	26.99929	(2000.0)	P	Q	
<i>n</i>	0.21263744	<i>ω</i>	322.23684	−0.06252121	−0.99611887
<i>a</i>	2.7799878	<i>Ω</i>	131.25780	+0.93459125	−0.08021395
<i>e</i>	0.0196134	<i>i</i>	4.72728	+0.35018608	+0.03623416
<i>P</i>	4.64	<i>H</i>	20.0	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1997 10 02	910	0.5−	0.6−	1997 10 04	910	0.4+	0.6+	1999 01 14	691	0.0	0.1+
1997 10 02	910	0.3−	0.2−	1999 01 13	691	0.5+	0.1−	1999 01 14	691	0.4−	0.2−
1997 10 02	910	0.2−	0.3−	1999 01 13	691	0.0	0.1−	1999 01 22	691	0.0	0.2+
1997 10 04	910	0.4+	0.3+	1999 01 13	691	0.3+	0.0	1999 01 22	691	0.1−	0.0
1997 10 04	910	0.3+	0.2+	1999 01 14	691	0.2−	0.3+	1999 01 22	691	0.1−	0.2−

1999 AC₂₀ = 1995 FD₂₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Doppler		
<i>M</i>	160.60932	(2000.0)	P	Q	
<i>n</i>	0.22667004	<i>ω</i>	210.73979	+0.90304212	+0.42753477
<i>a</i>	2.6640353	<i>Ω</i>	123.89221	−0.38322086	+0.84558744
<i>e</i>	0.1181788	<i>i</i>	2.87126	−0.19405336	+0.31968093
<i>P</i>	4.35	<i>H</i>	20.1	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1995 03 31	691	0.1+	0.1−	1995 04 04	691	0.1+	0.1+	1999 01 15	691	0.4+	0.3−
1995 03 31	691	0.4−	0.2+	1999 01 13	691	0.2−	0.2−	1999 01 18	691	0.1+	0.0
1995 03 31	691	0.3+	0.3−	1999 01 13	691	0.5−	0.3+	1999 01 18	691	0.5−	0.1+
1995 04 04	691	0.1−	0.1+	1999 01 15	691	0.6+	0.1−	1999 01 18	691	0.2−	0.1+
1995 04 04	691	0.0	0.0	1999 01 15	691	0.2+	0.2+				

1999 AJ₂₀ = 1996 RK₃₁ = 1997 WJ₃₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	39.53441		(2000.0)			P		Q			
<i>n</i>	0.12379483	ω	94.53285	+0.14425708	-0.98951712						
<i>a</i>	3.9871972	Ω	347.16694	+0.89537935	+0.13343792						
<i>e</i>	0.2189399	<i>i</i>	1.74552	+0.42129053	+0.05522861						
<i>P</i>	7.96	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1996 09 13	809	1.3-	1.1+	1997 12 04	704	1.7-	1.7-	1999 02 10	704	0.1+	1.0-
1996 09 14	809	0.1-	1.8+	1997 12 04	704	2.0-	1.1-	1999 02 10	704	0.6-	0.6-
1997 11 29	704	0.5+	0.3+	1999 01 13	691	0.4-	0.1-	1999 02 10	704	0.1-	0.0
1997 11 29	704	0.4+	0.3-	1999 01 13	691	0.4-	0.2+	1999 02 13	704	2.4+	0.1+
1997 11 29	704	0.8+	2.0+	1999 01 15	691	0.3-	0.1+	1999 02 13	704	2.4+	1.9+
1997 11 29	704	0.7+	0.3+	1999 01 15	691	0.3-	0.2+	1999 02 13	704	0.1+	1.8+
1997 12 04	704	2.0+	1.1-	1999 01 15	691	0.0	0.3-	1999 02 13	704	2.2-	1.5+
1997 12 04	704	0.3-	0.4+	1999 02 10	704	0.2+	0.8-				

1999 AR₂₁ = 1997 TA₂₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	328.97132		(2000.0)			$\mathbf{P}$		$\mathbf{Q}$		
n	0.28235963	ω	229.18784	-0.98673169	-0.16007814					
a	2.3010937	Ω	301.58434	+0.15689709	-0.89717224					
e	0.0796411	i	1.82445	+0.04175975	-0.41165151					
P	3.49	H	15.5	G	0.15	U	4			
Residuals in seconds of arc										
1997 10 05	691	0.2-	0.2-	1999 01 16	120	(2.2-	1.1+)	1999 02 12	699	0.5+ 0.5+
1997 10 05	691	0.1+	0.1-	1999 01 16	120	1.4-	0.8-	1999 02 12	704	0.1- 0.4-
1997 10 05	691	0.0	0.1+	1999 01 16	120	0.2+	0.6+	1999 02 12	704	0.4- 0.5-
1997 10 10	691	0.2+	0.0	1999 01 19	120	0.3+	0.1-	1999 02 12	704	0.4- 0.2-
1997 10 10	691	0.0	0.1-	1999 01 19	120	0.0	1.1-	1999 02 12	704	0.8- 0.3-
1997 10 10	691	0.1-	0.2+	1999 01 22	699	0.1+	0.7-	1999 02 12	704	0.2- 0.4+
1999 01 13	699	0.9+	0.1-	1999 01 22	699	0.2+	0.8-	1999 02 16	704	0.2- 0.3-
1999 01 13	699	0.4-	0.6+	1999 01 22	699	0.9+	0.6+	1999 02 16	704	0.4+ 0.2-
1999 01 13	699	0.8+	0.0	1999 02 08	732	0.4-	0.2+	1999 02 16	704	1.4+ 0.3-
1999 01 15	120	0.8-	0.8+	1999 02 08	732	0.7-	0.2+	1999 02 16	704	0.3+ 0.2+
1999 01 15	120	0.4+	0.1+	1999 02 09	732	0.2-	0.0	1999 02 16	704	0.4- 0.0
1999 01 15	120	0.1-	0.3+	1999 02 09	732	0.9+	0.2+	1999 02 18	566	0.3- 0.0
1999 01 16	120	0.7-	0.4-	1999 02 12	699	0.0	0.6+	1999 02 18	566	0.1- 0.0
1999 01 16	120	0.4+	0.4+	1999 02 12	699	0.4-	0.6+	1999 02 18	566	0.4+ 0.3-

1999 AU₂₁ = 1976 UP₇ = 1997 UB₁₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	96.78604		(2000.0)			P		Q			
<i>n</i>	0.18945675	ω	234.80072			+0.84813421		-0.52960732			
<i>a</i>	3.0023593	Ω	157.16895			+0.49673319		+0.78605295			
<i>e</i>	0.0820905	<i>i</i>	2.00586			+0.18418607		+0.31880533			
<i>P</i>	5.20	<i>H</i>	13.7			<i>G</i>	0.15	<i>U</i>	5		
Residuals in seconds of arc											
1976 10 22	381	0.6-	0.0	1999 01 15	120	0.5+	0.3-	1999 02 12	699	0.4-	1.5+
1976 10 22	381	0.5-	0.5+	1999 01 16	120	1.2+	0.5+	1999 02 12	699	0.1+	0.3+
1976 10 22	381	0.3+	0.5+	1999 01 16	120	1.4-	0.9-	1999 02 12	699	0.2-	1.0+
1976 10 22	381	0.1-	0.2-	1999 01 16	120	1.2-	0.3+	1999 02 13	704	0.3-	0.8-
1976 10 24	381	0.8+	1.5+	1999 01 16	120	1.5+	0.5+	1999 02 13	704	0.7+	0.5-
1976 10 24	381	0.6-	0.3-	1999 01 17	120	(2.9+	1.2+)	1999 02 13	704	0.6+	0.2+
1997 10 28	691	0.5-	0.5-	1999 01 19	120	0.5-	0.1-	1999 02 13	704	0.7+	0.6+
1997 10 28	691	0.3-	0.5-	1999 01 19	120	0.6-	0.4+	1999 02 13	704	0.0	0.1-
1997 10 28	691	0.4-	0.3-	1999 02 10	704	0.0	0.2-	1999 02 19	566	0.6-	0.6-
1997 11 02	691	1.3+	0.0	1999 02 10	704	0.4-	0.1-	1999 02 19	566	0.6-	0.1+
1997 11 02	691	0.3+	0.2-	1999 02 10	704	0.3+	0.0	1999 02 19	566	0.9-	0.5+
1997 11 02	691	0.1+	0.4-	1999 02 10	704	0.1-	0.4-				
1999 01 15	120	1.8+	1.3-	1999 02 10	704	(3.4-	0.0)				

1999 AX₂₁ = 1971 DR₁ = 1978 EA₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	261.08440		(2000.0)			P		Q			
n	0.28011178	ω	324.25043			-0.45150387		+0.88893264			
a	2.3133879	Ω	278.79633			-0.79944325		-0.44139119			
e	0.0702460	i	4.47410			-0.39627610		-0.12236245			
P	3.52	H	14.4		G	0.15		U	5		
Residuals in seconds of arc											
1971 02 18	095	0.3+	0.3+	1999 01 21	120	1.0+	0.6-	1999 02 12	704	0.4+	0.1-
1978 03 05	095	0.1-	0.1+	1999 01 22	699	0.2+	0.1+	1999 02 16	704	0.6-	0.3-
1999 01 15	120	0.6-	0.5-	1999 01 22	699	0.0	0.5+	1999 02 16	704	0.5-	0.3+
1999 01 15	120	0.7+	0.8+	1999 01 22	699	0.1+	0.5+	1999 02 16	704	0.5-	0.6+
1999 01 15	120	0.7+	0.4-	1999 02 08	120	0.8+	0.1+	1999 02 16	704	0.6-	0.1+
1999 01 16	120	1.2+	0.0	1999 02 08	120	0.8-	0.1+	1999 02 16	704	0.7-	0.4+
1999 01 16	120	1.1-	0.1+	1999 02 12	704	0.2+	0.1+	1999 02 18	566	0.5+	0.8-
1999 01 16	120	0.3-	0.1+	1999 02 12	704	0.3-	0.4+	1999 02 18	566	0.7+	0.7-
1999 01 16	120	0.5-	0.5+	1999 02 12	704	0.1-	0.1+	1999 02 18	566	0.6+	1.0-
1999 01 20	120	0.0	0.8-	1999 02 12	704	0.4-	0.0				

1999 AZ₂₂ = 1996 HG₂₄

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	5.61581		(2000.0)			P		Q			
n	0.28087073	ω	87.16006			-0.70242732		-0.70550509			
a	2.3092187	Ω	47.94558			+0.59224969		-0.65269665			
e	0.0405655	i	7.28231			+0.39476089		-0.27613340			
P	3.51	H	14.3			G	0.15	U	5		
Residuals in seconds of arc											
1996 04 20	809	0.9+	0.7-	1999 01 15	411	0.5-	0.5+	1999 02 12	411	0.3-	0.1+
1996 04 20	809	0.0	1.0-	1999 01 16	411	0.4-	0.2+	1999 02 12	411	0.4-	0.3+
1996 04 20	809	0.1-	0.4-	1999 01 16	411	0.4-	0.0	1999 02 13	704	(0.7-	3.4+)
1996 04 21	809	0.3+	0.7+	1999 01 27	411	0.2+	0.1-	1999 02 13	704	0.5-	0.3+
1996 04 21	809	0.2-	0.6+	1999 01 27	411	1.3+	0.7-	1999 02 13	704	0.5+	0.1-
1996 04 21	809	1.0-	0.4+	1999 02 10	704	0.2+	0.1+	1999 02 13	704	1.0+	0.4+
1998 12 27	699	0.4+	0.9-	1999 02 10	704	0.1+	0.1+	1999 02 13	704	0.2+	0.5+
1998 12 27	699	0.3-	1.1-	1999 02 10	704	0.2+	0.2+	1999 02 18	566	0.4-	0.3-
1998 12 27	699	0.2+	0.7-	1999 02 10	704	0.1-	0.4+	1999 02 18	566	0.4-	0.3-
1999 01 15	411	0.8-	0.5+	1999 02 10	704	0.6+	0.3+	1999 02 18	566	0.5-	0.2-

1999 AA₂₃ = 1973 YV₁ = 1987 XK = 1992 DV₁ = 1992 DR₂Id. S. Nakano (d, *MPC* 20313; unpublished)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	0.75386		(2000.0)			P		Q			
<i>n</i>	0.28018870	<i>ω</i>	89.97563			-0.75250920		-0.65284899			
<i>a</i>	2.3129645	<i>Ω</i>	49.26746			+0.54953141		-0.69500109			
<i>e</i>	0.1331331	<i>i</i>	6.57045			+0.36296712		-0.30126680			
<i>P</i>	3.52	<i>H</i>	15.1		<i>G</i>	0.15		<i>U</i>	3		
Residuals in seconds of arc											
1973 12 20	095	(8.6+	6.3+)	1998 12 27	699	(3.5+	0.5-)	1999 02 10	704	0.8+	0.8+
1987 12 15	033	0.6-	0.2-	1998 12 27	699	0.1+	0.9-	1999 02 10	704	0.9+	0.7-
1987 12 15	033	0.6+	0.2+	1999 01 15	411	0.1-	0.2-	1999 02 13	704	0.6-	0.5+
1992 02 28	033	0.1-	0.5-	1999 01 15	411	0.3+	0.1-	1999 02 13	704	0.6-	0.9+
1992 02 28	033	1.0-	0.1-	1999 01 16	411	1.3-	0.2+	1999 02 13	704	0.6+	0.3+
1992 02 29	033	0.3-	0.9-	1999 01 16	411	0.5-	0.4-	1999 02 18	566	0.3-	0.8-
1992 02 29	033	0.2+	1.3+	1999 01 27	411	0.4+	0.8+	1999 02 18	566	0.8-	0.5-
1992 02 29	033	0.0	0.3+	1999 01 27	411	0.1-	0.1+	1999 02 18	566	0.3-	0.6-
1992 03 01	033	1.2+	0.1-	1999 02 10	704	1.0+	0.1-				
1998 12 27	699	0.4+	0.7+	1999 02 10	704	(0.3+	2.2+)				

1999 MAR. 2

M.P.C. 33981

1999 AQ₂₃ = 1991 LE

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	288.59761		(2000.0)	P	Q
<i>n</i>	0.23182369	ω	98.17949	−0.57031964	+0.80184151
<i>a</i>	2.6244049	Ω	135.44216	−0.81748980	−0.53284439
<i>e</i>	0.1222865	<i>i</i>	14.72039	−0.08028657	−0.27042013
<i>P</i>	4.25	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1991 06 07	675	0.1−	1.1−	1999 01 15	699	1.1−	0.1−	1999 02 10	704	0.3−	0.4−
1991 06 07	675	1.2+	0.2−	1999 01 15	699	0.2+	0.4+	1999 02 13	704	0.4−	0.9−
1991 06 09	675	0.3−	0.2+	1999 01 15	699	0.3−	0.6+	1999 02 13	704	0.1+	0.5−
1991 06 09	675	0.8−	1.1+	1999 02 10	704	0.4+	0.6+	1999 02 13	704	0.4−	0.3+
1999 01 14	699	0.3+	0.4−	1999 02 10	704	0.4−	0.3+	1999 02 13	704	0.6+	0.2+
1999 01 14	699	0.2+	0.2+	1999 02 10	704	0.2+	0.5+	1999 02 13	704	0.7+	0.1−
1999 01 14	699	0.2+	0.3−	1999 02 10	704	0.1−	0.4−				

1999 AS₂₃ = 1980 PT₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	224.57567		(2000.0)	P	Q
<i>n</i>	0.19036154	ω	144.36037	+0.40284686	+0.90920116
<i>a</i>	2.9928383	Ω	149.00040	−0.87995516	+0.41635691
<i>e</i>	0.0949977	<i>i</i>	11.78647	−0.25178030	−0.00042332
<i>P</i>	5.18	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1980 08 04	675	0.3−	0.2−	1999 01 15	699	0.6−	0.4+	1999 02 12	699	0.2−	0.3−
1980 08 05	675	0.3+	0.3+	1999 02 10	704	0.6−	0.1−	1999 02 12	699	0.2+	0.2+
1999 01 14	699	0.0	1.0+	1999 02 10	704	0.6−	0.1+	1999 02 13	704	1.7+	0.3−
1999 01 14	699	0.1+	0.1−	1999 02 10	704	1.3−	0.1−	1999 02 13	704	0.9+	1.5−
1999 01 14	699	0.8+	0.8−	1999 02 10	704	1.0−	0.6+	1999 02 13	704	1.0+	0.8+
1999 01 15	699	0.2−	0.2+	1999 02 10	704	0.3+	0.7+	1999 02 13	704	0.1+	0.2−
1999 01 15	699	0.6−	0.5−	1999 02 12	699	0.4−	0.0				

1999 AE₂₄ = 1990 AC₁ = 1993 RM₃

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	68.81967		(2000.0)	P	Q
<i>n</i>	0.22849645	ω	288.09147	+0.72579188	−0.65742550
<i>a</i>	2.6498202	Ω	113.54943	+0.68455545	+0.66117932
<i>e</i>	0.2967422	<i>i</i>	12.76358	+0.06789695	+0.36143273
<i>P</i>	4.31	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1990 01 04	511	0.4+	0.0	1999 01 17	411	0.6−	0.1+	1999 02 13	704	0.3+	0.2+
1990 01 04	511	0.4−	0.0	1999 01 27	411	0.0	0.6+	1999 02 13	704	1.3+	0.4−
1993 09 14	675	0.0	0.2+	1999 01 27	411	0.2+	0.1−	1999 02 13	704	0.3+	0.0
1993 09 14	675	0.4−	0.2−	1999 02 10	704	0.1+	0.3−	1999 02 13	704	1.2+	0.0
1993 09 15	675	0.4+	0.1−	1999 02 10	704	0.7−	1.2+	1999 02 13	704	0.6−	0.4+
1999 01 15	411	0.2−	0.8−	1999 02 10	704	0.7−	0.5+	1999 02 18	566	0.1−	1.3−
1999 01 15	411	0.8−	0.4+	1999 02 10	704	0.1+	0.9+	1999 02 18	566	0.2+	1.2−
1999 01 17	411	1.1−	0.5+	1999 02 10	704	0.9+	0.7+	1999 02 18	566	0.1−	1.3−

1999 AF₂₄ = 1992 OF₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Spahr

<i>M</i>	275.47546		(2000.0)	P	Q
<i>n</i>	0.22945145	ω	80.79212	−0.94221685	+0.28236064
<i>a</i>	2.6424626	Ω	115.43539	−0.32694677	−0.89236657
<i>e</i>	0.1166112	<i>i</i>	11.51515	+0.07302894	−0.35207153
<i>P</i>	4.30	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1992 07 22	809	0.8+	0.4−	1999 01 18	108	1.1+	1.0−	1999 01 20	108	0.1+	1.4+
1992 07 22	809	0.7+	0.1−	1999 01 18	104	0.8−	0.7+	1999 01 20	108	0.3−	1.1+

1992 07 22	809	0.8+	0.2+	1999 01 18	104	1.2−	0.6+	1999 01 20	108	0.9−	0.8+
1992 07 23	809	1.1−	0.0	1999 01 18	108	1.4+	0.3−	1999 01 21	108	0.2+	0.8+
1992 07 23	809	0.8−	0.1+	1999 01 18	108	1.0−	1.0−	1999 01 21	108	0.9−	0.6+
1992 07 23	809	0.3−	0.2+	1999 01 18	108	0.9+	1.1−	1999 01 21	108	0.4−	0.4+
1999 01 15	108	0.2−	0.4+	1999 01 18	108	0.9+	1.1−	1999 01 21	108	0.0	0.2+
1999 01 15	108	0.7−	0.1+	1999 01 19	108	0.1−	0.3−	1999 02 06	104	0.2+	0.1−
1999 01 15	108	0.3−	0.2−	1999 01 19	108	1.2+	1.8−	1999 02 06	104	0.7−	0.2−
1999 01 15	108	0.5+	0.1+	1999 01 19	108	1.3+	1.8−	1999 02 06	104	0.7−	0.5−
1999 01 18	108	0.9−	0.1−	1999 01 19	108	1.2+	0.7−	1999 02 08	104	1.2+	0.1+
1999 01 18	104	0.3−	0.4+	1999 01 20	108	0.6−	2.4+				

1999 AG₂₄ = 1991 US = 1993 BU₁ = 1997 WS₄₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	189.85533		(2000.0)	P	Q
<i>n</i>	0.17878241	ω	337.62629	+0.43460730	+0.90037864
<i>a</i>	3.1207060	Ω	318.12613	−0.82150078	+0.38683164
<i>e</i>	0.1638693	<i>i</i>	1.79014	−0.36912459	+0.1919734
<i>P</i>	5.51	<i>H</i>	12.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1991 10 18	399	1.3+	1.0−	1993 01 17	010	0.8+	0.6−	1997 11 29	704	0.3+	0.2+
1991 10 18	399	0.6+	1.0+	1993 01 17	010	0.5+	0.1−	1997 11 29	704	0.3−	0.4−
1991 10 19	399	0.3−	0.5−	1997 11 26	704	(4.2−	1.8+)	1999 01 10	725	0.7−	0.7+
1991 10 19	399	1.5−	0.4+	1997 11 26	704	(4.4−	2.2+)	1999 01 10	725	0.7−	0.8+
1993 01 16	010	0.6+	1.2−	1997 11 26	704	(4.8−	1.5+)	1999 01 15	725	0.3−	0.6+
1993 01 16	010	1.1−	1.2−	1997 11 29	704	0.4−	0.5+	1999 01 15	725	0.8−	0.6+
1993 01 16	010	1.1−	0.7−	1997 11 29	704	0.0	0.6+	1999 02 05	376	2.0+	0.0
1993 01 17	010	0.0	1.3−	1997 11 29	704	0.1−	1.6+	1999 02 05	376	1.4+	0.4+

1999 AL₂₄ = 1991 CX₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	8.41925		(2000.0)	P	Q
<i>n</i>	0.23704776	ω	288.75844	+0.16188478	−0.95698065
<i>a</i>	2.5857040	Ω	148.65932	+0.98551594	+0.16927627
<i>e</i>	0.2071821	<i>i</i>	27.57776	−0.05051378	+0.23565565
<i>P</i>	4.16	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1991 02 14	675	0.8−	0.1+	1998 12 22	703	(3.3+	1.3+)	1999 01 15	703	(1.6+	4.1−)
1991 02 14	675	(12.5+	10.2+)	1998 12 22	703	0.5−	0.2+	1999 01 18	703	0.1−	0.4+
1991 02 18	675	(0.2−	3.7−)	1999 01 15	703	0.6+	0.0	1999 01 18	703	0.6−	0.7−
1991 02 18	675	0.8+	0.1−	1999 01 15	703	0.6+	0.0				

1999 AN₂₄ = 1997 UB₁₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	51.35975		(2000.0)	P	Q
<i>n</i>	0.19452628	ω	299.68628	+0.02436727	−0.99946654
<i>a</i>	2.9499673	Ω	148.89464	+0.93114173	+0.01477406
<i>e</i>	0.0693102	<i>i</i>	2.41245	+0.36384242	+0.02912668
<i>P</i>	5.07	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 10 28	691	0.5−	0.2−	1999 01 15	910	0.1−	0.1−	1999 02 10	704	0.2−	1.1+
1997 10 28	691	0.5−	0.1−	1999 01 19	910	0.1−	0.1−	1999 02 12	699	0.2−	0.3+
1997 10 28	691	0.5−	0.2−	1999 01 19	910	0.1−	0.1−	1999 02 12	699	0.1−	0.4+
1997 11 02	691	0.2+	0.2+	1999 01 19	910	0.1−	0.2−	1999 02 12	699	1.1+	0.2+
1997 11 02	691	0.6+	0.2+	1999 01 23	910	0.0	0.2−	1999 02 13	704	0.1+	0.4−
1997 11 02	691	0.7+	0.3+	1999 01 23	910	0.1+	0.2−	1999 02 13	704	0.2+	0.2−
1999 01 15	910	0.3+	0.3−	1999 01 23	910	0.1+	0.2−	1999 02 13	704	0.8+	0.1−
1999 01 15	910	0.1−	0.4−	1999 02 10	704	0.0	0.3+	1999 02 13	704	0.3−	0.0
1999 01 15	910	0.0	0.2−	1999 02 10	704	0.7−	0.1−	1999 02 13	704	0.5−	0.5−
1999 01 15	910	0.1−	0.2−	1999 02 10	704	0.2−	0.8+				
1999 01 15	910	0.1−	0.2−	1999 02 10	704	0.1−	0.4+				

1999 AX₂₄ = 1988 KA₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26003042	ω	28.77572	-0.98080983	-0.19175420		
<i>a</i>	2.4310092	Ω	140.11948	+0.16669692	-0.91853702		
<i>e</i>	0.1377589	<i>i</i>	3.15129	+0.10111489	-0.34571675		
<i>P</i>	3.79	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1988 05 16	809	0.0	0.2-	1999 01 19	910	0.2+	0.2+	1999 02 12	699	1.0+	0.3+
1988 05 16	809	0.9-	0.2+	1999 01 19	910	0.1+	0.3+	1999 02 12	699	1.2+	0.4+
1988 05 16	809	0.8-	0.3-	1999 01 19	910	0.1+	0.2+	1999 02 12	699	0.9+	0.0
1988 05 17	809	0.0	0.5-	1999 02 10	704	0.8-	0.1-	1999 02 13	704	0.3-	1.2-
1988 05 17	809	1.7+	0.7+	1999 02 10	704	1.0-	0.0	1999 02 13	704	1.2+	0.7-
1999 01 15	910	0.1-	0.3-	1999 02 10	704	1.0-	0.0	1999 02 13	704	0.3-	0.4-
1999 01 15	910	0.0	0.4-	1999 02 10	704	0.6+	0.6+	1999 02 13	704	0.6-	0.0
1999 01 15	910	0.1-	0.2-	1999 02 10	704	1.2-	1.3+				

1999 AF₂₅ = 1973 SM₄ = 1983 RE₆ = 1989 GW₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29160398	ω	315.76067	+0.66968921	+0.74262003		
<i>a</i>	2.2522007	Ω	356.26921	-0.65502282	+0.58707933		
<i>e</i>	0.1986974	<i>i</i>	4.97612	-0.34994496	+0.32226287		
<i>P</i>	3.38	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1973 09 27	095	(11.1-	5.1-)	1989 04 09	809	0.0	0.6-	1999 02 15	120	0.4-	0.6-
1973 09 28	095	(5.7-	2.4-)	1999 01 15	910	0.7-	0.3-	1999 02 16	120	0.2+	0.6-
1983 09 03	095	1.0+	1.9-	1999 01 15	910	0.4-	0.4-	1999 02 18	120	0.2+	0.3-
1989 04 06	809	0.5+	1.4+	1999 01 15	910	0.6-	0.2-	1999 02 18	120	0.6+	0.0
1989 04 06	809	1.0+	0.8-	1999 01 19	910	0.4-	0.3-	1999 02 18	120	1.1+	0.1+
1989 04 06	809	0.4+	0.7-	1999 01 19	910	0.4-	0.5-	1999 02 23	120	0.3-	0.6+
1989 04 09	809	1.8-	0.5+	1999 01 19	910	0.5-	0.4-	1999 02 24	120	0.0	0.5+
1989 04 09	809	0.5-	0.7-	1999 02 15	120	0.1+	0.3+				

1999 AR₂₅ = 1992 FM₂

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27445948	ω	287.70440	-0.11331116	+0.99349572		
<i>a</i>	2.3450416	Ω	335.78088	-0.90085409	-0.10751294		
<i>e</i>	0.2151218	<i>i</i>	1.57316	-0.41907336	-0.03751295		
<i>P</i>	3.59	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 03 26	691	0.2+	0.6+	1999 01 15	910	0.5-	0.2+	1999 01 23	910	0.6+	0.1+
1992 03 26	691	0.1+	0.2+	1999 01 15	910	0.4-	0.3+	1999 02 10	704	0.8-	0.5-
1992 03 26	691	0.2-	0.2+	1999 01 19	910	0.6+	0.0	1999 02 10	704	1.0-	1.3-
1992 04 07	691	0.1+	0.1-	1999 01 20	910	0.5+	0.2+	1999 02 10	704	0.0	0.9+
1992 04 07	691	0.0	0.2-	1999 01 20	910	0.6+	0.0	1999 02 10	704	0.0	0.0
1992 04 07	691	0.0	0.2-	1999 01 21	910	0.8+	0.1-	1999 02 13	704	0.3+	1.2-
1999 01 15	910	0.2-	0.3+	1999 01 21	910	0.6+	0.3-	1999 02 13	704	0.3+	0.7-
1999 01 15	910	0.2-	0.5+	1999 01 21	910	0.9+	0.0	1999 02 13	704	0.7-	0.3-
1999 01 15	910	0.8-	0.5+	1999 01 23	910	0.6+	0.1-	1999 02 13	704	0.7-	0.2+
1999 01 15	910	0.2-	0.5+	1999 01 23	910	0.5+	0.1-	1999 02 13	704	0.7-	0.6+

1999 AZ₂₆ = 1992 SS₁₈

Id. T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21107005	ω	144.59144	-0.02283401	-0.99719018		
<i>a</i>	2.7937335	Ω	306.61147	+0.89553978	+0.01132070		
<i>e</i>	0.0706854	<i>i</i>	5.09938	+0.44439523	-0.07405118		
<i>P</i>	4.67	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 09 22	809	0.3+	0.9-	1999 01 09	691	0.9-	0.2-	1999 01 17	691	0.0	0.4-
1992 09 22	809	0.3+	0.1-	1999 01 09	691	1.1-	0.5+	1999 02 06	120	1.2+	0.3+
1992 09 22	809	1.0-	0.7-	1999 01 10	699	1.5+	0.1+	1999 02 06	120	0.1+	0.4+
1992 09 23	809	0.8+	0.5+	1999 01 10	699	0.3+	0.3-	1999 02 08	120	0.8-	0.2-
1992 09 23	809	0.8-	0.4+	1999 01 10	699	1.0+	1.0+	1999 02 08	120	0.2-	0.2-
1992 09 23	809	0.5+	0.9+	1999 01 17	691	0.0	0.5-				
1999 01 09	691	0.9-	0.3-	1999 01 17	691	0.1-	0.2-				

1999 AS₃₁ = 1980 RM

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24293441	ω	320.83012	+0.37743688	+0.92497960		
<i>a</i>	2.5437632	Ω	331.26532	-0.82484601	+0.31411249		
<i>e</i>	0.2193005	<i>i</i>	5.27585	-0.42091622	+0.21388335		
<i>P</i>	4.06	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1980 09 02	688	0.8-	0.6-	1999 01 19	691	0.3-	0.1+	1999 02 13	704	0.7-	0.5-
1980 09 02	688	0.6-	0.7+	1999 01 19	691	0.7-	0.4-	1999 02 13	704	0.0	0.2-
1980 09 04	688	1.5+	0.2-	1999 02 10	704	0.4+	0.0	1999 02 13	704	0.5+	1.1-
1999 01 14	691	0.8+	0.1-	1999 02 10	704	0.7+	0.2-	1999 02 13	704	0.4+	0.2+
1999 01 14	691	0.5+	0.2+	1999 02 10	704	0.4+	0.5+	1999 02 13	704	0.4-	0.5+
1999 01 14	691	0.7+	0.3+	1999 02 10	704	0.9+	1.0+				
1999 01 19	691	0.5-	0.1-	1999 02 10	704	2.4-	0.4-				

1999 AU₃₂ = 1978 WK₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20354014	ω	221.59344	-0.87258286	+0.48843244		
<i>a</i>	2.8622178	Ω	347.64039	-0.44078436	-0.79241214		
<i>e</i>	0.0077440	<i>i</i>	1.53579	-0.21049538	-0.36539945		
<i>P</i>	4.84	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1978 11 29	675	0.0	0.0	1999 01 15	691	0.2+	0.2+	1999 02 05	376	0.2-	0.2-
1978 11 30	675	0.0	0.0	1999 01 23	691	0.2-	0.1-	1999 02 05	376	0.2+	0.5+
1999 01 15	691	0.0	0.2-	1999 01 23	691	0.1-	0.1-				
1999 01 15	691	0.1+	0.1-	1999 01 23	691	0.1-	0.0				

1999 AR₃₄ = 1978 EG = 1992 CL₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28214608	ω	24.24510	-0.97266907	+0.23208289		
<i>a</i>	2.3022547	Ω	169.16714	-0.21883229	-0.90581946		
<i>e</i>	0.1600274	<i>i</i>	2.20747	-0.07763569	-0.35444130		
<i>P</i>	3.49	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1978 03 11	801	0.2+	0.4+	1999 01 15	699	0.5+	0.8-	1999 02 12	699	0.5+	0.5+
1992 02 02	675	0.6+	1.2-	1999 01 22	699	0.0	0.0	1999 02 12	699	0.4+	0.1+
1992 02 03	675	0.1-	0.2-	1999 01 22	699	0.3+	0.0	1999 02 16	704	0.1-	0.2-
1992 02 03	675	1.4-	0.7-	1999 01 22	699	0.5+	0.1+	1999 02 16	704	0.1-	0.1-
1998 12 16	699	0.4+	0.4+	1999 02 12	704	(2.5-	0.9-)	1999 02 16	704	0.3+	0.6+
1998 12 16	699	0.1-	0.4+	1999 02 12	704	1.2-	0.4+	1999 02 16	704	0.1+	0.6+
1998 12 16	699	0.3-	0.9+	1999 02 12	704	0.4-	1.0-	1999 02 16	704	0.2+	1.0+

1999 MAR. 2

M.P.C. 33983

1999 01 15 699 0.5+ 0.0 1999 02 12 699 0.3+ 0.3+
1999 01 15 699 0.0 0.4- 1999 02 12 704 1.0- 0.7-

1999 BB = 1982 AH = 1993 OQ₁₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	271.54569	(2000.0)	P	Q
<i>n</i>	0.29316030	ω	287.39229	-0.49740921 +0.86707701
<i>a</i>	2.2442226	Ω	312.74627	-0.78098589 -0.46141766
<i>e</i>	0.1424053	<i>i</i>	2.15356	-0.37768388 -0.18780630
<i>P</i>	3.36	<i>H</i>	14.5	<i>G</i> 0.15 <i>U</i> 3

Residuals in seconds of arc

1982 01 15	046	(7.5- 0.1-)	1998 12 17	699	0.7+	0.3+	1999 02 12	699	0.5+	0.4+
1982 01 15	046	0.7- 0.1-	1999 01 16	120	0.3-	0.4-	1999 02 12	699	0.1+	0.4+
1982 01 16	046	(5.0- 1.6-)	1999 01 16	120	0.7-	0.1+	1999 02 12	704	0.3-	0.5-
1982 01 16	046	0.9+ 0.8+	1999 01 16	120	0.2-	0.1+	1999 02 12	704	0.3-	0.1+
1993 07 23	809	0.9- 1.1+	1999 01 16	120	0.1+	0.1-	1999 02 12	704	0.4-	0.1+
1993 07 23	809	0.9- 0.1+	1999 01 16	120	0.4-	0.1-	1999 02 12	704	0.2+	0.9+
1993 07 23	809	0.2+ 0.1-	1999 01 19	120	0.6-	0.5-	1999 02 12	704	0.5+	0.4-
1993 07 26	809	1.9+ 1.0-	1999 01 19	120	0.9-	0.7-	1999 02 16	704	0.0	0.1-
1993 07 26	809	0.2- 0.6-	1999 01 22	699	0.1-	0.2+	1999 02 16	704	(1.2+ 2.9-)	
1993 07 26	809	0.1+ 0.2-	1999 01 22	699	0.0	0.1+	1999 02 16	704	0.8+	0.2+
1998 12 17	699	0.2+ 0.0	1999 01 22	699	0.3+	0.1-	1999 02 16	704	0.3+	0.0
1998 12 17	699	1.5- 1.7-	1999 02 12	699	0.1+	0.5+	1999 02 16	704	1.0+	0.2-

1999 BD = 1974 RK = 1984 SV₁ = 1993 FG₇₅

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	152.22548	(2000.0)	P	Q
<i>n</i>	0.29874044	ω	336.65056	+0.85162414 +0.52408633
<i>a</i>	2.2161885	Ω	351.72768	-0.47127943 +0.75864121
<i>e</i>	0.1585348	<i>i</i>	3.32993	-0.22941670 +0.38703622
<i>P</i>	3.30	<i>H</i>	14.7	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1974 09 11	095	0.4+ 0.8-	1999 01 16	411	0.4+	0.9-	1999 02 10	704	1.4-	0.1-
1984 09 29	046	0.6+ 0.7+	1999 01 17	411	1.2+	0.5+	1999 02 10	704	0.6-	1.5+
1984 09 29	046	0.1- 0.4+	1999 01 17	411	0.1+	0.3+	1999 02 10	704	0.7-	0.2+
1984 09 30	046	(3.4- 1.9-)	1999 01 25	411	0.5-	0.2-	1999 02 13	704	0.5+	0.2+
1984 09 30	046	0.8- 0.5-	1999 01 25	411	0.1+	0.3-	1999 02 13	704	0.6+	0.3-
1993 03 21	809	0.7- 0.2+	1999 02 05	411	0.1-	0.9-	1999 02 13	704	0.9-	1.2+
1993 03 22	809	0.7+ 0.3-	1999 02 05	411	0.7+	0.3+	1999 02 13	704	0.6-	0.3-
1999 01 16	411	0.5- 0.6-	1999 02 10	704	0.6+	0.6+	1999 02 13	704	0.8+	1.8-

1999 BG = 1995 AY₂

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	329.70031	(2000.0)	P	Q
<i>n</i>	0.26253925	ω	196.52997	-0.94879588 -0.30907500
<i>a</i>	2.4154973	Ω	325.24991	+0.30123584 -0.82306850
<i>e</i>	0.0570662	<i>i</i>	6.57442	+0.09509651 -0.47647759
<i>P</i>	3.75	<i>H</i>	15.1	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1995 01 04	010	0.7- 0.3+	1999 01 17	411	0.8-	0.5+	1999 02 10	704	0.1+	1.5+
1995 01 04	010	0.2- 0.5+	1999 01 25	411	0.2-	0.5+	1999 02 13	704	0.3+	0.4-
1995 01 04	010	1.1+ 0.3-	1999 01 25	411	0.6+	0.5+	1999 02 13	704	1.1+	0.1-
1995 01 04	010	0.2+ 1.0-	1999 02 05	411	0.9+	0.1-	1999 02 13	704	0.1-	0.3+
1995 01 05	010	0.8- 0.9+	1999 02 05	411	0.6+	1.8-	1999 02 13	704	1.2-	0.7+
1995 01 05	010	0.5+ 0.3-	1999 02 10	704	1.5+	0.2-	1999 02 13	411	0.4-	0.5+
1999 01 16	411	0.4- 0.3-	1999 02 10	704	0.1-	0.6-	1999 02 13	411	0.5-	1.1+
1999 01 16	411	0.2+ 0.6-	1999 02 10	704	0.1+	0.9-				
1999 01 17	411	0.8- 0.2+	1999 02 10	704	1.1-	0.7-				

1999 BS = 1979 SW₈ = 1981 EL₃₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	58.69353	(2000.0)	P	Q
<i>n</i>	0.26726935	ω	223.54014	+0.72297604 -0.69087310
<i>a</i>	2.3869131	Ω	180.15926	+0.64483551 +0.67485996
<i>e</i>	0.1606054	<i>i</i>	2.41161	+0.24797745 +0.25934224
<i>P</i>	3.69	<i>H</i>	15.1	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1979 09 24	095	0.6+ 1.7-	1981 03 11	413	1.6-	0.2-	1999 01 19	120	0.1+	0.8+
1981 02 09	413	0.4+ 0.2+	1999 01 16	120	(2.4+ 0.3-)		1999 01 19	120	0.5+	0.0
1981 03 02	413	(1.0+ 2.6-)	1999 01 16	120	1.3-	1.0-	1999 01 21	120	0.1-	0.2-
1981 03 03	413	1.1- 0.6-	1999 01 16	120	0.9+	0.1+	1999 01 21	120	0.5-	0.3+
1981 03 07	413	(4.3- 1.5+)	1999 01 17	120	0.6+	0.2+	1999 01 23	120	0.3+	0.4+
1981 03 07	413	1.5+ 1.7-	1999 01 17	120	0.5-	0.1-				

1999 BW = 1953 FZ = 1978 ER₁ = 1997 SL₃₃

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	294.88265	(2000.0)	P	Q
<i>n</i>	0.23358053	ω	124.45783	-0.93365982 +0.35643430
<i>a</i>	2.6112290	Ω	76.44557	-0.33931869 -0.84888463
<i>e</i>	0.1189667	<i>i</i>	2.07076	-0.11463926 -0.39031971
<i>P</i>	4.22	<i>H</i>	14.5	<i>G</i> 0.15 <i>U</i> 3

Residuals in seconds of arc

1953 03 16	024	0.5- 0.4-	1999 01 20	888	0.2+	0.2-	1999 02 07	888	0.3-	0.6-
1953 03 20	024	0.3- 1.8-	1999 01 20	888	0.5+	0.2-	1999 02 10	704	0.4+	0.4+
1978 03 05	095	0.1+ 1.1+	1999 01 22	888	0.1-	0.1+	1999 02 10	704	0.3-	1.5+
1997 09 30	376	0.0 1.3-	1999 01 22	888	0.2-	0.4-	1999 02 10	704	0.3-	0.3+
1997 09 30	376	0.6+ 0.3-	1999 01 23	691	1.0-	0.3-	1999 02 10	704	1.1+	1.0+
1999 01 16	888	0.1+ 0.1-	1999 01 23	691	0.8-	0.2-	1999 02 13	704	(2.3+ 1.1-)	
1999 01 16	888	0.5+ 0.0	1999 01 23	691	0.9-	0.1-	1999 02 13	704	(2.8+ 1.6+)	
1999 01 16	888	0.2+ 0.2-	1999 01 28	888	0.4+	0.4-	1999 02 13	704	0.2-	0.1+
1999 01 18	888	0.7+ 0.1-	1999 01 28	888	0.1+	0.1-				
1999 01 18	888	0.1+ 0.0	1999 02 07	888	0.0	0.3-				

1999 BZ = 1980 WG₁ = 1991 KC₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	3.12606	(2000.0)	P	Q
<i>n</i>	0.23062320	ω	85.95830	-0.85953414 -0.34946325
<i>a</i>	2.6335044	Ω	73.26102	+0.15018460 -0.87018414
<i>e</i>	0.0408539	<i>i</i>	22.91910	+0.48851371 -0.34735428
<i>P</i>	4.27	<i>H</i>	13.6	<i>G</i> 0.15 <i>U</i> 3

Residuals in seconds of arc

1980 11 30	095	0.1+ 0.1-	1999 01 17	703	0.4-	0.5+	1999 02 08	596	0.0	0.3-
1991 05 17	809	0.2+ 0.2-	1999 01 17	703	0.5+	0.2+	1999 02 08	596	0.4+	0.2-
1991 05 17	809	0.3- 0.5-	1999 01 18	703	0.4-	0.1+	1999 02 09	596	0.0	0.1-
1991 05 17	809	0.1+ 0.6+	1999 01 18	703	0.0	0.2+				
1999 01 17	703	0.5- 0.1+	1999 02 08	596	0.3+	0.5-				

1999 BE₁ = 1989 CZ₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	326.45041	(2000.0)	P	Q
<i>n</i>	0.29425168	ω	208.31470	-0.94298483 -0.32874336
<i>a</i>	2.2386700	Ω	312.39473	+0.31712063 -0.83994445
<i>e</i>	0.0915594	<i>i</i>	4.04016	+0.10106489 -0.43176512
<i>P</i>	3.35	<i>H</i>	15.7	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1989 02 02	033	0.4+ 0.2-	1999 01 22	691	1.0-	0.2-	1999 02 10	704	0.4+	0.5-
1989 02 03	033	0.4- 0.4+	1999 01 22	691	0.8-	0.8-	1999 02 10	704	1.8+	0.1+

M.P.C. 33984

1999 01 16	757	0.8−	0.6+	1999 01 26	757	1.0+	0.3+	1999 02 13	704	(2.6−	1.7−)
1999 01 16	757	0.8+	0.6−	1999 01 26	757	(2.1−	0.2−)	1999 02 13	704	1.0+	0.8+
1999 01 19	757	1.4+	0.7+	1999 02 07	691	0.6+	0.5−	1999 02 13	704	1.4−	0.5+
1999 01 19	757	(2.8+	0.8+)	1999 02 07	691	0.6+	0.5−	1999 02 13	704	1.7−	1.3+
1999 01 21	757	1.0−	1.0+	1999 02 07	691	0.6+	0.5−	1999 02 18	566	0.3−	0.2−
1999 01 21	757	(2.7+	0.1−)	1999 02 10	704	0.3+	1.3−	1999 02 18	566	0.5−	0.1−
1999 01 22	691	1.0−	0.4−	1999 02 10	704	0.0	0.1+	1999 02 18	566	0.0	0.1−

1999 BM₁ = 1978 RH₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler				Williams			
<i>M</i>	121.68820	(2000.0)		P	Q		
<i>n</i>	0.25809337	<i>ω</i>	0.77599	+0.93902648	+0.34361673		
<i>a</i>	2.4431576	<i>Ω</i>	339.11321	−0.31566039	+0.84704352		
<i>e</i>	0.2209252	<i>i</i>	2.01288	−0.13633705	+0.40551795		
<i>P</i>	3.82	<i>H</i>	18.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1978 09 02	809	0.6+	0.2−	1999 01 18	046	0.2−	0.2+	1999 01 21	046	0.3−	0.1−
1978 09 02	809	0.2+	0.2−	1999 01 19	046	0.5−	0.5+	1999 01 22	046	0.1−	0.1−
1978 09 02	809	0.3+	0.6−	1999 01 19	046	0.1−	0.3+	1999 01 22	046	0.1+	0.2−
1978 09 02	809	0.2−	0.4−	1999 01 20	046	0.2+	0.1+	1999 01 22	046	0.2−	0.0
1978 09 03	095	1.0−	1.3+	1999 01 20	046	0.4+	0.3−	1999 01 24	046	0.0	0.2+
1999 01 18	046	0.2+	0.0	1999 01 20	046	0.1−	0.3−	1999 01 24	046	0.3−	0.5−
1999 01 18	046	0.7+	0.3+	1999 01 21	046	0.1−	0.2+	1999 01 24	046	0.3+	0.4−

1999 BW₁ = 1990 DQ₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
<i>M</i>	313.27474	(2000.0)		P	Q		
<i>n</i>	0.21968432	<i>ω</i>	30.85421	−0.97286287	+0.22814340		
<i>a</i>	2.7202157	<i>Ω</i>	162.21006	−0.22956495	−0.93085184		
<i>e</i>	0.0113993	<i>i</i>	7.25429	−0.02894416	−0.28542151		
<i>P</i>	4.49	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1990 02 24	809	0.1−	1.6−	1999 01 18	120	0.3−	0.1−	1999 02 12	704	0.1−	0.2−
1990 02 24	809	0.4+	1.4−	1999 01 18	120	0.5+	0.2−	1999 02 12	699	0.7+	0.3+
1990 02 24	809	0.8+	1.3−	1999 01 20	120	0.3−	0.1−	1999 02 12	704	0.3−	0.8−
1990 02 25	809	0.8−	1.7+	1999 01 20	120	0.3+	0.0	1999 02 12	704	0.1+	0.0
1990 02 25	809	0.7−	1.8+	1999 01 22	120	0.3−	0.6+	1999 02 12	699	1.4+	0.0
1990 02 25	809	0.2−	1.9+	1999 01 22	120	0.3−	0.4+	1999 02 12	704	0.0	0.4−
1990 03 01	809	0.1+	0.0	1999 02 05	120	0.1−	0.3−	1999 02 12	704	0.3−	0.2−
1990 03 01	809	0.4+	0.2−	1999 02 05	120	1.1−	0.2−	1999 02 16	704	0.2−	0.2−
1990 03 01	809	0.4+	0.1−	1999 02 05	120	0.3−	0.0	1999 02 16	704	0.3−	0.4+
1999 01 15	699	1.3+	0.7+	1999 02 06	120	0.4−	0.4−	1999 02 16	704	0.1−	0.3+
1999 01 15	699	0.2+	0.5−	1999 02 06	120	1.2−	0.3−	1999 02 16	704	0.8+	0.3+
1999 01 15	699	0.1−	0.5+	1999 02 07	120	0.9−	1.0−	1999 02 16	704	0.4+	0.5+
1999 01 18	120	0.1−	0.0	1999 02 12	699	0.8+	0.1+				

1999 BP₂ = 1996 HW₁₄

Id. S. Nakano, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
<i>M</i>	82.89168	(2000.0)		P	Q		
<i>n</i>	0.26376773	<i>ω</i>	357.05808	+0.75494512	−0.65128210		
<i>a</i>	2.4079915	<i>Ω</i>	43.90224	+0.60391054	+0.64482896		
<i>e</i>	0.1319142	<i>i</i>	6.35404	+0.25563632	+0.40003406		
<i>P</i>	3.74	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 04 17	809	0.2+	0.6+	1999 01 19	411	0.2+	1.5+	1999 02 13	704	0.8−	0.9−
1996 04 17	809	0.0	1.0+	1999 01 27	411	1.1+	0.2−	1999 02 13	704	0.9+	0.3−
1996 04 17	809	1.6−	0.1+	1999 01 27	411	0.3+	0.2+	1999 02 13	704	0.2−	0.4+
1996 04 18	809	0.9+	0.9−	1999 02 10	704	0.8+	0.6−	1999 02 13	704	0.6−	0.6+
1996 04 18	809	0.0	0.6+	1999 02 10	704	1.7+	0.1+	1999 02 13	704	1.4−	0.4−
1996 04 18	809	0.7+	1.1−	1999 02 10	704	0.3+	0.8+	1999 02 21	411	0.1−	0.7−
1999 01 18	411	1.1−	0.5+	1999 02 10	704	0.0	0.9−	1999 02 21	411	0.2−	0.4−

1999 MAR. 2

1999 01 18	411	0.0	0.6+	1999 02 10	704	0.3−	1.4−
1999 01 19	411	0.1+	1.0+	1999 02 12	411	0.5−	0.1+

1999 BR₂ = 1982 JC₃ = 1996 KY₈

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
<i>M</i>	333.96649	(2000.0)		P	Q		
<i>n</i>	0.28046508	<i>ω</i>	95.12226	−0.96202894	−0.24285448		
<i>a</i>	2.3114448	<i>Ω</i>	70.86617	+0.16727644	−0.88526626		
<i>e</i>	0.0383520	<i>i</i>	7.57782	+0.21568245	−0.39664259		
<i>P</i>	3.51	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1982 05 15	675	0.2+	0.1−	1996 05 23	809	(1.5+	2.4+)	1999 02 10	704	0.3−	0.0
1982 05 16	675	0.1−	0.0	1998 12 27	699	0.8+	0.2+	1999 02 10	704	0.4+	0.0
1982 05 16	675	0.7−	0.2+	1998 12 27	699	0.8−	0.0	1999 02 10	704	0.7+	0.7−
1982 05 17	675	0.7+	0.3−	1998 12 27	699	0.7+	0.3+	1999 02 10	704	0.0	0.7−
1982 05 18	675	0.0	0.4+	1999 01 18	411	0.3+	0.1−	1999 02 13	704	0.4+	0.3+
1996 05 19	809	0.7−	0.6−	1999 01 18	411	0.2−	0.4−	1999 02 13	704	1.1+	1.8+
1996 05 19	809	0.4−	0.8−	1999 01 19	411	0.2−	0.4−	1999 02 13	704	0.3+	1.0+
1996 05 19	809	0.9−	0.8−	1999 01 19	411	1.3−	1.0−	1999 02 13	704	0.2−	1.1+
1996 05 22	809	(2.9−	0.6−)	1999 01 27	411	0.5+	0.3−	1999 02 13	704	1.1−	0.0
1996 05 22	809	(4.6−	0.4−)	1999 01 27	411	0.3−	0.2−	1999 02 19	566	0.3−	0.8−
1996 05 22	809	(3.1−	0.7−)	1999 02 09	411	0.8−	0.8+	1999 02 19	566	0.2−	0.5−
1996 05 23	809	1.9+	2.0+	1999 02 09	411	0.4+	0.2−	1999 02 19	566	0.2+	0.5−
1996 05 23	809	(2.5+	2.7+)	1999 02 10	704	0.2−	0.2+				

1999 BX₂ = 1988 FQ₁ = 1993 BR₁₅

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
<i>M</i>	16.27983	(2000.0)		P	Q		
<i>n</i>	0.17407586	<i>ω</i>	2.43736	−0.53716731	−0.82798529		
<i>a</i>	3.1767059	<i>Ω</i>	120.09727	+0.77069365	−0.55932360		
<i>e</i>	0.1277180	<i>i</i>	10.71851	+0.34275733	−0.03996846		
<i>P</i>	5.66	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1988 03 18	033	0.0	0.3+	1999 01 27	411	1.4−	0.4+	1999 02 10	704	0.8−	0.2−
1988 03 18	033	0.2−	0.8−	1999 01 27	411	0.5−	0.6+	1999 02 13	704	0.4+	0.1+
1993 01 22	372	0.5+	0.8−	1999 02 09	411	0.2+	0.1+	1999 02 13	704	0.7+	0.1−
1993 01 22	372	0.5−	0.5+	1999 02 09	411	0.3+	0.5−	1999 02 13	704	0.9+	0.5+
1999 01 19	411	0.0	0.9−	1999 02 10	704	0.5+	0.1+	1999 02 13	704	0.0	0.5+
1999 01 19	411	0.1−	0.1+	1999 02 10	704	0.5+	0.1−	1999 02 13	704	0.6−	0.8+
1999 01 20	411	0.6−	0.6−	1999 02 10	704	0.1+	0.4+	1999 02 25	900	0.2−	0.1−
1999 01 20	411	0.4−	0.1−	1999 02 10	704	0.0	0.4−	1999 02 25	900	1.0+	0.2−

1999 BZ₂ = 1995 BW₁₆

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
<i>M</i>	338.77851	(2000.0)		P	Q		
<i>n</i>	0.25237480	<i>ω</i>	159.38502	−0.96710227	−0.25418621		
<i>a</i>	2.4799260	<i>Ω</i>	5.91726	+0.21747071	−0.84675448		
<i>e</i>	0.0607967	<i>i</i>	5.63763	+0.13198365	−0.46732882		
<i>P</i>	3.91	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 01 31	033	0.2+	0.3+	1999 01 27	411	0.9−	0.2+	1999 02 10	704	0.1−	0.7+
1995 01 31	033	0.0	0.5−	1999 01 27	411	0.3−	0.3−	1999 02 10	704	0.1−	0.2+
1995 02 03	033	0.2−	0.2+	1999 02 09	411	1.3−	0.3+	1999 02 13	704	0.2+	1.0−
1999 01 19	411	0.8+	0.5−	1999 02 09	411	0.4−	0.2−	1999 02 13	704	0.2+	0.7−
1999 01 19	411	0.0	0.1−	1999 02 10	704	0.3−	0.8+	1999 02 13	704	1.3+	0.5−
1999 01 20	411	0.1−	0.1+	1999 02 10	704	0.3+	1.0+	1999 02 13	704	1.5+	0.5−
1999 01 20	411	0.1+	0.2+	1999 02 10	704	0.8−	1.0+	1999 02 13	704	0.1−	1.0−

1999 MAR. 2

M.P.C. 33985

1999 BZ₃ = 1977 SN₂ = 1987 SZ₂₂ = 1996 FD₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	174.79186		(2000.0)		P		Q				
<i>n</i>	0.29635085	ω	187.69161		+0.89607924		+0.44173286				
<i>a</i>	2.2280859	Ω	145.98540		−0.40298792		+0.85086829				
<i>e</i>	0.1790787	<i>i</i>	4.48560		−0.18612561		+0.28442087				
<i>P</i>	3.33	<i>H</i>	14.1		<i>G</i>	0.15	<i>U</i>	2			
Residuals in seconds of arc											
1977 09 19	095	0.4+	1.2−	1999 01 20	120	0.3−	0.2+	1999 02 10	704	0.1+	0.8−
1987 09 21	095	1.1+	2.9−	1999 01 21	120	0.4+	0.2−	1999 02 10	704	1.0−	0.2−
1996 03 28	120	0.0	1.1−	1999 01 21	120	0.1−	0.8+	1999 02 10	704	0.7−	0.0
1996 03 28	120	0.6−	0.2−	1999 01 22	120	1.5+	0.0	1999 02 13	704	0.4−	0.3+
1996 03 28	120	0.4−	1.6−	1999 02 05	120	0.5+	0.6+	1999 02 13	704	0.6+	0.1+
1996 03 29	120	0.0	1.4−	1999 02 05	120	1.3+	0.4+	1999 02 13	704	1.5−	1.3+
1996 03 29	120	0.5−	1.0−	1999 02 06	120	1.7+	2.2−	1999 02 13	704	0.5−	0.6+
1999 01 20	120	0.6−	0.2−	1999 02 10	704	0.6+	0.0	1999 02 13	704	1.5−	0.2−
1999 01 20	120	1.4−	0.4−	1999 02 10	704	0.9+	0.3+				

1999 BC₄ = 1987 YJ₂ = 1994 CP₁₇

Id. S. Nakano, B. G. Marsden

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	276.82925		(2000.0)		P		Q		
<i>n</i>	0.18326135	ω	88.35548		−0.78909581		+0.59475744		
<i>a</i>	3.0696495	Ω	128.10890		−0.61200842		−0.73977907		
<i>e</i>	0.0380022	<i>i</i>	11.25670		−0.05266411		−0.31462759		
<i>P</i>	5.38	<i>H</i>	12.5		<i>G</i>	0.15	<i>U</i>	4	
Residuals in seconds of arc									
1987 12 20	010	0.9+	0.9−	1999 01 14	699	0.4+	0.1+	1999 02 10	704
1987 12 20	010	0.9−	0.3−	1999 01 14	699	0.3+	0.0	1999 02 10	704
1994 02 08	809	0.6+	0.9+	1999 01 14	699	0.3+	0.6+	1999 02 10	704
1994 02 08	809	0.5−	0.7+	1999 01 18	888	0.4+	1.0+	1999 02 10	704
1994 02 08	809	0.4+	0.3+	1999 01 18	888	0.0	0.3+	1999 02 13	704
1994 02 10	809	0.2+	0.0	1999 01 20	888	0.0	0.2+	1999 02 13	704
1994 02 10	809	0.1−	0.8−	1999 01 20	888	0.0	0.0	1999 02 13	704
1994 02 10	809	0.2−	1.0−	1999 01 21	886	0.4−	0.8+	1999 02 13	704
1994 02 13	809	0.6+	0.1+	1999 01 21	886	0.2+	0.3−	1999 02 13	704
1994 02 13	809	0.5−	0.3−	1999 01 22	888	0.2−	0.6+	1999 02 22	758
1994 02 13	809	0.3−	0.2+	1999 01 22	888	0.1+	0.3+	1999 02 22	758
1998 12 11	303	0.0	0.5+	1999 01 28	888	0.0	0.0	1999 02 22	758
1998 12 12	303	0.4+	0.4+	1999 01 28	888	0.1−	0.2+	1999 02 22	888
1998 12 12	303	0.8+	0.7−	1999 02 05	888	0.2+	0.0	1999 02 22	888
1998 12 13	303	0.8−	1.2+	1999 02 05	888	0.2−	0.1+		
1998 12 13	303	0.1+	0.0	1999 02 10	704	0.3−	0.3+		

1999 BO₄ = 1980 RU₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	176.92345		(2000.0)		P		Q				
<i>n</i>	0.23847455	ω	2.62014		+0.85500161		+0.50251228				
<i>a</i>	2.5753802	Ω	326.21560		−0.47992570		+0.67287187				
<i>e</i>	0.2262267	<i>i</i>	13.33687		−0.19657969		+0.54288568				
<i>P</i>	4.13	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1980 09 13	675	0.6−	0.1+	1999 01 21	910	0.2−	0.0	1999 02 16	704	0.0	0.8−
1980 09 14	675	0.6+	0.1−	1999 01 23	910	0.4+	0.2−	1999 02 16	704	0.2−	0.9+
1999 01 19	910	0.1−	0.2−	1999 01 23	910	0.4+	0.1−	1999 02 16	704	0.4−	0.2−
1999 01 20	910	0.1−	0.2+	1999 01 23	910	0.2+	0.1−	1999 02 16	704	0.6+	0.5+
1999 01 20	910	0.0	0.0	1999 02 12	704	0.2−	0.7−	1999 02 16	704	0.8+	1.6+
1999 01 21	910	0.3−	0.2+	1999 02 12	704	0.5−	0.2−	1999 02 18	120	1.4−	0.1−
1999 01 21	910	0.1−	0.1−	1999 02 12	704	1.2+	0.1−	1999 02 18	120	0.3−	0.6−

1999 BQ₄ = 1997 US₂₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	124.67083		(2000.0)			P		Q			
n	0.23539388	ω	40.43004			+0.99614459		−0.08396045			
a	2.5978013	Ω	324.36191			+0.06492566		+0.90052013			
e	0.2087434	i	2.50129			+0.05899681		+0.42663116			
P	4.19	H	14.3			G	0.15	U	5		
Residuals in seconds of arc											
1997 10 26	098	0.8−	1.6+	1999 01 20	910	0.2+	0.1−	1999 01 23	910	0.0	0.1+
1997 10 26	098	0.7−	1.0−	1999 01 21	910	0.2+	0.4+	1999 02 06	120	2.6−	0.1−
1997 10 29	098	0.7+	0.1+	1999 01 21	910	0.3+	0.1+	1999 02 06	120	0.0	0.3−
1997 10 29	098	0.9+	0.7−	1999 01 21	910	0.3+	0.2+	1999 02 07	120	1.6+	1.7+
1999 01 19	910	0.1+	0.0	1999 01 23	910	0.1+	0.1−	1999 02 18	120	0.9−	1.0−
1999 01 20	910	0.2+	0.0	1999 01 23	910	0.2−	0.0	1999 02 18	120	0.7+	1.0−

1999 BW₄ = 1997 SR₃₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	22.68867		(2000.0)		P		Q		
n	0.23995935	ω	146.63051		−0.48157919		−0.87513729		
a	2.5647454	Ω	332.07283		+0.78048995		−0.40382309		
e	0.0864047	i	5.76889		+0.39864386		−0.26657388		
P	4.11	H	15.8		G	0.15	U	5	
Residuals in seconds of arc									
1997 09 28	691	0.0	0.1+	1999 01 21	910	0.0	0.1−	1999 02 10	704
1997 09 28	691	0.0	0.1−	1999 01 21	910	0.1−	0.1+	1999 02 10	704
1997 09 28	691	0.1−	0.0	1999 01 21	910	0.2+	0.0	1999 02 13	704
1997 09 30	691	0.0	0.2+	1999 01 23	910	0.4−	0.4−	1999 02 13	704
1997 09 30	691	0.1+	0.1−	1999 01 23	910	0.5−	0.1+	1999 02 13	704
1999 01 19	910	0.0	0.1−	1999 01 23	910	0.3−	0.0	1999 02 13	704
1999 01 20	910	0.1+	0.0	1999 02 10	704	1.5+	1.0−	1999 02 13	704
1999 01 20	910	0.0	0.2+	1999 02 10	704	2.3+	1.2−		

1999 BD₅ = 1988 DK₄ = 1992 GK₁ = 1993 QS₃ = 1997 SN₂₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	315.44670		(2000.0)		P		Q		
n	0.27397557	ω	201.56167		−0.93834613		+0.34569594		
a	2.3478021	Ω	358.66157		−0.31109349		−0.84558447		
e	0.1167660	i	2.27215		−0.15075603		−0.40679382		
P	3.60	H	14.9	G	0.15	U	2		
Residuals in seconds of arc									
1988 02 23	809	0.4+	1.0−	1993 08 20	809	(1.2+	4.2+)	1999 01 21	910
1988 02 23	809	0.3+	0.9−	1993 08 24	809	1.7+	1.9+	1999 01 23	910
1988 02 23	809	0.7+	0.0	1993 08 24	809	1.4+	2.7+	1999 01 23	910
1992 04 03	303	0.3+	0.2−	1993 08 24	809	0.9+	2.8+	1999 01 23	910
1992 04 03	303	0.7+	0.4+	1997 09 28	691	0.3−	0.4−	1999 02 10	704
1992 04 03	303	0.6+	0.5+	1997 09 28	691	0.6−	0.5−	1999 02 10	704
1992 04 04	303	2.1−	0.7+	1997 09 28	691	0.9−	0.4−	1999 02 10	704
1992 04 04	303	1.4−	0.5+	1997 10 03	691	1.6−	0.3−	1999 02 10	704
1992 04 04	303	0.5−	1.3+	1997 10 03	691	1.5−	0.2−	1999 02 10	704
1993 08 18	010	1.1−	1.2−	1997 10 03	691	1.5−	0.6+	1999 02 13	704
1993 08 19	010	(0.5−	2.1−)	1999 01 20	910	0.4+	0.1+	1999 02 13	704
1993 08 19	010	(2.7−	3.6−)	1999 01 20	910	0.3+	0.4+	1999 02 13	704
1993 08 19	010	(1.1−	2.7−)	1999 01 20	910	0.3+	0.2+	1999 02 13	704
1993 08 20	809	(0.4−	4.2+)	1999 01 21	910	0.3+	0.3+	1999 02 13	704
1993 08 20	809	(1.3+	4.4+)	1999 01 21	910	0.5+	0.2+		

1999 BO₅ = 1986 TJ₁₇ = 1986 WN₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	314.93014		(2000.0)		P		Q				
<i>n</i>	0.26301061	ω	201.84028		−0.98144170		−0.17778314				
<i>a</i>	2.4126105	Ω	327.65686		+0.18973662		−0.84598639				
<i>e</i>	0.0097219	<i>i</i>	7.72046		+0.02778872		−0.50269293				
<i>P</i>	3.75	<i>H</i>	13.5		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1986 10 11	095	0.7−	0.9+	1999 01 16	399	0.5+	0.2−	1999 02 13	704	1.9−	1.1+
1986 11 25	010	0.3+	0.1−	1999 01 17	399	1.1−	0.4+	1999 02 13	704	0.2−	0.0
1986 11 25	010	0.9+	0.7+	1999 01 17	399	0.7−	0.2−	1999 02 13	704	0.4−	0.1±
1986 11 27	010	0.2−	1.7−	1999 02 10	704	1.2+	0.3+	1999 02 13	704	0.9−	0.3−
1998 12 14	699	0.5+	0.1+	1999 02 10	704	0.2−	0.6+	1999 02 19	566	0.2+	0.7−
1998 12 14	699	0.2+	0.0	1999 02 10	704	0.2+	0.6+	1999 02 19	566	0.3+	0.5−
1998 12 14	699	0.6+	0.9+	1999 02 10	704	0.2+	0.2−	1999 02 19	566	0.3+	0.9−
1999 01 16	399	0.4+	1.0−	1999 02 10	704	1.2+	0.1+				

1999 BR₅ = 1080 T-2 = 1982 DS₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	313.73137		(2000.0)			P		Q			
<i>n</i>	0.17173110		ω	26.97078		−0.97888289		+0.20431598			
<i>a</i>	3.2055563		Ω	164.81437		−0.19179244		−0.90679560			
<i>e</i>	0.1327188		<i>i</i>	1.43897		−0.07073861		−0.36875022			
<i>P</i>	5.74		<i>H</i>	13.5		<i>G</i>	0.15	<i>U</i>	5		
Residuals in seconds of arc											
1973 09 24	675	(2.1+	2.9−)	1999 01 14	699	0.2+	0.2+	1999 02 12	704	0.1+	0.2−
1973 09 24	675	0.2+	0.3−	1999 01 14	699	1.1+	1.3−	1999 02 12	704	0.4−	0.7−
1973 09 29	675	0.8+	0.0	1999 01 14	699	0.5−	0.3−	1999 02 12	704	(3.3−	0.6+)
1973 09 29	675	0.2+	1.3+	1999 01 20	120	1.1−	0.1+	1999 02 15	120	0.2−	0.4+
1973 09 29	675	0.3−	1.0−	1999 01 20	120	0.4−	0.2−	1999 02 15	120	0.6−	0.1+
1973 09 29	675	1.2+	2.1+	1999 01 21	120	1.1+	0.1+	1999 02 16	704	0.0	0.4−
1973 10 04	675	0.9−	1.1−	1999 01 21	120	0.5+	0.1+	1999 02 16	704	0.9+	0.6+
1973 10 04	675	0.9−	1.6−	1999 01 22	120	0.2−	0.3+	1999 02 16	704	0.2+	0.3+
1982 02 25	010	1.8−	0.5−	1999 02 12	704	0.5+	0.8+	1999 02 16	704	0.3+	1.2+
1982 02 26	010	1.2+	1.1−	1999 02 12	704	0.5−	0.3+	1999 02 16	704	0.9−	0.3−

**1999 BE₆ = 1991 EU₄ = 1992 OW₆ = 1995 FC₁ = 1996 NM₂
= 1997 WK₄₆**

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	296.65311		(2000.0)			P		Q			
n	0.24434915	ω	80.65683			−0.59810165		+0.80122085			
a	2.5339351	Ω	152.58461			−0.74968693		−0.55146937			
e	0.0766483	i	2.22507			−0.28327359		−0.23222121			
P	4.03	H	14.3	G	0.15	U	1				
Residuals in seconds of arc											
1991 03 12	809	1.3+	0.4+	1995 04 04	905	2.8−	2.3+	1997 11 29	704	0.2−	1.8−
1991 03 12	809	1.7+	0.6+	1996 07 14	809	0.5−	0.4+	1997 11 29	704	0.4−	1.1−
1991 03 12	809	1.8+	0.8+	1996 07 14	809	1.2−	1.0+	1997 11 29	704	0.3+	1.5−
1991 03 14	809	0.3−	0.4−	1996 07 14	809	1.6−	0.7+	1999 01 20	910	0.4−	0.9−
1991 03 14	809	0.0	0.4−	1996 07 16	809	0.2−	2.6+	1999 01 20	910	0.3−	1.1−
1991 03 14	809	0.5+	0.4−	1996 07 16	809	1.1+	2.4+	1999 01 20	910	0.0	1.5−
1992 07 30	809	0.3+	0.8−	1996 07 16	809	0.5−	1.9+	1999 01 22	910	0.2−	1.4−
1992 07 30	809	0.1−	1.5−	1997 11 26	704	0.4+	2.0+	1999 01 22	910	0.1−	1.4−
1992 07 30	809	0.7+	0.7−	1997 11 26	704	0.7+	2.3+	1999 01 22	910	0.0	1.4−
1992 07 31	809	0.8+	1.1−	1997 11 26	704	0.4−	1.8+	1999 02 23	120	0.1−	0.4+
1992 07 31	809	0.6+	2.1−	1997 11 26	704	0.0	1.5+	1999 02 24	120	1.1+	0.4−
1992 07 31	809	0.1+	1.7−	1997 11 26	704	1.7−	1.4+	1999 02 26	120	1.9+	0.7+
1995 03 26	905	0.0	1.2+	1997 11 26	704	1.1−	0.9+	1999 02 26	120	0.2+	0.0
1995 03 26	905	1.0−	0.5+	1997 11 29	704	0.8+	0.8−	1999 02 27	120	0.4+	0.5−
1995 04 04	905	3.1−	2.2+	1997 11 29	704	1.0+	1.0−				

1999 BT₆ = 1997 WE₃₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	248.00196		(2000.0)		P		Q				
n	0.29048534	ω	221.19500		+0.42292455		+0.90274969				
a	2.2579790	Ω	73.95851		−0.80849381		+0.41508936				
e	0.0490915	i	4.69109		−0.40923415		+0.11288849				
P	3.39	H	18.6		G	0.15	U	5			
Residuals in seconds of arc											
1997 11 26	704	0.4+	1.4+	1997 12 04	704	1.0+	0.5−	1999 01 22	910	0.1+	0.1−
1997 11 26	704	1.1+	0.5+	1997 12 04	704	0.4+	0.6−	1999 01 22	910	0.1+	0.0
1997 11 26	704	0.5+	1.2+	1997 12 04	704	0.2−	1.4−	1999 01 22	910	0.2+	0.0
1997 11 29	704	1.3−	0.2+	1997 12 04	704	1.6−	1.1−	1999 01 26	910	0.2−	0.3+
1997 11 29	704	(2.3−	0.1+)	1997 12 04	704	1.0+	0.3+	1999 01 26	910	0.4−	0.3+
1997 11 29	704	(2.9−	0.2−)	1999 01 21	910	0.5+	0.2−	1999 01 26	910	0.4−	0.2+
1997 11 29	704	(2.9−	0.4+)	1999 01 21	910	0.2+	0.1−				
1997 11 29	704	1.3−	0.0	1999 01 21	910	0.1−	0.4−				

1999 BC₈ = 1982 BG₁₅ = 1996 TR₅₆

Id. T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	346.19314			(2000.0)			P			Q					
n	0.17658189			ω	208.83077			−0.95891480			−0.26022916				
a	3.1465788			Ω	315.60768			+0.28126273			−0.82003576				
e	0.1328094			i	9.29348			+0.03706312			−0.50972752				
P	5.58			H	13.7			G	0.15			U	3		
Residuals in seconds of arc															
1982 01 30	675	0.4−	0.0	1999 01 23	120	0.1−	0.5−	1999 02 12	704	0.1−	1.2+				
1982 01 31	675	0.4+	0.1+	1999 01 23	120	0.2−	0.2−	1999 02 12	704	0.1−	1.2+				
1996 10 02	809	1.5+	0.2−	1999 01 24	120	1.0−	0.1+	1999 02 16	704	0.2−	0.0				
1996 10 02	809	0.4+	1.1−	1999 01 24	120	0.3+	0.8−	1999 02 16	704	0.3−	0.3−				
1996 10 02	809	0.2+	0.1−	1999 01 25	120	1.0−	0.8−	1999 02 16	704	0.3+	0.2−				
1996 10 03	809	0.2−	1.1+	1999 02 05	120	0.4−	0.6+	1999 02 16	704	0.7+	0.7−				
1996 10 03	809	0.4−	0.0	1999 02 05	120	1.1−	0.8+	1999 02 17	910	0.7+	0.3−				
1996 10 03	809	1.7−	0.5+	1999 02 05	120	0.0	0.0	1999 02 17	910	0.9+	0.2−				
1999 01 15	699	0.1−	0.6+	1999 02 12	699	0.2−	0.3+	1999 02 17	910	0.9+	0.4−				
1999 01 15	699	0.3−	0.0	1999 02 12	704	0.8−	1.1−	1999 02 19	910	0.9+	0.3−				
1999 01 15	699	0.7−	0.8+	1999 02 12	699	0.3+	0.3+	1999 02 19	910	1.0+	0.5−				
1999 01 22	120	0.4−	0.8+	1999 02 12	704	0.1+	1.1+	1999 02 19	910	0.8+	0.4−				
1999 01 22	120	0.5−	1.3−	1999 02 12	699	0.6+	0.0								
1999 01 23	120	0.2+	0.0	1999 02 12	704	0.4−	0.2+								

1999 BF₈ = 1978 JL₃ = 1996 RY₂₄ = 1997 WX₃₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	12.15616		(2000.0)		P		Q				
n	0.18267438	ω	68.55680		−0.69867765		−0.71446436				
a	3.0762216	Ω	65.82106		+0.64033940		−0.64773339				
e	0.0730731	i	2.34239		+0.31908461		−0.26454135				
P	5.40	H	13.1		G	0.15	U	1			
Residuals in seconds of arc											
1978 05 05	095	0.2+	0.6+	1997 12 04	704	(0.6−	2.5−)	1999 02 10	704	0.6−	1.1+
1996 09 11	691	1.1−	1.1+	1997 12 04	704	1.0−	0.4−	1999 02 13	704	0.8+	0.1−
1996 09 11	691	1.1−	1.0+	1999 01 19	104	0.4−	0.4−	1999 02 13	704	1.1+	0.7+
1996 09 11	691	1.1−	0.5+	1999 01 20	104	0.1−	0.5−	1999 02 13	704	0.1+	0.3+
1996 09 16	566	0.4+	0.2+	1999 01 20	104	0.3+	0.3+	1999 02 13	704	0.4+	0.3−
1996 09 16	566	0.6+	0.1−	1999 01 20	104	0.0	0.1−	1999 02 13	704	1.0−	0.9−
1996 09 16	566	1.1+	0.2+	1999 02 07	104	1.0−	0.3−	1999 02 14	108	1.7+	0.1−
1997 11 29	704	0.4−	0.3−	1999 02 07	104	1.2−	0.4+	1999 02 14	108	1.0−	0.6−
1997 11 29	704	1.0+	0.4+	1999 02 07	104	0.0	1.0+	1999 02 14	108	0.9+	0.8+
1997 11 29	704	0.1−	0.4+	1999 02 07	104	0.3+	0.5+	1999 02 14	108	0.6+	0.1−
1997 11 29	704	0.5−	0.4+	1999 02 10	704	0.1−	0.4+	1999 02 19	104	0.2+	0.4−
1997 11 29	704	0.3+	0.3+	1999 02 10	704	0.4−	0.2−	1999 02 19	104	0.1−	0.1−

1999 MAR. 2

1997 12 04 704 0.1− 0.8− 1999 02 10 704 0.1− 0.1+
 1997 12 04 704 0.9+ 0.1− 1999 02 10 704 0.5+ 1.2+

1999 BX₈ = 1979 WD₁ = 1997 RH₁₁

Id. T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	14.71131		(2000.0)	P	Q
<i>n</i>	0.26722675	ω	279.44712	−0.37610577	−0.92653841
<i>a</i>	2.3871668	Ω	192.65544	+0.86449855	−0.34761989
<i>e</i>	0.1508159	<i>i</i>	2.20461	+0.33344670	−0.14382973
<i>P</i>	3.69	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1979 11 16	095	0.0	0.1−	1999 01 23	120	0.0	0.1−	1999 02 12	704	0.3+	0.2−
1997 09 03	910	0.3+	0.2−	1999 01 23	120	1.1+	0.9−	1999 02 12	704	0.0	0.0
1997 09 03	910	0.1+	0.2−	1999 01 24	120	0.1+	0.0	1999 02 12	704	0.1+	0.2−
1997 09 03	910	0.1+	0.3−	1999 01 24	120	0.5+	0.1+	1999 02 16	704	0.8+	1.0−
1997 09 05	910	0.1−	0.3+	1999 02 06	120	0.3−	0.2+	1999 02 16	704	0.5+	0.5−
1997 09 05	910	0.3−	0.3+	1999 02 06	120	0.6−	0.2+	1999 02 16	704	0.1−	0.1−
1997 09 05	910	0.1−	0.1+	1999 02 06	120	0.5−	0.0	1999 02 16	704	0.1−	0.5−
1999 01 14	699	0.0	0.5+	1999 02 08	732	0.7−	0.5−	1999 02 16	704	0.6−	0.8+
1999 01 14	699	0.0	0.4+	1999 02 08	732	0.5−	0.3−	1999 02 17	120	0.0	0.2+
1999 01 14	699	0.3+	0.1+	1999 02 08	732	0.3−	0.3−	1999 02 17	120	0.8+	0.3+
1999 01 22	699	0.1+	0.3+	1999 02 09	732	0.6−	0.1+	1999 02 19	566	0.1+	0.6+
1999 01 22	699	0.0	0.8+	1999 02 09	732	0.1+	0.1−	1999 02 19	566	0.6+	0.9+
1999 01 22	699	0.5+	0.4+	1999 02 09	732	0.5−	0.1−	1999 02 19	566	0.2+	0.7+
1999 01 22	120	0.5−	0.4−	1999 02 12	704	0.1+	1.0−				
1999 01 22	120	0.4−	0.1+	1999 02 12	704	0.4−	0.4−				

1999 BA₉ = 1995 DW₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	247.88491		(2000.0)	P	Q
<i>n</i>	0.24453624	ω	300.87866	−0.14786570	+0.97877491
<i>a</i>	2.5326425	Ω	319.83158	−0.81560637	−0.20183099
<i>e</i>	0.1427754	<i>i</i>	12.70823	−0.55939431	+0.03555167
<i>P</i>	4.03	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1995 02 21	691	0.1−	0.0	1999 01 24	120	0.1+	0.1+	1999 02 12	699	0.9+	0.2+
1995 02 21	691	0.1+	0.1+	1999 01 24	120	0.3+	0.3−	1999 02 12	699	0.9+	0.3−
1995 02 21	691	0.2−	0.0	1999 01 24	120	0.5−	0.3+	1999 02 12	699	0.9+	1.0+
1995 03 07	691	0.0	0.2−	1999 01 24	120	0.4−	0.2−	1999 02 13	704	0.6+	0.4−
1995 03 07	691	0.3−	0.1+	1999 01 25	120	0.3−	0.5−	1999 02 13	704	0.9+	0.4−
1995 03 07	691	0.4+	0.1−	1999 01 25	120	0.0	0.3+	1999 02 13	704	1.1−	0.1+
1999 01 22	120	0.2+	0.1+	1999 02 10	704	0.1+	0.4−	1999 02 13	704	1.0−	0.7−
1999 01 22	120	0.2−	0.3−	1999 02 10	704	0.3−	0.4+	1999 02 13	704	1.1−	0.1−
1999 01 23	120	0.5+	0.2+	1999 02 10	704	0.1−	0.2+	1999 02 17	120	0.2+	0.1−
1999 01 23	120	0.3+	0.4−	1999 02 10	704	1.5−	0.0	1999 02 17	120	0.3+	0.1−
1999 01 23	120	0.9+	0.1−	1999 02 10	704	0.5−	1.3+				

1999 BJ₉ = 1992 FO₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	251.80501		(2000.0)	P	Q
<i>n</i>	0.26595244	ω	71.48779	−0.13933950	+0.99022288
<i>a</i>	2.3947861	Ω	190.50908	−0.92157574	−0.13210126
<i>e</i>	0.1883754	<i>i</i>	2.06392	−0.36232950	−0.04480962
<i>P</i>	3.71	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1992 03 30	776	0.4−	0.2−	1992 04 04	776	0.1+	0.4+	1992 04 07	776	0.1−	0.6−	Y
1992 03 30	776	0.2−	0.8−	1992 04 04	776	0.3+	0.9+	1992 04 07	776	1.1−	0.4+	
1992 03 30	776	1.3−	1.0−	1992 04 04	776	0.3−	1.7−	1992 04 07	776	0.2+	0.5−	Y
1992 03 30	776	0.4−	0.3−	1992 04 04	776	0.3+	0.2−	1992 04 09	776	0.3+	0.4−	
1992 03 30	776	0.1−	0.3−	1992 04 04	776	0.8+	1.4+	1992 04 09	776	1.1+	0.7+	
1992 03 30	776	0.9−	0.2−	1992 04 04	776	0.8+	0.0	1992 04 09	776	0.5−	0.7−	

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1992 03 30	776	0.2+	0.4−	1992 04 04	776	0.5+	0.4+	1992 04 09	776	0.6−	0.3−	
1992 03 30	776	0.7−	0.6−	1992 04 04	776	0.3−	0.7+	1999 01 22	120	(2.3−	0.4−)	
1992 03 30	776	0.4−	0.2−	1992 04 04	303	1.7+	1.8−	1999 01 22	120	0.2−	0.2+	
1992 03 30	776	0.7−	0.1−	1992 04 04	303	(3.8+	2.2−)	1999 01 23	120	0.9+	0.3−	
1992 03 30	776	0.2+	0.4−	1992 04 04	776	0.3−	0.8+	1999 01 23	120	0.6−	0.7−	
1992 03 30	776	0.2+	0.0	1992 04 04	303	1.1+	0.5+	1999 01 24	120	0.6+	0.2+	
1992 03 30	776	0.1+	0.2+	1992 04 05	776	0.6+	0.3+	1999 01 25	120	0.3+	0.1−	
1992 03 30	776	0.6−	0.1+	1992 04 05	776	0.2−	0.4+	1999 01 25	120	0.8−	1.0−	
1992 03 30	776	0.2−	0.8+	1992 04 05	776	0.5+	0.7+	1999 01 25	120	0.9−	0.0	
1992 04 01	776	2.0+	0.9−	1992 04 05	776	0.3+	0.7+	1999 02 12	699	1.6+	1.9+	
1992 04 01	776	0.1+	0.9+	1992 04 05	776	0.9−	0.6+	1999 02 12	699	(2.9+	0.4+)	
1992 04 01	776	(2.1+	0.6−)	1992 04 06	776	0.0	0.8−	1999 02 12	699	0.7+	0.5+	
1992 04 01	776	(3.2+	0.7−)	1992 04 06	776	0.1+	0.3−	1999 02 12	704	0.3+	0.9−	
1992 04 01	776	0.5+	0.4+	1992 04 06	776	0.0	0.6−	1999 02 12	704	0.1+	0.2+	
1992 04 01	776	1.8+	0.8+	1992 04 06	776	1.6−	0.8−	1999 02 12	704	1.4−	0.3+	
1992 04 01	776	0.5+	0.5+	1992 04 06	776	0.1−	0.7−	1999 02 12	120	0.8−	0.8−	
1992 04 01	776	1.2+	0.7−	1992 04 06	776	(2.9−	1.2+)	1999 02 12	120	0.4−	0.7+	
1992 04 01	776	0.1+	0.1−	1992 04 07	776	0.8+	0.9+	Y 1999 02 16	704	0.7+	0.0	
1992 04 03	303	1.6−	0.1+	1992 04 07	776	0.7−	0.1+	Y 1999 02 16	704	0.7−	0.3+	
1992 04 03	303	1.0−	0.2+	1992 04 07	776	0.5−	0.2+	1999 02 16	704	0.1+	0.7+	
1992 04 03	303	0.2−	1.2+	1992 04 07	776	0.9−	0.2+	1999 02 16	704	0.4+	1.0−	

1999 BO₉ = 1972 GW = 1979 XJ₁ = 1991 JF₃ = 1997 XW₅

Id. T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	118.35497		(2000.0)	P	Q
<i>n</i>	0.21616358	ω	146.97557	+0.94422601	−0.32324523
<i>a</i>	2.7496729	Ω	232.01118	+0.28219538	+0.89265249
<i>e</i>	0.0729328	<i>i</i>	4.57374	+0.16971450	+0.31414019
<i>P</i>	4.56	<i>H</i>	13.1	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1972 04 12	095	0.2−	1.8−	1999 01 22	428	0.1−	0.2−	1999 02 15	428	0.2−	0.5+
1979 12 14	095	0.3−	2.3−	1999 01 22	428	0.3−	0.7−	1999 02 16	910	1.2+	0.4+
1991 05 12	809	0.4+	0.2+	1999 01 23	428	0.1+	0.7−	1999 02 16	910	0.5+	0.2−
1991 05 12	809	0.2−	0.4−	1999 01 23	428	0.3−	0.3−	1999 02 16	910	0.7+	0.1−
1991 05 12	809	0.5−	0.2+	1999 01 26	428	0.2−	0.3−	1999 02 16	704	0.3+	0.2+
1991 05 17	809	0.1+	0.7−	1999 01 26	428	0.5−	0.3+	1999 02 16	704	(2.4+	1.7+)
1991 05 17	809	0.5−	0.6−	1999 02 10	428	0.1−	0.2−	1999 02 16	704	0.3+	1.9+
1991 05 17	809	0.4+	0.4−	1999 02 10	428	0.1−	0.3−	1999 02 16	704	1.1+	1.2+
1997 12 05	910	0.3−	0.3−	1999 02 10	428	0.5−	0.1+	1999 02 16	704	1.6+	0.5+
1997 12 05	910	0.3−	0.2−	1999 02 12	704	0.3−	0.6−	1999 02 17	428	0.4−	0.2+
1997 12 05	910	0.4−	0.2−	1999 02 12	704	0.2+	0.5−	1999 02 17	428	0.5−	0.1+
1997 12 07	910	0.5+	0.1+	1999 02 12	704	0.4−	0.1−	1999 02 18	566	0.3−	0.1+
1997 12 07	910	0.6+	0.2+	1999 02 12	704	0.3+	0.2+	1999 02 18	566	0.6−	0.1+
1997 12 07	910	0.3+	0.2+	1999 02 12	704	0.9−	0.6−	1999 02 18	566	0.5−	0.0
1999 01 15	699	0.1+	0.6+	1999 02 12	428	0.2−	0.1−	1999 02 23	428	0.2−	0.1+
1999 01 15	699	0.6+	0.1−	1999 02 12	428	0.2+	0.4−	1999 02 23	428	0.6−	0.2+
1999 01 15	699	0.7+	0.3+	1999 02 15	428	0.1−	0.0	1999 02 23	428	0.1−	0.1−

1999 BH₁₀ = 1987 SJ₂₈ = 1997 WY₃₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	199.12767		(2000.0)	P	Q
<i>n</i>	0.21022928	ω	147.15040	+0.52523745	+0.85042105
<i>a</i>	2.8011772	Ω	154.49521	−0.79507154	+0.50306807
<i>e</i>	0.1189381	<i>i</i>	4.01659	−0.30329337	+0.15396935
<i>P</i>	4.69	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1987 09 2

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1997 12 04	704	1.8+	1.4+	1999 01 26	120	1.2+	1.0-	1999 02 16	704	0.8-	0.8-
1997 12 04	704	1.2-	1.4+	1999 02 12	704	0.9+	1.0-	1999 02 16	704	0.4-	0.6-

1999 BP₁₀ = 1992 EP₃₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	344.55608		(2000.0)	P	Q
<i>n</i>	0.27948813	ω	16.46223	-0.95189354	-0.30554975
<i>a</i>	2.3168281	Ω	145.71895	+0.27629699	-0.88856219
<i>e</i>	0.1668262	<i>i</i>	2.36018	+0.13250907	-0.34219379
<i>P</i>	3.53	<i>H</i>	16.7	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1992 03 01	809	0.1-	0.5-	1999 01 23	910	0.0	0.2+	1999 02 12	699	0.5+	0.3-
1992 03 03	809	0.9-	0.3-	1999 01 23	910	0.1+	0.2+	1999 02 13	704	0.6+	0.6-
1992 03 07	809	1.0+	0.7+	1999 02 10	704	1.3-	2.0+	1999 02 13	704	1.4-	1.1-
1999 01 19	910	0.0	0.3-	1999 02 10	704	0.0	0.7-	1999 02 13	704	0.2-	0.6+
1999 01 19	910	0.1+	0.1-	1999 02 10	704	0.2-	0.0	1999 02 13	704	1.4+	0.7+
1999 01 19	910	0.0	0.2-	1999 02 12	699	0.3+	0.2-				
1999 01 23	910	0.0	0.1+	1999 02 12	699	0.4+	0.1-				

1999 BE₁₁ = 1979 OP₁₂ = 1992 DQ₁₁

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	110.22170		(2000.0)	P	Q
<i>n</i>	0.27749219	ω	243.18452	+0.92323116	-0.37643983
<i>a</i>	2.3279244	Ω	138.80269	+0.38080480	+0.86960546
<i>e</i>	0.1275198	<i>i</i>	6.71823	+0.05130239	+0.31949865
<i>P</i>	3.55	<i>H</i>	15.5	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1979 07 26	675	0.4-	0.9+	1999 01 23	910	0.9+	0.9-	1999 02 10	704	0.0	0.3+
1979 07 27	675	0.5+	1.4-	1999 01 23	910	1.0+	0.9-	1999 02 10	704	(0.4-	3.5+)
1992 02 29	809	0.6+	1.4-	1999 01 23	910	0.9+	0.9-	1999 02 13	704	0.5-	1.3+
1992 03 03	809	0.8-	1.2+	1999 01 26	910	0.3+	1.0-	1999 02 13	704	0.4-	0.3+
1999 01 20	910	0.6+	0.3-	1999 01 26	910	0.2+	0.9-	1999 02 13	704	0.3-	0.9+
1999 01 20	910	0.3+	0.1-	1999 01 26	910	0.2+	1.1-	1999 02 13	704	(1.9-	2.9+)
1999 01 20	910	0.4+	0.1+	1999 02 10	704	1.6-	1.5+	1999 02 13	704	1.5-	0.8+

1999 BS₁₁ = 1994 UV₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	119.22178		(2000.0)	P	Q
<i>n</i>	0.29740233	ω	47.61197	+0.99151382	-0.12460702
<i>a</i>	2.2228311	Ω	319.50489	+0.09606345	+0.89434300
<i>e</i>	0.1963379	<i>i</i>	3.27161	+0.08759085	+0.42967858
<i>P</i>	3.31	<i>H</i>	15.4	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1994 10 28	400	1.1-	0.1+	1999 01 23	910	0.3+	0.0	1999 02 12	704	0.8-	0.5-
1994 10 28	400	1.8+	0.2+	1999 01 23	910	0.3+	0.1+	1999 02 16	704	0.1-	0.4-
1994 11 03	400	0.1-	0.7+	1999 01 23	910	0.4+	0.1-	1999 02 16	704	1.6+	0.3-
1994 11 03	400	0.5-	1.0-	1999 02 12	704	0.6-	0.2+	1999 02 16	704	0.1-	0.9-
1999 01 21	910	0.2+	0.2+	1999 02 12	704	1.4-	0.0	1999 02 16	704	1.4-	1.7+
1999 01 21	910	0.1+	0.1+	1999 02 12	704	1.1+	0.1-	1999 02 16	704	0.1-	0.3+
1999 01 21	910	0.2+	0.0	1999 02 12	704	0.6+	0.3-				

1999 BD₁₂ = 1989 JH = 1990 WC₅ = 1990 WO₁₁

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	221.56589		(2000.0)	P	Q
<i>n</i>	0.27498410	ω	202.83417	+0.28743985	+0.93762044
<i>a</i>	2.3420581	Ω	84.32163	-0.84563561	+0.34431120
<i>e</i>	0.2260626	<i>i</i>	11.33417	-0.44975410	-0.04814261
<i>P</i>	3.58	<i>H</i>	13.6	<i>G</i>	0.15
				<i>U</i>	3

1999 MAR. 2

Residuals in seconds of arc

1989 05 02	675	0.3-	1.3+	1990 11 22	809	0.1+	0.3-	1999 02 10	704	0.0	0.4+
1989 05 02	675	0.4-	0.6+	1999 01 22	411	0.7+	0.1-	1999 02 10	704	0.3-	0.6+
1989 05 04	675	0.2-	0.7-	1999 01 22	411	0.7+	1.4-	1999 02 10	704	0.5+	0.6-
1989 05 04	675	0.7+	1.6-	1999 01 25	411	0.3+	0.9-	1999 02 13	704	0.1+	0.8+
1990 11 16	809	0.4+	0.7-	1999 01 25	411	0.3+	0.4-	1999 02 13	704	1.2-	0.5+
1990 11 17	809	0.3+	1.7+	1999 01 28	411	0.5-	1.3-	1999 02 13	704	1.5+	1.5+
1990 11 22	809	0.3-	0.9-	1999 01 28	411	0.7+	0.0	1999 02 13	704	0.3-	1.1+
1990 11 22	809	0.2-	0.2-	1999 02 10	704	1.0-	0.8-	1999 02 13	704	1.6-	0.6+

1999 BS₁₂ = 1990 TF₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	123.96372		(2000.0)	P	Q
<i>n</i>	0.26699550	ω	122.81327	+0.96159476	+0.26801009
<i>a</i>	2.3885450	Ω	221.72587	-0.27204217	+0.90198666
<i>e</i>	0.1381527	<i>i</i>	5.10409	-0.03644973	+0.33851242
<i>P</i>	3.69	<i>H</i>	15.1	<i>G</i>	0.15
				<i>U</i>	6

Residuals in seconds of arc

1990 10 13	033	0.4+	1.0-	1999 01 25	747	0.2+	0.0	1999 02 05	747	0.4+	0.1-
1990 10 13	033	0.4-	1.0+	1999 01 26	747	0.7-	0.5-	1999 02 05	747	0.9-	0.8+
1990 10 14	033	0.6+	1.0-	1999 01 26	747	0.2+	0.1-	1999 02 06	747	0.5+	0.1-
1990 10 18	033	0.6-	1.1+	1999 01 26	747	0.2+	0.2-	1999 02 06	747	0.2+	0.3+
1999 01 25	747	0.2+	0.2-	1999 01 26	747	0.4-	0.3-	1999 02 15	747	0.2-	1.1+
1999 01 25	747	0.5+	0.6-	1999 02 05	747	0.4-	0.4+	1999 02 15	747	0.2+	0.4+
1999 01 25	747	0.1+	0.1-	1999 02 05	747	0.1-	0.4-	1999 02 15	747	0.1-	0.3-

1999 BA₁₃ = 6182 P-L

Id. T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	303.82256		(2000.0)	P	Q
<i>n</i>	0.26764982	ω	297.51389	-0.95471794	+0.29572604
<i>a</i>	2.3846506	Ω	259.70212	-0.25995863	-0.88241346
<i>e</i>	0.1196370	<i>i</i>	1.89609	-0.14468988	-0.36591337
<i>P</i>	3.68	<i>H</i>	15.1	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1960 09 24	675	0.2-	0.3+	1999 01 25	120	0.8-	0.4+	1999 02 08	120	0.4+	0.9+
1960 09 25	675	0.4+	0.1-	1999 01 25	120	0.3+	0.2-	1999 02 12	120	1.4-	0.6+
1960 09 26	675	0.2-	0.2-	1999 01 27	120	0.2+	0.2+	1999 02 12	120	1.4+	0.7-
1999 01 24	120	0.5-	0.2-	1999 01 27	120	0.2+	0.5-	1999 02 12	120	1.5-	0.1-
1999 01 24	120	0.5+	0.2-	1999 02 08	120	0.2+	0.3-				
1999 01 24	120	0.5-	0.3+	1999 02 08	120	1.4+	0.2-				

1999 BO₁₄ = 1992 EF₃₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	28.91998		(2000.0)	P	Q
<i>n</i>	0.27408002	ω	84.29386	+0.06570130	-0.99782683
<i>a</i>	2.3472056	Ω	1.95998	+0.84791936	+0.05318993
<i>e</i>	0.1737410	<i>i</i>	8.39932	+0.52603811	+0.03889023
<i>P</i>	3.60	<i>H</i>	15.2	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1992 03 03	809	0.7-	0.1-	1999 01 27	757	0.2-	1.0-	1999 02 13	704	0.3-	0.0
1992 03 07	809	0.8+	0.2+	1999 01 27	757	1.1+	0.4-	1999 02 13	704	0.2+	0.7+
1998 12 27	699	0.5-	0.8+	1999 02 05	757	0.6-	0.2-	1999 02 13	704	0.1+	0.2+
1998 12 27	699	0.2+	0.1+	1999 02 05	757	0.2+	0.0	1999 02 13	704	0.0	0.1-
1998 12 27	699	0.4+	0.1+	1999 02 10	704	0.5+	0.0	1999 02 13	704	0.7-	0.1-
1999 01 25	757	0.6-	0.3-	1999 02 10	704	0.5-	0.4-	1999 02 15	757	0.5+	0.7+
1999 01 25	757	0.6-	0.1-	1999 02 10	704	0.3+	0.1-	1999 02 15	757	0.1+	0.2-
1999 01 26	757	(1.7+	2.9-)	1999 02 10	704	0.4-	0.5-				
1999 01 26	757	0.8+	0.3+	1999 02 10	704	0.0	0.4+				

1999 MAR. 2

M.P.C. 33989

1999 BQ₁₄ = 1994 YD₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	69.94479	(2000.0)	P		Q	
<i>n</i>	0.27763985	<i>ω</i>	240.31604	+0.87834417	−0.47414499	
<i>a</i>	2.3270989	<i>Ω</i>	147.87529	+0.46852546	+0.82864824	
<i>e</i>	0.2211745	<i>i</i>	6.56661	+0.09484411	+0.29753759	
<i>P</i>	3.55	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1994 12 29	360	0.1−	0.2+	1999 01 26	426	0.0	0.3−	1999 02 12	704	1.4−	0.0
1994 12 29	360	0.0	0.1+	1999 02 04	426	0.1+	0.6−	1999 02 12	704	0.7+	0.1+
1994 12 29	360	0.1−	0.2+	1999 02 04	426	0.1−	0.3+	1999 02 12	704	0.2+	0.1−
1995 01 06	360	0.1+	0.2−	1999 02 04	426	0.3+	0.1+	1999 02 12	704	0.5+	0.4+
1995 01 06	360	0.1+	0.3−	1999 02 09	426	0.1−	0.1−	1999 02 12	704	0.2+	0.2+
1999 01 24	426	0.9+	0.4+	1999 02 09	426	0.5−	0.5−	1999 02 16	704	1.0+	0.3−
1999 01 24	426	0.4+	0.4+	1999 02 09	426	0.4−	0.6−	1999 02 16	704	0.8−	0.1−
1999 01 24	426	0.5−	0.3−	1999 02 11	699	0.5−	0.7−	1999 02 16	704	1.1−	1.5+
1999 01 26	426	0.4+	0.1−	1999 02 11	699	0.0	0.1+	1999 02 16	704	1.3+	0.8+
1999 01 26	426	0.3−	0.3−	1999 02 11	699	0.3−	0.3−				

1999 BV₁₄ = 1993 TV₄₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	322.48636	(2000.0)	P		Q	
<i>n</i>	0.24140304	<i>ω</i>	133.19733	−0.96567052	−0.25961005	
<i>a</i>	2.5545097	<i>Ω</i>	31.75895	+0.23303138	−0.88124318	
<i>e</i>	0.0616522	<i>i</i>	0.99219	+0.11479034	−0.39498491	
<i>P</i>	4.08	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i> 7

Residuals in seconds of arc

1993 10 09	809	1.1+	0.2+	1993 10 11	809	0.4−	0.3−	1999 01 22	376	0.2−	1.2−
1993 10 09	809	1.2−	0.3+	1999 01 18	376	0.4+	0.3+	1999 01 22	376	1.2−	0.2+
1993 10 09	809	0.3−	0.1+	1999 01 18	376	0.3−	0.1−	1999 02 05	376	0.7−	0.0
1993 10 11	809	0.1+	0.0	1999 01 20	376	0.4+	0.1+	1999 02 05	376	0.4+	0.2+
1993 10 11	809	0.7+	0.3−	1999 01 20	376	0.7+	0.3+	1999 02 05	376	0.5+	0.1+

1999 BW₁₄ = 1997 TV₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	286.07343	(2000.0)	P		Q	
<i>n</i>	0.26091513	<i>ω</i>	233.41084	−0.83623195	+0.54829181	
<i>a</i>	2.4255108	<i>Ω</i>	339.83360	−0.49380945	−0.76052232	
<i>e</i>	0.1439585	<i>i</i>	1.59625	−0.23847087	−0.34782453	
<i>P</i>	3.78	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i> 6

Residuals in seconds of arc

1997 10 02	910	0.2−	0.3+	1997 10 04	910	0.3−	0.1−	1999 01 22	376	0.8−	0.4+
1997 10 02	910	0.0	0.1+	1999 01 18	376	0.3+	0.4+	1999 01 22	376	0.9+	0.7−
1997 10 03	910	0.8+	0.2−	1999 01 18	376	0.5+	0.2+	1999 02 05	376	0.4+	0.2−
1997 10 04	910	0.2−	0.0	1999 01 20	376	0.1−	0.6+	1999 02 05	376	0.3−	0.0
1997 10 04	910	0.1−	0.2−	1999 01 20	376	0.9−	0.7−				

1999 BZ₁₄ = 1997 WP₂₄

Id. T. Urata, A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	337.09950	(2000.0)	P		Q	
<i>n</i>	0.21885171	<i>ω</i>	302.63197	−0.98075685	−0.16469182	
<i>a</i>	2.7271106	<i>Ω</i>	228.12101	+0.18946364	−0.93247299	
<i>e</i>	0.1094408	<i>i</i>	8.09508	−0.04711190	−0.32151319	
<i>P</i>	4.50	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1997 11 28	691	0.2−	0.3−	1999 01 25	385	0.8−	0.4+	1999 02 16	704	0.1−	0.1+
1997 11 28	691	0.4−	0.4+	1999 01 25	385	1.0−	0.6+	1999 02 16	704	0.0	0.6−
1997 11 28	691	0.4−	0.3−	1999 01 27	385	1.1+	0.9−	1999 02 16	704	0.9+	0.6−
1997 12 04	691	0.5+	0.1+	1999 02 06	888	0.8+	0.0	1999 02 16	704	0.7+	1.5−

1997 12 04	691	0.4+	0.2+	1999 02 12	704	0.7−	0.4+	1999 02 16	704	1.1+	0.5−
1997 12 04	691	0.1+	0.1−	1999 02 12	704	0.7−	0.6−	1999 02 18	566	0.2+	0.0
1999 01 22	385	1.5+	0.5−	1999 02 12	704	1.1−	1.1+	1999 02 18	566	0.3−	0.2+
1999 01 22	385	0.6−	1.2+	1999 02 12	704	0.5−	0.3+	1999 02 18	566	0.0	0.5+
1999 01 25	385	0.4+	0.2−	1999 02 12	704	0.9−	0.5+				

1999 BF₁₅ = 1990 SE₂₉ = 1990 US₁₂ = 1994 PT₁

Id. G. V. Williams, A. Doppler, N. S. Chernykh (d)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	75.70787	(2000.0)	P		Q	
<i>n</i>	0.26563490	<i>ω</i>	182.53169	+0.86843266	−0.49558401	
<i>a</i>	2.3966942	<i>Ω</i>	207.19253	+0.45546410	+0.80926317	
<i>e</i>	0.2039921	<i>i</i>	1.86509	+0.19590092	+0.31541974	
<i>P</i>	3.71	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1990 09 29	095	1.3−	2.6+	1999 01 14	699	0.9+	0.1+	1999 02 12	704	1.0+	0.2−
1990 10 23	095	0.6−	2.5+	1999 01 14	699	0.4+	0.3−	1999 02 12	704	1.8−	1.7−
1994 08 12	381	0.4+	0.9−	1999 01 14	699	1.3+	0.3+	1999 02 12	120	0.5+	1.0+
1994 08 12	381	0.8+	0.4−	1999 01 24	120	0.1−	0.1−	1999 02 12	120	0.2−	0.6+
1994 08 12	381	0.3+	1.0−	1999 01 25	120	0.8+	0.6−	1999 02 12	120	0.3−	0.4+
1994 08 12	381	0.2+	0.8−	1999 01 27	120	0.2−	0.3+	1999 02 16	704	0.1−	0.2+
1994 08 13	381	0.3−	1.5−	1999 01 27	120	0.1+	0.3+	1999 02 16	704	0.3+	0.0
1994 08 13	381	0.7+	1.9−	1999 02 12	704	0.3+	0.7+	1999 02 16	704	0.3−	0.2+
1994 08 14	381	0.4+	2.1−	1999 02 12	704	0.7+	0.0	1999 02 16	704	0.9−	0.2+
1994 08 14	381	1.4−	1.5−	1999 02 12	704	0.5−	0.1+	1999 02 16	704	1.4−	0.7+

1999 BJ₁₅ = 1979 OA₁₂ = 1987 KM

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	271.34875	(2000.0)	P		Q	
<i>n</i>	0.23268154	<i>ω</i>	332.18572	−0.53418300	+0.84223495	
<i>a</i>	2.6179505	<i>Ω</i>	265.44171	−0.76144083	−0.51673566	
<i>e</i>	0.0954922	<i>i</i>	4.18373	−0.36722797	−0.15370279	
<i>P</i>	4.24	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1979 07 26	675	0.3−	1.6+	1999 01 27	120	1.2−	0.4+	1999 02 12	120	1.1+	0.1+
1979 07 27	675	0.4−	0.3+	1999 01 27	120	1.3−	0.9+	1999 02 16	704	1.2+	0.1−
1987 05 30	413	0.3+	0.5+	1999 02 12	704	0.6+	0.4+	1999 02 16	704	1.1+	0.5+
1987 05 30	413	0.4−	1.3−	1999 02 12	704	(2.2−	0.5+)	1999 02 16	704	0.2−	0.1−
1999 01 26	120	0.2−	0.5+	1999 02 12	704	0.4+	0.2+	1999 02 16	704	0.5−	0.4−
1999 01 26	120	0.5−	0.8−	1999 02 12	704	0.2+	0.8+	1999 02 16	704	0.3+	0.1+
1999 01 26	120	1.0−	0.3−	1999 02 12	120	0.6+	0.0				

1999 BK₁₅ = 1997 UH₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	333.52672	(2000.0)	P		Q	
<i>n</i>	0.22803220	<i>ω</i>	210.69439	−0.97349995	+0.21950299	
<i>a</i>	2.6534155	<i>Ω</i>	341.65199	−0.14546200	−0.81083031	
<i>e</i>	0.1301425	<i>i</i>	11.76010	−0.17646148	−0.54256118	
<i>P</i>	4.32	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1997 10 30	688	0.3−	0.3−	1999 01 13	699	0.1+	0.8+	1999 01 28	120	0.3−	0.4−
1997 10 30	688	0.2−	0.2+	1999 01 17	703	0.1+	0.2+	1999 02 16	120	0.5+	0.4+
1997 10 31	688	0.1+	0.4+	1999 01 17	703	1.4−	0.7+	1999 02 16	120	0.1−	0.5+
1997 10 31	688	0.4+	0.1−	1999 01 17	703	0.1+	0.6−	1999 02 17	120	0.1+	0.3+
1999 01 13	699	0.4−	0.3+	1999 01 26	120	0.3+	0.8−	1999 02 18	120	0.1−	0.1+
1999 01 13	699	0.3+	0.2−	1999 01 26	120	0.7+	1.0−	1999 02 18	120	0.0	0.2−

1999 BM₂₅ = 1997 WQ₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	3.67426	(2000.0)	P		Q	
<i>n</i>	0.25882920	ω	315.52918	-0.46914401	-0.88203471	
<i>a</i>	2.4385250	Ω	162.30546	+0.84509539	-0.46278850	
<i>e</i>	0.1412545	<i>i</i>	8.28601	+0.25635460	-0.08855265	
<i>P</i>	3.81	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1997 11 21	327	0.1-	0.3+	1999 01 18	704	1.0+	0.2-	1999 02 12	704	0.5-	0.3-
1997 11 21	327	0.2+	0.6+	1999 01 18	704	0.0	0.2+	1999 02 12	704	0.1+	0.0
1997 11 21	327	0.0	0.0	1999 01 20	704	0.6-	0.3+	1999 02 12	704	0.1+	0.4-
1997 11 21	327	0.5-	0.4-	1999 01 20	704	0.4-	0.6+	1999 02 12	704	0.5-	0.6+
1997 11 23	327	0.1-	0.0	1999 01 20	704	0.9-	0.5+	1999 02 16	704	0.2+	0.5-
1997 11 23	327	0.0	0.0	1999 01 20	704	0.6-	0.9-	1999 02 16	704	0.1+	0.1+
1997 11 23	327	0.0	0.7-	1999 02 11	699	0.6+	0.2-	1999 02 16	704	0.2+	0.2+
1997 11 23	327	0.4+	0.2+	1999 02 11	699	0.4+	0.1+	1999 02 16	704	1.0-	0.1+
1999 01 18	704	1.2+	0.6-	1999 02 11	699	0.2+	0.1+	1999 02 16	704	0.0	0.6+
1999 01 18	704	(2.4+	0.6+)	1999 02 12	704	0.4+	0.5-				

1999 BU₂₅ = 1991 ED₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	350.84800	(2000.0)	P		Q	
<i>n</i>	0.24174040	ω	337.62589	-0.74096321	-0.67067247	
<i>a</i>	2.5521326	Ω	160.13153	+0.63037784	-0.71220987	
<i>e</i>	0.2049087	<i>i</i>	5.78116	+0.23151091	-0.20725719	
<i>P</i>	4.08	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1991 03 11	809	1.0-	1.1+	1999 01 10	699	0.2+	1.0+	1999 02 11	699	0.5+	0.6+
1991 03 11	809	0.4-	0.9+	1999 01 18	704	0.0	0.8-	1999 02 12	704	1.0+	0.2-
1991 03 11	809	0.3+	0.9+	1999 01 18	704	1.0-	1.0+	1999 02 12	704	1.1-	0.9-
1991 03 13	809	0.1+	0.9-	1999 01 18	704	(1.9-	2.6+)	1999 02 12	704	0.6-	0.4-
1991 03 13	809	0.4+	0.7-	1999 01 18	704	0.3-	0.7+	1999 02 12	704	(2.9+	2.9-)
1991 03 13	809	1.1+	0.4-	1999 01 20	704	0.8+	0.2-	1999 02 16	704	0.0	0.6-
1991 03 15	809	0.3-	0.2-	1999 01 20	704	0.5+	0.4+	1999 02 16	704	0.4+	0.8-
1991 03 15	809	0.0	0.1-	1999 01 20	704	0.1+	0.8+	1999 02 16	704	0.8+	0.2-
1991 03 15	809	0.1-	0.1+	1999 01 20	704	1.3-	1.4-	1999 02 16	704	0.0	0.3-
1999 01 10	699	0.2+	0.2+	1999 02 11	699	0.4-	0.3+	1999 02 16	704	(3.0-	0.5+)
1999 01 10	699	0.0	0.1+	1999 02 11	699	0.1+	0.3+				

1999 BY₂₅ = 1977 DV₁ = 1994 CB₈

Id. T. Urata

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	144.35366	(2000.0)	P		Q	
<i>n</i>	0.17702930	ω	7.32480	+0.93958846	+0.31893133	
<i>a</i>	3.1412749	Ω	333.03188	-0.32632140	+0.72485651	
<i>e</i>	0.0607800	<i>i</i>	15.91110	-0.10338219	+0.61062742	
<i>P</i>	5.57	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1977 02 18	381	0.5+	1.5+	1999 01 27	385	0.1-	0.5-	1999 02 10	704	0.4-	0.4-
1977 02 18	381	1.4+	0.4-	1999 01 28	888	0.1+	0.1+	1999 02 10	704	0.8-	1.1+
1977 02 19	381	0.2-	0.5+	1999 01 28	888	0.3+	0.3-	1999 02 13	704	0.8-	0.1-
1977 02 19	381	0.0	0.6+	1999 02 04	888	1.3-	0.4-	1999 02 13	704	0.6+	0.6+
1994 02 08	303	0.8+	1.0-	1999 02 04	888	0.9-	0.6-	1999 02 13	704	0.6+	0.3+
1994 02 09	303	1.8-	0.3-	1999 02 10	704	0.5+	0.6-	1999 02 13	704	0.3-	0.1+
1999 01 25	385	(2.6+	0.9+)	1999 02 10	704	0.1+	0.8+	1999 02 13	704	0.3+	1.1-
1999 01 27	385	0.9+	0.9-	1999 02 10	704	0.5+	0.8+				

1999 BZ₂₅ = 1997 UE₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	51.63701	(2000.0)	P		Q	
<i>n</i>	0.21484805	ω	85.53943	+0.38364002	-0.92300924	
<i>a</i>	2.7608858	Ω	341.81438	+0.80526396	+0.35003106	
<i>e</i>	0.0707710	<i>i</i>	5.43638	+0.45207332	+0.15978799	
<i>P</i>	4.59	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1997 10 19	595	0.5+	0.1-	1999 01 25	385	0.1+	0.1+	1999 01 28	888	0.0	1.0-
1997 10 19	595	0.1-	0.3+	1999 01 25	385	0.0	0.2+	1999 02 05	888	0.1+	0.0
1997 10 22	595	0.3-	0.1-	1999 01 27	385	1.6+	0.3+	1999 02 05	888	0.0	0.2+
1997 10 22	595	0.0	0.2-	1999 01 27	385	1.6-	0.3+				
1999 01 25	385	0.2-	0.3-	1999 01 28	888	0.0	0.2+				

1999 BC₂₆ = 1991 TA₇

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	12.80287	(2000.0)	P		Q	
<i>n</i>	0.17843679	ω	244.03087	-0.54034864	-0.83922328	
<i>a</i>	3.1247344	Ω	238.81015	+0.79528252	-0.48565874	
<i>e</i>	0.0985758	<i>i</i>	4.09272	+0.27486191	-0.24462191	
<i>P</i>	5.52	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1991 10 02	033	1.0-	1.2-	1999 01 20	120	(2.3-	1.0-)	1999 02 11	732	0.0	0.1+
1991 10 03	033	0.5-	0.6+	1999 01 20	120	0.1+	0.7-	1999 02 12	732	0.4+	1.6-
1991 10 04	033	1.3+	0.8-	1999 01 20	120	1.7-	1.1+	1999 02 12	732	0.1-	0.5-
1991 10 09	033	0.1+	0.6+	1999 01 21	120	0.2+	0.6-	1999 02 12	732	0.7+	1.0-
1991 10 09	033	0.0	1.0+	1999 01 26	120	1.5+	0.5+	1999 02 12	120	0.3+	0.0
1999 01 19	120	0.2-	0.4-	1999 01 26	120	0.7+	0.1-	1999 02 12	120	0.8+	1.4+
1999 01 19	120	1.2-	0.1-	1999 02 11	732	0.1+	0.5-	1999 02 18	120	0.6-	0.6+
1999 01 20	120	0.3-	0.4-	1999 02 11	732	0.1-	0.7+	1999 02 18	120	0.7-	1.7+

1999 BD₂₆ = 1992 EU₁₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	324.86195	(2000.0)	P		Q	
<i>n</i>	0.27791478	ω	50.30187	-0.99178020	-0.09936534	
<i>a</i>	2.3255640	Ω	123.85125	+0.06561272	-0.93583025	
<i>e</i>	0.0840015	<i>i</i>	5.57036	+0.10984993	-0.33815420	
<i>P</i>	3.55	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i> 6

Residuals in seconds of arc

1992 03 01	809	0.3+	0.3-	1999 02 10	704	0.4-	0.4+	1999 02 15	120	0.4-	0.3-
1992 03 04	809	0.3-	0.4+	1999 02 10	704	0.2-	1.6+	1999 02 15	120	0.5+	0.1-
1999 01 25	120	0.4-	0.3-	1999 02 10	704	(0.4+	2.5+)	1999 02 18	120	0.9+	0.9-
1999 01 25	120	0.4-	0.1-	1999 02 13	704	0.7-	0.2+	1999 02 18	120	0.4+	0.5-
1999 01 27	120	0.0	0.5-	1999 02 13	704	0.8+	0.9-	1999 02 19	566	0.4-	0.4+
1999 01 27	120	0.5+	0.4+	1999 02 13	704	1.1+	0.6-	1999 02 19	566	0.5-	0.2+
1999 02 10	704	0.1-	0.1+	1999 02 13	704	0.4+	0.5-	1999 02 19	566	0.8-	0.4+
1999 02 10	704	0.1-	1.1+	1999 02 15	120	0.2-	0.2-				

**1999 BB₂₇ = A908 YA = 1949 KM = 1950 RB = 1961 DJ = 1972 XM₁
= 1993 SC₁₅ = 1993 TR₁₃**

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	52.34448	(2000.0)	P		Q	
<i>n</i>	0.23055180	ω	294.55804	+0.57636303	-0.79047262	
<i>a</i>	2.6340481	Ω	118.64766	+0.80884074	+0.51564686	
<i>e</i>	0.1565924	<i>i</i>	13.66098	+0.11654317	+0.33054706	
<i>P</i>	4.27	<i>H</i>	12.3	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1908 12 18	000(82.0-	11.7-)	X	1993 10 14	675	0.2-	0.6-	1999 01 23	691	1.3-	0.1+
1949 05 29	760	1.3-	0.3+	1993 10 14	675	(1.9-	2.3-)	1999 02 10	704	0.5+	0.4+

1999 MAR. 2

M.P.C. 33991

1949 05 29	760	1.1+	0.1−	1998 11 01	699	0.1−	0.2+	1999 02 10	704	0.2+	0.4+
1950 09 03	078	(5.1+ 11.9+)	Y	1998 11 01	699	0.0	0.1−	1999 02 10	704	0.5+	0.2−
1961 02 17	033	(4.4− 1.0+)		1998 11 01	699	0.1+	0.2+	1999 02 10	704	0.5+	0.0
1961 02 18	033	0.1+	1.3−	1998 12 16	699	0.1−	0.3+	1999 02 10	704	0.5−	1.2−
1972 12 03	095	0.2−	0.1−	1998 12 16	699	0.1−	0.4+	1999 02 11	757	0.8+	0.6+
1993 09 21	675	0.0	0.7+	1998 12 16	699	0.1−	0.4+	1999 02 11	757	0.8+	0.5+
1993 09 21	675	0.1−	0.6+	1999 01 16	691	0.1+	0.1−	1999 02 13	704	1.2+	1.1−
1993 09 22	675	0.2+	0.4+	1999 01 16	691	0.1+	0.1−	1999 02 13	704	0.3−	1.1−
1993 09 22	675	0.4+	0.9−	1999 01 16	691	0.3+	0.1−	1999 02 13	704	0.4+	0.2−
1993 10 09	675	0.2+	0.4−	1999 01 23	691	1.3−	0.1+	1999 02 13	704	0.5+	0.7+
1993 10 09	675	0.1+	0.8−	1999 01 23	691	1.2−	0.1+	1999 02 13	704	1.0−	0.5+

1999 BZ₂₉ = 1977 DJ₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	3.15795		(2000.0)	P	Q		
<i>n</i>	0.17979312	ω	20.13654	−0.69816690	−0.71481000		
<i>a</i>	3.1089996	Ω	114.16790	+0.65068886	−0.65691616		
<i>e</i>	0.1838153	<i>i</i>	2.52038	+0.29860841	−0.23980788		
<i>P</i>	5.48	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1977 02 18	381	1.9+	0.0	1999 01 23	691	0.5+	0.3+	1999 02 12	699	0.0	0.6−
1977 02 18	381	0.4−	0.7+	1999 01 23	691	0.2+	0.1−	1999 02 13	704	0.3+	0.4−
1977 02 19	381	0.2+	0.5−	1999 02 10	704	0.2−	0.5−	1999 02 13	704	0.9+	0.1−
1977 02 19	381	1.7−	0.0	1999 02 10	704	0.1−	0.1−	1999 02 13	704	0.1−	0.3+
1999 01 18	691	0.3−	0.0	1999 02 10	704	0.5+	0.3+	1999 02 13	704	0.4+	0.1−
1999 01 18	691	0.2−	0.2−	1999 02 10	704	0.2−	1.1+	1999 02 13	704	1.9−	0.5−
1999 01 18	691	0.2−	0.0	1999 02 12	699	0.2+	0.5+				
1999 01 23	691	0.2+	0.1−	1999 02 12	699	0.1−	0.1−				

1999 CE = 1976 UD₁₃

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	85.26958		(2000.0)	P	Q		
<i>n</i>	0.27713482	ω	349.65968	+0.81495956	−0.57217784		
<i>a</i>	2.3299252	Ω	45.65149	+0.54045539	+0.69313891		
<i>e</i>	0.1190746	<i>i</i>	7.38713	+0.20916234	+0.43837309		
<i>P</i>	3.56	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1976 10 22	381	0.5−	0.1−	1999 02 05	411	0.9−	0.2+	1999 02 12	411	0.6+	0.2+
1976 10 22	381	0.4+	0.7−	1999 02 10	704	0.1−	0.0	1999 02 13	704	0.4−	0.3−
1976 10 24	381	0.3−	0.3+	1999 02 10	704	1.1+	1.2−	1999 02 13	704	0.8+	0.4−
1976 10 24	381	0.4+	0.4+	1999 02 10	704	0.3−	0.5−	1999 02 13	704	0.1+	1.2+
1999 02 04	411	0.8+	0.8+	1999 02 10	704	0.8−	0.1+	1999 02 13	704	1.0+	0.6−
1999 02 04	411	0.6−	0.6+	1999 02 10	704	1.6−	0.9−	1999 02 13	704	0.6+	0.0
1999 02 05	411	0.7−	0.0	1999 02 12	411	0.3+	0.8+				

1999 CV = 1990 SG₁₀

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	211.48902		(2000.0)	P	Q		
<i>n</i>	0.29238617	ω	197.13998	+0.45448245	+0.88374187		
<i>a</i>	2.2481822	Ω	100.01190	−0.80339774	+0.46077400		
<i>e</i>	0.1791524	<i>i</i>	6.50483	−0.38470478	+0.08177797		
<i>P</i>	3.37	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1990 09 17	675	0.2−	0.0	1999 02 06	411	1.1−	1.3+	1999 02 13	704	1.2+	1.4−
1990 09 17	675	0.3−	0.3+	1999 02 06	411	0.6−	0.0	1999 02 13	704	0.5+	1.0+
1990 09 19	675	0.2+	1.0−	1999 02 10	704	0.6−	1.4−	1999 02 13	411	0.9−	0.5−
1990 09 19	675	0.3−	0.5−	1999 02 10	704	(0.1+ 2.5−)		1999 02 13	411	0.4−	0.5−
1990 09 20	675	0.6−	0.3+	1999 02 10	704	1.0+	0.4−	1999 02 21	411	0.0	0.2+
1990 09 20	675	1.2+	0.8+	1999 02 10	704	1.0−	0.3+	1999 02 21	411	0.6−	0.6+

1999 02 05	411	0.5+	0.1+	1999 02 13	704	(2.7+ 1.6+)
1999 02 05	411	0.3+	0.0	1999 02 13	704	1.7+ 0.7+

1999 CW = 1982 BM₁₄ = 1991 RJ₂₇

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	7.06319		(2000.0)	P	Q		
<i>n</i>	0.17552329	ω	11.02988	−0.66911392	−0.73372454		
<i>a</i>	3.1592177	Ω	121.08953	+0.67091585	−0.66471496		
<i>e</i>	0.1048262	<i>i</i>	7.92322	+0.31962241	−0.14072074		
<i>P</i>	5.62	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1982 01 30	675	0.3+	0.1−	1999 01 13	699	0.1+	0.1−	1999 02 10	704	0.4−	0.9+
1982 01 31	675	0.3−	0.0	1999 02 05	411	0.4+	0.0	1999 02 13	704	0.2−	0.1+
1991 09 13	675	0.0	0.1−	1999 02 05	411	0.2+	0.1+	1999 02 13	704	0.4−	0.6−
1991 09 13	675	0.2+	0.1+	1999 02 06	411	0.4+	0.4−	1999 02 13	704	0.1+	0.8+
1991 09 15	675	0.8−	0.3+	1999 02 06	411	0.1+	0.1−	1999 02 13	704	0.7−	0.3+
1991 09 15	675	0.6+	0.3−	1999 02 10	704	0.8+	0.2+	1999 02 13	704	1.3−	1.0−
1999 01 13	699	0.4+	0.0	1999 02 10	704	0.8+	0.9+	1999 02 13	411	0.3−	0.2−
1999 01 13	699	0.4−	0.1−	1999 02 10	704	0.6+	0.7−	1999 02 13	411	0.2−	0.0

1999 CX = 1990 SY₁₈ = 1994 XC₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	237.51972		(2000.0)	P	Q		
<i>n</i>	0.29685509	ω	198.52945	+0.10418795	+0.99273996		
<i>a</i>	2.2255621	Ω	77.48484	−0.90452978	+0.11970765		
<i>e</i>	0.1615224	<i>i</i>	3.52963	−0.41348609	−0.01172372		
<i>P</i>	3.32	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1990 09 16	675	0.1−	0.3−	1999 02 05	411	0.3+	0.3+	1999 02 10	704	0.6+	0.6+
1990 09 16	675	0.2+	0.1−	1999 02 05	411	0.4+	0.1+	1999 02 13	704	0.4−	0.8−
1994 12 04	098	0.8−	0.3−	1999 02 06	411	0.6−	0.2−	1999 02 13	704	0.9+	1.2−
1994 12 04	098	0.7+	0.4+	1999 02 06	411	0.7−	0.1−	1999 02 13	704	0.7+	0.7+
1999 01 13	699	1.1+	0.6+	1999 02 10	704	0.4−	0.6−	1999 02 13	704	0.6+	1.3+
1999 01 13	699	0.5+	0.7−	1999 02 10	704	0.5−	0.6−	1999 02 13	411	0.9−	0.3−
1999 01 13	699	1.4−	0.4+	1999 02 10	704	0.6+	0.6+	1999 02 13	411	0.9−	0.5−

1999 CF₁ = 1997 OL

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Nakano			
<i>M</i>	88.65197		(2000.0)	P	Q		
<i>n</i>	0.27564255	ω	263.09349	+0.89662071	−0.43389111		
<i>a</i>	2.3383268	Ω	122.58573	+0.43628645	+0.83155535		
<i>e</i>	0.2268748	<i>i</i>	6.02043	+0.07566660	+0.34677688		
<i>P</i>	3.58	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 07 28	046	0.5+	0.3−	1997 07 29	046	0.2+	0.5−	1999 02 13	411	0.6−	0.7−
1997 07 28	046	0.0	0.2+	1997 07 29	046	1.1−	0.3+	1999 02 13	411	1.2−	0.8+
1997 07 28	046	0.3+	0.4+	1999 02 06	411	0.3+	1.1+	1999 02 13	411	0.3+	0.8−
1997 07 28	046	0.2+	0.1+	1999 02 06	411	0.8−	0.3+	1999 02 20	411	0.4+	0.1+
1997 07 29	046	0.4+	0.5+	1999 02 07	411	0.8+	0.2−	1999 02 20	411	0.3+	0.3+
1997 07 29	046	0.5−	0.6−	1999 02 07	411	0.5+	1.0−				

1999 CU₁ = 1987 KZ = 1993 TR₁₁

Id. T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	37.63193		(2000.0)	P	Q		
<i>n</i>	0.23112057	ω	53.80676	−0.00372623	−0.99841084		
<i>a</i>	2.6297249	Ω	36.52983	+0.88447970	−0.02952626		
<i>e</i>	0.1895405	<i>i</i>	5.42067	+0.46656379	+0.04800002		
<i>P</i>	4.26	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1987 05 30	413	0.9−	0.9+	1999 02 07	411	0.3−	0.1−	1999 02 10	704	0.5+	0.5−
1987 05 30	413	1.1+	0.3−	1999 02 07	411	1.0+	0.6−	1999 02 10	704	0.3−	0.4−
1993 10 13	675	1.0+	0.6−	1999 02 08	411	0.1−	0.7−	1999 02 10	704	0.6−	0.2+
1993 10 13	675	0.5+	0.2−	1999 02 08	411	0.7−	0.2+	1999 02 10	704	0.0	0.4−
1993 10 15	675	1.7−	1.5+	1999 02 09	327	0.3+	0.1+	1999 02 13	704	0.2+	1.2+
1999 02 05	327	0.3−	1.0−	1999 02 09	327	0.6+	0.2+	1999 02 13	704	0.8+	0.1+
1999 02 05	327	0.1+	0.4+	1999 02 09	327	0.5+	0.1−	1999 02 13	704	1.5−	1.5+
1999 02 05	327	0.4+	0.3−	1999 02 10	704	0.1+	0.3−	1999 02 13	704	0.6−	0.8+

1999 CV₁ = 1979 WG₅ = 1996 FV₁₅

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	131.60406		(2000.0)	P	Q
<i>n</i>	0.27208025	ω	345.99767	+0.99855957	−0.03433408
<i>a</i>	2.3586927	Ω	16.14094	+0.05087061	+0.85014426
<i>e</i>	0.1610981	<i>i</i>	8.52905	−0.01705792	+0.52542927
<i>P</i>	3.62	<i>H</i>	14.1	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1979 11 17	095	0.1−	0.2+	1999 02 07	411	0.3−	0.7+	1999 02 13	704	0.1−	0.4−
1996 03 22	809	0.1+	0.8+	1999 02 08	411	0.5−	0.4−	1999 02 13	704	1.1−	0.3+
1996 03 22	809	0.6−	0.5+	1999 02 08	411	0.7+	0.0	1999 02 13	704	(2.1−	0.2−)
1996 03 22	809	0.3−	1.1+	1999 02 10	704	1.7+	1.0−	1999 02 14	411	0.2+	0.2−
1996 03 26	809	1.3+	0.9−	1999 02 10	704	1.4+	0.9+	1999 02 14	411	0.5−	0.4−
1996 03 26	809	0.1−	0.0	1999 02 10	704	0.6−	0.3−	1999 02 21	411	0.6−	0.4+
1996 03 26	809	0.4−	1.2−	1999 02 10	704	1.3−	0.9+	1999 02 21	411	0.4+	0.5−
1999 02 07	411	0.7+	0.3−	1999 02 10	704	(3.2+	1.9+)				

1999 CW₁ = 1993 TZ₂₁

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	91.89503		(2000.0)	P	Q
<i>n</i>	0.24190816	ω	43.56462	+0.76708335	−0.64131982
<i>a</i>	2.5509525	Ω	356.20438	+0.49475500	+0.60831428
<i>e</i>	0.1142472	<i>i</i>	14.96023	+0.40841233	+0.46761376
<i>P</i>	4.07	<i>H</i>	13.8	<i>G</i>	0.15
				<i>U</i>	6

Residuals in seconds of arc

1993 10 13	675	0.1−	0.3+	1999 02 10	704	(3.2+	0.7−)	1999 02 13	704	0.3−	0.4−
1993 10 13	675	0.3−	0.1+	1999 02 10	704	1.2+	0.2−	1999 02 13	704	0.7−	0.9−
1993 10 15	675	0.4+	0.5−	1999 02 10	704	0.3+	0.5+	1999 02 13	704	0.8−	1.0+
1999 02 07	411	0.1−	0.2+	1999 02 10	704	1.2+	0.1+	1999 02 14	411	0.6−	0.7−
1999 02 07	411	0.5+	0.3−	1999 02 10	704	0.5+	0.1−	1999 02 14	411	0.8−	0.0
1999 02 08	411	0.1+	0.0	1999 02 13	704	0.4+	0.7−	1999 02 21	411	0.9−	0.8+
1999 02 08	411	0.8+	0.2−	1999 02 13	704	0.0	0.1−	1999 02 21	411	0.9−	1.1+

1999 CD₂ = 1993 KX₂ = 1997 SV₃₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	126.35501		(2000.0)	P	Q
<i>n</i>	0.28769952	ω	273.59219	+0.97408669	−0.20381705
<i>a</i>	2.2725318	Ω	98.18592	+0.22596304	+0.89573634
<i>e</i>	0.1689627	<i>i</i>	5.68498	−0.00978916	+0.39511393
<i>P</i>	3.43	<i>H</i>	14.4	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1993 05 27	010	(2.7−	0.6+)	1997 09 30	566	0.1+	0.4+	1999 02 10	704	0.4+	0.2+
1993 05 27	010	0.8−	1.4+	1997 09 30	566	0.2+	0.4+	1999 02 13	704	0.5−	0.4−
1993 05 28	010	0.9+	1.0+	1999 02 08	411	1.4−	1.3+	1999 02 13	704	0.6+	0.2−
1993 05 29	010	1.0−	0.4−	1999 02 08	411	0.9−	0.0	1999 02 13	704	1.9+	0.5+
1993 05 29	010	1.0+	1.6−	1999 02 09	411	0.2−	1.5−	1999 02 13	704	1.0+	0.3+
1993 05 29	010	0.1+	0.4−	1999 02 09	411	0.3−	0.3−	1999 02 13	704	0.6+	0.3+
1997 09 28	566	0.2−	0.6−	1999 02 10	704	0.1+	1.0−	1999 02 16	411	0.2−	0.5+
1997 09 28	566	0.2−	0.5−	1999 02 10	704	0.3−	0.1+	1999 02 16	411	0.1−	0.3+

1997 09 28	566	0.2+	0.0	1999 02 10	704	0.5−	0.6−
1997 09 30	566	0.1+	0.3+	1999 02 10	704	0.3−	0.5+

1999 CZ₂ = 1982 BF₁₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	2.91486		(2000.0)	P	Q
<i>n</i>	0.17605658	ω	308.95601	−0.71756561	−0.69648885
<i>a</i>	3.1528347	Ω	186.89861	+0.64329643	−0.66182840
<i>e</i>	0.1736370	<i>i</i>	0.80718	+0.26696309	−0.27728404
<i>P</i>	5.60	<i>H</i>	13.8	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1982 01 30	675	0.2−	0.1+	1999 02 12	699	0.1−	0.9+	1999 02 16	704	0.8−	0.1−
1982 01 31	675	0.2+	0.1+	1999 02 12	699	0.2+	0.6+	1999 02 16	704	1.0+	0.9+
1998 12 16	699	1.0+	0.1+	1999 02 12	699	0.5+	0.4+	1999 02 16	704	0.3−	0.9−
1998 12 16	699	0.2−	0.4−	1999 02 12	704	0.5+	0.3−	1999 02 16	704	0.0	0.7−
1998 12 16	699	0.9−	0.1−	1999 02 12	704	0.1+	0.4−	1999 02 16	704	0.3−	0.4−
1999 02 07	104	0.8+	0.3+	1999 02 12	704	0.0	0.2−	1999 02 18	104	0.1+	0.5−
1999 02 07	104	0.0	0.7+	1999 02 12	704	0.2+	0.4−	1999 02 18	104	0.3−	0.1+
1999 02 07	104	0.2−	0.6+	1999 02 12	704	0.2−	1.2−	1999 02 23	108	1.0−	1.0+
1999 02 08	104	0.2−	0.1−	1999 02 13	108	0.4+	0.3+	1999 02 23	108	0.9+	0.4−
1999 02 08	104	0.7+	0.3−	1999 02 13	108	0.8+	0.1−	1999 02 23	108	0.7−	0.6−
1999 02 11	108	2.0−	1.0−	1999 02 13	108	0.3+	0.2+	1999 02 23	108	0.7+	0.8+
1999 02 11	108	0.1+	0.6+	1999 02 13	108	0.4−	0.3−				
1999 02 11	108	1.0−	0.1+	1999 02 13	108	0.3+	0.4+				

1999 CA₃ = 1982 UL₂ = 1997 SF₃₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	60.45313		(2000.0)	P	Q
<i>n</i>	0.26043435	ω	335.58445	+0.18967405	−0.97432628
<i>a</i>	2.4284950	Ω	103.29869	+0.92007897	+0.13325526
<i>e</i>	0.0717801	<i>i</i>	7.15970	+0.34275127	+0.18146990
<i>P</i>	3.78	<i>H</i>	13.9	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1982 10 20	046	0.2−	2.1+	1997 10 01	566	0.5+	0.3−	1999 02 10	704	0.4−	0.2−
1982 10 20	046	1.9−	0.5−	1998 12 24	699	0.1+	0.7+	1999 02 10	704	0.6+	0.5+
1982 10 21	046	(4.2+	0.4+)	1998 12 24	699	0.5−	0.9+	1999 02 13	704	0.3+	0.3−
1982 10 21	046	(5.9+	3.4+)	1998 12 24	699	0.2−	0.6+	1999 02 13	704	0.1+	0.0
1982 10 22	046	1.6+	0.4−	1999 02 08	678	0.0	0.6+	1999 02 13	704	0.2−	0.2−
1982 10 22	046	0.5+	1.3−	1999 02 08	678	0.5−	0.8+	1999 02 13	704	0.3+	0.0
1997 09 30	566	0.2−	0.1+	1999 02 10	678	0.1−	0.3−	1999 02 13	704	0.3−	0.9−
1997 09 30	566	0.1−	0.3−	1999 02 10	678	0.2−	0.3−	1999 02 21	678	0.2−	0.1+
1997 09 30	566	0.3−	0.5+	1999 02 10	704	0.3+	0.7−	1999 02 21	678	0.3−	0.1+
1997 10 01	566	0.2+	0.4−	1999 02 10	704	0.3−	0.6−	1999 02 21	678	0.3+	0.0
1997 10 01	566	0.2+	0.1−	1999 02 10	704	1.1+	0.7−	1999 02 21	678	0.3−	0.1+

1999 CE₅ = 1997 SJ₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Urata

<i>M</i>	90.81232		(2000.0)	P	Q
<i>n</i>	0.22129360	ω	15.93843	+0.81061365	−0.58528499
<i>a</i>	2.7070118	Ω	19.91933	+0.53111146	+0.72144177
<i>e</i>	0.0831794	<i>i</i>	3.13424	+0.24662952	+0.37008547
<i>P</i>	4.45	<i>H</i>	14.8	<i>G</i>	0.15
				<i>U</i>	6

Residuals in seconds of arc

1997 09 28	684	0.2−	0.2+	1999 02 12	385	0.8+	0.8−	1999 02 16	385	0.0	0.5−
1997 09 28	684	0.5−	0.3+	1999 02 12	385	0.0	0.5−	1999 02 19	385	0.4+	0.3+
1997 09 29	684	0.3+	0.1−	1999 02 13	385	0.6−	0.8+	1999 02 19	385	0.0	0.0
1997 09 29	684	0.0	0.2−	1999 02 13	385	0.2−	0.4+				
1997 09 29	684	0.4+	0.1−	1999 02 16	385	0.5−	0.4+				

1999 CL₅ = 1976 WE = 1980 TP₅

Id. S. Nakano

1999 MAR. 2

M.P.C. 33993

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	132.27608		(2000.0)	P	Q
<i>n</i>	0.23582869	ω	18.82670	+0.94884686	−0.31573128
<i>a</i>	2.5946072	Ω	359.56531	+0.24949806	+0.75334716
<i>e</i>	0.0826979	<i>i</i>	14.03912	+0.19349508	+0.57687244
<i>P</i>	4.18	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 4
Residuals in seconds of arc					
1976 11 21	801	1.4+	0.3−	1980 10 10 095 (3.7+ 1.8−)	1999 02 20 411 0.9− 0.0
1976 11 22	801	1.3−	0.1+	1999 02 12 411 0.3+ 0.2−	1999 02 20 411 0.2+ 0.1+
1980 10 08	675	0.7−	0.9−	1999 02 12 411 0.2+ 0.5−	1999 02 22 411 0.2+ 0.4+
1980 10 09	675	0.7+ 1.0+	1999 02 13 411 0.5− 0.0	1999 02 22 411 0.5+ 0.0	
1980 10 10	675	0.2− 0.2+	1999 02 13 411 0.1+ 0.4+		

1999 CM₆ = 1991 AE₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	16.29795		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$		
n	0.37338386	ω	341.99407		-0.37663257		-0.87048543		
a	1.9099955	Ω	128.84880		+0.89207908		-0.43301086		
e	0.0725490	i	24.00775		+0.24968542		+0.23400150		
P	2.64	H	15.6		G 0.15		U 4		
Residuals in seconds of arc									
1991 01 14	675	0.0	0.4-	1999 02 10	704 0.5+	0.5+	1999 02 18	566	0.2- 0.0
1991 01 14	675	0.5+	1.3+	1999 02 10	704 0.1-	0.7+	1999 02 18	566	0.1+ 0.3-
1991 01 15	675	0.6-	0.6-	1999 02 10	704 0.8-	0.3+	1999 02 18	566	0.2- 0.3-
1998 12 24	699	0.0	0.2+	1999 02 13	704 0.4-	0.4-	1999 02 19	566	0.2- 0.4+
1998 12 24	699	0.0	0.4-	1999 02 13	704 0.4+	0.6-	1999 02 19	566	0.1- 0.4+
1998 12 24	699	0.2+	0.1-	1999 02 13	704 0.3+	0.5-	1999 02 19	566	0.3- 0.4+
1999 02 10	704	0.0	0.8-	1999 02 13	704 0.1-	0.2-			
1999 02 10	704	0.7+	0.2-	1999 02 13	704 0.2+	0.5+			

1999 CL₁₀ = 1998 XQ₉₆ = 1985 QJ = 1991 RK₂₅ = 1994 CA₁₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

M	120.36363		(2000.0)		P		Q				
n	0.17160918	ω	231.91469		+0.97706805		+0.16917340				
a	3.2070744	Ω	118.00403		-0.11840583		+0.93638408				
e	0.1897061	i	8.42104		-0.17696914		+0.30751459				
P	5.74	H	12.6		G	0.15	U	3			
Residuals in seconds of arc											
1985 08 22	688	0.1-	2.2+	1998 12 13	303	0.6+	0.2+	1999 02 16	709	1.1+	0.1+
1985 08 22	688	(0.6-	2.9+)	1998 12 13	303	0.1+	0.6+	1999 02 16	709	0.1+	0.4-
1985 09 12	688	0.7-	2.1+	1998 12 14	303	0.7-	0.1+	1999 02 16	709	1.0+	0.3+
1985 09 12	688	(6.0-	2.2+)	1998 12 14	303	0.7-	0.1+	1999 02 16	709	0.6+	0.3-
1991 09 11	675	0.4-	0.1+	1999 02 14	159	0.5-	0.2+	1999 02 16	046	0.0	0.2+
1991 09 11	675	0.5-	0.3+	1999 02 14	159	0.6-	0.6-	1999 02 16	046	0.2+	0.0
1991 09 13	675	0.3-	0.0	1999 02 14	159	0.9+	0.9-	1999 02 16	046	0.3+	0.1+
1994 02 08	809	0.1+	1.4+	1999 02 14	159	0.6-	0.2+	1999 02 16	046	0.2+	0.3+
1994 02 08	809	0.4-	1.7+	1999 02 14	159	0.4+	0.7-	1999 02 17	159	0.1-	0.5+
1994 02 08	809	1.1-	1.8+	1999 02 15	159	0.0	0.9-	1999 02 17	159	0.4+	0.9+
1994 02 10	809	1.3+	0.9-	1999 02 15	159	0.1-	0.5-	1999 02 17	159	(2.5-	0.5-
1994 02 10	809	0.1-	0.2+	1999 02 15	159	1.5-	1.4-	1999 02 17	159	1.3-	0.8+
1994 02 10	809	0.2-	0.2+	1999 02 15	046	0.0	0.1+	1999 02 17	159	1.0-	0.2-
1994 02 13	809	0.9+	1.4+	1999 02 15	046	0.1+	0.2-	1999 02 18	046	0.3+	0.3-
1994 02 13	809	0.6+	1.3+	1999 02 15	046	0.2+	0.1+	1999 02 18	046	0.4-	0.2+
1994 02 13	809	0.4+	1.2+	1999 02 15	046	0.0	0.0	1999 02 18	046	0.5+	0.3-
1998 12 11	303	(3.9-	1.8+)	1999 02 16	709	0.7+	0.5-	1999 02 24	046	0.4+	0.2-
1998 12 12	303	0.6-	0.7+	1999 02 16	709	0.3+	0.3-	1999 02 24	046	0.6+	0.2+
1998 12 12	303	0.3-	0.6+	1999 02 16	709	0.4+	0.4-	1999 02 24	046	0.4+	0.4-

1999 CM₁₀ = 1990 DH₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

M	330.97832		(2000.0)		P		Q		
n	0.21614390	ω	167.25462		-0.95411399		-0.29942848		
a	2.7498398	Ω	355.31884		+0.27139178		-0.86043573		
e	0.1151782	i	2.11629		+0.12654247		-0.41230200		
P	4.56	H	14.5		G	0.15	U	6	
Residuals in seconds of arc									
1990 02 24	809	0.6-	0.1-	1999 02 11	699	0.6+	0.8+	1999 02 16	046 0.1+ 0.2+
1990 02 24	809	0.2-	0.4-	1999 02 11	699	0.4-	0.3-	1999 02 16	046 0.2+ 0.3+
1990 02 24	809	0.2+	0.1+	1999 02 13	704	1.3-	1.1+	1999 02 16	046 0.3+ 0.2+
1990 02 25	809	0.7+	0.2-	1999 02 13	704	0.2-	0.3+	1999 02 16	046 0.3+ 0.0
1990 02 25	809	0.5+	0.0	1999 02 13	704	0.0	0.4+	1999 02 17	159 0.1- 0.1-
1990 02 25	809	0.5+	0.0	1999 02 13	704	(2.4-	1.1+)	1999 02 17	159 0.0 1.4-
1990 02 28	809	0.3-	0.1+	1999 02 13	704	1.3-	0.0	1999 02 17	159 0.2+ 0.6-
1990 02 28	809	0.3-	0.3+	1999 02 15	159	0.2-	0.3+	1999 02 17	159 0.2+ 1.3-
1990 02 28	809	0.3-	0.4+	1999 02 15	159	1.7-	0.2-	1999 02 17	159 1.1+ 1.7-
1990 03 01	809	(3.1+ 1.3+)		1999 02 15	159	0.7+	0.2-	1999 02 18	046 0.4+ 0.2+
1990 03 01	809	(3.2+ 1.3+)		1999 02 15	159	(2.1-	1.2+)	1999 02 18	046 0.1+ 0.1-
1990 03 01	809	(3.4+ 1.3+)		1999 02 15	046	0.1+	0.2+	1999 02 18	046 0.4+ 0.0
1999 02 10	704	0.5-	0.2+	1999 02 15	046	0.6+	0.1+	1999 02 19	566 0.2- 0.7-
1999 02 10	704	0.3-	0.4-	1999 02 15	046	0.4+	0.1+	1999 02 19	566 0.1- 0.4-
1999 02 10	704	0.1+	0.0	1999 02 15	046	0.3+	0.3+	1999 02 19	566 0.7- 0.9-
1999 02 10	704	0.1-	0.1-	1999 02 16	709	(0.3+	3.2+)	1999 02 24	046 0.7- 0.2+
1999 02 10	704	0.5+	0.5+	1999 02 16	709	(0.6+	2.6+)	1999 02 24	046 0.3- 0.1+
1999 02 11	699	0.7+	0.4+	1999 02 16	709	0.7+	2.0+	1999 02 24	046 0.4- 0.6+

1999 CA₁₄ = 1992 CR₅ = 1994 WK₃

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	36.39398		(2000.0)		<i>P</i>		<i>Q</i>				
<i>n</i>	0.27664055	ω	328.10274		-0.05392706		-0.99666428				
<i>a</i>	2.3326996	Ω	124.91909		+0.93113271		-0.07234912				
<i>e</i>	0.1090765	<i>i</i>	4.28427		+0.36067125		+0.03776143				
<i>P</i>	3.56	<i>H</i>	15.0		<i>G</i> 0.15		<i>U</i> 4				
Residuals in seconds of arc											
1992 02 10	372	0.5+	0.3+	1999 02 10	704	0.1+	0.8-	1999 02 13	704	0.4+	0.0
1992 02 10	372	0.1-	0.8+	1999 02 10	704	0.3+	0.7-	1999 02 13	704	0.2+	0.1-
1994 11 28	399	0.0	0.4-	1999 02 10	704	0.2-	0.3+	1999 02 13	704	0.4+	0.2-
1994 11 28	399	1.1-	0.3+	1999 02 10	704	0.6-	0.5-	1999 02 14	376	0.5-	0.6-
1994 11 29	399	(3.0+ 0.2+)		1999 02 12	699	0.7-	0.2+	1999 02 14	376	0.6-	0.0
1994 11 29	399	1.0+	0.3+	1999 02 12	699	0.4-	0.6+	1999 02 16	376	(3.9- 0.9+)	
1999 02 08	376	0.4+	0.5+	1999 02 12	699	0.1+	0.2+	1999 02 20	376	0.7-	0.1+
1999 02 08	376	0.4+	0.9+	1999 02 13	704	1.5+	0.3-	1999 02 20	376	0.3-	0.2-
1999 02 10	704	0.2-	0.3-	1999 02 13	704	0.0	0.2-				

1999 CE₁₄ = 1989 EP₄ = 1994 UX₁₂

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	30.36502		(2000.0)		P		Q		
n	0.29774729	ω	257.37631		-0.31483459		-0.94804574		
a	2.2211139	Ω	211.09390		+0.90156181		-0.28364985		
e	0.0766759	i	5.07671		+0.29675829		-0.14405567		
P	3.31	H	15.1		G 0.15		U 4		
Residuals in seconds of arc									
1989 03 02	809	0.8+	0.6-	1994 11 01	033	0.3+	0.6-	1999 02 14	888 0.2- 0.2-
1989 03 02	809	0.6-	0.2-	1999 02 12	704	0.4+	0.3-	1999 02 16	704 0.3- 0.0
1989 03 02	809	0.2-	0.5-	1999 02 12	704	1.0+	0.8-	1999 02 16	704 0.2- 0.2+
1989 03 03	809	0.7+	0.7+	1999 02 12	704	0.4+	0.3+	1999 02 16	704 0.5- 0.1+
1989 03 03	809	0.5+	0.8+	1999 02 12	704	1.0+	0.2+	1999 02 16	704 0.6- 0.2-
1989 03 03	809	0.8-	1.1+	1999 02 12	704	0.6+	0.9+	1999 02 16	704 0.3- 0.1-
1994 10 28	033	0.2+	0.2+	1999 02 13	888	0.4-	0.3-	1999 02 16	888 0.4- 0.0

M.P.C. 33994

1994 10 28 033 0.3− 0.4+ 1999 02 13 888 0.1− 0.5− 1999 02 16 888 0.8− 0.2−
 1994 11 01 033 0.2− 0.1− 1999 02 14 888 0.2− 0.2−

1999 CH₁₆ = 1995 EZ₃

Id. B. G. Marsden

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	10.08830		(2000.0)	P		Q	
<i>n</i>	0.24398381	ω	152.00000	−0.39472756	−0.91799736		
<i>a</i>	2.5364641	Ω	321.21458	+0.83113418	−0.33896015		
<i>e</i>	0.2193553	<i>i</i>	3.51031	+0.39167095	−0.20588071		
<i>P</i>	4.04	<i>H</i>	15.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1995 03 02	691	0.1+	0.3−	1999 02 10	704	0.2−	0.6−	1999 02 18	046	0.2+	0.2−
1995 03 02	691	0.2+	0.3+	1999 02 12	699	0.6+	0.9+	1999 02 18	046	0.1−	0.1+
1995 03 02	691	0.0	0.8−	1999 02 12	699	0.3−	0.1+	1999 02 18	046	0.3−	0.3+
1995 03 10	691	1.1−	0.6−	1999 02 12	699	0.6+	0.0	1999 02 18	046	0.4−	0.1+
1995 03 10	691	0.3−	0.7−	1999 02 13	704	0.5−	0.2−	1999 02 18	046	0.3−	0.4+
1995 03 10	691	0.0	0.5−	1999 02 13	704	0.3+	1.1+	1999 02 24	046	0.1+	0.0
1999 01 14	699	1.3−	0.9−	1999 02 13	704	0.0	1.0+	1999 02 24	046	0.0	0.2+
1999 01 14	699	0.1+	0.2−	1999 02 13	704	0.2−	0.5+	1999 02 25	046	0.4+	0.1+
1999 01 14	699	0.7+	0.7−	1999 02 13	704	0.6−	0.1+	1999 02 25	046	0.6+	0.3−
1999 02 10	704	0.4−	0.4−	1999 02 15	046	0.1−	0.4+	1999 02 25	046	1.5+	0.7+
1999 02 10	704	0.2−	1.0−	1999 02 15	046	0.1+	0.6+	1999 02 25	046	0.9+	0.2+
1999 02 10	704	0.2−	0.6−	1999 02 15	046	0.2+	0.1+	1999 02 25	046	0.6+	0.6+
1999 02 10	704	0.7−	0.5−	1999 02 15	046	0.2−	0.5+				

1999 CJ₁₆ = 1979 OY₂ = 1996 KV₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	40.44147		(2000.0)	P		Q	
<i>n</i>	0.27588852	ω	278.89456	+0.17541911	−0.98443381		
<i>a</i>	2.3369368	Ω	160.99196	+0.91586716	+0.15913012		
<i>e</i>	0.1935855	<i>i</i>	1.91297	+0.36113084	+0.07461687		
<i>P</i>	3.57	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1979 07 24	675	1.3−	1.1−	1999 02 12	699	0.5+	1.0+	1999 02 16	704	0.8+	0.8−
1979 07 24	413	2.0+	0.3−	1999 02 12	699	0.5+	0.7+	1999 02 16	704	0.2+	0.6−
1979 07 25	675	0.3−	0.5−	1999 02 12	704	0.2−	0.5−	1999 02 16	704	0.3+	1.9−
1996 05 19	809	0.9+	0.4+	1999 02 12	704	0.7−	0.3−	1999 02 16	704	0.5+	0.7−
1996 05 19	809	0.4+	0.5−	1999 02 12	704	0.0	0.7−	1999 02 18	104	0.2−	0.3−
1996 05 19	809	0.4+	0.5+	1999 02 12	704	0.7−	0.7−	1999 02 18	104	0.6−	0.1−
1996 05 22	809	0.8+	0.0	1999 02 13	108	0.7−	0.3+	1999 02 19	104	0.4+	0.1−
1996 05 22	809	0.7−	0.6−	1999 02 13	108	0.8+	0.7+	1999 02 23	108	1.4+	1.8−
1996 05 22	809	1.5−	1.2+	1999 02 13	108	0.3+	0.9+	1999 02 23	108	1.2−	2.1+
1999 02 12	699	0.1+	0.6+	1999 02 13	108	0.5−	0.5+	1999 02 23	108	1.5−	0.1+

1999 CO₄₈ = 1990 ET₃ = 1990 GN₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	197.31117		(2000.0)	P		Q	
<i>n</i>	0.21397436	ω	331.62383	+0.71952002	+0.69172601		
<i>a</i>	2.7683961	Ω	344.11554	−0.58692673	+0.55820589		
<i>e</i>	0.1092566	<i>i</i>	13.02676	−0.37122492	+0.45817171		
<i>P</i>	4.61	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1990 03 02	809	1.7+	1.0−	1990 04 16	809	0.0	0.4−	1999 02 13	704	1.0+	0.1+
1990 03 02	809	0.9+	1.2−	1999 02 10	704	0.8+	0.2−	1999 02 13	704	1.6−	0.9+
1990 03 02	809	0.3−	0.2+	1999 02 10	704	0.4−	2.5−	1999 02 21	683	0.2+	0.7+
1990 03 04	809	1.6−	1.0+	1999 02 10	704	0.3−	0.1−	1999 02 21	683	0.8+	0.3+
1990 03 04	809	0.2−	1.1+	1999 02 10	704	0.3−	0.2+	1999 02 21	683	0.7+	0.3+
1990 03 04	809	1.6−	1.6+	1999 02 10	704	2.5−	0.1+	1999 02 23	683	1.2+	0.2−
1990 04 15	809	1.0+	0.1−	1999 02 13	704	0.4−	1.0+	1999 02 23	683	1.2+	0.1−
1990 04 16	809	0.1+	1.5−	1999 02 13	704	1.1−	0.5−	1999 02 23	683	0.7+	0.2+

1999 MAR. 2

1999 CR₁₀₉ = 1996 TY₅₅

Id. B. G. Marsden, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	27.29582		(2000.0)	P		Q	
<i>n</i>	0.12431261	ω	180.72086	−0.14871133	−0.98144669		
<i>a</i>	3.9761179	Ω	277.83680	+0.90789054	−0.08699719		
<i>e</i>	0.2121663	<i>i</i>	7.01719	+0.39194349	−0.17086219		
<i>P</i>	7.93	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 10 02	809	(3.4+	1.6+)	1999 02 20	699	0.6+	1.9+	1999 02 22	859	0.1+	0.5−
1996 10 02	809	1.9+	0.7+	1999 02 20	699	0.6+	1.1+	1999 02 22	719	1.9+	0.0
1996 10 02	809	0.3+	0.0	1999 02 20	699	1.5+	0.4−	1999 02 22	719	0.0	0.8+
1996 10 03	809	0.2−	0.5−	1999 02 20	097	0.0	0.1−	1999 02 22	711	0.2−	0.2−
1996 10 03	809	0.7−	0.4−	1999 02 20	557	0.3−	0.1−	1999 02 22	684	0.0	0.4−
1996 10 03	809	1.4−	0.2+	1999 02 20	557	0.9−	0.2−	1999 02 22	711	0.2−	0.3−
1999 02 12	704	0.1+	0.2−	1999 02 20	097	0.1−	0.2−	1999 02 22	684	0.2+	0.2−
1999 02 12	704	0.6−	0.3−	1999 02 21	859	0.0	0.0	1999 02 22	711	0.1−	0.2−
1999 02 12	704	0.3−	0.5+	1999 02 21	859	0.1+	0.1+	1999 02 22	557	0.8−	0.4+
1999 02 12	704	0.6−	0.8−	1999 02 21	859	0.1−	0.4+	1999 02 22	557	0.1+	0.2−
1999 02 16	704	0.5+	0.4−	1999 02 21	711	0.3−	0.1−	1999 02 22	557	0.2−	0.2−
1999 02 16	704	0.9+	0.3+	1999 02 21	711	0.4−	0.0	1999 02 23	684	0.2−	0.2−
1999 02 16	704	0.0	0.1+	1999 02 21	711	0.6−	0.2+	1999 02 23	684	0.1−	0.2−
1999 02 16	704	0.3+	0.0	1999 02 22	859	0.2+	0.4−	1999 02 23	557	0.2−	0.5−
1999 02 16	704	0.4−	0.6+	1999 02 22	859	0.1−	0.0	1999 02 23	557	0.4−	0.4−

1999 DK = 1992 EP₃₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	160.62951		(2000.0)	P		Q	
<i>n</i>	0.27511652	ω	145.39999	+0.94253139	+0.33353801		
<i>a</i>	2.3413065	Ω	195.15343	−0.32102719	+0.88771443		
<i>e</i>	0.1789982	<i>i</i>	4.31574	−0.09260732	+0.31735702		
<i>P</i>	3.58	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	7

Residuals in seconds of arc

1992 03 03	809	0.8−	0.2+	1999 02 16	910	0.6+	0.4−	1999 02 17	910	0.7+	0.2−
1992 03 06	809	0.8+	0.3−	1999 02 16	704	0.0	0.6+	1999 02 17	910	0.7+	0.2+
1999 02 12	704	0.9−	0.6−	1999 02 16	704	1.4−	1.2−	1999 02 19	910	0.4+	0.1−
1999 02 12	704	0.2+	0.4−	1999 02 16	704	1.5−	0.3+	1999 02 19	910	0.4+	0.2+
1999 02 12	704	0.4+	0.1−	1999 02 16	704	0.0	1.7+	1999 02 19	910	0.4−	0.2−
1999 02 16	910	0.7+	0.5−	1999 02 16	704	1.2−	1.0+				
1999 02 16	910	0.5+	0.4−	1999 02 17	910	0.7+	0.1−				

1999 DB₁ = 1997 SD₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	225.63778		(2000.0)	P		Q	
<i>n</i>	0.29216850	ω	52.45400	+0.19350742	+0.98070981		
<i>a</i>	2.2492986	Ω	228.72707	−0.91133560	+0.16924842		
<i>e</i>	0.1347649	<i>i</i>	2.10644	−0.36334873	+0.09779179		
<i>P</i>	3.37	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1997 09 29	691	0.3−	0.1−	1999 02 12	704	0.4+	0.5−	1999 02 16	704	0.9−	0.7+
1997 09 29	691	0.5−	0.3−	1999 02 12	704	0.3−	1.3−	1999 02 18	566	0.2+	0.2−
1997 09 29	691	0.2−	0.4−	1999 02 12	704	0.2−	2.0−	1999 02 18	566	0.5+	0.3−
1997 10 03	691	0.2+	0.1+	1999 02 12	704	0.5+	1.1−	1999 02 18	566	0.3+	0.5−
1997 10 03	691	0.4+	0.1+	1999 02 12	704	0.7−	0.6+	1999 02 19	566	0.2+	0.9+
1997 10 03	691	0.3+	0.8+	1999 02 16	704	0.3−	0.7+	1999 02 19	566	0.7+	0.2+
1999 02 12	699	0.9+	0.5+	1999 02 16	704	0.6+	1.1+	1999 02 19	566	0.4−	0.6+
1999 02 12	699	0.2−	1.0+	1999 02 16	704	0.7−	0.5−				
1999 02 12	699	0.7+	0.8−	1999 02 16	704	1.4−	0.9+				

1999 MAR. 2

M.P.C. 33995

1999 DP₁ = 1997 WZ₃₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	290.94694		(2000.0)	P	Q
<i>n</i>	0.23786473	ω	172.73016	-0.62553677	+0.75003239
<i>a</i>	2.5797801	Ω	58.29154	-0.72792532	-0.46197207
<i>e</i>	0.1282544	<i>i</i>	14.62740	-0.28076409	-0.47332149
<i>P</i>	4.14	<i>H</i>	12.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 11 29	704	0.9+	0.2+	1997 12 04	704	1.3-	0.2-	1999 02 19	385	0.4-	0.5-
1997 11 29	704	0.8+	1.4+	1997 12 04	704	0.4-	0.1-	1999 02 22	888	0.3-	0.3-
1997 11 29	704	0.0	0.6-	1997 12 04	704	0.1+	0.2-	1999 02 22	888	0.2-	0.2-
1997 11 29	704	0.1-	0.1+	1999 02 14	905	(1.1+	3.9-)	1999 02 25	385	0.4-	0.2-
1997 11 29	704	0.7+	0.3+	1999 02 17	905	0.7+	1.3+	1999 02 25	385	0.6+	0.3-
1997 12 04	704	0.4-	0.5-	1999 02 17	905	0.6-	0.7+	1999 02 25	385	0.9+	0.1-
1997 12 04	704	0.3-	0.3-	1999 02 19	385	0.4-	0.5-				

1999 DN₂ = 1990 RB₁₄

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	34.91660		(2000.0)	P	Q
<i>n</i>	0.16861876	ω	106.43337	-0.53017742	-0.84492579
<i>a</i>	3.2448811	Ω	16.17870	+0.64815201	-0.45770156
<i>e</i>	0.0455139	<i>i</i>	14.71957	+0.54663596	-0.27678455
<i>P</i>	5.85	<i>H</i>	12.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1990 09 14	809	0.1+	0.1-	1990 09 22	809	0.3+	0.1+	1999 02 20	411	0.4-	0.8-
1990 09 14	809	0.2-	0.4+	1990 09 22	809	0.1+	0.1+	1999 02 20	411	0.1-	0.4+
1990 09 14	809	0.1+	0.2-	1999 02 19	411	0.2+	0.2+	1999 02 22	411	0.0	0.2+
1990 09 22	809	0.4-	0.2-	1999 02 19	411	0.7+	0.2-	1999 02 22	411	0.4-	0.2+

2077 P-L = 1999 CV₈₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	230.00816		(2000.0)	P	Q
<i>n</i>	0.29249881	ω	279.74932	-0.17330677	+0.98466581
<i>a</i>	2.2476049	Ω	340.23676	-0.87889228	-0.16376738
<i>e</i>	0.1346554	<i>i</i>	3.38243	-0.44442449	-0.06011228
<i>P</i>	3.37	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1960 09 26	675	0.8+	0.1-	1999 01 06	699	0.6-	0.3+	1999 02 13	704	0.2+	0.4+
1960 09 28	675	0.7-	0.3+	1999 01 06	699	0.2-	0.3+	1999 02 13	704	1.1+	0.5-
1960 09 29	675	1.1+	0.1+	1999 02 10	704	1.1+	0.2-	1999 02 13	704	1.7-	0.0
1960 10 22	675	0.3-	0.2-	1999 02 10	704	0.0	0.4+	1999 02 13	704	1.1-	0.1-
1960 10 25	675	0.1+	0.0	1999 02 10	704	1.4+	0.5+	1999 02 13	704	1.0-	0.0
1960 10 26	675	1.0-	0.2-	1999 02 10	704	1.0+	1.2-				
1999 01 06	699	0.2-	0.0	1999 02 10	704	(0.3+	2.3-)				

2138 P-L = 1999 CM₇₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	52.87762		(2000.0)	P	Q
<i>n</i>	0.23916891	ω	201.41652	+0.19945004	-0.97851250
<i>a</i>	2.5703932	Ω	237.11346	+0.90784826	+0.20459997
<i>e</i>	0.1334456	<i>i</i>	3.56921	+0.36882410	+0.02553692
<i>P</i>	4.12	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1960 09 24	675	0.2+	0.5+	1960 10 25	675	0.6+	0.8+	1999 02 16	704	0.4+	0.4-
1960 09 26	675	0.2-	0.4-	1960 10 26	675	0.6-	0.7+	1999 02 16	704	1.0-	1.9-
1960 09 28	675	0.0	1.6+	1999 02 12	704	0.6+	0.3-	1999 02 16	704	0.9-	0.2+
1960 09 29	675	0.6+	0.3-	1999 02 12	704	1.0+	1.5+	1999 02 16	704	0.4+	0.5-
1960 10 17	675	0.6-	1.5-	1999 02 12	704	1.2-	0.1-				
1960 10 22	675	0.1-	1.4-	1999 02 12	704	0.7+	1.4+				

2154 P-L = 1998 XB₈₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	357.45822		(2000.0)	P	Q
<i>n</i>	0.21105532	ω	256.56908	-0.15313404	-0.98434830
<i>a</i>	2.7938635	Ω	202.80074	+0.97121572	-0.13361680
<i>e</i>	0.1045920	<i>i</i>	13.00780	+0.18245546	-0.11491291
<i>P</i>	4.67	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1960 09 24	675	0.6+	0.0	1960 10 26	675	0.1+	0.0	1998 12 15	704	0.8-	0.4-
1960 09 26	675	0.8-	0.3-	1998 12 15	704	0.3-	0.4-	1998 12 22	704	0.4-	0.1+
1960 09 28	675	0.6-	0.4-	1998 12 15	704	0.9+	0.6+	1998 12 22	704	0.1+	0.3-
1960 09 29	675	0.7+	0.7+	1998 12 15	704	0.5+	0.4+	1998 12 22	704	(2.6+	0.2+)

2545 P-L = 1999 CE₄₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	120.19956		(2000.0)	P	Q
<i>n</i>	0.21418564	ω	353.60222	+0.99582363	-0.08518836
<i>a</i>	2.7665752	Ω	11.44105	+0.08937407	+0.83616245
<i>e</i>	0.1715674	<i>i</i>	9.52862	+0.01864315	+0.54182590
<i>P</i>	4.60	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1960 09 24	675	0.1-	0.1-	1960 10 24	675	0.4+	0.8+	1999 02 10	704	0.1+	0.1-
1960 09 26	675	0.4-	0.1-	1960 10 25	675	1.0+	0.5+	1999 02 13	704	1.4-	0.7+
1960 09 28	675	0.9-	0.2+	1960 10 26	675	0.2+	0.7+	1999 02 13	704	1.0-	0.2+
1960 09 29	675	0.6-	0.2+	1960 10 26	675	0.4+	1.3-	1999 02 13	704	1.5+	2.0+
1960 10 17	675	0.3-	0.1-	1999 02 10	704	0.5+	1.2-	1999 02 13	704	0.9-	0.3-
1960 10 22	675	0.2+	0.2-	1999 02 10	704	0.4+	0.7-				
1960 10 22	675	0.2+	0.6-	1999 02 10	704	1.0+	0.3-				

2675 P-L = 1998 BY₃₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	169.60226		(2000.0)	P	Q
<i>n</i>	0.21892577	ω	14.51363	+0.87032270	-0.49199446
<i>a</i>	2.7264955	Ω	15.01724	+0.44299725	+0.76266538
<i>e</i>	0.1487543	<i>i</i>	4.84967	+0.21515538	+0.41986065
<i>P</i>	4.50	<i>H</i>	16.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1960 09 26	675	0.2+	0.2+	1960 10 26	675	0.2-	0.7-	1998 01 31	910	0.6+	0.7-
1960 09 28	675	0.6-	0.4-	1998 01 29	910	0.5+	0.4+	1998 01 31	910	0.9+	0.7-
1960 09 29	675	0.2-	0.5+	1998 01 30	910	0.5+	0.2+	1998 02 01	327	(2.6-	0.3-)
1960 10 17	675	(0.1+	3.3+)	1998 01 30	910	0.5+	0.8+	1998 02 01	327	1.4-	0.2+
1960 10 25	675	1.1+	0.6+	1998 01 31	910	0.3-	0.6-	1998 02 01	327	1.1-	0.4+

2691 P-L = 1999 CW₂₀

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	281.48926		(2000.0)	P	Q
<i>n</i>	0.26802351	ω	191.81158	-0.71039659	+0.70328835
<i>a</i>	2.3824335	Ω	32.93230	-0.64163377	-0.63148354
<i>e</i>	0.1561962	<i>i</i>	2.83336	-0.28921062	-0.32651803
<i>P</i>	3.68	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1960 09 24	675	0.3+	0.3+	1999 01 22	699	1.8-	0.5-	1999 02 13	704	0.5+	1.0+
1960 09 26	675	0.1+	0.4-	1999 02 10	704	0.0	0.5-	1999 02 13	704	1.3-	1.3-
1960 09 28	675	0.1+	0.8+	1999 02 10	704	0.3-	0.3+	1999 02 13	704	1.1+	0.6-
1960 10 17	675	0.8-	0.4-	1999 02 10	704	0.8+	0.2-	1999 02 13	704	0.2-	0.1+
1960 10 25	675	0.2+	0.0	1999 02 10	704	0.8+	0.2+	1999 02 13	704	1.1+	1.0-
1960 10 26	675	0.0	0.2-	1999 02 11	699	0.6+	0.2+	1999 02 18	566	0.6-	0.3+
1999 01 22	699	0.1-	0.8+	1999 02 11	699	0.5-	0.8+	1999 02 18	566	0.4-	0.1+
1999 01 22	699	0.6+	0.3-	1999 02 11	699	0.3+	0.6+	1999 02 18	566	0.8-	0.2+

M.P.C. 33996

1999 MAR. 2

3106 P-L = 1999 CZ₇₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	178.86385		(2000.0)	P	Q
<i>n</i>	0.19034504	ω	86.10556	+0.82525864	+0.54751413
<i>a</i>	2.9930111	Ω	240.64630	-0.56037672	+0.76338959
<i>e</i>	0.1164321	<i>i</i>	9.14174	-0.07018624	+0.34273111
<i>P</i>	5.18	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1960 09 24	675	0.2-	0.8-	1960 10 22	675	0.0	0.6+	1999 02 12	704	0.1+	0.5-
1960 09 25	675	0.0	0.9-	1960 10 24	675	0.9+	0.3-	1999 02 16	704	0.3-	0.3+
1960 09 26	675	0.2+	0.5+	1960 10 24	675	0.4-	0.1-	1999 02 16	704	1.2+	0.1+
1960 09 28	675	0.2+	0.2+	1960 10 26	675	0.8+	1.1-	1999 02 16	704	0.8-	0.0
1960 09 28	675	0.4-	0.6+	1960 10 26	675	0.4-	0.6+	1999 02 16	704	3.4-	1.4+
1960 09 29	675	1.2+	0.8+	1999 02 12	704	0.2-	0.7-				
1960 10 17	675	2.1-	0.1-	1999 02 12	704	3.4+	0.5-				

4189 P-L = 1981 UN₈ = 1999 AP₃₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	21.39438		(2000.0)	P	Q
<i>n</i>	0.23884836	ω	183.76321	-0.26909104	-0.96051881
<i>a</i>	2.5726924	Ω	281.85695	+0.88551492	-0.21788898
<i>e</i>	0.1866945	<i>i</i>	4.14071	+0.37875235	-0.17299711
<i>P</i>	4.13	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1960 09 24	675	0.5+	0.7-	1999 01 15	699	0.3-	0.1-	1999 02 12	704	0.6-	0.4+
1960 09 25	675	0.1+	0.2-	1999 01 15	699	0.4+	0.1-	1999 02 12	704	0.8-	1.0+
1960 09 26	675	0.4+	0.6-	1999 01 22	699	0.3+	0.8-	1999 02 16	704	0.1+	0.3-
1960 09 28	675	0.4-	1.0-	1999 01 22	699	0.9-	0.8-	1999 02 16	704	1.0+	0.5-
1960 10 26	675	0.4+	0.1+	1999 01 22	699	0.7+	0.9-	1999 02 16	704	0.5-	0.7-
1981 10 30	381	0.6-	0.8+	1999 02 12	704	0.4-	0.5+	1999 02 16	704	0.3+	0.5-
1981 10 30	381	0.3+	1.1+	1999 02 12	704	0.2+	0.9+	1999 02 16	704	0.3-	0.9-
1999 01 15	699	0.6-	0.1+	1999 02 12	704	0.7+	1.0+				

4623 P-L = 1984 WP₂ = 1999 CU₅₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	327.78091		(2000.0)	P	Q
<i>n</i>	0.29368468	ω	173.13489	-0.99192949	+0.12567204
<i>a</i>	2.2415504	Ω	14.11791	-0.11935846	-0.88083236
<i>e</i>	0.0917083	<i>i</i>	3.95069	-0.04277200	-0.45644373
<i>P</i>	3.36	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1960 09 24	675	0.5-	0.7-	1984 11 27	010	(0.3+	3.9+)	1999 02 10	704	0.8-	0.3-
1960 09 26	675	0.9-	0.1+	1984 11 28	010	0.1+	0.6-	1999 02 10	704	0.1-	1.4-
1960 09 27	675	0.7+	0.7+	1999 01 14	699	0.4-	1.7+	1999 02 13	704	0.2+	0.0
1960 09 28	675	0.5+	0.2-	1999 01 14	699	1.3+	1.5+	1999 02 13	704	0.3-	0.2-
1960 10 17	675	0.8-	0.2+	1999 01 14	699	1.0+	0.3+	1999 02 13	704	0.8-	1.1+
1960 10 22	675	0.1-	0.7+	1999 02 10	704	0.6-	0.5-	1999 02 13	704	1.0+	0.6+
1960 10 25	675	0.6+	0.4-	1999 02 10	704	0.3+	0.5-	1999 02 13	704	0.2+	0.6-
1960 10 26	675	0.6+	0.3-	1999 02 10	704	0.6-	1.1-				

4649 P-L = 1999 CA₆₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	49.16295		(2000.0)	P	Q
<i>n</i>	0.18881118	ω	255.88768	+0.18113667	-0.98338129
<i>a</i>	3.0091990	Ω	183.74218	+0.95921277	+0.17941228
<i>e</i>	0.0259485	<i>i</i>	10.84266	+0.21702617	+0.02779325
<i>P</i>	5.22	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1960 09 24	675	0.6+	0.1+	1960 10 26	675	0.9-	0.8-	1999 02 16	704	0.6-	0.0
1960 09 24	675	0.7-	0.6+	1999 02 12	704	0.5+	0.5-	1999 02 16	704	0.5+	0.5+

1960 09 25	675	1.0+	0.4-	1999 02 12	704	0.1-	0.8+	1999 02 16	704	0.2+	0.2+
1960 09 26	675	0.4+	0.4+	1999 02 12	704	1.3+	0.4+	1999 02 19	566	1.6-	0.6+
1960 09 28	675	1.3+	0.2+	1999 02 12	704	0.1+	1.5+	1999 02 19	566	1.6-	1.7-
1960 10 17	675	0.1+	1.1+	1999 02 12	704	0.8+	1.2-	1999 02 19	566	1.9-	1.0-
1960 10 22	675	1.1-	0.6-	1999 02 16	704	1.8+	0.7+				
1960 10 25	675	0.9-	0.6-	1999 02 16	704	0.5+	0.4-				

6538 P-L = 1962 CS = 1998 VB₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Spahr

<i>M</i>	349.67791		(2000.0)	P	Q
<i>n</i>	0.18259497	ω	321.41016	+0.16870814	-0.98526533
<i>a</i>	3.0771135	Ω	118.86077	+0.91210601	+0.14524615
<i>e</i>	0.1903020	<i>i</i>	1.83887	+0.37363108	+0.09030937
<i>P</i>	5.40	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1960 09 24	675	0.3+	0.6-	1998 10 18	699	(2.5+	3.2-)	1998 11 11	704	0.2+	0.1+
1960 09 26	675	0.1-	0.3+	1998 10 18	699	1.9+	0.7-	1998 11 11	704	0.1-	1.4+
1960 09 27	675	1.8+	0.2-	1998 10 18	699	0.7-	0.6+	1998 11 11	704	0.3+	0.2+
1960 09 28	675	1.0+	0.0	1998 11 10	704	1.0-	0.9-	1998 11 11	704	1.2+	1.2+
1960 10 17	675	0.3-	0.4+	1998 11 10	704	1.8-	0.4-	1998 11 11	699	0.1+	0.1-
1960 10 22	675	2.1-	0.9-	1998 11 10	704	1.7-	0.5-	1998 11 11	699	0.3+	0.2-
1960 10 22	675	0.1+	1.5-	1998 11 10	704	2.0-	0.0	1998 11 11	699	0.1+	0.0
1960 10 24	675	0.1-	0.4+	1998 11 10	704	(2.8-	1.2+)	1998 12 08	699	0.7-	0.4+
1960 10 26	675	0.3+	0.6-	1998 11 11	704	0.2+	0.3+	1998 12 08	699	0.8+	0.5+
1962 02 10	033	2.8-	0.2-	1998 11 11	704	0.1+	1.0+	1998 12 08	699	0.2+	0.2-
1962 02 10	033	2.3+	1.8-	1998 11 11	704	0.4+	0.2+	1999 01 06	699	0.5+	0.3-
1998 10 10	699	0.6-	0.8-	1998 11 11	704	0.2+	0.3+	1999 01 06	699	0.4-	0.3-
1998 10 10	699	0.7+	0.8-	1998 11 11	704	0.9+	0.2+	1999 01 06	699	0.1+	0.2-
1998 10 10	699	0.1+	0.8-	1998 11 11	704	0.1+	1.4+				

6623 P-L = 1999 CC₈₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	50.35480		(2000.0)	P	Q
<i>n</i>	0.26514458	ω	58.75306	+0.35237578	-0.93564754
<i>a</i>	2.3996480	Ω	10.67022	+0.81799268	+0.29760951
<i>e</i>	0.0734544	<i>i</i>	6.16186	+0.45466393	+0.18971625
<i>P</i>	3.72	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1960 09 24	675	0.5-	0.1+	1960 10 26	675	0.9-	0.0	1999 02 10	704	0.6-	2.3-
1960 09 26	675	0.5-	0.6-	1999 02 10	704	0.1+	0.1-	1999 02 13	704	0.5-	1.6+
1960 09 27	675	1.6+	0.1+	1999 02 10	704	0.4-	0.8-	1999 02 13	704	0.9+	1.7+
1960 09 28	675	0.5+	0.2+	1999 02 10	704	0.6-	1.0-	1999 02 13	704	0.3+	0.5+
1960 10 17	675	0.3-	0.2+	1999 02 10	704	0.2-	1.3-	1999 02 13	704	0.9+	1.8+

6844 P-L = 1996 RW₃₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	22.91835		(2000.0)	P	Q
<i>n</i>	0.08047158	ω	26.46882	+0.71035404	-0.70243045
<i>a</i>	5.3134229	Ω	18.38231	+0.61809978	+0.59225675
<i>e</i>	0.1126286	<i>i</i>	8.12932	+0.33667463	+0.39474474
<i>P</i>	12.25	<i>H</i>	13.4	<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	0.6-	0.4+	1996 09 15	809	0.1+	0.1-
1960 09 26	675	0.3-	0.9-	1960 10 17	675	0.3+	0.4+	1996 09 16	809	0.1-	0.1+
1960 09 27	675	0.9+	0.0	1960 10 22	675	0.3-	0.3-				

1999 MAR. 2

M.P.C. 33997

9547 P-L = 1998 FU₁₃₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	280.35425		(2000.0)		P		Q				
n	0.25131927	ω	164.91116		+0.99553743		+0.09160470				
a	2.4868649	Ω	189.91615		-0.09430120		+0.95670686				
e	0.2124295	i	7.56374		-0.00353757		+0.27626178				
P	3.92	H	15.1		G	0.15	U	5			
Residuals in seconds of arc											
1960 10 17	675	0.3+	0.2+	1998 03 28	704	0.2-	1.3+	1998 03 29	704	0.1+	0.5+
1960 10 22	675	0.3-	0.5-	1998 03 28	704	0.2+	1.0-	1998 03 29	704	0.7-	0.9-
1960 10 24	675	0.1+	0.3+	1998 03 28	704	1.7-	1.3-	1998 03 29	704	0.3-	0.4+
1960 10 26	675	0.3+	0.1+	1998 03 29	704	0.1-	0.5+				
1998 03 28	704	1.7+	0.1+	1998 03 29	704	1.1+	0.4+				

9567 P-L = 1998 KG₁₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	350.92154		(2000.0)		P		Q		
<i>n</i>	0.17450504	ω	252.21002		+0.21291746		+0.97349607		
<i>a</i>	3.1714953	Ω	30.47011		−0.82246307		+0.22470338		
<i>e</i>	0.0464814	<i>i</i>	9.47732		−0.52746625		+0.04258866		
<i>P</i>	5.65	<i>H</i>	13.8		<i>G</i>	0.15	<i>U</i>	6	
Residuals in seconds of arc									
1960 10 17	675	0.0	0.0	1998 05 22	704	0.5−	0.7+	1998 05 24	704 0.9+ 0.5+
1960 10 22	675	0.4−	0.2−	1998 05 22	704	0.0	0.5−	1998 05 24	704 0.3+ 0.9−
1960 10 24	675	0.1+ 0.1+		1998 05 22	704	0.0	0.4−	1998 05 24	704 (0.6+ 2.2−)
1960 10 26	675	0.1+ 0.1+		1998 05 22	704	0.5−	0.9+	1998 05 24	704 0.9− 0.1+
1998 05 22	704	0.0	0.3−	1998 05 24	704	0.7+	0.2−		

1051 T-1 = 1963 TF₁ = 1979 WF₂ = 1984 WB₅ = 1989 SY₇ = 1997 EC₄₈

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	172.84962		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$	
n	0.19043565	ω	141.97012		-0.76115866		-0.64851894	
a	2.9920617	Ω <td>357.55728</td> <td></td> <td>+0.54122266</td> <td></td> <td>-0.62851665</td> <td></td>	357.55728		+0.54122266		-0.62851665	
e	0.0558970	i <td>10.53094</td> <td></td> <td>+0.35737309</td> <td></td> <td>-0.42940657</td> <td></td>	10.53094		+0.35737309		-0.42940657	
P	5.18 <th>H</th> <td>12.1</td> <th>G</th> <td>0.15<th>U</th><td>2</td><td></td></td>	H	12.1	G	0.15 <th>U</th> <td>2</td> <td></td>	U	2	
Residuals in seconds of arc								
1963 10 15	760 (3.3+ 4.7+)		1971 03 26 675 0.3- 2.0-		1989 09 29 675 0.1+ 0.6+			
1963 10 15	760 0.2- 0.8-		1971 03 27 675 1.1- 1.2-		1997 03 11 809 0.8+ 1.3+			
1971 03 24	675 0.2+ 2.0-		1979 11 16 095 0.5- 0.1-		1997 03 11 809 0.8+ 1.2+			
1971 03 24	675 0.5- 2.2-		1984 11 21 010 0.7- 2.1+		1997 03 11 809 0.2- 1.1+			
1971 03 25	675 0.7- 0.6-		1989 09 27 675 0.5- 0.2-		1997 03 12 809 1.3+ 2.0+			
1971 03 25	675 0.6- 0.6-		1989 09 28 675 0.8+ 0.6-		1997 03 12 809 1.1+ 1.7+			
1971 03 25	675 1.9- 0.2+		1989 09 28 675 0.2+ 0.2+		1997 03 12 809 1.4+ 2.0+			
1971 03 25	675(10.4- 2.4+)		1989 09 29 675 0.2+ 0.2-					

1068 T-1 = 1985 SD₅ = 1997 JE₁₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	71.03329		(2000.0) <th></th> <th>$\mathbf{P}$</th> <th></th> <th>$\mathbf{Q}$</th> <th></th> <th></th>		$\mathbf{P}$		$\mathbf{Q}$		
n	0.23408038	ω	131.97397		+0.94835875		+0.30506914		
a	2.6075104	Ω	210.56432		-0.31719839		+0.91288672		
e	0.2844208	i	9.83769		+0.00092614		+0.27123912		
P	4.21	H	14.5	G	0.15	U	4		
Residuals in seconds of arc									
1971 03 25	675	0.5-	1.2-	1985 09 21	095	0.0	0.0	1997 05 04	809 0.0 0.3+
1971 03 25	675	1.3-	0.0	1997 05 03	809	0.9+	0.5+	1997 05 04	809 0.3- 0.5-
1971 03 26	675	1.8+	1.2+	1997 05 03	809	0.5+	0.1-	1997 05 04	809 0.9- 0.4-
1971 03 27	675	(4.3+	2.4+)	1997 05 03	809	0.2-	0.2+		

1143 T-1 = 1999 AY₁₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	157.83859	(2000.0)		P		Q					
n	0.31046503	ω	11.64205	+0.72217938		+0.69004156					
a	2.1600357	Ω	304.61604	-0.63921324		+0.63927696					
e	0.1561962	i	3.34046	-0.26431682		+0.33936355					
P	3.17	H	15.1	G	0.15	U	6				
Residuals in seconds of arc											
1971 03 24	675	0.7-	1.2-	1971 03 27	675	0.4+	0.3-	1999 01 08	691	0.1-	0.3-
1971 03 25	675	0.7+	0.5+	1971 04 02	675	0.0	0.1-	1999 01 15	691	0.1+	0.2+
1971 03 25	675	1.3-	0.6+	1999 01 08	691	0.0	0.2-	1999 01 15	691	0.2+	0.2+
1971 03 26	675	0.9+	0.4+	1999 01 08	691	0.1-	0.0	1999 01 15	691	0.1-	0.1+

1149 T-1 = 1998 FX₁₄₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	42.12103		(2000.0)		P		Q				
n	0.21871304	ω	18.89907		-0.89251212		+0.45086159				
a	2.7282632	Ω	187.93209		-0.42426650		-0.84835132				
e	0.0995746	i	5.02232		-0.15303613		-0.27753175				
P	4.51	H	15.4		G	0.15	U	6			
Residuals in seconds of arc											
1971 03 24	675	0.2+	0.4-	1971 04 02	675	0.1-	0.4+	1998 03 29	704	0.5-	0.0
1971 03 25	675	1.2-	0.0	1998 03 29	704	0.4+	0.2+	1998 04 01	704	0.4-	0.4-
1971 03 25	675	0.5-	0.4+	1998 03 29	704	0.3+	0.3+	1998 04 01	704	1.4-	1.6+
1971 03 26	675	1.2+	0.1+	1998 03 29	704	0.1+	0.3-	1998 04 01	704	1.8+	1.4-
1971 03 27	675	0.1-	0.4-	1998 03 29	704	0.1-	0.9+	1998 04 01	704	0.2-	0.8-

1168 T-1 = 1995 SY₄₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	138.84337		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$		
n	0.18906434	ω	298.70415		-0.77320934		-0.63124734		
a	3.0065121	Ω	202.32612		+0.62314661		-0.73858396		
e	0.3255681	i	9.18154		+0.11762496		-0.23668659		
P	5.21	H	15.7		G	0.15	U	5	
Residuals in seconds of arc									
1971 03 24	675	0.6-	0.7-	1971 03 27	675	0.6+	0.8-	1995 09 25	691 0.2+ 0.1+
1971 03 25	675	0.7+	0.5+	1971 04 02	675	0.5-	0.6+	1995 09 30	691 0.2+ 0.1+
1971 03 25	675	0.1+	0.8+	1995 09 25	691	0.0	0.1-	1995 09 30	691 0.2- 0.3+
1971 03 26	675	0.5-	0.4-	1995 09 25	691	0.2-	0.2-	1995 09 30	691 0.0 0.0

1176 T-1 = 1999 CO₇₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	302.42476		(2000.0)		P		Q				
n	0.17364664	ω	23.97741		-0.84201176		+0.53922026				
a	3.1819386	Ω	188.70625		-0.51050557		-0.80608488				
e	0.1039677	i	6.08796		-0.17435673		-0.24386201				
P	5.68	H	13.2	G	0.15		U	4			
Residuals in seconds of arc											
1971 03 24	675	0.8+	1.3-	1971 05 14	675	0.6-	0.1-	1999 02 12	704	0.3-	0.0
1971 03 25	675	1.5-	0.4-	1971 05 16	675	0.7+	0.4+	1999 02 12	699	0.3+	0.2+
1971 03 25	675	0.7-	0.0	1999 01 15	699	0.0	0.5-	1999 02 12	704	0.5-	0.9-
1971 03 26	675	0.6+	0.3-	1999 01 15	699	0.2+	1.2-	1999 02 16	704	0.1-	0.0
1971 03 27	675	0.8-	0.4+	1999 01 15	699	0.1+	1.4-	1999 02 16	704	0.2-	0.4+
1971 04 02	675	1.6-	1.8+	1999 02 12	704	0.4-	0.0	1999 02 16	704	0.5+	1.3+
1971 04 02	675	0.8+	0.8-	1999 02 12	699	0.4+	0.1-	1999 02 16	704	0.1+	1.5+
1971 04 16	675	0.9+	2.0-	1999 02 12	704	0.3-	0.2-	1999 02 16	704	0.4+	0.9+
1971 04 16	675	1.7+	0.5-	1999 02 12	704	0.0	0.1+				
1971 05 13	675	0.5-	2.0+	1999 02 12	699	0.3+	0.3+				

1238 T-1 = 1992 SD₁₉ = 1999 AS₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	130.20467		(2000.0)		P		Q		
<i>n</i>	0.20308048	ω	341.78453		+0.78657778		+0.61741919		
<i>a</i>	2.8665350	Ω	340.07852		-0.56303992		+0.71086157		
<i>e</i>	0.0691906	<i>i</i>	1.58606		-0.25353785		+0.33685217		
<i>P</i>	4.85	<i>H</i>	14.5	<i>G</i>	0.15		<i>U</i>	5	
Residuals in seconds of arc									
1971 03 24	675	(3.5+ 1.3-)	1992 09 23	809	0.2+	0.6+	1999 01 10	621	0.0 0.4-
1971 03 25	675	0.6+ 0.4-	1992 09 23	809	0.5+ 1.4+		1999 01 10	621	0.3- 0.3-
1971 03 25	675	0.1+ 0.1+	1999 01 06	621	0.0 0.2-		1999 01 10	621	0.3+ 0.5-
1971 03 26	675	1.7+ 1.4-	1999 01 06	621	0.3- 0.4-		1999 01 17	621	0.5+ 0.3+
1971 03 27	675	0.3+ 1.4-	1999 01 06	621	0.6- 0.1-		1999 01 17	621	1.7+ 0.4+
1971 04 02	675	0.7+ 0.2+	1999 01 06	621	0.6- 0.3-		1999 01 17	621	1.1+ 0.6+
1992 09 22	809	1.4+ 0.8-	1999 01 06	621	0.5- 0.3-		1999 01 20	621	0.2+ 0.4+
1992 09 22	809	0.7+ 0.5-	1999 01 06	621	0.4+ 0.3-		1999 01 20	621	0.7+ 0.3+
1992 09 22	809	0.2- 1.2-	1999 01 06	621	0.1- 0.2-		1999 01 20	621	0.4+ 0.5+
1992 09 23	809	0.0 0.1+	1999 01 10	621	0.1+ 0.0		1999 01 20	621	0.3+ 0.3+

2024 T-1 = 1993 HH₂

Id. G. V. Williams, A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	284.60862		(2000.0)		P		Q		
<i>n</i>	0.22594656	ω	203.33365		+0.90346646		−0.42858097		
<i>a</i>	2.6697190	Ω	182.09764		+0.41999350		+0.88885414		
<i>e</i>	0.1188608	<i>i</i>	12.89402		+0.08575444		+0.16203912		
<i>P</i>	4.36	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	7		
Residuals in seconds of arc									
1971 03 25	675	0.1+ 0.1+	1993 04 19	691	0.2− 0.8−	1993 04 20	691	0.3+ 0.2−	
1971 03 25	675	1.2− 0.6+	1993 04 19	691	0.5− 0.5+	1993 04 20	691	0.0 0.1+	
1971 03 26	675	1.2+ 1.1−	1993 04 19	691	0.0 0.4+				
1971 03 27	675	0.1− 0.4+	1993 04 20	691	0.5+ 0.1−				

2125 T-1 = 1996 XO₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	282.39430		(2000.0)		P		Q	
n	0.25389968	ω	306.06722		+0.80986538		+0.58482726	
a	2.4699867	Ω	18.28149		-0.48029963		+0.70586519	
e	0.0667989	i	8.39051		-0.33679420		+0.39966411	
P	3.88	H	14.6		G	0.15	U	6
Residuals in seconds of arc								
1971 03 24	675	(4.0- 4.5-)	1971 03 27	675	0.9- 1.7+	1996 12 02	691	0.9+ 0.0
1971 03 25	675	0.1+ 0.2-	1971 04 02	675	0.5+ 0.0	1996 12 09	691	0.4- 0.2+
1971 03 25	675	1.0- 1.6-	1996 12 02	691	0.1- 0.1-	1996 12 09	691	0.2- 0.0
1971 03 26	675	1.2+ 0.3+	1996 12 02	691	0.2+ 0.0	1996 12 09	691	0.5- 0.1

1144 T-2 = 1977 XO = 1998 XO₃₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	306.05906		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$				
n	0.28207445	ω	230.01659		-0.88700129		-0.46015673				
a	2.3026445	Ω	282.55464		+0.43478402		-0.80415351				
e	0.0994066	i	2.26222		+0.15553638		-0.37628835				
P	3.49	H	15.2		G	0.15	U	6			
Residuals in seconds of arc											
1973 09 25	675	0.2+	1.6-	1973 10 05	675	0.6+	0.4-	1998 12 14	704	0.4+	1.6+
1973 09 25	675	0.5-	1.8+	1973 10 05	675	0.4+	0.5+	1998 12 14	704	0.1-	0.5+
1973 09 29	675	1.7-	0.7+	1977 12 07	675	1.3+	0.1-	1998 12 14	704	(2.3+	1.1-
1973 09 29	675	0.0	0.1-	1977 12 08	675	1.2-	0.9-	1998 12 17	704	0.5-	0.4-
1973 09 30	675	0.6-	1.3+	1998 12 09	327	0.2-	0.6+	1998 12 17	704	0.1+	1.6-
1973 09 30	675	(2.5-	2.3+)	1998 12 09	327	0.0	0.6+	1998 12 17	704	0.5-	0.9-

1973 10 04	675	0.8+ 1.7-	1998 12 09	327	0.3- 0.4+	1998 12 17	704	0.5+	0.1-		
1973 10 04	675	0.8+ 0.6-	1998 12 14	704	0.5+	0.3+					

1227 T-2 = 1999 CT₆₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	62.45881		(2000.0)		P		Q				
n	0.28359590		ω	246.13919	+0.53321147		-0.84593867				
a	2.2944015		Ω	171.62252	+0.79598174		+0.49824378				
e	0.1565213		i	3.36869	+0.28652854		+0.19010759				
P	3.48 <th>H</th> <td>14.8<th>G</th><td>0.15<th>U</th><td colspan="3">5</td></td></td>		H	14.8 <th>G</th> <td>0.15<th>U</th><td colspan="3">5</td></td>	G	0.15 <th>U</th> <td colspan="3">5</td>	U	5			
Residuals in seconds of arc											
1973 09 19	675	0.8-	0.3+	1973 10 04	675	0.3-	1.9-	1999 02 12	704	0.3+	0.1+
1973 09 19	675	0.7-	0.6-	1973 10 04	675	0.8+	0.7+	1999 02 12	704	0.0	0.1+
1973 09 20	675	0.9-	1.3+	1973 10 04	675	1.3-	0.5-	1999 02 12	704	0.2+	0.2-
1973 09 24	675	0.1-	0.7-	1973 10 04	675	1.8+	0.3+	1999 02 12	704	0.8+	0.0
1973 09 24	675	1.4+	0.1-	1973 10 05	675	0.5-	0.7-	1999 02 12	704	0.1+	0.1+
1973 09 25	675	0.3+	0.7+	1973 10 05	675	1.2+	0.8+	1999 02 16	704	0.3+	0.9+
1973 09 29	675	0.4-	0.2-	1973 10 05	675	1.8-	0.3+	1999 02 16	704	1.1-	0.9-
1973 09 29	675	0.4-	0.3-	1973 10 05	675	1.3+	0.8+	1999 02 16	704	1.2+	0.6+
1973 09 30	675	0.0	0.4-	1999 01 22	699	0.6-	0.5-	1999 02 16	704	0.1-	0.4-
1973 09 30	675	(0.8+	2.7+)	1999 01 22	699	0.4-	0.3+	1999 02 16	704	0.1-	0.3+
1973 09 30	675	0.3+	0.4+	1999 01 22	699	0.7-	0.1-				

1286 T-2 = 1999 CF₁₁₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	39.13381		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$				
n	0.28461389	ω	275.53819		-0.03360902		-0.99942244				
a	2.2889272	Ω	176.37642		+0.94554606		-0.03342401				
e	0.1251194	i	4.55719		+0.32374849		-0.00613336				
P	3.46	H	16.1	G	0.15	U	6				
Residuals in seconds of arc											
1973 09 19	675	1.7+	0.7-	1973 09 25	675	0.8-	1.9+	1999 02 12	704	0.0	0.7+
1973 09 19	675	1.6+	0.3+	1973 09 25	675	1.3-	1.6+	1999 02 12	699	1.1+	0.1+
1973 09 19	675	0.2+	1.2+	1973 09 25	675	0.4+	0.3-	1999 02 12	704	0.9+	1.0-
1973 09 19	675	0.7-	1.4-	1973 09 29	675	(2.7+	0.7-)	1999 02 12	704	0.7-	1.0-
1973 09 19	675	0.6-	1.9-	1973 09 29	675	0.3+	1.5-	1999 02 12	699	0.2+	1.0+
1973 09 20	675	2.2-	0.8-	1973 09 30	675	1.3-	0.2-	1999 02 12	704	0.4+	0.2+
1973 09 20	675	0.3-	2.1+	1973 09 30	675	1.1-	0.0	1999 02 12	704	1.6-	1.6-
1973 09 24	675	(0.0	3.0-)	1973 10 04	675	0.0	1.0+	1999 02 16	704	0.2-	1.0-
1973 09 24	675	(1.0-	2.7-)	1973 10 04	675	0.6-	0.1+	1999 02 16	704	0.5-	0.7-
1973 09 24	675	0.9+	2.4-	1973 10 05	675	0.6+	0.6-	1999 02 16	704	0.4+	1.1+
1973 09 24	675	0.5+	0.2+	1973 10 05	675	1.3+	0.5-	1999 02 16	704	0.9+	0.5+
1973 09 25	675	1.4+	1.7+	1999 02 12	699	0.1+	1.4+	1999 02 16	704	1.0-	0.2+

1999 MAR. 2

M.P.C. 33999

1973 09 30 675 0.2+ 0.7+ 1999 02 10 704 0.7- 0.5-
 1973 09 30 675 0.0 0.1- 1999 02 10 704 0.3+ 0.3-

4093 T-2 = 1999 CC₃₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams		Q	
<i>M</i>	31.67095	(2000.0)	<i>P</i>	<i>Q</i>	
<i>n</i>	0.24573905	ω 51.20720	-0.18280261	-0.98271190	
<i>a</i>	2.5243715	Ω 49.35162	+0.88961137	-0.17803904	
<i>e</i>	0.1280857	<i>i</i> 2.21580	+0.41853891	-0.05078797	
<i>P</i>	4.01	<i>H</i> 15.8	<i>G</i> 0.15	<i>U</i> 6	

Residuals in seconds of arc

1973 09 19	675	0.2-	1.7-	1973 09 30	675	0.6+	1.5-	1999 02 10	704	(0.6-	2.1-)
1973 09 19	675	0.7-	0.5+	1973 09 30	675	0.6+	1.2-	1999 02 10	704	1.5-	0.2-
1973 09 20	675	0.1+	0.6+	1973 10 04	675	0.7+	1.4+	1999 02 12	699	0.1+	0.1+
1973 09 24	675	1.7-	0.9+	1973 10 04	675	0.3-	1.8+	1999 02 12	699	1.4+	0.5+
1973 09 24	675	0.4-	1.6+	1973 10 05	675	0.4+	0.3+	1999 02 12	699	1.4+	0.4-
1973 09 25	675	(3.0-	1.7-)	1973 10 05	675	1.6-	1.4-	1999 02 13	704	0.6-	0.5-
1973 09 25	675	1.1+	0.3+	1999 02 10	704	0.4+	0.8-	1999 02 13	704	0.1-	0.3+
1973 09 29	675	1.4+	1.6-	1999 02 10	704	0.4+	0.6+	1999 02 13	704	1.1-	0.6+
1973 09 29	675	(1.2+	3.1-)	1999 02 10	704	0.5-	0.2-	1999 02 13	704	(2.6-	1.0+)

4132 T-2 = 1999 DR

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams		Q	
<i>M</i>	211.81359	(2000.0)	<i>P</i>	<i>Q</i>	
<i>n</i>	0.21038490	ω 117.27032	+0.45099938	+0.89252382	
<i>a</i>	2.7997957	Ω 179.53473	-0.85260854	+0.43112304	
<i>e</i>	0.0342027	<i>i</i> 6.26503	-0.26392846	+0.13241656	
<i>P</i>	4.68	<i>H</i> 15.2	<i>G</i> 0.15	<i>U</i> 6	

Residuals in seconds of arc

1973 09 19	675	0.3+	0.2+	1973 09 30	675	0.6+	0.3-	1973 10 05	675	1.7-	1.8+
1973 09 19	675	1.1-	0.0	1973 09 30	675	0.8+	2.1+	1999 02 16	910	0.0	0.1+
1973 09 20	675	1.0-	1.7+	1973 09 30	675	1.2+	0.8-	1999 02 16	910	0.0	0.2+
1973 09 24	675	1.5-	0.6+	1973 09 30	675	0.8+	1.6+	1999 02 16	910	0.4+	0.4+
1973 09 24	675	0.4+	0.9+	1973 10 04	675	1.4-	2.1+	1999 02 17	910	0.1+	0.4-
1973 09 25	675	0.2+	2.3-	1973 10 04	675	3.3-	1.2+	1999 02 17	910	0.2-	0.0
1973 09 25	675	1.2+	2.6-	1973 10 05	675	0.7+	3.7-	1999 02 17	910	0.3-	0.3-
1973 09 29	675	1.8+	1.9-	1973 10 05	675	1.0-	1.5+				
1973 09 29	675	1.3+	0.4-	1973 10 05	675	1.7+	1.9-				

2494 T-3 = 1999 CV₄

Id. G. V. Williams, E. Bowell (1989 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams		Q	
<i>M</i>	350.32941	(2000.0)	<i>P</i>	<i>Q</i>	
<i>n</i>	0.29466427	ω 205.78818	-0.97261901	-0.22983382	
<i>a</i>	2.2365798	Ω 320.87456	+0.22156459	-0.87221054	
<i>e</i>	0.0949876	<i>i</i> 3.13203	+0.07015260	-0.43176983	
<i>P</i>	3.34	<i>H</i> 14.7	<i>G</i> 0.15	<i>U</i> 5	

Residuals in seconds of arc

1977 10 07	675	1.4+	1.2-	1977 10 17	675	1.3-	0.7+	1999 02 12	120	1.0+	0.3-
1977 10 11	675	0.4-	0.9+	1977 10 21	675	0.9+	0.0	1999 02 12	120	0.8-	0.0
1977 10 11	675	1.4-	0.8+	1977 10 21	675	0.7+	0.3+	1999 02 13	120	1.1-	0.0
1977 10 12	675	1.2-	0.9-	1977 10 22	675	0.3+	1.5+	1999 02 13	120	0.2+	0.8+
1977 10 12	675	0.2-	1.1-	1977 10 22	675	0.4+	1.3+	1999 02 18	120	(3.3-	0.9-)
1977 10 16	675	0.4+	1.6-	1989 03 09	675	0.1+	0.3+	1999 02 18	120	0.4+	0.9-
1977 10 16	675	0.8+	2.3-	1989 03 09	675	0.1+	0.2+	1999 02 18	120	0.2+	0.2-
1977 10 17	675	0.2-	1.5+	1999 02 12	120	0.3-	0.0				

4208 T-3 = 1999 CZ₉₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams		Q	
<i>M</i>	94.27269	(2000.0)	<i>P</i>	<i>Q</i>	
<i>n</i>	0.24328204	ω 318.28198	+0.96404797	-0.24875388	
<i>a</i>	2.5413395	Ω 56.35426	+0.26368373	+0.85198090	
<i>e</i>	0.2020485	<i>i</i> 6.44537	+0.03289988	+0.46070603	
<i>P</i>	4.05	<i>H</i> 14.3	<i>G</i> 0.15	<i>U</i> 5	

Residuals in seconds of arc

1977 10 07	675	0.1-	0.8+	1977 10 17	675	0.5-	0.4-	1999 02 10	704	0.4+	0.1-
1977 10 11	675	0.1-	0.4-	1977 10 17	675	0.4+	0.2+	1999 02 10	704	(5.9-	1.3+)
1977 10 11	675	1.0+	0.6-	1977 10 21	675	0.2+	1.4+	1999 02 13	704	1.3+	0.0
1977 10 12	675	0.6-	0.5-	1977 10 21	675	0.2+	0.9+	1999 02 13	704	0.4+	1.1-
1977 10 12	675	0.6-	0.7-	1977 10 22	675	0.9-	1.5-	1999 02 13	704	0.3+	0.4-
1977 10 16	675	0.1-	0.9+	1977 10 22	675	0.5+	0.8-	1999 02 13	704	0.2+	1.5+
1977 10 16	675	0.5+	0.7+	1999 02 10	704	1.8-	0.1+				

4217 T-3

Id. T. Kobayashi (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams		Q	
<i>M</i>	54.39666	(2000.0)	<i>P</i>	<i>Q</i>	
<i>n</i>	0.29223803	ω 30.43062	+0.12696521	-0.98770984	
<i>a</i>	2.2489418	Ω 52.42896	+0.88531573	+0.07139856	
<i>e</i>	0.0563950	<i>i</i> 6.60403	+0.44732079	+0.13903784	
<i>P</i>	3.37	<i>H</i> 14.9	<i>G</i> 0.15	<i>U</i> 6	

Residuals in seconds of arc

1977 10 07	675	0.6-	1.3+	1977 10 21	675	0.2-	0.2+	1999 02 10	704	0.7+	0.1-
1977 10 11	675	2.2+	0.7-	1977 10 21	675	0.4-	0.2-	1999 02 10	704	0.5+	0.9+
1977 10 11	675	0.5+	0.1+	1977 10 22	675	(0.1+	3.4-)	1999 02 10	704	(0.9+	2.6+)
1977 10 12	675	0.2-	0.7-	1977 10 22	675	0.7+	0.4-	1999 02 13	704	0.5+	0.4-
1977 10 12	675	0.6-	1.2-	1999 02 07	411	0.7+	0.0	1999 02 13	704	0.6-	0.3-
1977 10 16	675	0.6-	0.5+	1999 02 07	411	0.3-	0.8-	1999 02 13	704	1.7-	0.6-
1977 10 16	675	0.2+	1.8+	1999 02 08	411	0.2-	0.9+	1999 02 13	704	0.3-	1.4+
1977 10 17	675	0.0	0.6-	1999 02 08	411	0.5-	0.3+	1999 02 13	704	0.2-	0.7-
1977 10 17	675	0.9-	0.3-	1999 02 10	704	1.4+	0.5-				

4297 T-3 = 1999 CW₇₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams		Q	
<i>M</i>	33.00457	(2000.0)	<i>P</i>	<i>Q</i>	
<i>n</i>	0.29025879	ω 289.02851	-0.14272031	-0.98953585	
<i>a</i>	2.2591538	Ω 169.11144	+0.94507012	-0.14261021	
<i>e</i>	0.1272139	<i>i</i> 6.44583	+0.29406357	-0.02193478	
<i>P</i>	3.40	<i>H</i> 15.5	<i>G</i> 0.15	<i>U</i> 6	

Residuals in seconds of arc

1977 10 07	675	0.9-	0.3+	1977 10 21	675	0.0	0.5-	1999 02 12	704	1.1-	0.4-
1977 10 11	675	1.2+	0.4+	1977 10 21	675	1.1+	0.7-	1999 02 12	699	0.8+	0.0
1977 10 11	675	1.2+	0.2-	1977 10 22	675	0.1-	1.2-	1999 02 12	704	0.4-	0.2+
1977 10 12	675	1.1+	0.1-	1977 10 22	675	0.1+	2.2+	1999 02 16	704	0.5-	0.1+
1977 10 12	675	0.8+	0.5-	1999 02 12	704	0.3-	0.3-	1999 02 16	704	0.2-	0.3-
1977 10 16	675	1.4-	0.7+	1999 02 12	699	0.9+	0.1+	1999 02 16	704	0.4-	0.3+
1977 10 16	675	0.8-	0.3+	1999 02 12	704	0.2-	0.1-	1999 02 16	704	0.2+	0.3+
1977 10 17	675	2.0-	1.2-	1999 02 12	704	0.4+	0.1+	1999 02 16	704	0.3-	0.2-
1977 10 17	675	0.2-	0.6+	1999 02 12	699	1.1+	0.3+				

5002 T-3 = 1998 HK₁₃₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Doppler		Q	
<i>M</i>	41.88001	(2000.0)	<i>P</i>	<i>Q</i>	
<i>n</i>	0.21639209	ω 122.71278	-0.80268747	+0.58359555	
<i>a</i>	2.7477368	Ω 93.28122	-0.58007532	-0.71606370	
<i>e</i>	0.0424518	<i>i</i> 7.07224	-0.13858376	-0.38297391	
<i>P</i>	4.55	<i>H</i> 14.9	<i>G</i> 0.15	<i>U</i> 5	

M.P.C. 34000

1999 MAR. 2

Residuals in seconds of arc

1977 10 11	675	0.2−	0.2+	1977 10 16	675	0.5−	0.7+	1998 04 20	704	0.4−	1.7−
1977 10 11	675	0.2+	1.1+	1998 04 20	704	0.2−	0.6−	1998 04 24	704	1.2+	0.0
1977 10 12	675	0.4−	0.8−	1998 04 20	704	0.4+	1.4+	1998 04 24	704	0.6−	0.2+
1977 10 12	675	0.4+	1.2−	1998 04 20	704	0.1+	0.0	1998 04 24	704	0.7+	0.0
1977 10 16	675	0.5+	0.1+	1998 04 20	704	0.2−	0.7+	1998 04 24	704	1.0−	0.1+

5030 T-3 = 1971 QB₂ = 1998 MM₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	351.10218		(2000.0)	P	Q
n	0.18019440	ω	175.06033	+0.82200541	+0.56029359
a	3.1043822	Ω	150.13458	−0.52924448	+0.81765277
e	0.1962706	i	11.80490	−0.21025552	+0.13234441
P	5.47	H	13.3	G 0.15	U 2

Residuals in seconds of arc

1971 08 19	808	0.0	0.3+	1977 10 17	675	1.9−	1.7−	1998 06 19	704	0.5−	0.2−
1977 10 11	675	1.0+	0.7+	1977 10 21	675	1.0+	0.4+	1998 06 19	704	0.2+	1.6+
1977 10 11	675	0.3+	0.3+	1977 10 21	675	0.0	1.4+	1998 06 25	704	1.0+	0.7+
1977 10 12	675	1.0+	1.5−	1977 10 22	675	0.8−	0.7+	1998 06 25	704	0.4−	0.3−
1977 10 12	675	0.1+	0.8−	1977 10 22	675	0.7+	1.2+	1998 06 25	704	0.2−	0.2+
1977 10 16	675	1.2−	0.7+	1998 06 19	704	0.4+	1.2−	1998 06 25	704	0.5+	1.5−
1977 10 16	675	0.3+	0.7−	1998 06 19	704	1.4−	0.9+				
1977 10 17	675	0.4−	0.9−	1998 06 19	704	0.5+	0.3−				

5049 T-3 = 1997 CK₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	292.93058		(2000.0)	P	Q
n	0.26839952	ω	244.77720	+0.98677489	−0.12358635
a	2.3802079	Ω	122.16146	+0.15201974	+0.93016121
e	0.1946486	i	7.11734	−0.05626119	+0.34572609
P	3.67	H	17.1	G 0.15	U 5

Residuals in seconds of arc

1977 10 11	675	0.8−	0.8+	1977 10 21	675	0.5−	0.9−	1997 02 04	691	0.4−	0.4+
1977 10 11	675	1.2+	0.6+	1977 10 21	675	0.9+	1.0+	1997 02 04	691	0.3−	0.1+
1977 10 12	675	0.1−	1.8−	1997 02 02	691	0.2−	0.0	1997 02 04	691	0.1−	0.2+
1977 10 12	675	0.2−	0.1+	1997 02 02	691	0.1−	0.3+	1997 02 04	691	0.1+	0.1−
1977 10 16	675	0.4−	0.6+	1997 02 02	691	0.0	0.3−	1997 02 04	691	0.3+	0.2+
1977 10 16	675	(2.5− 0.3+)		1997 02 03	691	0.2+	0.1+	1997 02 04	691	0.1+	0.2−
1977 10 17	675	1.1+	0.1−	1997 02 03	691	0.1+	0.3−				
1977 10 17	675	1.8−	0.5−	1997 02 03	691	0.1+	0.4−				

5112 T-3 = 1998 FJ₉₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	317.41933		(2000.0)	P	Q
n	0.21667186	ω	183.86812	+0.41926660	+0.89808451
a	2.7453710	Ω	110.96065	−0.82908292	+0.43840259
e	0.1039928	i	8.18136	−0.36991490	+0.03531824
P	4.55	H	14.7	G 0.15	U 6

Residuals in seconds of arc

1977 10 11	675	1.1−	1.5+	1977 10 17	675	0.6+	0.4+	1998 03 24	704	(0.3+ 2.9−)
1977 10 11	675	(2.4− 0.8+)		1977 10 21	675	0.6+	0.4−	1998 03 25	704	0.3− 0.0
1977 10 12	675	0.1−	0.3−	1977 10 21	675	0.4−	0.4+	1998 03 25	704	0.7+ 0.4+
1977 10 12	675	0.3−	1.0−	1977 10 22	675	0.9−	0.9+	1998 03 25	704	1.4− 1.1+

1977 10 16	675	1.9+	1.0−	1998 03 24	704	1.1+	1.4−	1998 03 25	704	0.4−	0.8+
1977 10 16	675	(2.1+ 0.7+)		1998 03 24	704	0.4+	0.7+				
1977 10 17	675	0.3−	0.5−	1998 03 24	704	0.2−	1.7−				

5130 T-3 = 1998 UW₃₀

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	348.34911		(2000.0)	P	Q
n	0.28365621	ω	356.34153	+0.01551221	−0.98938219
a	2.2940763	Ω	92.73123	+0.92100458	−0.04212328
e	0.1226713	i	8.31824	+0.38924277	+0.13909890
P	3.47	H	15.4	G 0.15	U 5

Residuals in seconds of arc

1977 10 11	675	1.5−	0.5−	1977 10 17	675	0.6+	0.7+	1998 10 19	809	0.6+	0.0
1977 10 11	675	1.6−	1.1+	1977 10 21	675	0.3−	0.9+	1998 10 19	809	0.2−	0.1+
1977 10 12	675	0.1−	1.0−	1977 10 21	675	1.1−	1.3+	1998 10 19	809	0.8+	1.0+
1977 10 12	675	0.2−	1.0−	1977 10 22	675	0.8+	1.0+	1998 12 11	699	0.7−	0.4−
1977 10 16	675	1.8+	0.8−	1998 10 18	809	0.4+	0.3−	1998 12 11	699	0.2−	0.2+
1977 10 16	675	0.3+	1.7−	1998 10 18	809	0.1−	1.0−	1998 12 11	699	0.0	0.4+
1977 10 17	675	1.0+	0.8+	1998 10 18	809	0.5−	0.6−				

5167 T-3 = 1997 GN₂₈

Id. G. V. Williams, A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	354.98249		(2000.0)	P	Q
n	0.17675155	ω	171.88876	+0.63712426	+0.76124610
a	3.1445648	Ω	137.57482	−0.71682428	+0.64279199
e	0.0784164	i	10.30955	−0.28325894	+0.08557349
P	5.58	H	13.8	G 0.15	U 6

Residuals in seconds of arc

1977 10 11	675	1.6−	1.5+	1977 10 17	675	0.2+	0.6−	1997 04 13	104	0.8+	0.4+
1977 10 11	675	0.5−	1.0+	1977 10 21	675	0.9−	0.8+	1997 04 14	104	0.7−	0.4−
1977 10 12	675	0.0	0.0	1977 10 21	675	1.3−	1.0+	1997 04 14	104	0.4−	0.1+
1977 10 12	675	0.3+	0.5−	1977 10 22	675	0.5+	1.8+	1997 04 14	104	0.4−	0.3+
1977 10 16	675	1.5+	1.6−	1977 10 22	675	0.2+	1.6−	1997 04 14	104	0.5−	0.5+
1977 10 16	675	1.5+	1.4−	1997 04 13	104	0.3+	0.7−				
1977 10 17	675	0.1+	0.1−	1997 04 13	104	0.9+	0.1−				

5727 T-3 = 1995 YS₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	150.55702		(2000.0)		P		Q
n	0.22469092	ω	114.19326		−0.97318768		+0.01066207
a	2.6796559	Ω	67.10137		−0.12152073		−0.87196459
e	0.1279353	i	14.44325		+0.19529068		−0.48945284
P	4.39	H	14.6	G	0.15	U	5

Residuals in seconds of arc

1977 10 11	675	(2.4− 0.5−)		1977 10 17	675	0.5+	0.8+	1995 12 18	691	0.2+	0.7−
1977 10 11	675	1.0−	1.2+	1977 10 17	675	0.1−	0.6−	1995 12 23	691	0.3+	0.1+
1977 10 12	675	0.4+	0.1−	1977 10 21	675	(2.5− 0.9+)		1995 12 23	691	0.2+	0.0
1977 10 12	675	1.2−	1.0−	1977 10 21	675	(3.7− 1.7+)		1995 12 23	691	0.3+	0.1+
1977 10 16	675	0.9+	0.3+	1995 12 18	691	0.6−	0.4+				
1977 10 16	675	0.5+	0.6−	1995 12 18	691	0.4−	0.1+				

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
(1368)	10.92	0.15	19990122	277.40751	261.56802	18.47386	14.83716	0.0630230	2.5242294	58	16 1931–1999	0.98	M-v 1	Williams	32299	(1368)
(2579)	13.0	0.15	19990122	259.65724	333.23076	281.17886	5.77600	0.0749998	2.2103641	49	12 1974–1999	0.94	M-v 1	Williams	31229	(2579)
(2720)	13.9	0.15	19990122	152.40348	236.22997	113.58845	3.28708	0.2035229	2.3307944	45	9 1954–1999	0.88	M-v 2	Williams	32047	(2720)
(2991)	13.5	0.15	19990122	191.46161	197.36557	96.75808	5.15098	0.2199347	2.3374694	43	8 1975–1999	0.85	M-v 2	Williams	32303	(2991)

(5018)	14.3	0.15	19990122	93.23080	352.08614	30.82830	3.41165	0.0589761	2.1583477	64	6	1977-1999	0.80	M-v	2	Williams	33551	(5018)
(5288)	11.9	0.15	19990122	49.01634	179.12060	275.12632	11.94642	0.1255211	2.6046225	47	9	1930-1999	0.89	M-v	1	Williams	33749	(5288)
(5356)	12.2	0.15	19990122	46.34949	266.82537	173.03997	14.28955	0.1570606	2.6076017	35	8	1976-1999	0.82	M-v	1	Williams	33342	(5356)
(5378)	14.1	0.15	19990122	49.15005	206.62867	249.95842	19.11268	0.0823141	1.9342360	42	6	1975-1999	0.65	M-v	1	Williams	32945	(5378)
(5405)	12.6	0.15	19990122	250.08703	244.06955	15.26862	10.39658	0.2367353	2.6642673	39	7	1969-1999	0.82	M-v	1	Williams	31277	(5405)
(5665)	13.7	0.15	19990122	306.34635	260.25885	315.14436	5.16007	0.0932837	2.2422872	42	9	1953-1999	0.72	M-v	1	Williams	32053	(5665)
(5670)	11.3	0.15	19990122	55.82114	199.46052	270.96789	19.82936	0.1038150	3.1822097	21	5	1981-1999	0.84	M-v	1	Williams	32309	(5670)
(5761)	14.3	0.15	19990122	31.29576	97.18878	345.91045	9.24081	0.3512695	2.7424148	62	5	1981-1999	0.76	M-v	1	Williams	31588	(5761)
(5981)	12.9	0.15	19990122	131.28097	2.47276	354.95741	10.32679	0.2185111	2.7642096	32	4	1960-1999	0.54	M-v	2	Williams	33750	(5981)
(6446)	14.1	0.15	19990122	92.36824	253.02511	157.32723	23.59578	0.2952908	2.3175702	25	5	1988-1999	0.67	M-v	1	Williams	28319	(6446)
(6465)	12.2	0.15	19990122	24.03206	97.75256	5.80678	11.37932	0.1581674	2.6726996	53	9	1938-1999	0.86	M-v	1	Williams	30293	(6465)
(7001)	13.2	0.15	19990122	50.84807	277.88532	151.97763	7.01497	0.1503996	2.3801449	63	8	1955-1999	0.65	M-v	1	Williams	30786	(7001)
(7113)	11.6	0.15	19990122	122.44080	76.66457	304.21054	12.66353	0.0468643	2.9612026	54	7	1973-1999	0.79	M-v	1	Williams	32751	(7113)
(7625)	13.7	0.15	19990122	176.33450	130.55269	193.35710	11.19253	0.2397405	2.7958372	27	5	1973-1999	1.04	M-v	2	Williams	33752	(7625)
(7876)	14.1	0.15	19990122	153.63145	101.21117	239.25974	1.09889	0.1907550	2.1580670	59	7	1977-1999	0.89	M-v	2	Williams	33754	(7876)
(8075)	12.8	0.15	19990122	105.53299	214.18559	155.55613	11.66084	0.2199833	3.1859211	69	5	1985-1999	0.71	M-v	1	Williams	31281	(8075)
(8112)	14.1	0.15	19990122	3.90484	10.14449	123.64062	5.44450	0.0670832	2.9857116	70	5	1994-1999	0.66	M-v	1	Williams	33755	(8112)
(8188)	12.2	0.15	19990122	331.86077	57.02520	105.05503	12.11807	0.1300269	3.1594556	49	4	1992-1999	0.64	M-v	1	Williams	33755	(8188)
(8198)	13.9	0.15	19990122	140.69285	117.26904	225.96129	13.36464	0.1892061	2.5743729	37	5	1992-1999	0.65	M-v	1	Williams	33346	(8198)
(8316)	11.4	0.15	19990122	158.74722	48.87666	295.04314	9.56025	0.1208748	2.9955484	42	6	1960-1999	0.67	M-v	1	Williams	31128	(8316)
(8552)	14.6	0.15	19990122	35.14412	58.63404	28.12450	4.36685	0.1779074	2.7991195	57	5	1960-1999	0.62	M-v	1	Williams	32314	(8552)
A908 SA	13.9	0.15	19990122	201.25860	134.46821	176.21004	6.38730	0.4519379	2.5978910	20	3	1908-1999	0.94	M-v	3	Williams	31942	A908 SA
1931 TC ₂	13.4	0.15	19311006	24.48412	342.40748	349.86606	8.55708	0.2694774	2.7080689	4	1	26 days	0.99			Williams	22696	1931 TC ₂
1940 AB	12.0	0.15	19990122	220.47464	296.92217	129.11591	14.17290	0.0940305	3.1576184	41	4	1940-1998	0.87	M-v	1	Spahr	33472	1940 AB
1951 RX	15.0	0.15	19990122	120.47492	38.65940	338.66486	5.75425	0.2089989	2.2134531	28	4	1951-1999	0.67	M-v	2	Williams	30866	1951 RX
1968 OK	14.1	0.15	19990122	130.95165	82.69424	278.99456	15.81685	0.2622386	2.5586709	21	3	1968-1999	0.82	M-v	3	Williams	32656	1968 OK
1970 OF	13.5	0.15	19990122	136.40237	30.04409	321.74086	6.29742	0.3121381	2.6959138	51	6	1970-1999	0.69	M-v	3	Williams	33738	1970 OF
1971 FD	11.3	0.15	19990122	86.22882	298.85000	4.15274	14.42734	0.1938322	3.9649670	21	3	1971-1999	0.52	M-v	3	Spahr	33671	1971 FD
1971 QO ₁	12.2	0.15	19990122	76.13570	32.50831	321.74999	9.45410	0.1092595	3.0170095	23	4	1971-1999	0.69	M-v	3	Williams	33738	1971 QO ₁
1972 TC	13.4	0.15	19990122	97.71751	159.24653	247.41193	12.60534	0.1701861	2.5796984	43	4	1972-1999	0.65	M-v	2	Williams	33538	1972 TC
1972 TE	13.8	0.15	19990122	46.79995	158.07994	218.74199	4.38516	0.2682103	2.6378855	50	7	1959-1999	0.69	M-v	2	Williams	33738	1972 TE
1973 SB ₂	11.2	0.15	19990122	44.98882	4.01323	15.19611	7.61131	0.0518736	5.1785585	28	3	1973-1998	0.85	M-v	4	Spahr	33671	1973 SB ₂
1973 SX ₂	12.4	0.15	19990122	44.38868	186.53604	201.65818	14.67382	0.1146532	2.5668030	41	2	1973-1999	0.69	M-v	4	Williams	33738	1973 SX ₂
1974 PC	15.1	0.15	19990122	63.16299	212.29457	139.79597	23.44320	0.2923350	2.2543093	27	4	1974-1999	0.68	M-v	2	Williams	33738	1974 PC
1974 QF ₁	12.9	0.15	19990122	188.08842	5.84629	332.26742	9.23922	0.2524755	2.4127988	22	5	1974-1999	0.65	M-v	2	Williams	31414	1974 QF ₁
1974 SE	14.0	0.15	19990122	110.59493	91.43952	283.34710	2.87410	0.1567024	2.2231232	25	4	1974-1999	0.70	M-v	2	Williams	33738	1974 SE
1974 ST ₁	14.7	0.15	19990122	178.80477	328.54552	356.93594	2.77010	0.2037896	2.4281407	30	6	1955-1999	0.80	M-v	2	Williams	31578	1974 ST ₁
1975 SE	12.7	0.15	19990122	112.65219	339.87029	8.89371	11.59540	0.0584592	2.6955546	33	4	1975-1999	0.61	M-v	2	Spahr	33671	1975 SE
1975 SR	16.0	0.15	19990122	115.09819	164.82693	190.33239	2.41123	0.2491411	2.3943392	43	7	1975-1999	0.75	M-v	2	Williams	30468	1975 SR
1975 ST	14.1	0.15	19990122	182.86015	98.05917	187.30620	11.19179	0.2405653	2.6723527	21	4	1975-1999	0.59	M-v	2	Williams	31002	1975 ST
1975 SM ₁	16.0	0.15	19990122	59.32488	219.40079	155.55758	2.98729	0.2217445	2.4257116	26	5	1975-1999	0.72	M-v	1	Williams	33538	1975 SM ₁
1975 TQ ₃	12.7	0.15	19990122	209.06279	303.24482	35.40535	13.16615	0.1817101	2.6191611	45	6	1954-1999	0.67	M-v	2	Williams	31779	1975 TQ ₃
1975 VZ ₈	13.0	0.15	19990122	52.56272	71.14153	302.81244	11.66549	0.1746245	2.7552010	21	2	1975-1999	0.80	M-v	5	Williams	33738	1975 VZ ₈
1975 XD	14.8	0.15	19990122	110.82792	266.87544	119.65516	7.35093	0.1165343	2.3965500	35	4	1975-1999	0.78	M-v	2	Williams	27323	1975 XD
1976 SD ₅	13.2	0.15	19990122	81.99464	179.49130	213.49073	9.62247	0.1095360	3.0221894	27	3	1976-1999	0.83	M-v	4	Williams	30866	1976 SD ₅
1976 SE ₅	13.1	0.15	19990122	307.37211	291.35733	209.34265	10.35236	0.1708569	2.6609291	38	4	1952-1999	0.62	M-v	1	Williams	33218	1976 SE ₅
1976 UY	14.1	0.15	19990122	113.19799	153.34008	238.15987	11.15310	0.2104448	2.6433451	40	4	1976-1999	0.83	M-v	2	Williams	31271	1976 UY
1976 UB ₁	12.8	0.15	19990122	22.16110	31.10550	151.70014	12.97971	0.1713092	2.6249277	32	7	1952-1999	0.85	M-v	1	Williams	28083	1976 UB ₁
1977 DQ ₃	13.5	0.15	19990122	32.37532	11.38854	62.23707	2.15144	0.1564470	3.1473715	26	5	1975-1999	0.80	M-v	1	Williams	33738	1977 DQ ₃
1977 EL ₅	12.8	0.15	19990122	229.35736	106.93179	178.51297	21.20428	0.1138904	3.1525904	23	3	1977-1999	0.78	M-v	3	Williams	21964	1977 EL ₅
1977 EM ₅	14.2	0.15	19990122	79.56784	223.48813	178.05150	9.57946	0.2109571	2.3920669	47	7	1977-1999	0.66	M-v	1	Williams	30684	1977 EM ₅
1977 XZ ₂	13.2	0.15	19990122	196.37798	310.80850	344.15707	1.26048	0.0896598	2.9442467	38	5	1977-1999	1.07	M-v	3	Williams	28314	1977 XZ ₂
1978 PC ₃	14.0	0.15	19990122	123.90091	2.46132	326.98805	6.29503	0.1705798	2.4473706	15	2	1978-1999	0.87	M-v	4	Spahr	33738	1978 PC ₃

1978 PH ₃	13.1	0.15	19990122	243.87319	30.45597	259.31085	0.32727	0.1869147	3.1961927	42	5	1978–1999	0.63	M-v	1	Williams	31134	1978 PH ₃
1978 SS ₆	14.2	0.15	19990122	125.83102	37.83435	331.61621	2.67098	0.1906869	2.4347644	31	3	1978–1999	0.57	M-v	3	Williams	33738	1978 SS ₆
1978 SO ₇	14.1	0.15	19990122	111.86426	32.82697	334.20782	2.69897	0.1961702	2.4489150	25	2	1978–1999	0.80	M-v	4	Williams	33672	1978 SO ₇
1978 UG	14.3	0.15	19990122	136.72949	316.91894	46.19589	3.27951	0.2019608	2.4354343	29	6	1978–1999	0.72	M-v	2	Williams	31271	1978 UG
1978 UX ₅	15.7	0.15	19990122	141.24776	145.41663	223.98047	4.46283	0.0737115	2.1646813	19	4	1978–1999	0.50	M-v	2	Williams	31003	1978 UX ₅
1978 UV ₇	13.8	0.15	19990122	153.47692	129.45151	199.98770	4.75834	0.1033480	2.8075359	27	4	1978–1999	0.79	M-v	2	Williams	31271	1978 UV ₇
1978 VU ₆	15.2	0.15	19990122	89.76886	131.79193	270.32389	1.65591	0.1888060	2.4683334	42	4	1978–1999	0.59	M-v	2	Williams	32738	1978 VU ₆
1978 VD ₇	14.2	0.15	19990122	96.19728	334.15374	74.56657	3.12459	0.0721621	2.8374747	35	7	1949–1999	0.79	M-v	1	Williams	31780	1978 VD ₇
1978 VU ₈	15.8	0.15	19990122	1.83269	352.61712	82.40731	2.45301	0.2027668	2.5285468	18	2	1978–1998	0.47	M-v	4	Spahr	33473	1978 VU ₈
1978 YM	13.9	0.15	19990122	49.99023	19.63657	0.85123	7.82802	0.1366974	2.2336698	50	4	1974–1999	0.80	M-v	2	Williams	33539	1978 YM
1979 EL	12.1	0.15	19990122	329.45460	319.33401	91.15639	14.77734	0.1594226	2.6359849	22	3	1979–1998	0.73	M-v	4	Spahr	33539	1979 EL
1979 HN ₅	11.9	0.15	19990122	184.95542	203.56717	101.42494	7.57049	0.2428045	3.0773409	17	3	1979–1999	0.61	M-v	5	Williams	25326	1979 HN ₅
1979 HW ₆	13.9	0.15	19990122	282.84424	344.59714	267.85840	0.36123	0.1290477	2.2513437	33	6	1979–1999	0.87	M-v	2	Williams	33738	1979 HW ₆
1979 KD	13.3	0.15	19990122	262.92208	101.46771	150.18809	7.84319	0.1535097	2.5925981	49	7	1979–1999	0.69	M-v	2	Williams	33738	1979 KD
1979 MM ₁	13.2	0.15	19990122	81.94058	257.61360	129.25748	16.62170	0.1049325	3.1806035	27	2	1979–1999	0.66	M-v	5	Williams	33672	1979 MM ₁
1979 MW ₁	14.1	0.15	19990122	139.00020	125.73395	245.14171	4.64060	0.1781714	2.6447522	24	4	1979–1999	0.68	M-v	3	Williams	31096	1979 MW ₁
1979 ML ₂	13.2	0.15	19990122	252.15453	146.85412	130.65143	12.86961	0.2000196	3.0530067	20	3	1979–1999	0.64	M-v	3	Williams	30973	1979 ML ₂
1979 MU ₂	15.1	0.15	19990122	189.25337	150.08919	161.55963	5.73630	0.1528389	3.1170468	27	5	1977–1999	0.87	M-v	2	Williams	28293	1979 MU ₂
1979 MR ₅	15.3	0.15	19990122	144.60405	80.32424	267.36590	1.94686	0.1363718	2.3240811	26	4	1978–1999	0.63	M-v	3	Williams	30778	1979 MR ₅
1979 WY ₃	13.3	0.15	19990122	42.30098	342.40836	89.52036	10.30771	0.1357337	2.7890422	27	2	1979–1999	0.74	M-v	4	Williams	33672	1979 WY ₃
1979 XL	13.7	0.15	19990122	20.20851	7.93526	95.48089	10.60224	0.1083374	2.7877327	60	2	1979–1999	0.68	M-v	3	Williams	33739	1979 XL
1980 BA	14.3	0.15	19990122	348.85018	332.89321	109.13436	6.85703	0.1675637	2.4724937	47	3	1980–1999	0.73	M-v	3	Williams	33739	1980 BA
1980 FX ₃	14.4	0.15	19990122	28.91434	112.71895	356.36756	5.78180	0.0830347	2.4488327	48	4	1980–1999	0.66	M-v	2	Williams	33739	1980 FX ₃
1980 LC ₁	13.2	0.15	19990122	133.23572	232.31844	99.32828	13.55513	0.2717487	2.5760395	27	4	1980–1999	0.95	M-v	2	Williams	33672	1980 LC ₁
1980 PC ₃	13.3	0.15	19990122	111.30644	277.16785	64.84037	15.78855	0.2512273	2.6186485	39	2	1980–1999	0.75	M-v	4	Williams	33739	1980 PC ₃
1980 PE ₃	13.5	0.15	19990122	216.28087	209.01642	65.21243	15.67731	0.1608278	2.5567583	20	2	1980–1999	0.71	M-v	5	Spahr	33672	1980 PE ₃
1980 UN ₁	14.3	0.15	19990122	140.96409	75.49220	275.75937	2.50929	0.2368892	2.6128091	26	3	1980–1999	0.62	M-v	4	Williams	31134	1980 UN ₁
1980 UR ₁	15.1	0.15	19990122	0.63680	200.97332	233.92374	7.71565	0.2134298	2.3460169	35	2	1980–1999	0.64	M-v	4	Spahr	33672	1980 UR ₁
1980 VW ₂	15.2	0.15	19990122	60.20297	25.30857	13.38247	6.14082	0.1158223	2.3160900	18	2	1980–1999	0.60	M-v	5	Spahr	33672	1980 VW ₂
1981 DM	14.7	0.15	19990122	281.31895	338.36234	262.72457	6.62126	0.0838996	2.3592273	30	5	1979–1999	0.93	M-v	2	Williams	31003	1981 DM
1981 DY	13.6	0.15	19990122	248.98310	326.01491	285.46588	6.25220	0.1423624	2.7813993	37	4	1954–1999	0.78	M-v	2	Williams	33739	1981 DY
1981 DJ ₂	13.6	0.15	19990122	124.07069	150.71126	213.89617	14.75061	0.1461215	2.7833601	29	3	1981–1999	0.73	M-v	4	Williams	33739	1981 DJ ₂
1981 DD ₃	15.1	0.15	19990122	86.83527	121.69546	296.42274	6.74186	0.0840076	2.7492572	28	4	1981–1999	0.71	M-v	1	Williams	27565	1981 DD ₃
1981 EX ₃	14.4	0.15	19990122	28.24518	237.62240	234.03605	7.90730	0.0968239	2.7469230	34	4	1977–1999	0.79	M-v	1	Williams	31003	1981 EX ₃
1981 EA ₅	14.7	0.15	19990122	76.10535	167.72220	257.12163	8.67322	0.1557008	2.7401532	19	5	1979–1999	0.85	M-v	2	Williams	30892	1981 EA ₅
1981 EU ₇	15.3	0.15	19990122	121.98677	84.24598	291.30593	6.04478	0.1210287	2.3660985	19	4	1981–1999	0.83	M-v	2	Williams	24758	1981 EU ₇
1981 EV ₇	14.1	0.15	19990122	188.88635	67.24804	255.12740	4.27488	0.0510745	2.7464435	29	5	1978–1999	0.75	M-v	1	Williams	31134	1981 EV ₇
1981 EG ₁₀	13.9	0.15	19990122	110.79237	115.11250	281.09120	3.99513	0.0590523	2.7454561	34	3	1981–1999	0.89	M-v	4	Williams	31223	1981 EG ₁₀
1981 EL ₁₀	14.6	0.15	19990122	223.97891	359.87328	301.72333	4.81555	0.1052966	2.7405181	30	5	1981–1999	0.91	M-v	2	Williams	28611	1981 EL ₁₀
1981 EX ₁₀	14.6	0.15	19990122	294.94532	34.22802	204.72857	7.16657	0.2035678	2.7387891	30	5	1954–1999	0.94	M-v	3	Williams	22492	1981 EX ₁₀
1981 EK ₁₁	14.7	0.15	19990122	92.24763	186.37925	214.40720	9.42810	0.2172695	2.3569628	25	4	1981–1999	0.90	M-v	2	Williams	30685	1981 EK ₁₁
1981 EO ₁₁	15.3	0.15	19990122	339.99251	257.32975	283.51560	1.76708	0.1683802	2.3495490	39	3	1978–1999	0.98	M-v	3	Williams	22270	1981 EO ₁₁
1981 EF ₁₃	14.6	0.15	19990122	85.89699	76.28802	337.43204	11.92318	0.1083725	2.7519986	27	4	1981–1999	1.04	M-v	2	Williams	31003	1981 EF ₁₃
1981 EN ₁₄	15.3	0.15	19990122	326.42856	258.53142	270.26175	1.99491	0.0719772	2.3738672	25	4	1981–1999	0.71	M-v	3	Williams	30754	1981 EN ₁₄
1981 EC ₁₆	14.8	0.15	19990122	270.78298	350.80503	271.42550	3.65357	0.2052793	2.3648374	35	5	1978–1999	0.73	M-v	1	Williams	27725	1981 EC ₁₆
1981 ED ₂₀	15.5	0.15	19990122	18.90112	75.16288	7.77433	4.88580	0.1997239	2.3807234	33	3	1977–1999	0.80	M-v	4	Spahr	33739	1981 ED ₂₀
1981 EN ₂₁	14.1	0.15	19990122	152.72643	54.63738	187.59864	1.79652	0.0137851	2.9067764	68	5	1981–1998	0.82	M-v	2	Williams	33065	1981 EN ₂₁
1981 EA ₂₂	14.1	0.15	19990122	220.30769	128.71747	170.53276	12.70020	0.0252891	2.7360190	20	4	1951–1999	0.64	M-v	2	Williams	22598	1981 EA ₂₂
1981 EK ₂₃	15.2	0.15	19990122	209.57141	129.29925	185.45433	3.06313	0.1837819	2.3602628	49	9	1964–1999	0.92	M-v	1	Williams	31134	1981 EK ₂₃
1981 EG ₂₄	15.6	0.15	19990122	259.83154	302.01635	312.67624	1.76561	0.1481707	2.7598500	19	4	1978–1999	0.72	M-v	1	Williams	27930	1981 EG ₂₄
1981 EG ₂₅	14.6	0.15	19990122	277.58726	264.27734	346.67696	9.79637	0.3508986	2.7639510	28	4	1981–1999	1.01	M-v	2	Williams	28581	1981 EG ₂₅
1981 EL ₂₅	15.3	0.15	19990122	12.98193	278.65667	188.46045	6.13313	0.0663993	2.3815715	21	4	1981–1999	0.77	M-v	3	Williams	27565	1981 EL ₂₅
1981 ES ₂₅	15.0	0.15	19990122	221.13346	243.38639	22.85021	2.11714	0.1461818	2.3962980	28	4	1981–1999	1.03	M-v	3	Williams	26919	1981 ES ₂₅

1981 EX ₂₅	15.4	0.15	19990122	199.48985	129.75863	179.95133	4.08249	0.1133660	2.3721463	40	6	1981–1999	0.83	M-v	1	Williams	30893	1981 EX ₂₅
1981 EG ₂₆	14.4	0.15	19990122	354.07238	145.52343	354.42756	9.24055	0.1334119	2.7565361	42	4	1981–1999	0.71	M-v	2	Williams	31003	1981 EG ₂₆
1981 EC ₂₇	14.4	0.15	19990122	150.00322	253.76429	129.01276	1.44397	0.0901518	2.7154746	37	6	1981–1999	0.79	M-v	1	Williams	31781	1981 EC ₂₇
1981 EV ₂₇	14.5	0.15	19990122	119.72028	180.37127	178.60516	4.89026	0.0627336	2.7924075	25	5	1978–1999	0.73	M-v	2	Williams	30893	1981 EV ₂₇
1981 EX ₂₇	15.9	0.15	19990122	302.14956	57.83702	156.23947	0.30017	0.1611020	2.3648310	39	3	1981–1999	0.76	M-v	3	Williams	30755	1981 EX ₂₇
1981 EC ₂₈	15.8	0.15	19990122	297.02466	197.48284	12.57431	4.24348	0.1520445	2.3713428	32	2	1981–1999	0.82	M-v	4	Williams	33673	1981 EC ₂₈
1981 EO ₃₂	15.7	0.15	19990122	212.39989	21.38706	274.81933	3.90670	0.0382356	2.7537666	16	3	1978–1999	0.85	M-v	4	Williams	22271	1981 EO ₃₂
1981 EX ₃₄	14.6	0.15	19990122	251.80792	80.52266	161.59482	7.65751	0.0221990	2.7657275	20	3	1981–1999	0.73	M-v	4	Williams	31225	1981 EX ₃₄
1981 EM ₃₈	15.6	0.15	19990122	11.67436	166.15016	304.33016	4.20266	0.1192195	2.7697535	27	3	1979–1999	1.00	M-v	3	Williams	33739	1981 EM ₃₈
1981 ES ₃₈	14.5	0.15	19990122	150.88593	145.57258	198.09519	6.57565	0.1311125	2.3822408	25	4	1981–1999	0.97	M-v	2	Williams	31272	1981 ES ₃₈
1981 EW ₃₈	14.4	0.15	19990122	290.87156	303.88933	281.81893	4.11630	0.0618026	2.7509186	37	5	1969–1999	0.72	M-v	3	Williams	31135	1981 EW ₃₈
1981 EJ ₄₀	13.9	0.15	19990122	57.02079	57.02323	346.42291	32.65918	0.3215974	2.7821073	24	4	1981–1999	0.94	M-v	2	Williams	22823	1981 EJ ₄₀
1981 EO ₄₁	13.8	0.15	19990122	133.06188	356.52765	6.27328	9.73999	0.1386251	2.7653950	24	3	1981–1999	0.83	M-v	4	Williams	30973	1981 EO ₄₁
1981 EY ₄₁	16.2	0.15	19990122	350.65440	313.71994	191.88759	1.63538	0.1475072	2.3656132	19	2	1981–1999	0.85	M-v	5	Williams	33673	1981 EY ₄₁
1981 EF ₄₂	15.1	0.15	19990122	265.77617	211.23086	41.65447	1.68102	0.1497545	2.7570208	19	4	1977–1999	1.05	M-v	2	Williams	21968	1981 EF ₄₂
1981 ET ₄₂	14.7	0.15	19990122	214.73009	327.31677	333.35592	1.80897	0.2047824	2.3790052	32	8	1977–1999	0.89	M-v	2	Williams	31135	1981 ET ₄₂
1981 EA ₄₃	15.9	0.15	19990122	85.07878	77.47747	330.20570	1.49474	0.1967670	2.3637499	19	4	1977–1999	0.79	M-v	2	Williams	30446	1981 EA ₄₃
1981 ED ₄₃	13.9	0.15	19990122	199.53910	293.40979	10.36243	7.62165	0.2190122	2.7892889	49	6	1954–1999	1.25	M-v	2	Williams	28314	1981 ED ₄₃
1981 ED ₄₅	16.7	0.15	19990122	353.67104	183.05191	320.32745	5.95812	0.0656742	2.3687659	14	2	1981–1999	0.63	M-v	5	Williams	33673	1981 ED ₄₅
1981 ET ₄₆	15.0	0.15	19990122	143.66225	34.57356	336.27794	2.08084	0.0859960	2.3752852	18	4	1981–1999	0.72	M-v	2	Williams	32510	1981 ET ₄₆
1981 QY ₂	13.1	0.15	19990122	294.16802	106.38804	133.92525	2.88289	0.0157084	2.8789439	51	4	1981–1999	0.77	M-v	2	Williams	31272	1981 QY ₂
1981 QJ ₃	13.5	0.15	19990122	61.10654	200.29197	140.03427	2.62788	0.1885196	3.1133151	84	3	1981–1999	0.60	M-v	3	Williams	33739	1981 QJ ₃
1981 SN	14.1	0.15	19990122	150.47013	156.04077	216.16552	5.17637	0.1570205	2.4843170	67	8	1981–1999	0.79	M-v	2	Marsden	31272	1981 SN
1981 SC ₇	13.9	0.15	19990122	101.91867	344.53761	40.49189	8.64904	0.2421340	2.5313439	38	6	1977–1999	0.64	M-v	2	Williams	31135	1981 SC ₇
1981 TH ₃	14.0	0.15	19990122	148.23892	163.56106	171.49600	4.46767	0.2351215	2.1942353	25	4	1981–1999	0.60	M-v	2	Williams	33739	1981 TH ₃
1981 UA ₂₃	15.0	0.15	19990122	4.11693	338.45345	93.05484	3.08534	0.1606715	2.2605263	43	2	1981–1999	0.64	M-v	3	Williams	33739	1981 UA ₂₃
1981 UC ₂₆	13.6	0.15	19990122	92.69519	223.02909	159.59877	3.81543	0.1211102	3.0608489	10	4	1949–1999	0.57	M-v	2	Williams	29132	1981 UC ₂₆
1981 UU ₂₉	15.8	0.15	19990122	60.38295	109.45412	244.58802	1.29305	0.1929410	2.2524753	54	3	1981–1999	0.74	M-v	2	Williams	33739	1981 UU ₂₉
1981 WJ ₉	14.7	0.15	19990122	355.18314	254.28783	192.01481	5.26428	0.1821154	2.6159184	28	2	1981–1999	0.62	M-v	4	Spahr	33739	1981 WJ ₉
1982 FJ ₃	14.9	0.15	19990122	228.65587	226.36406	1.77761	1.74872	0.1802966	2.3327440	28	2	1982–1996	0.48	M-v	5	Williams	27553	1982 FJ ₃
1982 QX ₁	14.2	0.15	19990122	229.12598	161.47595	132.90915	7.54622	0.1220527	2.3541826	34	4	1982–1999	0.67	M-v	1	Williams	30685	1982 QX ₁
1982 UF ₇	13.0	0.15	19990122	133.13795	146.79335	218.25417	8.20288	0.1645246	2.9115526	31	5	1982–1999	0.85	M-v	3	Williams	31135	1982 UF ₇
1982 UK ₇	13.4	0.15	19990122	114.53165	280.46648	92.14558	4.64384	0.2438513	2.4417730	19	4	1981–1999	0.63	M-v	2	Williams	20812	1982 UK ₇
1982 VP ₃	12.4	0.15	19990122	220.68243	200.47037	61.79070	13.57484	0.0585010	2.9428223	37	3	1982–1999	0.82	M-v	2	Williams	33739	1982 VP ₃
1983 GU	12.2	0.15	19990122	195.83890	176.62064	115.98684	14.43885	0.1783351	2.5983739	43	4	1983–1999	0.60	M-v	3	Williams	33739	1983 GU
1983 RV ₃	13.5	0.15	19990122	160.35903	144.18676	175.83654	5.41185	0.1689570	2.7291409	46	4	1983–1999	0.84	M-v	2	Spahr	31272	1983 RV ₃
1983 RW ₃	15.3	0.15	19990122	160.46919	331.84727	352.55707	13.43821	0.1704348	2.3029903	28	4	1983–1999	0.98	M-v	2	Williams	27119	1983 RW ₃
1983 WN	14.6	0.15	19990122	134.00335	110.88365	251.77548	9.32690	0.2489847	2.3313853	32	6	1951–1999	0.67	M-v	2	Williams	31135	1983 WN
1984 BZ ₆	14.7	0.15	19990122	349.12910	261.04897	135.28074	1.50550	0.2336538	3.0728908	23	3	1984–1998	0.66	M-v	5	Spahr	33673	1984 BZ ₆
1984 QB	12.9	0.15	19990122	167.30915	354.15958	310.57471	10.20277	0.2194471	2.6170441	38	6	1950–1999	0.81	M-v	2	Williams	33740	1984 QB
1984 QS	13.0	0.15	19990122	213.51310	241.69484	64.03809	1.97984	0.2059183	3.1881805	23	6	1978–1999	0.72	M-v	2	Williams	28315	1984 QS
1984 QU	15.2	0.15	19990122	43.16387	26.53747	352.56671	5.21647	0.2496680	2.2765922	29	3	1984–1998	0.81	M-v	3	Williams	33541	1984 QU
1984 RA	14.7	0.15	19990122	77.99186	272.91307	142.70851	23.21607	0.1016645	1.9263289	24	4	1984–1999	0.66	M-v	2	Williams	33740	1984 RA
1984 SA	14.1	0.15	19990122	75.21046	77.66498	254.35933	5.87250	0.2223214	2.2842843	57	3	1984–1999	0.63	M-v	4	Williams	33740	1984 SA
1984 SL	12.9	0.15	19990122	49.52488	228.10176	157.37309	9.73397	0.3039336	2.7330046	43	3	1984–1999	0.83	M-v	3	Spahr	33740	1984 SL
1984 SA ₂	14.2	0.15	19990122	349.75565	161.99666	302.41864	4.52683	0.1052768	2.2747442	25	2	1984–1999	0.58	M-v	4	Marsden	33673	1984 SA ₂
1984 SN ₄	15.0	0.15	19990122	143.26847	7.57920	337.89696	1.49577	0.2112755	2.6176182	38	3	1980–1999	0.48	M-v	4	Williams	18109	1984 SN ₄
1984 SM ₅	13.1	0.15	19990122	128.57016	144.43962	156.35962	6.78670	0.1376979	2.2436897	51	2	1984–1999	0.57	M-v	4	Spahr	33673	1984 SM ₅
1984 WJ ₁	13.5	0.15	19990122	34.74683	351.32630	34.58818	10.75756	0.2047596	2.3195786	51	2	1984–1999	0.74	M-v	3	Williams	33740	1984 WJ ₁
1984 YL ₁	14.2	0.15	19990122	27.78538	41.98254	65.35277	6.22845	0.1363528	2.2655399	37	4	1984–1999	0.73	M-v	2	Williams	33740	1984 YL ₁
1985 CU ₁	14.7	0.15	19990122	10.87272	119.87964	324.19083	24.14902	0.2375209	2.3325974	75	3	1985–1999	0.72	M-v	2	Williams	33740	1985 CU ₁
1985 PB ₂	13.3	0.15	19990122	63.01600	213.10655	145.61874	14.10130	0.2004846	2.5935575	28	4	1983–1999	0.78	M-v	2	Williams	33740	1985 PB ₂
1985 QG ₅	12.7	0.15	19990122	139.57951	281.73727	66.70133	1.66504	0.1604390	3.1596538	28	3	1985–1999	0.83	M-v	4	Williams	33740	1985 QG ₅

1985 RQ	15.1	0.15	19990122	123.01559	329.70027	18.44408	6.38705	0.2963785	2.5226122	29	7	1973–1999	0.78	M-v	2	Williams	30893	1985 RQ
1985 RD ₂	14.0	0.15	19990122	186.03090	346.44847	343.72149	10.67845	0.2239251	2.4474903	20	5	1985–1999	0.95	M-v	2	Williams	31135	1985 RD ₂
1985 RB ₃	14.5	0.15	19990122	60.39406	21.56066	10.19812	5.35388	0.3205062	2.5733654	54	3	1981–1999	0.74	M-v	2	Williams	33740	1985 RB ₃
1985 RL ₄	15.0	0.15	19990122	84.49334	299.21448	35.15124	3.39465	0.1570805	2.1666325	52	3	1982–1998	0.66	M-v	5	Spahr	33474	1985 RL ₄
1985 SR	13.9	0.15	19990122	262.34962	249.03040	39.32786	2.90628	0.1937672	2.3912978	19	5	1977–1999	0.81	M-v	1	Williams	29133	1985 SR
1985 SG ₃	12.5	0.15	19990122	162.90318	94.03716	227.51407	12.24649	0.2492284	3.1721214	34	4	1985–1999	0.49	M-v	2	Williams	28084	1985 SG ₃
1985 UT	12.5	0.15	19990122	267.04711	254.22715	58.08441	8.11288	0.1032931	2.9865252	52	4	1975–1999	0.69	M-v	2	Marsden	33740	1985 UT
1985 UQ ₄	13.0	0.15	19990122	106.90010	259.12008	125.00770	2.70427	0.1272487	3.2546289	47	5	1985–1999	0.79	M-v	1	Williams	31135	1985 UQ ₄
1985 UA ₅	13.1	0.15	19990122	18.54788	336.76452	59.10674	15.43243	0.2048113	2.6681538	37	2	1985–1999	0.63	M-v	3	Williams	33740	1985 UA ₅
1986 PM	14.0	0.15	19990122	255.05545	334.85901	297.58570	5.26996	0.1727726	2.2796201	38	5	1986–1999	0.70	M-v	2	Williams	31135	1986 PM
1986 PE ₁	13.2	0.15	19990122	48.32268	244.66738	138.70325	8.39781	0.0966023	2.4351290	58	2	1986–1999	0.50	M-v	4	Spahr	33674	1986 PE ₁
1986 QN ₁	13.6	0.15	19990122	115.15982	29.93139	345.96384	13.46401	0.1186965	2.9847034	32	3	1986–1999	0.60	M-v	3	Williams	25079	1986 QN ₁
1986 QT ₁	14.3	0.15	19990122	60.46643	20.69310	17.51222	2.50448	0.2172203	2.4203898	62	4	1986–1999	0.54	M-v	3	Williams	33740	1986 QT ₁
1986 QO ₃	14.6	0.15	19990122	97.44564	332.61488	53.88261	3.43011	0.2255813	2.3906356	42	5	1986–1999	0.68	M-v	2	Williams	31004	1986 QO ₃
1986 TZ ₃	14.4	0.15	19990122	257.43431	227.99074	60.49723	3.76700	0.2144516	2.2949190	18	3	1986–1999	0.55	M-v	3	Marsden	32217	1986 TZ ₃
1986 TU ₆	11.9	0.15	19990122	242.61734	357.60753	286.45735	8.96609	0.0734837	3.0043849	44	10	1952–1999	0.63	M-v	1	Williams	31782	1986 TU ₆
1986 TV ₆	13.4	0.15	19990122	58.27060	356.06942	325.86667	7.44316	0.1905100	2.5578630	75	3	1986–1998	0.65	M-v	3	Williams	33541	1986 TV ₆
1986 TR ₁₁	14.1	0.15	19990122	169.43902	72.51027	238.89187	8.79475	0.2772857	2.3787406	33	3	1986–1999	0.74	M-v	4	Williams	33740	1986 TR ₁₁
1986 VA	12.5	0.15	19990122	173.55534	55.25270	272.61441	8.86986	0.0997943	3.0256355	30	3	1986–1999	0.83	M-v	3	Williams	31376	1986 VA
1986 XR ₅	12.7	0.15	19990122	122.17966	338.40039	31.94622	4.16075	0.2947275	3.0761924	21	3	1986–1999	0.85	M-v	4	Williams	27119	1986 XR ₅
1987 BS ₁	13.4	0.15	19990122	349.08247	150.77427	295.08193	12.26407	0.1269044	2.5842124	65	6	1987–1999	0.74	M-v	2	Williams	33740	1987 BS ₁
1987 OT	13.5	0.15	19990122	216.32193	120.87233	173.14160	8.66524	0.2659704	2.7168391	26	5	1977–1999	0.98	M-v	2	Williams	30894	1987 OT
1987 QM	13.3	0.15	19990122	153.34254	11.44414	334.52309	17.12345	0.2735871	2.8023791	35	4	1987–1999	0.75	M-v	3	Williams	33740	1987 QM
1987 QF ₆	15.1	0.15	19990122	36.27139	262.70050	170.52772	21.93775	0.3173948	2.3093150	27	6	1980–1999	0.78	M-v	2	Williams	30686	1987 QF ₆
1987 RF ₁	14.6	0.15	19990122	51.53552	247.94091	167.97973	5.42708	0.1650862	2.2841078	44	2	1987–1999	0.80	M-v	5	Williams	33674	1987 RF ₁
1987 SF	15.0	0.15	19990122	54.82240	243.04612	139.80560	4.73700	0.2330569	2.3253189	25	2	1987–1999	0.71	M-v	5	Spahr	33740	1987 SF
1987 SZ ₂	14.5	0.15	19990122	101.92898	355.41383	26.69416	7.45757	0.1359906	2.2639744	32	4	1953–1999	0.59	M-v	2	Williams	33541	1987 SZ ₂
1987 SB ₃	15.4	0.15	19990122	145.67366	309.86646	32.89051	6.06857	0.1904247	2.2451658	21	5	1977–1999	0.99	M-v	2	Williams	31004	1987 SB ₃
1987 SO ₅	12.6	0.15	19990122	40.05590	30.92998	354.88245	8.36063	0.0158670	3.0321800	21	3	1982–1999	0.67	M-v	3	Williams	33333	1987 SO ₅
1987 SE ₇	15.2	0.15	19990122	159.65818	53.73284	297.34366	4.82633	0.1913186	2.2201333	14	4	1954–1999	1.11	M-v	3	Williams	28315	1987 SE ₇
1987 SR ₁₇	14.7	0.15	19990122	110.38673	135.42122	216.95566	4.50424	0.2359327	2.2821572	12	3	1987–1999	0.86	M-v	4	Williams	24760	1987 SR ₁₇
1987 UR	13.5	0.15	19990122	42.92012	19.59020	23.89592	6.00399	0.2670732	3.0149528	31	3	1961–1999	0.74	M-v	2	Williams	33740	1987 UR
1987 UA ₁	13.7	0.15	19990122	61.15143	122.62142	235.91066	11.37538	0.1409611	2.3613324	76	2	1987–1999	0.77	M-v	4	Williams	33740	1987 UA ₁
1987 VR	12.8	0.15	19990122	9.83631	218.80981	212.52023	9.00630	0.0752406	3.0594399	84	4	1987–1999	0.55	M-v	2	Williams	33740	1987 VR
1987 WP	13.3	0.15	19990122	284.03344	293.65224	234.19382	21.08569	0.2787355	2.4027502	25	2	1987–1999	0.61	M-v	4	Williams	33740	1987 WP
1988 AH ₅	13.8	0.15	19990122	297.24985	271.22966	270.06440	6.96815	0.0861552	2.4162455	29	2	1988–1999	0.80	M-v	5	Spahr	33674	1988 AH ₅
1988 BN ₄	12.4	0.15	19990122	16.91729	229.91395	273.66718	8.64905	0.0345665	3.0168294	40	4	1988–1999	0.46	M-v	1	Williams	31416	1988 BN ₄
1988 BN ₅	14.1	0.15	19990122	343.71786	226.57027	282.27550	12.75694	0.2365928	3.1641081	25	2	1988–1999	0.71	M-v	3	Williams	33674	1988 BN ₅
1988 CQ ₁	14.6	0.15	19990122	12.45973	354.38399	122.98307	6.58808	0.1123290	2.3614377	32	2	1988–1999	0.63	M-v	4	Williams	33674	1988 CQ ₁
1988 CV ₄	12.8	0.15	19990122	162.39232	146.07888	182.19907	18.25487	0.1733014	3.1733394	37	4	1988–1999	0.69	M-v	1	Williams	28315	1988 CV ₄
1988 CF ₆	13.4	0.15	19990122	4.93146	237.85440	260.16513	3.64779	0.1408808	2.3725724	34	4	1979–1999	0.57	M-v	2	Williams	33542	1988 CF ₆
1988 EC	14.4	0.15	19990122	151.67886	33.10489	340.31280	19.29845	0.0996050	1.9336886	71	5	1988–1999	1.02	M-v	3	Williams	30686	1988 EC
1988 ER ₁	13.9	0.15	19990122	287.09449	239.38954	27.30571	7.15839	0.0941448	2.3503244	25	7	1975–1999	0.80	M-v	2	Williams	31136	1988 ER ₁
1988 FB	14.4	0.15	19990122	3.68693	89.91785	44.74913	2.61578	0.1519913	2.4007857	41	3	1977–1999	0.83	M-v	4	Williams	29941	1988 FB
1988 FE	14.4	0.15	19990122	314.10914	139.49676	47.69130	10.28686	0.1807134	2.4142232	52	3	1988–1999	0.83	M-v	2	Williams	33741	1988 FE
1988 FN	14.4	0.15	19990122	323.51278	204.12523	334.05767	23.61528	0.2431777	2.3996976	34	4	1978–1999	0.72	M-v	2	Williams	33741	1988 FN
1988 JB ₁	14.1	0.15	19990122	337.76162	83.90004	149.91873	20.06290	0.3998446	3.1391332	51	5	1988–1999	0.79	M-v	1	Williams	31136	1988 JB ₁
1988 MH	12.5	0.15	19990122	136.06560	36.26228	292.78128	13.03028	0.1937968	2.5940149	54	2	1988–1999	0.76	M-v	4	Spahr	33741	1988 MH
1988 NW	13.1	0.15	19990122	163.51400	353.70927	304.35660	13.10455	0.1797777	2.6352412	29	3	1971–1999	0.75	M-v	4	Spahr	33741	1988 NW
1988 RJ ₄	13.5	0.15	19990122	132.81334	150.45742	204.40519	2.14809	0.0950635	2.6550691	50	2	1988–1999	0.52	M-v	5	Williams	33675	1988 RJ ₄
1988 RH ₆	14.6	0.15	19990122	4.71020	52.33189	318.81022	7.00602	0.1308635	2.2458042	43	5	1958–1998	0.92	M-v	2	Spahr	33475	1988 RH ₆
1988 RL ₉	13.8	0.15	19990122	2.26130	62.94578	328.12689	5.11878	0.1064264	2.2138190	69	3	1988–1998	0.77	M-v	2	Williams	33542	1988 RL ₉
1988 RN ₁₁	11.7	0.15	19990122	53.28973	56.33976	171.52826	1.41437	0.0950794	5.2661480	31	7	1982–1997	0.83	M-v	1	Williams	30288	1988 RN ₁₁

1988 RQ ₁₂	12.6	0.15	19990122	26.51021	100.45592	9.50285	3.51290	0.2117451	3.9393794	33	3	1988–1999	0.73	M-v	2	Williams	33334	1988 RQ ₁₂
1988 RF ₁₃	14.1	0.15	19990122	129.32117	270.84916	31.42555	17.12106	0.1444072	2.7532342	34	4	1988–1999	0.49	M-v	2	Spahr	33542	1988 RF ₁₃
1988 SL ₁	16.4	0.15	19990122	51.05549	126.37360	216.07029	0.22649	0.1827386	2.2188344	29	2	1988–1998	0.74	M-v	4	Spahr	33222	1988 SL ₁
1988 SX ₂	13.8	0.15	19990122	57.98683	54.21035	11.45970	2.30347	0.1979112	4.0008923	19	3	1988–1999	0.78	M-v	4	Williams	31227	1988 SX ₂
1988 TT	13.0	0.15	19990122	21.30806	337.82520	4.29602	10.83102	0.1005421	3.0069969	68	5	1988–1998	0.81	M-v	2	Williams	33542	1988 TT
1988 VE ₁	13.5	0.15	19990122	156.33801	267.37405	45.59843	8.31293	0.1440740	2.7735930	20	3	1988–1999	0.81	M-v	4	Williams	31004	1988 VE ₁
1988 VJ ₁	13.8	0.15	19990122	36.90645	118.68479	235.30466	5.09979	0.2186896	2.2613752	31	2	1988–1999	0.81	M-v	3	Spahr	33675	1988 VJ ₁
1988 VR ₂	13.6	0.15	19990122	354.66463	0.55472	88.20141	13.23083	0.2722597	2.9345174	53	3	1988–1999	0.83	M-v	2	Williams	33741	1988 VR ₂
1988 VS ₃	13.2	0.15	19990122	158.69527	110.36084	246.28384	10.30766	0.2168065	2.6813953	38	6	1979–1999	0.87	M-v	1	Williams	31136	1988 VS ₃
1988 VM ₅	14.6	0.15	19990122	86.39733	268.42380	120.04452	2.20759	0.2731980	2.7682643	31	4	1988–1999	0.71	M-v	2	Williams	33741	1988 VM ₅
1988 XE ₂	13.5	0.15	19990122	102.38407	234.25059	83.28076	7.77161	0.2458395	2.2329335	37	4	1984–1999	0.76	M-v	2	Williams	33741	1988 XE ₂
1989 AV ₆	13.7	0.15	19990122	199.68660	172.46121	116.44407	6.99671	0.1878748	2.2420888	44	2	1989–1999	0.69	M-v	4	Williams	33741	1989 AV ₆
1989 AD ₇	13.0	0.15	19990122	51.94470	263.24135	140.36367	10.96641	0.1192995	3.0011597	23	2	1989–1999	0.79	M-v	4	Spahr	33675	1989 AD ₇
1989 CD ₆	13.8	0.15	19990122	49.19975	330.48517	130.48108	2.95411	0.0348027	2.8837279	30	4	1989–1999	0.63	M-v	3	Williams	33741	1989 CD ₆
1989 EE ₁	14.2	0.15	19990122	294.96295	195.20576	10.04423	6.64616	0.1390128	2.2672546	35	3	1989–1999	0.86	M-v	4	Williams	33675	1989 EE ₁
1989 GZ ₁	15.2	0.15	19990122	207.71015	46.88163	253.99304	2.04734	0.0577970	2.2884562	34	4	1989–1999	0.95	M-v	2	Williams	22969	1989 GZ ₁
1989 GM ₂	14.3	0.15	19990122	110.85733	297.39820	217.00437	6.08281	0.1662782	2.6995631	24	2	1989–1998	0.62	M-v	5	Spahr	33223	1989 GM ₂
1989 GN ₃	13.3	0.15	19990122	298.00917	306.21733	186.86165	12.13713	0.1860366	3.1946728	30	2	1989–1998	0.83	M-v	4	Spahr	33476	1989 GN ₃
1989 JB	14.9	0.15	19990122	303.45411	138.23820	82.92994	25.82419	0.2336390	2.2723499	21	2	1989–1999	0.74	M-v	3	Williams	33676	1989 JB
1989 LH	14.3	0.15	19990122	225.05341	13.13337	225.47241	10.03965	0.2186701	2.3966883	19	2	1989–1999	0.80	M-v	4	Williams	33676	1989 LH
1989 ML	19.6	0.15	19990122	232.10783	183.18748	104.44975	4.37733	0.1364417	1.2723335	82	4	1989–1999	0.52	M-v	2	Williams	27324	1989 ML
1989 OD	12.9	0.15	19990122	355.51180	287.74744	358.89241	8.83002	0.1338455	2.7810071	18	5	1976–1998	0.90	M-v	2	Spahr	33476	1989 OD
1989 RX	12.9	0.15	19990122	23.89662	131.57386	237.14679	7.16901	0.2005693	2.6898107	42	2	1989–1999	0.70	M-v	3	Williams	33741	1989 RX
1989 SA	13.5	0.15	19990122	76.84429	298.86541	78.28556	13.92457	0.1879055	2.5882686	26	3	1976–1999	0.65	M-v	3	Williams	33741	1989 SA
1989 SE	14.6	0.15	19990122	110.84224	347.15177	8.11646	7.62687	0.2898593	2.5463494	32	5	1981–1999	0.88	M-v	3	Williams	30894	1989 SE
1989 SX	14.6	0.15	19990122	99.35110	354.87259	27.91323	6.68609	0.3017547	2.5579969	75	5	1989–1999	0.92	M-v	2	Williams	31136	1989 SX
1989 SP ₁	14.0	0.15	19990122	286.43818	55.16477	131.76644	5.04592	0.0855502	2.5628014	30	2	1989–1999	0.98	M-v	5	Spahr	33741	1989 SP ₁
1989 ST ₃	14.9	0.15	19990122	22.61907	307.14801	136.01635	3.03478	0.1105711	2.6060629	63	3	1989–1999	0.81	M-v	3	Spahr	33741	1989 ST ₃
1989 SZ ₃	13.3	0.15	19990122	97.30380	219.35445	113.62578	4.02984	0.1175400	2.6378006	31	3	1989–1999	0.94	M-v	6	Spahr	33742	1989 SZ ₃
1989 SV ₅	14.6	0.15	19990122	9.84499	47.47762	71.95129	6.28145	0.1834155	2.5687059	33	4	1981–1999	0.85	M-v	3	Williams	33543	1989 SV ₅
1989 SX ₅	14.4	0.15	19990122	13.51668	11.26167	94.62411	2.88801	0.1089038	2.5760727	40	2	1989–1999	0.69	M-v	4	Williams	33676	1989 SX ₅
1989 SW ₈	13.7	0.15	19990122	40.22439	189.35382	183.14605	13.40878	0.1907576	2.6737436	61	4	1989–1998	0.69	M-v	3	Williams	33543	1989 SW ₈
1989 TT	14.3	0.15	19990122	78.54249	221.20708	173.39658	16.95996	0.2796554	2.5967466	40	5	1989–1999	0.73	M-v	2	Williams	30686	1989 TT
1989 TH ₁	13.0	0.15	19990122	23.99988	45.62538	344.09951	8.20863	0.2918516	2.7163659	69	4	1962–1999	0.79	M-v	2	Williams	33742	1989 TH ₁
1989 TY ₂	14.2	0.15	19990122	170.88748	238.37222	71.55941	4.56793	0.0270929	2.5409712	41	2	1989–1999	0.86	M-v	4	Williams	33742	1989 TY ₂
1989 TU ₃	13.9	0.15	19990122	316.63980	279.12856	172.25795	4.87292	0.0411659	2.7255908	38	3	1989–1998	0.66	M-v	4	Williams	33223	1989 TU ₃
1989 TL ₁₅	14.3	0.15	19990122	85.13925	87.63495	322.61619	1.42389	0.1504656	2.5258900	43	8	1969–1999	0.83	M-v	3	Williams	31136	1989 TL ₁₅
1989 UA	12.9	0.15	19990122	87.34350	7.27202	45.59281	10.77179	0.0980847	2.5463260	55	6	1954–1999	0.70	M-v	2	Williams	33543	1989 UA
1989 US ₁	13.4	0.15	19990122	73.78903	339.31686	31.88244	13.86858	0.2350548	2.6362291	46	3	1989–1999	0.92	M-v	3	Williams	33742	1989 US ₁
1989 US ₄	13.2	0.15	19990122	4.01440	184.33308	223.22388	1.23179	0.0991498	2.7367615	57	2	1989–1999	0.73	M-v	4	Spahr	33676	1989 US ₄
1989 VK	14.8	0.15	19990122	65.75570	130.86160	267.50996	3.09022	0.3082734	2.6230992	25	4	1955–1999	0.85	M-v	2	Williams	33742	1989 VK
1989 VS ₁	13.8	0.15	19990122	52.58650	296.60437	117.79273	3.63782	0.2011117	2.6294958	47	3	1989–1999	0.75	M-v	2	Williams	33742	1989 VS ₁
1989 WS	13.5	0.15	19990122	89.21540	158.97038	237.63642	8.73650	0.1906863	2.5696907	33	4	1989–1999	0.86	M-v	2	Williams	30781	1989 WS
1989 WN ₂	13.3	0.15	19990122	54.47854	164.16191	252.71165	11.90144	0.1398295	2.6522932	32	2	1989–1999	0.77	M-v	4	Williams	33477	1989 WN ₂
1989 WD ₃	13.9	0.15	19990122	336.60074	227.93972	241.99938	5.07708	0.1488668	2.7340113	57	3	1989–1999	0.84	M-v	2	Williams	33742	1989 WD ₃
1989 WH ₃	13.9	0.15	19990122	113.34955	347.68029	36.98319	1.20582	0.2059806	2.5659475	24	5	1989–1999	0.81	M-v	3	Williams	31137	1989 WH ₃
1990 DV	13.6	0.15	19990122	353.60856	270.48019	248.19896	7.05072	0.2185000	2.7295894	32	2	1990–1999	0.57	M-v	3	Williams	33478	1990 DV
1990 EN ₁	13.7	0.15	19990122	282.35006	348.38355	231.09785	7.40528	0.1508048	2.8069328	30	3	1990–1999	0.75	M-v	4	Williams	33742	1990 EN ₁
1990 EN ₄	13.5	0.15	19990122	303.91360	147.37984	337.36782	7.98114	0.0337612	2.9820487	30	4	1990–1998	0.82	M-v	2	Williams	33335	1990 EN ₄
1990 OK	14.1	0.15	19990122	109.10118	95.42959	249.90333	6.77583	0.1980207	2.3366046	27	2	1990–1999	0.81	M-v	5	Spahr	33677	1990 OK
1990 OD ₂	15.2	0.15	19990122	164.27285	283.51429	47.65898	6.70869	0.1840223	2.2714460	28	3	1990–1999	0.70	M-v	3	Williams	31137	1990 OD ₂
1990 OH ₂	12.6	0.15	19990122	214.85721	280.16915	349.40958	4.77865	0.1844020	3.1669038	24	5	1985–1999	0.77	M-v	1	Williams	33543	1990 OH ₂
1990 OH ₄	13.1	0.15	19990122	214.86249	98.22318	181.92437	7.10084	0.1266051	3.1111383	24	5	1979–1999	0.68	M-v	1	Williams	28316	1990 OH ₄

1990 QW	14.5	0.15	19990122	156.38035	341.57519	348.07504	7.51170	0.1495261	2.2882525	44	6	1983–1999	0.78	M-v	2	Williams	33742	1990 QW
1990 QY	12.7	0.15	19990122	260.46276	80.88755	197.77143	8.06744	0.2077284	3.0262487	44	7	1964–1999	0.80	M-v	1	Williams	29942	1990 QY
1990 QX ₁	14.9	0.15	19990122	81.31511	5.97731	49.82970	0.88484	0.2131526	2.3287285	40	4	1990–1999	0.75	M-v	2	Williams	33742	1990 QX ₁
1990 QC ₃	15.0	0.15	19990122	114.06762	227.55034	162.81125	3.47100	0.1885272	2.2999815	46	4	1990–1999	0.68	M-v	2	Williams	30895	1990 QC ₃
1990 QK ₃	14.6	0.15	19990122	106.16634	239.46064	151.24870	6.25184	0.1239755	2.3074681	42	4	1990–1999	0.70	M-v	3	Williams	33335	1990 QK ₃
1990 QU ₃	14.2	0.15	19990122	198.65191	197.26114	88.62815	2.23883	0.1235259	2.2803070	31	2	1990–1999	0.91	M-v	5	Williams	33677	1990 QU ₃
1990 QF ₄	13.6	0.15	19990122	352.42574	319.13102	150.84265	7.25418	0.0646552	2.3535387	36	2	1990–1999	0.80	M-v	4	Spahr	33677	1990 QF ₄
1990 QM ₄	14.0	0.15	19990122	217.85141	123.50602	138.23138	5.22987	0.1413933	2.2856074	29	5	1979–1999	0.67	M-v	1	Marsden	33742	1990 QM ₄
1990 QB ₅	14.1	0.15	19990122	18.18143	337.11690	67.03734	5.92325	0.1817032	2.4621626	56	3	1990–1999	0.60	M-v	2	Williams	33742	1990 QB ₅
1990 QR ₅	13.2	0.15	19990122	201.47128	171.72707	125.89019	2.61018	0.1759146	3.1867578	37	4	1972–1999	0.70	M-v	2	Williams	33742	1990 QR ₅
1990 QC ₆	15.0	0.15	19990122	81.95776	316.50306	92.16800	0.68695	0.1846569	2.3287389	46	4	1990–1999	0.60	M-v	1	Williams	30781	1990 QC ₆
1990 QX ₇	14.0	0.15	19990122	144.53534	40.97941	327.40084	1.82991	0.1692201	3.2091492	24	5	1979–1999	0.60	M-v	1	Williams	30653	1990 QX ₇
1990 QN ₉	13.9	0.15	19990122	64.53080	324.29470	129.25715	4.33399	0.1106523	2.2649866	17	4	1990–1999	0.74	M-v	2	Williams	23859	1990 QN ₉
1990 QP ₁₀	12.5	0.15	19990122	175.60270	312.02029	6.33845	6.60873	0.1156258	3.2370523	30	5	1973–1999	0.79	M-v	2	Williams	33677	1990 QP ₁₀
1990 QW ₁₇	14.1	0.15	19990122	151.71209	70.89619	288.78705	4.66235	0.2113157	2.2643809	25	4	1990–1999	0.70	M-v	2	Williams	31137	1990 QW ₁₇
1990 RF	11.9	0.15	19990122	140.03864	196.99612	174.65379	16.43905	0.0587412	3.2165360	42	5	1990–1999	0.55	M-v	1	Williams	32046	1990 RF
1990 RH ₂	14.9	0.15	19990122	102.40537	39.03487	344.22783	6.62760	0.1098364	2.3343191	22	3	1990–1999	0.74	M-v	5	Williams	25649	1990 RH ₂
1990 RJ ₃	15.3	0.15	19990122	216.45607	318.63862	352.27525	6.28825	0.0787816	2.2384558	23	2	1990–1999	0.60	M-v	5	Williams	33677	1990 RJ ₃
1990 RW ₄	12.4	0.15	19990122	223.98617	344.73862	303.12258	4.18614	0.1488470	3.1740507	23	4	1990–1999	0.70	M-v	2	Williams	31137	1990 RW ₄
1990 RF ₅	14.3	0.15	19990122	162.91523	124.08122	217.15809	4.47106	0.1961071	2.2798529	18	4	1983–1999	0.81	M-v	4	Williams	30870	1990 RF ₅
1990 RQ ₈	14.0	0.15	19990122	199.40820	320.19472	8.24519	1.30079	0.1773779	3.1332727	37	4	1990–1999	0.43	M-v	1	Williams	31137	1990 RQ ₈
1990 RN ₁₇	11.8	0.15	19990122	194.17500	29.40329	295.16760	6.77939	0.1798173	3.2244637	15	3	1990–1999	0.77	M-v	3	Williams	31228	1990 RN ₁₇
1990 SE ₁	14.1	0.15	19990122	76.01144	304.83926	346.59720	13.02908	0.1730198	2.5485362	22	2	1990–1998	0.45	M-v	5	Spahr	33224	1990 SE ₁
1990 SA ₃	14.7	0.15	19990122	256.53553	118.68554	143.72343	6.73230	0.1498167	2.2537581	44	2	1990–1999	0.52	M-v	5	Williams	33678	1990 SA ₃
1990 SC ₄	14.1	0.15	19990122	47.79842	245.49165	190.45179	22.02123	0.2809094	2.3827773	30	4	1990–1999	0.68	M-v	2	Williams	30687	1990 SC ₄
1990 SE ₆	15.3	0.15	19990122	108.83256	220.07428	161.02892	7.22578	0.1149074	2.3317026	28	3	1990–1999	1.03	M-v	4	Williams	31379	1990 SE ₆
1990 SL ₇	15.0	0.15	19990122	58.78589	341.81437	61.96774	3.20176	0.1961783	2.3956034	33	3	1990–1999	0.68	M-v	4	Williams	33742	1990 SL ₇
1990 SA ₈	14.7	0.15	19990122	356.80702	353.41516	100.26679	3.27398	0.1677275	2.4317893	26	2	1990–1999	0.62	M-v	4	Williams	33742	1990 SA ₈
1990 SY ₈	15.0	0.15	19990122	181.61826	239.82937	56.89950	4.24428	0.1652260	2.3109856	20	4	1990–1999	0.86	M-v	4	Williams	24582	1990 SY ₈
1990 SX ₁₀	13.7	0.15	19990122	146.57783	33.71727	311.01358	5.81155	0.0796295	2.3159772	49	4	1978–1999	0.60	M-v	2	Williams	33742	1990 SX ₁₀
1990 SN ₁₆	15.1	0.15	19990122	123.17086	341.67397	28.20271	4.11699	0.2168803	2.2986240	17	4	1990–1999	0.86	M-v	2	Williams	30687	1990 SN ₁₆
1990 SN ₂₈	14.8	0.15	19990122	179.54940	321.50448	0.26174	2.19425	0.1637396	2.3008903	39	5	1983–1999	0.77	M-v	3	Williams	31137	1990 SN ₂₈
1990 TX	14.2	0.15	19990122	116.51526	298.69110	76.00658	4.46828	0.2666137	2.3413966	52	5	1965–1999	0.79	M-v	2	Williams	31137	1990 TX
1990 TB ₁	14.2	0.15	19990122	211.78352	301.37780	0.08330	7.80127	0.1428425	2.2819135	34	5	1990–1999	0.63	M-v	1	Williams	30895	1990 TB ₁
1990 TR ₁	13.9	0.15	19990122	202.99604	126.24491	184.20002	6.33751	0.1332009	2.2881937	41	4	1990–1999	0.77	M-v	2	Williams	29942	1990 TR ₁
1990 TR ₅	15.1	0.15	19990122	167.64421	98.37831	235.03349	5.83895	0.2542983	2.2701813	19	3	1990–1999	0.56	M-v	3	Williams	30976	1990 TR ₅
1990 TY ₇	14.2	0.15	19990122	342.29823	116.65454	26.61766	2.97679	0.1115391	2.4055118	35	3	1990–1999	0.82	M-v	3	Williams	33742	1990 TY ₇
1990 TE ₉	13.8	0.15	19990122	188.09814	344.44772	326.05822	4.36343	0.1476192	2.3031523	50	3	1990–1999	0.76	M-v	3	Williams	33742	1990 TE ₉
1990 TG ₁₁	14.8	0.15	19990122	226.76434	350.15536	277.89272	2.49075	0.0825604	2.3081396	38	3	1990–1999	0.82	M-v	4	Williams	33742	1990 TG ₁₁
1990 TG ₁₃	14.7	0.15	19990122	18.55917	23.34605	65.09078	11.49938	0.2004627	2.4263855	44	4	1990–1999	0.73	M-v	3	Williams	33743	1990 TG ₁₃
1990 UN ₁	14.2	0.15	19990122	75.55879	264.65774	168.09363	5.09103	0.2084403	2.3653326	22	4	1990–1999	0.71	M-v	2	Williams	31005	1990 UN ₁
1990 UN ₂	14.5	0.15	19990122	174.81252	278.23593	54.07603	6.06515	0.0942089	2.3294182	43	4	1990–1999	0.82	M-v	1	Williams	31274	1990 UN ₂
1990 UQ ₂	13.5	0.15	19990122	105.25396	325.61832	43.77931	8.47450	0.2254221	2.3911177	43	3	1990–1999	0.79	M-v	4	Williams	33544	1990 UQ ₂
1990 UQ ₃	15.3	0.15	19990122	144.13349	169.84273	177.57474	5.82036	0.1773728	2.3436249	23	4	1990–1999	0.82	M-v	3	Williams	30976	1990 UQ ₃
1990 UW ₃	15.6	0.15	19990122	58.83481	301.13814	131.89683	3.20254	0.1477161	2.3895726	23	4	1990–1999	0.89	M-v	2	Williams	22431	1990 UW ₃
1990 UK ₅	14.9	0.15	19990122	338.69614	301.41346	112.74505	6.01900	0.2293757	2.5995258	19	2	1990–1998	0.77	M-v	5	Spahr	33225	1990 UK ₅
1990 VT ₁	14.6	0.15	19990122	106.02994	190.63781	200.50950	1.92388	0.2114589	2.3648171	19	6	1979–1999	1.05	M-v	2	Williams	31005	1990 VT ₁
1990 VG ₆	13.2	0.15	19990122	294.06275	348.89490	165.23371	8.07423	0.1162251	2.5269736	39	4	1990–1999	0.71	M-v	3	Williams	33743	1990 VG ₆
1990 VW ₆	14.5	0.15	19990122	196.24519	235.55341	88.91227	3.99827	0.1773202	2.2773382	35	5	1990–1999	0.67	M-v	2	Marsden	31137	1990 VW ₆
1990 VB ₁₄	14.5	0.15	19990122	64.84406	123.83385	293.61955	1.61295	0.1987153	2.4235437	54	5	1990–1999	0.69	M-v	1	Williams	30687	1990 VB ₁₄
1990 WD	14.3	0.15	19990122	184.12598	227.79055	92.42713	7.18236	0.2177797	2.2789855	12	3	1990–1999	0.80	M-v	4	Williams	33226	1990 WD
1990 WS	15.5	0.15	19990122	101.61406	208.90423	177.86493	6.47318	0.1073610	2.3860069	30	5	1986–1999	0.71	M-v	2	Williams	31137	1990 WS
1990 WR ₂	13.9	0.15	19990122	4.84130	335.37905	94.07379	8.99754	0.2499626	2.5417074	46	4	1979–1999	0.77	M-v	3	Williams	33743	1990 WR ₂

1990 WJ ₄	14.5	0.15	19990122	304.90642	67.71388	125.23472	6.56602	0.0581592	2.4064320	28	4	1984–1999	0.75	M-v	2	Williams	33743	1990 WJ ₄
1990 WQ ₆	15.0	0.15	19990122	164.11464	173.84625	176.22332	4.32182	0.1314221	2.3392874	36	5	1990–1999	0.94	M-v	1	Williams	31274	1990 WQ ₆
1990 XF	12.1	0.15	19990122	313.99908	219.57274	293.19888	11.03894	0.2022262	2.5515953	62	6	1983–1999	0.73	M-v	3	Spahr	33743	1990 XF
1990 XN	13.6	0.15	19990122	11.56203	17.43474	86.47652	6.33793	0.1584125	2.4656939	59	2	1990–1999	0.69	M-v	3	Williams	33743	1990 XN
1990 XZ	14.1	0.15	19990122	61.16798	323.39541	53.14706	23.18085	0.0779605	1.9271772	63	2	1990–1999	0.70	M-v	4	Williams	33743	1990 XZ
1991 AS ₁	13.6	0.15	19990122	357.89202	122.25840	317.85061	30.67213	0.2245107	2.6026812	34	3	1991–1999	0.58	M-v	2	Williams	33545	1991 AS ₁
1991 AL ₂	13.4	0.15	19990122	325.68355	296.24853	194.68184	12.45075	0.1715181	2.5259993	23	3	1985–1999	0.79	M-v	4	Williams	33678	1991 AL ₂
1991 CG ₁	14.7	0.15	19990122	354.57801	133.10094	346.81828	4.61188	0.1975038	2.5546780	51	3	1991–1999	0.67	M-v	3	Spahr	33743	1991 CG ₁
1991 DW	13.0	0.15	19990122	239.07294	162.00663	91.40473	16.60664	0.1026999	2.5983750	41	2	1991–1999	0.52	M-v	4	Williams	33743	1991 DW
1991 DH ₁	13.9	0.15	19990122	295.89531	39.06852	155.88530	12.83172	0.1564088	2.5874186	20	2	1991–1999	0.82	M-v	4	Spahr	33678	1991 DH ₁
1991 FZ	12.9	0.15	19990122	149.50303	346.36462	4.93135	13.64519	0.0510701	2.5496798	27	3	1952–1999	0.75	M-v	3	Williams	33227	1991 FZ
1991 GB ₁	14.2	0.15	19990122	256.25966	221.53218	24.16061	20.99637	0.0439928	1.9618344	50	6	1989–1999	0.75	M-v	2	Williams	30895	1991 GB ₁
1991 GC ₂	13.5	0.15	19990122	300.20733	75.90668	120.77389	12.26533	0.1995359	2.6572622	24	2	1991–1999	0.64	M-v	4	Spahr	33678	1991 GC ₂
1991 GQ ₃	13.8	0.15	19990122	55.85613	236.83814	200.11483	12.07878	0.1485095	2.5996608	25	3	1991–1999	0.91	M-v	4	Williams	31137	1991 GQ ₃
1991 GV ₆	14.5	0.15	19990122	205.41524	98.81890	200.47316	2.74805	0.0967385	2.6492005	26	4	1979–1999	0.69	M-v	1	Williams	31380	1991 GV ₆
1991 GM ₈	14.3	0.15	19990122	169.08667	24.53020	265.26995	2.86079	0.0428854	2.7705679	24	2	1991–1999	0.69	M-v	5	Spahr	33679	1991 GM ₈
1991 GS ₁₀	14.9	0.15	19990122	355.17198	69.89245	64.94211	4.46566	0.1434599	2.6055604	25	2	1991–1999	0.64	M-v	5	Williams	33679	1991 GS ₁₀
1991 KE	14.0	0.15	19990122	279.42914	109.72422	122.76481	27.40659	0.2553847	2.6731225	23	2	1991–1999	0.65	M-v	4	Williams	33679	1991 KE
1991 PA ₂	13.6	0.15	19990122	11.18490	346.95889	97.26174	2.83101	0.1456324	3.1011400	56	4	1988–1999	0.56	M-v	1	Spahr	33679	1991 PA ₂
1991 PU ₂	13.2	0.15	19990122	67.62396	74.59999	322.36907	15.17374	0.2401556	3.1266207	33	2	1991–1999	0.69	M-v	4	Williams	33679	1991 PU ₂
1991 PO ₄	13.1	0.15	19990122	66.87400	228.39544	155.26844	2.07068	0.1960849	3.1754827	39	6	1969–1999	0.78	M-v	1	Spahr	33743	1991 PO ₄
1991 PG ₅	14.4	0.15	19990122	155.20176	130.41101	225.78368	0.95483	0.0682902	2.8781239	30	4	1991–1999	0.77	M-v	1	Williams	31138	1991 PG ₅
1991 PG ₉	13.7	0.15	19990122	216.38924	131.96271	183.31316	8.92186	0.1511478	2.7940453	24	4	1990–1999	0.64	M-v	2	Williams	31230	1991 PG ₉
1991 PP ₁₁	13.5	0.15	19990122	204.90284	121.89460	185.65883	9.56267	0.3033083	2.8887816	31	4	1980–1999	0.62	M-v	3	Williams	28086	1991 PP ₁₁
1991 PT ₁₂	13.5	0.15	19990122	97.28236	203.90128	180.72741	3.67139	0.2235641	3.1109554	32	3	1991–1999	0.69	M-v	4	Williams	30977	1991 PT ₁₂
1991 PJ ₁₂	12.9	0.15	19990122	90.14646	144.36641	263.29657	8.40615	0.1425488	3.0553806	40	5	1986–1999	0.79	M-v	1	Williams	31583	1991 PJ ₁₂
1991 PP ₁₃	13.0	0.15	19990122	113.68256	41.03326	328.93808	10.81925	0.1114084	3.0531652	30	2	1991–1999	0.67	M-v	4	Williams	33679	1991 PP ₁₃
1991 PT ₁₆	12.9	0.15	19990122	203.63820	165.48572	152.59537	2.39571	0.0636346	2.9116720	19	3	1991–1999	0.67	M-v	3	Williams	33743	1991 PT ₁₆
1991 RO ₁	12.8	0.15	19990122	150.04827	30.91367	328.69122	6.04276	0.2109761	3.0117512	30	7	1949–1999	0.84	M-v	2	Williams	30290	1991 RO ₁
1991 RR ₁	12.4	0.15	19990122	161.36423	94.97277	230.15513	9.45101	0.1399031	3.0542208	33	3	1991–1999	0.77	M-v	3	Williams	31138	1991 RR ₁
1991 RF ₂	12.3	0.15	19990122	57.40639	102.24032	329.22337	10.03500	0.0608317	3.0973736	31	4	1986–1999	0.69	M-v	2	Williams	33743	1991 RF ₂
1991 RX ₄	13.5	0.15	19990122	172.16195	140.62207	203.95860	8.45898	0.0734682	2.9969420	21	3	1981–1999	0.60	M-v	3	Williams	20508	1991 RX ₄
1991 RB ₇	15.0	0.15	19990122	64.28399	4.58387	4.97951	4.47147	0.1889565	2.2372707	14	2	1991–1998	0.71	M-v	4	Spahr	33479	1991 RB ₇
1991 RE ₇	12.0	0.15	19990122	166.60074	280.22922	8.00655	17.59138	0.1587706	3.1766687	30	4	1991–1999	0.67	M-v	1	Spahr	33545	1991 RE ₇
1991 RL ₇	14.5	0.15	19990122	35.49089	117.87619	214.10533	11.52888	0.0463703	2.4056520	25	3	1983–1998	0.70	M-v	3	Williams	32743	1991 RL ₇
1991 RQ ₇	12.8	0.15	19990122	179.84523	6.64906	305.84539	9.70229	0.2809695	2.9828659	33	5	1986–1999	0.77	M-v	3	Williams	33743	1991 RQ ₇
1991 RB ₁₁	13.2	0.15	19990122	100.94716	240.47827	158.17166	1.53736	0.1450114	3.1206130	44	7	1975–1999	0.61	M-v	1	Williams	31138	1991 RB ₁₁
1991 RS ₁₃	14.1	0.15	19990122	124.25247	3.91982	288.07583	4.36128	0.1431586	2.2352932	20	3	1991–1998	0.71	M-v	4	Spahr	33337	1991 RS ₁₃
1991 RX ₂₁	12.6	0.15	19990122	40.93297	262.81859	158.76160	14.44750	0.1123125	3.2049873	20	2	1991–1999	0.62	M-v	4	Spahr	33680	1991 RX ₂₁
1991 RJ ₂₂	14.0	0.15	19990122	131.97206	214.50465	120.63315	4.48064	0.2110162	2.1451778	67	4	1991–1999	0.74	M-v	2	Williams	33744	1991 RJ ₂₂
1991 RX ₂₅	14.3	0.15	19990122	127.04317	252.78788	90.69286	5.05901	0.2033225	2.1629156	43	5	1988–1999	0.75	M-v	2	Williams	33744	1991 RX ₂₅
1991 RK ₂₆	15.1	0.15	19990122	88.72654	296.84585	20.95087	7.25154	0.1951142	2.2711506	27	3	1991–1998	0.56	M-v	3	Spahr	33337	1991 RK ₂₆
1991 SN	12.6	0.15	19990122	177.55039	198.21616	107.49292	11.00516	0.0851893	3.0219630	44	3	1990–1999	0.51	M-v	3	Williams	33680	1991 SN
1991 SC ₂	13.4	0.15	19990122	185.92755	205.47569	121.34674	2.85402	0.0636000	2.9150579	31	6	1977–1999	0.82	M-v	1	Williams	25081	1991 SC ₂
1991 SK ₂	13.0	0.15	19990122	157.66562	351.96109	328.86695	9.47171	0.1207126	3.0500127	27	2	1991–1999	0.83	M-v	4	Williams	33744	1991 SK ₂
1991 TQ	12.9	0.15	19990122	198.06275	241.62234	68.56433	6.76284	0.1205337	3.0011390	29	7	1950–1999	0.77	M-v	1	Williams	31138	1991 TQ
1991 TL ₃	13.6	0.15	19990122	101.65210	101.76580	288.16168	5.02008	0.1196936	3.1099091	30	3	1991–1999	0.66	M-v	4	Williams	33744	1991 TL ₃
1991 UQ ₁	14.3	0.15	19990122	17.29816	22.66705	38.83873	8.52799	0.1810023	2.2897715	40	3	1984–1999	0.67	M-v	3	Williams	33744	1991 UQ ₁
1991 UO ₂	13.9	0.15	19990122	14.32578	290.00347	113.13473	4.74130	0.1971887	2.3239632	93	4	1984–1999	0.77	M-v	2	Williams	33744	1991 UO ₂
1991 UN ₃	13.6	0.15	19990122	45.26330	304.66074	84.33907	4.56430	0.0970111	2.2940247	76	3	1991–1999	0.82	M-v	3	Williams	33546	1991 UN ₃
1991 VE	18.3	0.15	19990122	294.29272	193.42838	62.09087	7.22341	0.6644926	0.8907617	126	3	1991–1999	0.66	M-v	3	Williams	33744	1991 VE
1991 VF ₁	14.7	0.15	19990122	84.07088	352.16047	6.35519	3.63098	0.1204927	2.2516441	33	2	1991–1999	0.75	M-v	5	Spahr	33744	1991 VF ₁
1991 VQ ₁	13.6	0.15	19990122	54.23983	297.44554	71.86265	7.34577	0.2070751	2.2806679	85	3	1991–1999	0.73	M-v	3	Williams	33744	1991 VQ ₁

1991 VT ₁	14.3	0.15	19990122	91.70458	143.84961	262.48542	2.94795	0.1160023	2.1856491	40	3	1991-1999	0.66	M-v	3	Williams	30782	1991 VT ₁
1991 VX ₂	12.9	0.15	19990122	134.70423	66.24815	303.19728	4.41202	0.1504920	3.1785095	25	4	1991-1999	0.67	M-v	2	Williams	31275	1991 VX ₂
1991 VJ ₄	13.7	0.15	19990122	112.45932	278.22513	42.60594	7.02676	0.1491295	2.2857792	27	4	1956-1999	0.72	M-v	2	Williams	33744	1991 VJ ₄
1991 VD ₅	14.1	0.15	19990122	121.26710	239.66639	118.09222	3.59148	0.1833294	2.1581712	32	4	1953-1999	0.74	M-v	2	Williams	33744	1991 VD ₅
1991 VW ₈	13.9	0.15	19990122	154.22905	194.20449	149.72320	2.13886	0.1557921	3.1293553	48	7	1990-1999	0.70	M-v	1	Williams	31138	1991 VW ₈
1991 YX	14.4	0.15	19990122	69.43226	265.60869	134.82367	5.79032	0.1595934	2.2744694	40	4	1987-1999	0.74	M-v	2	Williams	33744	1991 YX
1992 AM	15.1	0.15	19990122	23.78436	299.87855	100.11676	23.79813	0.2813861	2.3474419	35	3	1991-1999	0.79	M-v	2	Williams	33744	1992 AM
1992 AQ	15.9	0.15	19990122	357.24401	18.80524	105.77441	25.10525	0.2195538	2.2986621	28	2	1991-1999	0.68	M-v	3	Williams	33480	1992 AQ
1992 AU ₁	14.0	0.15	19990122	6.59315	45.97929	87.74845	24.66869	0.2535643	2.2713066	29	3	1991-1999	0.74	M-v	2	Williams	33337	1992 AU ₁
1992 BJ	14.8	0.15	19990122	350.41572	333.40970	124.63689	2.91284	0.1334374	2.3644674	26	3	1992-1999	0.78	M-v	3	Williams	33481	1992 BJ
1992 BM	14.4	0.15	19990122	74.11053	77.17087	349.39715	5.66150	0.1618931	2.2494446	21	5	1982-1999	0.81	M-v	2	Williams	28615	1992 BM
1992 BX	13.5	0.15	19990122	339.90303	175.73902	285.65614	9.92078	0.1939361	2.3972370	32	4	1977-1999	0.69	M-v	2	Spahr	33680	1992 BX
1992 CK	14.7	0.15	19990122	45.07876	303.10125	138.93886	6.31592	0.1514246	2.2948858	44	3	1992-1999	0.83	M-v	2	Williams	33744	1992 CK
1992 CA ₃	14.1	0.15	19990122	332.02704	214.85500	276.37744	6.50903	0.0589856	2.3475684	24	2	1992-1999	0.73	M-v	5	Spahr	33680	1992 CA ₃
1992 CE ₃	14.8	0.15	19990122	13.86631	275.74836	178.15879	4.80312	0.1429487	2.3212054	27	2	1992-1999	0.74	M-v	5	Spahr	33680	1992 CE ₃
1992 CG ₃	13.8	0.15	19990122	352.82039	257.10441	176.30080	6.24286	0.0984757	2.4142239	60	2	1992-1999	0.78	M-v	4	Williams	33744	1992 CG ₃
1992 CJ ₃	14.7	0.15	19990122	66.53146	261.12147	173.89542	4.15079	0.1560010	2.2417589	20	3	1992-1999	0.80	M-v	5	Williams	27567	1992 CJ ₃
1992 DY	13.3	0.15	19990122	344.22357	110.31951	112.58191	5.90034	0.1057023	2.2110170	19	3	1992-1999	0.70	M-v	4	Williams	31231	1992 DY
1992 DE ₃	14.6	0.15	19990122	140.49382	8.71831	338.54150	6.47608	0.1760092	2.3414119	21	4	1972-1999	0.72	M-v	3	Williams	31381	1992 DE ₃
1992 DL ₄	14.6	0.15	19990122	120.12519	6.61345	9.12545	6.65781	0.1756005	2.2689778	25	5	1980-1999	0.78	M-v	2	Williams	31006	1992 DL ₄
1992 DN ₆	13.3	0.15	19990122	176.08027	185.11099	136.95837	3.12510	0.2404820	2.3660466	41	5	1986-1999	0.68	M-v	2	Williams	31138	1992 DN ₆
1992 DX ₈	14.7	0.15	19990122	355.43431	11.63030	73.43654	3.30934	0.0903896	2.4501673	36	2	1992-1999	0.61	M-v	4	Spahr	33744	1992 DX ₈
1992 DV ₉	16.5	0.15	19990122	327.78029	268.17408	202.91404	3.14805	0.1345810	2.4399854	23	3	1992-1998	0.53	M-v	4	Spahr	33338	1992 DV ₉
1992 DF ₁₀	14.5	0.15	19990122	112.91402	178.54697	214.54903	4.96119	0.1585598	2.2730486	15	5	1980-1999	0.81	M-v	2	Williams	31138	1992 DF ₁₀
1992 DC ₁₁	15.5	0.15	19990122	30.92184	315.32907	152.44225	3.23910	0.1313354	2.3075590	29	5	1980-1999	0.76	M-v	1	Williams	30471	1992 DC ₁₁
1992 EC	14.3	0.15	19990122	264.21507	244.02741	349.69610	6.80036	0.0697214	2.3613452	29	3	1987-1999	0.80	M-v	5	Williams	33680	1992 EC
1992 EE	14.6	0.15	19990122	301.15530	216.47054	352.48584	6.48904	0.1668318	2.3443162	42	4	1992-1999	0.73	M-v	2	Williams	33744	1992 EE
1992 EP	13.9	0.15	19990122	259.39514	178.71164	70.20199	5.85103	0.1956156	2.3774480	22	2	1992-1999	0.70	M-v	5	Williams	33744	1992 EP
1992 EA ₆	14.1	0.15	19990122	349.38723	315.72731	127.86064	7.13211	0.1533753	2.4430457	41	4	1986-1999	0.90	M-v	2	Williams	33745	1992 EA ₆
1992 EP ₆	14.4	0.15	19990122	341.42422	65.71558	78.73638	5.73136	0.0386400	2.3555837	43	3	1992-1999	0.83	M-v	3	Williams	33745	1992 EP ₆
1992 EL ₈	14.1	0.15	19990122	150.68524	226.87072	126.06822	7.24141	0.1444615	2.3035808	19	2	1992-1999	0.67	M-v	5	Williams	33681	1992 EL ₈
1992 EP ₁₀	14.3	0.15	19990122	216.85249	39.72884	163.10750	14.77851	0.0486834	2.5331947	33	3	1992-1998	0.51	M-v	3	Williams	33338	1992 EP ₁₀
1992 EU ₁₁	14.7	0.15	19990122	251.97200	270.51795	337.56630	6.48188	0.1502407	2.3650778	14	3	1992-1999	0.73	M-v	3	Williams	28886	1992 EU ₁₁
1992 EB ₁₃	14.1	0.15	19990122	169.98869	6.72781	306.81022	4.10133	0.1234785	2.3806322	28	4	1986-1999	0.63	M-v	2	Williams	33745	1992 EB ₁₃
1992 ED ₁₃	14.6	0.15	19990122	124.23866	148.21768	197.01905	6.33271	0.1417904	2.3954736	28	5	1990-1999	0.73	M-v	2	Williams	33745	1992 ED ₁₃
1992 EG ₁₄	14.6	0.15	19990122	18.92763	144.30826	320.43352	3.89246	0.1024417	2.3454586	42	3	1992-1999	0.62	M-v	3	Williams	33745	1992 EG ₁₄
1992 EU ₁₄	13.2	0.15	19990122	329.40033	351.54308	303.39139	3.97623	0.1193086	3.1289958	21	3	1992-1998	0.72	M-v	4	Spahr	33681	1992 EU ₁₄
1992 EW ₁₆	12.9	0.15	19990122	113.74749	333.22025	327.25040	4.06590	0.1218568	2.5820321	12	2	1992-1998	0.37	M-v	5	Spahr	33231	1992 EW ₁₆
1992 EM ₁₇	14.2	0.15	19990122	294.63605	85.26387	128.43182	5.05780	0.1157230	2.3254369	40	2	1992-1999	0.70	M-v	5	Williams	33681	1992 EM ₁₇
1992 ER ₁₇	14.0	0.15	19990122	34.89476	100.62402	325.50852	1.77669	0.1885219	2.3706558	21	2	1992-1999	0.67	M-v	5	Williams	33681	1992 ER ₁₇
1992 EC ₁₈	15.3	0.15	19990122	109.27536	168.52271	219.87930	3.27984	0.0898873	2.3090008	17	3	1992-1999	0.82	M-v	4	Williams	29135	1992 EC ₁₈
1992 EE ₂₂	15.4	0.15	19990122	9.53964	18.37999	72.29015	3.29907	0.1617250	2.3800939	14	2	1992-1999	0.49	M-v	5	Spahr	33682	1992 EE ₂₂
1992 FS ₁	13.6	0.15	19990122	301.19754	172.59246	104.73892	7.14757	0.1729704	2.2622213	38	5	1989-1999	0.75	M-v	2	Williams	31275	1992 FS ₁
1992 FT ₁	14.0	0.15	19990122	308.76584	194.21768	353.42020	4.94647	0.1687302	2.3794120	45	3	1987-1999	0.75	M-v	3	Williams	33682	1992 FT ₁
1992 GV ₃	14.0	0.15	19990122	263.90751	146.32402	33.40086	9.98122	0.0349985	2.5623278	33	3	1992-1999	0.66	M-v	3	Williams	33481	1992 GV ₃
1992 GO ₄	14.5	0.15	19990122	10.19619	348.96430	199.56484	2.70991	0.1198725	2.2716962	29	4	1992-1999	0.78	M-v	2	Williams	31138	1992 GO ₄
1992 HG ₄	13.7	0.15	19990122	235.47366	79.12204	216.19806	1.14657	0.2215018	2.3966932	53	7	1959-1999	0.68	M-v	1	Williams	31138	1992 HG ₄
1992 JL	13.5	0.15	19990122	167.11728	163.08910	109.71902	15.37936	0.1639326	2.6407937	29	2	1992-1998	0.76	M-v	6	Spahr	33745	1992 JL
1992 JC ₁	14.7	0.15	19990122	64.67262	352.05481	61.74667	8.22121	0.1349702	2.4697961	30	4	1991-1999	0.87	M-v	3	Williams	33682	1992 JC ₁
1992 JL ₁	13.9	0.15	19990122	116.41285	269.65751	26.67603	2.82089	0.1601393	2.7593464	22	3	1992-1998	0.71	M-v	3	Spahr	33482	1992 JL ₁
1992 JB ₂	12.9	0.15	19990122	57.74205	149.19165	218.44876	11.07804	0.0635965	2.6430947	59	3	1992-1999	0.80	M-v	3	Williams	33745	1992 JB ₂
1992 LK	14.2	0.15	19990122	291.59120	224.84874	75.51767	6.46017	0.2263584	2.2932269	29	4	1982-1999	0.81	M-v	2	Williams	31275	1992 LK
1992 LS	14.1	0.15	19990122	190.87869	99.28064	203.58181	4.05137	0.1658373	2.5304134	51	4	1992-1999	0.83	M-v	1	Williams	31275	1992 LS

1992 ME	13.6	0.15	19990122	318.02599	134.09475	120.57667	24.20425	0.2520633	2.2997277	34	3	1992-1999	0.55	M-v	2	Williams	25215	1992 ME
1992 OE	13.9	0.15	19990122	151.95772	6.80569	330.53589	27.15932	0.2037320	2.7427596	38	3	1992-1999	0.53	M-v	2	Williams	30979	1992 OE
1992 OK	14.5	0.15	19990122	133.30739	103.25620	248.42820	7.43460	0.3539415	2.7567399	53	3	1992-1999	0.68	M-v	2	Williams	31275	1992 OK
1992 OY ₇	13.5	0.15	19990122	100.07422	50.75610	278.49783	8.75707	0.2709068	2.8720116	52	3	1992-1999	0.79	M-v	3	Spahr	33745	1992 OY ₇
1992 PN ₁	13.8	0.15	19990122	128.58582	69.36283	312.73796	11.45398	0.1834775	2.6680477	31	4	1992-1999	0.67	M-v	1	Williams	31275	1992 PN ₁
1992 PH ₂	13.0	0.15	19990122	64.12724	69.39077	271.45187	9.44135	0.1400424	3.0396380	49	4	1987-1999	0.62	M-v	1	Williams	33745	1992 PH ₂
1992 PC ₃	12.2	0.15	19990122	71.30292	61.57036	273.48624	11.60751	0.1613927	3.0486278	23	2	1992-1999	0.75	M-v	4	Williams	33682	1992 PC ₃
1992 QR	14.4	0.15	19990122	109.62042	239.80289	150.49968	22.99575	0.1044669	1.9236228	20	4	1991-1999	0.66	M-v	2	Williams	33547	1992 QR
1992 RF ₅	13.5	0.15	19990122	143.27983	149.90385	173.34781	2.05905	0.0470800	2.8252657	44	3	1992-1999	0.71	M-v	4	Spahr	33745	1992 RF ₅
1992 RE ₆	13.7	0.15	19990122	31.67719	358.48766	76.02621	3.22834	0.0447995	2.8874816	26	3	1978-1999	0.71	M-v	4	Spahr	33745	1992 RE ₆
1992 RV ₆	14.4	0.15	19990122	74.44507	247.69718	81.03560	2.20625	0.1985598	3.1034849	21	2	1992-1998	0.61	M-v	5	Spahr	33483	1992 RV ₆
1992 SH	13.1	0.15	19990122	207.46090	106.80778	188.72869	12.29950	0.1745660	2.6938766	19	3	1987-1999	0.84	M-v	4	Williams	21268	1992 SH
1992 SJ	13.3	0.15	19990122	170.14102	317.82613	3.00688	8.81713	0.2823430	2.7302728	23	4	1992-1999	0.75	M-v	3	Williams	31139	1992 SJ
1992 SW ₁₆	14.6	0.15	19990122	246.42436	51.94688	225.55282	1.14991	0.1713731	2.6062515	20	3	1991-1999	0.64	M-v	3	Williams	30451	1992 SW ₁₆
1992 SA ₂₂	13.8	0.15	19990122	221.94374	240.59673	29.67311	4.41002	0.0484404	2.7357548	28	4	1978-1999	0.78	M-v	1	Williams	22816	1992 SA ₂₂
1992 SQ ₂₄	12.5	0.15	19990122	285.52022	309.26973	204.03587	10.11929	0.0516117	2.9882741	47	5	1987-1999	0.76	M-v	2	Williams	33745	1992 SQ ₂₄
1992 SS ₂₄	13.4	0.15	19990122	82.22813	114.78988	283.12552	5.35562	0.1270231	2.8498674	29	2	1992-1999	0.56	M-v	5	Williams	33683	1992 SS ₂₄
1992 SR ₂₅	13.6	0.15	19990122	47.98567	52.76607	355.31960	9.90235	0.1101395	2.9811153	37	3	1992-1999	0.61	M-v	3	Williams	33745	1992 SR ₂₅
1992 TV	13.2	0.15	19990122	106.95129	170.52633	197.83667	1.78590	0.0762137	2.8753729	52	3	1982-1999	0.73	M-v	4	Williams	33745	1992 TV
1992 UJ ₂	12.5	0.15	19990122	128.38222	104.34544	227.58395	9.11816	0.1107006	2.9920786	19	2	1992-1999	0.67	M-v	5	Spahr	33683	1992 UJ ₂
1992 UO ₃	12.9	0.15	19990122	240.41354	294.79529	30.16391	12.47677	0.1830696	2.5796978	49	6	1984-1999	0.78	M-v	2	Williams	29661	1992 UO ₃
1992 UZ ₃	13.3	0.15	19990122	90.83725	359.71418	11.30275	2.33190	0.2166368	3.0102551	26	4	1976-1999	0.59	M-v	2	Williams	33745	1992 UZ ₃
1992 UP ₆	12.5	0.15	19990122	100.52021	154.32720	218.65895	12.80654	0.1608833	2.9734417	35	3	1992-1999	0.83	M-v	3	Williams	33745	1992 UP ₆
1992 VQ	13.0	0.15	19990122	47.62684	285.73525	123.87021	1.65288	0.1794525	3.0994266	45	3	1981-1999	0.72	M-v	4	Williams	33683	1992 VQ
1992 WF ₁	12.2	0.15	19990122	101.72794	262.49253	101.77766	11.06706	0.1010699	3.0287190	43	3	1992-1999	0.63	M-v	3	Williams	33745	1992 WF ₁
1992 WP ₁	12.8	0.15	19990122	56.05537	321.90162	96.05055	12.89731	0.1119651	3.0555357	47	2	1992-1999	0.72	M-v	4	Williams	33683	1992 WP ₁
1992 WH ₂	12.4	0.15	19990122	289.76156	326.96804	240.57541	12.42416	0.1015093	2.9769462	41	3	1992-1999	0.63	M-v	4	Williams	33745	1992 WH ₂
1992 WB ₉	13.4	0.15	19990122	57.25231	74.17392	346.86014	1.85053	0.0809435	3.0393999	28	3	1991-1999	0.80	M-v	5	Williams	33745	1992 WB ₉
1993 BU ₅	12.8	0.15	19990122	34.45923	152.66435	320.00025	13.40153	0.0500483	3.2206080	29	4	1973-1999	0.72	M-v	2	Williams	31233	1993 BU ₅
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	26564	1993 BD ₁₃
1993 DD ₂	12.4	0.15	19990122	236.29425	65.57813	14.18609	14.84134	0.0683101	2.5823073	30	4	1982-1997	0.70	M-v	3	Williams	30291	1993 DD ₂
1993 FL ₁	13.7	0.15	19990122	193.50859	179.91161	38.90554	7.26844	0.0586938	2.3365301	42	2	1993-1998	0.78	M-v	4	Spahr	33548	1993 FL ₁
1993 FS ₆	14.1	0.15	19990122	55.09908	301.39154	61.52721	3.36687	0.0859819	2.3144982	51	3	1993-1999	0.71	M-v	3	Spahr	33746	1993 FS ₆
1993 FW ₁₁	15.6	0.15	19990122	173.34670	181.13007	130.77630	4.28379	0.2045633	2.2115445	19	3	1993-1999	0.58	M-v	4	Williams	33746	1993 FW ₁₁
1993 FD ₂₇	15.4	0.15	19990122	243.86927	209.61125	44.65040	1.14826	0.1191466	2.1730353	19	4	1991-1999	0.53	M-v	3	Williams	27455	1993 FD ₂₇
1993 FJ ₂₉	14.7	0.15	19990122	120.89457	50.17118	308.58330	4.54841	0.1677644	2.1820711	19	3	1981-1999	0.81	M-v	5	Williams	33746	1993 FJ ₂₉
1993 FU ₃₄	15.6	0.15	19990122	109.20301	227.75979	153.51456	3.24899	0.0885629	2.1557601	29	4	1991-1999	0.52	M-v	1	Williams	33684	1993 FU ₃₄
1993 FF ₃₆	15.9	0.15	19990122	245.78422	88.53599	171.71293	6.15569	0.0719200	2.1463018	21	4	1978-1999	0.97	M-v	4	Williams	33684	1993 FF ₃₆
1993 FA ₄₀	12.8	0.15	19990122	313.05393	29.49923	19.47120	4.69416	0.1044215	2.4630708	17	4	1987-1998	0.66	M-v	3	Williams	33684	1993 FA ₄₀
1993 FJ ₄₀	13.8	0.15	19990122	307.62916	314.69993	170.12911	5.70596	0.0501987	2.2779226	14	2	1993-1999	0.59	M-v	5	Williams	33234	1993 FJ ₄₀
1993 FC ₄₈	15.6	0.15	19990122	273.38528	73.17471	154.84363	0.73643	0.1604971	2.1523700	29	2	1993-1999	0.62	M-v	5	Williams	33746	1993 FC ₄₈
1993 HG ₁	14.5	0.15	19990122	274.31106	73.67574	164.45081	3.13467	0.0840450	2.1487842	38	3	1993-1999	0.63	M-v	4	Williams	29944	1993 HG ₁
1993 KO	13.9	0.15	19990122	269.46866	25.38209	198.76009	5.73488	0.1188930	2.2212907	40	4	1993-1999	0.75	M-v	3	Williams	33746	1993 KO
1993 KR	13.6	0.15	19990122	258.13210	305.48925	229.40838	20.98108	0.2519252	2.3316226	26	3	1993-1999	0.63	M-v	3	Spahr	33746	1993 KR
1993 NB	12.9	0.15	19990122	134.93812	204.79784	130.17484	14.19318	0.2261589	2.4409224	36	4	1955-1999	0.75	M-v	3	Williams	33746	1993 NB
1993 NU ₁	15.0	0.15	19990122	118.13348	225.89741	152.02119	2.87638	0.2107724	2.3874641	21	4	1993-1999	0.73	M-v	3	Williams	31276	1993 NU ₁
1993 OB	13.5	0.15	19990122	130.21758	84.12863	281.26771	21.43199	0.2972322	2.4112474	33	3	1993-1999	0.68	M-v	2	Williams	31419	1993 OB
1993 OP ₃	14.1	0.15	19990122	343.01360	137.32732	314.84587	4.06448	0.1060823	2.5300296	48	3	1986-1999	0.66	M-v	3	Spahr	33746	1993 OP ₃
1993 OH ₄	15.1	0.15	19990122	254.48285	177.76113	68.88411	1.22160	0.0728612	2.2965798	32	3	1993-1999	0.84	M-v	5	Williams	33746	1993 OH ₄
1993 OL ₅	16.5	0.15	19990122	268.92129	154.45012	92.72385	0.48690	0.1455793	2.2440017	28	3	1993-1999	0.75	M-v	5	Williams	33746	1993 OL ₅
1993 OV ₅	15.4	0.15	19990122	294.16152	96.53920	123.19876	3.73101	0.0863197	2.2569953	22	3	1993-1999	0.64	M-v	5	Williams	33746	1993 OV ₅
1993 OY ₆	14.2	0.15	19990122	228.03975	148.56990	121.42960	6.15732	0.2206838	2.2966994	34	4	1937-1999	0.79	M-v	3	Williams	33746	1993 OY ₆
1993 OA ₇	14.5	0.15	19990122	33.29842	332.42335	111.88029	3.39318	0.1289261	2.4137066	36	5	1979-1999	0.77	M-v	2	Williams	33746	1993 OA ₇

1993 OQ ₈	15.4	0.15	19990122	135.87448	247.28870	108.89068	2.23656	0.1982392	2.3863700	29	6	1984–1999	1.00	M-v	2	Williams	30897	1993 OQ ₈
1993 PC ₇	13.4	0.15	19990122	332.96436	240.91964	157.68515	6.97318	0.1138273	2.9632837	44	3	1993–1998	0.65	M-v	3	Williams	33072	1993 PC ₇
1993 QN	13.6	0.15	19990122	95.89446	47.92698	314.07509	31.32888	0.2902601	2.6271860	40	2	1993–1999	0.78	M-v	3	Williams	33746	1993 QN
1993 QS	13.9	0.15	19990122	143.60811	176.16820	164.10580	13.26991	0.2529993	2.4477144	25	4	1993–1999	0.61	M-v	2	Williams	30688	1993 QS
1993 QZ	14.6	0.15	19990122	163.41241	182.77999	164.11455	21.84787	0.1578993	2.3696312	23	3	1993–1999	0.74	M-v	3	Williams	27446	1993 QZ
1993 QP ₂	14.4	0.15	19990122	247.40706	94.45200	171.22438	4.49286	0.1139659	2.3376986	19	3	1992–1999	0.94	M-v	3	Williams	32454	1993 QP ₂
1993 QX ₄	13.3	0.15	19990122	334.34385	322.87495	160.37899	15.33123	0.0501787	2.5618641	40	5	1975–1999	0.78	M-v	2	Williams	33549	1993 QX ₄
1993 QN ₇	15.1	0.15	19990122	163.11431	289.59873	44.45927	1.76056	0.1450549	2.4189586	23	3	1993–1999	0.74	M-v	3	Williams	29618	1993 QN ₇
1993 RK	13.8	0.15	19990122	105.25214	11.32976	343.98641	12.32184	0.2665372	2.5827059	43	3	1993–1999	0.84	M-v	2	Williams	33746	1993 RK
1993 RS	14.5	0.15	19990122	352.36673	45.47087	351.61852	22.48533	0.0477933	1.8834952	28	2	1993–1998	0.74	M-v	4	Spahr	33485	1993 RS
1993 RH ₂	14.3	0.15	19990122	124.11528	349.15256	3.39421	14.11646	0.2013551	2.5313492	41	5	1985–1999	0.85	M-v	3	Williams	30897	1993 RH ₂
1993 RK ₄	15.0	0.15	19990122	326.64160	235.40643	306.41586	1.79748	0.1202934	2.4357436	43	4	1993–1999	0.75	M-v	2	Williams	31007	1993 RK ₄
1993 RQ ₄	13.7	0.15	19990122	36.28795	191.21700	221.95803	2.50620	0.1424329	2.6932019	41	3	1993–1999	0.68	M-v	3	Spahr	33746	1993 RQ ₄
1993 RB ₇	14.5	0.15	19990122	213.90458	123.82248	190.69557	5.64057	0.1289018	2.3446006	35	5	1992–1999	0.72	M-v	1	Williams	30471	1993 RB ₇
1993 RO ₇	15.1	0.15	19990122	40.35361	69.38209	10.06439	3.64143	0.1801811	2.6064136	32	3	1993–1999	0.62	M-v	3	Williams	30898	1993 RO ₇
1993 RM ₁₄	13.5	0.15	19990122	5.20397	192.71865	192.56250	1.59932	0.1054127	2.9362375	61	4	1991–1998	0.79	M-v	3	Williams	33549	1993 RM ₁₄
1993 RS ₁₄	15.3	0.15	19990122	240.41098	107.67417	177.23613	1.78863	0.2139696	2.3157773	18	4	1992–1999	0.80	M-v	2	Williams	32516	1993 RS ₁₄
1993 SO	14.9	0.15	19990122	164.13964	176.04546	168.19167	8.27510	0.0947078	2.3729124	27	3	1993–1999	0.78	M-v	4	Williams	31139	1993 SO
1993 SG ₁	13.9	0.15	19990122	108.65574	175.42889	174.75267	13.86486	0.2921218	2.5826281	48	4	1989–1999	0.67	M-v	2	Williams	33747	1993 SG ₁
1993 SA ₂	14.5	0.15	19990122	152.37175	14.09999	333.04105	9.60949	0.2160744	2.4374126	26	2	1993–1999	0.70	M-v	5	Williams	33686	1993 SA ₂
1993 SN ₃	12.7	0.15	19990122	319.01231	226.13618	175.20954	0.93714	0.1630742	3.1966607	33	4	1976–1998	0.78	M-v	1	Williams	32746	1993 SN ₃
1993 SS ₄	15.9	0.15	19990122	80.56086	42.50087	357.44707	1.75858	0.2246353	2.5506589	33	4	1989–1999	0.63	M-v	3	Spahr	33747	1993 SS ₄
1993 SA ₆	13.3	0.15	19990122	266.93701	323.06973	151.81708	1.80358	0.1334035	3.0635069	20	3	1988–1996	1.05	M-v	4	Williams	29137	1993 SA ₆
1993 SO ₁₄	15.8	0.15	19990122	225.46889	85.85307	177.35440	2.75179	0.2207272	2.4175288	16	3	1992–1996	0.72	M-v	4	Williams	30900	1993 SO ₁₄
1993 TL ₁₃	14.1	0.15	19990122	206.62688	247.05543	48.28981	9.16373	0.1933552	2.4290419	47	4	1993–1999	0.61	M-v	1	Williams	31139	1993 TL ₁₃
1993 TO ₁₇	14.8	0.15	19990122	50.48736	33.87901	31.04879	3.49540	0.0722973	2.6100887	19	2	1993–1999	0.70	M-v	5	Williams	33686	1993 TO ₁₇
1993 TG ₁₉	14.5	0.15	19990122	236.60205	219.65330	49.72066	4.26690	0.1885855	2.4097972	22	4	1981–1999	0.90	M-v	2	Williams	32934	1993 TG ₁₉
1993 TU ₂₄	13.1	0.15	19990122	248.24442	183.10762	51.71277	7.03850	0.0564886	2.5511046	31	4	1983–1999	0.76	M-v	2	Williams	33747	1993 TU ₂₄
1993 TN ₂₉	16.2	0.15	19990122	183.76252	195.51821	125.33503	3.24765	0.2172035	2.4283760	27	5	1989–1999	0.73	M-v	1	Williams	31276	1993 TN ₂₉
1993 TG ₃₁	14.5	0.15	19990122	274.99191	171.01528	69.48860	3.79311	0.1434875	2.4307227	36	3	1993–1999	0.67	M-v	4	Williams	33747	1993 TG ₃₁
1993 TH ₃₂	13.9	0.15	19990122	259.25123	120.73316	142.15048	2.70046	0.1843419	2.3845802	63	5	1988–1999	0.69	M-v	2	Williams	31419	1993 TH ₃₂
1993 TL ₃₂	14.5	0.15	19990122	87.57534	250.57273	114.91755	2.67107	0.0895025	2.6874642	25	3	1993–1999	0.84	M-v	4	Spahr	33747	1993 TL ₃₂
1993 TQ ₃₆	13.6	0.15	19990122	27.86205	328.22222	66.33457	10.50645	0.1378330	2.7979927	36	2	1993–1999	0.67	M-v	3	Williams	33747	1993 TQ ₃₆
1993 TS ₃₆	13.1	0.15	19990122	62.65806	357.80048	65.56505	14.21350	0.2296926	2.5878141	24	3	1989–1999	0.74	M-v	2	Williams	30452	1993 TS ₃₆
1993 TU ₃₆	13.1	0.15	19990122	169.60577	242.15669	94.55625	10.47766	0.1741537	2.4236083	39	5	1988–1999	0.43	M-v	2	Williams	31419	1993 TU ₃₆
1993 TP ₃₈	13.5	0.15	19990122	164.44911	20.74436	191.10105	18.48893	0.0491636	3.1115072	41	4	1991–1998	0.71	M-v	1	Williams	33072	1993 TP ₃₈
1993 TY ₃₈	13.9	0.15	19990122	53.45748	270.44335	161.94294	7.78353	0.1471880	2.6224327	37	3	1978–1999	0.57	M-v	3	Williams	33747	1993 TY ₃₈
1993 TZ ₃₈	14.4	0.15	19990122	218.30228	149.36544	144.95263	6.85951	0.1257283	2.4373282	29	2	1993–1999	0.69	M-v	5	Williams	33686	1993 TZ ₃₈
1993 TB ₃₉	13.9	0.15	19990122	346.67444	2.40430	144.59116	6.28148	0.1235012	2.6026516	31	3	1993–1999	0.69	M-v	4	Williams	33747	1993 TB ₃₉
1993 UE	13.7	0.15	19990122	160.31411	225.34453	117.25076	13.31105	0.2098143	2.4301350	32	4	1989–1999	0.71	M-v	3	Williams	30981	1993 UE
1993 UK	12.8	0.15	19990122	83.01849	255.01715	80.70754	3.32529	0.0669875	2.8533086	42	2	1993–1999	0.73	M-v	5	Williams	33550	1993 UK
1993 US	14.6	0.15	19990122	108.74064	169.36510	166.71135	1.85904	0.0942067	2.6884041	56	6	1953–1998	0.79	M-v	1	Williams	33550	1993 US
1993 UV	14.4	0.15	19990122	70.52661	191.97172	217.85066	13.56028	0.2375496	2.6768567	42	3	1993–1999	0.61	M-v	2	Williams	31007	1993 UV
1993 UJ ₁	14.7	0.15	19990122	343.20633	244.81900	207.56803	20.77858	0.0845893	1.8539871	54	3	1992–1999	0.84	M-v	3	Williams	33550	1993 UJ ₁
1993 UC ₃	14.2	0.15	19990122	70.21826	90.97480	318.40896	1.20831	0.2154467	2.6644619	51	3	1980–1999	0.72	M-v	4	Williams	33687	1993 UC ₃
1993 UT ₆	13.4	0.15	19990122	2.56150	307.18783	178.91296	11.13226	0.1772213	2.6602397	38	4	1982–1999	0.76	M-v	2	Williams	33747	1993 UT ₆
1993 UM ₈	14.3	0.15	19990122	50.74371	259.36468	185.55164	14.80183	0.1033949	2.5925113	34	5	1972–1999	0.73	M-v	1	Williams	30873	1993 UM ₈
1993 VT	14.6	0.15	19990122	136.46404	268.50223	64.05785	12.11034	0.2146407	2.6392760	32	4	1993–1999	0.82	M-v	2	Williams	31007	1993 VT
1993 VA ₂	12.6	0.15	19990122	60.16195	289.86482	41.35124	11.09658	0.0945426	3.0534269	36	3	1993–1998	0.62	M-v	3	Spahr	33486	1993 VA ₂
1993 VA ₃	12.1	0.15	19990122	57.78517	283.46339	54.11742	10.39256	0.1261248	3.0182399	47	3	1993–1999	0.69	M-v	3	Spahr	33747	1993 VA ₃
1993 VV ₇	13.7	0.15	19990122	49.60215	301.06591	110.48976	33.51902	0.3340078	2.7381703	48	3	1993–1999	0.60	M-v	2	Williams	33747	1993 VV ₇
1993 XG	12.8	0.15	19990122	49.26189	295.04821	98.38111	13.82456	0.1235867	2.8675464	36	3	1993–1999	0.50	M-v	3	Spahr	33747	1993 XG
1993 XJ ₁	13.3	0.15	19990122	57.02431	334.12198	81.26195	6.97939	0.1069776	2.7536481	26	2	1993–1999	0.62	M-v	4	Williams	33747	1993 XJ ₁

1993 XN ₁	12.5	0.15	19990122	267.20426	181.79861	95.03017	16.46311	0.1500980	2.5859008	47	5	1991–1999	0.75	M-v	2	Williams	31419	1993 XN ₁
1994 AB ₁	16.3	0.15	19990122	32.40966	342.35456	67.11219	4.52294	0.5901232	2.8486950	55	3	1993–1999	0.51	M-v	2	Williams	33747	1994 AB ₁
1994 AT ₁	12.3	0.15	19990122	135.33384	328.70235	55.84012	13.72936	0.2243084	2.6540440	33	4	1991–1999	0.52	M-v	2	Williams	31788	1994 AT ₁
1994 AT ₂	13.9	0.15	19990122	155.01119	107.01994	253.28393	4.76426	0.0733659	2.7349584	32	4	1990–1999	0.85	M-v	2	Williams	31105	1994 AT ₂
1994 AC ₃	13.9	0.15	19990122	321.23839	82.76547	31.23270	0.57948	0.1189387	3.2239617	46	3	1977–1999	0.68	M-v	3	Williams	33747	1994 AC ₃
1994 AF ₃	13.2	0.15	19990122	9.54383	155.73951	284.77078	11.48252	0.1847001	3.0519961	27	3	1989–1999	0.69	M-v	3	Spahr	33687	1994 AF ₃
1994 AP ₇	14.3	0.15	19990122	106.59969	266.63216	110.23289	3.65321	0.0685956	2.8551605	28	3	1994–1999	0.82	M-v	5	Williams	30981	1994 AP ₇
1994 AN ₉	12.8	0.15	19990122	14.17142	325.84323	113.12599	25.42698	0.0717536	3.0486319	24	2	1994–1999	0.68	M-v	3	Spahr	33687	1994 AN ₉
1994 AL ₁₆	13.0	0.15	19990122	356.58406	282.84720	180.28537	9.81881	0.0623546	3.0570182	28	3	1989–1999	0.63	M-v	4	Williams	33747	1994 AL ₁₆
1994 BM ₄	13.5	0.15	19990122	35.83483	212.64745	257.01817	6.86812	0.1855774	2.8024221	15	5	1975–1999	0.97	M-v	3	Williams	23243	1994 BM ₄
1994 CM ₁	15.2	0.15	19990122	336.85502	329.00802	190.45072	3.10535	0.1557277	2.9614263	23	2	1994–1999	0.64	M-v	5	Williams	33688	1994 CM ₁
1994 CV ₁₆	13.6	0.15	19990122	303.75621	106.04941	107.86437	3.11370	0.0158294	2.9160405	31	7	1989–1999	0.63	M-v	1	Williams	31140	1994 CV ₁₆
1994 GT	12.9	0.15	19990122	342.19948	111.01786	71.56208	3.42434	0.1771836	3.0333739	23	4	1983–1999	0.83	M-v	2	Williams	31140	1994 GT
1994 NQ	13.8	0.15	19990122	62.08740	238.02470	104.23344	24.08706	0.2774029	2.3585450	20	2	1994–1999	0.74	M-v	4	Williams	33747	1994 NQ
1994 PU	14.9	0.15	19990122	81.91752	66.59311	330.97998	3.56661	0.1328382	2.2024061	49	4	1955–1999	0.70	M-v	2	Williams	33747	1994 PU
1994 PB ₁	15.1	0.15	19990122	63.46818	238.18368	155.85580	3.71774	0.1339597	2.2442160	35	2	1994–1999	0.75	M-v	5	Spahr	33688	1994 PB ₁
1994 PM ₁	15.1	0.15	19990122	282.14969	83.10207	124.05662	24.75796	0.0607412	1.9461450	46	2	1994–1999	0.61	M-v	3	Williams	33688	1994 PM ₁
1994 PA ₂	14.8	0.15	19990122	95.65962	8.53849	356.98318	3.77567	0.1872018	2.2258855	27	5	1981–1999	0.90	M-v	2	Williams	33340	1994 PA ₂
1994 PD ₈	15.3	0.15	19990122	27.13864	55.51757	330.12510	5.30665	0.1326490	2.3970726	25	3	1994–1998	0.67	M-v	4	Spahr	33688	1994 PD ₈
1994 PL ₁₃	15.5	0.15	19990122	304.97301	203.33985	325.46644	6.27621	0.0147256	2.1654423	29	3	1991–1999	0.87	M-v	4	Spahr	33747	1994 PL ₁₃
1994 PX ₁₅	15.5	0.15	19990122	11.74227	302.60193	159.52759	2.21180	0.1287753	2.2076686	37	2	1994–1999	0.59	M-v	4	Spahr	33689	1994 PX ₁₅
1994 PM ₂₅	15.4	0.15	19990122	1.16438	291.82818	137.48302	2.85645	0.1258697	2.3387944	31	3	1994–1998	0.83	M-v	3	Spahr	33340	1994 PM ₂₅
1994 PE ₃₃	13.9	0.15	19990122	257.83196	253.71879	293.43142	3.94859	0.0861147	2.2479451	46	3	1994–1999	0.78	M-v	4	Williams	33748	1994 PE ₃₃
1994 QA	13.3	0.15	19990122	256.93843	121.66217	69.42775	25.12464	0.2242919	2.3309325	35	4	1950–1999	0.76	M-v	3	Williams	33551	1994 QA
1994 RP ₁₁	15.4	0.15	19990122	60.56386	108.42439	251.80534	5.73527	0.1461303	2.3869940	24	2	1994–1999	0.72	M-v	4	Williams	33551	1994 RP ₁₁
1994 RW ₁₁	14.6	0.15	19990122	105.37891	94.88911	211.36859	4.59483	0.2118038	2.3640430	23	3	1994–1998	0.70	M-v	4	Spahr	33244	1994 RW ₁₁
1994 SV ₉	14.5	0.15	19990122	333.27821	118.23368	17.68161	5.07598	0.1155021	2.2855650	24	3	1994–1999	0.60	M-v	4	Williams	33748	1994 SV ₉
1994 TJ	14.9	0.15	19990122	57.63871	0.88901	345.65153	5.60611	0.0936399	2.4799409	37	2	1994–1998	0.65	M-v	4	Spahr	33551	1994 TJ
1994 TT	14.5	0.15	19990122	12.91919	33.02607	358.36981	5.94640	0.2336695	2.5453800	56	3	1990–1998	0.70	M-v	3	Williams	33551	1994 TT
1994 TA ₃	14.3	0.15	19990122	97.52280	354.40498	9.23984	5.45789	0.2097404	2.2900533	31	4	1982–1999	0.85	M-v	3	Williams	33748	1994 TA ₃
1994 TB ₃	13.7	0.15	19990122	6.25753	12.42000	14.62394	14.60087	0.1506202	2.6010887	32	2	1994–1998	0.77	M-v	3	Williams	33551	1994 TB ₃
1994 TR ₃	14.2	0.15	19990122	61.37150	301.48662	78.75444	3.22394	0.2265864	2.3867459	25	3	1992–1999	0.54	M-v	4	Spahr	33748	1994 TR ₃
1994 UD	14.4	0.15	19990122	59.97708	327.32451	76.28369	6.05557	0.2254275	2.3330281	50	3	1994–1999	0.59	M-v	2	Williams	33748	1994 UD
1994 UJ	14.7	0.15	19990122	124.94524	288.90302	70.21304	3.86997	0.1832916	2.2561840	23	3	1987–1999	0.73	M-v	4	Williams	29663	1994 UJ
1994 UZ	14.9	0.15	19990122	55.98150	52.03805	342.97658	1.94407	0.2097928	2.3767929	55	4	1954–1999	0.56	M-v	2	Williams	33748	1994 UZ
1994 UC ₁	13.5	0.15	19990122	140.61885	248.42381	35.08127	1.61116	0.1141713	2.4557472	72	4	1977–1999	0.80	M-v	2	Williams	33551	1994 UC ₁
1994 UO ₁	14.8	0.15	19990122	130.40095	172.71055	204.61723	1.59073	0.1566846	2.1727145	23	6	1978–1999	0.73	M-v	2	Williams	30783	1994 UO ₁
1994 UU ₁	14.6	0.15	19990122	138.75020	279.63051	37.28946	5.02570	0.2026021	2.2543322	23	2	1994–1999	0.72	M-v	5	Spahr	33748	1994 UU ₁
1994 UX ₁	14.4	0.15	19990122	77.07712	325.84664	67.71906	3.46182	0.2192642	2.3107516	54	2	1994–1999	0.68	M-v	3	Williams	33689	1994 UX ₁
1994 UC ₂	14.9	0.15	19990122	68.36733	172.00395	246.86900	5.06195	0.1857177	2.2926513	20	4	1994–1999	0.71	M-v	2	Williams	30689	1994 UC ₂
1994 UD ₂	14.8	0.15	19990122	87.36832	332.06207	37.58901	5.91118	0.2420654	2.3358415	20	2	1994–1999	0.81	M-v	4	Williams	33690	1994 UD ₂
1994 US ₂	14.0	0.15	19990122	10.78544	18.57172	56.03526	3.11014	0.1517112	2.4687421	27	3	1986–1999	0.77	M-v	3	Williams	33489	1994 US ₂
1994 UR ₆	14.8	0.15	19990122	319.65156	262.27398	285.62557	2.30850	0.1532561	2.2026061	44	3	1989–1999	0.71	M-v	3	Williams	33748	1994 UR ₆
1994 UP ₁₁	13.8	0.15	19990122	95.53543	314.02548	80.25268	3.36877	0.1755639	2.2456286	39	7	1957–1999	0.75	M-v	2	Williams	28888	1994 UP ₁₁
1994 VD ₁	14.8	0.15	19990122	34.66404	34.24911	68.29393	7.65966	0.0803786	2.2807313	31	4	1994–1999	0.46	M-v	1	Williams	33748	1994 VD ₁
1994 VQ ₁	15.0	0.15	19990122	2.14942	185.49904	247.56273	4.60451	0.2269997	2.5507907	37	2	1994–1999	0.65	M-v	4	Spahr	33748	1994 VQ ₁
1994 VB ₂	13.8	0.15	19990122	54.89137	204.13217	198.17710	4.62198	0.2761397	2.3796401	36	3	1994–1999	0.56	M-v	3	Williams	33552	1994 VB ₂
1994 VE ₂	15.4	0.15	19990122	51.71947	19.00107	31.31097	5.33034	0.1763853	2.3677029	29	2	1994–1999	0.79	M-v	4	Williams	33690	1994 VE ₂
1994 VB ₃	14.4	0.15	19990122	112.09660	161.03439	191.08964	3.98301	0.2277695	2.3096886	15	4	1980–1999	0.73	M-v	2	Williams	33748	1994 VB ₃
1994 VE ₄	15.7	0.15	19990122	354.39982	189.61961	234.85981	7.27727	0.1441351	2.5358591	25	2	1994–1999	0.57	M-v	4	Spahr	33748	1994 VE ₄
1994 VB ₇	14.4	0.15	19990122	43.39162	196.61836	223.42757	2.81429	0.1557009	2.3933906	34	4	1990–1999	0.68	M-v	2	Williams	33748	1994 VB ₇
1994 WJ	14.9	0.15	19990122	39.96806	316.89809	53.56210	5.62827	0.2857408	2.5484430	54	2	1994–1999	0.64	M-v	4	Williams	33748	1994 WJ
1994 WF ₂	12.5	0.15	19990122	32.78564	290.51612	87.44743	13.99523	0.1976094	2.5883170	27	2	1994–1999	0.70	M-v	4	Williams	33690	1994 WF ₂

1994 WL ₃	14.3	0.15	19990122	3.82301	299.49476	139.54303	4.30311	0.1498190	2.5162072	18	3	1994–1999	0.63	M-v	4	Spahr	33748	1994 WL ₃
1994 WP ₃	14.4	0.15	19990122	89.90921	261.03269	96.08638	9.05969	0.2575015	2.3659273	44	3	1994–1999	0.58	M-v	2	Williams	33748	1994 WP ₃
1994 WR ₃	12.5	0.15	19990122	12.23276	338.82222	78.69958	14.86159	0.1584785	2.5834688	50	2	1994–1999	0.81	M-v	3	Williams	33748	1994 WR ₃
1994 WW ₇	15.4	0.15	19990122	305.22300	27.53798	162.20626	6.09067	0.1122421	2.3114760	22	4	1990–1999	0.71	M-v	2	Williams	33748	1994 WW ₇
1994 WJ ₁₂	13.5	0.15	19990122	35.89581	121.54748	271.55958	9.03908	0.2276492	2.5353554	48	2	1994–1999	0.81	M-v	4	Williams	33748	1994 WJ ₁₂
1994 XJ	13.8	0.15	19990122	346.38941	100.94175	64.89719	6.97437	0.0589940	2.3305177	26	4	1988–1999	0.76	M-v	2	Williams	33552	1994 XJ
1994 XP	13.7	0.15	19990122	37.78727	156.41090	225.62358	7.28624	0.2088848	2.5575418	82	2	1994–1999	0.70	M-v	3	Williams	33748	1994 XP
1994 XF ₁	13.8	0.15	19990122	300.49904	111.95973	82.86201	8.45073	0.1582464	2.4682364	27	2	1994–1999	0.67	M-v	4	Williams	33690	1994 XF ₁
1994 YN ₁	14.8	0.15	19990122	103.56082	299.71840	74.20859	3.73358	0.1825515	2.4033781	30	6	1975–1999	0.91	M-v	2	Williams	30689	1994 YN ₁
1994 YT ₁	14.8	0.15	19990122	62.14850	8.94727	52.69234	2.71740	0.1107391	2.4288558	25	4	1993–1999	0.57	M-v	2	Williams	30982	1994 YT ₁
1995 AZ	13.9	0.15	19990122	289.96151	327.89702	262.59030	0.71952	0.1234634	2.4403189	26	3	1988–1999	0.43	M-v	5	Williams	33749	1995 AZ
1995 AD ₁	14.9	0.15	19990122	12.31835	177.30577	281.39904	19.00603	0.2048586	2.5252992	30	2	1994–1999	0.79	M-v	4	Spahr	33691	1995 AD ₁
1995 AK ₁	13.5	0.15	19990122	6.52014	338.06992	81.66617	9.73088	0.3128571	2.6586865	29	3	1989–1999	0.68	M-v	2	Williams	33691	1995 AK ₁
1995 AV ₂	14.6	0.15	19990122	357.63391	79.35073	54.67486	4.19916	0.1548163	2.4737259	49	4	1968–1999	0.78	M-v	2	Williams	33749	1995 AV ₂
1995 AZ ₃	13.8	0.15	19990122	196.00227	321.72354	322.02503	4.98824	0.0639333	2.4561637	30	4	1976–1999	0.86	M-v	3	Williams	33749	1995 AZ ₃
1995 BA	14.8	0.15	19990122	11.36365	57.41648	68.82587	1.74797	0.1664263	2.4256394	35	3	1995–1999	0.55	M-v	2	Williams	33552	1995 BA
1995 BY	13.4	0.15	19990122	11.94711	0.60024	35.96781	2.61202	0.0820669	2.9266037	84	3	1995–1998	0.65	M-v	4	Williams	33552	1995 BY
1995 BC ₁	14.8	0.15	19990122	14.82444	131.58808	319.27906	15.82415	0.1385417	2.5910970	55	3	1981–1999	0.62	M-v	3	Williams	33691	1995 BC ₁
1995 BO ₁	13.6	0.15	19990122	26.20142	277.38911	256.42212	3.61328	0.0783239	2.2471411	40	6	1980–1999	0.66	M-v	1	Williams	31140	1995 BO ₁
1995 BP ₁	13.8	0.15	19990122	61.42061	306.49959	89.49436	13.50060	0.2565073	2.6304709	37	3	1989–1999	0.70	M-v	3	Williams	33749	1995 BP ₁
1995 BV ₁	13.6	0.15	19990122	272.77608	237.65609	331.06775	10.84185	0.1387144	2.6684288	23	2	1995–1999	0.64	M-v	4	Spahr	33692	1995 BV ₁
1995 BZ ₁	15.2	0.15	19990122	80.63381	320.73348	88.30970	4.99249	0.1806262	2.4072052	43	5	1990–1999	0.59	M-v	2	Williams	28087	1995 BZ ₁
1995 BU ₂	12.8	0.15	19990122	234.50567	311.02151	299.34450	14.10271	0.0968806	2.5769839	51	3	1995–1999	0.59	M-v	2	Marsden	33749	1995 BU ₂
1995 BP ₃	14.6	0.15	19990122	284.06254	71.43231	149.98082	11.64529	0.1223972	2.5584005	34	4	1988–1999	0.70	M-v	2	Williams	33749	1995 BP ₃
1995 BL ₄	13.8	0.15	19990122	34.10153	121.24038	313.93199	12.23158	0.1700198	2.5769253	36	3	1991–1999	0.66	M-v	3	Williams	33749	1995 BL ₄
1995 CB ₁	14.7	0.15	19990122	113.30386	279.56416	103.50861	7.14975	0.1599832	2.4189959	34	5	1991–1999	0.66	M-v	2	Williams	31008	1995 CB ₁
1995 CF ₁	14.1	0.15	19990122	2.84755	8.43954	104.53013	8.36913	0.1887785	2.5334282	43	3	1990–1999	0.71	M-v	3	Williams	33692	1995 CF ₁
1995 CL ₁	13.8	0.15	19990122	304.42106	52.97967	132.67178	13.41881	0.1511269	2.6338747	28	3	1982–1999	0.62	M-v	4	Marsden	33749	1995 CL ₁
1995 CE ₂	12.8	0.15	19990122	237.13561	330.47487	291.15560	28.51725	0.0408606	2.6085763	25	4	1989–1998	0.59	M-v	1	Williams	33553	1995 CE ₂
1995 DC	14.7	0.15	19990122	308.59318	194.74776	12.00607	5.33908	0.2369438	2.5900034	45	4	1991–1999	0.66	M-v	3	Williams	33749	1995 DC
1995 DD	12.7	0.15	19990122	174.64397	321.31235	357.80205	13.07877	0.1766966	2.6663823	39	4	1988–1999	0.46	M-v	2	Williams	33553	1995 DD
1995 DE	13.4	0.15	19990122	181.35032	174.06594	151.36989	15.68418	0.1308921	2.5847520	30	4	1988–1999	0.69	M-v	2	Williams	33749	1995 DE
1995 DH	13.8	0.15	19990122	51.72681	250.54668	155.48627	28.17237	0.2439054	2.6683397	27	4	1993–1999	0.74	M-v	2	Williams	33749	1995 DH
1995 DX	14.9	0.15	19990122	283.44269	73.87923	141.56047	12.13188	0.1494480	2.6620810	25	3	1995–1999	0.60	M-v	3	Williams	33749	1995 DX
1995 DY	13.9	0.15	19990122	246.35798	82.31636	194.21476	2.29577	0.1407556	2.5536005	20	3	1995–1999	0.82	M-v	5	Williams	31106	1995 DY
1995 DN ₁	12.8	0.15	19990122	130.50437	262.57024	24.51049	7.10215	0.1061783	3.1416081	15	2	1995–1998	0.52	M-v	4	Spahr	33491	1995 DN ₁
1995 DS ₁	13.9	0.15	19990122	320.46852	19.99714	162.18011	5.83912	0.1196589	2.6575764	27	2	1995–1999	0.55	M-v	5	Williams	33692	1995 DS ₁
1995 DP ₂	15.3	0.15	19990122	338.00931	143.12840	20.68602	4.70574	0.1707312	2.5961727	31	3	1991–1999	0.65	M-v	4	Williams	30292	1995 DP ₂
1995 DZ ₃	12.5	0.15	19990122	58.19553	13.89517	321.31719	16.92412	0.2682860	3.0998403	29	3	1992–1999	0.62	M-v	4	Spahr	33749	1995 DZ ₃
1995 DE ₈	15.3	0.15	19990122	357.43969	341.18519	156.69401	8.31356	0.0670641	2.6061256	22	3	1995–1999	0.57	M-v	4	Williams	30983	1995 DE ₈
1995 DF ₈	16.0	0.15	19990122	89.29639	257.87440	154.61240	3.23531	0.1329728	2.5197606	23	3	1995–1999	0.36	M-v	4	Williams	31008	1995 DF ₈
1995 EA ₈	14.4	0.15	19990122	329.45340	283.95343	163.16636	0.65058	0.2033712	2.9959726	46	3	1995–1998	0.58	M-v	4	Williams	33342	1995 EA ₈
1995 EZ ₈	14.3	0.15	19990122	335.54789	64.70949	166.66018	2.54635	0.1651469	2.3833408	20	5	1988–1999	0.87	M-v	2	Williams	29138	1995 EZ ₈
1995 EA ₉	13.6	0.15	19990122	229.53569	276.04598	349.43424	9.40984	0.1433053	2.7570922	11	2	1995–1999	0.64	M-v	5	Williams	33692	1995 EA ₉
1995 FD	14.9	0.15	19990122	334.01641	169.64147	8.65076	3.56064	0.1436361	2.6090079	53	3	1995–1999	0.70	M-v	3	Williams	30875	1995 FD
1995 FM	13.7	0.15	19990122	273.04057	62.14098	177.96869	14.48801	0.0957679	2.6470248	28	2	1995–1999	0.67	M-v	4	Williams	33692	1995 FM
1995 FN	14.1	0.15	19990122	295.74549	214.42820	13.30470	13.38400	0.1978751	2.6195014	31	3	1995–1999	0.69	M-v	3	Williams	33491	1995 FN
1995 FQ	13.7	0.15	19990122	206.25052	44.87858	267.32049	13.23964	0.1150874	2.7333750	29	4	1995–1999	0.59	M-v	1	Williams	31008	1995 FQ
1995 FZ ₃	13.6	0.15	19990122	177.04527	152.46899	153.81504	6.03485	0.0786766	2.7301050	31	3	1986–1999	0.54	M-v	4	Williams	33692	1995 FZ ₃
1995 FQ ₄	13.8	0.15	19990122	194.77026	262.34269	61.76067	2.43213	0.0861677	2.5365111	36	3	1995–1999	0.66	M-v	4	Williams	31106	1995 FQ ₄
1995 FA ₈	13.8	0.15	19990122	358.59359	288.00637	136.42430	7.58582	0.0764963	3.1627587	16	2	1995–1998	0.34	M-v	5	Spahr	33248	1995 FA ₈
1995 FM ₈	14.3	0.15	19990122	304.87853	39.66280	141.05586	6.04729	0.0328971	2.7571630	23	2	1995–1999	0.57	M-v	5	Williams	33693	1995 FM ₈
1995 FP ₁₄	14.6	0.15	19990122	104.51129	277.63195	84.09807	3.72640	0.0876559	2.9356010	27	3	1995–1999	0.51	M-v	3	Williams	30901	1995 FP ₁₄

1995 GN	15.6	0.15	19950413	261.62988	203.77371	79.43682	3.53469	0.1276324	2.1895097	11	1	23 days	0.45		Nakano	1995 GN
1995 GV ₂	14.3	0.15	19990122	84.63274	267.19205	140.18713	4.85978	0.0362349	2.7548921	37	5	1991–1999	0.74	M-v 2	Williams	33749 1995 GV ₂
1995 GS ₅	15.4	0.15	19990122	21.06082	333.56740	140.41085	3.16716	0.1554931	2.6366273	30	2	1995–1999	0.52	M-v 5	Williams	33693 1995 GS ₅
1995 GJ ₇	13.1	0.15	19990122	296.58492	200.78260	15.79884	9.20872	0.1564154	2.6594007	41	6	1982–1999	0.82	M-v 1	Williams	33750 1995 GJ ₇
1995 GA ₈	15.5	0.15	19990122	330.64094	160.38042	13.75939	4.13355	0.2255441	2.6476141	35	3	1995–1999	0.50	M-v 5	Williams	33750 1995 GA ₈
1995 MC	12.1	0.15	19990122	191.75374	13.43164	303.14452	20.18390	0.2848012	3.0946539	28	5	1990–1999	0.84	M-v 1	Williams	28318 1995 MC
1995 OV	13.1	0.15	19990122	292.01948	297.09385	346.45691	7.75040	0.2477312	2.7258647	24	5	1994–1999	0.68	M-v 2	Williams	31277 1995 OV
1995 OX	14.5	0.15	19990122	283.76406	299.36779	284.81429	20.31757	0.3259979	3.1371697	39	3	1995–1999	0.33	M-v 3	Williams	33750 1995 OX
1995 SX ₄₈	14.6	0.15	19990122	240.98746	308.44389	299.43999	21.99153	0.0227558	1.8439749	42	2	1995–1999	0.77	M-v 4	Williams	33750 1995 SX ₄₈
1995 US ₄	14.6	0.15	19990122	53.46640	259.15219	57.25752	6.27320	0.2030210	2.2610263	24	3	1978–1998	0.60	M-v 4	Spahr	33553 1995 US ₄
1995 VW ₁	14.2	0.15	19990122	314.15375	188.81083	273.42509	7.99917	0.1476648	2.3530662	49	3	1989–1998	0.68	M-v 2	Williams	33553 1995 VW ₁
1995 WU ₅	15.5	0.15	19990122	121.32448	318.58209	320.99714	1.68145	0.0178561	2.2651305	19	2	1995–1998	0.60	M-v 6	Spahr	33250 1995 WU ₅
1995 WT ₈	15.4	0.15	19990122	106.59863	31.21053	248.28496	4.70628	0.1628150	2.2343658	26	3	1978–1998	0.66	M-v 5	Spahr	33250 1995 WT ₈
1995 WA ₄₂	15.2	0.15	19990122	313.37300	213.63154	207.10691	4.39007	0.0594281	2.3358440	21	3	1995–1998	0.68	M-v 5	Spahr	33693 1995 WA ₄₂
1995 WL ₄₂	14.5	0.15	19990122	182.32046	45.57891	137.23255	1.06570	0.1217843	2.9017520	18	2	1995–1998	0.58	M-v 5	Williams	32671 1995 WL ₄₂
1995 YK ₂₀	14.7	0.15	19990122	92.52934	352.50292	283.28558	5.55912	0.0711166	2.7093327	19	2	1995–1998	0.54	M-v 5	Spahr	33251 1995 YK ₂₀
1996 AY ₃	11.8	0.15	19990122	258.18093	258.42112	138.27363	17.66760	0.2691911	3.1764437	57	3	1996–1998	0.59	M-v 3	Williams	32310 1996 AY ₃
1996 BA ₂	14.3	0.15	19990122	176.61069	176.79542	103.89460	7.09944	0.1107112	2.3005268	28	3	1979–1999	0.84	M-v 3	Spahr	33693 1996 BA ₂
1996 BE ₂	13.7	0.15	19990122	273.89959	86.98071	84.93521	6.37697	0.0982676	2.2579087	57	4	1986–1999	0.70	M-v 2	Williams	33750 1996 BE ₂
1996 BL ₂	14.9	0.15	19990122	37.07368	155.89544	230.23639	3.93902	0.1702744	2.2840422	60	3	1984–1999	0.76	M-v 3	Williams	33750 1996 BL ₂
1996 BU ₄	16.3	0.15	19990122	320.91171	79.49062	63.63023	3.21816	0.0996067	2.2226672	25	2	1996–1999	0.66	M-v 5	Spahr	33750 1996 BU ₄
1996 CY	15.3	0.15	19990122	307.00661	6.82337	125.34277	6.23846	0.0914976	2.2874733	34	2	1996–1999	0.61	M-v 4	Spahr	33252 1996 CY
1996 CZ ₂	14.4	0.15	19990122	254.56849	194.82521	20.52439	5.75467	0.0883910	2.3230476	28	3	1989–1999	0.80	M-v 4	Williams	33750 1996 CZ ₂
1996 CL ₇	14.8	0.15	19990122	350.85124	117.52925	338.88887	9.35574	0.1489913	2.2626067	42	2	1996–1999	0.69	M-v 3	Williams	33750 1996 CL ₇
1996 CG ₉	14.2	0.15	19990122	60.57018	167.66454	194.51230	6.87094	0.1372413	2.3047033	46	2	1996–1999	0.73	M-v 4	Williams	33750 1996 CG ₉
1996 DZ	13.5	0.15	19990122	218.34054	140.85668	93.65889	2.12998	0.1638838	2.4375102	34	4	1985–1997	0.69	M-v 2	Williams	31009 1996 DZ
1996 DS ₁	15.7	0.15	19990122	334.06254	328.99703	153.50152	5.46646	0.0744073	2.2584633	32	2	1996–1999	0.72	M-v 4	Spahr	33750 1996 DS ₁
1996 DH ₂	14.1	0.15	19990122	166.22463	255.68841	5.00823	10.32417	0.1620540	2.6396663	19	3	1993–1997	0.64	M-v 3	Williams	30984 1996 DH ₂
1996 ER	15.2	0.15	19990122	196.89363	133.28212	175.36298	4.72095	0.1203914	2.1724544	58	4	1980–1999	0.57	M-v 2	Williams	33750 1996 ER
1996 EW	14.6	0.15	19990122	249.01283	2.48394	163.60233	13.69449	0.1179891	2.5514989	30	3	1988–1998	0.55	M-v 3	Williams	32949 1996 EW
1996 EB ₁	13.9	0.15	19990122	349.38567	40.16663	2.52681	3.77341	0.1014415	2.7640365	66	2	1996–1998	0.81	M-v 4	Williams	33554 1996 EB ₁
1996 EJ ₁	14.5	0.15	19990122	304.59182	105.49021	30.55625	2.48151	0.1281650	2.3999168	42	2	1996–1999	0.65	M-v 4	Williams	33750 1996 EJ ₁
1996 EK ₁	14.2	0.15	19990122	267.62450	8.21408	207.35624	2.58624	0.1254065	2.2719364	32	3	1982–1999	0.55	M-v 3	Spahr	33693 1996 EK ₁
1996 EX ₁	12.9	0.15	19990122	267.41192	259.37878	178.79646	16.12511	0.1098768	3.1656840	31	4	1980–1997	0.53	M-v 1	Williams	30689 1996 EX ₁
1996 ED ₂	14.7	0.15	19990122	358.40979	275.52624	175.14214	9.98290	0.1765559	2.3190138	35	2	1996–1999	0.65	M-v 4	Williams	33750 1996 ED ₂
1996 EH ₂	14.1	0.15	19990122	280.00566	291.62867	266.20200	4.36385	0.1387522	2.2617025	41	2	1996–1999	0.67	M-v 4	Spahr	33750 1996 EH ₂
1996 EK ₂	15.1	0.15	19990122	201.24414	119.75515	193.14724	2.91394	0.1894861	2.1706780	28	3	1980–1999	0.62	M-v 6	Williams	30668 1996 EK ₂
1996 ES ₂	13.9	0.15	19990122	99.64857	11.85700	343.56670	5.69262	0.1952729	2.2706438	20	2	1996–1999	0.56	M-v 5	Williams	33493 1996 ES ₂
1996 ED ₄	13.5	0.15	19990122	44.48854	326.83784	359.32118	10.11375	0.0721870	3.0357944	41	2	1996–1998	0.49	M-v 4	Williams	32751 1996 ED ₄
1996 EK ₁₅	15.3	0.15	19990122	189.63465	178.56684	127.95767	2.03182	0.1535882	2.1756635	18	4	1994–1999	0.42	M-v 2	Williams	31141 1996 EK ₁₅
1996 FA ₂	15.9	0.15	19990122	257.85650	261.06338	347.02681	5.63988	0.1514020	2.2152149	22	3	1996–1999	0.39	M-v 3	Williams	32951 1996 FA ₂
1996 FO ₂	15.5	0.15	19990122	300.20291	342.57442	156.13695	1.54541	0.1097942	2.3929850	24	5	1974–1998	0.50	M-v 1	Williams	33694 1996 FO ₂
1996 FG ₃	18.4	0.15	19990122	112.60101	23.76989	300.00908	1.99204	0.3496777	1.0538399	336	4	1996–1999	0.58	M-v 3	Williams	33751 1996 FG ₃
1996 FR ₃	16.7	0.15	19990122	349.82883	34.93609	28.72804	8.31367	0.7955614	2.1655729	110	1	87 days	0.59	M-v 5	Williams	27457 1996 FR ₃
1996 FJ ₅	12.8	0.15	19990122	38.51077	15.85508	12.90253	15.51351	0.1241581	2.5736512	52	4	1977–1999	0.75	M-v 3	Williams	33751 1996 FJ ₅
1996 FT ₆	14.5	0.15	19990122	155.17679	156.96983	171.89350	5.26594	0.2249366	2.2712763	27	3	1990–1999	0.62	M-v 4	Williams	33253 1996 FT ₆
1996 FJ ₉	14.3	0.15	19990122	192.45573	111.87005	182.98445	2.49752	0.0849644	2.2393803	44	3	1996–1999	0.58	M-v 4	Williams	33751 1996 FJ ₉
1996 FM ₁₆	13.4	0.15	19990122	99.42350	87.08938	211.23229	3.83477	0.0181205	3.0625853	38	3	1996–1998	0.73	M-v 3	Spahr	33493 1996 FM ₁₆
1996 GF ₁	15.0	0.15	19990122	350.98303	30.56828	118.25714	2.92239	0.0521173	2.2336862	35	2	1996–1999	0.49	M-v 4	Williams	33751 1996 GF ₁
1996 GP ₂	14.1	0.15	19990122	298.21895	75.88105	114.56116	4.99965	0.0614579	2.3663128	31	2	1996–1999	0.82	M-v 5	Williams	33751 1996 GP ₂
1996 GZ ₂	15.0	0.15	19990122	281.15575	183.47730	15.59536	2.56045	0.1789537	2.3642504	36	4	1956–1999	0.97	M-v 3	Williams	33751 1996 GZ ₂
1996 GG ₅	14.6	0.15	19990122	90.93351	305.62900	67.01504	4.48186	0.2230091	2.4246505	23	3	1995–1999	0.56	M-v 4	Williams	33751 1996 GG ₅
1996 GU ₈	13.7	0.15	19990122	117.04290	228.23921	77.62791	3.85265	0.0595588	2.7379685	68	4	1982–1999	0.79	M-v 1	Williams	33554 1996 GU ₈

1996 GS ₉	15.3	0.15	19990122	66.29036	178.45580	182.62559	3.08342	0.0953212	2.7585773	15	2	1996–1998	0.18	M-v	4	Williams	33694	1996 GS ₉
1996 GR ₁₇	14.3	0.15	19990122	111.07595	347.44277	27.67712	6.39029	0.1496787	2.3994232	20	3	1986–1999	0.81	M-v	5	Williams	28862	1996 GR ₁₇
1996 GA ₁₈	14.5	0.15	19990122	237.00003	10.67290	205.27003	7.23577	0.1426914	2.5797365	21	3	1971–1996	0.81	M-v	3	Williams	29140	1996 GA ₁₈
1996 GG ₁₈	14.1	0.15	19990122	267.86671	306.85707	213.76965	4.59917	0.0124142	2.7604136	21	2	1996–1998	0.65	M-v	5	Spahr	33253	1996 GG ₁₈
1996 GO ₁₈	15.3	0.15	19990122	181.07302	134.82422	201.37239	4.56968	0.1317767	2.2672093	22	3	1990–1997	0.54	M-v	4	Williams	30902	1996 GO ₁₈
1996 GV ₁₈	14.9	0.15	19990122	117.49946	332.33972	44.03220	7.52271	0.1204022	2.3460936	28	4	1990–1999	0.90	M-v	2	Williams	31009	1996 GV ₁₈
1996 GA ₁₉	14.6	0.15	19990122	279.22558	177.51565	48.63788	4.38383	0.0570573	2.2666824	44	4	1989–1999	0.67	M-v	1	Williams	30902	1996 GA ₁₉
1996 GD ₂₁	15.8	0.15	19990122	260.93799	87.35499	178.05000	3.31081	0.0886315	2.2143301	28	4	1990–1999	0.83	M-v	2	Williams	30902	1996 GD ₂₁
1996 HO	15.2	0.15	19990122	60.60279	298.25734	123.48014	7.88887	0.0941138	2.3761219	82	3	1996–1999	0.70	M-v	2	Williams	33751	1996 HO
1996 HQ	15.7	0.15	19990122	294.80607	147.12838	60.95239	7.21121	0.1023256	2.2927611	45	3	1996–1999	0.76	M-v	3	Williams	30902	1996 HQ
1996 HU	14.9	0.15	19990122	131.76554	192.57815	175.10990	4.96439	0.2022193	2.4318616	44	3	1996–1999	0.62	M-v	3	Williams	30902	1996 HU
1996 HC ₁	13.1	0.15	19990122	297.69609	86.61382	56.62026	13.81478	0.1128198	2.5932699	90	3	1996–1999	0.66	M-v	3	Williams	33751	1996 HC ₁
1996 HH ₁	15.7	0.15	19990122	75.43585	285.14283	130.66847	3.67536	0.1365028	2.2072646	30	4	1989–1999	0.69	M-v	1	Williams	30669	1996 HH ₁
1996 HL ₁	13.8	0.15	19990122	17.25777	259.36393	181.78280	7.53886	0.1288147	2.5305518	28	3	1971–1999	0.95	M-v	4	Spahr	33695	1996 HL ₁
1996 HP ₁	15.1	0.15	19990122	242.78651	355.46942	198.19000	11.08758	0.1200226	2.6161234	60	3	1996–1998	0.64	M-v	3	Williams	33343	1996 HP ₁
1996 HM ₂	14.1	0.15	19990122	269.51380	99.82036	48.90750	2.68470	0.1414972	2.6799220	23	2	1996–1998	0.65	M-v	5	Spahr	33254	1996 HM ₂
1996 HT ₂	14.1	0.15	19990122	201.77279	84.90490	199.08487	13.12581	0.0953622	2.4269176	34	3	1996–1999	0.92	M-v	3	Williams	33751	1996 HT ₂
1996 HQ ₉	14.1	0.15	19990122	103.24826	160.50797	218.70348	11.98953	0.2348782	2.4736452	30	3	1996–1999	0.71	M-v	4	Williams	30984	1996 HQ ₉
1996 HF ₁₁	14.4	0.15	19990122	160.62287	181.51151	79.60504	2.58451	0.1728034	2.9838068	39	3	1992–1999	0.76	M-v	3	Williams	33555	1996 HF ₁₁
1996 HP ₁₈	13.2	0.15	19990122	36.90976	329.52052	46.58811	22.76809	0.2225092	3.1428209	36	3	1992–1999	0.79	M-v	2	Williams	33494	1996 HP ₁₈
1996 HR ₁₈	14.9	0.15	19990122	182.36691	104.86107	221.65762	2.00381	0.1797279	2.3948901	24	4	1993–1999	0.82	M-v	2	Williams	30902	1996 HR ₁₈
1996 HH ₂₁	14.0	0.15	19960427	305.12984	194.61655	104.90518	2.36746	0.1953677	3.1760778	20	1	35 days	1.34			Williams		1996 HH ₂₁
1996 HM ₂₂	15.3	0.15	19990122	244.88172	228.83981	41.41672	2.75568	0.1658695	2.2773680	35	3	1996–1999	0.69	M-v	4	Williams	31241	1996 HM ₂₂
1996 HQ ₂₂	14.9	0.15	19990122	116.14295	140.50262	215.44292	4.59662	0.2092744	2.6589639	30	3	1996–1999	0.79	M-v	4	Williams	30902	1996 HQ ₂₂
1996 HS ₂₂	16.5	0.15	19990122	340.48772	85.70695	70.16500	1.46556	0.1136902	2.2874184	35	2	1996–1999	0.69	M-v	4	Williams	33751	1996 HS ₂₂
1996 HP ₂₃	13.9	0.15	19990122	46.38747	12.38349	58.31730	7.01762	0.0700157	2.4527582	40	3	1986–1999	0.71	M-v	3	Williams	33751	1996 HP ₂₃
1996 HC ₂₄	14.4	0.15	19990122	142.29004	292.02188	66.91313	6.87907	0.1035239	2.3827427	20	3	1996–1999	0.60	M-v	3	Williams	31009	1996 HC ₂₄
1996 HN ₂₄	14.6	0.15	19990122	322.34179	114.62135	73.38653	5.60555	0.1084479	2.2407383	36	2	1996–1999	0.64	M-v	4	Williams	33695	1996 HN ₂₄
1996 JE	14.8	0.15	19990122	247.52735	125.11171	61.53270	15.63153	0.0631134	2.6732690	26	2	1996–1998	0.61	M-v	4	Spahr	33495	1996 JE
1996 JN	14.5	0.15	19990122	323.32648	93.95709	90.55350	5.16183	0.0976031	2.2806083	51	2	1995–1999	0.60	M-v	3	Williams	33695	1996 JN
1996 JO	13.2	0.15	19990122	141.10452	57.87862	215.45880	7.33828	0.0431938	3.1212394	36	2	1996–1999	0.58	M-v	3	Williams	33751	1996 JO
1996 JF ₁	14.4	0.15	19990122	294.52367	297.06556	212.95523	3.55286	0.1499182	2.5383955	30	2	1996–1998	0.73	M-v	4	Spahr	33751	1996 JF ₁
1996 JF ₂	14.8	0.15	19990122	66.07749	260.07735	159.46823	13.17824	0.1511180	2.5784454	36	3	1995–1999	0.57	M-v	3	Williams	32471	1996 JF ₂
1996 JW ₂	14.4	0.15	19990122	261.34196	68.00539	164.30028	8.02975	0.0770969	2.4715186	31	5	1984–1999	0.78	M-v	1	Williams	33751	1996 JW ₂
1996 JT ₃	14.3	0.15	19990122	152.69840	167.54140	178.36185	4.93205	0.2250676	2.4530349	29	6	1978–1999	0.92	M-v	2	Williams	31142	1996 JT ₃
1996 JU ₃	15.4	0.15	19990122	323.20323	49.34056	100.27960	3.59417	0.1116995	2.3950937	20	2	1996–1999	0.69	M-v	5	Spahr	33695	1996 JU ₃
1996 JC ₅	14.7	0.15	19990122	341.48802	27.51495	115.63522	7.37677	0.0821462	2.3928436	38	2	1996–1999	0.50	M-v	4	Williams	33695	1996 JC ₅
1996 KB	13.9	0.15	19990122	231.82880	7.25817	230.42565	2.75366	0.0900408	2.5319418	27	3	1993–1999	0.73	M-v	5	Spahr	33751	1996 KB
1996 KO	14.8	0.15	19990122	186.25422	276.80340	21.41021	0.97173	0.0655663	2.5675324	42	2	1996–1999	0.66	M-v	5	Williams	33695	1996 KO
1996 KQ ₁	16.0	0.15	19990122	266.85206	74.58532	177.66574	9.56786	0.1966202	2.3323445	36	4	1992–1999	0.57	M-v	1	Williams	30902	1996 KQ ₁
1996 KX ₂	13.4	0.15	19990122	137.03762	178.11573	171.81126	12.00895	0.1306435	2.6506909	41	3	1988–1999	0.49	M-v	3	Williams	33343	1996 KX ₂
1996 LL	14.2	0.15	19990122	125.04826	177.10422	189.97355	14.38992	0.1027313	2.5907687	39	3	1996–1999	0.50	M-v	3	Williams	30876	1996 LL
1996 LV ₁	14.1	0.15	19990122	269.02298	311.15671	250.77404	12.59894	0.1096347	2.5562084	27	2	1996–1999	0.43	M-v	3	Spahr	33696	1996 LV ₁
1996 LV ₃	14.3	0.15	19990122	177.80215	240.72447	72.72950	3.8654	0.1625137	2.4574246	23	5	1978–1999	0.66	M-v	1	Williams	30876	1996 LV ₃
1996 NS	13.7	0.15	19990122	179.02934	158.36331	135.74060	9.83340	0.0937103	3.0432601	48	3	1996–1999	0.55	M-v	3	Marsden	33751	1996 NS
1996 NW	14.9	0.15	19990122	132.98601	112.16601	265.07730	2.73592	0.1029018	2.7355113	45	3	1996–1999	0.53	M-v	3	Williams	31142	1996 NW
1996 NF ₄	13.6	0.15	19990122	124.05552	74.01822	307.61874	7.93897	0.1099056	2.9637071	23	4	1982–1999	0.79	M-v	1	Williams	31142	1996 NF ₄
1996 NN ₄	14.2	0.15	19990122	114.57233	223.96963	151.19334	1.85430	0.1733588	3.2242858	32	4	1991–1999	0.89	M-v	1	Williams	31278	1996 NN ₄
1996 OQ	15.0	0.15	19990122	237.75222	359.10179	297.73716	1.68603	0.1766195	2.4394982	24	5	1980–1999	0.62	M-v	2	Williams	27722	1996 OQ
1996 OS ₂	14.4	0.15	19990122	159.68580	313.47943	33.94122	2.46557	0.0918773	2.7304761	38	4	1994–1999	0.54	M-v	1	Williams	31278	1996 OS ₂
1996 PF ₅	14.8	0.15	19990122	305.32076	273.80531	292.38397	10.58044	0.1408831	2.6257680	34	3	1996–1999	0.65	M-v	4	Williams	33751	1996 PF ₅
1996 PJ ₅	13.3	0.15	19990122	122.89057	26.27094	334.76588	11.62324	0.1240666	3.1954125	68	3	1996–1999	0.70	M-v	3	Williams	33752	1996 PJ ₅
1996 PY ₇	14.0	0.15	19990122	103.89707	281.34518	126.74526	2.91451	0.0508572	2.8390073	33	6	1949–1999	0.99	M-v	1	Williams	31278	1996 PY ₇

1996 QD	14.1	0.15	19990122	227.01243	85.10426	209.23242	11.38813	0.1704438	2.6368292	42	3	1996–1999	0.43	M-v	3	Williams	31142	1996 QD
1996 RB	13.5	0.15	19990122	178.70229	0.92284	323.19598	8.06029	0.3152581	2.8751056	27	5	1984–1999	0.79	M-v	2	Williams	31421	1996 RB
1996 RJ ₃	14.4	0.15	19990122	238.18880	297.55284	9.91200	5.48184	0.1928120	2.4141621	51	4	1985–1999	0.49	M-v	2	Marsden	31278	1996 RJ ₃
1996 RO ₅	13.9	0.15	19990122	269.46739	101.17619	155.18601	11.61493	0.1497865	2.5834931	36	2	1996–1999	0.47	M-v	4	Williams	33696	1996 RO ₅
1996 SK	17.2	0.15	19990122	193.00344	283.55319	198.19699	1.96015	0.7960698	2.4278856	89	2	1996–1997	0.65	M-v	4	Williams	30293	1996 SK
1996 SR ₇	13.7	0.15	19990122	254.92004	357.05058	282.92827	2.52985	0.1888462	2.6632519	35	4	1994–1999	0.83	M-v	2	Williams	31278	1996 SR ₇
1996 TS	13.7	0.15	19990122	257.25595	75.69555	208.15969	1.53812	0.0193513	2.8491414	35	4	1982–1999	0.51	M-v	1	Williams	28619	1996 TS
1996 TK ₂₇	18.2	0.15	19961004	354.46311	311.83471	75.90100	3.90011	0.3040932	2.6178216	21	1	9 days	0.42		D	Doppler		1996 TK ₂₇
1996 TT ₃₈	13.4	0.15	19990122	267.88378	127.24183	98.22945	2.35823	0.1501378	3.1996422	32	4	1982–1999	0.92	M-v	2	Williams	33752	1996 TT ₃₈
1996 TD ₄₀	13.5	0.15	19990122	169.77434	221.78667	117.88937	2.37968	0.1419939	3.0993704	30	2	1996–1999	0.59	M-v	5	Williams	33697	1996 TD ₄₀
1996 VS	13.7	0.15	19990122	263.58939	58.72395	193.90818	9.53204	0.0760148	3.2097789	45	3	1996–1999	0.72	M-v	4	Williams	31247	1996 VS
1996 WV ₁	12.8	0.15	19990122	81.52304	209.72013	215.04306	8.44841	0.1490167	3.9645756	24	3	1996–1999	0.49	M-v	3	Williams	31249	1996 WV ₁
1997 AP ₁₅	15.3	0.15	19990122	105.12473	271.26066	318.52601	7.25196	0.1742077	2.3835676	20	4	1979–1998	0.37	M-v	1	Spahr	33497	1997 AP ₁₅
1997 BB	16.0	0.15	19970201	66.11324	105.23630	309.39932	5.04275	0.1008105	2.3113274	35	1	23 days	0.42		D	Doppler		1997 BB
1997 CV ₂₉	7.2	0.15	19990122	351.89378	27.63045	121.23303	8.03355	0.0418381	42.0108874	30	3	1997–1999	0.31	M-v	5	Marsden	33752	1997 CV ₂₉
1997 DF	18.0	0.15	19990122	73.70265	268.40389	145.89713	18.67031	0.1466661	1.5417605	115	2	1997–1999	0.47	M-v	4	Williams	33697	1997 DF
1997 ER ₁₆	16.8	0.15	19970402	224.13858	331.21266	2.31786	0.89063	0.1916613	2.4196434	15	1	42 days	0.30		D	Doppler		1997 ER ₁₆
1997 ED ₂₇	14.3	0.15	19970221	19.11838	349.56780	145.84146	22.08782	0.0949566	3.1904269	9	1	23 days	0.12		Doppler		1997 ED ₂₇	
1997 EA ₃₁	14.6	0.15	19970402	244.94693	308.95091	0.22823	5.04349	0.0912003	2.9315272	15	1	41 days	0.30		D	Doppler		1997 EA ₃₁
1997 EV ₄₉	16.2	0.15	19970402	11.62131	253.71471	277.06885	0.53315	0.1314858	2.4338057	12	1	41 days	0.88		D	Doppler		1997 EV ₄₉
1997 EL ₅₅	13.4	0.15	19990122	273.76961	83.47099	322.68732	1.16366	0.0610800	2.8813402	15	1	62 days	0.70	M-v	7	D Williams		1997 EL ₅₅
1997 FG ₃	15.2	0.15	19970402	63.35857	296.64581	187.23695	4.29180	0.0564743	2.7138228	10	1	7 days	0.91		D	Doppler		1997 FG ₃
1997 GG ₇	15.5	0.15	19990122	63.79864	169.21511	181.50318	4.36936	0.2004483	2.3164796	34	2	1997–1999	0.61	M-v	4	Spahr	33752	1997 GG ₇
1997 GV ₇	15.3	0.15	19990122	43.67106	316.36360	48.19873	8.33773	0.1425023	2.2975934	36	2	1997–1998	0.62	M-v	4	Spahr	33697	1997 GV ₇
1997 GT ₁₄	15.6	0.15	19990122	120.53016	56.48173	215.28334	7.27778	0.1008930	2.3069500	23	2	1997–1998	0.55	M-v	4	Spahr	33258	1997 GT ₁₄
1997 GZ ₁₆	15.0	0.15	19990122	58.71530	144.93560	205.68215	7.36182	0.1723692	2.1683739	48	2	1997–1998	0.85	M-v	4	Spahr	33555	1997 GZ ₁₆
1997 GX ₂₃	14.3	0.15	19990122	87.90799	259.85984	60.45523	9.55228	0.2187242	2.4537433	78	2	1997–1998	0.60	M-v	4	Spahr	33556	1997 GX ₂₃
1997 GF ₃₁	15.8	0.15	19970422	36.99510	137.08705	16.93732	7.34768	0.0334432	2.4933935	9	1	21 days	0.24		Doppler		1997 GF ₃₁	
1997 GV ₃₅	15.5	0.15	19990122	126.47128	71.50840	211.06190	6.54922	0.1043760	2.3160304	22	2	1997–1998	0.64	M-v	4	Williams	33698	1997 GV ₃₅
1997 GZ ₃₅	16.5	0.15	19970422	340.77118	181.21151	60.62238	7.33555	0.0901074	2.3836769	20	1	31 days	0.58		D	Doppler		1997 GZ ₃₅
1997 GN ₄₀	16.0	0.15	19970422	53.49483	107.25973	50.10216	7.29159	0.0684312	2.3882723	16	1	24 days	0.62		D	Doppler		1997 GN ₄₀
1997 GO ₄₀	16.5	0.15	19970422	38.67815	102.62576	62.95830	3.74589	0.1612266	2.6050359	17	1	24 days	0.79		D	Doppler		1997 GO ₄₀
1997 GP ₄₀	15.1	0.15	19970422	229.08432	207.52432	152.84991	1.70584	0.1220323	3.0429147	20	1	28 days	0.84		D	Doppler		1997 GP ₄₀
1997 HX ₉	15.9	0.15	19990122	77.03339	280.67443	50.10898	8.70085	0.1377760	2.3552503	28	2	1997–1998	0.63	M-v	4	Spahr	33497	1997 HX ₉
1997 JR	13.8	0.15	19990122	60.04332	280.98645	58.97927	13.68165	0.2590169	2.4213857	75	2	1997–1999	0.75	M-v	4	Williams	33752	1997 JR
1997 JU ₁₅	15.8	0.15	19970512	12.35123	130.10705	85.49255	3.30132	0.1389390	2.3999033	18	1	37 days	0.72		D	Doppler		1997 JU ₁₅
1997 JY ₁₇	15.2	0.15	19970512	32.75928	26.52916	168.00956	3.41801	0.1254999	2.5307619	15	1	36 days	0.64		D	Doppler		1997 JY ₁₇
1997 KJ ₂	15.1	0.15	19990122	67.61428	263.83105	91.09774	5.76988	0.1678112	2.3503555	26	2	1997–1998	0.76	M-v	4	Spahr	33498	1997 KJ ₂
1997 LD	14.3	0.15	19990122	143.52300	179.11713	178.81804	4.92330	0.2014012	2.2640205	30	5	1973–1999	0.65	M-v	2	Williams	30788	1997 LD
1997 MZ ₂	14.6	0.15	19990122	110.47492	316.48940	346.87801	2.98373	0.0828611	2.6556865	31	3	1994–1998	0.63	M-v	4	Spahr	33345	1997 MZ ₂
1997 MA ₃	14.5	0.15	19990122	111.92311	282.01993	69.27487	5.17034	0.1745667	2.2661009	41	2	1997–1999	0.66	M-v	4	Williams	33499	1997 MA ₃
1997 MC ₃	13.6	0.15	19990122	178.66559	252.61420	337.65980	4.07620	0.0935681	2.5648847	28	3	1996–1998	0.48	M-v	4	Williams	33260	1997 MC ₃
1997 MA ₄	14.3	0.15	19990122	270.09666	138.84414	346.62504	1.38958	0.0131355	2.8560595	27	3	1993–1998	0.72	M-v	5	Spahr	33260	1997 MA ₄
1997 MW ₆	15.8	0.15	19990122	37.59694	194.84737	196.07837	11.35099	0.2502652	2.4082675	28	2	1997–1998	0.60	M-v	4	Spahr	33499	1997 MW ₆
1997 MC ₈	15.1	0.15	19990122	166.74411	39.44316	223.68563	1.30783	0.0367276	2.7028056	23	2	1997–1999	0.44	M-v	4	Williams	33499	1997 MC ₈
1997 MB ₉	12.7	0.15	19990122	28.73691	87.68622	302.01885	21.58218	0.1089997	3.1981637	37	4	1986–1999	0.73	M-v	1	Williams	33752	1997 MB ₉
1997 NK ₁	13.8	0.15	19990122	45.22434	127.98794	245.81392	2.12435	0.0940398	3.1374435	32	2	1997–1999	0.57	M-v	3	Williams	33556	1997 NK ₁
1997 NN ₁	15.7	0.15	19990122	37.88101	299.10021	140.76564	6.18262	0.1781622	2.3768622	35	4	1990–1999	0.50	M-v	1	Williams	33752	1997 NN ₁
1997 NU ₁	14.3	0.15	19990122	48.88886	140.82045	230.12083	1.09799	0.1031336	2.8510639	54	2	1997–1999	0.65	M-v	3	Williams	33556	1997 NU ₁
1997 NA ₃	14.2	0.15	19990122	106.03323	16.07094	268.73276	2.31815	0.0879725	3.0602566	19	2	1997–1998	0.53	M-v	5	Spahr	33261	1997 NA ₃
1997 NG ₃	12.3	0.15	19990122	90.19955	162.14278	158.54347	10.86665	0.0989873	2.9988634	54	4	1987–1999	0.80	M-v	2	Williams	33752	1997 NG ₃
1997 NM ₃	15.7	0.15	19970731	48.44409	83.35431	150.88912	2.67177	0.1802107	2.3451034	18	1	32 days	0.36		D	Doppler		1997 NM ₃
1997 NE ₁₁	13.1	0.15	19990122	96.24543	58.31623	273.66571	13.92178	0.1827509	2.8069596	34	3	1984–1999	0.84	M-v	4	Sp		

1997 OM	15.1	0.15	19990122	77.62437	202.16646	144.61144	2.64638	0.0786918	2.8494089	38	3	1978–1998	0.68	M-v	4	Spahr	33500	1997 OM
1997 OZ	14.2	0.15	19990122	96.44193	230.86298	83.05449	2.71770	0.1919512	3.0710998	35	5	1976–1999	0.68	M-v	1	Williams	33556	1997 OZ
1997 OF ₁	15.8	0.15	19990122	112.57196	67.64286	295.16541	1.59025	0.2105179	2.4018294	36	4	1992–1999	0.23	M-v	1	Williams	31010	1997 OF ₁
1997 OU ₂	15.7	0.15	19990122	141.40523	178.79022	150.51665	8.81556	0.2102485	2.2945610	33	3	1990–1999	0.78	M-v	3	Williams	30903	1997 OU ₂
1997 OW ₂	14.5	0.15	19990122	96.72648	129.52912	268.57644	5.52175	0.1346331	2.2070371	18	4	1981–1999	0.83	M-v	3	Williams	30675	1997 OW ₂
1997 PS	14.8	0.15	19990122	84.28210	65.85195	305.82767	10.53287	0.2110878	2.6767602	38	3	1993–1999	0.55	M-v	3	Williams	33752	1997 PS
1997 PX	15.6	0.15	19990122	53.91553	263.53248	169.42055	3.40277	0.1536468	2.3137332	30	3	1996–1999	0.61	M-v	3	Williams	33752	1997 PX
1997 PK ₂	14.4	0.15	19990122	154.40580	9.13558	302.53125	6.09568	0.1413558	2.3674256	52	3	1975–1999	0.57	M-v	3	Williams	33752	1997 PK ₂
1997 PY ₂	15.3	0.15	19990122	98.36405	291.77387	83.77838	7.15691	0.0704406	2.4205715	38	2	1997–1999	0.48	M-v	3	Williams	33753	1997 PY ₂
1997 PV ₃	12.6	0.15	19990122	119.41000	47.57714	253.66271	8.39464	0.0821496	3.0579063	34	3	1987–1999	0.52	M-v	3	Williams	33753	1997 PV ₃
1997 PF ₄	14.2	0.15	19990122	97.13044	59.59935	304.16048	6.05704	0.1427873	2.5595233	32	3	1981–1999	0.81	M-v	4	Williams	33753	1997 PF ₄
1997 PL ₄	15.5	0.15	19990122	252.59120	240.99304	344.75723	6.90061	0.0746107	2.3032040	63	2	1997–1999	0.48	M-v	3	Spahr	33753	1997 PL ₄
1997 PQ ₄	15.4	0.15	19990122	136.79256	200.18007	153.79167	7.71637	0.1861880	2.2710580	55	3	1996–1999	0.60	M-v	2	Williams	31010	1997 PQ ₄
1997 PR ₄	14.5	0.15	19990122	50.48016	130.27415	295.23913	5.78058	0.0840860	2.3777502	53	2	1997–1999	0.67	M-v	3	Williams	33698	1997 PR ₄
1997 PN ₅	13.7	0.15	19990122	70.55013	93.05826	293.48557	12.15334	0.1925203	2.6209040	42	2	1997–1999	0.64	M-v	4	Spahr	33753	1997 PN ₅
1997 QG	14.6	0.15	19990122	11.40232	296.39313	150.42037	5.43950	0.0961384	2.5656921	59	3	1987–1999	0.48	M-v	4	Spahr	33698	1997 QG
1997 QU	15.4	0.15	19990122	92.05558	184.40183	196.91519	4.48269	0.2868632	2.5699193	38	2	1997–1999	0.55	M-v	4	Williams	30904	1997 QU
1997 QV	16.4	0.15	19990122	92.68605	229.15211	165.74777	10.52039	0.1764273	2.3215334	29	4	1983–1999	0.66	M-v	2	Williams	32968	1997 QV
1997 QB ₁	15.8	0.15	19990122	346.77482	77.64863	65.12929	4.59431	0.1173919	2.2801047	51	3	1996–1999	0.70	M-v	3	Williams	33753	1997 QB ₁
1997 QD ₁	15.3	0.15	19990122	95.61130	84.50877	322.45447	3.89863	0.0586175	2.1450023	46	4	1991–1999	0.46	M-v	1	Williams	33557	1997 QD ₁
1997 QH ₁	14.0	0.15	19990122	215.56457	349.70023	277.29155	5.11888	0.1412756	2.2050815	43	3	1974–1999	0.64	M-v	3	Williams	33753	1997 QH ₁
1997 QM ₁	15.9	0.15	19990122	61.30971	45.35049	19.70347	6.87267	0.1090248	2.4027618	37	2	1997–1999	0.62	M-v	4	Williams	33698	1997 QM ₁
1997 QD ₂	11.9	0.15	19990122	196.07542	95.75884	143.10713	10.92267	0.0704685	3.0030025	58	4	1949–1999	0.58	M-v	1	Williams	33753	1997 QD ₂
1997 QE ₂	13.8	0.15	19990122	57.71651	15.90391	30.88829	4.89475	0.1283386	2.8074302	44	3	1988–1999	0.92	M-v	2	Williams	33753	1997 QE ₂
1997 QF ₂	13.1	0.15	19990122	74.89752	5.24324	5.45344	12.92662	0.1447219	3.0605032	31	2	1997–1999	0.71	M-v	3	Williams	33753	1997 QF ₂
1997 QL ₂	14.9	0.15	19970909	9.76352	357.11367	316.84647	22.79385	0.2058786	3.1704928	9	1	9 days	0.20			Doppler		1997 QL ₂
1997 QS ₂	14.1	0.15	19990122	8.84205	7.32287	72.08362	6.45954	0.1612258	3.1468557	57	2	1997–1999	0.49	M-v	3	Spahr	33753	1997 QS ₂
1997 QY ₂	16.0	0.15	19990122	130.43256	29.69161	327.83768	5.22403	0.2417162	2.3548076	25	2	1997–1999	0.56	M-v	4	Williams	33699	1997 QY ₂
1997 QZ ₂	14.2	0.15	19990122	316.60132	208.76413	321.08245	4.02352	0.0670057	2.3212832	46	4	1985–1999	0.82	M-v	3	Williams	33753	1997 QZ ₂
1997 QN ₃	13.7	0.15	19990122	110.87118	356.13339	23.53238	7.28109	0.1291812	2.7352600	25	4	1983–1999	0.72	M-v	2	Williams	33699	1997 QN ₃
1997 QP ₃	15.2	0.15	19990122	173.49603	129.55707	188.16059	3.49078	0.1933504	2.4495540	28	3	1996–1999	0.68	M-v	3	Williams	30904	1997 QP ₃
1997 QB ₄	14.5	0.15	19990122	117.72864	358.43462	353.44199	15.35905	0.1413654	2.5394833	21	3	1993–1999	0.78	M-v	3	Williams	30904	1997 QB ₄
1997 QN ₄	13.2	0.15	19990122	58.35020	235.62923	164.55416	2.48613	0.1023216	2.9299121	36	4	1977–1999	0.68	M-v	2	Spahr	33753	1997 QN ₄
1997 QP ₄	16.1	0.15	19990122	89.00046	87.48227	311.33914	6.43999	0.0346621	2.2311983	44	2	1997–1999	0.65	M-v	4	Williams	33753	1997 QP ₄
1997 QE ₅	15.8	0.15	19990122	84.42439	238.71959	137.54674	8.12331	0.2874373	2.7993116	11	3	1996–1999	0.40	M-v	4	Williams	31393	1997 QE ₅
1997 RC	13.9	0.15	19990122	30.25964	51.69133	63.33515	3.01333	0.0277390	2.8557114	67	2	1997–1999	0.47	M-v	3	Marsden	33699	1997 RC
1997 RZ	14.0	0.15	19990122	2.08458	150.79166	302.89851	4.48733	0.0666665	2.7714457	37	2	1997–1999	0.75	M-v	4	Spahr	33753	1997 RZ
1997 RR ₁	14.9	0.15	19990122	186.78841	242.65203	67.03002	2.33071	0.0876158	2.1998631	30	4	1993–1999	0.79	M-v	4	Williams	33753	1997 RR ₁
1997 RW ₂	14.8	0.15	19990122	76.86112	50.82714	343.22555	3.83570	0.1141941	2.7009753	22	3	1995–1999	0.76	M-v	4	Williams	31010	1997 RW ₂
1997 RE ₃	13.4	0.15	19990122	38.60606	110.68481	310.84622	4.75213	0.1506368	3.0840482	27	2	1997–1999	0.60	M-v	3	Spahr	33753	1997 RE ₃
1997 RO ₃	14.6	0.15	19990122	121.62461	208.21447	166.55965	5.14905	0.1122123	2.4036280	40	4	1986–1999	0.64	M-v	1	Williams	30904	1997 RO ₃
1997 RR ₃	13.0	0.15	19990122	37.64539	283.09659	177.51192	13.68228	0.1299772	2.5800501	45	4	1970–1999	0.63	M-v	1	Williams	33557	1997 RR ₃
1997 RS ₅	16.2	0.15	19990122	304.87911	25.86074	189.20472	1.36453	0.0253042	2.2038298	18	3	1996–1999	0.60	M-v	4	Marsden	30878	1997 RS ₅
1997 RP ₇	14.3	0.15	19990122	172.62612	79.46796	264.72121	4.48131	0.1341890	2.4028691	30	5	1974–1999	0.67	M-v	2	Williams	31145	1997 RP ₇
1997 RZ ₇	13.0	0.15	19990122	97.89746	42.31559	339.70693	14.81831	0.1767469	2.5973136	44	3	1982–1999	0.54	M-v	2	Williams	33753	1997 RZ ₇
1997 RF ₈	13.6	0.15	19990122	155.40772	286.10870	0.81142	13.05675	0.2484231	2.6313498	27	4	1980–1998	0.89	M-v	2	Williams	33557	1997 RF ₈
1997 RY ₈	13.6	0.15	19990122	325.05129	336.33083	172.29429	10.55262	0.0994446	3.0302799	50	2	1997–1999	0.50	M-v	4	Spahr	33753	1997 RY ₈
1997 RA ₉	15.0	0.15	19990122	143.19738	194.85542	179.33155	5.66875	0.0950034	2.2622255	43	3	1990–1999	0.54	M-v	3	Williams	30905	1997 RA ₉
1997 RP ₉	15.0	0.15	19990122	109.80764	216.87334	163.54925	2.60651	0.2093750	2.4334840	45	4	1986–1999	0.66	M-v	3	Williams	30905	1997 RP ₉
1997 SE	14.1	0.15	19990122	62.44319	236.06830	167.41921	15.88086	0.1266625	2.5332063	62	2	1997–1999	0.37	M-v	3	Williams	33753	1997 SE
1997 SN	15.1	0.15	19990122	272.03922	359.59681	219.49655	6.93589	0.0489496	2.2738980	38	2	1997–1999	0.32	M-v	4	Williams	33753	1997 SN
1997 SD ₁	13.4	0.15	19990122	222.93797	3.69365	224.03847	11.57939	0.1366261	2.6479715	26	3	1996–1999	0.67	M-v	4	Spahr	33753	1997 SD ₁
1997 SG ₁	13.3	0.15	19990122	6.82646	339.66723	161.02451	13.52479	0.1080857	2.6732947	80	3	1977–1999	0.72	M-v	2	Williams	33557	1997 SG ₁

1997 SL ₁	15.3	0.15	19990122	40.66120	282.72520	176.33023	3.58926	0.0268502	2.2920494	68	3	1996–1999	0.61	M-v	3	Williams	33753	1997 SL ₁
1997 ST ₁	14.7	0.15	19970909	22.96863	303.19011	20.61279	0.62338	0.1529454	3.0034780	28	1	24 days	0.47			Doppler		1997 ST ₁
1997 SA ₂	14.0	0.15	19990122	100.72764	351.91628	23.68247	2.75072	0.1093021	2.9858603	53	2	1997–1999	0.63	M-v	4	Williams	33753	1997 SA ₂
1997 SC ₂	15.5	0.15	19990122	111.83472	194.97082	205.29894	3.17687	0.1058926	2.4336550	34	3	1993–1999	0.67	M-v	4	Williams	31011	1997 SC ₂
1997 SL ₂	14.6	0.15	19990122	49.43767	303.94256	125.07827	6.80518	0.0214351	2.6785275	44	2	1997–1999	0.48	M-v	4	Williams	33700	1997 SL ₂
1997 SN ₂	15.6	0.15	19990122	73.21728	186.49803	230.34430	1.58794	0.1576777	2.3862754	30	4	1990–1999	0.60	M-v	1	Williams	31145	1997 SN ₂
1997 SE ₃	14.7	0.15	19990122	44.41248	252.16572	175.56925	13.80403	0.1706980	2.6118295	40	2	1997–1999	0.51	M-v	4	Williams	33700	1997 SE ₃
1997 SE ₄	14.1	0.15	19990122	42.71586	55.12345	4.80914	1.72884	0.0858353	2.9201782	53	3	1992–1999	0.61	M-v	2	Spahr	33754	1997 SE ₄
1997 ST ₄	15.7	0.15	19990122	158.16168	128.80149	196.66668	6.03372	0.1331529	2.3700032	37	4	1992–1999	0.67	M-v	2	Williams	31011	1997 ST ₄
1997 SW ₉	13.7	0.15	19990122	335.56260	252.43869	238.11860	10.42495	0.0979689	3.0698004	39	2	1997–1999	0.67	M-v	4	Spahr	33754	1997 SW ₉
1997 SZ ₉	14.9	0.15	19990122	136.48873	80.35080	287.09954	6.19233	0.1448114	2.2943705	26	3	1992–1999	0.52	M-v	3	Williams	31011	1997 SZ ₉
1997 SD ₁₁	14.4	0.15	19990122	354.82006	269.61851	242.34207	3.04419	0.0260854	2.1630082	44	4	1980–1999	0.63	M-v	3	Williams	33700	1997 SD ₁₁
1997 SO ₁₁	16.6	0.15	19990122	34.45309	73.58743	4.36082	1.48171	0.0845390	2.6611058	20	2	1997–1999	0.34	M-v	4	Spahr	33754	1997 SO ₁₁
1997 SX ₁₅	13.5	0.15	19990122	315.94900	181.12592	23.98249	10.42954	0.1805912	2.4266073	38	3	1993–1999	0.68	M-v	3	Williams	33557	1997 SX ₁₅
1997 SE ₁₆	14.6	0.15	19990122	272.67075	216.72239	14.34591	4.12742	0.0849484	2.3331444	19	3	1992–1999	0.66	M-v	4	Williams	31012	1997 SE ₁₆
1997 SL ₁₆	13.7	0.15	19990122	214.13925	109.26332	147.67425	12.32449	0.1047564	2.5676138	67	3	1983–1999	0.69	M-v	3	Williams	33700	1997 SL ₁₆
1997 SG ₂₁	12.8	0.15	19990122	86.28414	176.56905	210.66483	9.49614	0.0917811	3.0559438	24	3	1986–1999	0.79	M-v	4	Williams	30881	1997 SG ₂₁
1997 SG ₂₅	14.2	0.15	19990122	208.11890	197.33462	68.73562	3.04646	0.1847289	2.4045930	25	3	1985–1999	0.66	M-v	3	Spahr	33754	1997 SG ₂₅
1997 SK ₂₅	13.4	0.15	19990122	80.34219	210.79537	172.42733	9.96924	0.0922324	2.9820741	21	2	1997–1999	0.51	M-v	3	Williams	33754	1997 SK ₂₅
1997 SR ₂₅	16.1	0.15	19970929	126.83560	45.82440	172.39506	15.98287	0.0980757	2.5810443	9	1	28 days	0.16			Doppler		1997 SR ₂₅
1997 SJ ₂₉	13.8	0.15	19990122	349.34186	171.93650	289.11074	9.30815	0.0675009	2.9531618	19	2	1997–1998	0.66	M-v	6	Spahr	33701	1997 SJ ₂₉
1997 SE ₃₀	13.5	0.15	19990122	12.16637	246.82278	240.78894	1.95953	0.2158890	3.0719673	35	4	1972–1999	0.78	M-v	2	Williams	33754	1997 SE ₃₀
1997 SN ₃₁	14.6	0.15	19990122	264.91126	221.98181	358.79777	5.37925	0.0899535	2.2745393	35	3	1996–1999	0.51	M-v	3	Williams	33754	1997 SN ₃₁
1997 SR ₃₁	15.7	0.15	19990122	16.14648	117.25059	355.41726	3.67030	0.0864644	2.4210194	30	3	1995–1999	0.70	M-v	4	Williams	33754	1997 SR ₃₁
1997 SX ₃₃	13.4	0.15	19990122	89.49894	3.87234	38.74619	0.96445	0.1852779	3.1039265	40	5	1975–1999	0.67	M-v	1	Williams	32058	1997 SX ₃₃
1997 TW ₉	14.4	0.15	19990122	90.76223	288.68184	89.89090	2.92687	0.1283513	3.0621073	49	2	1997–1999	0.58	M-v	3	Spahr	33701	1997 TW ₉
1997 TG ₁₀	15.5	0.15	19990122	218.26818	90.65266	205.68575	5.33401	0.1303045	2.2957781	34	3	1996–1999	0.70	M-v	3	Williams	31012	1997 TG ₁₀
1997 TX ₁₀	16.0	0.15	19990122	34.40841	271.41323	177.94506	9.31574	0.1346687	2.5715607	27	3	1960–1999	0.84	M-v	4	Williams	30774	1997 TX ₁₀
1997 TS ₁₆	15.1	0.15	19990122	115.69784	172.25589	203.01678	5.18654	0.1564940	2.4296098	58	5	1993–1999	0.75	M-v	2	Williams	31146	1997 TS ₁₆
1997 TM ₁₇	14.2	0.15	19990122	226.35932	24.72077	257.78866	6.78391	0.1444674	2.2866655	33	4	1993–1999	0.62	M-v	1	Williams	33754	1997 TM ₁₇
1997 TY ₁₇	13.2	0.15	19990122	79.91037	329.10579	72.53856	2.82739	0.0653985	2.8808170	43	4	1980–1999	0.72	M-v	3	Williams	33754	1997 TY ₁₇
1997 TH ₁₉	14.6	0.15	19990122	163.26167	324.47597	1.40097	3.31525	0.3193456	2.3312018	47	3	1990–1999	0.63	M-v	4	Williams	31013	1997 TH ₁₉
1997 TJ ₁₉	13.4	0.15	19990122	88.86767	357.77605	46.34558	5.95676	0.0876487	2.7650614	50	2	1997–1999	0.55	M-v	3	Williams	33701	1997 TJ ₁₉
1997 TO ₁₉	15.0	0.15	19990122	179.26758	116.96887	210.70078	4.99849	0.1639498	2.2734058	39	4	1990–1999	0.73	M-v	2	Williams	31146	1997 TO ₁₉
1997 TS ₂₂	14.2	0.15	19990122	22.47879	91.51465	351.67382	1.57869	0.0601267	2.9241209	28	2	1997–1999	0.79	M-v	5	Spahr	33701	1997 TS ₂₂
1997 TE ₂₅	14.7	0.15	19990122	135.15524	157.23619	194.29855	3.89503	0.2922037	2.5810830	45	3	1996–1999	0.68	M-v	3	Williams	31146	1997 TE ₂₅
1997 TQ ₂₅	13.7	0.15	19990122	169.05631	82.37998	249.32591	8.40541	0.1505825	2.6677678	27	3	1992–1999	0.75	M-v	3	Williams	31115	1997 TQ ₂₅
1997 TA ₂₆	14.0	0.15	19990122	358.41352	86.80919	24.04491	18.27520	0.1381643	3.2056996	28	2	1997–1999	0.69	M-v	4	Spahr	33701	1997 TA ₂₆
1997 TF ₂₆	13.8	0.15	19990122	113.98983	28.97071	341.18373	4.60523	0.0712505	2.7324182	37	2	1997–1999	0.54	M-v	4	Williams	33702	1997 TF ₂₆
1997 TG ₂₆	14.1	0.15	19990122	129.04901	51.83897	303.38358	2.81633	0.2237817	2.5740079	37	3	1993–1999	0.51	M-v	3	Williams	31146	1997 TG ₂₆
1997 UH	14.2	0.15	19990122	253.97293	78.33686	157.26221	14.29318	0.1138454	2.6284386	33	2	1997–1999	0.67	M-v	4	Williams	33754	1997 UH
1997 UK	14.9	0.15	19990122	279.69541	354.68939	218.79266	0.37963	0.0193856	2.4668227	57	3	1993–1999	0.60	M-v	4	Williams	33754	1997 UK
1997 UB ₁	14.8	0.15	19990122	209.23416	260.97746	32.35590	4.76423	0.1552263	2.3193339	56	3	1996–1999	0.64	M-v	2	Williams	33702	1997 UB ₁
1997 UG ₁	13.3	0.15	19990122	90.81989	357.37180	33.56404	10.08140	0.0785979	2.9969558	56	2	1997–1999	0.60	M-v	3	Williams	33702	1997 UG ₁
1997 UJ ₁	15.5	0.15	19990122	87.92948	19.34599	25.37113	4.10166	0.1185175	2.7335538	38	2	1997–1999	0.64	M-v	4	Marsden	33702	1997 UJ ₁
1997 UF ₂	14.9	0.15	19990122	166.18838	130.78299	207.76209	4.92823	0.2384244	2.2857287	26	4	1990–1999	0.69	M-v	2	Williams	31014	1997 UF ₂
1997 UG ₂	14.6	0.15	19990122	104.30349	168.48128	217.66501	1.79368	0.2395445	2.6851365	53	2	1997–1999	0.57	M-v	4	Marsden	33702	1997 UG ₂
1997 UU ₂	13.6	0.15	19990122	79.71494	93.00758	313.81275	1.59144	0.0205198	2.8955345	45	2	1997–1999	0.55	M-v	3	Williams	33703	1997 UU ₂
1997 UV ₂	14.4	0.15	19990122	8.28820	238.20400	264.92511	1.22914	0.1381177	2.6995776	29	4	1948–1999	0.56	M-v	2	Williams	30885	1997 UV ₂
1997 US ₄	14.6	0.15	19971019	28.21879	158.11704	177.34605	6.54956	0.1878297	3.0881395	9	1	19 days	0.31			Williams	30911	1997 US ₄
1997 UG ₅	14.2	0.15	19990122	63.40303	19.83015	30.55890	18.60765	0.1858852	3.2338908	39	2	1997–1999	0.56	M-v	3	Marsden	33703	1997 UG ₅
1997 UK ₇	14.2	0.15	19990122	89.96114	67.70776	325.77008	2.76678	0.0503726	2.6323068	45	2	1997–1999	0.75	M-v	4	Williams	33704	1997 UK ₇
1997 UX ₇	13.8	0.15	19990122	59.45333	222.45272	226.25431	7.09248	0.1959671	2.7930065	50	4	1969–1999	0.62	M-v	2	Williams	33346	1997 UX ₇

1997 UW ₈	15.0	0.15	19990122	177.98257	149.01185	157.32603	2.86798	0.1921603	2.6248313	46	5	1994–1999	0.72	M-v	1	Williams	33754	1997 UW ₈
1997 UZ ₈	13.6	0.15	19990122	202.07240	102.75332	217.85389	3.83666	0.0765880	2.3909528	47	4	1978–1999	0.75	M-v	2	Williams	33558	1997 UZ ₈
1997 UY ₁₀	14.0	0.15	19990122	54.79895	255.21717	189.34517	1.51970	0.0723520	2.9774363	64	5	1992–1999	0.53	M-v	1	Williams	33754	1997 UY ₁₀
1997 UB ₁₁	12.2	0.15	19990122	48.66251	27.13123	0.59748	21.38376	0.0411304	3.2142390	29	2	1997–1999	0.70	M-v	3	Williams	33558	1997 UB ₁₁
1997 UC ₁₁	13.8	0.15	19990122	188.78295	264.24330	7.54671	23.20356	0.2098653	2.3603913	24	2	1997–1999	0.53	M-v	4	Spahr	33754	1997 UC ₁₁
1997 UP ₁₂	15.5	0.15	19971019	58.88834	70.32694	240.64774	0.77483	0.2020465	2.6256093	9	1	9 days	0.31			E Williams		1997 UP ₁₂
1997 UV ₁₄	13.2	0.15	19990122	157.42735	137.98212	201.60343	8.10223	0.0281426	2.8810363	48	3	1992–1999	0.47	M-v	4	Williams	33754	1997 UV ₁₄
1997 UW ₁₄	13.8	0.15	19990122	75.83604	343.29279	50.31388	6.53423	0.1140352	3.1659116	31	2	1997–1999	0.52	M-v	3	Williams	33754	1997 UW ₁₄
1997 UY ₁₄	13.4	0.15	19990122	102.42269	318.82771	62.83336	2.94109	0.1177850	2.9510155	44	3	1977–1999	0.75	M-v	4	Williams	33754	1997 UY ₁₄
1997 UC ₁₅	13.8	0.15	19990122	100.43496	249.90692	124.17400	1.08103	0.2049787	3.1108295	57	5	1975–1999	0.76	M-v	2	Williams	33754	1997 UC ₁₅
1997 UX ₂₀	13.2	0.15	19990122	96.48832	312.53717	68.29493	1.71744	0.1418773	3.2220603	33	4	1971–1999	0.71	M-v	3	Williams	33346	1997 UX ₂₀
1997 UT ₂₂	13.0	0.15	19990122	105.68573	17.92444	345.78565	6.16931	0.2506374	3.1702656	23	3	1991–1999	0.75	M-v	4	Williams	31115	1997 UT ₂₂
1997 UB ₂₅	14.0	0.15	19990122	179.50118	74.71667	262.60554	4.05484	0.2167855	2.2031805	24	3	1984–1999	0.75	M-v	4	Williams	31115	1997 UB ₂₅
1997 UD ₂₅	13.2	0.15	19990122	86.50601	305.78880	93.63507	3.50518	0.0575360	2.8889931	39	4	1987–1999	0.69	M-v	1	Williams	31796	1997 UD ₂₅
1997 VE	14.6	0.15	19990122	244.29087	263.84217	346.11921	1.71185	0.1504640	2.6177058	58	3	1991–1999	0.55	M-v	4	Williams	33754	1997 VE
1997 VQ	13.0	0.15	19990122	115.92663	159.94270	207.78130	9.19889	0.0979934	3.0697917	34	4	1991–1999	0.73	M-v	2	Williams	33754	1997 VQ
1997 VC ₁	13.5	0.15	19990122	209.50094	216.36119	67.57258	3.12704	0.0276020	2.8817188	44	2	1997–1999	0.78	M-v	4	Williams	33704	1997 VC ₁
1997 VF ₁	13.4	0.15	19990122	80.50569	22.63065	4.00850	15.59072	0.2968668	2.8972157	38	2	1997–1999	0.54	M-v	4	Williams	33704	1997 VF ₁
1997 VG ₁	11.3	0.15	19990122	326.47156	36.85642	53.83345	4.32984	0.0644330	5.0661409	24	2	1997–1998	0.59	M-v	4	Spahr	33754	1997 VG ₁
1997 VJ ₁	13.9	0.15	19990122	299.74515	250.79038	312.27043	14.37959	0.0655899	2.6218444	46	2	1997–1999	0.36	M-v	3	Williams	33754	1997 VJ ₁
1997 VN ₁	13.0	0.15	19990122	83.85534	221.85965	169.06497	1.32405	0.1457792	3.2106569	41	4	1985–1999	0.86	M-v	3	Williams	33754	1997 VN ₁
1997 VY ₁	13.2	0.15	19990122	123.70715	148.73920	225.06780	3.22315	0.0876856	3.0724456	76	3	1991–1999	0.64	M-v	4	Williams	33754	1997 VY ₁
1997 VA ₃	14.3	0.15	19990122	240.93237	16.46356	271.06524	2.85955	0.0882415	2.2683891	41	3	1993–1999	0.64	M-v	3	Williams	31149	1997 VA ₃
1997 VN ₃	13.6	0.15	19990122	242.06495	36.16569	237.18680	18.14174	0.1923214	2.5838477	41	4	1991–1999	0.76	M-v	3	Williams	33754	1997 VN ₃
1997 VD ₄	12.8	0.15	19990122	220.86783	60.70634	208.90029	1.36515	0.0297462	2.8355087	47	4	1971–1999	0.70	M-v	3	Williams	33754	1997 VD ₄
1997 VG ₄	13.3	0.15	19990122	11.28740	11.34642	136.21142	2.03210	0.1734078	3.1906088	39	3	1991–1999	0.78	M-v	3	Williams	33754	1997 VG ₄
1997 VW ₄	13.7	0.15	19990122	340.52503	129.83661	49.70898	14.14061	0.1139359	2.5720872	26	2	1997–1999	0.60	M-v	4	Williams	33704	1997 VW ₄
1997 VZ ₄	14.1	0.15	19990122	209.27092	253.93244	55.02450	6.31899	0.1919193	2.2693991	30	3	1992–1999	0.67	M-v	3	Williams	32058	1997 VZ ₄
1997 VC ₅	13.2	0.15	19990122	167.00272	265.55767	63.57801	10.63407	0.0869161	3.0792980	32	2	1997–1999	0.56	M-v	3	Williams	33507	1997 VC ₅
1997 VE ₅	14.1	0.15	19990122	131.13451	292.15926	75.22953	3.06027	0.2015404	2.4036215	42	3	1996–1998	0.64	M-v	3	Williams	31149	1997 VE ₅
1997 VM ₅	13.5	0.15	19990122	152.25689	224.88931	106.21737	0.61881	0.1811367	3.1740849	23	3	1996–1999	0.85	M-v	4	Williams	33754	1997 VM ₅
1997 VS ₅	14.1	0.15	19990122	115.84184	4.42814	6.49475	2.18113	0.2070814	3.1346583	33	4	1980–1999	0.80	M-v	2	Williams	31149	1997 VS ₅
1997 VY ₅	15.4	0.15	19990122	190.93524	210.12031	94.37184	2.27226	0.1889124	2.4196341	47	3	1996–1999	0.73	M-v	3	Williams	33558	1997 VY ₅
1997 VP ₆	14.4	0.15	19990122	138.77082	138.44813	225.92842	1.04320	0.1705465	2.5161527	37	5	1977–1999	0.74	M-v	4	Williams	31150	1997 VP ₆
1997 VU ₆	13.8	0.15	19990122	161.21355	173.41975	158.18975	2.35596	0.0688018	2.8445217	30	3	1978–1999	0.78	M-v	4	Williams	33754	1997 VU ₆
1997 VR ₇	12.5	0.15	19990122	191.13687	257.17410	46.31582	10.21915	0.0845634	3.0547121	32	2	1997–1999	0.60	M-v	4	Williams	33265	1997 VR ₇
1997 VX ₇	14.8	0.15	19990122	268.68379	227.85801	8.25885	7.84723	0.0846999	2.4356077	24	3	1993–1999	0.72	M-v	4	Williams	30997	1997 VX ₇
1997 VE ₈	13.8	0.15	19990122	193.63019	328.01926	341.68547	3.11382	0.1727747	2.6338996	30	3	1992–1999	0.63	M-v	3	Williams	33755	1997 VE ₈
1997 VG ₈	14.0	0.15	19990122	127.80401	284.71964	60.72528	8.25258	0.0710019	2.9670487	36	3	1995–1999	0.64	M-v	3	Williams	33755	1997 VG ₈
1997 WH	14.0	0.15	19990122	35.66999	221.90795	245.77003	10.04885	0.0650943	3.2406205	25	3	1996–1999	0.69	M-v	3	Williams	31150	1997 WH
1997 WX	14.7	0.15	19990122	104.08305	29.87539	9.27501	8.00097	0.0697219	2.3419501	36	2	1997–1999	0.56	M-v	3	Williams	33507	1997 WX
1997 WB ₁	15.2	0.15	19990122	82.75592	61.47038	358.19731	2.36365	0.0800675	2.6333203	23	3	1995–1999	0.44	M-v	4	Marsden	33755	1997 WB ₁
1997 WG ₁	12.8	0.15	19990122	77.59980	124.10676	242.04592	9.87853	0.1137572	2.9902664	30	3	1982–1999	0.59	M-v	3	Spahr	33704	1997 WG ₁
1997 WA ₂	15.0	0.15	19990122	254.55727	137.31306	122.64310	3.58097	0.1232617	2.2864931	48	4	1992–1999	0.71	M-v	1	Williams	31118	1997 WA ₂
1997 WU ₃	14.2	0.15	19990122	21.08151	275.07050	241.80037	4.85732	0.0930156	2.2431234	50	5	1982–1999	0.65	M-v	2	Marsden	33755	1997 WU ₃
1997 WJ ₇	14.2	0.15	19990122	136.30840	89.44759	264.95418	2.02249	0.2041740	2.7307525	24	4	1988–1999	0.92	M-v	2	Williams	30998	1997 WJ ₇
1997 WO ₇	12.8	0.15	19990122	46.90261	34.24029	59.08592	10.66614	0.0720822	3.0681161	53	2	1997–1999	0.63	M-v	3	Williams	33558	1997 WO ₇
1997 WW ₇	10.2	0.15	19990122	50.67698	162.62527	249.85949	5.66471	0.0716992	5.1803242	38	2	1997–1999	0.66	M-v	4	Spahr	33705	1997 WW ₇
1997 WE ₈	13.7	0.15	19990122	302.94292	324.83521	248.49581	4.96572	0.0916075	2.6935014	24	3	1995–1999	0.50	M-v	3	Williams	31423	1997 WE ₈
1997 WQ ₁₁	13.3	0.15	19990122	255.11337	170.60150	53.43428	1.49141	0.1182648	3.1676653	30	2	1997–1999	0.79	M-v	4	Spahr	33705	1997 WQ ₁₁
1997 WV ₁₂	14.3	0.15	19990122	274.36763	183.45445	40.45291	4.99728	0.0189055	2.7362633	45	3	1992–1999	0.79	M-v	4	Williams	31119	1997 WV ₁₂
1997 WB ₁₃	14.9	0.15	19990122	329.24997	147.80036	39.43439	1.86024	0.1367204	2.6069078	38	3	1995–1999	0.56	M-v	5	Williams	30998	1997 WB ₁₃
1997 WO ₁₃	14.3	0.15	19990122	348.08686	113.34636	86.07188	7.86386	0.0623069	2.3592038	33	4	1977–1999	0.79	M-v	2	Williams	31152	1997 WO ₁₃

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1997 WP ₁₄	14.3	0.15	19990122	67.04423	297.80034	131.02467	2.58060	0.0821184	3.0949733	50	5	1991–1999	0.78	M-v	1	Williams	31424	1997 WP ₁₄
1997 WD ₁₅	13.4	0.15	19990122	323.44003	141.90597	42.05007	5.98133	0.1179761	2.7533570	31	3	1990–1999	0.68	M-v	4	Williams	33508	1997 WD ₁₅
1997 WQ ₁₅	14.6	0.15	19990122	114.48189	147.03104	213.72856	4.72218	0.1833654	3.1479161	33	4	1991–1999	0.74	M-v	3	Williams	31282	1997 WQ ₁₅
1997 WM ₁₆	14.2	0.15	19990122	154.02784	223.01763	116.76548	6.72458	0.1883042	2.2688646	57	3	1992–1999	0.47	M-v	2	Williams	33755	1997 WM ₁₆
1997 WT ₂₃	14.7	0.15	19990122	156.92942	94.46204	254.66888	1.49870	0.1917897	2.4101742	47	6	1982–1999	0.65	M-v	1	Williams	31796	1997 WT ₂₃
1997 WZ ₂₉	13.2	0.15	19990122	108.50332	107.10638	258.54561	6.69667	0.2179310	3.1876494	33	4	1974–1999	0.83	M-v	2	Williams	31424	1997 WZ ₂₉
1997 WC ₃₁	15.9	0.15	19990122	174.38250	156.31681	194.00230	2.65815	0.2181853	2.1817074	19	1	65 days	0.61	M-v	6 D	Doppler		1997 WC ₃₁
1997 WS ₃₂	14.4	0.15	19990122	203.97509	217.70048	100.98100	4.33576	0.1504669	2.2601100	45	7	1983–1999	0.50	M-v	1	Spahr	31394	1997 WS ₃₂
1997 WB ₃₃	13.4	0.15	19990122	85.70524	168.66890	224.97929	3.35452	0.1423757	3.3831258	43	3	1996–1999	0.67	M-v	3	Williams	33755	1997 WB ₃₃
1997 WQ ₃₄	14.0	0.15	19990122	195.02684	235.82291	88.20984	6.19406	0.1060180	2.4006570	33	3	1981–1999	0.66	M-v	2	Williams	31796	1997 WQ ₃₄
1997 WT ₃₄	14.2	0.15	19990122	182.82720	182.82092	142.19663	3.49862	0.2365021	2.3525423	50	3	1986–1999	0.66	M-v	3	Williams	33755	1997 WT ₃₄
1997 WB ₃₇	11.9	0.15	19990122	264.12916	144.56657	86.68386	11.86907	0.0981282	3.2159428	70	2	1997–1999	0.55	M-v	3	Williams	33705	1997 WB ₃₇
1997 WN ₃₈	14.0	0.15	19990122	108.24336	307.61462	69.45948	2.32211	0.1539990	3.2276581	26	3	1996–1999	0.79	M-v	4	Williams	31395	1997 WN ₃₈
1997 WL ₄₄	13.8	0.15	19990122	98.58656	230.62134	173.26598	0.91718	0.1548479	3.0569347	44	4	1991–1999	0.71	M-v	1	Williams	31424	1997 WL ₄₄
1997 WP ₄₄	13.6	0.15	19990122	105.06901	304.48612	84.54639	2.75115	0.1981115	3.1278894	39	5	1990–1999	0.61	M-v	1	Williams	31282	1997 WP ₄₄
1997 WY ₄₄	16.1	0.15	19971218	28.82207	261.68745	135.40385	2.95873	0.2005398	2.3439270	15	1	31 days	0.57		D	Doppler		1997 WY ₄₄
1997 XV	13.2	0.15	19990122	341.51880	193.40597	351.79386	4.76886	0.0271090	2.8677381	21	3	1996–1999	0.60	M-v	4	Williams	31123	1997 XV
1997 XT ₅	12.5	0.15	19990122	132.72350	255.10897	102.24007	7.41401	0.1466195	3.1191852	50	4	1989–1999	0.75	M-v	3	Williams	33755	1997 XT ₅
1997 XX ₅	13.4	0.15	19990122	152.26168	91.34639	236.65203	1.08121	0.1047330	2.9421572	44	3	1991–1999	0.75	M-v	3	Williams	33755	1997 XX ₅
1997 XY ₉	13.9	0.15	19990122	242.08982	11.59920	277.31576	1.59998	0.2020034	2.4042532	34	4	1974–1999	0.57	M-v	1	Williams	31253	1997 XY ₉
1997 XY ₁₀	13.1	0.15	19990122	128.82039	301.09689	58.35919	5.85669	0.1630406	3.1627563	28	3	1985–1999	0.75	M-v	4	Williams	31125	1997 XY ₁₀
1997 XO ₁₁	14.7	0.15	19990122	226.16470	43.88818	256.94997	6.10227	0.1313294	2.3035734	31	4	1983–1999	0.73	M-v	1	Williams	31396	1997 XO ₁₁
1997 XR ₁₁	12.9	0.15	19990122	194.04314	6.31591	305.20331	13.61624	0.1822577	2.6910501	18	3	1983–1999	0.64	M-v	3	Williams	31126	1997 XR ₁₁
1997 XN ₁₂	15.2	0.15	19990122	168.26980	108.83080	240.16714	4.23335	0.1960848	2.2982312	25	3	1976–1999	0.65	M-v	3	Williams	31396	1997 XN ₁₂
1997 YA	13.2	0.15	19990122	77.21168	330.03758	69.68045	12.35785	0.1099404	3.0344269	55	3	1992–1999	0.67	M-v	3	Williams	33755	1997 YA
1997 YH ₁	12.9	0.15	19990122	67.25763	18.28114	44.08015	11.04760	0.0482936	3.0748576	30	2	1997–1999	0.59	M-v	3	Williams	33705	1997 YH ₁
1997 YL ₁	14.1	0.15	19990122	88.38860	227.81460	166.03818	6.49862	0.1267905	2.3602020	47	4	1990–1999	0.50	M-v	1	Williams	33755	1997 YL ₁
1997 YM ₄	13.9	0.15	19990122	184.19731	57.70709	270.30440	12.77279	0.1721732	2.5777619	42	3	1989–1999	0.55	M-v	4	Williams	33755	1997 YM ₄
1997 YJ ₅	11.7	0.15	19990122	163.23425	54.71915	304.35245	13.82138	0.0859424	3.3403776	27	3	1977–1999	0.65	M-v	3	Williams	31591	1997 YJ ₅
1997 YY ₅	11.3	0.15	19990122	217.95021	9.14259	311.87174	9.37803	0.0822017	3.0110479	22	4	1978–1999	0.56	M-v	2	Williams	33558	1997 YY ₅
1997 YD ₁₀	13.9	0.15	19990122	292.74573	318.52872	329.80830	5.15222	0.1078003	2.3171490	27	4	1984–1999	0.48	M-v	2	Williams	31591	1997 YD ₁₀
1997 YO ₁₄	13.6	0.15	19990122	132.94766	30.74794	311.33413	4.26292	0.2324412	2.6120652	30	2	1997–1999	0.66	M-v	4	Williams	33755	1997 YO ₁₄
1997 YQ ₁₉	12.8	0.15	19990122	124.44519	175.01720	186.99467	17.35825	0.1805996	3.1237141	28	4	1991–1999	0.50	M-v	1	Williams	31259	1997 YQ ₁₉
1997 YG ₂₀	13.1	0.15	19990122	87.94715	116.50329	307.46471	9.01261	0.0782635	3.0442903	23	4	1988–1999	0.93	M-v	1	Williams	31259	1997 YG ₂₀
1998 BE	13.0	0.15	19990122	229.92923	286.22809	39.91356	6.53384	0.0675345	2.7120110	15	4	1983–1999	0.45	M-v	2	Williams	31261	1998 BE
1998 BW ₂	13.0	0.15	19990122	165.14569	267.56768	108.93159	8.57968	0.1074589	3.0388992	27	5	1977–1999	0.72	M-v	2	Williams	31592	1998 BW ₂
1998 BX ₉	13.7	0.15	19990122	59.56496	352.49811	86.94688	12.63929	0.0355972	3.0733017	25	3	1992–1999	0.73	M-v	3	Williams	31399	1998 BX ₉
1998 BX ₁₃	13.0	0.15	19990122	190.75629	180.83249	114.56491	4.70978	0.2245400	2.8496253	36	4	1977–1999	0.69	M-v	3	Williams	33755	1998 BX ₁₃
1998 BU ₂₅	12.5	0.15	19990122	47.08122	13.93041	134.60489	10.60832	0.0509856	3.0440103	76	4	1977–1999	0.75	M-v	2	Williams	31798	1998 BU ₂₅
1998 BY ₂₈	14.2	0.15	19980216	282.55690	278.97424	313.26486	17.14706	0.1708694	3.1305666	9	1	27 days	0.21			Doppler		1998 BY ₂₈
1998 BE ₂₉	16.6	0.15	19980216	326.39364	232.58307	317.36104	9.95136	0.2303804	3.0420002	9	1	27 days	0.19			Doppler		1998 BE ₂₉
1998 BK ₂₉	15.9	0.15	19980216	324.39122	230.33515	314.01845	12.77121	0.1598404	2.8739268	9	1	27 days	0.19			Doppler		1998 BK ₂₉
1998 BR ₃₅	16.0	0.15	19980127	260.56332	121.81408	132.06509	6.82345	0.0861442	2.3771440	9	1	23 days	0.15			Doppler		1998 BR ₃₅
1998 CH	12.9	0.15	19990122	142.34612	293.61389	106.48821	22.76200	0.0686144	2.6912282	70	3	1997–1999	0.31	M-v	2	Marsden	33755	1998 CH
1998 DP	11.9	0.15	19990122	222.64939	217.04895	112.90221	13.94708	0.1198906	3.1620408	44	2	1998–1999	0.25	M-v	3	Marsden	33706	1998 DP
1998 FC ₃₀	13.7	0.15	19980308	81.62661	102.12039	341.90753	14.43107	0.0624607	2.5563054	19	1	12 days	0.45			Williams	32685	1998 FC ₃₀
1998 FR ₄₄	17.4	0.15	19980308	340.44268	88.08331	116.28485	0.90321	0.1994212	2.3607369	13	1	2 days	1.13		E	Williams		1998 FR ₄₄
1998 FF ₄₉	16.2	0.15	19990122	118.02103	165.90791	329.53582	2.02970	0.1663387	2.3498430	30	1	81 days	0.78	M-v	5	Williams		1998 FF ₄₉
1998 FQ ₈₇	13.4	0.15	19980328	286.28600	230.56134	25.93205	12.95646	0.1016032	3.2438196	24	1	26 days	0.80		D	Doppler		1998 FQ ₈₇
1998 FC ₁₄₄	14.3	0.15	19990122	3.41759	52.48630	238.64614	5.12458	0.1455759	2.4839933	29	2	1991–1998	0.69	M-v	5	Spahr	33508	1998 FC ₁₄₄
1998 HN ₁	17.1	0.15	19980417	59.04148	286.55948	208.44509	21.20069	0.0821405	1.9433807	26	1	22 days	0.74		D	Doppler		1998 HN ₁
1998 HZ ₇₄	15.7	0.15	19980417	280.53042	123.50523	188.25975	3.42968	0.1927093	2.1913589	12	1	24 days	0.47			Doppler		1998 HZ ₇₄
1998 HH ₇₇	14.9	0.15	19990122	142.19625	124.00460	3.65692	1.19915	0.1286936	2.4130454	14	1	67 days	0.36	M-v	7 D	Williams		1998 HH ₇₇

1998 HN ₈₀	16.0	0.15	19980417	322.89065	243.68788	14.72572	1.93830	0.1340240	2.2044467	13	1	22 days	0.40		Doppler	1998 HN ₈₀
1998 HN ₈₃	17.7	0.15	19980417	340.19592	181.16207	59.12271	7.10903	0.2075469	2.1953067	16	1	10 days	1.22		Williams	1998 HN ₈₃
1998 HU ₉₉	14.6	0.15	19980507	313.90892	85.64648	188.41665	9.05825	0.0563273	3.0566866	17	1	31 days	0.97		Williams	1998 HU ₉₉
1998 HT ₁₅₀	15.6	0.15	19990122	79.18923	93.59658	121.16281	4.46711	0.0444681	2.1892313	30	2	1973–1998	0.90	M-v 4	Williams	32026 1998 HT ₁₅₀
1998 MK ₃₀	15.8	0.15	19990122	30.30995	154.49144	203.74197	5.41268	0.4346672	2.4670638	336	1	201 days	0.56	M-v 3	Spahr	33755 1998 MK ₃₀
1998 NA	13.3	0.15	19990122	21.58275	37.81662	334.09751	9.18661	0.1776764	2.5783725	69	2	1992–1998	0.70	M-v 3	Williams	33559 1998 NA
1998 OH	16.1	0.15	19990122	156.60173	321.55119	220.84989	24.50464	0.4062797	1.5417653	99	3	1991–1998	0.48	M-v 3	Williams	33346 1998 OH
1998 OB ₁₅	15.0	0.15	19990122	13.77697	7.90649	343.20812	1.85449	0.0682152	2.8983838	21	1	109 days	0.42	M-v 4	Spahr	33559 1998 OB ₁₅
1998 QC ₁	19.6	0.15	19990122	24.51386	114.90412	308.85239	9.62875	0.5906189	1.9829287	90	2	1998–1999	0.63	M-v 4	Williams	32758 1998 QC ₁
1998 QR ₆	15.7	0.15	19990122	57.45836	282.09224	62.79336	1.10382	0.1936498	2.6539839	27	1	107 days	0.61	M-v 5	Spahr	33559 1998 QR ₆
1998 QG ₂₁	15.2	0.15	19990122	9.95078	202.80216	155.03157	0.12052	0.1978286	3.0428419	27	1	109 days	0.59	M-v 4	Spahr	33347 1998 QG ₂₁
1998 QW ₂₃	15.1	0.15	19990122	294.70697	286.06729	168.89988	8.46781	0.1329306	2.3024363	17	1	93 days	0.35	M-v 5	Spahr	33347 1998 QW ₂₃
1998 QJ ₃₇	13.4	0.15	19990122	120.03043	57.52029	185.02569	9.18935	0.0278074	3.1821743	38	4	1976–1998	0.64	M-v 1	Williams	32702 1998 QJ ₃₇
1998 QS ₃₉	15.5	0.15	19990122	67.49238	181.93249	113.66209	3.42479	0.1893896	2.4265612	25	2	1994–1998	0.65	M-v 5	Williams	32704 1998 QS ₃₉
1998 QX ₃₉	15.3	0.15	19990122	38.19151	198.84844	147.42159	5.17682	0.1980196	2.2467245	32	1	113 days	0.53	M-v 3	Spahr	33560 1998 QX ₃₉
1998 QC ₄₁	14.2	0.15	19990122	84.16002	310.22809	328.72130	9.59187	0.1212490	2.6954953	27	1	134 days	0.55	M-v 5	Spahr	33755 1998 QC ₄₁
1998 QH ₄₂	14.2	0.15	19990122	356.24364	51.95930	338.06144	13.92035	0.1281620	2.5990557	34	1	137 days	0.64	M-v 4	Williams	1998 QH ₄₂
1998 QU ₄₇	14.4	0.15	19980904	279.91945	242.44613	189.75110	1.69280	0.0439514	2.8594634	25	1	54 days	0.71		Spahr	1998 QU ₄₇
1998 QT ₅₀	13.8	0.15	19990122	57.87584	138.93335	146.60891	10.23117	0.3102486	3.1050592	31	1	128 days	0.63	M-v 4	Spahr	33756 1998 QT ₅₀
1998 QV ₅₀	15.5	0.15	19990122	25.97641	268.39442	98.19992	2.33647	0.2202368	2.2955432	35	1	135 days	0.68	M-v 4	Spahr	33560 1998 QV ₅₀
1998 QT ₅₁	14.6	0.15	19990122	66.41890	355.69123	316.80765	6.45772	0.1492949	2.3052645	42	2	1991–1998	0.73	M-v 4	Williams	33560 1998 QT ₅₁
1998 QU ₅₁	15.4	0.15	19980904	355.35844	103.04951	255.04525	4.08696	0.1780243	3.0649526	27	1	41 days	0.91		Spahr	1998 QU ₅₁
1998 QJ ₅₄	13.7	0.15	19990122	332.48734	211.60470	223.23523	5.98905	0.0885890	2.3838244	48	1	134 days	0.58	M-v 4	Spahr	33756 1998 QJ ₅₄
1998 QM ₅₄	14.3	0.15	19990122	38.18835	57.85745	301.77624	3.99198	0.1732407	2.2299147	32	1	159 days	0.64	M-v 4	Williams	33756 1998 QM ₅₄
1998 QS ₅₅	14.3	0.15	19990122	44.16301	181.57505	185.77983	2.32402	0.0693232	2.8283304	39	4	1983–1998	0.82	M-v 3	Williams	33268 1998 QS ₅₅
1998 QK ₅₆	17.4	0.15	19990122	16.68532	285.75128	173.38470	13.54848	0.5125765	1.8840677	81	1	176 days	0.58	M-v 3	Williams	33756 1998 QK ₅₆
1998 QO ₆₀	13.3	0.15	19990122	118.80267	283.60602	7.89397	11.22021	0.1867448	2.6701692	32	1	118 days	0.57	M-v 4	Williams	33561 1998 QO ₆₀
1998 QT ₆₀	13.3	0.15	19990122	21.60509	127.07026	298.92035	21.89790	0.3495622	2.4467400	140	3	1984–1999	0.59	M-v 1	Williams	33756 1998 QT ₆₀
1998 QU ₆₀	14.6	0.15	19990122	58.89470	106.32163	196.40009	6.87983	0.1383808	2.3419890	31	3	1983–1998	0.61	M-v 2	Spahr	33509 1998 QU ₆₀
1998 QF ₇₀	12.9	0.15	19990122	282.41574	239.43138	212.91640	15.65458	0.0967056	3.1996644	30	2	1996–1998	0.63	M-v 4	Williams	32979 1998 QF ₇₀
1998 QB ₇₄	12.8	0.15	19990122	39.73457	104.53004	224.46547	9.70011	0.1092119	2.9993039	48	4	1962–1999	0.68	M-v 2	Williams	33561 1998 QB ₇₄
1998 QS ₇₅	15.6	0.15	19980904	338.95276	182.19009	199.72921	17.62591	0.2224328	3.1466805	17	1	48 days	1.13		Williams	1998 QS ₇₅
1998 QU ₇₇	16.8	0.15	19980904	6.93722	119.84038	218.69769	5.86444	0.2495885	2.3502311	35	1	59 days	0.90		Spahr	1998 QU ₇₇
1998 QL ₈₄	13.9	0.15	19990122	347.23911	108.96672	295.29207	11.93091	0.1768894	2.6720458	38	1	107 days	0.46	M-v 4	Spahr	33562 1998 QL ₈₄
1998 QO ₈₄	14.5	0.15	19990122	50.30878	20.26682	288.12036	10.01223	0.2997321	2.6580874	58	1	107 days	0.44	M-v 4	Spahr	33562 1998 QO ₈₄
1998 QE ₈₆	14.9	0.15	19990122	22.69171	159.70020	206.26569	17.19163	0.2327264	2.5352788	29	1	106 days	0.68	M-v 4	Spahr	33562 1998 QE ₈₆
1998 QM ₈₇	15.5	0.15	19980904	351.83481	161.24077	200.73220	16.28040	0.1896482	3.0591708	19	1	48 days	0.80		Williams	1998 QM ₈₇
1998 QV ₈₈	14.5	0.15	19990122	45.71091	72.91474	262.30849	7.42186	0.2781593	2.3853746	28	1	137 days	0.69	M-v 4	Williams	33756 1998 QV ₈₈
1998 QV ₈₉	12.8	0.15	19990122	62.04639	14.19228	299.56164	9.63618	0.0789070	3.0705078	32	1	130 days	0.69	M-v 4	Spahr	33756 1998 QV ₈₉
1998 QA ₉₁	13.5	0.15	19990122	57.64190	154.58256	166.88158	13.80616	0.2020252	2.6016986	49	1	171 days	0.73	M-v 4	Spahr	33756 1998 QA ₉₁
1998 QY ₉₁	15.0	0.15	19990122	21.52697	347.86826	50.41972	3.47691	0.2393753	2.3121213	34	1	133 days	0.89	M-v 4	Spahr	33756 1998 QY ₉₁
1998 QJ ₉₂	15.2	0.15	19990122	25.23406	325.27332	71.63957	3.28184	0.2367275	2.3084180	52	2	1991–1999	0.72	M-v 3	Williams	33562 1998 QJ ₉₂
1998 QL ₉₂	13.7	0.15	19990122	20.74322	226.27967	177.74393	2.01620	0.2127681	2.3738447	46	3	1954–1999	0.65	M-v 2	Williams	33756 1998 QL ₉₂
1998 QN ₉₂	13.1	0.15	19990122	40.10802	1.24805	8.50403	13.80002	0.1680647	2.9675198	47	2	1992–1999	0.75	M-v 4	Williams	33756 1998 QN ₉₂
1998 QO ₉₂	14.2	0.15	19990122	9.71383	262.80688	155.34038	2.42023	0.1182209	2.3142949	28	2	1996–1999	0.61	M-v 4	Williams	33756 1998 QO ₉₂
1998 QS ₉₂	13.7	0.15	19990122	60.21644	251.87422	91.97739	6.54856	0.2219337	2.2716197	35	1	160 days	0.56	M-v 4	Williams	33756 1998 QS ₉₂
1998 QW ₉₂	14.3	0.15	19990122	19.31968	340.16415	66.12708	3.30762	0.2039721	2.4045879	37	1	174 days	0.87	M-v 4	Williams	33756 1998 QW ₉₂
1998 QX ₉₂	13.4	0.15	19990122	10.36367	217.93522	193.38628	8.98753	0.1477032	2.7718870	36	1	160 days	0.82	M-v 3	Williams	33756 1998 QX ₉₂
1998 QB ₉₃	14.4	0.15	19990122	30.35541	279.76799	107.20012	3.54912	0.2089747	2.5716904	43	1	160 days	0.62	M-v 4	Williams	33756 1998 QB ₉₃
1998 QF ₉₃	14.1	0.15	19990122	39.94149	175.83759	198.61893	13.45889	0.1986700	2.6278013	11	1	108 days	1.05	M-v 4	Williams	1998 QF ₉₃
1998 QH ₉₃	13.5	0.15	19990122	349.07498	212.19480	245.19945	11.20485	0.2257798	2.6626032	39	1	160 days	0.69	M-v 4	Williams	33756 1998 QH ₉₃
1998 QK ₉₃	13.5	0.15	19990122	341.05050	77.42189	21.04272	13.31250	0.1533098	2.6658381	24	1	80 days	0.67	M-v 5	Williams	33349 1998 QK ₉₃
1998 QN ₉₃	13.1	0.15	19990122	16.70046	209.52321	203.40875	14.37984	0.1705209	2.6478863	18	1	160 days	0.78	M-v 4	Williams	33349 1998 QN ₉₃

1999 MAR. 2

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1998 QO ₉₃	12.9	0.15	19990122	346.28845	227.49756	237.99126	12.85478	0.1264207	2.5740020	38	1	160 days	0.65	M-v	4	Williams	33562	1998 QO ₉₃
1998 QP ₉₃	13.5	0.15	19990122	41.49364	269.15802	108.87187	6.96044	0.1208809	2.4122164	23	1	160 days	0.87	M-v	4	Spahr	33756	1998 QP ₉₃
1998 QQ ₉₃	13.3	0.15	19990122	25.30925	340.63885	57.43367	12.97798	0.1526209	2.6041228	32	1	162 days	0.67	M-v	4	Williams	33756	1998 QQ ₉₃
1998 QR ₉₃	13.5	0.15	19990122	31.23284	332.90473	58.05242	13.93761	0.1656496	2.6825046	51	2	1989–1999	0.80	M-v	3	Williams	33562	1998 QR ₉₃
1998 QA ₉₈	13.4	0.15	19990122	276.26578	187.17012	310.94843	6.59358	0.1617484	2.4523085	54	2	1997–1999	0.61	M-v	4	Williams	33756	1998 QA ₉₈
1998 QZ ₉₉	15.1	0.15	19990122	16.23923	322.21544	54.92188	3.42274	0.1671887	2.4505986	37	1	104 days	0.74	M-v	4	Spahr	33562	1998 QZ ₉₉
1998 QF ₁₀₁	16.0	0.15	19980904	355.74232	297.73190	56.93246	3.09433	0.2212150	2.6639076	24	1	47 days	0.75			Spahr		1998 QF ₁₀₁
1998 QP ₁₀₂	13.7	0.15	19980904	101.30463	92.12599	154.12726	10.14318	0.0383198	3.0497107	29	1	45 days	0.69			Spahr		1998 QP ₁₀₂
1998 QV ₁₀₂	12.8	0.15	19990122	9.36501	322.67295	47.16263	6.34520	0.2925644	3.9568202	48	4	1975–1998	0.73	M-v	2	Williams	33563	1998 QV ₁₀₂
1998 QO ₁₀₄	14.6	0.15	19980904	226.56104	61.85227	69.70133	5.79089	0.0333880	2.4649453	22	1	32 days	0.48			Spahr		1998 QO ₁₀₄
1998 RX	12.5	0.15	19990122	1.14112	35.80908	358.41052	10.42266	0.0682405	3.2144238	59	4	1975–1998	0.64	M-v	2	Williams	33091	1998 RX
1998 RM ₃	14.3	0.15	19990122	4.32435	45.11189	350.11801	24.92382	0.1833118	2.2812779	30	1	101 days	0.58	M-v	4	Spahr	33563	1998 RM ₃
1998 RT ₄	15.3	0.15	19990122	2.86252	244.58526	170.68147	31.70689	0.4030468	2.7269135	28	1	134 days	0.61	M-v	3	Spahr	33756	1998 RT ₄
1998 RQ ₅	15.4	0.15	19990122	76.41750	308.58066	13.35284	0.81574	0.0381889	2.2463132	29	2	1991–1998	0.74	M-v	5	Spahr	33270	1998 RQ ₅
1998 RR ₅	16.8	0.15	19990122	28.91257	192.59042	177.88963	2.39933	0.2344042	2.4044953	38	1	113 days	0.70	M-v	4	Spahr	33756	1998 RR ₅
1998 RK ₆	13.5	0.15	19990122	49.70835	156.37548	151.31046	6.37967	0.1424075	3.1879501	33	3	1996–1998	0.63	M-v	3	Williams	33563	1998 RK ₆
1998 RC ₁₆	15.0	0.15	19990122	70.22596	263.05418	57.48256	4.58735	0.1457884	2.3541972	36	1	113 days	0.54	M-v	5	Spahr	33756	1998 RC ₁₆
1998 RN ₂₂	15.1	0.15	19980904	296.74670	252.44968	173.08951	3.48560	0.1911962	2.5702026	17	1	33 days	0.72			Doppler		1998 RN ₂₂
1998 RK ₃₃	14.2	0.15	19990122	105.70142	253.84184	2.26219	13.21367	0.1364207	2.5941196	27	2	1994–1998	0.49	M-v	5	Spahr	33510	1998 RK ₃₃
1998 RK ₃₄	16.3	0.15	19980904	316.60599	11.08143	24.46251	6.51620	0.0783283	2.2318638	14	1	28 days	0.86			Spahr		1998 RK ₃₄
1998 RM ₃₄	15.1	0.15	19990122	212.59938	34.6955	140.07296	7.38461	0.0346034	2.2483263	24	2	1997–1998	0.54	M-v	4	Spahr	33707	1998 RM ₃₄
1998 RG ₃₇	15.3	0.15	19980904	310.22134	184.99594	235.11626	4.85001	0.1938390	2.4215483	21	1	42 days	0.59			Williams		1998 RG ₃₇
1998 RA ₃₉	14.7	0.15	19990122	358.27828	230.02861	159.92780	10.17586	0.1284017	2.7321121	22	2	1997–1998	0.45	M-v	4	Spahr	33707	1998 RA ₃₉
1998 RP ₃₉	16.8	0.15	19980904	315.36850	14.27448	27.66221	4.83240	0.1249806	2.1923170	15	1	28 days	0.58			Spahr		1998 RP ₃₉
1998 RQ ₃₉	16.8	0.15	19980904	337.66904	301.28646	77.88855	3.22173	0.1935703	2.4680890	17	1	43 days	0.77			Spahr		1998 RQ ₃₉
1998 RV ₃₉	16.3	0.15	19980904	359.16557	209.47025	138.76659	6.77169	0.1501690	2.5497447	15	1	28 days	0.61			Spahr		1998 RV ₃₉
1998 RY ₄₀	17.0	0.15	19980904	1.87837	187.74024	157.14575	10.75179	0.2324530	2.5792556	23	1	13 days	0.75			Spahr		1998 RY ₄₀
1998 RJ ₄₂	15.3	0.15	19980904	328.09735	156.74317	239.33540	4.51153	0.1741903	3.2036111	16	1	13 days	0.51			Spahr		1998 RJ ₄₂
1998 RP ₄₂	14.8	0.15	19980924	299.44638	165.52466	265.65360	4.47228	0.1226667	2.5533104	18	1	27 days	0.46			Spahr		1998 RP ₄₂
1998 RW ₄₂	16.6	0.15	19990122	55.49520	97.08086	231.22005	4.34752	0.1744927	2.2782494	21	2	1997–1998	0.72	M-v	5	Spahr	33510	1998 RW ₄₂
1998 RY ₄₂	14.8	0.15	19980904	241.61745	288.04183	186.81663	22.08576	0.0382756	2.6604536	25	1	13 days	0.68			Spahr		1998 RY ₄₂
1998 RZ ₄₂	16.5	0.15	19980904	25.91073	78.52881	232.85564	3.76389	0.2207144	2.6068678	24	1	13 days	0.68			Spahr		1998 RZ ₄₂
1998 RO ₄₄	14.1	0.15	19980924	205.96980	91.09773	61.57347	5.90852	0.0994822	3.2220716	27	1	55 days	0.70			Spahr		1998 RO ₄₄
1998 RS ₄₄	17.0	0.15	19980904	318.05672	259.29186	145.71188	7.16269	0.1554117	2.3135807	23	1	14 days	0.85			Spahr		1998 RS ₄₄
1998 RE ₄₆	16.0	0.15	19980904	306.14768	134.47332	293.69773	2.73322	0.2144803	2.3627675	25	1	13 days	0.52			Spahr		1998 RE ₄₆
1998 RF ₄₆	14.8	0.15	19980924	85.29861	327.89423	298.87439	2.98123	0.0531111	2.6464414	28	1	30 days	0.51			Spahr		1998 RF ₄₆
1998 RK ₄₆	15.2	0.15	19980904	6.33391	47.97658	296.25122	3.71942	0.1816585	3.1006564	25	1	13 days	0.59			Spahr		1998 RK ₄₆
1998 RN ₄₆	16.7	0.15	19980904	16.88981	9.52092	313.39636	4.51924	0.2430844	2.3928124	26	1	13 days	0.55			Spahr		1998 RN ₄₆
1998 RP ₄₆	16.2	0.15	19990122	13.48321	164.70169	228.07706	3.32739	0.2460678	2.3286363	36	1	85 days	0.53	M-v	4	Spahr	33564	1998 RP ₄₆
1998 RQ ₄₆	16.2	0.15	19990122	49.15565	21.67153	312.39614	3.58611	0.2580989	2.2869269	27	1	86 days	0.60	M-v	5	Spahr	33564	1998 RQ ₄₆
1998 RM ₄₇	15.8	0.15	19980924	33.77534	34.77642	278.21837	3.69284	0.1684615	2.5327526	28	1	30 days	0.55			Spahr		1998 RM ₄₇
1998 RU ₄₇	14.0	0.15	19980904	227.11487	294.65026	198.39307	12.41462	0.0526550	2.9874947	30	1	48 days	0.76			Spahr		1998 RU ₄₇
1998 RW ₄₇	15.6	0.15	19980904	112.54471	20.06304	214.59560	5.96145	0.0709425	2.4291611	24	1	13 days	0.73			Spahr		1998 RW ₄₇
1998 RG ₄₉	15.2	0.15	19990122	86.86707	108.62632	184.31347	3.03000	0.1461848	2.1929205	32	3	1985–1998	0.56	M-v	3	Spahr	33564	1998 RG ₄₉
1998 RK ₄₉	14.9	0.15	19990122	345.54075	254.28557	169.60883	5.36157	0.1709446	2.2553985	40	5	1951–1998	0.75	M-v	2	Spahr	33564	1998 RK ₄₉
1998 RO ₄₉	14.8	0.15	19990122	346.60977	301.89690	110.66780	1.47263	0.2565056	3.2654135	27	2	1994–1998	0.80	M-v	5	Spahr	33271	1998 RO ₄₉
1998 RJ ₅₀	13.9	0.15	19990122	347.70966	283.07459	126.40957	1.82854	0.2111788	3.0604045	29	3	1973–1998	0.73	M-v	4	Spahr	33271	1998 RJ ₅₀
1998 RZ ₅₀	13.5	0.15	19990122	109.85559	60.49497	191.20133	16.50496	0.1766595	3.1278479	27	2	1993–1998	0.82	M-v	5	Spahr	33564	1998 RZ ₅₀
1998 RJ ₅₂	14.9	0.15	19990122	6.92655	328.92787	48.29935	6.89467	0.0581097	2.7423164	23	2	1996–1998	0.43	M-v	4	Spahr	33511	1998 RJ ₅₂
1998 RL ₅₃	14.0	0.15	19990122	322.82639	81.07688	346.82050	9.62806	0.0824055	3.0717692	37	2	1996–1998	0.65	M-v	4	Spahr	33565	1998 RL ₅₃
1998 RN ₅₃	14.9	0.15	19990122	80.58841	71.44303	228.51729	3.03515	0.0832329	2.5984189	29	2	1997–1998	0.82	M-v	5	Spahr	33272	1998 RN ₅₃
1998 RF ₅₄	15.1	0.15	19980904	32.33123	337.98202	325.74542	5.46386	0.2430122	2.6667772	25	1	13 days	0.52			Spahr		1998 RF ₅₄
1998 RL ₅₄	14.3	0.15	19980904	317.94873	116.30979	299.09028	4.91362	0.1705429	3.0906786	32	1	49 days	0.46			Spahr		1998 RL ₅₄

1998 RA ₅₅	15.7	0.15	19990122	47.70003	127.98614	200.91298	12.53040	0.2452099	2.6946862	18	1	68 days	0.88	M-v	5	Spahr	33351	1998 RA ₅₅
1998 RQ ₅₆	15.1	0.15	19980924	250.78518	283.48533	193.98032	6.75078	0.0669886	2.3798754	32	1	30 days	0.71			Spahr		1998 RQ ₅₆
1998 RX ₅₇	16.1	0.15	19980904	45.27231	135.73812	155.84767	4.41839	0.1772529	2.4138622	21	1	16 days	0.79			Williams		1998 RX ₅₇
1998 RA ₅₈	16.1	0.15	19990122	340.96529	275.68076	154.09303	2.50524	0.1782885	2.3603573	26	2	1995–1998	0.87	M-v	5	Spahr	33272	1998 RA ₅₈
1998 RC ₅₈	13.2	0.15	19990122	112.83946	115.68420	139.43901	1.72948	0.1193333	3.1577397	47	3	1982–1998	0.59	M-v	3	Williams	33351	1998 RC ₅₈
1998 RN ₅₈	14.1	0.15	19990122	4.36155	114.45736	275.71899	1.15125	0.1298327	2.6675376	36	1	85 days	0.49	M-v	5	Spahr	33565	1998 RN ₅₈
1998 RL ₅₉	14.1	0.15	19990122	327.94009	223.63668	205.81788	3.43159	0.0827398	2.8019317	37	4	1989–1998	0.66	M-v	1	Williams	33351	1998 RL ₅₉
1998 RR ₅₉	15.3	0.15	19990122	101.66149	335.67635	311.50417	3.57379	0.0741904	2.3054900	22	2	1997–1998	0.67	M-v	5	Spahr	33273	1998 RR ₅₉
1998 RG ₆₁	15.8	0.15	19990122	30.02309	26.42910	344.96193	4.41863	0.1635114	2.2463273	21	1	101 days	0.51	M-v	5	Williams		1998 RG ₆₁
1998 RN ₆₁	15.0	0.15	19990122	8.04615	120.55555	272.50386	1.71925	0.1689031	2.5716802	33	1	135 days	0.53	M-v	4	Spahr	33565	1998 RN ₆₁
1998 RC ₆₂	16.2	0.15	19990122	55.74611	149.19683	184.13558	6.87338	0.1348342	2.3324142	23	2	1997–1998	0.66	M-v	5	Spahr	33273	1998 RC ₆₂
1998 RD ₆₂	14.1	0.15	19990122	343.98299	85.13887	345.97430	4.14736	0.1667657	2.2464511	36	2	1991–1999	0.56	M-v	4	Williams	33756	1998 RD ₆₂
1998 RF ₆₃	16.4	0.15	19980924	352.96759	317.22897	54.86960	3.82713	0.2680212	2.3224798	26	1	33 days	0.47			Spahr		1998 RF ₆₃
1998 RH ₆₃	15.4	0.15	19990122	42.30843	242.04821	108.07719	3.14775	0.1876090	2.2079544	26	1	126 days	0.64	M-v	4	Spahr	33565	1998 RH ₆₃
1998 RB ₆₅	13.2	0.15	19990122	134.82079	157.18694	81.84694	0.08829	0.1169269	3.2291463	31	2	1990–1998	0.68	M-v	5	Spahr	33273	1998 RB ₆₅
1998 RJ ₆₆	15.2	0.15	19990122	42.80857	124.25502	214.74001	2.36715	0.2894061	2.5704467	44	2	1996–1998	0.56	M-v	4	Williams	33565	1998 RJ ₆₆
1998 RT ₆₆	13.3	0.15	19990122	34.62979	138.16259	215.47406	7.30626	0.0822660	3.0336079	40	1	76 days	0.69	M-v	4	Marsden		1998 RT ₆₆
1998 RM ₆₇	14.2	0.15	19990122	320.61405	170.00785	291.18212	3.26428	0.1701762	2.2914068	49	3	1981–1999	0.75	M-v	3	Williams	33756	1998 RM ₆₇
1998 RA ₆₈	12.7	0.15	19990122	48.96763	336.60814	357.39093	10.29796	0.1689677	2.8092955	47	3	1979–1999	0.80	M-v	3	Williams	33756	1998 RA ₆₈
1998 RK ₆₈	13.9	0.15	19990122	298.81642	271.49335	195.30610	4.69290	0.0854920	2.5847226	55	4	1973–1998	0.78	M-v	4	Spahr	33565	1998 RK ₆₈
1998 RW ₆₈	15.0	0.15	19990122	72.38446	294.78779	15.60395	2.91679	0.1904341	2.3155552	46	1	134 days	0.72	M-v	4	Spahr	33565	1998 RW ₆₈
1998 RC ₆₉	13.9	0.15	19990122	34.11955	324.88706	21.49249	0.52905	0.1933178	3.1795054	27	1	92 days	0.50	M-v	5	Williams		1998 RC ₆₉
1998 RU ₇₃	15.4	0.15	19990122	45.40536	135.43563	214.53751	6.67139	0.1298952	2.4203615	18	2	1993–1998	0.86	M-v	5	Spahr	33274	1998 RU ₇₃
1998 RH ₇₄	13.1	0.15	19990122	57.81289	48.24633	276.02597	3.79598	0.1527752	3.0395249	39	1	101 days	0.72	M-v	5	Williams		1998 RH ₇₄
1998 RV ₇₄	15.3	0.15	19990122	40.40582	29.54007	321.13384	1.57860	0.1909931	2.5936069	39	2	1997–1998	0.68	M-v	4	Spahr	33274	1998 RV ₇₄
1998 RB ₇₅	15.0	0.15	19990122	13.06334	32.53716	2.12952	7.26416	0.1119382	2.2629055	34	1	144 days	0.66	M-v	4	Williams	33565	1998 RB ₇₅
1998 RV ₇₇	13.4	0.15	19990122	48.53495	313.39906	21.28294	11.24422	0.1104428	2.9887417	39	3	1993–1998	0.64	M-v	3	Williams	33275	1998 RV ₇₇
1998 RF ₇₉	14.9	0.15	19990122	340.03525	21.78528	51.40381	5.84905	0.1071701	2.2246537	26	1	122 days	0.72	M-v	4	Spahr	33757	1998 RF ₇₉
1998 RV ₇₉	13.4	0.15	19990122	135.60487	138.21390	107.22489	3.48396	0.1592971	2.6508060	51	4	1971–1998	0.74	M-v	2	Spahr	33275	1998 RV ₇₉
1998 RX ₇₉	13.7	0.15	19990122	355.90318	77.71702	340.98023	8.28970	0.1888721	2.5736040	38	1	141 days	0.74	M-v	4	Spahr	33757	1998 RX ₇₉
1998 RC ₈₀	13.4	0.15	19990122	358.38638	243.08689	155.13640	11.12692	0.1160702	3.0649108	14	1	95 days	0.73	M-v	6	Williams		1998 RC ₈₀
1998 RF ₈₀	15.7	0.15	19990122	10.77041	340.22973	59.68808	6.13720	0.2021829	2.4033031	20	1	128 days	0.80	M-v	4	Spahr	33757	1998 RF ₈₀
1998 RP ₈₀	13.0	0.15	19990122	66.66698	122.46042	198.65780	8.87988	0.0888805	3.1638078	53	1	92 days	0.68	M-v	5	Spahr	33566	1998 RP ₈₀
1998 SQ	11.0	0.15	19990122	328.46286	253.03889	182.30610	0.90037	0.0961481	5.2568750	49	1	128 days	0.64	M-v	5	Spahr	33757	1998 SQ
1998 SA ₁	13.8	0.15	19990122	25.39399	210.48392	164.56504	1.36992	0.1992744	3.1811848	33	1	94 days	0.36	M-v	3	Spahr	33757	1998 SA ₁
1998 SK ₂	13.9	0.15	19990122	31.51019	317.56599	30.74303	1.40893	0.2245767	3.1566361	62	1	85 days	0.44	M-v	4	Spahr	33566	1998 SK ₂
1998 SN ₂	14.6	0.15	19990122	28.04470	269.59233	119.69408	0.22647	0.1815776	3.0866180	25	2	1997–1999	0.51	M-v	3	Williams	33757	1998 SN ₂
1998 SS ₂	13.3	0.15	19990122	74.02713	57.54764	259.25308	12.34251	0.1823397	2.5761241	60	1	143 days	0.58	M-v	4	Williams	33757	1998 SS ₂
1998 SM ₄	14.8	0.15	19990122	25.26702	174.36639	203.96970	1.75577	0.2162664	2.4209745	38	1	142 days	0.44	M-v	4	Spahr	33757	1998 SM ₄
1998 SX ₇	12.8	0.15	19990122	177.05771	153.21400	43.18126	0.77592	0.1263552	3.1217714	44	4	1990–1998	0.79	M-v	1	Williams	33277	1998 SX ₇
1998 SX ₉	15.1	0.15	19990122	39.08973	162.77366	184.12643	6.03058	0.3248004	2.5923205	69	1	91 days	0.68	M-v	4	Spahr	33566	1998 SX ₉
1998 SA ₁₀	13.2	0.15	19990122	27.06882	131.24208	213.98845	34.33138	0.2120849	2.8583939	46	2	1997–1998	0.86	M-v	3	Williams	33566	1998 SA ₁₀
1998 SA ₁₃	13.7	0.15	19990122	230.93711	326.04632	292.26023	14.52560	0.0807004	2.6484383	44	1	143 days	0.56	M-v	4	Williams	33757	1998 SA ₁₃
1998 SW ₁₃	15.2	0.15	19980904	21.65370	155.52326	149.91792	15.96606	0.2400965	2.8554415	25	1	36 days	0.49		D	Doppler		1998 SW ₁₃
1998 SM ₂₁	15.2	0.15	19981014	167.68747	262.93135	313.38071	1.95921	0.1155607	2.3940473	16	1	29 days	0.39			Doppler		1998 SM ₂₁
1998 SR ₂₁	15.5	0.15	19981014	292.60671	247.55272	213.42843	6.21682	0.0646994	2.3797526	17	1	38 days	0.57		D	Doppler		1998 SR ₂₁
1998 SW ₂₃	14.9	0.15	19990122	259.95406	93.46477	44.24878	7.72069	0.0389164	2.3851105	24	2	1993–1998	0.68	M-v	5	Spahr	33278	1998 SW ₂₃
1998 SU ₂₅	15.1	0.15	19990122	53.64734	280.37805	56.61251	5.38385	0.2131399	2.4479275	48	1	117 days	0.51	M-v	4	Spahr	33757	1998 SU ₂₅
1998 ST ₂₆	14.0	0.15	19990122	39.65824	140.36491	297.87061	10.61454	0.0757732	3.0517755	29	1	141 days	0.62	M-v	4	Williams	33757	1998 ST ₂₆
1998 SV ₂₆	13.7	0.15	19990122	300.86592	294.24983	265.14464	12.23128	0.1473435	2.6329743	48	1	148 days	0.63	M-v	4	Williams	33757	1998 SV ₂₆
1998 SU ₂₇	19.2	0.15	19990122	17.59599	169.34273	271.64119	7.08537	0.5928571	2.1245872	79	1	151 days	0.58	M-v	4	Williams		1998 SU ₂₇
1998 SB ₃₂	13.5	0.15	19990122	59.10605	141.38609	187.08284	6.45327	0.0833886	2.9609222	49	3	1993–1998	0.65	M-v	4	Williams	33022	1998 SB ₃₂
1998 SW ₃₂	14.8	0.15	19990122	325.44835	82.53173	5.40129	4.81935	0.2338706	2.5624950	43	3	1986–1998	0.89	M-v	4	Williams	33109	1998 SW ₃₂

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M.P.C. 34023

1998 SP ₃₃	14.7	0.15	19990122	342.07187	99.76502	347.38857	4.87254	0.3020729	2.2613981	37	1	161 days	0.49	M-v	4	Williams	33757	1998 SP ₃₃
1998 SZ ₃₅	15.3	0.15	19990122	36.21432	316.35104	41.98562	8.57501	0.2223380	2.5771307	54	1	112 days	0.55	M-v	3	Spahr	33757	1998 SZ ₃₅
1998 SP ₃₆	11.9	0.15	19990122	168.45105	205.34365	13.62473	12.54387	0.0897821	3.1672423	62	5	1973–1998	0.83	M-v	2	Williams	33023	1998 SP ₃₆
1998 SS ₃₇	15.7	0.15	19990122	91.59981	92.53819	217.58814	3.50743	0.1362377	2.2128422	27	2	1991–1999	0.73	M-v	4	Spahr	33707	1998 SS ₃₇
1998 SR ₄₃	13.6	0.15	19990122	328.54806	68.64951	4.19356	1.76642	0.0549647	2.9427932	68	4	1976–1998	0.76	M-v	1	Williams	33356	1998 SR ₄₃
1998 SJ ₄₈	14.7	0.15	19981014	16.49216	12.76011	355.05841	1.59362	0.1219335	2.8876388	9	1	25 days	0.13			Doppler		1998 SJ ₄₈
1998 SK ₄₈	16.1	0.15	19981014	282.95614	118.59441	3.03877	2.29064	0.1378325	2.5463465	9	1	25 days	0.19			Doppler		1998 SK ₄₈
1998 SQ ₄₈	15.8	0.15	19981014	89.14454	336.02492	304.66657	1.49256	0.1527756	2.3904643	12	1	18 days	0.53			Doppler		1998 SQ ₄₈
1998 SR ₄₉	17.3	0.15	19990122	16.26501	54.43081	21.61233	29.20733	0.5345430	2.4778577	61	1	144 days	0.54	M-v	4	Williams	33757	1998 SR ₄₉
1998 ST ₄₉	17.8	0.15	19990122	21.27447	47.38746	18.78771	24.65184	0.5941016	2.3088883	52	1	144 days	0.55	M-v	4	Williams	33758	1998 ST ₄₉
1998 SK ₅₀	15.1	0.15	19990122	9.87617	355.78420	47.25515	4.30882	0.2489242	2.5402620	52	1	117 days	0.74	M-v	4	Spahr	33758	1998 SK ₅₀
1998 SH ₅₉	12.9	0.15	19990122	301.07384	8.30910	95.80763	2.56708	0.1266384	3.2334834	40	5	1981–1998	0.84	M-v	1	Spahr	33280	1998 SH ₅₉
1998 SJ ₆₂	14.9	0.15	19990122	44.28043	113.66419	231.89106	7.85199	0.2536737	2.3599582	45	3	1980–1999	0.72	M-v	3	Spahr	33707	1998 SJ ₆₂
1998 SJ ₆₃	14.7	0.15	19990122	20.03884	96.92323	297.34681	3.51989	0.3221086	2.4689520	50	1	103 days	0.66	M-v	4	Spahr	33758	1998 SJ ₆₃
1998 ST ₆₃	13.9	0.15	19990122	351.95508	200.95291	211.97943	3.17305	0.2065420	2.6063630	59	1	95 days	0.55	M-v	4	Spahr	33758	1998 ST ₆₃
1998 SH ₆₄	14.8	0.15	19990122	12.00659	333.84371	67.91926	6.06153	0.1916768	2.6176497	21	1	80 days	0.74	M-v	4 D	Williams		1998 SH ₆₄
1998 SJ ₆₄	13.8	0.15	19990122	254.36341	105.88248	59.26821	4.64015	0.0715591	2.2949166	31	1	119 days	0.60	M-v	4	Spahr	33758	1998 SJ ₆₄
1998 SN ₆₄	14.3	0.15	19990122	70.25779	132.94555	187.16147	12.20556	0.2022154	2.5561507	42	2	1997–1998	0.76	M-v	4	Spahr	33281	1998 SN ₆₄
1998 SS ₆₄	15.2	0.15	19981014	52.03442	248.49653	56.64304	4.14959	0.2660722	2.6998129	15	1	39 days	0.78			Doppler		1998 SS ₆₄
1998 SR ₆₅	14.8	0.15	19990122	45.90274	256.76604	98.94243	2.79656	0.1904911	2.4757392	24	1	84 days	0.77	M-v	4	Spahr	33568	1998 SR ₆₅
1998 SB ₆₇	15.2	0.15	19981014	17.40935	284.36423	79.02683	4.32803	0.1536498	2.5480779	30	1	54 days	0.77			Spahr		1998 SB ₆₇
1998 SR ₇₀	14.0	0.15	19990122	30.76120	338.04578	30.16492	9.39783	0.0945879	3.0877865	36	3	1987–1998	0.71	M-v	4	Williams	33283	1998 SR ₇₀
1998 SH ₇₂	15.1	0.15	19990122	27.50131	339.93943	42.77344	3.11307	0.2043115	2.3977998	40	1	79 days	0.63	M-v	4	Spahr	33568	1998 SH ₇₂
1998 SS ₇₂	14.8	0.15	19981014	87.61594	243.69067	40.45329	7.44391	0.1105149	2.3270909	27	1	51 days	1.29			Spahr		1998 SS ₇₂
1998 SU ₇₃	14.6	0.15	19990122	73.41988	266.10796	52.64906	4.26674	0.1891954	2.3231360	62	1	111 days	0.76	M-v	5	Spahr	33758	1998 SU ₇₃
1998 SB ₇₄	14.4	0.15	19981014	322.27450	304.58539	130.23988	3.56039	0.1559397	3.0996442	17	1	51 days	0.97			Spahr		1998 SB ₇₄
1998 SW ₇₅	14.7	0.15	19990122	168.23940	101.26181	134.47908	3.09513	0.1293402	2.2065305	29	3	1978–1998	0.69	M-v	5	Spahr	33284	1998 SW ₇₅
1998 SJ ₈₁	15.9	0.15	19981014	330.00014	10.51306	29.23303	3.03363	0.0781306	2.8003401	13	1	23 days	0.61			Doppler		1998 SJ ₈₁
1998 SG ₈₇	15.6	0.15	19990122	20.07803	135.35051	245.70161	4.54185	0.2923240	2.6433738	39	1	144 days	0.77	M-v	4	Spahr	33758	1998 SG ₈₇
1998 SK ₁₀₀	13.7	0.15	19990122	73.34601	19.97340	305.82696	4.38346	0.0586255	2.4079184	34	1	104 days	0.62	M-v	5	Spahr	33758	1998 SK ₁₀₀
1998 SX ₁₀₁	15.3	0.15	19990122	61.83264	307.88460	11.56031	4.15467	0.2572551	2.3382218	36	1	89 days	0.72	M-v	5	Spahr	33568	1998 SX ₁₀₁
1998 SE ₁₀₂	14.8	0.15	19990122	341.77768	52.73331	18.52244	4.68329	0.0997444	2.2576964	35	1	89 days	0.78	M-v	5	Spahr	33568	1998 SE ₁₀₂
1998 SV ₁₀₅	14.4	0.15	19990122	297.28129	13.50851	104.26467	2.25054	0.1340599	2.4146752	21	2	1994–1998	0.66	M-v	6	Spahr	33284	1998 SV ₁₀₅
1998 SH ₁₀₆	13.3	0.15	19990122	38.49593	320.55436	22.67407	11.51086	0.1979599	3.1924923	31	1	98 days	0.46	M-v	4	Williams		1998 SH ₁₀₆
1998 SR ₁₀₇	14.9	0.15	19980924	195.47902	187.02925	351.49627	3.99851	0.0866621	2.2759876	29	1	56 days	1.35			Spahr		1998 SR ₁₀₇
1998 SA ₁₀₉	14.3	0.15	19990122	317.40073	149.37892	313.10994	3.65462	0.1145700	2.2920988	32	2	1993–1998	0.57	M-v	5	Spahr	33285	1998 SA ₁₀₉
1998 SQ ₁₀₉	14.5	0.15	19990122	350.22353	180.43011	248.08036	5.67336	0.1890395	2.5331764	42	1	114 days	0.68	M-v	4	Spahr	33758	1998 SQ ₁₀₉
1998 SE ₁₁₁	15.3	0.15	19990122	359.73349	198.39457	219.21646	1.79304	0.1944009	2.3770972	39	2	1987–1998	0.59	M-v	5	Spahr	33568	1998 SE ₁₁₁
1998 SF ₁₁₁	15.8	0.15	19990122	45.04367	112.30362	235.67187	1.12492	0.2404172	2.3793892	32	1	126 days	0.50	M-v	4	Spahr	33758	1998 SF ₁₁₁
1998 SR ₁₁₁	13.5	0.15	19990122	288.50004	103.80246	16.98228	13.42904	0.1007911	2.6753217	50	2	1996–1998	0.57	M-v	4	Williams	33360	1998 SR ₁₁₁
1998 SD ₁₁₂	15.3	0.15	19990122	31.42811	239.90311	129.39873	2.90406	0.1858829	2.3979402	31	1	119 days	0.63	M-v	4	Spahr	33758	1998 SD ₁₁₂
1998 SS ₁₁₄	14.9	0.15	19980924	1.77608	296.41964	72.99896	3.14765	0.0962343	2.9084545	19	1	27 days	0.84			Spahr		1998 SS ₁₁₄
1998 SZ ₁₁₄	13.8	0.15	19990122	55.82719	250.84039	88.50116	1.43358	0.0627466	2.7339259	35	2	1994–1999	0.73	M-v	5	Spahr	33758	1998 SZ ₁₁₄
1998 SB ₁₁₆	14.2	0.15	19990122	13.18549	170.25569	217.70970	5.41234	0.2319946	3.0904814	43	1	91 days	0.61	M-v	4	Spahr	33758	1998 SB ₁₁₆
1998 SH ₁₁₆	13.6	0.15	19990122	5.26461	156.47317	241.66249	5.07483	0.0630777	2.7835211	27	1	83 days	0.53	M-v	4	Spahr	33568	1998 SH ₁₁₆
1998 SM ₁₁₆	13.3	0.15	19990122	346.17825	193.55827	229.59601	5.42317	0.1049335	2.7979831	43	1	125 days	0.49	M-v	4	Spahr	33758	1998 SM ₁₁₆
1998 SZ ₁₁₆	15.7	0.15	19981014	328.79024	205.78128	218.63763	12.22909	0.1670854	2.6599029	24	1	45 days	0.66			Spahr		1998 SZ ₁₁₆
1998 SH ₁₁₇	15.2	0.15	19990122	9.41913	178.34679	228.62721	5.74474	0.2666743	2.5941861	35	1	103 days	0.53	M-v	4	Spahr	33759	1998 SH ₁₁₇
1998 SR ₁₁₇	13.9	0.15	19990122	21.34343	16.95013	5.22588	10.73074	0.0529421	2.7467865	27	2	1996–1998	0.57	M-v	4	Spahr	33286	1998 SR ₁₁₇
1998 SS ₁₁₇	14.2	0.15	19990122	141.71233	307.34251	303.89800	2.64772	0.1572656	2.3321541	25	2	1991–1998	0.70	M-v	6	Spahr	33286	1998 SS ₁₁₇
1998 SV ₁₁₇	15.7	0.15	19980924	337.83588	77.34000	327.48561	2.32869	0.1660586	2.4562624	26	1	57 days	0.61			Spahr		1998 SV ₁₁₇
1998 SC ₁₁₈	16.1	0.15	19990122	47.01293	103.67029	246.31093	1.25125	0.2081610	2.3626675	26	2	1994–1998	0.80	M-v	5	Spahr	33286	1998 SC ₁₁₈
1998 SL ₁₁₈	16.1	0.15	19981014	340.11074	51.82289	2.01247	1.39447	0.2441415	3.0186620	24	1	45 days	0.82			Spahr		1998 SL ₁₁₈

1998 SQ ₁₁₈	14.4	0.15	19981014	41.88739	122.94125	194.31889	7.40752	0.2229746	2.5634902	26	1	46 days	0.69	Spahr		1998 SQ ₁₁₈
1998 SR ₁₁₈	14.6	0.15	19990122	16.27685	199.37592	189.73344	2.36456	0.0568420	2.5439740	28	3	1980–1998	0.73	M-v	4	Spahr 33286 1998 SR ₁₁₈
1998 SK ₁₁₉	13.1	0.15	19990122	311.33334	78.57114	22.43036	9.34871	0.1182469	2.7759243	39	4	1989–1999	0.79	M-v	2	Williams 33759 1998 SK ₁₁₉
1998 SU ₁₁₉	16.4	0.15	19981014	351.79456	9.74198	21.44582	14.93176	0.2150212	2.5569139	35	1	47 days	0.82	Spahr		1998 SU ₁₁₉
1998 SC ₁₂₂	14.6	0.15	19990122	359.33075	65.61763	351.01587	4.34388	0.1544113	2.5319364	30	4	1954–1999	0.67	M-v	4	Spahr 33759 1998 SC ₁₂₂
1998 SH ₁₂₂	14.0	0.15	19990122	27.08206	148.14628	220.14160	5.02584	0.1574296	3.1963230	29	1	86 days	0.64	M-v	4	Spahr 33569 1998 SH ₁₂₂
1998 SJ ₁₂₂	14.2	0.15	19980924	343.71954	181.86335	217.07077	5.68776	0.1386622	3.1697108	29	1	57 days	0.64	Spahr		1998 SJ ₁₂₂
1998 SK ₁₂₂	14.4	0.15	19990122	326.35926	226.95845	227.09577	3.32985	0.0952864	2.2662337	36	3	1988–1999	0.65	M-v	4	Spahr 33759 1998 SK ₁₂₂
1998 SX ₁₂₂	16.0	0.15	19990122	54.23688	104.98736	232.43319	1.52993	0.2380556	2.3811588	30	1	117 days	0.73	M-v	5	Spahr 33759 1998 SX ₁₂₂
1998 SE ₁₂₃	14.5	0.15	19990122	59.77722	134.32149	201.88937	6.65911	0.0921728	2.7331633	40	1	122 days	0.49	M-v	4	Spahr 33759 1998 SE ₁₂₃
1998 SF ₁₂₃	13.5	0.15	19990122	68.97875	307.86676	14.39919	10.37833	0.1031642	2.9640148	32	1	109 days	0.58	M-v	5	Spahr 33759 1998 SF ₁₂₃
1998 ST ₁₂₃	13.9	0.15	19990122	329.58924	248.41483	191.89300	9.53890	0.0786542	2.7405735	41	2	1996–1998	0.60	M-v	4	Williams 33569 1998 ST ₁₂₃
1998 SX ₁₂₃	15.4	0.15	19990122	356.65502	25.11588	39.02049	2.64846	0.1808377	2.3528723	47	3	1971–1999	0.64	M-v	3	Spahr 33759 1998 SX ₁₂₃
1998 SG ₁₂₄	14.8	0.15	19981014	321.52874	57.57345	22.02402	16.62029	0.2315519	3.1630257	24	1	53 days	0.89	Spahr		1998 SG ₁₂₄
1998 SH ₁₂₄	14.8	0.15	19990122	3.01952	25.24861	28.35712	6.17694	0.1612246	2.3602855	32	1	82 days	0.53	M-v	4	Spahr 33569 1998 SH ₁₂₄
1998 SK ₁₂₄	15.8	0.15	19981014	295.73988	61.46753	37.44596	3.97712	0.1299886	2.3626334	22	1	54 days	0.62	Spahr		1998 SK ₁₂₄
1998 SO ₁₂₄	15.0	0.15	19990122	31.18425	167.57266	188.28919	10.22062	0.2971176	3.0511440	30	2	1997–1998	0.55	M-v	3	Spahr 33288 1998 SO ₁₂₄
1998 SR ₁₂₄	14.9	0.15	19990122	279.10090	333.10662	153.28903	1.83992	0.0057681	2.4800586	34	2	1994–1999	0.77	M-v	5	Spahr 33759 1998 SR ₁₂₄
1998 SE ₁₂₆	14.3	0.15	19990122	321.79926	35.60861	71.17360	5.76326	0.2696415	2.5907843	30	2	1996–1998	0.76	M-v	5	Spahr 33288 1998 SE ₁₂₆
1998 SV ₁₂₆	14.0	0.15	19990122	338.52768	318.00459	104.05890	5.90591	0.0441046	2.8077969	28	2	1996–1998	0.69	M-v	4	Spahr 33289 1998 SV ₁₂₆
1998 SK ₁₂₇	15.4	0.15	19990122	52.88391	186.57976	149.78190	5.27576	0.2691399	2.3133727	24	1	81 days	0.53	M-v	5	Spahr 33569 1998 SK ₁₂₇
1998 SE ₁₂₈	15.9	0.15	19990122	1.51517	291.90584	125.42690	2.88492	0.1928463	2.3765432	30	1	102 days	0.78	M-v	5	Spahr 33759 1998 SE ₁₂₈
1998 SU ₁₂₈	13.8	0.15	19990122	87.65415	236.24691	70.66928	3.02425	0.0559698	2.8774894	36	1	118 days	0.55	M-v	5	Spahr 33759 1998 SU ₁₂₈
1998 SW ₁₂₈	16.3	0.15	19981014	338.64223	297.31564	113.75298	2.19286	0.1740794	2.3941416	28	1	54 days	0.69	Spahr		1998 SW ₁₂₈
1998 SA ₁₂₉	15.3	0.15	19990122	351.83558	250.71313	184.69605	15.28750	0.3033114	2.7780053	29	1	72 days	0.43	M-v	4	Spahr 33569 1998 SA ₁₂₉
1998 SL ₁₂₉	15.8	0.15	19990122	35.68538	195.46280	173.77715	2.54153	0.1766243	2.3431449	29	2	1996–1998	0.59	M-v	4	Spahr 33289 1998 SL ₁₂₉
1998 SM ₁₂₉	14.7	0.15	19990122	73.10617	150.42483	173.09802	2.48305	0.0767245	2.6838726	24	1	102 days	0.65	M-v	6	Spahr 33759 1998 SM ₁₂₉
1998 SQ ₁₂₉	15.0	0.15	19990122	82.31449	281.72138	28.25006	6.17692	0.1600895	2.3222662	37	2	1997–1998	0.68	M-v	4	Spahr 33569 1998 SQ ₁₂₉
1998 SA ₁₃₀	14.3	0.15	19990122	237.41394	9.38195	167.75374	2.52178	0.1185937	2.4131401	26	3	1974–1999	0.67	M-v	4	Spahr 33759 1998 SA ₁₃₀
1998 SG ₁₃₀	13.9	0.15	19990122	37.78799	354.65777	13.32896	8.72194	0.2160201	2.2643511	47	3	1981–1999	0.67	M-v	2	Spahr 33759 1998 SG ₁₃₀
1998 SN ₁₃₀	13.9	0.15	19990122	61.57072	86.80014	234.66860	0.79414	0.1922806	3.1228861	43	2	1992–1999	0.71	M-v	4	Spahr 33759 1998 SN ₁₃₀
1998 SR ₁₃₀	13.4	0.15	19990122	86.81510	98.02237	213.75028	5.62953	0.0518480	2.7775544	56	3	1975–1999	0.59	M-v	2	Spahr 33759 1998 SR ₁₃₀
1998 SS ₁₃₀	14.5	0.15	19990122	154.62148	262.21365	344.36053	2.55101	0.1302949	2.2055354	23	2	1991–1998	0.58	M-v	5	Spahr 33291 1998 SS ₁₃₀
1998 SB ₁₃₁	13.9	0.15	19990122	35.13187	80.09177	288.42397	1.72543	0.0542951	2.7329219	39	1	126 days	0.65	M-v	4	Spahr 33759 1998 SB ₁₃₁
1998 SZ ₁₃₁	15.5	0.15	19981014	78.27608	7.62151	275.00883	5.06848	0.2122019	2.2539259	29	1	46 days	0.98	Spahr		1998 SZ ₁₃₁
1998 SO ₁₃₂	14.8	0.15	19990122	353.22235	192.42431	230.92152	6.99373	0.1560474	2.7992117	30	1	114 days	0.71	M-v	4	Spahr 33759 1998 SO ₁₃₂
1998 SF ₁₃₃	15.3	0.15	19981014	349.71378	98.11166	302.36027	1.93727	0.2049063	3.1804116	30	1	46 days	1.02	Spahr		1998 SF ₁₃₃
1998 SG ₁₃₃	14.3	0.15	19990122	302.04924	262.74082	208.14356	13.07400	0.0473570	2.6049378	42	2	1977–1998	0.75	M-v	5	Spahr 33292 1998 SG ₁₃₃
1998 SM ₁₃₃	16.2	0.15	19981014	301.94834	253.60852	209.30814	4.36275	0.1975450	2.3996646	14	1	33 days	0.82	D Doppler		1998 SM ₁₃₃
1998 SN ₁₃₃	15.0	0.15	19981014	320.54474	230.88059	212.22739	4.59325	0.2156593	3.1236010	31	1	46 days	0.76	Spahr		1998 SN ₁₃₃
1998 SS ₁₃₃	15.1	0.15	19981014	299.33455	78.18074	13.13967	3.63608	0.0693159	2.6548368	30	1	46 days	0.90	Spahr		1998 SS ₁₃₃
1998 SF ₁₃₄	15.3	0.15	19990122	42.55254	336.50621	23.96613	3.01498	0.1746355	2.3695718	29	2	1993–1998	0.70	M-v	5	Spahr 33293 1998 SF ₁₃₄
1998 SH ₁₃₄	13.9	0.15	19981014	314.19585	286.82337	154.11052	0.91109	0.1222114	3.2404677	41	1	54 days	0.96	Spahr		1998 SH ₁₃₄
1998 SN ₁₃₄	14.4	0.15	19990122	9.17169	11.89214	30.00989	5.05653	0.0809934	2.4324394	31	2	1960–1998	0.67	M-v	5	Spahr 33511 1998 SN ₁₃₄
1998 SE ₁₃₅	13.5	0.15	19990122	67.86896	128.74081	182.92281	9.24561	0.2048582	3.1416803	33	2	1992–1998	0.63	M-v	4	Spahr 33293 1998 SE ₁₃₅
1998 SP ₁₃₅	15.6	0.15	19990122	73.01277	248.30322	70.14962	3.15587	0.2144770	2.1671424	29	1	119 days	0.70	M-v	5	Spahr 33759 1998 SP ₁₃₅
1998 SQ ₁₃₅	15.5	0.15	19990122	29.98206	331.59387	49.77048	5.43223	0.1216766	2.1847959	33	1	110 days	0.60	M-v	3	Spahr 33759 1998 SQ ₁₃₅
1998 SA ₁₃₆	14.4	0.15	19990122	82.43220	260.23966	40.79096	6.71483	0.2178896	2.3569482	37	1	89 days	0.54	M-v	5	Spahr 33759 1998 SA ₁₃₆
1998 SF ₁₃₆	14.9	0.15	19990122	105.47726	184.88385	90.54545	3.62239	0.2318817	2.3306399	41	4	1973–1998	0.74	M-v	2	Spahr 33294 1998 SF ₁₃₆
1998 SX ₁₃₆	15.9	0.15	19981014	341.34908	274.42903	127.86396	5.22141	0.0898078	2.2903266	27	1	48 days	0.57	Spahr		1998 SX ₁₃₆
1998 SA ₁₃₇	13.5	0.15	19990122	130.75829	210.85616	38.32088	14.35712	0.2099893	2.6089435	32	2	1977–1998	0.67	M-v	5	Spahr 33294 1998 SA ₁₃₇
1998 SM ₁₃₇	14.2	0.15	19990122	290.79364	36.65471	89.57255	5.62163	0.0781654	2.3312641	33	2	1977–1998	0.73	M-v	5	Spahr 33294 1998 SM ₁₃₇
1998 SC ₁₃₈	14.5	0.15	19990122	2.87896	225.78810	178.06687	1.96325	0.0658204	2.9007277	31	3	1971–1998	0.96	M-v	5	Spahr 33294 1998 SC ₁₃₈

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1998 SE ₁₃₈	14.0	0.15	19980924	61.17868	293.84119	15.69313	5.62500	0.0846169	2.7435451	39	1	58 days	1.16		Spahr		1998 SE ₁₃₈
1998 SH ₁₃₈	15.1	0.15	19990122	45.02855	167.14827	173.57658	0.67036	0.2433460	3.0772844	32	1	119 days	0.76	M-v	5	Spahr	33759 1998 SH ₁₃₈
1998 SO ₁₃₈	16.1	0.15	19981014	339.03604	216.28184	200.06858	11.23187	0.2031443	2.6276812	29	1	46 days	0.87			Spahr	1998 SO ₁₃₈
1998 SC ₁₃₉	15.2	0.15	19990122	114.32302	48.72923	236.09457	4.16182	0.1215626	2.3219128	39	1	114 days	0.64	M-v	5	Spahr	33759 1998 SC ₁₃₉
1998 SC ₁₄₀	14.0	0.15	19990122	347.06379	217.70567	216.98839	13.61781	0.1471628	2.6162407	43	1	82 days	0.58	M-v	4	Spahr	33759 1998 SC ₁₄₀
1998 SE ₁₄₀	14.4	0.15	19990122	59.80584	344.87123	359.29691	9.31369	0.1096822	2.5457160	28	2	1996–1998	0.65	M-v	5	Spahr	33295 1998 SE ₁₄₀
1998 SU ₁₄₀	15.6	0.15	19990122	35.82196	162.04280	212.59531	4.10787	0.1168112	2.3292604	30	2	1973–1998	0.82	M-v	5	Spahr	33296 1998 SU ₁₄₀
1998 SV ₁₄₀	14.5	0.15	19980924	52.14286	289.04563	17.46588	14.89237	0.2035872	2.5398758	43	1	58 days	0.81			Spahr	1998 SV ₁₄₀
1998 SW ₁₄₀	14.1	0.15	19990122	69.78780	68.75444	263.75255	0.94111	0.0445040	2.9427541	33	1	122 days	0.69	M-v	5	Spahr	33759 1998 SW ₁₄₀
1998 SA ₁₄₁	15.0	0.15	19981014	49.14142	322.70477	6.06957	1.60386	0.0896356	2.9691842	13	1	33 days	0.94		D	Doppler	1998 SA ₁₄₁
1998 SG ₁₄₁	16.6	0.15	19980924	3.98448	353.97510	14.60391	5.17022	0.2556743	2.3812406	17	1	11 days	0.62			Doppler	1998 SG ₁₄₁
1998 SA ₁₄₂	15.5	0.15	19981014	21.52834	270.08859	80.48602	5.92098	0.1757993	2.7364971	22	1	46 days	0.71			Spahr	1998 SA ₁₄₂
1998 SB ₁₄₄	14.9	0.15	19990122	45.34451	225.57464	129.24553	1.49611	0.1730140	2.5485014	26	2	1997–1999	0.72	M-v	4	Spahr	33760 1998 SB ₁₄₄
1998 SE ₁₄₄	13.6	0.15	19990122	342.56232	58.36058	25.10837	8.83919	0.2149742	2.7926967	34	2	1984–1999	0.81	M-v	4	Spahr	33760 1998 SE ₁₄₄
1998 SK ₁₄₄	14.9	0.15	19990122	341.95668	53.38308	28.16538	5.92425	0.0848737	2.1861444	33	1	107 days	0.75	M-v	5	Spahr	33569 1998 SK ₁₄₄
1998 SQ ₁₄₄	13.6	0.15	19990122	14.07749	158.19606	236.94303	0.68620	0.0828796	2.8574168	37	2	1993–1998	0.81	M-v	4	Spahr	33708 1998 SQ ₁₄₄
1998 SX ₁₄₄	14.1	0.15	19981014	40.75513	212.82216	116.33749	2.32212	0.1912564	3.1015507	26	1	54 days	0.74			Spahr	1998 SX ₁₄₄
1998 ST ₁₄₅	13.1	0.15	19990122	21.55899	237.87223	146.18134	2.99263	0.0957065	3.0470210	43	3	1992–1998	0.73	M-v	4	Spahr	33298 1998 ST ₁₄₅
1998 SW ₁₄₅	14.2	0.15	19990122	275.69498	40.07649	112.47153	1.78042	0.1437682	2.3884931	44	3	1985–1998	0.68	M-v	5	Williams	33365 1998 SW ₁₄₅
1998 SZ ₁₄₅	15.4	0.15	19980924	13.72717	162.53747	194.39084	6.89920	0.2090084	2.3220180	28	1	58 days	0.80			Spahr	1998 SZ ₁₄₅
1998 SE ₁₄₆	13.4	0.15	19990122	338.54444	246.17874	203.78329	7.28055	0.2037878	2.8070883	26	1	113 days	0.66	M-v	5	Spahr	33760 1998 SE ₁₄₆
1998 SO ₁₄₆	14.0	0.15	19990122	0.83907	329.84317	82.72799	3.12745	0.0748824	2.7154258	25	1	117 days	0.78	M-v	4	Spahr	33760 1998 SO ₁₄₆
1998 SX ₁₄₆	13.0	0.15	19990122	99.64346	114.15392	169.15856	3.10699	0.2084294	3.2525335	22	2	1986–1998	0.88	M-v	4	Spahr	33512 1998 SX ₁₄₆
1998 SP ₁₄₇	12.9	0.15	19990122	135.53261	152.96207	112.93095	2.76871	0.0754734	3.0277579	36	3	1979–1998	0.62	M-v	4	Spahr	33298 1998 SP ₁₄₇
1998 SU ₁₄₇	13.8	0.15	19990122	78.59651	257.04862	71.36951	3.41368	0.0481923	2.6665956	24	1	90 days	0.71	M-v	5	Spahr	33760 1998 SU ₁₄₇
1998 SX ₁₄₇	15.0	0.15	19990122	107.55704	172.37647	113.81763	2.23269	0.1881670	2.3875464	22	2	1997–1998	0.68	M-v	5	Spahr	33299 1998 SX ₁₄₇
1998 SS ₁₅₆	16.2	0.15	19990122	81.22709	43.49471	280.31081	1.82726	0.0788780	2.1008695	26	2	1997–1999	0.75	M-v	4	Spahr	33760 1998 SS ₁₅₆
1998 ST ₁₆₀	14.2	0.15	19990122	88.57835	120.45278	183.84770	2.48445	0.0765415	2.9807142	24	2	1991–1998	0.85	M-v	5	Spahr	33299 1998 ST ₁₆₀
1998 SE ₁₆₁	13.8	0.15	19990122	353.91983	190.72255	224.13197	10.19994	0.1007673	3.0589520	34	1	111 days	0.62	M-v	4	Spahr	33760 1998 SE ₁₆₁
1998 SQ ₁₆₁	15.8	0.15	19990122	23.39886	350.63569	33.38052	4.47577	0.1597391	2.5286779	22	2	1994–1998	0.67	M-v	4	Spahr	33299 1998 SQ ₁₆₁
1998 SR ₁₆₄	14.2	0.15	19990122	346.34916	65.60214	40.46371	11.93899	0.1943204	2.3733788	21	1	105 days	0.57	M-v	4 D	Williams	1998 SR ₁₆₄
1998 SU ₁₆₄	15.6	0.15	19980924	321.25874	323.76908	94.94083	6.78841	0.1718523	2.4621695	9	1	8 days	0.40			Doppler	1998 SU ₁₆₄
1998 SV ₁₆₄	13.7	0.15	19980924	90.89859	167.78829	98.98883	7.98695	0.0816838	2.4215000	9	1	8 days	0.35			Doppler	1998 SV ₁₆₄
1998 TB	13.8	0.15	19990122	350.19957	352.64025	110.31105	5.95073	0.1154130	2.4356843	51	3	1979–1999	0.52	M-v	2	Williams	33760 1998 TB
1998 TC	14.2	0.15	19990122	8.22396	198.48157	284.12279	11.87917	0.1232390	2.4020499	31	1	137 days	0.71	M-v	4	Williams	33570 1998 TC
1998 TV ₁	13.3	0.15	19990122	24.82481	341.17490	54.46971	13.63966	0.2490681	2.3934948	76	3	1961–1999	0.62	M-v	2	Williams	33760 1998 TV ₁
1998 TW ₁	14.1	0.15	19990122	29.32804	332.58350	54.32793	10.14236	0.1456224	2.7369632	44	1	93 days	0.51	M-v	3	Spahr	33760 1998 TW ₁
1998 TP ₂	13.4	0.15	19990122	37.03005	81.97608	283.66463	1.76905	0.2342771	2.6866246	46	1	129 days	0.50	M-v	4	Williams	33760 1998 TP ₂
1998 TW ₂	17.0	0.15	19981014	307.53947	207.13328	259.14789	2.10693	0.2204358	2.3974768	9	1	8 days	0.14			Doppler	1998 TW ₂
1998 TZ ₂	16.4	0.15	19981014	46.76285	343.65745	345.53467	1.66000	0.1573437	2.3263281	9	1	8 days	0.18			Doppler	1998 TZ ₂
1998 TG ₃	14.1	0.15	19990122	61.19597	109.22170	203.68374	21.43574	0.2990312	2.4128455	40	2	1983–1998	0.58	M-v	3	Spahr	33570 1998 TG ₃
1998 TO ₃	15.4	0.15	19990122	317.38743	82.69499	31.35084	21.07760	0.0850691	1.9266599	41	1	86 days	0.65	M-v	4	Spahr	33760 1998 TO ₃
1998 TQ ₃	14.3	0.15	19990122	20.96413	2.26424	34.87321	13.80527	0.2043561	2.3883496	37	1	118 days	0.61	M-v	4	Spahr	33760 1998 TQ ₃
1998 TR ₃	14.2	0.15	19990122	110.56986	277.30553	32.21742	21.69130	0.0869537	1.9317751	47	1	91 days	0.65	M-v	4	Spahr	33760 1998 TR ₃
1998 TO ₅	14.1	0.15	19990122	1.95094	212.68212	211.70168	11.13986	0.1627932	2.6249796	34	1	93 days	0.67	M-v	5	Spahr	33760 1998 TO ₅
1998 TF ₆	15.1	0.15	19990122	13.28435	342.96817	68.68846	3.07659	0.1422797	2.4404204	41	1	82 days	0.55	M-v	4	Spahr	33760 1998 TF ₆
1998 TQ ₆	14.5	0.15	19990122	60.89153	242.37826	113.15662	7.75388	0.1428172	2.3487461	33	1	121 days	0.41	M-v	4	Williams	33760 1998 TQ ₆
1998 TD ₇	16.8	0.15	19981014	112.61554	67.29174	181.72399	1.87530	0.0343379	2.1665075	9	1	8 days	0.12			Doppler	1998 TD ₇
1998 TF ₇	15.4	0.15	19981014	222.65266	324.75780	178.67230	5.46465	0.0562752	3.0390986	9	1	8 days	0.18			Doppler	1998 TF ₇
1998 TG ₇	16.9	0.15	19981014	320.11470	40.69819	18.92220	2.56750	0.1608991	2.4622821	9	1	8 days	0.17			Doppler	1998 TG ₇
1998 TU ₈	16.1	0.15	19981014	340.57031	240.63261	173.94301	1.19374	0.0816953	2.7203596	9	1	26 days	0.23			Doppler	1998 TU ₈
1998 TK ₉	13.5	0.15	19981014	164.70612	192.62208	32.30599	5.55765	0.0887789	3.2114294	12	1	31 days	0.28			Doppler	1998 TK ₉
1998 TM ₉	16.9	0.15	19981014	43.12932	286.99056	39.04144	0.83289	0.2120594	2.3574479	12	1	30 days	0.56			Doppler	1998 TM ₉

1998 TW ₉	17.1	0.15	19981014	0.44646	189.52516	198.97902	2.00583	0.1840789	2.3381234	9	1	24 days	0.09		Doppler		1998 TW ₉	
1998 TL ₁₀	15.7	0.15	19981014	316.11808	274.06042	180.01099	0.15831	0.1757160	2.3728601	24	1	32 days	0.62		Spahr		1998 TL ₁₀	
1998 TK ₁₂	16.5	0.15	19981014	291.16953	68.63932	38.10725	4.17237	0.0558626	2.4141563	9	1	26 days	0.40		Doppler		1998 TK ₁₂	
1998 TS ₁₂	16.6	0.15	19981014	40.63730	306.68810	33.54349	4.23937	0.1585092	2.3713127	8	1	19 days	0.17		Doppler		1998 TS ₁₂	
1998 TJ ₁₃	15.3	0.15	19990122	39.08028	341.66297	41.17479	3.29990	0.1224508	2.2097999	38	1	101 days	0.56	M-v	4	Spahr	33760	1998 TJ ₁₃
1998 TO ₁₅	13.1	0.15	19990122	320.45716	243.68643	222.33156	11.72699	0.1374864	2.6839090	51	5	1954–1999	0.66	M-v	1	Spahr	33760	1998 TO ₁₅
1998 TA ₁₈	13.6	0.15	19990122	39.56567	96.78187	261.74038	6.87110	0.2760599	2.3502396	29	5	1973–1999	0.68	M-v	2	Williams	33761	1998 TA ₁₈
1998 TD ₁₈	12.9	0.15	19981014	59.87494	66.28107	230.41312	13.26916	0.2456191	3.1566774	27	1	52 days	0.67		Spahr		1998 TD ₁₈	
1998 TF ₁₈	14.3	0.15	19990122	0.03900	217.23117	204.26682	4.51270	0.1896133	2.5687422	48	1	62 days	0.36	M-v	5	Spahr	33571	1998 TF ₁₈
1998 TD ₂₁	15.3	0.15	19981014	26.64864	334.56546	27.07423	12.01048	0.0444142	2.7808793	9	1	27 days	0.17		Doppler		1998 TD ₂₁	
1998 TP ₂₆	15.1	0.15	19981014	70.07643	277.36109	36.02993	12.01929	0.1328812	2.9645844	9	1	27 days	0.23		Doppler		1998 TP ₂₆	
1998 TX ₂₈	14.0	0.15	19990122	329.69836	59.99242	32.43227	7.34226	0.1034427	3.1997096	23	1	82 days	0.69	M-v	5	Spahr	33571	1998 TX ₂₈
1998 TE ₂₉	13.8	0.15	19981103	250.72624	295.92688	226.43754	6.87472	0.1643024	2.7499011	25	1	56 days	0.67		Williams		1998 TE ₂₉	
1998 TH ₂₉	13.6	0.15	19990122	330.49668	92.64714	355.12264	1.51826	0.0500383	2.9376811	21	2	1990–1998	0.51	M-v	5	Spahr	33571	1998 TH ₂₉
1998 TK ₃₀	14.6	0.15	19990122	51.15332	149.17869	208.78376	11.31684	0.1520658	2.4103775	25	1	99 days	0.52	M-v	4	Spahr	33761	1998 TK ₃₀
1998 TH ₃₃	15.4	0.15	19981103	68.57809	267.00936	43.56263	6.77312	0.1686307	2.2411487	15	1	28 days	0.60		Doppler		1998 TH ₃₃	
1998 TA ₃₄	12.7	0.15	19990122	278.74232	314.81361	197.35055	12.75732	0.1142437	2.6628966	46	3	1989–1999	0.72	M-v	3	Williams	33761	1998 TA ₃₄
1998 UG	13.9	0.15	19990122	8.04743	118.80180	304.85854	21.78481	0.2299510	2.2649114	12	1	84 days	0.23	M-v	5	Williams		1998 UG
1998 UH	13.7	0.15	19990122	40.84057	30.22747	323.33988	25.55225	0.3466659	3.1392517	21	1	84 days	0.76	M-v	4	Williams	33761	1998 UH
1998 UX	16.3	0.15	19990122	30.86120	120.51738	254.56586	21.30958	0.2937261	2.3205401	26	1	106 days	0.71	M-v	4	Williams	33571	1998 UX
1998 UK ₁	14.4	0.15	19990122	307.39308	282.69875	191.58756	1.33348	0.1398337	3.1588719	38	3	1995–1999	0.62	M-v	4	Williams	33761	1998 UK ₁
1998 UW ₁	12.5	0.15	19990122	66.82627	243.04627	102.85174	14.03280	0.1954707	2.6682447	27	1	111 days	0.67	M-v	4	Williams	33761	1998 UW ₁
1998 UM ₃	16.8	0.15	19990122	14.29810	175.94238	198.02333	0.81993	0.2249462	2.3549521	22	1	66 days	0.67	M-v	D	Doppler		1998 UM ₃
1998 UA ₄	13.1	0.15	19990122	112.87394	244.72132	111.26203	12.15017	0.1641419	2.8865702	40	2	1987–1999	0.64	M-v	4	Williams	33761	1998 UA ₄
1998 UL ₆	12.9	0.15	19990122	348.39458	30.19885	111.57174	12.19870	0.0532639	2.9976545	42	1	114 days	0.50	M-v	3	Williams	33761	1998 UL ₆
1998 UP ₆	13.2	0.15	19990122	78.78069	299.89044	23.74479	17.56203	0.2555680	2.6026247	53	3	1981–1999	0.72	M-v	3	Spahr	33761	1998 UP ₆
1998 UT ₆	14.0	0.15	19990122	36.05290	351.77728	37.33689	1.72037	0.1108966	2.9439488	32	1	68 days	0.50	M-v	4	Spahr	33572	1998 UT ₆
1998 UU ₆	13.7	0.15	19990122	81.61073	299.13032	64.71042	14.23395	0.2225509	2.5396464	39	1	111 days	0.55	M-v	4	Spahr	33761	1998 UU ₆
1998 UX ₆	15.6	0.15	19990122	73.53949	49.20653	282.68498	3.57002	0.1462985	2.2702853	35	2	1993–1998	0.64	M-v	5	Spahr	33308	1998 UX ₆
1998 UA ₇	12.4	0.15	19990122	64.46318	269.14197	93.23430	22.71804	0.0727340	3.1520008	27	1	86 days	0.62	M-v	4	Spahr	33761	1998 UA ₇
1998 UK ₇	14.0	0.15	19990122	8.68244	10.47691	46.00614	15.84532	0.0869936	2.5705182	29	1	82 days	0.37	M-v	4	Spahr	33761	1998 UK ₇
1998 UY ₇	13.3	0.15	19990122	36.59599	188.31375	194.98606	9.70627	0.1092401	2.5826152	28	3	1969–1999	0.59	M-v	2	Williams	33572	1998 UY ₇
1998 UF ₈	13.6	0.15	19990122	243.84598	141.58511	50.67432	7.29692	0.0876508	2.2590272	29	1	94 days	0.51	M-v	5	Spahr	33761	1998 UF ₈
1998 UL ₈	13.1	0.15	19990122	349.52877	2.58722	87.50727	2.55476	0.1454196	3.0993141	45	3	1986–1999	0.90	M-v	4	Williams	33761	1998 UL ₈
1998 UK ₁₁	15.0	0.15	19981014	4.25033	182.27165	204.77432	5.95075	0.1387084	2.4658920	21	1	32 days	0.52		Spahr		1998 UK ₁₁	
1998 UH ₁₅	13.6	0.15	19981103	64.62831	127.11511	193.48561	13.15232	0.2144096	2.6367720	27	1	57 days	0.45		Spahr		1998 UH ₁₅	
1998 UR ₁₅	13.5	0.15	19990122	353.41495	64.72942	10.58199	0.67353	0.1535064	3.1699721	47	1	154 days	0.61	M-v	4	Williams	33761	1998 UR ₁₅
1998 UT ₁₅	12.1	0.15	19990122	253.44800	309.59454	221.93426	14.41400	0.0205494	2.9886496	39	5	1962–1999	0.74	M-v	2	Williams	33573	1998 UT ₁₅
1998 UB ₁₆	14.3	0.15	19990122	210.04010	154.11921	51.86905	12.70364	0.1351170	2.6617544	14	1	83 days	0.36	M-v	4	Spahr	33761	1998 UB ₁₆
1998 UJ ₁₆	14.7	0.15	19990122	47.03750	329.80942	101.57978	6.13107	0.1575300	2.3123519	25	1	113 days	0.46	M-v	4	Williams		1998 UJ ₁₆
1998 UL ₁₆	15.0	0.15	19990122	62.44994	266.15806	69.49314	5.04358	0.2775573	2.5667535	35	2	1996–1999	0.67	M-v	4	Spahr	33761	1998 UL ₁₆
1998 UN ₁₆	13.2	0.15	19990122	327.47728	57.92161	53.42025	14.57932	0.1798510	3.0779882	33	1	65 days	0.51	M-v	5	Spahr	33573	1998 UN ₁₆
1998 UN ₁₈	13.5	0.15	19990122	3.14581	309.39514	133.17126	27.18337	0.1546059	3.1731194	20	1	78 days	0.59	M-v	4	Spahr	33761	1998 UN ₁₈
1998 UP ₁₈	14.1	0.15	19990122	21.67646	157.40650	261.44125	5.50015	0.0846581	2.3141519	40	2	1980–1999	0.85	M-v	3	Williams	33761	1998 UP ₁₈
1998 UT ₁₈	19.4	0.15	19990122	9.29823	49.83854	64.78023	13.58547	0.3294833	1.4052515	82	1	58 days	0.61	M-v	5	Williams	33761	1998 UT ₁₈
1998 UX ₁₈	13.4	0.15	19981103	348.26012	27.47637	35.24852	2.92174	0.0372679	2.8598925	21	1	58 days	0.61		Williams		1998 UX ₁₈	
1998 UR ₁₉	14.9	0.15	19990122	34.77843	329.63365	40.99825	14.60339	0.2134896	2.3449620	44	2	1997–1998	0.71	M-v	3	Spahr	33573	1998 UR ₁₉
1998 UW ₁₉	13.9	0.15	19990122	37.28681	1.21465	20.53497	1.82456	0.0593031	3.1099430	36	2	1995–1999	0.74	M-v	4	Spahr	33762	1998 UW ₁₉
1998 UB ₂₀	15.2	0.15	19990122	39.34545	279.55476	96.44541	0.70138	0.0989595	2.6389655	30	1	93 days	0.62	M-v	5	Williams		1998 UB ₂₀
1998 UC ₂₀	15.4	0.15	19981103	60.89077	266.09293	49.72037	2.92557	0.2206656	2.3839942	29	1	53 days	0.74		Spahr		1998 UC ₂₀	
1998 UN ₂₀	14.2	0.15	19990122	132.82390	171.33141	106.41274	2.45579	0.1977515	2.3283717	35	5	1987–1998	0.77	M-v	2	Spahr	33312	1998 UN ₂₀
1998 UO ₂₀	14.0	0.15	19990122	309.40677	261.57076	227.33103	12.06878	0.0952320	2.6104653	28	1	107 days	0.72	M-v	5	Williams		1998 UO ₂₀
1998 UR ₂₀	14.1	0.15	19990122	104.09137	25.49612	292.82724	0.98997	0.0094411	2.8531761	46	3	1978–1999	0.66	M-v	3	Spahr	33762	1998 UR ₂₀

1998 US ₂₀	13.9	0.15	19981103	344.62636	233.87390	188.73968	1.74778	0.0486987	2.4652364	12	1	41 days	0.86		Spahr		1998 US ₂₀
1998 UV ₂₀	13.2	0.15	19990122	271.20299	299.22332	223.27667	12.52622	0.0729849	2.6297174	27	3	1953–1999	0.65	M-v	3	Williams	33573 1998 UV ₂₀
1998 UY ₂₀	15.1	0.15	19990122	355.63458	45.14635	34.51509	1.74852	0.1464797	2.4304215	28	1	82 days	0.69	M-v	5	Spahr	33762 1998 UY ₂₀
1998 UZ ₂₀	15.7	0.15	19990122	59.24504	315.27054	43.15788	6.27247	0.1332321	2.3312744	33	2	1993–1998	0.70	M-v	5	Williams	33313 1998 UZ ₂₀
1998 UA ₂₁	15.4	0.15	19990122	339.17842	37.04004	66.93223	7.36065	0.1851951	2.5207619	26	2	1982–1999	0.55	M-v	4	Spahr	33708 1998 UA ₂₁
1998 UC ₂₁	15.4	0.15	19981103	357.35092	191.62351	221.20420	3.87624	0.2332035	2.5880075	20	1	34 days	0.75			Spahr	1998 UC ₂₁
1998 UE ₂₁	15.2	0.15	19990122	60.27899	129.62143	230.09588	0.25107	0.1382747	2.3014985	39	1	114 days	0.67	M-v	5	Williams	1998 UE ₂₁
1998 UF ₂₁	12.2	0.15	19990122	151.51021	223.69758	46.57087	11.40209	0.0656605	2.9997998	37	1	113 days	0.79	M-v	5	Williams	1998 UF ₂₁
1998 UY ₂₁	14.4	0.15	19990122	165.73431	3.84211	232.58678	9.45628	0.1598200	2.4347355	16	1	99 days	0.80	M-v	5	Spahr	33762 1998 UY ₂₁
1998 UZ ₂₂	15.7	0.15	19981123	8.52553	180.49540	223.72535	2.45838	0.1931655	2.2956123	17	1	46 days	0.51			Spahr	1998 UZ ₂₂
1998 UE ₂₃	14.7	0.15	19981014	26.60580	12.11148	350.19836	5.17666	0.1609894	2.1859242	7	1	6 days	0.33			Williams	1998 UE ₂₃
1998 UN ₂₃	13.1	0.15	19990122	2.73190	330.36009	99.93790	2.12528	0.1371352	3.1974716	47	3	1975–1999	0.71	M-v	3	Williams	33573 1998 UN ₂₃
1998 UO ₂₃	13.3	0.15	19990122	31.24974	131.94815	249.45060	22.84611	0.2560815	3.1311997	38	1	101 days	0.75	M-v	4	Williams	33762 1998 UO ₂₃
1998 UR ₂₄	14.7	0.15	19990122	27.25827	295.61856	93.08576	2.40393	0.2335376	3.1596853	35	2	1992–1999	0.75	M-v	4	Williams	33574 1998 UR ₂₄
1998 UV ₂₄	13.7	0.15	19990122	28.53422	331.47738	54.43192	2.79796	0.0806566	2.9481771	36	3	1978–1999	0.59	M-v	3	Spahr	33762 1998 UV ₂₄
1998 UL ₂₅	15.0	0.15	19990122	60.23102	154.65907	178.26742	5.95191	0.2758806	2.5370503	28	2	1990–1998	0.78	M-v	5	Spahr	33513 1998 UL ₂₅
1998 UM ₂₅	15.7	0.15	19981014	8.85125	199.71531	182.41784	6.26697	0.1149956	2.2884635	19	1	24 days	0.69			Spahr	1998 UM ₂₅
1998 UB ₂₆	14.6	0.15	19981014	80.41253	222.81588	78.03496	7.47383	0.1175580	2.3460663	19	1	28 days	0.86			Spahr	1998 UB ₂₆
1998 UP ₂₆	15.4	0.15	19981103	358.27323	353.50601	50.58481	14.92947	0.2589968	2.7568035	25	1	55 days	0.99			Williams	1998 UP ₂₆
1998 UA ₂₈	14.8	0.15	19981103	255.44389	305.75892	215.39472	22.82221	0.1916456	2.2682194	16	1	29 days	0.71			Doppler	1998 UA ₂₈
1998 UZ ₂₈	14.0	0.15	19990122	73.29051	252.42741	85.71240	7.77420	0.1518214	2.3122496	17	1	88 days	0.81	M-v	6 D	Williams	1998 UZ ₂₈
1998 UH ₃₁	12.2	0.15	19990122	30.55112	347.57501	62.13827	14.31084	0.1390750	2.6266826	32	3	1951–1999	0.84	M-v	3	Williams	33762 1998 UH ₃₁
1998 UR ₃₁	14.0	0.15	19990122	200.86164	177.02977	62.92380	8.18135	0.1703216	2.2214153	29	1	76 days	0.73	M-v	5	Spahr	33762 1998 UR ₃₁
1998 US ₃₁	13.6	0.15	19990122	94.62289	263.97475	68.34700	3.92892	0.0848260	2.6429097	24	1	62 days	0.45	M-v	5	Spahr	33762 1998 US ₃₁
1998 UM ₃₂	13.7	0.15	19990122	78.06148	288.77689	63.42518	10.90054	0.1149885	2.9724010	38	2	1996–1999	0.69	M-v	4	Spahr	33762 1998 UM ₃₂
1998 UN ₃₂	13.7	0.15	19990122	345.28582	219.47135	276.54187	11.70925	0.1099292	2.6879197	39	2	1989–1999	0.59	M-v	3	Spahr	33762 1998 UN ₃₂
1998 UQ ₃₂	14.0	0.15	19990122	41.41109	342.99326	85.43023	5.63339	0.1065733	2.2992610	44	2	1996–1999	0.49	M-v	4	Williams	33708 1998 UQ ₃₂
1998 UG ₃₄	14.6	0.15	19990122	93.20961	327.69597	329.33393	2.23862	0.1687988	2.4440071	27	2	1990–1998	0.71	M-v	6	Spahr	33315 1998 UG ₃₄
1998 UW ₃₄	16.1	0.15	19990122	342.28481	215.49390	227.15596	3.99863	0.1622696	2.4125750	16	1	83 days	0.67	M-v	6 D	Williams	1998 UW ₃₄
1998 UV ₃₆	15.1	0.15	19981103	40.58308	9.17738	330.30567	3.02429	0.1598988	2.5763595	16	1	14 days	0.72		D	Doppler	1998 UV ₃₆
1998 UF ₃₇	13.4	0.15	19990122	103.70149	251.19131	33.33321	1.34654	0.1472588	3.1249652	34	3	1984–1999	0.54	M-v	2	Williams	33709 1998 UF ₃₇
1998 US ₃₇	15.2	0.15	19990122	135.93128	215.98559	49.24202	7.04336	0.1185493	2.3350575	17	1	123 days	0.70	M-v	5	Spahr	33762 1998 US ₃₇
1998 UD ₃₈	14.3	0.15	19990122	38.95822	304.07968	54.45202	9.94007	0.1929703	2.7703757	27	1	111 days	0.52	M-v	4	Spahr	33762 1998 UD ₃₈
1998 UP ₃₉	14.1	0.15	19990122	345.30947	232.31669	216.39823	11.85193	0.2643027	2.6428003	45	3	1981–1999	0.70	M-v	2	Spahr	33762 1998 UP ₃₉
1998 UG ₄₀	13.9	0.15	19981103	22.14894	62.77131	299.52539	3.93483	0.1781129	3.1233467	16	1	14 days	0.71		D	Doppler	1998 UG ₄₀
1998 UO ₄₀	15.2	0.15	19981014	245.85000	165.13741	344.53628	6.11167	0.0555525	2.3645042	23	1	36 days	0.83			Spahr	1998 UO ₄₀
1998 UF ₄₁	13.6	0.15	19981014	12.67931	176.53341	194.29059	9.55084	0.1441883	2.9892881	24	1	54 days	0.56			Doppler	1998 UF ₄₁
1998 UJ ₄₁	15.3	0.15	19990122	32.93824	319.88023	50.01573	13.08322	0.1382448	2.7656326	16	1	86 days	0.72	M-v	5	Spahr	33762 1998 UJ ₄₁
1998 UV ₄₁	14.4	0.15	19990122	32.22448	276.61906	100.35635	2.74069	0.2079661	2.4244749	24	1	61 days	0.45	M-v	4	Marsden	1998 UV ₄₁
1998 UF ₄₂	14.1	0.15	19990122	113.90508	225.88774	58.86788	2.28625	0.1284556	2.5624772	25	1	96 days	0.79	M-v	6	Spahr	33762 1998 UF ₄₂
1998 UE ₄₃	14.5	0.15	19981014	5.27557	124.81414	261.13882	4.57299	0.0467083	2.7876481	20	1	23 days	0.69			Spahr	1998 UE ₄₃
1998 VA	13.2	0.15	19990122	352.71364	44.36270	41.63226	17.72500	0.1492387	2.5991234	68	1	159 days	0.54	M-v	3	Williams	33762 1998 VA
1998 VE	15.5	0.15	19990122	42.73779	99.23737	271.39285	1.12220	0.2259872	2.4621869	50	2	1990–1999	0.60	M-v	4	Williams	33316 1998 VE
1998 VG	13.5	0.15	19990122	5.81558	354.35042	56.28171	3.82608	0.1920504	3.1551138	58	3	1981–1999	0.53	M-v	2	Spahr	33762 1998 VG
1998 VW	14.4	0.15	19990122	358.95769	16.69006	56.87933	13.68927	0.2810187	2.6471300	38	2	1996–1999	0.80	M-v	4	Spahr	33762 1998 VW
1998 VG ₁	16.0	0.15	19990122	61.21488	273.47815	62.07604	8.43038	0.2990062	2.3036236	48	1	71 days	0.45	M-v	5	Spahr	33762 1998 VG ₁
1998 VC ₂	17.2	0.15	19981123	36.04740	121.19573	241.31044	1.72691	0.1962195	2.3923052	9	1	10 days	0.25			Doppler	1998 VC ₂
1998 VP ₂	15.2	0.15	19981123	348.22972	197.77848	234.05952	6.96680	0.1896698	2.4650502	24	1	58 days	0.53			Spahr	1998 VP ₂
1998 VD ₄	15.6	0.15	19990122	4.47208	261.93976	179.31602	1.98086	0.1778282	2.4429501	29	2	1984–1998	0.48	M-v	4	Spahr	33762 1998 VD ₄
1998 VH ₄	16.1	0.15	19981123	296.08636	95.23655	38.82357	3.76648	0.1590630	2.3306376	14	1	35 days	0.49		D	Doppler	1998 VH ₄
1998 VA ₅	14.5	0.15	19990122	280.71234	295.88985	232.01033	1.98661	0.1396274	2.4399523	28	3	1996–1998	0.69	M-v	4	Spahr	33762 1998 VA ₅
1998 VB ₅	13.0	0.15	19990122	162.91799	225.55857	37.50376	1.30607	0.0587847	3.0586336	52	3	1981–1999	0.81	M-v	3	Williams	33575 1998 VB ₅
1998 VD ₅	13.2	0.15	19990122	353.29892	3.55185	78.10759	2.62886	0.1531679	3.1538195	41	3	1981–1999	0.72	M-v	3	Williams	33762 1998 VD ₅

1998 VH ₅	14.0	0.15	19990122	212.19127	298.23773	281.02194	5.99977	0.0831861	2.2975271	46	3	1979–1999	0.75	M-v	3	Williams	33763	1998 VH ₅
1998 VJ ₅	13.5	0.15	19990122	87.63115	287.33103	22.09963	11.48908	0.2410078	2.8622597	33	2	1993–1998	0.57	M-v	4	Spahr	33575	1998 VJ ₅
1998 VN ₅	13.1	0.15	19990122	15.40243	25.66661	22.22017	10.67235	0.1418519	3.1630616	31	1	88 days	0.47	M-v	4	Williams	33763	1998 VN ₅
1998 VQ ₅	14.9	0.15	19990122	9.41741	49.52670	15.62806	6.03536	0.2039941	2.5366045	22	1	70 days	0.45	M-v	4	Williams	33763	1998 VQ ₅
1998 VT ₅	12.7	0.15	19990122	11.29771	186.11622	239.47958	27.23232	0.1487472	3.1170057	57	1	70 days	0.64	M-v	4	Spahr	33763	1998 VT ₅
1998 VU ₅	14.2	0.15	19990122	300.00133	177.25927	318.45197	3.48528	0.0727304	2.5269471	27	1	71 days	0.46	M-v	5	Williams	33763	1998 VU ₅
1998 VZ ₅	15.0	0.15	19990122	106.58351	257.29463	77.91147	7.27873	0.1357003	2.2883706	60	1	92 days	0.66	M-v	4	Williams	33763	1998 VZ ₅
1998 VB ₆	13.5	0.15	19990122	40.68473	66.54701	256.92077	6.37181	0.2182081	2.2739475	23	4	1974–1998	0.86	M-v	2	Spahr	33515	1998 VB ₆
1998 VF ₆	13.6	0.15	19990122	331.91935	149.98611	306.32849	4.41874	0.1005930	3.1530167	36	3	1976–1999	0.60	M-v	4	Spahr	33763	1998 VF ₆
1998 VG ₆	15.1	0.15	19990122	28.49428	24.31302	8.77761	6.71186	0.2316886	2.3887881	25	1	110 days	0.54	M-v	4	Williams	33763	1998 VG ₆
1998 VK ₆	14.9	0.15	19990122	356.55653	121.93532	314.60251	4.66664	0.1991256	2.7746947	29	1	89 days	0.54	M-v	4	Spahr	33763	1998 VK ₆
1998 VN ₆	15.6	0.15	19990122	356.14885	55.43801	29.64986	11.45901	0.2587441	2.6234666	25	1	83 days	0.65	M-v	4	Spahr	33575	1998 VN ₆
1998 VO ₆	13.6	0.15	19990122	347.89927	152.92060	289.90232	6.10369	0.0888526	2.7571780	34	1	95 days	0.47	M-v	4	Williams	33763	1998 VO ₆
1998 VT ₆	14.0	0.15	19990122	51.50935	274.11802	109.61826	3.19573	0.1445740	2.2121242	26	3	1991–1999	0.73	M-v	4	Spahr	33763	1998 VT ₆
1998 VV ₆	14.9	0.15	19990122	58.67368	210.64188	159.75537	1.03006	0.1827513	2.3045460	23	3	1977–1999	0.68	M-v	3	Spahr	33763	1998 VV ₆
1998 VF ₇	14.0	0.15	19990122	12.30046	176.39475	225.58508	13.00798	0.2491672	2.6031749	53	1	111 days	0.58	M-v	4	Spahr	33763	1998 VF ₇
1998 VG ₇	14.8	0.15	19990122	18.09518	61.78473	332.06124	3.45032	0.2778702	2.5518687	38	1	98 days	0.86	M-v	4	Spahr	33763	1998 VG ₇
1998 VL ₇	13.9	0.15	19990122	13.91611	169.19675	221.67600	0.98223	0.1231999	2.9506458	38	3	1978–1998	0.65	M-v	4	Spahr	33575	1998 VL ₇
1998 VQ ₇	13.5	0.15	19990122	115.13045	212.74820	70.10456	7.36357	0.1028759	2.3755291	33	2	1990–1999	0.40	M-v	5	Spahr	33763	1998 VQ ₇
1998 VX ₇	15.0	0.15	19981103	334.08417	213.83388	217.26455	8.33468	0.2037354	2.7898227	29	1	59 days	0.70			Spahr		1998 VX ₇
1998 VJ ₈	15.4	0.15	19981103	342.34416	267.32593	152.53813	2.19621	0.2142277	2.7602557	21	1	19 days	0.75		D	Doppler		1998 VJ ₈
1998 VL ₉	14.2	0.15	19990122	28.99960	321.04253	63.68686	5.36234	0.0746167	2.3953612	41	1	118 days	0.54	M-v	3	Spahr	33763	1998 VL ₉
1998 VB ₁₃	15.7	0.15	19990122	23.98168	241.69874	155.22763	1.16380	0.1573085	2.2872005	25	2	1993–1998	0.60	M-v	3	Spahr	33763	1998 VB ₁₃
1998 VD ₁₃	14.5	0.15	19981014	37.58168	305.61655	45.03607	3.23097	0.0738440	2.8881337	18	1	54 days	0.52		D	Doppler		1998 VD ₁₃
1998 VZ ₁₃	14.0	0.15	19990122	4.33070	166.32780	256.74458	5.32019	0.1011240	2.2505981	34	4	1954–1999	0.72	M-v	4	Spahr	33709	1998 VZ ₁₃
1998 VL ₁₄	14.0	0.15	19990122	55.93036	104.33526	240.49135	10.14491	0.2210319	2.5493634	29	1	86 days	0.71	M-v	5	Williams	33763	1998 VL ₁₄
1998 VD ₁₆	15.8	0.15	19990122	17.08255	340.28108	65.30654	7.11653	0.1801820	2.3315788	28	1	94 days	0.46	M-v	4	Spahr	33763	1998 VD ₁₆
1998 VL ₁₆	13.6	0.15	19990122	34.34073	301.53027	71.08649	10.09502	0.1140145	3.0543510	19	2	1977–1998	0.51	M-v	4	Spahr	33516	1998 VL ₁₆
1998 VM ₁₆	14.1	0.15	19981123	283.51675	67.58935	64.77218	13.45788	0.1480099	3.2225162	16	1	31 days	0.78			Williams		1998 VM ₁₆
1998 VH ₁₈	15.2	0.15	19990122	54.84405	91.00690	270.28086	5.17342	0.1653632	2.1410071	25	1	116 days	0.90	M-v	5	Williams	33763	1998 VH ₁₈
1998 VQ ₂₀	15.4	0.15	19981123	354.79347	356.30134	60.55287	5.65922	0.1758622	2.4643806	22	1	33 days	0.39			Williams		1998 VQ ₂₀
1998 VC ₂₃	16.9	0.15	19990122	10.56155	174.52857	242.89062	2.01328	0.3147995	2.7449745	18	1	89 days	0.44	M-v	4	Williams		1998 VC ₂₃
1998 VN ₂₄	13.3	0.15	19990122	357.92439	3.35268	66.02724	14.32518	0.1528093	2.6715227	30	1	88 days	0.75	M-v	4	Williams	33763	1998 VN ₂₄
1998 VC ₂₅	15.0	0.15	19990122	170.94714	187.94672	60.24458	5.94931	0.1455911	2.2990805	26	2	1991–1998	0.45	M-v	6	Spahr	33516	1998 VC ₂₅
1998 VD ₂₅	13.5	0.15	19981123	333.38090	1.53104	80.71035	2.88893	0.1200036	3.0463309	16	1	28 days	0.46			Williams		1998 VD ₂₅
1998 VG ₂₅	14.7	0.15	19981014	352.66842	340.71039	65.98565	3.34655	0.2036705	2.4154300	15	1	29 days	0.34			Spahr		1998 VG ₂₅
1998 VQ ₂₅	14.5	0.15	19990122	194.04439	173.53736	58.76098	4.38300	0.0817719	2.2990912	37	1	88 days	0.60	M-v	4	Spahr	33763	1998 VQ ₂₅
1998 VY ₂₅	15.3	0.15	19990122	313.71269	77.54135	38.23393	3.33138	0.0221245	2.3296285	30	1	93 days	0.65	M-v	5	Spahr	33763	1998 VY ₂₅
1998 VS ₂₇	15.5	0.15	19981123	60.00769	88.56109	239.13088	2.42039	0.2162074	2.14139372	13	1	28 days	0.58			Williams		1998 VS ₂₇
1998 VK ₂₈	15.6	0.15	19990122	10.42113	349.27682	73.25399	4.91369	0.2133695	2.3956152	30	1	65 days	0.69	M-v	4	Spahr	33763	1998 VK ₂₈
1998 VN ₂₈	14.5	0.15	19990122	332.23450	39.62611	69.69916	5.44982	0.1254857	2.3599517	41	2	1980–1999	0.59	M-v	4	Williams	33763	1998 VN ₂₈
1998 VD ₂₉	12.6	0.15	19990122	6.06299	348.02946	69.61433	17.19000	0.1382873	3.1831570	16	1	86 days	0.60	M-v	4	Williams		1998 VD ₂₉
1998 VH ₂₉	13.7	0.15	19990122	6.06992	352.33442	72.28261	13.74043	0.1416479	2.6458851	30	1	106 days	0.67	M-v	4	Williams	33763	1998 VH ₂₉
1998 VN ₂₉	14.9	0.15	19990122	20.26349	167.48308	242.95129	10.75992	0.0551571	2.5258188	25	2	1978–1998	0.54	M-v	4	Spahr	33516	1998 VN ₂₉
1998 VQ ₂₉	13.2	0.15	19990122	67.92735	85.75041	257.17271	11.86038	0.2021988	2.6174606	36	2	1981–1999	0.74	M-v	4	Williams	33763	1998 VQ ₂₉
1998 VU ₂₉	13.3	0.15	19990122	4.51185	169.26010	260.35922	9.10560	0.1446169	2.8059296	36	1	88 days	0.69	M-v	4	Williams	33763	1998 VU ₂₉
1998 VV ₂₉	14.8	0.15	19990122	332.84577	198.34245	270.92410	6.14957	0.0786441	2.3523517	24	1	66 days	0.72	M-v	5	Spahr	33763	1998 VV ₂₉
1998 VZ ₂₉	14.8	0.15	19990122	31.53556	4.92192	32.75478	4.26049	0.1934265	2.2724642	36	3	1991–1998	0.73	M-v	4	Spahr	33517	1998 VZ ₂₉
1998 VG ₃₁	14.3	0.15	19990122	87.82781	321.47184	9.15594	6.68081	0.0807835	2.6156541	23	1	91 days	0.39	M-v	5	Spahr	33764	1998 VG ₃₁
1998 VO ₃₁	12.9	0.15	19990122	75.87408	96.00909	301.63920	20.89989	0.0739734	3.1149687	39	1	92 days	0.68	M-v	5	Williams	33764	1998 VO ₃₁
1998 VP ₃₁	12.7	0.15	19981014	147.34109	350.19096	243.10508	8.24563	0.2165653	2.7375674	26	1	27 days	0.81			Spahr		1998 VP ₃₁
1998 VH ₃₂	16.5	0.15	19990122	23.68243	305.69285	106.52531	6.10946	0.2475428	2.3519815	18	1	89 days	0.61	M-v	4	Williams	33764	1998 VH ₃₂
1998 VK ₃₂	14.3	0.15	19990122	60.81379	123.19173	225.54963	15.33458	0.3285966	2.6061125	24	1	91 days	0.53	M-v	5	Williams		1998 VK ₃₂

1998 VM ₃₂	13.3	0.15	19990122	175.62966	333.52925	285.64112	8.28848	0.2140471	2.2871622	43	3	1980–1998	0.64	M-v	4	Williams	33518	1998 VM ₃₂
1998 VS ₃₂	12.3	0.15	19990122	246.40114	164.56420	91.61541	15.28387	0.0893135	3.1455032	15	1	90 days	0.36	M-v	6	Williams		1998 VS ₃₂
1998 VV ₃₂	12.0	0.15	19990122	280.56258	124.95937	95.44382	19.79564	0.0448398	3.1539218	16	1	64 days	0.71	M-v	5	Spahr	33764	1998 VV ₃₂
1998 VX ₃₂	15.4	0.15	19990122	74.14645	289.81872	54.70801	3.08945	0.1350705	2.5276201	37	1	63 days	0.67	M-v	6	Spahr	33764	1998 VX ₃₂
1998 VE ₃₃	13.9	0.15	19990122	160.05004	60.09213	220.44691	12.99026	0.1468081	2.5648443	23	3	1981–1999	0.60	M-v	4	Spahr	33764	1998 VE ₃₃
1998 VH ₃₃	15.7	0.15	19990122	94.61531	240.84677	75.05514	3.54477	0.1907607	2.2608828	20	1	80 days	0.66	M-v	5	Marsden		1998 VH ₃₃
1998 VK ₃₃	14.0	0.15	19990122	147.45473	241.22998	32.17312	4.85742	0.0918484	2.9056265	35	4	1976–1998	0.63	M-v	2	Williams	33709	1998 VK ₃₃
1998 VO ₃₃	17.0	0.15	19990122	87.87614	209.70241	64.47322	14.96153	0.8093520	1.2479885	140	1	66 days	0.55	M-v	6	Spahr	33764	1998 VO ₃₃
1998 VS ₃₃	15.8	0.15	19990122	319.17802	229.81717	263.27679	17.86881	0.0682107	1.9162478	35	1	91 days	0.64	M-v	4	Williams	33764	1998 VS ₃₃
1998 VT ₃₃	15.2	0.15	19990122	26.44790	114.97610	323.26624	5.25021	0.1636867	2.2952510	32	1	91 days	0.61	M-v	4	Williams	33764	1998 VT ₃₃
1998 VR ₃₄	14.3	0.15	19990122	137.67581	332.27214	315.05595	1.13192	0.0368101	2.8730980	18	2	1996–1999	0.56	M-v	4	Williams	33518	1998 VR ₃₄
1998 VS ₃₄	14.8	0.15	19990122	26.79229	247.73468	175.41812	14.79152	0.1153558	2.5624500	21	1	95 days	0.52	M-v	4	Williams		1998 VS ₃₄
1998 VV ₃₄	13.5	0.15	19990122	64.10495	358.48804	352.35706	7.03204	0.1438933	2.2195584	29	3	1978–1999	0.77	M-v	3	Williams	33764	1998 VV ₃₄
1998 VY ₃₄	14.5	0.15	19990122	39.16173	274.42174	109.06410	6.64772	0.1944184	2.3135382	22	1	84 days	0.84	M-v	4	Spahr	33764	1998 VY ₃₄
1998 VD ₃₆	15.4	0.15	19981103	60.54872	206.65528	116.47368	3.12409	0.2213016	2.3711360	15	1	29 days	0.48			Spahr		1998 VD ₃₆
1998 VF ₃₆	16.3	0.15	19990122	35.57734	112.16292	272.97613	1.67531	0.2313662	2.3650902	22	1	97 days	0.74	M-v	5	Spahr	33764	1998 VF ₃₆
1998 VX ₃₇	16.0	0.15	19990122	13.86267	350.48465	65.48047	4.28425	0.1870324	2.2669244	30	3	1981–1998	0.47	M-v	3	Spahr	33519	1998 VX ₃₇
1998 VZ ₃₇	14.6	0.15	19990122	273.36930	106.99820	54.83525	13.56655	0.1269891	2.6096971	20	2	1996–1998	0.76	M-v	5	Spahr	33519	1998 VZ ₃₇
1998 VO ₃₈	13.3	0.15	19990122	348.59975	201.39647	242.26373	7.60045	0.1903823	3.1507832	34	1	86 days	0.49	M-v	4	Williams		1998 VO ₃₈
1998 VQ ₃₈	14.0	0.15	19990122	283.75975	268.92550	241.61624	8.45811	0.0745622	2.5864658	34	2	1997–1998	0.55	M-v	4	Spahr	33519	1998 VQ ₃₈
1998 VU ₄₁	14.5	0.15	19990122	186.11517	161.00954	129.21708	2.96025	0.0849818	2.2283466	39	2	1987–1999	0.78	M-v	5	Spahr	33709	1998 VU ₄₁
1998 VV ₄₁	14.1	0.15	19990122	235.23252	4.10333	249.54996	2.75616	0.1569854	2.1960024	29	3	1977–1999	0.82	M-v	4	Spahr	33709	1998 VV ₄₁
1998 VW ₄₃	15.3	0.15	19981213	33.49580	315.88989	101.87418	10.20513	0.1928732	2.6119878	14	1	56 days	0.40		D	Williams		1998 VW ₄₃
1998 VD ₄₄	14.4	0.15	19990122	27.27644	340.26043	71.30955	7.49203	0.1124371	2.4145252	40	3	1983–1999	0.55	M-v	3	Williams	33764	1998 VD ₄₄
1998 WH	14.3	0.15	19990122	247.22851	130.49840	77.97811	5.79840	0.1511925	2.4117170	31	3	1978–1999	0.60	M-v	4	Spahr	33710	1998 WH
1998 WL	16.6	0.15	19990122	28.86274	304.38437	69.63193	6.52266	0.4447792	2.5942160	63	1	66 days	0.44	M-v	4	Spahr	33764	1998 WL
1998 WM	16.6	0.15	19990122	274.42351	172.42819	45.71738	22.51731	0.3154331	1.2245414	91	1	102 days	0.50	M-v	4	Williams	33764	1998 WM
1998 WP	13.7	0.15	19990122	64.21634	110.60998	246.58631	10.77024	0.2730563	2.6573680	33	2	1989–1999	0.75	M-v	4	Williams	33710	1998 WP
1998 WQ	14.1	0.15	19990122	97.19890	128.27811	195.18409	5.94743	0.2173671	2.2806349	44	2	1939–1998	0.45	M-v	4	Spahr	33764	1998 WQ
1998 WS	12.4	0.15	19990122	3.73984	94.89541	9.14472	27.49929	0.3954689	2.6536811	146	4	1976–1999	0.59	M-v	1	Williams	33764	1998 WS
1998 WY	15.6	0.15	19990122	332.97806	289.53364	197.58685	2.02671	0.1603015	2.3488632	32	2	1997–1999	0.49	M-v	4	Spahr	33764	1998 WY
1998 WC ₁	14.0	0.15	19990122	40.46565	267.51325	111.77014	22.02754	0.2716408	2.3073413	28	1	80 days	0.67	M-v	4	Williams		1998 WC ₁
1998 WK ₁	14.6	0.15	19990122	76.51958	350.20465	336.18815	15.14124	0.1443260	2.5187288	48	1	112 days	0.63	M-v	4	Spahr	33764	1998 WK ₁
1998 WD ₂	14.3	0.15	19990122	339.82283	195.54771	298.42806	11.23535	0.2834404	2.9084739	31	1	89 days	0.48	M-v	4	Williams	33764	1998 WD ₂
1998 WN ₂	15.0	0.15	19990122	44.15007	131.59420	312.68825	12.15354	0.1604390	2.5534976	21	1	89 days	0.64	M-v	5	Williams		1998 WN ₂
1998 WQ ₂	14.4	0.15	19990122	345.70334	246.80898	211.31632	10.16351	0.2515772	2.7694755	35	1	85 days	0.66	M-v	5	Williams		1998 WQ ₂
1998 WA ₃	13.7	0.15	19990122	59.19500	297.75992	124.86241	17.11097	0.1846574	3.1085920	16	1	86 days	0.58	M-v	6	Williams		1998 WA ₃
1998 WB ₃	14.1	0.15	19990122	11.74664	22.67956	104.00723	2.83977	0.1587509	3.2133135	18	1	86 days	0.36	M-v	6	Williams		1998 WB ₃
1998 WG ₃	13.7	0.15	19990122	102.34294	92.74747	266.25032	3.14616	0.0056411	2.7544659	25	2	1993–1999	0.77	M-v	5	Williams	33765	1998 WG ₃
1998 WQ ₃	13.0	0.15	19990122	194.30553	3.34728	267.40526	12.42257	0.1245713	2.5632891	32	2	1992–1999	0.62	M-v	4	Spahr	33765	1998 WQ ₃
1998 WR ₃	13.8	0.15	19990122	143.33560	223.76240	58.45453	7.90046	0.1534307	2.2547970	36	3	1981–1998	0.67	M-v	4	Spahr	33710	1998 WR ₃
1998 WS ₃	14.1	0.15	19990122	263.52005	125.65148	58.01350	4.54401	0.0812020	2.1805346	48	5	1987–1999	0.75	M-v	3	Williams	33578	1998 WS ₃
1998 WT ₃	14.1	0.15	19990122	46.02082	319.64965	57.70002	10.26625	0.1982121	2.3848606	31	1	71 days	0.65	M-v	4	Spahr	33765	1998 WT ₃
1998 WX ₃	14.1	0.15	19990122	46.59799	285.67215	72.96803	13.54959	0.3108062	2.6523510	39	1	95 days	0.63	M-v	4	Marsden		1998 WX ₃
1998 WH ₄	13.2	0.15	19990122	4.45163	359.69025	72.64070	4.30862	0.0618529	2.6839398	39	2	1996–1998	0.72	M-v	4	Spahr	33765	1998 WH ₄
1998 WX ₄	9.3	0.15	19990122	29.86964	283.72668	120.55093	28.75430	0.0236460	5.2886788	20	2	1992–1999	0.54	M-v	3	Williams	33522	1998 WX ₄
1998 WA ₅	14.6	0.15	19990122	344.58881	12.07037	96.44280	28.37365	0.0582791	1.9364226	19	1	79 days	0.58	M-v	4	Williams		1998 WA ₅
1998 WO ₅	14.4	0.15	19990122	331.69498	125.00513	329.72476	5.82554	0.0899967	2.4631743	25	3	1990–1999	0.50	M-v	3	Marsden	33765	1998 WO ₅
1998 WQ ₅	15.3	0.15	19990122	288.08740	269.68759	285.89772	27.65763	0.3546660	1.7208504	65	1	99 days	0.67	M-v	4	Williams	33765	1998 WQ ₅
1998 WV ₅	12.3	0.15	19990122	172.20966	352.64793	250.86458	13.50753	0.1074188	3.0316287	21	1	78 days	0.54	M-v	5	Williams	33765	1998 WV ₅
1998 WX ₅	14.2	0.15	19990122	235.48386	134.87575	78.32456	3.08249	0.1045494	2.1525342	31	1	82 days	0.56	M-v	5	Williams	33765	1998 WX ₅
1998 WY ₅	13.3	0.15	19990122	29.72746	300.44866	106.41944	2.68726	0.1146488	3.1486052	28	4	1981–1998	0.59	M-v	2	Spahr	33765	1998 WY ₅
1998 WZ ₅	10.3	0.15	19990122	358.40762	272.03924	160.22332	12.80551	0.0943803	5.2319449	19	3	1986–1998	0.79	M-v	4	Spahr	33522	1998 WZ ₅

1998 WA ₆	15.0	0.15	19981103	13.10975	332.57390	50.28297	5.66587	0.2826655	2.6848094	27	1	59 days	0.58		Spahr		1998 WA ₆
1998 WP ₆	14.5	0.15	19990122	351.53748	49.03521	59.74989	4.87484	0.1450014	2.5445540	30	2	1995–1999	0.61	M-v 4	Spahr	33765	1998 WP ₆
1998 WQ ₆	14.7	0.15	19990122	27.97093	70.20677	347.98831	1.94144	0.1934535	2.3870077	30	2	1979–1999	0.59	M-v 4	Spahr	33765	1998 WQ ₆
1998 WX ₆	13.9	0.15	19990122	357.32406	37.22232	73.00250	8.90695	0.1576151	2.7143278	24	1	60 days	0.68	M-v 4 D	Williams	33765	1998 WX ₆
1998 WY ₆	14.3	0.15	19990122	240.01422	219.97858	342.58248	5.99687	0.0361055	2.4036975	16	1	61 days	0.23	M-v 5	Williams		1998 WY ₆
1998 WZ ₆	17.3	0.15	19990122	332.12497	110.58434	68.86225	24.74723	0.4083217	1.4522333	218	1	76 days	0.48	M-v 5	Spahr	33765	1998 WZ ₆
1998 WB ₇	13.4	0.15	19990122	91.83338	357.06672	326.62815	0.93277	0.1114068	2.9472203	24	1	84 days	0.56	M-v 6	Williams		1998 WB ₇
1998 WG ₇	13.7	0.15	19990122	108.59910	216.10310	97.17294	6.10143	0.2310667	2.3784939	19	3	1986–1999	0.71	M-v 3	Williams	33579	1998 WG ₇
1998 WH ₇	15.9	0.15	19990122	24.92641	153.70723	254.40889	5.96321	0.0985586	2.3549127	26	1	78 days	0.45	M-v 4	Williams	33765	1998 WH ₇
1998 WK ₇	14.8	0.15	19990122	12.02935	192.67041	274.88865	24.01877	0.2414832	2.3533803	22	1	61 days	0.90	M-v 4	Spahr	33765	1998 WK ₇
1998 WM ₇	13.5	0.15	19990122	344.23626	66.12186	94.65926	9.08254	0.2184487	2.5682232	26	1	91 days	0.49	M-v 4	Williams		1998 WM ₇
1998 WC ₈	13.3	0.15	19990122	22.71451	290.09378	108.27123	8.82162	0.2629177	2.7307330	28	2	1989–1999	0.69	M-v 3	Spahr	33765	1998 WC ₈
1998 WJ ₈	12.7	0.15	19990122	74.83498	257.49404	80.02660	17.20672	0.0801104	3.1257785	38	1	98 days	0.44	M-v 4	Williams	33765	1998 WJ ₈
1998 WO ₈	17.0	0.15	19990122	49.26755	314.58756	77.15640	3.29262	0.2069374	2.4259901	35	1	84 days	0.30	M-v 4	Williams	33765	1998 WO ₈
1998 WD ₉	14.9	0.15	19990122	17.70974	202.06443	207.63237	8.27524	0.1432550	2.3309774	24	2	1989–1998	0.62	M-v 4	Spahr	33524	1998 WD ₉
1998 WE ₉	12.6	0.15	19990122	117.36400	255.27119	102.76519	11.15740	0.0866458	3.0019191	37	1	75 days	0.44	M-v 4	Williams	33765	1998 WE ₉
1998 WG ₉	15.0	0.15	19990122	53.47520	350.97192	53.75607	5.38543	0.2254719	2.2983534	20	1	78 days	0.47	M-v 5	Williams		1998 WG ₉
1998 WJ ₉	14.1	0.15	19990122	336.00337	18.80972	95.72588	14.36982	0.1976951	2.6405847	24	3	1991–1999	0.76	M-v 4	Spahr	33765	1998 WJ ₉
1998 WK ₉	14.7	0.15	19990122	25.62003	300.84063	103.32580	4.84765	0.0970257	2.7977677	45	2	1996–1998	0.68	M-v 4	Spahr	33524	1998 WK ₉
1998 WL ₉	14.6	0.15	19990122	326.16678	183.77101	311.18536	4.37493	0.1580159	3.1740312	46	2	1988–1999	0.80	M-v 4	Spahr	33710	1998 WL ₉
1998 WM ₉	14.5	0.15	19990122	9.80791	7.64863	51.32680	9.28713	0.1559716	2.5523381	21	1	82 days	0.47	M-v 4	Marsden		1998 WM ₉
1998 WP ₉	14.5	0.15	19981123	294.28602	1.31775	138.26950	0.96721	0.1515450	2.3329274	32	1	33 days	0.72		Spahr		1998 WP ₉
1998 WQ ₉	15.7	0.15	19990122	22.05496	189.51743	214.39763	5.35660	0.2384547	2.5587681	26	1	84 days	0.73	M-v 4	Spahr	33765	1998 WQ ₉
1998 WS ₉	13.8	0.15	19990122	133.66008	221.73661	69.42117	6.79406	0.1001837	2.3570481	32	1	78 days	0.61	M-v 5	Marsden		1998 WS ₉
1998 WY ₉	15.3	0.15	19981123	32.58849	167.85517	207.86090	3.88890	0.1428277	2.5178973	19	1	6 days	0.78		D Doppler		1998 WY ₉
1998 WZ ₉	15.3	0.15	19981123	208.46920	118.23475	94.06372	4.00993	0.0570802	2.4187958	15	1	6 days	0.83		D Doppler		1998 WZ ₉
1998 WB ₁₀	14.8	0.15	19990122	348.72439	201.33273	258.12530	1.56264	0.1644617	2.4274860	42	1	114 days	0.76	M-v 4	Williams	33765	1998 WB ₁₀
1998 WL ₁₀	15.0	0.15	19981103	340.56874	248.35292	188.06390	4.37638	0.1349622	3.1028034	14	1	35 days	0.93		Spahr		1998 WL ₁₀
1998 WM ₁₀	14.8	0.15	19981123	321.07329	332.71453	126.73757	3.64334	0.0633686	2.9980730	11	1	20 days	0.52		Williams		1998 WM ₁₀
1998 WU ₁₀	14.1	0.15	19990122	136.22660	42.83050	235.20732	1.92954	0.2272061	2.3554104	26	3	1986–1998	0.77	M-v 5	Spahr	33524	1998 WU ₁₀
1998 WW ₁₀	14.6	0.15	19990122	57.89228	284.18847	77.76164	4.38247	0.1246990	2.5668735	52	2	1973–1999	0.60	M-v 4	Williams	33579	1998 WW ₁₀
1998 WN ₁₁	11.4	0.15	19990122	356.09178	318.70459	110.39350	4.50864	0.1699281	5.1878633	14	1	66 days	0.85	M-v 5	Marsden		1998 WN ₁₁
1998 WA ₁₂	14.9	0.15	19990122	336.90207	291.29406	178.23685	2.89212	0.1502929	2.4443727	26	2	1996–1998	0.67	M-v 5	Spahr	33524	1998 WA ₁₂
1998 WP ₁₂	15.8	0.15	19981123	24.80447	97.28299	291.77441	2.24669	0.0622219	2.5793286	11	1	20 days	0.71		Williams		1998 WP ₁₂
1998 WR ₁₂	16.2	0.15	19990122	48.04442	122.37706	255.23007	6.02675	0.1370886	2.2885312	19	1	78 days	0.66	M-v 5	Williams	33766	1998 WR ₁₂
1998 WQ ₁₃	15.2	0.15	19990122	37.86474	12.00829	16.13143	3.37226	0.2196454	2.3456324	26	2	1987–1998	0.86	M-v 4	Spahr	33525	1998 WQ ₁₃
1998 WZ ₁₃	14.8	0.15	19990122	52.87510	122.03425	252.95605	5.89047	0.1089808	2.3888736	34	1	89 days	0.57	M-v 4	Spahr	33766	1998 WZ ₁₃
1998 WA ₁₄	15.4	0.15	19990122	339.62963	94.35555	18.07260	0.43774	0.1950684	2.3441078	32	1	66 days	0.63	M-v 5	Spahr	33766	1998 WA ₁₄
1998 WJ ₁₄	14.9	0.15	19990122	358.09621	246.59633	189.61493	0.63145	0.1413233	3.0964025	29	1	84 days	0.62	M-v 5	Williams	33766	1998 WJ ₁₄
1998 WQ ₁₄	13.9	0.15	19981123	248.53113	307.50276	229.88972	8.12518	0.0628225	3.0823221	19	1	31 days	0.77		Williams		1998 WQ ₁₄
1998 WV ₁₄	16.2	0.15	19981213	15.98382	326.69142	79.32795	4.41930	0.1463369	2.1750695	25	1	47 days	0.70		Spahr		1998 WV ₁₄
1998 WA ₁₅	11.4	0.15	19990122	357.25533	209.63642	218.88380	11.21239	0.1181967	5.2032831	23	2	1990–1998	0.57	M-v 4	Spahr	33525	1998 WA ₁₅
1998 WD ₁₅	14.5	0.15	19990122	1.71250	299.90908	130.68814	3.07967	0.0669383	2.9234027	25	3	1995–1998	0.51	M-v 4	Spahr	33766	1998 WD ₁₅
1998 WM ₁₅	14.6	0.15	19990122	8.70606	338.29995	87.63749	7.42281	0.0864011	2.4806156	20	1	88 days	0.47	M-v 4	Williams		1998 WM ₁₅
1998 WR ₁₅	13.1	0.15	19990122	78.23087	195.60201	131.34474	5.54872	0.2039943	3.1804924	19	2	1986–1998	0.80	M-v 5	Spahr	33525	1998 WR ₁₅
1998 WC ₁₆	13.0	0.15	19990122	111.66584	233.67383	74.92694	11.43756	0.0985090	2.9778635	28	1	90 days	0.70	M-v 5	Williams		1998 WC ₁₆
1998 WE ₁₆	14.2	0.15	19990122	349.51500	4.65807	80.35761	6.63739	0.0910766	3.2164993	18	1	80 days	0.85	M-v 5	Williams		1998 WE ₁₆
1998 WN ₁₆	13.9	0.15	19990122	6.89978	243.77521	190.52425	1.82691	0.1825774	2.3755139	34	1	172 days	0.57	M-v 4	Williams		1998 WN ₁₆
1998 WO ₁₆	14.3	0.15	19990122	306.29396	67.48539	64.64447	6.35549	0.0766526	3.2261147	19	1	64 days	0.51	M-v 5	Williams		1998 WO ₁₆
1998 WQ ₁₆	13.6	0.15	19981123	9.35731	343.59292	62.41144	7.18577	0.1844066	3.1372169	12	1	17 days	0.78		Williams		1998 WQ ₁₆
1998 WA ₁₇	13.9	0.15	19981123	293.96983	295.20829	201.24738	1.64660	0.0845049	3.1411016	15	1	19 days	0.68		Williams		1998 WA ₁₇
1998 WC ₁₇	14.3	0.15	19990122	103.75706	234.25826	88.68461	2.91594	0.0699214	2.6931498	33	1	85 days	0.55	M-v 5	Williams	33766	1998 WC ₁₇
1998 WG ₁₇	14.7	0.15	19990122	129.78525	118.34150	173.28175	0.39328	0.1505912	2.5735824	24	2	1992–1999	0.69	M-v 5	Williams	33766	1998 WG ₁₇

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1998 WK ₁₇	12.8	0.15	19981213	249.79443	299.53672	244.82139	21.44461	0.1016383	3.1728971	22	1	46 days	0.94		Williams	1998 WK ₁₇
1998 WW ₁₈	14.0	0.15	19981123	91.53130	80.98861	242.03120	6.33948	0.0604568	2.7305489	23	1	36 days	0.60	D	Williams	1998 WW ₁₈
1998 WB ₁₉	15.8	0.15	19990122	46.00684	284.08975	77.92896	6.89235	0.2869709	2.6139133	32	1	63 days	0.70	M-v 5	Spahr	33766 1998 WB ₁₉
1998 WJ ₁₉	14.7	0.15	19990122	166.91349	55.08861	206.42185	2.17960	0.1670066	2.4576400	18	2	1994–1998	0.50	M-v 6	Spahr	33526 1998 WJ ₁₉
1998 WN ₁₉	13.6	0.15	19990122	54.35883	124.57694	280.07422	11.85143	0.2596256	2.5715255	21	1	85 days	0.59	M-v 5	Williams	1998 WN ₁₉
1998 WO ₁₉	14.2	0.15	19990122	17.81239	214.92367	246.77209	11.12483	0.2026752	2.5553342	15	1	85 days	0.64	M-v 5	Williams	1998 WO ₁₉
1998 WR ₁₉	13.9	0.15	19990122	317.30788	259.48853	280.43088	4.36474	0.0992122	2.2322790	32	2	1993–1999	0.72	M-v 5	Williams	33711 1998 WR ₁₉
1998 WS ₁₉	14.2	0.15	19990122	33.09205	75.19698	14.39219	11.75526	0.2505796	2.6280014	17	1	80 days	0.77	M-v 6	Williams	1998 WS ₁₉
1998 WW ₁₉	13.5	0.15	19990122	60.80381	266.65095	96.50934	7.86071	0.0637167	3.1803123	34	4	1975–1998	0.52	M-v 1	Spahr	33580 1998 WW ₁₉
1998 WA ₂₀	12.9	0.15	19990122	270.56123	80.73524	105.46211	10.88364	0.0306988	3.0200227	32	1	73 days	0.50	M-v 5	Williams	1998 WA ₂₀
1998 WG ₂₀	11.7	0.15	19981103	4.64303	1.70620	45.39188	20.79986	0.1527720	5.2569969	15	1	33 days	0.90		Spahr	1998 WG ₂₀
1998 WT ₂₀	14.1	0.15	19990122	196.02151	30.07412	206.71301	4.23472	0.1355365	2.1984489	29	2	1991–1998	0.49	M-v 5	Spahr	33526 1998 WT ₂₀
1998 WU ₂₀	14.1	0.15	19990122	209.09765	8.73962	217.12924	7.54170	0.0508021	2.2214998	37	4	1987–1999	0.82	M-v 2	Williams	33526 1998 WU ₂₀
1998 WZ ₂₀	15.5	0.15	19990122	33.90256	103.19843	291.02051	2.24370	0.1702551	2.2472902	28	2	1991–1999	0.77	M-v 4	Spahr	33766 1998 WZ ₂₀
1998 WR ₂₁	10.1	0.15	19990122	39.43739	135.69005	241.65768	14.99008	0.0695207	5.2327359	42	3	1974–1999	0.84	M-v 3	Williams	33766 1998 WR ₂₁
1998 WZ ₂₁	14.4	0.15	19990122	41.21823	225.29054	162.60258	0.99480	0.0195585	2.6546217	22	2	1993–1998	0.63	M-v 5	Spahr	33527 1998 WZ ₂₁
1998 WA ₂₂	15.0	0.15	19990122	102.34498	227.95558	78.41812	3.46312	0.2164139	2.3836859	33	3	1971–1999	0.61	M-v 2	Williams	33527 1998 WA ₂₂
1998 WH ₂₂	13.1	0.15	19981123	127.81714	215.41469	50.80101	8.46901	0.3378761	2.6637933	12	1	20 days	0.72		Williams	1998 WH ₂₂
1998 WO ₂₂	14.1	0.15	19990122	85.20553	245.45969	67.71608	5.80393	0.2991321	2.5850547	31	1	121 days	0.58	M-v 5	Williams	33766 1998 WO ₂₂
1998 WP ₂₂	14.5	0.15	19981123	294.53200	284.83857	223.37836	3.21374	0.2083835	2.6076247	24	1	34 days	0.78		Williams	1998 WP ₂₂
1998 WS ₂₂	15.0	0.15	19990122	136.03275	208.39773	78.38739	6.08509	0.1310539	2.3261963	18	1	81 days	0.62	M-v 6	Williams	1998 WS ₂₂
1998 WF ₂₃	15.6	0.15	19981123	358.44568	147.10396	272.17105	2.87875	0.1610055	2.3056911	14	1	36 days	0.66		Williams	1998 WF ₂₃
1998 WZ ₂₃	12.8	0.15	19990122	95.41489	22.17597	17.50735	6.85560	0.0936380	2.3751543	45	5	1953–1999	0.79	M-v 2	Williams	33711 1998 WZ ₂₃
1998 WB ₂₄	13.4	0.15	19990122	54.97834	317.88427	120.32767	10.12734	0.1362779	2.7778065	22	1	80 days	0.53	M-v 5	Williams	1998 WB ₂₄
1998 WC ₂₄	12.9	0.15	19990122	293.95408	235.08889	350.40922	13.11380	0.1210529	2.6055516	28	2	1995–1999	0.90	M-v 4	Williams	33711 1998 WC ₂₄
1998 WD ₂₄	12.6	0.15	19990122	308.24140	236.99894	347.80548	8.05809	0.2097265	2.8709271	24	1	88 days	0.56	M-v 5	Williams	1998 WD ₂₄
1998 WF ₂₄	15.3	0.15	19990122	97.42577	65.36838	258.27191	2.46893	0.1126942	2.3206522	23	2	1987–1999	0.50	M-v 5	Williams	33528 1998 WF ₂₄
1998 WT ₂₄	17.7	0.15	19990122	296.04974	167.35524	82.10946	7.38253	0.4183765	0.7180256	40	1	33 days	0.69	M-v 7	Spahr	33766 1998 WT ₂₄
1998 WU ₂₄	15.0	0.15	19990122	2.63770	303.99876	103.04203	42.57986	0.9068023	15.1469302	62	1	87 days	0.70	M-v 3	Williams	33766 1998 WU ₂₄
1998 WX ₂₆	15.9	0.15	19990122	292.97303	89.80318	114.18619	1.89512	0.1841640	2.3107261	31	3	1992–1999	0.58	M-v 3	Spahr	33766 1998 WX ₂₆
1998 WZ ₂₆	14.7	0.15	19990122	351.88359	17.20642	111.90719	2.87992	0.1567418	3.1015520	12	1	89 days	0.57	M-v 5	Williams	1998 WZ ₂₆
1998 WY ₃₀	14.9	0.15	19990122	129.80262	288.58173	5.13528	6.09331	0.2040902	2.1964568	25	2	1991–1999	0.62	M-v 4	Spahr	33711 1998 WY ₃₀
1998 WZ ₃₀	13.3	0.15	19990122	82.23127	21.47615	335.34437	9.17393	0.2179770	2.4213396	51	3	1989–1999	0.63	M-v 3	Williams	33766 1998 WZ ₃₀
1998 WA ₃₂	14.3	0.15	19981123	34.19296	161.31818	225.16679	1.12497	0.0504560	2.9312479	12	1	17 days	0.55		E Williams	1998 WA ₃₂
1998 XB	15.4	0.15	19990122	247.73253	202.56544	75.87517	13.59680	0.3511689	0.9077961	160	1	83 days	0.50	M-v 5	Williams	33767 1998 XB
1998 XC	13.6	0.15	19990122	99.12034	94.55007	260.98066	3.50942	0.1469840	2.2568964	48	5	1950–1999	0.80	M-v 2	Spahr	33712 1998 XC
1998 XD	14.4	0.15	19990122	19.65059	344.16966	107.63237	8.77746	0.2607939	2.9777238	21	1	73 days	0.45	M-v 4	Williams	1998 XD
1998 XF	13.2	0.15	19990122	274.87248	222.32842	23.98930	11.45531	0.1303301	2.7816203	24	2	1992–1999	0.42	M-v 4	Williams	33528 1998 XF
1998 XE ₁	15.3	0.15	19990122	41.83186	298.13627	84.54103	3.23754	0.0975744	2.6262215	27	2	1996–1999	0.53	M-v 4	Williams	33529 1998 XE ₁
1998 XC ₂	14.4	0.15	19981213	234.13212	136.70617	67.14910	18.83184	0.2134180	2.5507115	9	1	14 days	0.14		Doppler	1998 XC ₂
1998 XN ₂	19.5	0.15	19990122	28.97219	125.68954	256.26559	1.76928	0.5424619	1.9990578	138	1	46 days	0.63	M-v 5	Williams	33767 1998 XN ₂
1998 XW ₂	15.7	0.15	19990122	16.11658	273.43161	107.37709	4.25519	0.1939037	2.3101310	27	1	106 days	0.75	M-v 5	D Williams	1998 XW ₂
1998 XK ₃	14.9	0.15	19990122	52.98493	134.13166	271.99640	18.24497	0.2497109	2.6122094	15	1	61 days	0.26	M-v 4	Williams	1998 XK ₃
1998 XM ₃	14.9	0.15	19990122	48.20597	337.36695	33.32370	8.62296	0.3941085	2.5506580	38	1	74 days	0.57	M-v 5	Williams	1998 XM ₃
1998 XN ₃	13.2	0.15	19990122	92.96152	299.26421	34.74828	1.76556	0.1947251	3.1940244	32	4	1969–1999	0.65	M-v 3	Williams	33712 1998 XN ₃
1998 XP ₃	16.4	0.15	19990122	37.55570	47.19361	358.45915	2.66038	0.1554292	2.3477011	18	2	1996–1998	0.68	M-v 5	Spahr	33767 1998 XP ₃
1998 XR ₃	14.1	0.15	19990122	30.81258	122.18816	294.81311	2.71503	0.0698972	2.7284256	34	3	1979–1999	0.50	M-v 3	Spahr	33529 1998 XR ₃
1998 XW ₃	12.2	0.15	19990102	309.10662	63.75226	64.68883	10.34558	0.0365450	3.0441832	25	1	55 days	0.72		Williams	1998 XW ₃
1998 XB ₄	13.2	0.15	19990122	336.82644	155.20317	323.74080	5.40499	0.0800659	2.2742442	34	6	1957–1999	0.83	M-v 2	Williams	33530 1998 XB ₄
1998 XC ₄	13.4	0.15	19990122	32.96553	127.49023	283.23748	0.97273	0.0670055	2.8419799	45	4	1978–1999	0.66	M-v 1	Spahr	33767 1998 XC ₄
1998 XM ₄	14.8	0.15	19990122	281.35935	301.34314	235.70350	62.70450	0.4173760	1.6566727	88	1	69 days	0.66	M-v 5	Williams	33767 1998 XM ₄
1998 XN ₄	13.9	0.15	19981123	1.84478	308.01766	100.37404	3.05503	0.0979576	2.6571458	14	1	42 days	0.66		Spahr	1998 XN ₄
1998 XQ ₄	13.8	0.15	19990122	127.62665	25.59353	302.15124	5.98055	0.0872918	2.2548477	37	3	1950–1999	0.72	M-v 4	Williams	33712 1998 XQ ₄

1998 XA ₅	18.8	0.15	19990122	358.61306	211.16278	274.26253	31.76343	0.3066412	1.5584260	173	1	64 days	0.67	M-v	5	Williams	33767	1998 XA ₅
1998 XB ₅	15.3	0.15	19990122	107.25464	146.75368	181.70190	5.76895	0.1647890	2.2562671	30	4	1984–1999	0.59	M-v	3	Spahr	33767	1998 XB ₅
1998 XG ₅	14.6	0.15	19990122	23.95861	186.62529	243.21214	11.04212	0.1621947	2.6627321	21	1	71 days	0.68	M-v	5	Williams		1998 XG ₅
1998 XH ₅	12.6	0.15	19990122	358.86572	355.83278	112.58559	12.60307	0.0447828	3.1697379	43	1	67 days	0.84	M-v	5	Williams		1998 XH ₅
1998 XJ ₅	11.3	0.15	19981123	335.56118	23.19258	60.10198	8.76814	0.1856150	5.1642281	19	1	44 days	0.85			Spahr		1998 XJ ₅
1998 XT ₅	15.2	0.15	19981213	335.81917	21.85392	70.04587	10.88024	0.1130149	3.2361726	14	1	12 days	0.93			Doppler		1998 XT ₅
1998 XM ₆	14.1	0.15	19990122	127.02908	182.46585	113.92916	3.06594	0.0864415	2.9317908	22	3	1978–1998	0.50	M-v	4	Spahr	33712	1998 XM ₆
1998 XP ₆	15.3	0.15	19990122	239.25803	121.22557	74.66542	4.90407	0.0494399	2.6196041	15	1	61 days	0.78	M-v	6	Williams		1998 XP ₆
1998 XD ₇	15.6	0.15	19981213	37.27287	145.62507	231.10218	5.58174	0.1511830	2.4133284	15	1	14 days	0.65			Spahr		1998 XD ₇
1998 XN ₇	15.3	0.15	19981123	56.45847	246.61071	90.62853	3.93851	0.2416932	2.5580346	9	1	5 days	0.56			E Williams		1998 XN ₇
1998 XN ₈	14.4	0.15	19990122	110.27450	239.72706	117.37792	15.10858	0.1470288	2.5885310	23	1	64 days	0.63	M-v	5	Williams		1998 XN ₈
1998 XY ₈	14.2	0.15	19990122	24.66492	134.19020	277.97356	10.79951	0.1937503	2.3646821	76	4	1978–1999	0.56	M-v	2	Williams	33713	1998 XY ₈
1998 XZ ₈	12.5	0.15	19990122	40.69844	78.34103	310.84145	16.97072	0.3208242	3.1027369	72	1	61 days	0.58	M-v	4	Williams		1998 XZ ₈
1998 XB ₉	16.4	0.15	19990122	15.62764	106.10939	320.56360	13.44092	0.4757213	2.7093960	80	1	60 days	0.52	M-v	4	Williams	33768	1998 XB ₉
1998 XC ₉	18.1	0.15	19990122	10.21763	120.75687	320.35821	9.31163	0.5307847	2.7510474	94	1	70 days	0.47	M-v	4	Williams	33768	1998 XC ₉
1998 XD ₉	17.9	0.15	19990122	0.74003	27.67232	83.41458	15.44411	0.4890988	2.5734248	105	1	65 days	0.51	M-v	4	Williams	33768	1998 XD ₉
1998 XJ ₉	15.2	0.15	19990122	7.51608	346.59813	84.47902	7.36613	0.0950118	2.3745185	19	1	61 days	0.52	M-v	5	Marsden		1998 XJ ₉
1998 XK ₉	13.8	0.15	19981213	49.18359	286.21988	88.37206	6.82552	0.0744152	2.7689296	26	1	30 days	0.76			Spahr		1998 XK ₉
1998 XW ₉	13.6	0.15	19990122	35.06716	264.38572	175.02164	2.24935	0.0522032	2.8453316	42	1	63 days	0.48	M-v	5	Williams		1998 XW ₉
1998 XX ₉	14.1	0.15	19990122	337.51735	80.03400	56.22788	12.80460	0.1396386	2.6025133	29	1	63 days	0.78	M-v	5	Williams		1998 XX ₉
1998 XY ₉	14.5	0.15	19981213	26.46797	298.96268	80.88326	2.40955	0.2085835	3.1063064	9	1	14 days	0.11			Doppler		1998 XY ₉
1998 XN ₁₀	15.2	0.15	19990122	337.07028	33.38429	128.55423	2.99911	0.1599216	2.3588740	30	1	63 days	0.55	M-v	5	Williams		1998 XN ₁₀
1998 XP ₁₀	15.4	0.15	19990122	28.59464	200.08741	252.48782	0.54231	0.1429437	2.4357881	25	1	60 days	0.45	M-v	6	Williams		1998 XP ₁₀
1998 XQ ₁₀	14.5	0.15	19990122	36.85814	155.78847	294.15328	4.78270	0.0517624	2.3928840	22	1	63 days	0.65	M-v	6	Williams		1998 XQ ₁₀
1998 XR ₁₀	15.8	0.15	19990122	33.25927	165.46850	281.78686	0.56798	0.1378095	2.3992430	27	1	60 days	0.50	M-v	6	Williams		1998 XR ₁₀
1998 XS ₁₀	15.8	0.15	19990122	42.30510	305.87949	121.61037	5.08570	0.2239021	2.5941118	20	1	71 days	0.76	M-v	6	Williams		1998 XS ₁₀
1998 XT ₁₀	15.7	0.15	19990122	306.83492	69.87221	121.79656	7.28650	0.0752744	2.3206917	17	1	60 days	0.50	M-v	6	Williams		1998 XT ₁₀
1998 XW ₁₀	14.2	0.15	19990102	172.62944	5.73245	308.03867	6.42185	0.1292326	2.3164453	23	1	39 days	0.76			Williams		1998 XW ₁₀
1998 XB ₁₁	16.0	0.15	19990122	315.23956	241.44620	315.43801	3.11263	0.1880116	2.6066902	14	1	60 days	0.59	M-v	7	Williams		1998 XB ₁₁
1998 XC ₁₁	16.2	0.15	19990122	15.86579	154.91244	308.53489	4.46775	0.3033931	2.6068012	28	1	63 days	0.40	M-v	5	Williams		1998 XC ₁₁
1998 XH ₁₁	13.6	0.15	19990122	347.69003	25.05988	73.76090	13.52456	0.1321315	2.6985762	28	1	144 days	0.75	M-v	4	Williams	33768	1998 XH ₁₁
1998 XP ₁₁	13.4	0.15	19990122	266.75114	262.78870	302.74570	8.77732	0.0492554	2.9760098	28	3	1989–1999	0.83	M-v	4	Spahr	33768	1998 XP ₁₁
1998 XO ₁₂	15.9	0.15	19990122	17.61025	356.35113	77.16361	3.41405	0.1954164	2.3911935	26	1	63 days	0.49	M-v	4	Williams		1998 XO ₁₂
1998 XZ ₁₂	15.1	0.15	19990102	54.17932	133.03738	258.60062	5.51978	0.1097356	2.3550853	12	1	41 days	0.66			Williams		1998 XZ ₁₂
1998 XE ₁₃	14.1	0.15	19990122	85.36314	266.58490	66.95207	3.02125	0.0741110	2.8671787	18	1	89 days	0.32	M-v	4	Marsden		1998 XE ₁₃
1998 XB ₁₄	14.6	0.15	19981213	59.20485	152.85452	192.59632	3.17853	0.2227867	2.7459382	12	1	10 days	0.30			Williams		1998 XB ₁₄
1998 XY ₁₄	13.8	0.15	19990122	221.39006	143.17290	82.24487	17.87995	0.1125128	2.5278069	12	1	60 days	0.22	M-v	6	Williams		1998 XY ₁₄
1998 XW ₁₅	14.3	0.15	19981213	306.28365	234.11129	270.71819	18.93324	0.1999991	2.3768707	20	1	28 days	0.65			Williams		1998 XW ₁₅
1998 XQ ₁₆	18.1	0.15	19990122	2.98962	151.05557	315.57509	8.97724	0.4273329	2.3798653	67	1	45 days	0.60	M-v	5	Williams	33768	1998 XQ ₁₆
1998 XS ₁₆	16.4	0.15	19990122	217.59385	358.17596	273.07152	26.55288	0.4965692	1.2122578	90	1	67 days	0.54	M-v	5	Williams	33768	1998 XS ₁₆
1998 XU ₁₆	12.6	0.15	19990102	312.89305	88.31896	84.90087	10.80701	0.0620711	3.1555817	29	1	59 days	0.69			Williams		1998 XU ₁₆
1998 XV ₁₆	14.2	0.15	19990122	126.35416	257.33129	94.83656	7.57208	0.1000012	2.3706396	24	1	76 days	0.61	M-v	5	Williams		1998 XV ₁₆
1998 XW ₁₆	12.6	0.15	19990122	232.01819	217.79741	38.81770	2.16688	0.0782750	2.8893197	44	4	1980–1999	0.54	M-v	2	Williams	33713	1998 XW ₁₆
1998 XY ₁₆	13.1	0.15	19990122	109.87601	193.62749	166.86576	5.49560	0.0587365	3.1006901	24	2	1995–1999	0.52	M-v	5	Spahr	33713	1998 XY ₁₆
1998 XZ ₁₆	15.9	0.15	19990122	347.74816	30.10717	101.76070	6.85273	0.0591285	2.4338975	30	1	81 days	0.54	M-v	4	Marsden		1998 XZ ₁₆
1998 XL ₁₇	14.2	0.15	19990122	305.02416	112.48716	61.89022	6.32963	0.0685411	2.4280258	35	3	1992–1999	0.78	M-v	3	Spahr	33769	1998 XL ₁₇
1998 XT ₁₇	13.8	0.15	19990122	59.52875	183.02454	207.99184	5.00569	0.1300927	3.1853624	23	1	66 days	0.38	M-v	5	Nakano		1998 XT ₁₇
1998 XU ₁₇	15.6	0.15	19990102	45.37477	269.86901	140.09595	3.13633	0.1731909	2.4031453	19	1	57 days	0.38			Williams		1998 XU ₁₇
1998 XJ ₁₉	16.1	0.15	19990122	23.29320	332.69031	81.10412	2.26894	0.0851660	2.1755421	24	2	1995–1999	0.41	M-v	3	Spahr	33713	1998 XJ ₁₉
1998 XH ₂₀	14.6	0.15	19990122	21.57503	341.19963	109.36363	14.98126	0.0695091	2.6242045	14	1	70 days	0.57	M-v	5	Williams		1998 XH ₂₀
1998 XS ₂₀	12.8	0.15	19990102	222.02777	338.71257	290.32220	15.85919	0.2505782	2.7473751	26	1	58 days	0.51			Spahr		1998 XS ₂₀
1998 XN ₂₁	13.4	0.15	19990122	51.40879	288.41319	116.95291	2.70869	0.2107047	3.2116202	39	2	1991–1999	0.61	M-v	4	Williams	33714	1998 XN ₂₁
1998 XP ₂₁	17.0	0.15	19990122	53.16183	302.60187	100.74607	2.88779	0.2114284	1.8697976	15	1	65 days	0.57	M-v	6	Williams		1998 XP ₂₁

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1998 XD ₂₄	14.0	0.15	19990122	205.71762	169.62012	107.94317	5.42410	0.1766752	2.2682550	30	4	1935–1999	0.88	M-v	3	Williams	33714	1998 XD ₂₄
1998 XG ₂₄	12.1	0.15	19990122	82.55336	93.48747	290.48766	14.60729	0.0958352	3.1925820	37	5	1975–1999	0.79	M-v	1	Spahr	33714	1998 XG ₂₄
1998 XC ₂₅	16.6	0.15	19981213	264.25105	55.95862	113.88876	1.92551	0.0797425	2.2363979	12	1	7 days	0.35			Doppler		1998 XC ₂₅
1998 XM ₂₅	16.7	0.15	19981213	19.99250	151.24585	242.40347	9.10493	0.2631391	2.3965132	12	1	9 days	0.60			Doppler		1998 XM ₂₅
1998 XC ₂₆	13.3	0.15	19981213	8.65178	137.97532	341.22314	11.97030	0.1164547	2.4729805	18	1	27 days	0.29			Williams		1998 XC ₂₆
1998 XD ₂₆	13.5	0.15	19990122	8.81088	98.28805	37.93632	8.55944	0.1074465	2.7859362	25	1	60 days	0.51	M-v	5	Williams		1998 XD ₂₆
1998 XJ ₂₆	14.5	0.15	19981213	95.38880	225.69270	95.99018	23.18351	0.1379870	2.3949137	12	1	7 days	0.78			Williams		1998 XJ ₂₆
1998 XO ₂₇	13.5	0.15	19981213	333.15093	99.24015	1.83856	1.47162	0.1213848	3.0031654	12	1	6 days	0.27			E Williams		1998 XO ₂₇
1998 XP ₂₇	14.5	0.15	19990102	113.76317	262.03104	44.53238	6.97186	0.1366144	2.3940882	19	1	57 days	0.52			D Williams		1998 XP ₂₇
1998 XQ ₂₇	15.0	0.15	19981213	18.66536	351.46685	45.51993	9.79695	0.2768831	2.7556428	13	1	10 days	0.54			Williams		1998 XQ ₂₇
1998 XK ₂₈	14.2	0.15	19981213	25.06464	7.93835	33.07749	8.19529	0.0446427	2.9791650	12	1	10 days	0.63			E Williams		1998 XK ₂₈
1998 XN ₂₈	12.9	0.15	19981213	144.50495	226.12806	52.73251	10.41720	0.0626447	3.2344886	12	1	6 days	0.67			E Williams		1998 XN ₂₈
1998 XO ₂₈	13.5	0.15	19981213	116.86773	29.78297	274.94731	3.28676	0.0603944	2.7648140	13	1	6 days	0.50			Williams		1998 XO ₂₈
1998 XP ₂₈	14.2	0.15	19981213	140.07499	10.81084	265.26899	5.55467	0.1951057	2.3134188	13	1	6 days	0.67			Williams		1998 XP ₂₈
1998 XR ₂₈	13.8	0.15	19981213	267.28046	279.68129	256.95000	4.91300	0.1442708	2.3746334	13	1	6 days	0.57			E Williams		1998 XR ₂₈
1998 XU ₂₈	14.5	0.15	19981213	358.98107	4.59876	64.69032	2.83057	0.1892540	3.2201642	15	1	6 days	0.77			E Williams		1998 XU ₂₈
1998 XA ₂₉	14.0	0.15	19981213	26.82156	337.29891	57.44540	10.32476	0.1272064	3.0418591	13	1	6 days	0.49			Williams		1998 XA ₂₉
1998 XC ₂₉	15.5	0.15	19981213	337.09704	49.63157	51.81581	6.77848	0.1250867	2.3289313	11	1	6 days	0.34			E Williams		1998 XC ₂₉
1998 XD ₂₉	14.2	0.15	19981213	354.84010	140.59352	296.51483	4.63869	0.1170739	2.9284452	13	1	6 days	0.60			Williams		1998 XD ₂₉
1998 XS ₃₀	14.2	0.15	19981213	270.54946	279.53056	252.39747	12.19537	0.1142784	2.5913490	12	1	6 days	0.52			Williams		1998 XS ₃₀
1998 XT ₃₀	14.7	0.15	19981213	31.25083	104.08603	281.45668	1.95131	0.2120813	2.5324524	11	1	6 days	0.36			Williams		1998 XT ₃₀
1998 XO ₃₅	15.8	0.15	19981213	21.02070	135.46160	254.71557	14.95690	0.3135650	3.1507213	10	1	6 days	0.57			Williams		1998 XO ₃₅
1998 XA ₄₂	13.9	0.15	19990122	63.69865	304.48273	91.10448	5.50686	0.0041605	2.4853292	29	4	1974–1999	0.69	M-v	4	Spahr	33715	1998 XA ₄₂
1998 XF ₄₄	14.1	0.15	19990122	0.52419	75.83922	23.32879	6.25514	0.0964474	2.4373046	32	2	1996–1999	0.90	M-v	5	Williams	33715	1998 XF ₄₄
1998 XV ₄₄	14.6	0.15	19990122	17.52463	68.61179	11.76855	6.82242	0.1395924	2.2824345	28	2	1996–1999	0.73	M-v	4	Williams	33715	1998 XV ₄₄
1998 XY ₄₈	15.2	0.15	19990102	47.18445	302.90180	94.70086	13.74396	0.1749001	2.6747125	16	1	36 days	0.72			D Doppler		1998 XY ₄₈
1998 XC ₄₉	15.4	0.15	19990102	355.03611	21.35533	87.24872	13.08741	0.1451230	2.6236464	18	1	36 days	0.71			D Doppler		1998 XC ₄₉
1998 XD ₅₁	12.0	0.15	19990122	322.44216	196.74062	318.52464	7.76498	0.1298747	3.9612074	26	2	1996–1999	0.67	M-v	4	Spahr	33717	1998 XD ₅₁
1998 XF ₅₁	14.5	0.15	19981213	26.93910	5.13872	53.42088	5.41848	0.1613808	2.2469289	18	1	36 days	0.99			Williams		1998 XF ₅₁
1998 XT ₅₁	13.6	0.15	19981213	265.40155	175.99051	34.96933	11.83119	0.1527095	3.2149774	11	1	10 days	0.69			Williams		1998 XT ₅₁
1998 XU ₅₁	12.0	0.15	19990102	192.74353	216.63462	57.06769	17.04831	0.1695141	3.1459270	28	1	51 days	0.66			Williams		1998 XU ₅₁
1998 XH ₅₂	14.5	0.15	19981213	43.17724	95.82621	306.09621	12.74241	0.1643002	3.1146785	19	1	36 days	0.63			Williams		1998 XH ₅₂
1998 XL ₅₂	14.6	0.15	19990122	18.65708	57.78432	29.67510	3.28395	0.0809609	2.4494620	33	4	1986–1999	0.62	M-v	4	Spahr	33717	1998 XL ₅₂
1998 XB ₅₃	13.3	0.15	19990122	28.02169	152.64827	282.85573	13.05130	0.1286630	2.6234940	42	3	1982–1999	0.73	M-v	2	Spahr	33718	1998 XB ₅₃
1998 XE ₅₃	15.2	0.15	19981213	319.33019	45.81929	101.79330	26.92731	0.0463272	2.8444334	12	1	27 days	1.36			Williams		1998 XE ₅₃
1998 XG ₅₃	14.3	0.15	19990122	325.91281	57.98589	92.29884	7.17130	0.0518980	2.4194700	28	2	1992–1999	0.54	M-v	5	Spahr	33718	1998 XG ₅₃
1998 XJ ₅₃	12.9	0.15	19990122	222.67137	182.20579	72.39129	2.79436	0.0991892	3.0713919	32	4	1981–1999	0.66	M-v	1	Spahr	33718	1998 XJ ₅₃
1998 XO ₅₃	14.5	0.15	19990102	11.75512	151.42400	292.74040	6.46228	0.0645762	2.3591694	20	1	37 days	0.57			Spahr		1998 XO ₅₃
1998 XE ₅₄	14.7	0.15	19990122	334.51734	130.59792	16.95982	5.37227	0.1892118	2.5503010	31	3	1983–1999	0.78	M-v	4	Spahr	33718	1998 XE ₅₄
1998 XN ₅₇	14.1	0.15	19990122	49.06590	240.22814	144.38266	2.84061	0.2120041	2.6737633	32	3	1989–1999	0.56	M-v	3	Spahr	33718	1998 XN ₅₇
1998 XH ₅₉	13.6	0.15	19990122	140.65114	185.70410	114.31280	7.28404	0.2191643	2.2645343	22	3	1987–1999	0.89	M-v	3	Spahr	33719	1998 XH ₅₉
1998 XG ₆₁	13.1	0.15	19990122	103.92047	75.76080	294.27416	15.24357	0.0942724	2.7331113	26	1	65 days	0.73	M-v	5	D Williams		1998 XG ₆₁
1998 XO ₆₂	16.1	0.15	19990122	17.33135	105.78931	343.75152	20.27771	0.0527185	1.9017472	20	2	1994–1999	0.83	M-v	4	Spahr	33719	1998 XO ₆₂
1998 XT ₆₂	12.7	0.15	19990122	292.91581	200.92850	333.76790	17.40185	0.0726207	3.1224503	42	2	1994–1999	0.74	M-v	4	Spahr	33719	1998 XT ₆₂
1998 XW ₆₂	13.5	0.15	19990122	23.39832	55.01373	26.63252	18.27552	0.0795946	3.0050969	33	3	1974–1999	0.66	M-v	3	Spahr	33719	1998 XW ₆₂
1998 XE ₆₃	15.3	0.15	19981213	38.27782	101.07689	261.91141	13.22198	0.2928025	2.5046073	11	1	6 days	0.53			Williams		1998 XE ₆₃
1998 XF ₆₃	15.1	0.15	19981213	16.51707	343.03147	62.98565	7.82047	0.1889814	2.2531970	12	1	6 days	0.32			Williams		1998 XF ₆₃
1998 XG ₆₃	14.3	0.15	19981213	64.83448	300.30961	53.87871	12.77069	0.0894110	2.6946855	12	1	6 days	1.71			E Williams		1998 XG ₆₃
1998 XK ₆₃	15.7	0.15	19981213	62.94149	49.59915	293.13737	7.33160	0.2153561	2.2317463	13	1	10 days	0.78			Williams		1998 XK ₆₃
1998 XE ₆₄	15.4	0.15	19981213	13.26002	47.91050	6.00557	4.31045	0.1353545	2.2819158	12	1	10 days	0.43			Williams		1998 XE ₆₄
1998 XH ₆₄	15.5	0.15	19981213	308.20753	102.59902	40.10039	3.15491	0.2066882	2.3979876	11	1	6 days	0.98			E Williams		1998 XH ₆₄
1998 XJ ₆₄	14.3	0.15	19981123	51.43396	272.84761	70.85596	6.43790	0.2529243	2.2416343	18	1	28 days	0.67			Williams		1998 XJ ₆₄
1998 XQ ₆₄	14.6	0.15	19981213	73.62033	278.56612	56.43296	6.70439	0.1854240	2.6733460	13	1	6 days	0.82			E Williams		1998 XQ ₆₄

1998 XM ₆₅	16.6	0.15	19981213	357.89925	26.76296	47.47189	6.31468	0.1349900	2.4971663	10	1	6 days	0.99	E	Williams	1998 XM ₆₅
1998 XU ₆₅	14.7	0.15	19981213	344.66190	83.66552	11.77239	1.23294	0.2371251	3.1807849	11	1	6 days	0.69		Williams	1998 XU ₆₅
1998 XV ₆₅	15.7	0.15	19981213	329.41887	54.78080	62.81890	4.94624	0.2218986	2.8544868	12	1	6 days	0.78		Williams	1998 XV ₆₅
1998 XW ₆₅	15.1	0.15	19981213	213.65087	150.02595	66.93373	1.68000	0.0144635	2.4988510	12	1	6 days	0.91	E	Williams	1998 XW ₆₅
1998 XB ₆₆	16.9	0.15	19981213	340.67441	122.63372	340.71482	0.95684	0.2185257	2.3987046	11	1	6 days	0.74		Williams	1998 XB ₆₆
1998 XR ₇₃	14.6	0.15	19990102	45.18295	304.88477	97.15694	10.36883	0.1595124	2.7623054	18	1	36 days	0.98	D	Doppler	1998 XR ₇₃
1998 XH ₇₄	14.8	0.15	19981213	14.81154	20.88637	56.26984	17.13074	0.1689882	3.1164852	12	1	10 days	0.90		Williams	1998 XH ₇₄
1998 XJ ₇₄	15.4	0.15	19990102	21.54686	21.76659	51.73767	13.45970	0.1532885	2.5685518	19	1	36 days	0.61	D	Doppler	1998 XJ ₇₄
1998 XM ₇₄	14.1	0.15	19990102	310.56200	73.52620	94.96329	3.14591	0.1432882	2.4074286	23	1	53 days	0.93		Spahr	1998 XM ₇₄
1998 XL ₇₇	12.7	0.15	19981213	37.36859	275.25638	103.05497	12.24915	0.1556403	3.1286061	16	1	26 days	0.50		Williams	1998 XL ₇₇
1998 XM ₇₇	14.5	0.15	19981213	31.37243	229.62214	162.36806	4.73876	0.1158052	2.5713483	11	1	7 days	0.70	E	Williams	1998 XM ₇₇
1998 XO ₇₇	14.4	0.15	19981213	26.52804	294.33477	98.25375	13.71020	0.1657162	2.6497726	10	1	7 days	0.50		Williams	1998 XO ₇₇
1998 XQ ₇₇	14.6	0.15	19981213	47.47036	221.17420	150.26273	5.68566	0.1488701	2.2478925	12	1	7 days	0.47		Williams	1998 XQ ₇₇
1998 XW ₇₇	13.9	0.15	19981213	42.20779	188.31175	183.66777	4.96545	0.2123724	2.5443820	13	1	7 days	0.58		Williams	1998 XW ₇₇
1998 XX ₇₇	13.6	0.15	19981213	132.20349	122.30176	170.00172	7.13932	0.0943360	3.0753437	12	1	7 days	0.75		Williams	1998 XX ₇₇
1998 XA ₇₈	15.2	0.15	19981213	40.80781	171.90131	201.67583	9.33534	0.2119881	2.8076756	11	1	7 days	0.95	E	Williams	1998 XA ₇₈
1998 XB ₇₈	13.9	0.15	19981213	332.52624	347.24608	117.50882	13.14214	0.0889387	2.7725638	19	1	30 days	0.45		Williams	1998 XB ₇₈
1998 XC ₇₈	14.4	0.15	19981213	11.71021	223.55616	191.88032	12.47368	0.1912249	3.1331321	12	1	7 days	0.61		Williams	1998 XC ₇₈
1998 XD ₇₈	14.9	0.15	19981213	348.70483	332.14030	121.09590	13.99439	0.2832315	3.1551778	13	1	7 days	0.79		Williams	1998 XD ₇₈
1998 XF ₇₈	13.0	0.15	19981213	43.65429	164.28315	221.64185	15.34253	0.0478605	3.1492309	13	1	7 days	0.49	E	Williams	1998 XF ₇₈
1998 XL ₇₈	15.1	0.15	19981213	341.20103	340.41650	119.61979	6.29461	0.1330165	2.3472481	13	1	7 days	0.45		Williams	1998 XL ₇₈
1998 XG ₇₉	12.6	0.15	19981213	36.21540	261.61982	115.64961	12.92608	0.2423834	3.1581063	13	1	7 days	0.41		Williams	1998 XG ₇₉
1998 XL ₇₉	13.2	0.15	19981213	269.88219	45.23019	131.26189	13.95622	0.1129026	2.6649142	13	1	7 days	0.53		Williams	1998 XL ₇₉
1998 XM ₇₉	13.9	0.15	19981213	329.01362	284.62833	184.73752	13.17234	0.0403705	2.8344511	11	1	7 days	0.77		Williams	1998 XM ₇₉
1998 XO ₇₉	9.8	0.15	19990122	108.09262	167.32390	157.13182	13.97553	0.0440815	5.2129648	15	2	1996–1999	0.63	M-v 5	Spahr	33720 1998 XO ₇₉
1998 XP ₇₉	13.5	0.15	19981213	320.01652	291.47228	210.63480	12.93272	0.2707014	3.4733056	12	1	7 days	0.59		Williams	1998 XP ₇₉
1998 XE ₈₀	14.6	0.15	19981213	354.49064	247.62886	198.32293	11.03494	0.1686478	2.7035283	12	1	7 days	0.68		Williams	1998 XE ₈₀
1998 XZ ₈₁	14.7	0.15	19981213	336.84272	284.09628	185.33542	10.86684	0.1238631	3.0340149	13	1	30 days	0.56		Williams	1998 XZ ₈₁
1998 XE ₈₃	14.8	0.15	19981213	351.02215	258.54199	191.87909	11.57165	0.1359654	3.0296615	12	1	30 days	0.62		Williams	1998 XE ₈₃
1998 XF ₈₃	14.7	0.15	19981213	344.02181	286.68827	170.40463	10.07829	0.1016464	3.0620238	12	1	7 days	0.43		Williams	1998 XF ₈₃
1998 XQ ₈₃	13.1	0.15	19981213	315.44039	301.30106	193.71151	12.13158	0.1205724	2.6802787	11	1	7 days	0.33		Williams	1998 XQ ₈₃
1998 XN ₈₉	13.2	0.15	19990102	231.24727	329.84871	264.12648	12.96887	0.1184310	2.5966270	18	1	36 days	0.79	D	Doppler	1998 XN ₈₉
1998 XO ₈₉	10.1	0.15	19990102	341.42995	212.42497	263.65058	19.46134	0.0390260	5.1602020	21	1	51 days	0.75		Williams	1998 XO ₈₉
1998 XP ₉₂	12.5	0.15	19990122	66.53256	144.43657	238.56180	9.65533	0.1178783	3.0226793	25	3	1982–1999	0.77	M-v 4	Williams	33720 1998 XP ₉₂
1998 XV ₉₃	13.8	0.15	19990102	275.48531	330.63864	229.32779	13.42869	0.1139554	2.4335902	25	1	51 days	0.60		Williams	1998 XV ₉₃
1998 XN ₉₄	15.3	0.15	19990102	25.65747	278.59023	144.63340	11.53096	0.1950913	2.4832793	19	1	51 days	0.94		Williams	1998 XN ₉₄
1998 XG ₉₅	13.2	0.15	19990102	12.74229	324.99030	122.07172	10.88650	0.1392419	2.5749005	24	1	51 days	0.82		Williams	1998 XG ₉₅
1998 XE ₉₆	14.8	0.15	19990122	97.98778	259.60926	119.26529	7.03277	0.0967824	2.2857628	10	1	64 days	0.63	M-v 6	Williams	1998 XE ₉₆
1998 XF ₉₆	13.7	0.15	19990122	219.85909	154.49275	123.37959	14.54332	0.1424116	2.5551473	18	1	64 days	0.51	M-v 6	Williams	1998 XF ₉₆
1998 XG ₉₆	14.9	0.15	19990122	300.02923	77.20920	122.36304	3.67874	0.1020725	2.6371495	15	1	64 days	0.60	M-v 6	Williams	1998 XG ₉₆
1998 XJ ₉₆	12.2	0.15	19981123	355.88687	74.45132	44.19787	1.83839	0.0222688	3.0506277	5	1	2 days	0.60		E Marsden	1998 XJ ₉₆
1998 XK ₉₆	15.2	0.15	19990122	324.80565	134.60277	37.46648	1.33136	0.1478192	2.3293391	14	1	63 days	0.61	M-v 6	Williams	1998 XK ₉₆
1998 XM ₉₆	14.2	0.15	19981213	180.19651	10.52837	282.98700	0.55905	0.0467122	2.3140447	7	1	3 days	1.10	E	Marsden	1998 XM ₉₆
1998 XO ₉₆	14.2	0.15	19981213	168.84524	320.09820	343.99668	1.38268	0.0532828	2.2978209	5	1	3 days	0.52	E	Marsden	1998 XO ₉₆
1998 XP ₉₆	13.7	0.15	19981213	225.29130	327.44382	303.91939	14.61131	0.2687762	2.7240451	7	1	3 days	0.65	E	Marsden	1998 XP ₉₆
1998 YE	13.7	0.15	19990122	310.58117	323.67371	240.73696	4.31230	0.0739605	2.2649980	42	3	1990–1999	0.59	M-v 3	Williams	33721 1998 YE
1998 YH	14.5	0.15	19990122	349.66422	218.06024	305.29789	4.25555	0.2152759	2.6101033	28	2	1982–1999	0.74	M-v 3	Williams	33721 1998 YH
1998 YM	16.7	0.15	19990122	20.11747	152.99608	306.62259	13.23929	0.2771104	2.7500873	13	1	62 days	0.74	M-v 6	Williams	1998 YM
1998 YR	11.7	0.15	19990122	209.04668	349.06993	277.87309	10.48727	0.1562241	3.0417504	38	3	1980–1999	0.62	M-v 4	Williams	33721 1998 YR
1998 YU	15.9	0.15	19990122	30.20400	119.93490	311.21902	1.94328	0.1500198	2.1555921	29	2	1996–1999	0.72	M-v 5	Williams	33721 1998 YU
1998 YW	15.3	0.15	19990122	51.91582	147.41334	251.95813	0.75579	0.1920723	2.2379259	27	2	1991–1999	0.70	M-v 6	Williams	33722 1998 YW
1998 YX	12.8	0.15	19990122	42.43655	320.75827	99.62864	11.68103	0.0805298	3.0116774	30	2	1982–1999	0.50	M-v 4	Williams	33722 1998 YX
1998 YB ₁	14.0	0.15	19990122	22.84873	34.31711	53.02189	10.67332	0.1184347	2.7686671	22	1	62 days	0.45	M-v 4	Nakano	1998 YB ₁

1999 MAR. 2

M.P.C. 34035

1998 YC ₁	13.3	0.15	19990122	306.01523	320.64499	194.53471	4.29757	0.0391277	3.1771015	30	1	61 days	0.47	M-v	6	Nakano		1998 YC ₁
1998 YE ₁	14.5	0.15	19990122	87.67195	21.32437	351.93083	7.02547	0.1281339	2.2859544	34	2	1987–1999	0.39	M-v	4	Williams	33722	1998 YE ₁
1998 YG ₁	14.7	0.15	19990122	239.55924	234.16593	11.54710	4.60024	0.0958411	2.2395286	24	1	64 days	0.34	M-v	4	Williams		1998 YG ₁
1998 YH ₁	13.5	0.15	19990122	74.08471	329.38465	69.17205	11.78302	0.0350752	3.0059991	18	1	66 days	0.43	M-v	5	Nakano		1998 YH ₁
1998 YN ₁	17.6	0.15	19990122	309.73197	147.39213	61.92566	6.30184	0.4649372	1.5563823	100	1	68 days	0.57	M-v	5	Williams	33771	1998 YN ₁
1998 YT ₁	14.2	0.15	19990122	73.47742	234.54210	173.31219	1.99413	0.2148684	2.3543212	44	3	1990–1999	0.73	M-v	4	Williams	33722	1998 YT ₁
1998 YU ₁	14.3	0.15	19990122	50.47669	268.59007	173.93791	2.76719	0.1444310	2.4529359	31	2	1997–1999	0.49	M-v	4	Williams	33722	1998 YU ₁
1998 YA ₂	14.9	0.15	19990122	309.74776	227.98904	321.79243	4.43547	0.0503591	2.2052166	43	2	1976–1999	0.72	M-v	5	Williams	33723	1998 YA ₂
1998 YB ₂	16.2	0.15	19990122	303.95463	247.28364	314.20468	5.11684	0.1066237	2.2769981	21	1	62 days	0.53	M-v	6	Williams		1998 YB ₂
1998 YD ₂	14.0	0.15	19990102	74.23015	82.67538	314.79901	4.10716	0.1398200	3.1492183	25	1	58 days	0.80			Williams		1998 YD ₂
1998 YF ₂	15.3	0.15	19990122	10.90217	8.40854	107.05748	2.30932	0.1420308	2.4247810	34	1	78 days	0.40	M-v	4	Williams		1998 YF ₂
1998 YG ₂	15.7	0.15	19990102	48.85930	109.32228	306.31589	5.28727	0.1867429	2.3247235	27	1	52 days	0.39			Spahr		1998 YG ₂
1998 YJ ₂	16.1	0.15	19990122	269.17594	278.60104	312.59400	5.87032	0.0791565	2.2760398	37	1	61 days	0.43	M-v	5	Williams		1998 YJ ₂
1998 YM ₂	15.3	0.15	19990102	54.89172	108.40038	313.32992	5.39439	0.0838898	2.2282581	39	1	58 days	0.60			Williams		1998 YM ₂
1998 YN ₂	15.8	0.15	19990122	326.89721	75.43908	98.89587	3.38911	0.1232328	2.4105507	41	3	1988–1999	0.60	M-v	3	Williams	33723	1998 YN ₂
1998 YP ₂	16.0	0.15	19990122	12.79345	163.75238	309.52282	8.79942	0.2023369	2.7130628	26	1	61 days	0.64	M-v	5	Williams		1998 YP ₂
1998 YQ ₂	16.1	0.15	19990102	66.99244	300.68468	94.02546	3.25737	0.2181057	2.4147958	17	1	58 days	0.39			Williams		1998 YQ ₂
1998 YS ₂	13.6	0.15	19990122	127.93461	242.01953	122.31536	15.80965	0.0486220	3.2284961	22	1	63 days	0.59	M-v	5	Williams		1998 YS ₂
1998 YT ₂	13.3	0.15	19990122	197.45696	181.14970	120.47770	11.60020	0.0867722	2.9969153	26	1	63 days	0.59	M-v	6	Williams		1998 YT ₂
1998 YU ₂	15.5	0.15	19990102	254.70541	278.80808	324.89590	5.87843	0.0835981	2.3718327	14	1	58 days	0.70			Williams		1998 YU ₂
1998 YX ₂	15.5	0.15	19990122	347.35941	226.88408	231.17693	8.88603	0.1475893	2.5726803	21	1	77 days	0.75	M-v	5 D	Williams		1998 YX ₂
1998 YB ₃	12.9	0.15	19990122	269.97027	293.26515	290.72527	14.15451	0.2123120	2.8648774	38	4	1980–1999	0.65	M-v	2	Williams	33723	1998 YB ₃
1998 YD ₃	14.1	0.15	19990122	88.09855	316.85233	50.43776	3.16785	0.1376965	2.2860830	32	5	1982–1999	0.72	M-v	2	Williams	33723	1998 YD ₃
1998 YE ₃	14.4	0.15	19990122	331.23770	226.05188	283.69705	7.13517	0.1290622	2.3313973	41	2	1993–1999	0.79	M-v	5	Williams	33772	1998 YE ₃
1998 YF ₃	13.7	0.15	19990122	86.84616	72.27869	287.72560	6.34373	0.2157113	2.5803557	38	3	1956–1999	0.64	M-v	3	Williams	33772	1998 YF ₃
1998 YH ₃	13.4	0.15	19990122	147.87395	48.45182	272.31327	5.25898	0.0704378	2.1623274	51	4	1953–1999	0.61	M-v	3	Spahr	33772	1998 YH ₃
1998 YJ ₃	14.5	0.15	19990122	106.47783	38.44710	310.19557	5.98202	0.1530217	2.2580050	27	4	1987–1999	0.65	M-v	3	Williams	33723	1998 YJ ₃
1998 YO ₃	14.8	0.15	19990122	107.79243	242.22929	94.74508	7.64701	0.1438809	2.3309304	41	2	1980–1999	0.64	M-v	5	Spahr	33723	1998 YO ₃
1998 YP ₃	15.4	0.15	19990122	337.42073	220.56089	269.06923	5.31066	0.0911618	2.4632021	41	3	1994–1999	0.44	M-v	4	Spahr	33724	1998 YP ₃
1998 YQ ₃	14.3	0.15	19990102	16.61664	188.04772	236.47208	14.16615	0.1079639	2.8057031	30	1	55 days	0.58			Marsden		1998 YQ ₃
1998 YT ₃	12.9	0.15	19990122	258.58470	62.28047	151.01508	2.53661	0.0158777	2.9000551	46	2	1977–1999	0.48	M-v	5	Spahr	33724	1998 YT ₃
1998 YW ₃	17.8	0.15	19990122	179.17579	194.76182	94.34481	28.79680	0.4625441	1.0999822	45	1	65 days	0.60	M-v	6	Williams	33772	1998 YW ₃
1998 YX ₃	14.3	0.15	19990102	35.77138	276.80949	121.50752	9.04934	0.1321343	2.7634244	28	1	56 days	0.49			Marsden		1998 YX ₃
1998 YY ₃	14.6	0.15	19990122	9.95103	359.20045	70.61801	8.06604	0.2098750	2.5426990	36	1	66 days	0.33	M-v	5	Nakano		1998 YY ₃
1998 YH ₄	14.7	0.15	19990122	145.75941	167.99855	119.61131	8.43357	0.1344282	2.2291753	21	2	1994–1999	0.42	M-v	5	Spahr	33724	1998 YH ₄
1998 YJ ₄	13.1	0.15	19990102	351.44711	304.71842	167.90829	10.98807	0.1036118	3.1883858	29	1	56 days	0.46			Williams		1998 YJ ₄
1998 YL ₄	14.6	0.15	19990122	288.86518	268.50991	312.64243	6.53847	0.0662444	2.3221204	42	1	62 days	0.65	M-v	5	Williams		1998 YL ₄
1998 YN ₄	13.7	0.15	19990122	43.75595	87.67297	299.59341	13.65085	0.1358962	2.5993108	64	3	1991–1999	0.73	M-v	3	Williams	33772	1998 YN ₄
1998 YC ₅	14.8	0.15	19990102	64.21261	293.95038	120.75818	11.05094	0.0983359	3.0542401	18	1	57 days	0.63			Williams		1998 YC ₅
1998 YD ₅	13.6	0.15	19990102	28.02842	328.09091	123.28779	19.12233	0.1275364	3.2158892	22	1	57 days	0.37			Williams		1998 YD ₅
1998 YE ₅	13.2	0.15	19990102	249.80959	154.54059	105.27277	2.75511	0.1900503	3.1598252	24	1	57 days	0.48			Williams		1998 YE ₅
1998 YF ₅	14.7	0.15	19990102	34.02362	325.85035	110.97672	5.04962	0.1907012	2.6600871	25	1	57 days	0.39			Williams		1998 YF ₅
1998 YG ₅	15.7	0.15	19990102	24.12729	340.63689	117.26514	10.30259	0.1200395	2.8004288	21	1	57 days	0.72			Williams		1998 YG ₅
1998 YH ₅	15.1	0.15	19990122	37.18645	240.63140	143.22027	27.61466	0.2709012	3.1645375	18	1	65 days	0.94	M-v	5	Spahr	33772	1998 YH ₅
1998 YN ₅	13.9	0.15	19990122	86.49397	256.84962	112.81957	14.48491	0.1915430	2.6289302	31	2	1993–1999	0.66	M-v	5	Williams	33772	1998 YN ₅
1998 YP ₅	14.9	0.15	19990122	297.37141	37.10092	146.10037	1.65794	0.0775875	3.1186746	24	1	58 days	0.27			Nakano		1998 YP ₅
1998 YS ₅	12.6	0.15	19990122	71.86445	285.35613	110.72767	11.53308	0.1025288	2.9959527	32	1	65 days	0.54	M-v	5	Williams		1998 YS ₅
1998 YT ₅	14.7	0.15	19990102	355.37858	66.85597	46.09287	2.06321	0.2203616	3.1410041	24	1	59 days	0.48			Marsden		1998 YT ₅
1998 YU ₅	16.0	0.15	19990102	10.31904	173.89326	278.63770	8.30154	0.1330181	2.4130207	17	1	54 days	0.40			Marsden		1998 YU ₅
1998 YX ₅	15.3	0.15	19990122	35.78996	107.55738	312.64896	5.36601	0.1202855	2.4614759	19	1	63 days	0.57	M-v	5	Williams		1998 YX ₅
1998 YM ₆	15.8	0.15	19990102	22.37448	203.38762	229.27328	5.54791	0.1810348	2.5499215	14	1	46 days	0.56			Marsden		1998 YM ₆
1998 YA ₇	13.7	0.15	19990102	13.85594	321.91670	94.53837	11.59114	0.1597490	2.9374702	22	1	48 days	0.41			Williams		1998 YA ₇
1998 YB ₇	12.9	0.15	19990122	21.45616	97.80970	296.06990	12.76566	0.2068606	2.6494089	34	2	1991–1999	0.66	M-v	3	Williams	33724	1998 YB ₇

1998 YF ₇	12.3	0.15	19990122	97.91484	118.29337	228.18555	12.61077	0.1993544	3.1986725	40	3	1968–1999	0.67	M-v	4	Williams	33724	1998 YF ₇
1998 YG ₇	13.2	0.15	19990122	295.40949	229.83164	321.07639	9.95330	0.0549404	3.0536645	36	2	1996–1999	0.76	M-v	4	Williams	33725	1998 YG ₇
1998 YK ₇	14.3	0.15	19990102	1.40217	31.75193	81.99094	6.01277	0.1254463	2.6135471	12	1	44 days	0.41			Nakano		1998 YK ₇
1998 YL ₇	15.3	0.15	19990102	86.89944	307.94086	61.23662	6.06087	0.1660661	2.3089786	23	1	53 days	0.55			Williams		1998 YL ₇
1998 YN ₇	14.6	0.15	19990102	331.03379	260.60515	235.58912	10.79359	0.2396779	2.6505776	48	1	58 days	0.90			Williams		1998 YN ₇
1998 YO ₇	14.9	0.15	19990122	20.03716	328.79119	88.12080	11.22059	0.2537072	2.6996700	24	2	1989–1999	0.53	M-v	3	Williams	33725	1998 YO ₇
1998 YP ₇	14.4	0.15	19990122	35.43269	293.52630	103.54637	11.39796	0.1213149	2.9698198	19	1	60 days	0.58	M-v	5	Williams		1998 YP ₇
1998 YQ ₇	15.1	0.15	19990102	308.22802	148.25080	21.64020	27.06202	0.1479948	2.3258251	21	1	47 days	0.76			Williams		1998 YQ ₇
1998 YS ₇	14.3	0.15	19990122	39.72291	80.92860	330.17861	23.20558	0.2651463	2.2991990	26	2	1994–1999	0.66	M-v	4	Williams	33773	1998 YS ₇
1998 YX ₇	15.9	0.15	19990102	38.83039	314.61877	111.60711	7.17428	0.0797720	2.3069674	18	1	53 days	0.52			Marsden		1998 YX ₇
1998 YB ₈	18.9	0.15	19990122	9.96019	342.28709	106.77111	8.88055	0.4719154	2.4191126	94	1	67 days	0.62	M-v	5	Williams	33773	1998 YB ₈
1998 YC ₈	13.3	0.15	19990122	51.49957	87.27525	281.16784	11.68857	0.2261042	2.5796281	47	2	1985–1999	0.60	M-v	4	Williams	33773	1998 YC ₈
1998 YF ₈	13.4	0.15	19990122	15.72307	228.44046	232.61858	4.66216	0.1711060	3.1797692	29	1	62 days	0.53	M-v	5	Williams		1998 YF ₈
1998 YH ₈	13.9	0.15	19990102	338.18281	243.36022	262.17500	3.90623	0.1296822	2.6058801	36	1	53 days	0.48			Williams		1998 YH ₈
1998 YL ₈	13.3	0.15	19990122	68.90936	277.05349	94.97691	12.17642	0.2524642	2.5177408	58	2	1991–1999	0.60	M-v	4	Williams	33773	1998 YL ₈
1998 YM ₈	15.6	0.15	19990122	16.97431	93.93181	333.75447	28.97811	0.4051126	2.7532481	28	1	45 days	0.62	M-v	4	Williams	33773	1998 YM ₈
1998 YO ₈	14.2	0.15	19990122	295.46421	46.40053	143.73195	5.05146	0.0618065	2.2692272	29	4	1979–1999	0.61	M-v	2	Williams	33725	1998 YO ₈
1998 YP ₈	14.7	0.15	19990122	8.17413	329.26617	138.83050	1.98487	0.1268523	2.6332389	38	2	1993–1999	0.72	M-v	5	Spahr	33725	1998 YP ₈
1998 YT ₈	13.4	0.15	19981213	44.31646	267.90469	105.76002	3.34790	0.0990195	2.9083836	31	1	45 days	0.52			Williams		1998 YT ₈
1998 YN ₉	13.5	0.15	19990102	320.45838	220.02976	341.03363	8.27575	0.1384821	2.5545638	18	1	28 days	0.41			Williams		1998 YN ₉
1998 YS ₉	13.5	0.15	19990122	328.96412	21.17001	137.51544	3.01014	0.1276253	3.2164648	21	2	1996–1999	0.67	M-v	4	Williams	33725	1998 YS ₉
1998 YT ₉	15.5	0.15	19990102	32.61614	313.36020	114.58811	6.07541	0.1498175	2.2247290	17	1	59 days	0.58			Williams		1998 YT ₉
1998 YU ₉	14.0	0.15	19990122	254.57962	109.76981	129.09511	12.82534	0.1359194	2.3633768	33	2	1992–1999	0.52	M-v	5	Spahr	33725	1998 YU ₉
1998 YV ₉	14.8	0.15	19990122	44.90151	184.02862	230.75557	1.48128	0.2051416	2.6546764	38	3	1993–1999	0.59	M-v	3	Spahr	33725	1998 YV ₉
1998 YW ₉	14.6	0.15	19990122	45.66778	263.85240	151.20431	1.42277	0.1941467	2.4183187	29	5	1975–1999	0.57	M-v	2	Spahr	33726	1998 YW ₉
1998 YX ₉	15.6	0.15	19990122	356.70138	246.92251	237.88385	1.29083	0.1660559	2.2991150	32	2	1996–1999	0.69	M-v	4	Spahr	33726	1998 YX ₉
1998 YY ₉	14.0	0.15	19990102	341.69860	14.57283	122.15295	2.39590	0.0933733	2.9529087	34	1	52 days	0.72			Williams		1998 YY ₉
1998 YZ ₉	15.4	0.15	19990102	356.72217	349.53640	127.27064	5.72357	0.0884861	2.3683615	11	1	43 days	0.97			Spahr		1998 YZ ₉
1998 YJ ₁₀	14.9	0.15	19990122	70.29593	94.34739	290.41276	11.82072	0.1970449	2.6745111	18	1	67 days	0.42	M-v	5	Williams		1998 YJ ₁₀
1998 YK ₁₀	14.0	0.15	19990122	114.89298	53.06341	291.98838	11.67324	0.1871707	2.6195174	20	1	59 days	0.23			Marsden		1998 YK ₁₀
1998 YW ₁₀	15.1	0.15	19990122	275.24546	279.64195	303.16618	3.20916	0.0750833	2.1617528	19	1	60 days	0.83	M-v	6	Williams		1998 YW ₁₀
1998 YB ₁₁	15.7	0.15	19990102	294.24532	251.32822	310.83641	4.25637	0.0988599	2.3343908	23	1	57 days	0.69			Williams		1998 YB ₁₁
1998 YF ₁₁	16.0	0.15	19990102	314.40482	76.27926	108.98596	3.37160	0.1323953	2.6341488	16	1	57 days	0.71			Williams		1998 YF ₁₁
1998 YP ₁₁	16.5	0.15	19990122	322.53340	74.23901	145.06431	15.03477	0.3890905	1.7205466	84	1	66 days	0.50	M-v	4	Marsden	33773	1998 YP ₁₁
1998 YQ ₁₁	18.0	0.15	19990122	1.48901	245.49932	256.84947	11.94384	0.3964070	1.8748997	45	1	55 days	0.61	M-v	6	Williams		1998 YQ ₁₁
1998 YR ₁₁	18.1	0.15	19990122	22.27889	320.90038	112.11250	59.71611	0.4785764	2.0293069	30	1	33 days	0.52	M-v	6	Williams		1998 YR ₁₁
1998 YV ₁₁	13.7	0.15	19990122	155.54004	215.90987	78.01054	9.03470	0.3419821	2.2860040	20	3	1983–1999	0.79	M-v	5	Williams	33726	1998 YV ₁₁
1998 YB ₁₂	12.9	0.15	19990122	323.11506	98.30300	71.02117	3.27621	0.1119438	3.0817617	44	3	1978–1999	0.56	M-v	2	Williams	33726	1998 YB ₁₂
1998 YC ₁₂	14.3	0.15	19990122	256.17564	290.11165	314.45394	7.26697	0.1704268	2.2993571	26	1	61 days	0.49	M-v	5	Williams		1998 YC ₁₂
1998 YE ₁₂	13.2	0.15	19990102	106.71441	260.46248	100.29635	11.24138	0.1269756	2.9722449	24	1	48 days	0.60			Williams		1998 YE ₁₂
1998 YF ₁₂	13.1	0.15	19990122	185.29477	203.70554	95.92843	11.10459	0.0826572	3.0075282	35	2	1997–1999	0.62	M-v	4	Williams	33726	1998 YF ₁₂
1998 YH ₁₂	14.4	0.15	19990102	356.89945	179.26963	289.54638	19.40887	0.0474386	3.2076671	15	1	53 days	0.27			Spahr		1998 YH ₁₂
1998 YJ ₁₂	14.8	0.15	19990102	286.15700	130.52637	46.19223	9.32929	0.2081682	2.5416787	14	1	56 days	0.24			Williams		1998 YJ ₁₂
1998 YK ₁₂	16.3	0.15	19990102	54.45120	121.26640	280.45977	18.64866	0.0823378	1.9055141	33	1	54 days	0.76			Williams		1998 YK ₁₂
1998 YM ₁₂	14.0	0.15	19990122	94.03328	315.70333	51.20230	2.79525	0.1135009	2.9463913	15	1	50 days	0.55			Nakano		1998 YM ₁₂
1998 YP ₁₂	12.7	0.15	19990122	116.58688	57.45770	300.50074	1.84101	0.0869215	3.0019984	46	1	52 days	0.89			Williams		1998 YP ₁₂
1998 YL ₁₃	14.0	0.15	19990102	60.62984	286.34051	106.32713	12.41293	0.1707799	2.5195191	16	1	58 days	0.57			Williams		1998 YL ₁₃
1998 YQ ₁₅	15.5	0.15	19990102	337.94976	16.12853	124.95326	5.49414	0.0971889	2.2445460	29	1	59 days	0.66			Williams		1998 YQ ₁₅
1998 YY ₁₅	14.2	0.15	19990122	24.48501	298.71869	152.71838	2.09987	0.1374110	3.1913856	37	2	1971–1999	0.69	M-v	4	Williams	33726	1998 YY ₁₅
1998 YL ₁₆	13.5	0.15	19990122	62.23335	278.94534	124.71964	5.82501	0.1699848	3.0866066	34	3	1992–1999	0.75	M-v	4	Williams	33726	1998 YL ₁₆
1998 YO ₁₆	15.7	0.15	19990122	26.64811	157.90185	287.33700	5.19074	0.1926752	2.3791547	21	1	60 days	0.67	M-v	5	Williams		1998 YO ₁₆
1998 YU ₁₆	15.0	0.15	19990122	347.31715	243.64365	254.67650	1.37871	0.1217716	2.3966202	28	2	1977–1999	0.82	M-v	4	Williams	33727	1998 YU ₁₆
1998 YG ₁₇	15.0	0.15	19990102	257.15663	316.73420	268.31167	0.76650	0.0174737	2.9144260	15	1	49 days	0.57			Williams		1998 YG ₁₇

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1998 YJ ₁₇	16.4	0.15	19990102	10.39978	331.17914	135.59714	1.98067	0.1079339	3.0046273	15	1	49 days	0.44		Williams		1998 YJ ₁₇
1998 YK ₁₇	14.8	0.15	19990122	80.05255	88.17011	295.09462	12.26083	0.1808377	2.5518625	24	2	1977–1999	0.62	M-v 5	Williams	33727	1998 YK ₁₇
1998 YS ₁₇	14.1	0.15	19990102	80.53833	254.92834	117.74353	13.78189	0.2073063	2.6087375	31	1	59 days	0.69		Williams		1998 YS ₁₇
1998 YC ₁₉	15.9	0.15	19981213	328.28593	281.71216	195.66413	2.75699	0.1926849	2.3567415	9	1	10 days	0.15		Doppler		1998 YC ₁₉
1998 YV ₂₁	13.9	0.15	19990102	274.88245	281.05136	297.29371	12.12170	0.1232012	2.6761553	26	1	47 days	0.80		Williams		1998 YV ₂₁
1998 YG ₂₂	12.9	0.15	19990102	38.39639	162.32279	261.02874	5.22397	0.0638524	2.8053474	29	1	53 days	0.83		Williams		1998 YG ₂₂
1998 YH ₂₂	15.7	0.15	19990122	15.39134	246.25789	207.42740	5.49011	0.1325509	2.3672523	37	1	55 days	0.31		Williams		1998 YH ₂₂
1998 YJ ₂₂	13.6	0.15	19990122	14.41594	300.94984	161.64505	5.77575	0.0156467	2.7338274	40	3	1992–1999	0.67	M-v 3	Williams	33727	1998 YJ ₂₂
1998 YM ₂₂	14.6	0.15	19990102	319.65126	31.71528	135.94569	8.06066	0.1824754	2.4090834	26	1	33 days	0.62		Williams		1998 YM ₂₂
1998 YO ₂₂	14.1	0.15	19990122	30.77045	303.81945	125.13439	11.95659	0.2417579	2.7144690	27	2	1993–1999	0.50	M-v 5	Spahr	33728	1998 YO ₂₂
1998 YF ₂₇	16.6	0.15	19990122	346.46424	32.52683	119.68673	46.29183	0.1959950	1.8854192	46	1	43 days	0.63	M-v 5	Williams		1998 YF ₂₇
1998 YH ₂₇	14.4	0.15	19990122	351.41568	238.99965	235.22330	12.90275	0.1278506	2.5446061	34	2	1973–1999	0.73	M-v 4	Williams	33728	1998 YH ₂₇
1998 YR ₂₇	13.8	0.15	19990122	7.36924	339.75069	126.02910	10.02550	0.2485804	2.7204694	28	2	1990–1999	0.46	M-v 4	Spahr	33728	1998 YR ₂₇
1998 YU ₂₇	13.0	0.15	19990122	119.05240	52.13894	290.15940	11.11012	0.2779390	2.6592302	32	3	1975–1999	0.75	M-v 4	Williams	33728	1998 YU ₂₇
1998 YD ₂₈	14.3	0.15	19990102	60.09259	104.51504	291.32581	10.46819	0.1936850	2.5625281	22	1	27 days	0.73		Williams		1998 YD ₂₈
1998 YR ₂₉	14.4	0.15	19990122	12.14440	117.40921	359.03200	14.21770	0.0948450	3.1976622	19	1	54 days	0.63		Williams		1998 YR ₂₉
1998 YS ₂₉	14.9	0.15	19990102	20.52980	82.89696	8.50290	9.11401	0.2052704	2.4522260	24	1	48 days	0.87		Williams		1998 YS ₂₉
1998 YT ₂₉	13.6	0.15	19990102	65.19375	32.35333	19.02456	13.50318	0.1179383	3.1920272	16	1	48 days	0.68		Williams		1998 YT ₂₉
1998 YV ₂₉	15.5	0.15	19990102	344.28150	135.74683	10.79702	12.59986	0.1145213	2.5805029	15	1	48 days	0.94		Williams		1998 YV ₂₉
1998 YX ₂₉	13.9	0.15	19990122	280.00823	228.62003	8.62770	10.72777	0.2208732	2.3900986	29	2	1989–1999	0.69	M-v 4	Williams	33728	1998 YX ₂₉
1998 YY ₂₉	14.6	0.15	19990122	72.31726	308.94935	103.85090	25.44418	0.0650781	1.9281586	30	1	85 days	0.54	M-v 4	Williams		1998 YY ₂₉
1998 YZ ₂₉	13.0	0.15	19990102	351.44287	74.43078	65.78424	11.34424	0.0537427	2.9883850	15	1	48 days	0.23		Williams		1998 YZ ₂₉
1998 YE ₃₀	15.7	0.15	19990102	27.47299	11.32950	54.80048	1.92336	0.3676435	3.0974697	13	1	57 days	1.26		Williams		1998 YE ₃₀
1999 AE	15.6	0.15	19990122	47.03037	140.89854	266.21072	3.97162	0.2277068	2.3510318	23	1	63 days	0.53	M-v 5	Spahr	33775	1999 AE
1999 AK	13.6	0.15	19990122	304.28897	303.70647	250.15363	7.59426	0.1365151	2.6691648	33	2	1997–1999	0.65	M-v 4	Williams	33728	1999 AK
1999 AL	13.0	0.15	19990122	66.94949	241.34635	148.83490	7.33009	0.2297219	3.0961766	13	1	36 days	0.31		Williams		1999 AL
1999 AN	15.6	0.15	19990122	309.14135	159.67019	17.32087	2.33446	0.1504836	2.3740013	24	1	60 days	0.43	M-v 5	Williams		1999 AN
1999 AQ	13.7	0.15	19990122	47.17685	287.48932	124.62265	11.85275	0.1051472	2.9776742	14	1	42 days	0.39		Williams		1999 AQ
1999 AR	11.1	0.15	19990122	232.88184	313.18516	305.94326	16.49201	0.1811344	2.5336223	10	1	28 days	0.23		Nakano		1999 AR
1999 AS	13.1	0.15	19990122	128.08257	284.03532	54.04035	4.78638	0.1448909	2.6261553	20	2	1996–1999	0.72	M-v 4	Williams	33728	1999 AS
1999 AT	15.3	0.15	19990122	19.10151	15.95124	76.17897	5.74402	0.1591213	2.5489658	16	1	36 days	0.50		Williams		1999 AT
1999 AU	12.3	0.15	19990122	263.23062	280.29481	310.75105	12.75921	0.1484912	2.3540807	24	1	37 days	0.57		Williams		1999 AU
1999 AV	13.8	0.15	19990122	337.57548	147.22966	4.64204	3.25926	0.1914056	2.3448080	19	1	37 days	0.75		Williams		1999 AV
1999 AW	15.2	0.15	19990102	357.03531	31.97800	83.55488	6.14556	0.1571693	2.3582860	29	1	59 days	0.55		Williams		1999 AW
1999 AX	13.6	0.15	19990122	285.35162	106.04377	101.23415	13.55692	0.1179122	2.6875903	22	1	37 days	0.53		Williams		1999 AX
1999 AY	13.1	0.15	19990122	185.12423	326.93429	326.70436	8.59353	0.0665929	3.0440396	13	1	35 days	0.46		Williams		1999 AY
1999 AZ	14.6	0.15	19990102	358.32915	16.32886	98.79227	14.17706	0.1458433	2.6058607	23	1	59 days	0.90		Williams		1999 AZ
1999 AV ₁	13.7	0.15	19990122	46.26345	106.93826	324.78405	1.09355	0.0374982	2.8486960	17	1	36 days	0.60		Williams		1999 AV ₁
1999 AA ₂	14.0	0.15	19990122	90.09607	112.49839	259.23631	4.18088	0.0728249	2.5431689	30	2	1993–1999	0.65	M-v 5	Spahr	33728	1999 AA ₂
1999 AC ₂	13.7	0.15	19990122	245.65447	37.11196	204.61709	2.00780	0.1837286	2.3643227	43	3	1949–1999	0.74	M-v 4	Spahr	33729	1999 AC ₂
1999 AD ₂	14.3	0.15	19990122	259.09650	172.55006	61.42726	4.99954	0.1068650	2.2377394	22	1	35 days	0.83		Williams		1999 AD ₂
1999 AE ₂	13.8	0.15	19990122	353.69705	76.92135	53.45798	5.12526	0.1499868	2.8038301	31	2	1990–1999	0.76	M-v 5	Williams	33729	1999 AE ₂
1999 AF ₂	14.3	0.15	19990122	337.46768	129.99137	16.95281	2.54769	0.1526597	2.3868788	41	3	1977–1999	0.58	M-v 2	Williams	33729	1999 AF ₂
1999 AG ₂	14.1	0.15	19990122	223.42851	236.48803	25.05732	4.26291	0.0441484	2.2066452	48	4	1989–1999	0.73	M-v 3	Williams	33729	1999 AG ₂
1999 AH ₂	13.1	0.15	19990122	53.13472	30.68647	21.14645	4.00208	0.1116027	2.5989215	10	1	26 days	0.58		Nakano		1999 AH ₂
1999 AJ ₂	13.1	0.15	19990122	241.98908	166.55679	78.81165	10.01496	0.0531097	3.0484278	19	1	35 days	0.70		Williams		1999 AJ ₂
1999 AK ₂	14.2	0.15	19990122	55.66704	18.12580	39.49902	3.80555	0.0907415	2.6514596	10	1	26 days	0.56		Nakano		1999 AK ₂
1999 AL ₂	12.8	0.15	19990122	63.82483	75.49496	332.20722	8.95905	0.0976228	3.0170500	28	1	62 days	0.52	M-v 5	Williams		1999 AL ₂
1999 AM ₂	15.2	0.15	19990122	60.21438	51.85829	345.82203	5.68001	0.2133004	2.3199667	13	1	34 days	0.61		Williams		1999 AM ₂
1999 AN ₂	14.5	0.15	19990102	333.19323	63.64390	79.06270	4.73728	0.0716383	2.2756881	26	1	59 days	0.55		Williams		1999 AN ₂
1999 AO ₂	12.9	0.15	19990122	88.63496	34.32721	341.38142	9.16400	0.1558349	3.0573548	26	1	62 days	0.70	M-v 5	Williams		1999 AO ₂
1999 AP ₂	15.3	0.15	19990122	161.61421	300.42036	18.75134	5.60742	0.0283940	2.2743531	21	1	35 days	0.57		Williams		1999 AP ₂
1999 AQ ₂	15.0	0.15	19990122	323.92229	163.41979	18.64728	5.76031	0.0888485	2.2676090	33	3	1982–1999	0.57	M-v 3	Williams	33729	1999 AQ ₂

1999 AR ₂	15.1	0.15	19990102	23.00339	53.78228	49.74777	5.70950	0.1269153	2.4279289	28	1	48 days	0.45	Williams	1999 AR ₂
1999 AS ₂	14.3	0.15	19990122	307.85602	209.43991	346.65318	14.91380	0.0358892	2.5767243	25	1	51 days	0.66	Williams	1999 AS ₂
1999 AT ₂	13.6	0.15	19990211	121.71145	284.67073	92.70921	8.17704	0.0961445	2.7572914	20	1	38 days	0.60	Nakano	1999 AT ₂
1999 AE ₃	15.3	0.15	19990122	68.08897	273.27092	137.22162	14.89921	0.0942429	2.5688269	24	1	27 days	0.66	Spahr	1999 AE ₃
1999 AL ₃	14.5	0.15	19990122	9.39073	349.32572	78.65276	28.63276	0.2518573	2.5616996	30	1	70 days	0.55	M-v 4 Williams	1999 AL ₃
1999 AM ₃	15.0	0.15	19990122	151.09725	20.15710	302.83573	22.32378	0.0373972	1.9480242	23	1	37 days	0.49	Nakano	1999 AM ₃
1999 AN ₃	14.7	0.15	19990122	61.08188	100.70791	309.21697	3.33779	0.1497813	2.3149321	22	1	42 days	0.50	Nakano	1999 AN ₃
1999 AO ₃	14.4	0.15	19990102	1.06631	210.52590	250.79098	14.46955	0.1970802	2.7988553	41	1	54 days	0.63	Nakano	1999 AO ₃
1999 AP ₃	13.6	0.15	19990122	324.97207	55.48901	121.06114	18.13335	0.1044980	3.2061744	22	1	34 days	0.58	Williams	1999 AP ₃
1999 AQ ₃	13.0	0.15	19990122	146.63598	274.39893	68.79333	3.52267	0.0643473	2.9008170	19	1	34 days	0.95	Williams	1999 AQ ₃
1999 AR ₃	14.7	0.15	19990122	213.70658	221.46822	65.22970	4.08106	0.1539210	2.2598608	36	3	1977–1999	0.59	M-v 3 Williams	33729 1999 AR ₃
1999 AS ₃	14.4	0.15	19990122	324.06860	72.02218	100.14872	7.81955	0.0673460	2.3843807	26	1	40 days	0.50	Williams	1999 AS ₃
1999 AT ₃	13.5	0.15	19990122	91.85098	302.61934	93.99519	9.14452	0.0351474	2.7771967	13	1	28 days	0.46	Nakano	1999 AT ₃
1999 AU ₃	16.3	0.15	19990122	27.38483	117.70700	337.88108	7.12977	0.1198694	2.2772747	19	1	40 days	0.54	Williams	1999 AU ₃
1999 AV ₃	14.9	0.15	19990122	6.58027	36.42082	84.69153	5.56867	0.1919511	2.5781873	10	1	28 days	0.69	Nakano	1999 AV ₃
1999 AW ₃	14.5	0.15	19990122	91.23915	297.85962	85.96983	7.85102	0.1521026	2.5589655	32	2	1981–1999	0.67	M-v 4 Williams	33729 1999 AW ₃
1999 AX ₃	15.2	0.15	19990122	304.50584	146.22608	48.44235	3.66659	0.0830324	2.1509754	30	2	1977–1999	0.50	M-v 5 Williams	33730 1999 AX ₃
1999 AY ₃	14.2	0.15	19990122	290.25456	225.00574	345.33372	8.04300	0.0825259	2.4569719	22	1	34 days	0.61	Williams	1999 AY ₃
1999 AZ ₃	13.9	0.15	19990122	228.61732	212.74655	54.23927	2.95365	0.0156799	2.8868133	26	1	40 days	0.68	Williams	1999 AZ ₃
1999 AB ₄	15.7	0.15	19990122	306.75123	235.04705	315.88738	18.68134	0.0883369	1.9090814	27	1	36 days	0.61	Williams	1999 AB ₄
1999 AC ₄	13.8	0.15	19990122	316.63023	148.82263	25.32812	1.91855	0.1698544	3.1599814	22	2	1997–1999	0.55	M-v 5 Williams	33730 1999 AC ₄
1999 AF ₄	18.2	0.15	19990122	4.40143	154.68702	295.05529	12.56676	0.6176163	2.8271813	106	1	129 days	0.47	M-v 5 Williams	33776 1999 AF ₄
1999 AM ₄	15.2	0.15	19990122	334.00303	70.53077	87.26622	4.26246	0.0518289	2.1516238	31	2	1993–1999	0.66	M-v 5 Williams	33730 1999 AM ₄
1999 AN ₄	14.4	0.15	19990102	278.29789	276.14253	316.34508	22.24519	0.2380364	2.3399752	23	1	58 days	0.56	Williams	1999 AN ₄
1999 AO ₄	13.8	0.15	19990122	278.28261	122.56178	117.01534	11.98091	0.2300248	2.6722588	42	3	1982–1999	0.69	M-v 3 Williams	33730 1999 AO ₄
1999 AP ₄	14.2	0.15	19990122	183.44889	194.30914	114.66321	16.29459	0.1182185	2.6054245	25	1	33 days	0.81	Williams	1999 AP ₄
1999 AQ ₄	13.4	0.15	19990122	166.90687	352.97570	329.97834	9.95753	0.0959577	3.0068205	24	1	33 days	0.50	Williams	1999 AQ ₄
1999 AS ₄	14.6	0.15	19990122	354.07950	25.15894	112.53924	12.61772	0.1081896	2.4545735	25	1	38 days	0.40	Williams	1999 AS ₄
1999 AT ₄	13.7	0.15	19990122	164.45409	221.98882	104.43167	10.53348	0.0543662	3.0837976	23	1	33 days	0.64	Williams	1999 AT ₄
1999 AU ₄	13.3	0.15	19990122	307.58687	100.74676	99.93689	5.48261	0.1626005	2.7994121	10	1	26 days	0.53	Nakano	1999 AU ₄
1999 AV ₄	15.2	0.15	19990122	351.76549	62.87050	78.16713	3.07239	0.1507274	2.3603327	29	1	40 days	0.71	Williams	1999 AV ₄
1999 AW ₄	14.9	0.15	19990122	96.75367	349.89387	28.54525	3.11265	0.1472730	2.5404420	25	1	33 days	0.82	Williams	1999 AW ₄
1999 AX ₄	14.4	0.15	19990122	217.45101	155.26675	120.41462	28.63676	0.0477044	1.9058869	25	1	33 days	0.74	Williams	1999 AX ₄
1999 AA ₅	14.8	0.15	19990122	55.02585	297.64575	114.12573	12.93829	0.2265016	2.6449148	27	1	33 days	0.72	Williams	1999 AA ₅
1999 AB ₅	14.1	0.15	19990122	289.43767	120.43739	95.55839	6.49451	0.1313979	2.3220450	28	1	33 days	0.42	Williams	1999 AB ₅
1999 AC ₅	15.2	0.15	19990122	358.74132	34.96641	96.69258	7.68088	0.1395431	2.4061754	13	1	26 days	0.47	Nakano	1999 AC ₅
1999 AD ₅	13.5	0.15	19990122	74.22088	279.14986	126.57164	27.62861	0.1262564	2.5492560	68	1	40 days	0.76	Williams	1999 AD ₅
1999 AE ₅	14.7	0.15	19990122	19.04462	337.40122	133.51580	2.91557	0.1593181	3.1079186	16	1	29 days	0.30	Williams	1999 AE ₅
1999 AH ₅	14.0	0.15	19990122	327.37741	191.58112	333.40894	13.00082	0.1068069	2.3527631	36	3	1981–1999	0.65	M-v 3 Williams	33730 1999 AH ₅
1999 AJ ₅	13.4	0.15	19990122	50.95107	345.75168	67.89439	10.07126	0.2124443	2.6139761	37	4	1968–1999	0.73	M-v 3 Williams	33730 1999 AJ ₅
1999 AK ₅	12.9	0.15	19990211	51.99100	51.43465	17.79611	11.02900	0.1078029	2.9934734	27	1	43 days	0.62	Nakano	1999 AK ₅
1999 AL ₅	13.7	0.15	19990211	3.15921	159.79954	327.92862	21.93658	0.0318973	2.5839096	21	1	44 days	0.53	Nakano	1999 AL ₅
1999 AM ₅	14.9	0.15	19990211	18.81104	108.17756	1.29583	9.53839	0.1299037	2.2687284	15	1	44 days	0.54	Nakano	1999 AM ₅
1999 AN ₅	14.1	0.15	19990122	102.95147	355.16330	14.52251	5.27193	0.1984677	2.2723515	38	3	1987–1999	0.57	M-v 4 Williams	33730 1999 AN ₅
1999 AO ₅	15.6	0.15	19990122	26.61268	122.95466	334.38646	12.16122	0.1382693	2.6047668	22	1	38 days	0.55	Williams	1999 AO ₅
1999 AP ₅	14.7	0.15	19990122	276.28204	203.20465	26.50331	4.85498	0.1152207	2.2282654	33	3	1986–1999	0.60	M-v 5 Williams	33731 1999 AP ₅
1999 AQ ₅	14.0	0.15	19990122	346.54947	76.22939	73.98998	6.46000	0.1227346	2.5521538	10	1	26 days	0.55	Nakano	1999 AQ ₅
1999 AR ₅	13.3	0.15	19990122	85.87893	311.67902	89.68911	10.45442	0.0665481	2.9716072	29	1	67 days	0.52	M-v 5 Williams	1999 AR ₅
1999 AS ₅	15.4	0.15	19990122	51.62766	350.14764	79.71319	6.48045	0.1293603	2.6539256	22	1	38 days	0.77	Williams	1999 AS ₅
1999 AT ₅	14.6	0.15	19990122	229.76660	293.10761	336.55539	14.19552	0.0677428	2.5704130	26	1	54 days	0.57	Williams	1999 AT ₅
1999 AU ₅	14.1	0.15	19990122	280.93805	132.07643	85.98489	9.82756	0.0339436	2.9817968	19	2	1998–1999	0.61	M-v 5 Williams	33731 1999 AU ₅
1999 AV ₅	13.4	0.15	19990102	116.62523	12.63669	348.36248	12.08180	0.1344723	2.7264085	13	1	42 days	0.55	Williams	1999 AV ₅
1999 AW ₅	14.7	0.15	19990122	14.98052	35.50882	77.83903	7.80232	0.1256400	2.4838639	17	1	32 days	0.81	Williams	1999 AW ₅

1999 MAR. 2

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1999 AX ₅	15.8	0.15	19990122	1.66677	57.83478	73.16530	4.98599	0.0608666	2.2005096	24	2	1996–1999	0.75	M-v	5	Williams	33731	1999 AX ₅
1999 AY ₅	14.0	0.15	19990122	51.90966	348.92234	79.10970	7.01990	0.1269716	2.2584572	20	1	32 days	0.56			Williams		1999 AY ₅
1999 AC ₆	14.1	0.15	19981213	32.03304	270.91372	97.95187	17.22074	0.3191236	2.6224953	16	1	25 days	0.45			Williams		1999 AC ₆
1999 AD ₆	14.9	0.15	19990122	52.96752	287.30262	132.87691	8.19670	0.2165056	2.5722568	25	1	36 days	0.60			Williams		1999 AD ₆
1999 AE ₆	12.8	0.15	19990102	346.75228	178.01809	246.16111	14.14012	0.0658513	2.5826524	13	1	6 days	0.60			Williams		1999 AE ₆
1999 AF ₆	14.6	0.15	19990122	300.23172	77.18103	135.79171	14.24864	0.1332815	3.0757866	15	1	29 days	0.72			Williams		1999 AF ₆
1999 AM ₆	13.6	0.15	19990102	17.25821	80.27104	323.38191	5.63572	0.0452657	2.3691401	15	1	52 days	1.08			Williams		1999 AM ₆
1999 AS ₆	14.3	0.15	19990122	34.08895	312.44985	121.94321	16.82087	0.1869604	2.6897205	28	1	37 days	0.53			Williams		1999 AS ₆
1999 AW ₆	14.9	0.15	19990122	318.22665	28.48662	142.34761	3.51686	0.0737814	2.4819323	30	1	37 days	0.87			Williams		1999 AW ₆
1999 AX ₆	15.5	0.15	19990122	63.55674	116.50067	291.29044	4.02186	0.1242694	2.2122771	40	3	1994–1999	0.63	M-v	3	Williams	33731	1999 AX ₆
1999 AZ ₆	12.9	0.15	19990122	275.85653	284.20462	291.16373	8.40022	0.0412662	2.9900797	23	1	60 days	0.55	M-v	5	Williams		1999 AZ ₆
1999 AB ₇	13.4	0.15	19990122	6.37363	342.40087	136.81028	11.52009	0.0470292	3.0233690	11	1	28 days	0.71			Spahr		1999 AB ₇
1999 AD ₇	13.5	0.15	19990122	36.19532	194.71977	249.34451	3.47321	0.0893439	3.1734589	21	2	1991–1999	0.74	M-v	5	Williams	33731	1999 AD ₇
1999 AE ₇	13.3	0.15	19990122	173.09539	160.27988	151.12836	9.24494	0.1916383	2.5678583	14	1	32 days	0.58			Williams		1999 AE ₇
1999 AG ₇	14.4	0.15	19990122	295.79992	324.57932	233.54173	3.45151	0.0747446	2.2568401	37	4	1980–1999	0.59	M-v	3	Williams	33731	1999 AG ₇
1999 AH ₇	13.8	0.15	19990122	234.44162	24.27473	229.14363	4.27896	0.0111082	2.7877544	28	1	34 days	0.78			Williams		1999 AH ₇
1999 AJ ₇	14.4	0.15	19990102	236.60972	317.91619	298.54712	12.51106	0.1389971	2.4186440	20	1	57 days	0.65			Marsden		1999 AJ ₇
1999 AK ₇	14.8	0.15	19990122	112.43894	91.99993	267.72269	5.29793	0.1365435	2.3639889	16	1	37 days	0.56			Williams		1999 AK ₇
1999 AL ₇	14.5	0.15	19990122	13.87079	316.55942	152.53878	6.44416	0.0795495	2.3563092	24	3	1990–1999	0.61	M-v	3	Williams	33732	1999 AL ₇
1999 AM ₇	13.0	0.15	19990122	270.88691	68.42365	151.98643	10.08272	0.0413887	3.0595876	28	1	37 days	0.67			Williams		1999 AM ₇
1999 AO ₇	13.0	0.15	19990122	216.69879	137.29625	118.39108	12.17760	0.0545268	2.9987974	19	1	32 days	0.72			Williams		1999 AO ₇
1999 AR ₇	16.6	0.15	19990122	322.25816	58.20363	85.51285	40.63104	0.2141072	1.6446603	68	1	37 days	0.58	M-v	6	Williams		1999 AR ₇
1999 AT ₇	14.9	0.15	19990211	66.14956	348.52267	62.17611	5.22512	0.2304742	2.3183431	24	1	41 days	0.40			Nakano		1999 AT ₇
1999 AU ₇	14.8	0.15	19990122	257.42098	204.04161	43.82404	4.98263	0.0697716	2.1902797	30	2	1978–1999	0.56	M-v	5	Williams	33732	1999 AU ₇
1999 AW ₇	12.2	0.15	19990122	115.35186	263.45113	95.31259	14.64378	0.1339257	2.5656429	10	1	24 days	0.42			Nakano		1999 AW ₇
1999 AX ₇	11.5	0.15	19990122	252.06296	241.12836	359.92297	9.10667	0.0522921	3.1622438	20	1	31 days	0.36			Williams		1999 AX ₇
1999 AY ₇	13.5	0.15	19990122	26.21093	1.84749	91.29815	10.09006	0.1223185	2.2629120	20	1	31 days	0.41			Williams		1999 AY ₇
1999 AZ ₇	12.2	0.15	19990122	182.73762	339.93655	325.59306	23.58912	0.0282859	3.1441189	34	2	1996–1999	0.74	M-v	4	Williams	33732	1999 AZ ₇
1999 AA ₈	14.2	0.15	19990122	335.98835	110.72681	52.03231	6.73072	0.2012929	2.3340173	20	1	31 days	0.60			Williams		1999 AA ₈
1999 AB ₈	13.1	0.15	19990122	352.64070	41.07003	99.47351	15.96409	0.1863073	3.0919229	18	1	31 days	0.59			Williams		1999 AB ₈
1999 AC ₈	15.2	0.15	19990122	317.45166	159.13213	21.11003	5.88975	0.1078874	2.2152361	30	3	1986–1999	0.71	M-v	4	Williams	33732	1999 AC ₈
1999 AD ₈	15.4	0.15	19990122	339.00488	91.76975	66.36214	4.04184	0.0380877	2.1579044	28	1	66 days	0.52	M-v	4	Williams		1999 AD ₈
1999 AE ₈	13.6	0.15	19990211	311.44222	214.94643	338.84799	11.52528	0.0353694	2.5136489	20	1	39 days	0.46			Nakano		1999 AE ₈
1999 AF ₈	14.8	0.15	19990211	92.31812	323.68594	80.55080	6.75114	0.0465551	2.2462217	25	1	39 days	0.49			Nakano		1999 AF ₈
1999 AG ₈	14.8	0.15	19990122	70.41883	309.87246	104.15512	7.65397	0.1133254	2.3661879	23	1	39 days	0.66			Williams		1999 AG ₈
1999 AH ₈	12.8	0.15	19990122	251.72777	136.67464	121.90135	17.59772	0.0898886	3.1726022	20	1	39 days	0.58			Williams		1999 AH ₈
1999 AK ₈	15.5	0.15	19990122	78.35532	40.27437	336.24592	3.60345	0.2083522	2.5667339	14	1	38 days	0.83			Williams		1999 AK ₈
1999 AZ ₈	14.4	0.15	19990102	43.41414	278.94803	86.10158	6.18285	0.2611155	2.6092830	10	1	6 days	0.41			Williams		1999 AZ ₈
1999 AM ₉	13.0	0.15	19990102	86.73422	251.47031	58.98438	9.81559	0.1772291	2.7622644	16	1	10 days	0.42			Williams		1999 AM ₉
1999 AR ₉	12.2	0.15	19990122	113.77941	41.06953	338.04174	25.20913	0.1547031	3.2163603	15	1	34 days	0.59			Williams		1999 AR ₉
1999 AT ₉	15.0	0.15	19990122	57.73212	292.22910	114.26872	10.98457	0.3331395	2.2830495	14	1	34 days	0.57			Williams		1999 AT ₉
1999 AV ₉	13.3	0.15	19990122	123.86421	253.11542	121.96204	13.54456	0.1034156	2.5786686	20	1	35 days	0.78			Williams		1999 AV ₉
1999 AA ₁₀	14.8	0.15	19990122	261.61658	60.91129	176.47140	3.00521	0.1213252	2.1733490	38	2	1996–1999	0.75	M-v	5	Williams	33732	1999 AA ₁₀
1999 AB ₁₀	14.0	0.15	19990122	270.80281	293.88279	285.26084	10.75089	0.0263116	2.6284367	28	1	33 days	0.67			Williams		1999 AB ₁₀
1999 AC ₁₀	12.8	0.15	19990122	173.24554	34.64283	278.93893	8.98200	0.0909115	2.9804847	28	3	1991–1999	0.68	M-v	4	Williams	33732	1999 AC ₁₀
1999 AE ₁₀	14.3	0.15	19990122	304.76502	12.22227	181.14008	4.90319	0.1174675	2.6328566	18	1	34 days	1.17			Williams		1999 AE ₁₀
1999 AG ₁₀	14.4	0.15	19990122	67.53945	112.39963	299.50182	2.84544	0.2319822	2.2515177	25	1	23 days	0.60			Spahr		1999 AG ₁₀
1999 AH ₁₀	13.9	0.15	19990122	43.97202	334.37046	138.92408	2.77365	0.0294983	2.9355429	28	3	1996–1999	0.67	M-v	4	Williams	33732	1999 AH ₁₀
1999 AK ₁₀	15.8	0.15	19990122	36.64028	69.80338	359.71722	26.12766	0.2298210	2.2582693	22	1	36 days	0.73			Williams		1999 AK ₁₀
1999 AM ₁₀	21.0	0.15	19990122	345.33536	95.08762	76.97786	6.88826	0.5202056	1.8243714	27	1	11 days	0.98	M-v	6	Marsden	33777	1999 AM ₁₀
1999 AN ₁₀	17.9	0.15	19990122	318.16776	268.25016	314.55376	39.93914	0.5622020	1.4587703	91	1	38 days	0.48	M-v	6	Williams		1999 AN ₁₀
1999 AO ₁₀	23.9	0.15	19990122	155.00067	7.70073	313.76762	2.62466	0.1125559	0.9108143	73	1	33 days	0.62	M-v	6	Williams	33777	1999 AO ₁₀
1999 AP ₁₀	16.5	0.15	19990122	18.95510	46.75290	357.65010	7.64897	0.5756244	2.3759510	146	1	42 days	0.51	M-v	5	Williams		1999 AP ₁₀

1999 AQ ₁₀	20.4	0.15	19990122	231.46352	299.52486	327.45030	6.56121	0.2345689	0.9368265	124	1	42 days	0.42	M-v	6	Williams	1999 AQ ₁₀
1999 AA ₁₃	14.2	0.15	19990122	335.74019	32.05236	120.61817	6.64545	0.1262744	3.1387462	20	1	37 days	0.62			Williams	1999 AA ₁₃
1999 AE ₁₃	15.1	0.15	19990122	17.82310	168.27285	289.80255	6.39142	0.1785366	2.5989714	17	1	40 days	0.71			Williams	1999 AE ₁₃
1999 AM ₁₄	14.7	0.15	19990122	85.22281	61.58406	323.59554	1.29174	0.0900956	2.6639551	13	1	36 days	0.86			Williams	1999 AM ₁₄
1999 AN ₁₅	15.2	0.15	19990102	298.61703	230.58270	314.94621	1.84988	0.0949047	2.3583312	12	1	13 days	0.26			Williams	1999 AN ₁₅
1999 AC ₁₆	14.6	0.15	19990122	45.71316	310.25048	115.04434	8.82102	0.1101811	2.7678080	16	1	35 days	0.50			Williams	1999 AC ₁₆
1999 AG ₁₆	17.2	0.15	19990122	66.55945	287.29007	111.83436	5.18763	0.1427736	2.2744118	12	1	31 days	0.20			Spahr	1999 AG ₁₆
1999 AW ₁₆	14.9	0.15	19990122	274.86882	50.60298	175.12252	2.18579	0.1705986	2.4012238	33	3	1992–1999	0.71	M-v	4	Williams	33733 1999 AW ₁₆
1999 AE ₁₇	15.5	0.15	19990122	288.60912	61.95117	142.16926	3.49944	0.0316244	2.5817889	17	1	33 days	0.61			Williams	1999 AE ₁₇
1999 AG ₁₇	14.9	0.15	19990122	75.86074	92.47783	302.03015	8.09926	0.1667609	2.7464516	16	1	32 days	0.71			Williams	1999 AG ₁₇
1999 AB ₁₈	14.2	0.15	19990122	255.19848	98.23370	139.48942	2.71014	0.0110914	2.8699455	18	1	45 days	0.16			Marsden	1999 AB ₁₈
1999 AH ₁₈	13.8	0.15	19990122	338.23082	34.52045	127.92691	13.91396	0.1838105	2.6556452	25	1	39 days	0.65			Williams	1999 AH ₁₈
1999 AF ₁₉	12.8	0.15	19990122	170.30129	11.21421	315.53880	11.49674	0.0272400	3.1541953	43	3	1982–1999	0.68	M-v	3	Williams	33733 1999 AF ₁₉
1999 AQ ₁₉	14.4	0.15	19990122	263.85798	105.00609	135.47740	10.31566	0.0511437	3.0673715	15	1	31 days	0.50			Williams	1999 AQ ₁₉
1999 AV ₁₉	15.4	0.15	19990122	102.99886	47.26357	323.43160	3.20003	0.2306260	2.4213671	15	1	31 days	0.58			Williams	1999 AV ₁₉
1999 AF ₂₀	16.1	0.15	19990122	74.07132	73.43379	324.11767	4.68683	0.2294344	2.6373726	13	1	31 days	1.01			Williams	1999 AF ₂₀
1999 AG ₂₀	15.8	0.15	19990122	280.69027	256.85565	324.12868	7.01989	0.0250040	2.7998621	13	1	25 days	0.30			Williams	1999 AG ₂₀
1999 AK ₂₀	16.3	0.15	19990122	305.89451	87.39585	117.72158	2.23642	0.1358159	2.4228153	17	1	31 days	0.68			Williams	1999 AK ₂₀
1999 AM ₂₀	12.8	0.15	19990122	180.04436	173.04389	124.26941	11.33366	0.0893703	2.9885982	27	3	1991–1999	0.47	M-v	4	Spahr	33733 1999 AM ₂₀
1999 AN ₂₀	15.6	0.15	19990122	124.64220	169.76891	173.74683	2.28660	0.1136583	2.6442866	14	1	31 days	0.63			Williams	1999 AN ₂₀
1999 AP ₂₀	15.4	0.15	19990122	88.33020	241.41463	141.50127	3.82117	0.1911974	2.1524095	28	1	31 days	0.68			Williams	1999 AP ₂₀
1999 AA ₂₁	13.3	0.15	19990122	98.06913	34.92834	333.28422	23.70047	0.2058093	2.4379532	27	1	32 days	0.44			Nakano	1999 AA ₂₁
1999 AC ₂₁	15.3	0.15	19990211	75.85058	55.94799	338.51731	6.42579	0.1161262	2.3621622	15	1	39 days	0.50			Nakano	1999 AC ₂₁
1999 AD ₂₁	14.9	0.15	19990211	37.88265	84.57587	355.13559	4.97527	0.0852261	2.4450540	26	1	39 days	0.67			Nakano	1999 AD ₂₁
1999 AE ₂₁	14.5	0.15	19990122	71.43018	285.14026	116.42689	14.30035	0.2495282	2.4680769	37	2	1993–1999	0.65	M-v	4	Williams	33733 1999 AE ₂₁
1999 AF ₂₁	15.0	0.15	19990122	322.43498	315.69271	214.87651	1.95185	0.1048812	2.3637829	16	1	27 days	0.47			Spahr	1999 AF ₂₁
1999 AG ₂₁	16.2	0.15	19990122	338.33928	16.56743	136.20049	4.12494	0.1623035	2.2900659	15	1	33 days	0.37			Williams	1999 AG ₂₁
1999 AH ₂₁	13.4	0.15	19990122	209.85162	38.61024	235.95039	3.15013	0.0949411	2.8334569	20	1	32 days	0.59			Williams	1999 AH ₂₁
1999 AJ ₂₁	13.5	0.15	19990122	95.58351	230.21380	130.46045	12.87678	0.2135878	2.6686621	19	1	22 days	0.54			Spahr	1999 AJ ₂₁
1999 AK ₂₁	13.8	0.15	19990102	98.94356	224.67621	128.18339	15.92962	0.2236664	2.5551822	21	1	51 days	0.56			Williams	1999 AK ₂₁
1999 AL ₂₁	13.9	0.15	19990122	116.37055	197.64493	147.77986	3.15102	0.2007072	2.4347927	11	1	32 days	0.55			Williams	1999 AL ₂₁
1999 AM ₂₁	14.4	0.15	19990122	96.28227	222.26270	141.58397	2.86625	0.2154008	2.4379669	16	1	30 days	0.50			Williams	1999 AM ₂₁
1999 AN ₂₁	13.5	0.15	19990122	128.47018	190.71826	164.47091	6.37814	0.0334267	2.7344015	9	1	22 days	0.51			Spahr	1999 AN ₂₁
1999 AO ₂₁	14.5	0.15	19990122	310.12405	36.57642	158.19757	6.59543	0.1839941	2.6604004	14	1	22 days	1.08			Spahr	1999 AO ₂₁
1999 AP ₂₁	13.5	0.15	19990122	179.65717	11.04137	295.41883	5.85494	0.1411878	2.4814630	12	1	23 days	0.67			Spahr	1999 AP ₂₁
1999 AQ ₂₁	14.5	0.15	19990122	308.44751	348.25262	201.82781	0.84234	0.1294594	2.3926062	17	1	27 days	0.31			Williams	1999 AQ ₂₁
1999 AS ₂₁	15.3	0.15	19990122	57.68912	296.17894	135.43272	6.60482	0.0527427	2.1980866	21	1	28 days	0.77			Williams	1999 AS ₂₁
1999 AT ₂₁	15.1	0.15	19990122	91.69840	110.22173	281.59214	0.22223	0.0996449	2.1678764	16	1	28 days	0.65			Williams	1999 AT ₂₁
1999 AW ₂₁	15.2	0.15	19990122	282.66921	67.99118	147.79524	8.76225	0.0223902	2.2926636	23	1	35 days	0.56			Williams	1999 AW ₂₁
1999 AY ₂₁	14.0	0.15	19990122	316.86809	356.55333	193.63350	4.82371	0.0967686	3.1181404	26	2	1991–1999	0.68	M-v	5	Williams	33733 1999 AY ₂₁
1999 AZ ₂₁	14.9	0.15	19990122	36.12067	169.39029	272.79485	4.59678	0.2031871	2.3941489	37	2	1994–1999	0.52	M-v	4	Williams	33733 1999 AZ ₂₁
1999 AC ₂₂	13.5	0.15	19990122	42.31204	38.70332	60.33912	5.24272	0.0551018	2.6189597	21	1	35 days	0.47			Williams	1999 AC ₂₂
1999 AH ₂₂	15.1	0.15	19990102	48.06683	216.07273	182.90077	2.11250	0.2435034	2.4339768	9	1	5 days	0.39			Williams	1999 AH ₂₂
1999 AJ ₂₂	15.3	0.15	19990122	42.90990	30.82220	58.46763	7.42519	0.1393110	2.3244438	12	1	31 days	0.53			Williams	1999 AJ ₂₂
1999 AN ₂₂	11.9	0.15	19990122	258.07621	203.31150	68.38308	17.88683	0.2058514	2.8578504	36	7	1953–1999	0.57	M-v	1	Williams	33733 1999 AN ₂₂
1999 AQ ₂₂	15.0	0.15	19990122	343.19149	90.44432	82.58215	15.76642	0.3052520	2.6894169	21	1	36 days	0.37			Williams	1999 AQ ₂₂
1999 AT ₂₂	14.7	0.15	19990122	53.13587	176.72835	236.61032	3.87223	0.1215437	2.4408340	27	2	1996–1999	0.61	M-v	5	Williams	33734 1999 AT ₂₂
1999 AV ₂₂	15.3	0.15	19990122	170.50785	145.21800	162.12851	5.37185	0.1519678	2.2599849	20	1	35 days	0.50			Williams	1999 AV ₂₂
1999 AW ₂₂	14.4	0.15	19990122	262.02427	218.85692	21.39588	28.85371	0.1697065	2.6038628	12	1	26 days	0.75			Williams	1999 AW ₂₂
1999 AX ₂₂	14.9	0.15	19990122	0.26933	91.98850	38.99102	25.71585	0.2442387	3.1234798	17	1	27 days	0.74			Williams	1999 AX ₂₂
1999 AY ₂₂	13.9	0.15	19990122	15.08327	203.21228	292.29351	3.05301	0.1143666	2.3244507	17	1	28 days	0.35			Williams	1999 AY ₂₂
1999 AB ₂₃	14.1	0.15	19990211	293.86718	125.92311	107.38841	14.43452	0.1565397	2.7247658	19	1	38 days	0.57			Nakano	1999 AB ₂₃
1999 AO ₂₃	13.4	0.15	19990102	62.07814	48.15535	300.01984	13.35543	0.1388605	2.5934767	9	1	6 days	0.44			Williams	1999 AO ₂₃

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1999 AR ₂₃	13.6	0.15	19990122	50.88537	310.55083	131.81751	13.73407	0.1436988	2.5503356	31	1	91 days	0.45	M-v	4	Williams	1999 AR ₂₃
1999 AT ₂₃	14.5	0.15	19990122	41.06510	297.05645	140.34557	23.64319	0.2691746	2.3051444	19	1	38 days	0.49			Williams	1999 AT ₂₃
1999 AU ₂₃	17.2	0.15	19990122	17.28141	117.50741	293.89035	20.39287	0.4110691	2.1597000	34	1	37 days	0.75	M-v	6	Williams	1999 AU ₂₃
1999 AW ₂₃	14.6	0.15	19990122	22.55097	4.08401	110.17619	9.66887	0.1287197	2.4859023	14	1	33 days	0.87			Williams	1999 AW ₂₃
1999 AZ ₂₃	13.2	0.15	19990122	10.04247	82.84415	43.13119	13.26341	0.1564375	2.6181390	16	1	14 days	0.16			Spahr	1999 AZ ₂₃
1999 AB ₂₄	15.6	0.15	19990122	7.00158	128.51045	348.24909	24.12014	0.2862810	2.3467641	25	1	34 days	0.38			Williams	1999 AB ₂₄
1999 AC ₂₄	15.1	0.15	19990122	86.23085	355.15589	39.46437	21.05045	0.1121895	1.9345284	12	1	25 days	0.36			Williams	1999 AC ₂₄
1999 AM ₂₄	14.3	0.15	19990122	198.04208	163.89025	149.57012	7.98109	0.2001613	2.4819621	17	1	35 days	0.30			Williams	1999 AM ₂₄
1999 AP ₂₄	14.7	0.15	19990122	6.39020	358.14804	140.36735	3.41857	0.0554805	2.6461584	24	1	29 days	0.46			Williams	1999 AP ₂₄
1999 AS ₂₄	14.9	0.15	19990122	94.42179	67.89268	331.97841	6.42880	0.1102759	2.3759862	19	1	29 days	0.51			Williams	1999 AS ₂₄
1999 AT ₂₄	16.0	0.15	19990122	332.62669	225.84401	311.16054	3.84608	0.1204863	2.5403553	18	1	32 days	0.62			Williams	1999 AT ₂₄
1999 AA ₂₅	15.3	0.15	19990122	358.42743	7.18700	151.88675	5.74239	0.0726200	2.2029183	22	2	1989–1999	0.53	M-v	5	Spahr	33734 1999 AA ₂₅
1999 AK ₂₅	15.4	0.15	19990122	310.30877	169.26406	22.01033	0.91109	0.1309649	2.3879549	21	1	28 days	0.84			Williams	1999 AK ₂₅
1999 AN ₂₅	15.9	0.15	19990122	69.65745	70.81680	331.48533	18.71032	0.1068555	1.9412819	23	1	36 days	0.75			Williams	1999 AN ₂₅
1999 AO ₂₅	16.2	0.15	19990102	23.81362	85.41662	324.88562	28.12070	0.3267280	2.6178360	18	1	43 days	0.76			Williams	1999 AO ₂₅
1999 AQ ₂₅	14.1	0.15	19990122	26.69922	330.32051	138.74518	2.25463	0.1699367	3.1792098	28	1	29 days	0.54			Williams	1999 AQ ₂₅
1999 AS ₂₅	13.7	0.15	19990122	250.95159	124.98534	142.84658	10.90278	0.0822912	2.9812474	20	1	29 days	0.82			Williams	1999 AS ₂₅
1999 AX ₂₅	12.9	0.15	19990122	69.13904	98.65785	303.55002	18.36350	0.1215102	3.1596337	31	1	38 days	0.63			Williams	1999 AX ₂₅
1999 AY ₂₅	15.4	0.15	19990122	332.46573	298.83298	218.78838	1.33941	0.1594212	2.4233688	11	1	30 days	0.84			Spahr	1999 AY ₂₅
1999 AE ₂₆	13.9	0.15	19990122	252.25997	172.36605	41.51701	3.79278	0.0439177	3.2154672	9	1	24 days	0.23			Williams	1999 AE ₂₆
1999 AX ₂₇	14.3	0.15	19990122	113.19626	237.64677	131.82240	12.92662	0.0734985	2.9494490	14	1	33 days	0.68			Williams	1999 AX ₂₇
1999 AE ₂₈	14.5	0.15	19990122	233.70353	138.48588	130.23268	7.11154	0.1371246	2.3772515	14	1	33 days	0.68			Williams	1999 AE ₂₈
1999 AV ₂₉	16.5	0.15	19990122	344.36701	29.47980	123.83906	6.25964	0.1943736	2.2774996	28	1	31 days	0.70			Williams	1999 AV ₂₉
1999 AY ₂₉	15.2	0.15	19990122	62.94705	309.48738	119.26665	3.15450	0.0672101	2.7352605	13	1	31 days	0.78			Williams	1999 AY ₂₉
1999 AU ₃₀	15.9	0.15	19990102	33.75569	289.13732	131.33620	5.55009	0.2585088	2.3408899	8	1	7 days	0.24			Williams	1999 AU ₃₀
1999 AL ₃₁	14.9	0.15	19990122	144.88900	218.10121	127.97778	5.88624	0.1128663	2.5137243	16	1	30 days	0.65			Williams	1999 AL ₃₁
1999 AM ₃₁	14.9	0.15	19990122	61.81862	304.47269	126.46591	5.67783	0.0437823	2.6149617	18	1	30 days	0.57			Williams	1999 AM ₃₁
1999 AT ₃₁	13.8	0.15	19990122	69.10784	70.28446	357.59062	1.77000	0.0210226	2.9241025	19	1	30 days	1.03			Williams	1999 AT ₃₁
1999 AD ₃₂	14.3	0.15	19990122	280.18628	92.43593	115.85737	7.34616	0.0583911	2.3574730	16	1	29 days	0.42			Williams	1999 AD ₃₂
1999 AD ₃₃	12.8	0.15	19990102	314.49775	42.43502	121.36446	11.09189	0.0236408	2.9814408	31	1	39 days	0.77	D		Williams	1999 AD ₃₃
1999 AJ ₃₃	15.2	0.15	19990102	2.68536	353.42534	119.33225	6.93644	0.0526031	2.3341384	17	1	59 days	0.46			Williams	1999 AJ ₃₃
1999 AQ ₃₃	14.7	0.15	19990122	40.03137	129.72496	305.45402	10.72144	0.1694246	2.6601100	15	1	32 days	0.68			Williams	1999 AQ ₃₃
1999 AC ₃₄	15.7	0.15	19990122	108.09208	229.53503	133.42539	1.97910	0.2148213	2.2578728	11	1	22 days	0.47			Spahr	1999 AC ₃₄
1999 AE ₃₄	16.1	0.15	19990122	328.58450	57.42278	120.59775	4.31293	0.1423552	2.2106594	18	1	31 days	0.42			Williams	1999 AE ₃₄
1999 AF ₃₄	15.2	0.15	19990122	34.80982	105.19513	350.23761	2.77127	0.1014696	2.2597957	19	1	31 days	0.54			Williams	1999 AF ₃₄
1999 AJ ₃₄	15.4	0.15	19990122	343.66511	344.51187	167.43884	4.11564	0.0889687	2.2408469	25	1	36 days	0.55			Williams	1999 AJ ₃₄
1999 AM ₃₄	15.1	0.15	19990122	35.03079	153.00155	308.58025	4.97993	0.0552624	2.2675699	16	1	33 days	0.45			Williams	1999 AM ₃₄
1999 AO ₃₄	14.4	0.15	19990122	324.45183	26.99241	145.67542	23.26606	0.0282275	3.1418372	19	1	32 days	0.60			Williams	1999 AO ₃₄
1999 AQ ₃₄	15.0	0.15	19990122	18.99690	328.31939	146.85324	11.60355	0.1333838	2.5681102	18	1	29 days	0.55			Williams	1999 AQ ₃₄
1999 AS ₃₄	19.0	0.15	19990102	338.37208	183.31780	315.97146	2.43745	0.0727633	2.2078276	9	1	8 days	0.28	E		Williams	1999 AS ₃₄
1999 BC	14.6	0.15	19990122	32.81296	60.93460	30.26754	2.09943	0.0639949	2.9091505	23	1	33 days	0.75			Williams	1999 BC
1999 BE	14.5	0.15	19990122	173.55596	208.95278	104.15166	7.82135	0.1330544	2.3155962	11	1	28 days	0.46			Nakano	1999 BE
1999 BF	15.9	0.15	19990122	19.02683	113.79999	345.89858	5.24316	0.1715796	2.4333401	32	1	39 days	0.55			Williams	1999 BF
1999 BH	16.6	0.15	19990122	4.61073	71.21587	49.55440	2.19179	0.1407969	2.2033646	25	1	33 days	0.53			Williams	1999 BH
1999 BJ	15.2	0.15	19990122	12.69197	117.16611	353.89727	3.28648	0.1321661	2.4700938	26	1	28 days	0.64			Williams	1999 BJ
1999 BK	13.7	0.15	19990122	40.75491	111.36269	312.41270	28.11566	0.2359264	2.5882866	25	1	30 days	0.69			Williams	1999 BK
1999 BL	14.1	0.15	19990122	307.64776	229.57136	326.06476	13.02816	0.1480401	3.1226587	25	1	28 days	0.61			Williams	1999 BL
1999 BN	13.8	0.15	19990122	345.72604	138.89986	5.26435	23.65017	0.1938739	2.7109926	19	1	30 days	0.15			Marsden	1999 BN
1999 BO	18.4	0.15	19990122	18.10958	131.37233	293.38775	19.61755	0.4480414	2.1211497	58	1	24 days	0.49			Nakano	1999 BO
1999 BQ	14.5	0.15	19990122	315.06472	227.16919	294.28109	8.01579	0.0135024	2.4828902	19	2	1995–1999	0.64	M-v	6	Williams	33734 1999 BQ
1999 BR	12.5	0.15	19990122	88.81454	83.51362	290.70319	9.90769	0.1331659	3.0067312	15	1	21 days	0.94			Spahr	1999 BR
1999 BT	13.9	0.15	19990122	82.76650	91.05454	285.18951	11.27860	0.1827172	2.7346743	15	1	20 days	0.46			Spahr	1999 BT
1999 BG ₁	13.5	0.15	19990122	236.90535	140.72056	101.80681	16.96257	0.2537096	2.5898723	26	1	31 days	0.83			Marsden	1999 BG ₁

1999 BH ₁	16.4	0.15	19990122	36.67034	132.87951	275.79288	4.75490	0.2317223	2.2782606	26	1	31 days	0.26		Marsden		1999 BH ₁
1999 BO ₁	12.9	0.15	19990122	208.31627	173.75751	108.24343	9.11667	0.1854895	2.5678665	41	2	1992–1999	0.53	M-v	4	Williams	33734 1999 BO ₁
1999 BP ₁	14.9	0.15	19990122	281.33517	191.76215	21.68238	3.27382	0.1030746	2.1961353	23	1	27 days	0.71			Williams	1999 BP ₁
1999 BQ ₁	13.7	0.15	19990122	85.47362	23.61084	350.58310	8.67057	0.2082698	2.7132053	14	1	21 days	0.49			Spahr	1999 BQ ₁
1999 BS ₁	14.8	0.15	19990122	5.06584	187.04111	286.64031	10.89676	0.1277502	2.6245546	14	1	19 days	0.39			Spahr	1999 BS ₁
1999 BV ₁	15.1	0.15	19990122	13.73458	242.57278	238.89165	1.64595	0.1746954	2.3895446	25	1	29 days	0.67			Williams	1999 BV ₁
1999 BY ₁	14.4	0.15	19990102	340.39178	21.17171	121.72891	25.34380	0.1967002	2.3859831	26	1	57 days	0.59			Williams	1999 BY ₁
1999 BB ₂	13.8	0.15	19990122	16.28811	116.67568	334.97920	12.14618	0.2688486	2.6496299	42	1	80 days	0.53	M-v	5	Williams	1999 BB ₂
1999 BC ₂	14.8	0.15	19990122	187.89772	325.05728	336.89336	17.50077	0.0599819	1.9577276	33	1	58 days	0.62			Williams	1999 BC ₂
1999 BE ₂	13.8	0.15	19990122	350.15838	246.39260	265.92519	21.73422	0.2779135	2.3721501	19	1	89 days	0.41	M-v	4	Williams	33780 1999 BE ₂
1999 BM ₂	15.8	0.15	19990122	54.27513	292.74274	143.40247	15.59840	0.1394500	2.5846444	23	1	25 days	0.76			Williams	1999 BM ₂
1999 BQ ₂	13.3	0.15	19990211	347.69609	47.80293	115.78565	19.05665	0.1759750	3.1453105	19	1	34 days	0.77			Nakano	1999 BQ ₂
1999 BS ₂	13.4	0.15	19990211	169.65420	336.37395	358.85820	10.03030	0.0511463	3.0435762	18	1	34 days	0.79			Nakano	1999 BS ₂
1999 BT ₂	15.8	0.15	19990122	12.47920	143.89337	322.73483	23.73870	0.3381269	2.4098720	31	1	34 days	0.52			Williams	1999 BT ₂
1999 BU ₂	15.5	0.15	19990122	354.34559	21.62853	121.15307	23.97892	0.0470530	1.9087662	26	1	67 days	0.56	M-v	4	Williams	1999 BU ₂
1999 BV ₂	13.2	0.15	19990122	210.99285	305.92320	351.80490	12.61523	0.1448047	2.5533063	22	1	34 days	0.77			Williams	1999 BV ₂
1999 BW ₂	14.1	0.15	19990211	331.81777	181.19681	354.74893	11.56751	0.0696356	2.3133051	15	1	34 days	0.39			Nakano	1999 BW ₂
1999 BY ₂	15.1	0.15	19990122	23.42057	334.71600	135.40006	16.93942	0.1634067	2.7226613	26	1	67 days	0.39	M-v	4	Williams	1999 BY ₂
1999 BA ₃	15.3	0.15	19990122	0.64229	27.05264	111.58623	7.72895	0.2219472	2.5664666	25	1	81 days	0.46	M-v	4	Williams	1999 BA ₃
1999 BB ₃	14.8	0.15	19990122	33.23962	344.58300	108.89287	7.21739	0.1883058	2.5647073	27	1	90 days	0.56	M-v	5	Williams	1999 BB ₃
1999 BC ₃	13.5	0.15	19990122	44.48054	239.23487	180.92442	4.28253	0.0421430	3.4980911	28	1	69 days	0.57	M-v	5	Williams	1999 BC ₃
1999 BD ₃	13.1	0.15	19990122	15.89528	21.09187	76.78670	6.31871	0.1762505	3.1260005	16	1	28 days	0.79			Williams	1999 BD ₃
1999 BF ₃	13.4	0.15	19990122	313.08923	78.37741	113.73840	8.87522	0.1955134	2.4633549	14	1	28 days	0.52			Williams	1999 BF ₃
1999 BG ₃	15.4	0.15	19990122	332.37482	86.31673	80.94156	26.34595	0.2201884	3.1101608	13	1	31 days	0.87			Williams	1999 BG ₃
1999 BH ₃	15.1	0.15	19990122	12.06445	87.22141	16.74502	7.78252	0.1568448	2.6139786	31	1	23 days	0.62			Williams	1999 BH ₃
1999 BL ₃	15.8	0.15	19990122	290.32352	232.56629	330.54827	2.04587	0.1217116	2.3859914	38	1	31 days	0.47			Marsden	1999 BL ₃
1999 BN ₃	16.5	0.15	19990122	21.42621	324.89602	134.91504	2.88591	0.1640789	2.3793875	29	1	36 days	0.49			Marsden	1999 BN ₃
1999 BO ₃	13.2	0.15	19990122	11.68811	49.98570	64.56785	19.21896	0.2261964	3.1065135	35	2	1992–1999	0.49	M-v	4	Spahr	33734 1999 BO ₃
1999 BR ₃	13.2	0.15	19990122	37.03810	127.28221	309.62099	11.74939	0.1991229	2.4279326	28	1	27 days	0.44			Williams	1999 BR ₃
1999 BS ₃	14.0	0.15	19990122	29.17040	300.54892	161.98499	2.32625	0.0283955	2.8574046	28	1	27 days	0.84			Williams	1999 BS ₃
1999 BT ₃	15.3	0.15	19990122	326.61600	16.93594	153.29875	4.75587	0.0820019	2.2857028	19	1	32 days	0.86			Williams	1999 BT ₃
1999 BU ₃	13.1	0.15	19990122	348.76502	343.82615	164.18736	1.29124	0.1282182	3.2174622	18	1	27 days	0.80			Williams	1999 BU ₃
1999 BW ₃	15.7	0.15	19990102	22.24710	330.50967	98.56689	26.22348	0.2827741	2.3268175	16	1	57 days	0.31			Williams	1999 BW ₃
1999 BX ₃	13.3	0.15	19990122	54.40234	259.57589	152.41726	15.34313	0.2846064	3.1187342	29	1	31 days	0.57			Williams	1999 BX ₃
1999 BA ₄	14.1	0.15	19990122	274.47364	133.91271	77.66323	5.55026	0.0876845	2.4456341	21	1	82 days	0.47	M-v	4	Williams	1999 BA ₄
1999 BD ₄	12.1	0.15	19990122	234.88851	245.49418	6.73262	3.06180	0.1355988	3.0835450	19	1	26 days	1.04			Williams	1999 BD ₄
1999 BK ₄	15.2	0.15	19990122	348.96228	30.99750	108.65519	11.87038	0.1881356	2.6695474	16	1	28 days	0.89			Williams	1999 BK ₄
1999 BL ₄	15.6	0.15	19990122	324.06759	47.28543	146.76145	4.14376	0.1947202	2.6930360	22	1	30 days	0.51			Williams	1999 BL ₄
1999 BM ₄	15.9	0.15	19990122	46.52788	124.39745	320.37001	8.28023	0.1323053	2.7609900	25	1	30 days	0.61			Williams	1999 BM ₄
1999 BR ₄	16.0	0.15	19990122	12.72984	343.07184	145.63965	0.50114	0.0805961	2.5759224	12	1	23 days	0.23			Williams	1999 BR ₄
1999 BX ₄	14.1	0.15	19990122	95.67778	26.95012	16.31651	1.49752	0.0993560	3.1161403	20	1	24 days	0.71			Williams	1999 BX ₄
1999 BA ₅	15.1	0.15	19990122	168.34608	290.04620	47.42263	1.27746	0.0940033	2.3600613	21	1	24 days	0.58			Williams	1999 BA ₅
1999 BE ₅	14.1	0.15	19990122	295.82101	78.23033	115.16845	12.76382	0.0771474	2.5846157	23	1	27 days	0.70			Williams	1999 BE ₅
1999 BF ₅	14.3	0.15	19990211	344.02791	59.10814	100.70356	9.30839	0.1131330	2.6419156	22	1	31 days	0.68			Nakano	1999 BF ₅
1999 BJ ₅	15.6	0.15	19990122	139.87335	177.35035	170.10083	2.65945	0.0583743	2.1927014	20	1	19 days	0.60			Williams	1999 BJ ₅
1999 BK ₅	15.6	0.15	19990122	15.71426	240.91612	232.50733	1.53922	0.0461942	2.1690496	33	1	35 days	0.26			Marsden	1999 BK ₅
1999 BN ₅	14.4	0.15	19990122	44.88505	207.65405	141.56965	5.96205	0.3414832	2.6227346	22	1	19 days	0.76			Williams	1999 BN ₅
1999 BP ₅	14.1	0.15	19990122	19.25312	310.71392	182.03463	4.71985	0.1339056	2.3245031	12	1	23 days	0.42			Williams	1999 BP ₅
1999 BQ ₅	13.8	0.15	19990122	94.57667	103.08158	279.69416	9.76707	0.0866385	2.9944540	14	1	40 days	0.54			Williams	1999 BQ ₅
1999 BT ₅	15.0	0.15	19990122	56.14234	246.39165	171.82446	1.75974	0.1729214	2.5611390	21	2	1997–1999	0.77	M-v	5	Williams	33734 1999 BT ₅
1999 BW ₅	14.8	0.15	19990122	18.23125	162.12848	309.10422	5.50028	0.0755846	2.4323582	17	1	26 days	0.56			Williams	1999 BW ₅
1999 BX ₅	14.5	0.15	19990122	322.70284	235.95762	313.44884	6.47783	0.0699393	2.3379038	12	1	28 days	0.35			Williams	1999 BX ₅
1999 BY ₅	15.0	0.15	19990122	25.55723	194.11931	260.40204	1.43917	0.2022891	2.6911945	32	1	26 days	0.55			Williams	1999 BY ₅

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1999 BZ ₅	15.6	0.15	19990122	38.04231	285.38215	152.65272	5.02753	0.1974406	2.6026670	22	1	26 days	0.83	Williams	1999 BZ ₅
1999 BA ₆	14.6	0.15	19990122	63.66906	125.77989	291.72371	5.51587	0.1148992	2.4265104	27	1	26 days	0.63	Williams	1999 BA ₆
1999 BB ₇	15.6	0.15	19990122	354.11337	239.20480	242.73451	3.63116	0.1615826	2.4199281	10	1	20 days	0.54	Williams	1999 BB ₇
1999 BC ₇	18.3	0.15	19990122	338.00610	104.07423	58.31765	0.79980	0.2816029	2.1412422	11	1	28 days	1.03	Williams	1999 BC ₇
1999 BE ₇	15.0	0.15	19990122	357.18487	102.00009	37.40292	7.16049	0.0562255	2.3183326	23	1	53 days	0.60	Williams	1999 BE ₇
1999 BF ₇	13.9	0.15	19990211	311.74626	118.16475	92.14586	6.53913	0.0690848	2.3203034	19	1	26 days	0.41	Nakano	1999 BF ₇
1999 BG ₇	14.6	0.15	19990122	313.01237	52.39298	150.57560	9.60992	0.0938474	2.7597491	34	2	1995-1999	0.63	M-v 5 Williams	33734 1999 BG ₇
1999 BK ₇	15.6	0.15	19990122	39.58591	113.62721	338.14647	2.73029	0.1192011	2.3347730	34	1	34 days	0.60	Williams	1999 BK ₇
1999 BL ₇	14.8	0.15	19990122	226.85905	194.23559	73.00328	7.92333	0.1019125	2.3111704	24	1	22 days	0.73	Williams	1999 BL ₇
1999 BO ₇	16.1	0.15	19990122	83.77208	59.98469	323.94167	4.04432	0.1401204	2.3041293	23	1	20 days	0.40	Spahr	1999 BO ₇
1999 BP ₇	14.2	0.15	19990122	314.31160	68.86558	114.04130	30.73510	0.2540201	2.6032222	14	1	15 days	0.30	Spahr	1999 BP ₇
1999 BR ₇	15.4	0.15	19990122	37.89900	293.24904	131.94810	8.98816	0.2017180	2.5796707	19	1	25 days	0.71	Williams	1999 BR ₇
1999 BU ₇	13.9	0.15	19990122	231.20602	148.63184	111.86693	11.67391	0.1159301	2.7367292	8	1	16 days	0.99	Spahr	1999 BU ₇
1999 BV ₇	14.6	0.15	19990122	44.88459	354.99493	59.49869	3.77562	0.2412996	2.8605597	16	1	18 days	0.77	Spahr	1999 BV ₇
1999 BY ₇	13.5	0.15	19990122	70.81326	91.10874	297.36432	17.83625	0.2467225	3.2044752	18	1	24 days	0.98	Williams	1999 BY ₇
1999 BZ ₇	14.7	0.15	19990122	11.87393	170.88765	304.44439	7.19356	0.1690699	2.7689108	9	1	16 days	0.31	Spahr	1999 BZ ₇
1999 BA ₈	15.1	0.15	19990122	42.86822	206.99739	228.20155	1.78414	0.1500228	2.4449430	22	1	33 days	0.48	Williams	1999 BA ₈
1999 BB ₈	15.5	0.15	19990122	21.24631	318.32071	147.18345	5.98694	0.0967438	2.3570015	13	1	25 days	0.69	Williams	1999 BB ₈
1999 BD ₈	14.7	0.15	19990122	270.65419	291.49415	317.07822	6.29566	0.1081345	2.2623023	16	1	25 days	0.58	Williams	1999 BD ₈
1999 BE ₈	16.4	0.15	19990122	11.85984	320.73909	147.87552	9.81926	0.4749308	2.5330680	56	1	64 days	0.56	M-v 4 Williams	33782 1999 BE ₈
1999 BH ₈	15.5	0.15	19990122	334.86835	51.33397	112.93334	3.71432	0.1728004	2.7102014	18	1	22 days	0.61	Williams	1999 BH ₈
1999 BJ ₈	18.0	0.15	19990122	334.92389	221.34269	340.01162	9.02796	0.5498396	1.8982136	221	1	39 days	0.47	M-v 5 Williams	1999 BJ ₈
1999 BK ₈	13.8	0.15	19990122	87.58930	322.10221	58.19397	5.56130	0.1790805	2.2479400	27	1	68 days	0.58	M-v 5 Williams	1999 BK ₈
1999 BT ₈	14.4	0.15	19990122	111.89169	203.48230	167.47017	3.02136	0.0880416	2.3228187	27	1	42 days	0.29	Williams	1999 BT ₈
1999 BV ₈	15.4	0.15	19990122	10.46174	337.52531	150.98412	4.41984	0.1726539	2.4184222	23	1	25 days	0.71	Williams	1999 BV ₈
1999 BW ₈	14.5	0.15	19990122	53.01087	284.05150	141.63897	13.24186	0.1456309	2.5673765	24	1	27 days	0.39	Williams	1999 BW ₈
1999 BY ₈	13.4	0.15	19990122	65.61382	305.58789	112.29189	2.73321	0.1059850	3.0913925	24	1	63 days	0.48	M-v 6 Williams	1999 BY ₈
1999 BZ ₈	15.6	0.15	19990122	357.49665	9.06503	127.01290	9.59912	0.1282835	2.4794504	21	1	27 days	0.41	Williams	1999 BZ ₈
1999 BB ₉	13.9	0.15	19990122	106.51190	59.92116	320.33265	6.33214	0.0748916	2.6242631	18	1	24 days	1.28	Williams	1999 BB ₉
1999 BC ₉	14.7	0.15	19990122	48.25508	293.89421	135.02722	13.78287	0.1696275	2.6080309	33	1	37 days	0.57	Williams	1999 BC ₉
1999 BD ₉	13.7	0.15	19990122	237.24355	324.41042	309.89366	6.91253	0.2025079	2.3090430	27	1	26 days	0.78	Williams	1999 BD ₉
1999 BE ₉	15.1	0.15	19990122	31.72731	312.30110	141.80709	9.67168	0.1246356	2.7865500	20	1	21 days	0.75	Williams	1999 BE ₉
1999 BF ₉	15.1	0.15	19990122	9.76710	322.48443	153.65377	3.20520	0.2469199	2.6970482	29	1	36 days	0.44	Williams	1999 BF ₉
1999 BG ₉	16.2	0.15	19990122	337.84306	358.05760	172.60774	1.32294	0.2831812	2.2343959	24	1	34 days	0.41	Williams	1999 BG ₉
1999 BH ₉	14.8	0.15	19990122	77.50461	106.70078	298.00669	5.42608	0.1056285	2.3919148	18	1	24 days	1.10	Williams	1999 BH ₉
1999 BK ₉	14.1	0.15	19990122	56.32585	109.60815	291.84916	7.79901	0.3266366	2.6057894	24	1	62 days	0.52	M-v 5 Williams	1999 BK ₉
1999 BL ₉	12.3	0.15	19990122	76.69376	268.75497	186.06009	14.97608	0.1421776	2.5791048	17	1	26 days	0.59	Williams	1999 BL ₉
1999 BM ₉	15.4	0.15	19990122	62.98098	358.93823	45.63097	3.51185	0.1434257	2.2974110	17	1	24 days	0.32	Williams	1999 BM ₉
1999 BN ₉	16.1	0.15	19990122	33.19655	14.35012	72.46124	4.82020	0.0510916	2.5571046	10	1	19 days	0.43	Williams	1999 BN ₉
1999 BP ₉	13.9	0.15	19990122	242.77929	117.67352	135.72019	9.85613	0.2639949	2.7708867	8	1	16 days	0.54	Marsden	1999 BP ₉
1999 BQ ₉	14.6	0.15	19990122	348.44345	85.47863	63.80321	20.88328	0.3326958	2.4076087	24	1	80 days	0.57	M-v 4 Williams	33782 1999 BQ ₉
1999 BS ₉	13.1	0.15	19990122	91.85391	28.20689	343.99065	11.19502	0.1416741	2.6770335	26	1	24 days	0.41	Williams	1999 BS ₉
1999 BT ₉	15.2	0.15	19990122	114.61941	193.16171	165.20666	4.79228	0.1639513	2.6282728	11	1	25 days	0.66	Williams	1999 BT ₉
1999 BV ₉	15.1	0.15	19990122	2.84210	191.72557	289.37533	7.67653	0.1535854	2.6749438	15	1	27 days	0.71	Williams	1999 BV ₉
1999 BX ₉	13.2	0.15	19990122	14.57257	176.10658	314.12584	8.32024	0.0781788	3.1960641	13	1	27 days	0.94	Williams	1999 BX ₉
1999 BY ₉	17.4	0.15	19990122	322.59788	286.90484	254.83167	0.94171	0.3028392	1.8307356	33	1	28 days	0.73	Williams	1999 BY ₉
1999 BZ ₉	14.5	0.15	19990122	353.39074	105.07386	35.94876	0.97697	0.0428388	2.5405837	9	1	23 days	0.60	Williams	1999 BZ ₉
1999 BD ₁₀	14.2	0.15	19990102	171.76403	351.65344	325.26415	5.98145	0.0938730	2.3726798	22	1	52 days	0.68	Williams	1999 BD ₁₀
1999 BE ₁₀	15.5	0.15	19990122	354.00959	182.48018	318.58835	8.45317	0.1530875	2.4075074	25	1	33 days	0.52	Williams	1999 BE ₁₀
1999 BF ₁₀	14.9	0.15	19990122	353.10430	16.21160	125.40083	3.22274	0.0967011	2.2988932	13	1	30 days	0.52	Williams	1999 BF ₁₀
1999 BG ₁₀	13.4	0.15	19990122	3.61221	352.24858	137.57677	7.21177	0.0999499	2.5671704	31	1	31 days	0.62	Williams	1999 BG ₁₀
1999 BJ ₁₀	13.5	0.15	19990122	249.02164	125.79809	140.25643	8.44039	0.1902919	2.7671926	19	1	20 days	0.59	Williams	1999 BJ ₁₀
1999 BJ ₁₀	13.5	0.15	19990122	77.45677	137.56997	273.22775	2.62145	0.0689309	2.7423387	23	1	23 days	0.43	Williams	1999 BJ ₁₀

1999 BK ₁₀	15.0	0.15	19990122	47.66357	114.02910	325.00484	6.21729	0.0767195	2.3083243	12	1	30 days	0.41	Williams	1999 BK ₁₀
1999 BL ₁₀	15.8	0.15	19990122	14.91706	350.98229	119.63725	5.08980	0.2001717	2.5622398	19	1	20 days	0.76	Williams	1999 BL ₁₀
1999 BM ₁₀	14.7	0.15	19990122	96.93631	235.67679	142.90993	4.56730	0.1816114	2.2791973	25	1	32 days	0.55	Williams	1999 BM ₁₀
1999 BN ₁₀	13.5	0.15	19990122	203.27660	331.94804	323.42095	15.26259	0.0490800	3.0423263	18	1	31 days	0.48	Williams	1999 BN ₁₀
1999 BW ₁₀	16.1	0.15	19990122	355.60377	12.71570	137.13192	8.10116	0.2509583	2.6747072	21	1	24 days	0.60	Williams	1999 BW ₁₀
1999 BY ₁₀	15.7	0.15	19990122	45.17448	123.72082	322.27409	5.53594	0.1445885	2.9967449	12	1	27 days	0.52	Williams	1999 BY ₁₀
1999 BC ₁₁	14.3	0.15	19990122	257.02312	292.00307	325.58004	7.58251	0.0988003	2.3141311	18	1	33 days	0.43	Williams	1999 BC ₁₁
1999 BG ₁₁	14.3	0.15	19990122	86.26750	43.59216	3.38988	1.44663	0.1228990	2.8723427	14	1	24 days	0.58	Williams	1999 BG ₁₁
1999 BH ₁₁	15.8	0.15	19990122	293.92338	249.18949	335.33674	2.76765	0.1408610	2.1903467	19	1	24 days	0.55	Williams	1999 BH ₁₁
1999 BN ₁₁	17.0	0.15	19990122	82.63378	82.75598	324.42917	18.23721	0.1033197	1.8877424	18	1	28 days	0.62	Williams	1999 BN ₁₁
1999 BQ ₁₁	14.0	0.15	19990122	168.38552	5.46886	333.09463	31.10063	0.1403759	2.7014391	15	1	27 days	1.10	Williams	1999 BQ ₁₁
1999 BC ₁₂	15.0	0.15	19990211	320.02181	81.23372	99.62525	6.94678	0.0743311	2.3637859	20	1	26 days	0.44	Nakano	1999 BC ₁₂
1999 BE ₁₂	15.4	0.15	19990122	20.87696	81.80659	17.59563	7.65016	0.2035582	2.4411597	20	1	25 days	0.68	Williams	1999 BE ₁₂
1999 BF ₁₂	13.7	0.15	19990122	274.13574	216.01384	14.70272	12.48312	0.1070603	2.6460154	23	1	51 days	0.53	Williams	1999 BF ₁₂
1999 BH ₁₂	14.4	0.15	19990122	300.68443	258.62167	313.36433	15.54779	0.2062942	3.1609225	30	1	25 days	0.95	D Williams	1999 BH ₁₂
1999 BJ ₁₂	14.2	0.15	19990122	260.30390	203.44462	40.35729	1.17094	0.1286685	3.0963883	30	1	20 days	0.93	Williams	1999 BJ ₁₂
1999 BK ₁₂	13.9	0.15	19990122	63.96297	304.83851	105.43871	14.95150	0.2041387	2.8600087	20	1	19 days	0.47	Williams	1999 BK ₁₂
1999 BL ₁₂	12.5	0.15	19990122	108.63232	268.19877	76.63701	6.81189	0.1746386	2.2592992	21	1	24 days	0.49	Williams	1999 BL ₁₂
1999 BM ₁₂	13.8	0.15	19990102	4.96064	140.98110	328.10598	16.63258	0.1418768	2.7300362	24	1	58 days	0.49	Williams	1999 BM ₁₂
1999 BN ₁₂	12.5	0.15	19990122	25.81206	49.31771	35.75130	6.26682	0.1805313	2.5281519	22	1	31 days	0.48	Williams	1999 BN ₁₂
1999 BP ₁₂	14.5	0.15	19990122	318.54537	158.83504	6.50867	6.05268	0.0173032	2.3056424	14	1	27 days	0.90	Williams	1999 BP ₁₂
1999 BQ ₁₂	12.9	0.15	19990122	135.18263	238.37741	100.79236	16.09228	0.1637850	2.5653009	22	1	25 days	0.59	Williams	1999 BQ ₁₂
1999 BT ₁₂	13.4	0.15	19990122	90.22219	152.94397	238.30191	4.35988	0.1606388	3.1266045	40	5	1975–1999	0.75	M-v 2 Williams	33735 1999 BT ₁₂
1999 BV ₁₂	13.5	0.15	19990122	350.54839	213.70662	288.32429	6.39412	0.1617439	3.0728259	21	1	22 days	0.50	Williams	1999 BV ₁₂
1999 BW ₁₂	15.9	0.15	19990122	336.13630	305.85871	215.16039	1.74837	0.1704987	2.3014622	22	1	35 days	0.39	Williams	1999 BW ₁₂
1999 BX ₁₂	15.4	0.15	19990122	37.17667	131.59250	295.53047	6.28793	0.2628210	2.5361047	11	1	35 days	0.73	Williams	1999 BX ₁₂
1999 BY ₁₂	12.8	0.15	19990122	185.46075	6.41480	301.79854	19.21253	0.2533400	2.9814870	12	1	25 days	0.70	Williams	1999 BY ₁₂
1999 BZ ₁₂	13.7	0.15	19990122	320.82184	43.81291	134.48513	18.81142	0.1181441	3.0795894	9	1	20 days	0.63	Williams	1999 BZ ₁₂
1999 BB ₁₃	15.3	0.15	19990122	306.45551	333.36656	227.71076	1.46851	0.1817867	2.3598223	10	1	19 days	0.45	Williams	1999 BB ₁₃
1999 BC ₁₃	13.5	0.15	19990122	335.24567	219.97335	301.39148	13.81603	0.1132728	3.1109193	19	1	35 days	0.48	Williams	1999 BC ₁₃
1999 BD ₁₃	14.8	0.15	19990122	30.06949	301.22849	153.81397	6.81967	0.0632153	2.3128184	10	1	15 days	0.56	Spahr	1999 BD ₁₃
1999 BE ₁₃	14.2	0.15	19990122	69.91929	124.01616	282.80674	2.66449	0.1594355	2.5920261	12	1	13 days	0.65	Spahr	1999 BE ₁₃
1999 BF ₁₃	14.3	0.15	19990122	200.13101	132.21526	168.11221	3.24480	0.1539748	2.1833736	19	1	22 days	0.62	Williams	1999 BF ₁₃
1999 BG ₁₃	15.1	0.15	19990122	356.90442	204.15242	292.91491	4.31116	0.0792744	2.2061028	18	1	22 days	0.36	Williams	1999 BG ₁₃
1999 BH ₁₃	12.8	0.15	19990122	8.46296	327.49134	159.67544	4.48503	0.0768698	3.9615481	23	1	34 days	0.63	Williams	1999 BH ₁₃
1999 BJ ₁₃	15.1	0.15	19990122	47.66019	175.27222	260.13288	1.89096	0.1149812	2.3129325	21	1	22 days	0.48	Williams	1999 BJ ₁₃
1999 BK ₁₃	12.4	0.15	19990122	89.13821	252.31587	165.77233	15.66737	0.1373470	3.2071790	14	1	19 days	0.40	Williams	1999 BK ₁₃
1999 BL ₁₃	13.4	0.15	19990122	92.66947	251.12244	163.48665	14.52688	0.1082806	2.6074968	8	1	19 days	0.73	Williams	1999 BL ₁₃
1999 BM ₁₃	15.2	0.15	19990122	0.00946	321.01526	193.35979	0.35898	0.1141880	2.3111778	23	1	19 days	0.57	Williams	1999 BM ₁₃
1999 BN ₁₃	14.5	0.15	19990122	340.45755	14.67941	166.28571	1.98334	0.1441614	2.3960007	17	1	19 days	0.42	Williams	1999 BN ₁₃
1999 BO ₁₃	13.0	0.15	19990122	291.78811	82.43759	161.29883	11.47605	0.1234908	3.0841556	10	1	19 days	0.86	Williams	1999 BO ₁₃
1999 BP ₁₃	13.1	0.15	19990122	21.60385	141.79213	338.79868	6.66218	0.2333872	2.6831687	12	1	22 days	0.16	Williams	1999 BP ₁₃
1999 BQ ₁₃	14.5	0.15	19990122	61.31229	112.35670	331.87955	5.37052	0.0860244	2.1982995	16	1	36 days	0.52	Williams	1999 BQ ₁₃
1999 BT ₁₃	17.1	0.15	19990122	268.39334	111.18578	136.68232	4.24304	0.1240813	2.1604075	16	1	34 days	0.81	Williams	1999 BT ₁₃
1999 BM ₁₄	14.3	0.15	19990122	316.96817	100.75833	70.77723	3.99844	0.1257897	2.3836036	24	1	25 days	0.68	Williams	1999 BM ₁₄
1999 BN ₁₄	13.6	0.15	19990122	322.94821	109.73052	52.18397	1.99597	0.1188730	3.1060842	12	1	28 days	0.56	Williams	1999 BN ₁₄
1999 BR ₁₄	14.6	0.15	19990122	303.57614	153.39401	59.00677	6.80960	0.0655137	2.2924882	22	1	20 days	0.47	Williams	1999 BR ₁₄
1999 BX ₁₄	15.9	0.15	19990122	298.46940	242.96440	313.46336	2.06173	0.1101963	2.3668266	11	1	20 days	0.34	Nakano	1999 BX ₁₄
1999 BC ₁₅	14.2	0.15	19990122	215.85566	148.77174	133.98097	7.12580	0.1054790	2.2858702	9	1	25 days	0.60	Williams	1999 BC ₁₅
1999 BD ₁₅	15.8	0.15	19990122	338.62034	313.47250	201.96136	1.98808	0.1308239	2.3895912	12	1	25 days	0.41	Williams	1999 BD ₁₅
1999 BE ₁₅	14.5	0.15	19990122	47.09548	262.92715	137.39009	10.73143	0.3674470	2.7887577	6	1	13 days	0.36	Spahr	1999 BE ₁₅
1999 BG ₁₅	13.0	0.15	19990122	212.38243	337.84456	338.53586	9.58914	0.1325570	2.7270342	9	1	22 days	0.51	Williams	1999 BG ₁₅
1999 BH ₁₅	14.4	0.15	19990122	299.86695	268.40703	303.50778	12.74859	0.1338759	2.6107256	15	1	21 days	0.85	Williams	1999 BH ₁₅

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1999 BM ₁₅	14.1	0.15	19990122	40.62040	306.44788	159.84471	13.99213	0.1362318	2.5390900	12	1	17 days	0.77	Spahr	1999 BM ₁₅
1999 BN ₁₅	14.5	0.15	19990122	314.71027	59.88071	157.52398	8.93352	0.1659903	2.3272030	16	1	27 days	0.59	Williams	1999 BN ₁₅
1999 BP ₁₅	13.8	0.15	19990122	3.96054	15.30833	107.77822	12.82426	0.1341003	2.6597867	25	1	63 days	0.58	M-v 5 Williams	1999 BP ₁₅
1999 BC ₂₀	15.1	0.15	19990102	64.90765	57.66825	325.63824	14.15922	0.1433309	2.6073759	11	1	10 days	0.43	Williams	1999 BC ₂₀
1999 BE ₂₀	14.4	0.15	19990102	47.73293	40.29581	3.06894	10.31609	0.1504965	3.0611184	12	1	10 days	0.55	Williams	1999 BE ₂₀
1999 BG ₂₀	14.3	0.15	19990102	123.97511	350.40340	339.38052	15.08080	0.1249268	2.5996203	12	1	10 days	0.87	Williams	1999 BG ₂₀
1999 BM ₂₀	15.5	0.15	19990102	48.42410	350.56534	52.40870	8.88301	0.1533029	2.2411335	12	1	10 days	0.49	Williams	1999 BM ₂₀
1999 BU ₂₀	16.3	0.15	19990102	342.39004	161.27959	327.18298	5.34899	0.1060096	2.4703849	10	1	9 days	0.83	Williams	1999 BU ₂₀
1999 BJ ₂₁	14.3	0.15	19990102	132.86455	351.14112	331.65742	14.29660	0.1215005	2.5983310	10	1	10 days	0.35	Williams	1999 BJ ₂₁
1999 BB ₂₂	15.9	0.15	19990102	324.12231	289.52308	218.82712	4.90512	0.1534677	2.6329459	13	1	35 days	0.38	Williams	1999 BB ₂₂
1999 BG ₂₄	14.9	0.15	19990102	16.37390	154.61075	291.18364	5.89535	0.1526218	2.2531307	12	1	14 days	0.75	Williams	1999 BG ₂₄
1999 BL ₂₄	12.7	0.15	19990122	4.08602	324.38645	149.15354	7.25328	0.0561874	2.3418441	15	1	28 days	0.67	Williams	1999 BL ₂₄
1999 BQ ₂₄	15.1	0.15	19990122	213.13560	117.43697	153.28014	6.28519	0.0649681	2.7293973	10	1	31 days	0.54	Williams	1999 BQ ₂₄
1999 BW ₂₄	15.1	0.15	19990102	61.71763	187.69377	214.22510	6.82842	0.1055834	2.2914293	12	1	6 days	0.77	Williams	1999 BW ₂₄
1999 BX ₂₄	14.0	0.15	19990102	333.81765	249.59410	263.93053	8.52495	0.1814391	2.7414048	12	1	6 days	0.31	Williams	1999 BX ₂₄
1999 BC ₂₅	13.1	0.15	19990102	27.61005	240.79819	195.13275	4.88837	0.1844654	3.0654166	16	1	35 days	0.48	Williams	1999 BC ₂₅
1999 BH ₂₅	15.2	0.15	19990102	10.68214	208.07587	253.51545	7.59531	0.1480720	2.5793336	11	1	6 days	0.71	Williams	1999 BH ₂₅
1999 BL ₂₅	14.8	0.15	19990102	195.60361	117.65129	168.52141	6.71254	0.1463462	2.4787882	9	1	10 days	0.64	Williams	1999 BL ₂₅
1999 BP ₂₅	13.9	0.15	19990102	197.10032	119.63777	164.89540	3.67561	0.0855766	2.6614980	12	1	10 days	0.82	Williams	1999 BP ₂₅
1999 BT ₂₅	15.3	0.15	19990122	38.90812	194.85875	231.35322	3.63577	0.2072095	2.3434062	19	1	37 days	0.61	Williams	1999 BT ₂₅
1999 BV ₂₅	15.2	0.15	19990122	46.95464	196.42519	235.70928	4.88851	0.0531978	2.2005852	23	1	60 days	0.67	M-v 5 Williams	1999 BV ₂₅
1999 BW ₂₅	14.1	0.15	19990122	83.00456	216.94823	165.14432	10.32860	0.1639518	2.6727813	21	1	33 days	0.63	Williams	1999 BW ₂₅
1999 BA ₂₆	15.5	0.15	19990211	28.25420	335.16036	114.34246	24.95518	0.2565074	2.2936876	30	1	34 days	0.46	Nakano	1999 BA ₂₆
1999 BB ₂₆	13.7	0.15	19990122	118.97620	232.47384	125.92599	10.34114	0.1408797	3.0797040	34	1	22 days	1.12	Williams	1999 BB ₂₆
1999 BE ₂₆	14.9	0.15	19990122	15.93750	278.76711	194.84787	4.20655	0.1706560	2.6413951	27	1	34 days	0.79	Williams	1999 BE ₂₆
1999 BK ₂₆	17.1	0.15	19990122	47.62538	72.83890	336.39691	1.60580	0.2263895	2.3606009	12	1	7 days	0.17	D Doppler	1999 BK ₂₆
1999 BM ₂₆	14.7	0.15	19990122	279.05548	246.63005	328.29399	2.21610	0.1219991	2.9959552	11	1	7 days	0.36	D Doppler	1999 BM ₂₆
1999 BN ₂₆	15.0	0.15	19990102	95.70168	63.45385	315.35076	7.51924	0.0285890	2.4735185	9	1	9 days	0.29	E Williams	1999 BN ₂₆
1999 BP ₂₇	15.4	0.15	19990122	114.64553	51.38344	325.75613	5.53752	0.0565757	2.7483576	13	1	28 days	0.93	Williams	1999 BP ₂₇
1999 BV ₂₇	13.4	0.15	19990102	349.65065	6.68477	78.96334	11.94506	0.1728504	3.1737537	9	1	6 days	0.34	Williams	1999 BV ₂₇
1999 BK ₂₉	14.5	0.15	19990122	309.12600	232.80734	318.24006	3.42368	0.0327099	2.9722789	17	1	31 days	0.67	Williams	1999 BK ₂₉
1999 BU ₂₉	16.5	0.15	19990122	4.41431	158.46201	330.27665	3.07416	0.1822370	2.3728901	18	1	26 days	0.57	Williams	1999 BU ₂₉
1999 BN ₃₀	15.2	0.15	19990122	348.08891	23.77207	113.39026	7.45540	0.1414954	2.5914807	18	1	25 days	0.64	Williams	1999 BN ₃₀
1999 BL ₃₃	21.9	0.15	19990122	0.77927	0.04686	121.00487	10.01695	0.5332095	2.6903876	17	1	21 days	0.51	Williams	1999 BL ₃₃
1999 BN ₃₃	16.8	0.15	19990122	290.87400	119.50442	116.02819	39.98486	0.2190362	1.8249220	11	1	25 days	0.77	Williams	1999 BN ₃₃
1999 BO ₃₃	17.4	0.15	19990122	41.94655	164.52138	1.33196	4.16281	0.1969634	2.6794928	3	1	3 days	0.23	E Marsden	1999 BO ₃₃
1999 BP ₃₃	16.5	0.15	19990122	245.40476	330.99290	39.88244	13.30878	0.2752923	2.6254428	6	1	5 days	0.64	E Marsden	1999 BP ₃₃
1999 CA	13.0	0.15	19990122	322.82599	108.03534	51.57057	2.75787	0.0784330	2.9813671	25	1	12 days	0.75	Williams	1999 CA
1999 CB	13.6	0.15	19990211	25.21578	1.32101	105.14877	12.13632	0.1522011	3.1862488	18	1	16 days	0.51	Nakano	1999 CB
1999 CC	15.1	0.15	19990122	49.10493	349.72625	66.51034	5.81145	0.2665883	2.3538215	24	1	55 days	0.55	Williams	1999 CC
1999 CD	14.7	0.15	19990122	60.27685	0.28490	54.66042	6.26324	0.1693436	2.2906225	31	1	56 days	0.68	Williams	1999 CD
1999 CF	13.5	0.15	19990211	55.39439	317.73960	109.39869	12.94116	0.1745475	2.6602117	14	1	16 days	0.63	Nakano	1999 CF
1999 CG	16.0	0.15	19990211	357.42898	92.31559	52.72869	5.10322	0.1843734	2.3714231	23	1	16 days	0.63	Nakano	1999 CG
1999 CH	14.6	0.15	19990211	104.80658	345.94562	37.46568	7.17078	0.1163772	2.2927196	18	1	16 days	0.40	Nakano	1999 CH
1999 CJ	12.8	0.15	19990122	29.71547	91.56089	9.00660	10.53710	0.0854648	2.9797585	21	1	55 days	0.41	Williams	1999 CJ
1999 CK	14.5	0.15	19990211	4.66956	141.40266	352.84829	12.96701	0.0941622	2.6617097	18	1	16 days	0.58	Nakano	1999 CK
1999 CM	14.3	0.15	19990211	319.05780	109.87267	93.98899	16.53570	0.2895062	2.8018746	25	1	18 days	0.36	Nakano	1999 CM
1999 CN	15.2	0.15	19990122	13.19699	25.57229	92.47945	2.05528	0.1588133	2.3294880	21	1	29 days	0.36	Williams	1999 CN
1999 CO	14.4	0.15	19990122	265.20649	122.66576	118.95046	5.73432	0.0673218	2.4520255	22	1	65 days	0.48	M-v 6 Williams	1999 CO
1999 CP	14.2	0.15	19990122	306.44488	95.51969	135.89734	23.32006	0.3496020	2.5567972	32	1	35 days	0.73	Williams	1999 CP
1999 CQ	15.9	0.15	19990211	35.74935	66.10350	26.97977	2.88394	0.1827167	2.3895742	20	1	15 days	0.77	Williams	1999 CQ
1999 CR	14.7	0.15	19990211	332.76517	211.95778	333.48930	17.82744	0.2135522	3.1190702	21	1	15 days	0.56	Williams	1999 CR
1999 CS	15.6	0.15	19990211	56.50212	96.71805	337.05244	11.90564	0.1280228	2.3613029	18	1	15 days	0.50	Nakano	1999 CS

1999 CT	14.2	0.15	19990211	269.37569	128.20351	123.51760	11.97352	0.1425454	3.0388138	15	1	15 days	0.80	Nakano	1999 CT
1999 CU	15.4	0.15	19990211	2.62879	70.13466	70.28943	3.62197	0.1095502	2.3433870	8	1	15 days	0.54	Nakano	1999 CU
1999 CY	14.7	0.15	19990211	167.83011	244.38562	88.85907	4.02463	0.2011323	2.1857909	20	1	17 days	0.70	Nakano	1999 CY
1999 CZ	15.6	0.15	19990211	47.51456	16.67562	57.99522	3.58259	0.2181001	2.3613015	18	1	15 days	0.48	Nakano	1999 CZ
1999 CA ₁	15.2	0.15	19990211	306.48293	123.36920	92.53254	10.05969	0.2000581	2.4167830	17	1	10 days	0.70	Williams	1999 CA ₁
1999 CB ₁	14.8	0.15	19990211	342.66537	31.75993	127.75581	5.87445	0.0638788	3.0155207	17	1	16 days	1.01	Williams	1999 CB ₁
1999 CC ₁	14.2	0.15	19990122	7.27296	273.34842	135.47510	22.86810	0.3446977	2.4214945	16	1	8 days	1.40	Spahr	1999 CC ₁
1999 CD ₁	14.1	0.15	19990122	357.22914	136.57813	298.76477	11.21032	0.1562736	2.3658177	20	1	57 days	0.42	Williams	1999 CD ₁
1999 CE ₁	15.5	0.15	19990211	309.36481	91.76082	97.24498	4.76090	0.0698245	2.2814433	20	1	15 days	0.58	Williams	1999 CE ₁
1999 CG ₁	13.5	0.15	19990211	18.32023	0.39042	120.62707	6.29114	0.0466407	2.8493913	23	1	15 days	0.44	Nakano	1999 CG ₁
1999 CH ₁	15.0	0.15	19990211	274.56126	253.41659	345.30877	13.41999	0.0418018	2.3317833	11	1	15 days	0.50	Williams	1999 CH ₁
1999 CJ ₁	14.9	0.15	19990211	55.41606	333.34060	106.82682	10.26977	0.1286247	2.7707783	21	1	15 days	0.67	Williams	1999 CJ ₁
1999 CK ₁	13.5	0.15	19990211	254.43549	170.68548	66.33849	5.78625	0.1532742	2.4971704	10	1	9 days	0.57	Williams	1999 CK ₁
1999 CL ₁	15.8	0.15	19990211	14.83852	127.80975	7.97472	5.80412	0.1398730	2.3196705	11	1	19 days	0.47	Nakano	1999 CL ₁
1999 CM ₁	13.9	0.15	19990211	46.71616	17.36108	68.70723	2.98354	0.0589134	2.8697808	20	1	13 days	0.77	Nakano	1999 CM ₁
1999 CN ₁	15.5	0.15	19990211	66.07797	66.68007	3.15530	7.13374	0.1186680	2.3201368	16	1	14 days	0.81	Nakano	1999 CN ₁
1999 CO ₁	15.7	0.15	19990211	6.60300	142.08299	357.11491	7.92992	0.1735794	2.4486765	11	1	14 days	0.65	Williams	1999 CO ₁
1999 CP ₁	15.6	0.15	19990211	9.28242	85.21542	51.50654	4.28455	0.1465994	2.5272858	15	1	14 days	0.68	Nakano	1999 CP ₁
1999 CQ ₁	15.2	0.15	19990211	88.50345	19.73196	29.91393	4.97737	0.1004646	2.2466860	16	1	14 days	0.74	Nakano	1999 CQ ₁
1999 CR ₁	14.4	0.15	19990211	333.62094	188.82621	350.33767	14.04114	0.0574794	2.6503361	16	1	14 days	0.79	Nakano	1999 CR ₁
1999 CS ₁	14.1	0.15	19990211	286.46612	147.94752	89.91341	6.62484	0.1322789	2.2775771	18	1	14 days	0.49	Nakano	1999 CS ₁
1999 CT ₁	14.0	0.15	19990211	20.50907	126.20465	355.31185	15.87762	0.1473901	3.1624772	21	1	14 days	0.51	Nakano	1999 CT ₁
1999 CX ₁	12.8	0.15	19990211	129.93553	245.85330	120.97892	16.08789	0.1915963	2.5722467	18	1	14 days	0.50	Nakano	1999 CX ₁
1999 CY ₁	14.2	0.15	19990211	324.93985	229.32952	304.27758	1.84472	0.1229892	2.4314519	23	1	11 days	0.75	Williams	1999 CY ₁
1999 CZ ₁	15.1	0.15	19990122	347.72347	177.05047	320.12952	17.02572	0.0853953	1.9528506	35	1	92 days	0.65	M-v 4 Williams	1999 CZ ₁
1999 CB ₂	15.1	0.15	19990211	0.89200	138.86501	12.96347	6.57365	0.1764722	2.5382779	21	1	14 days	0.38	Williams	1999 CB ₂
1999 CC ₂	14.0	0.15	19990211	30.15710	57.67577	65.59431	4.63411	0.0534517	2.7908598	21	1	15 days	0.60	Nakano	1999 CC ₂
1999 CE ₂	14.8	0.15	19990211	334.96854	207.50450	332.71119	2.13984	0.1252410	2.4235230	18	1	12 days	0.85	Williams	1999 CE ₂
1999 CF ₂	16.4	0.15	19990211	19.26718	72.38223	39.18052	6.38766	0.1579668	2.3047977	19	1	8 days	0.79	Williams	1999 CF ₂
1999 CL ₂	14.7	0.15	19990122	70.45497	101.78676	279.76900	5.38729	0.2347819	2.2898890	9	1	7 days	0.35	E Williams	1999 CL ₂
1999 CN ₂	15.4	0.15	19990122	38.32029	298.49846	142.24959	1.61276	0.1351855	2.3261835	19	1	7 days	0.73	Williams	1999 CN ₂
1999 CO ₂	13.0	0.15	19990211	358.36915	54.56413	104.04763	22.35929	0.0313839	2.6704146	9	1	9 days	0.15	Williams	1999 CO ₂
1999 CP ₂	16.8	0.15	19990211	333.67437	45.33424	120.81928	15.20861	0.1724257	2.7206799	30	1	11 days	0.36	Marsden	1999 CP ₂
1999 CQ ₂	27.3	0.15	19990122	9.98483	137.10169	318.38620	3.59959	0.3780481	1.4932512	16	1	6 days	0.83	M-v 8 Williams	1999 CQ ₂
1999 CR ₂	14.8	0.15	19990211	79.12880	31.69569	5.12930	7.13502	0.2158438	2.2567527	11	1	6 days	0.66	Williams	1999 CR ₂
1999 CT ₂	14.7	0.15	19990122	62.39748	255.90631	145.06797	5.93448	0.2320030	3.2414103	11	1	7 days	0.62	E Williams	1999 CT ₂
1999 CW ₂	14.5	0.15	19990211	284.66827	209.10772	9.81102	3.77421	0.1233961	2.2609431	11	1	8 days	0.57	Williams	1999 CW ₂
1999 CY ₂	15.2	0.15	19990211	69.47550	116.11595	296.18621	1.46293	0.1961557	2.3888260	31	1	17 days	0.82	Williams	1999 CY ₂
1999 CC ₃	15.6	0.15	19990211	308.67616	265.83689	306.49310	7.24383	0.2523001	2.9025999	8	1	3 days	0.32	E Williams	1999 CC ₃
1999 CE ₃	16.3	0.15	19990211	349.23800	205.84553	312.58825	7.50625	0.2231818	2.7585346	24	1	9 days	0.57	Williams	1999 CE ₃
1999 CH ₃	15.3	0.15	19990211	22.77146	32.12986	66.14398	8.49578	0.3538434	2.6883842	29	1	10 days	0.66	Nakano	1999 CH ₃
1999 CK ₃	14.7	0.15	19990211	54.08132	182.05148	265.68165	7.58729	0.1020420	2.7583250	21	1	16 days	0.63	Nakano	1999 CK ₃
1999 CL ₃	12.7	0.15	19990122	75.50496	309.54426	112.44635	11.02492	0.0588630	3.0398965	19	1	25 days	0.52	Williams	1999 CL ₃
1999 CM ₃	13.7	0.15	19990211	36.22671	100.13934	8.05195	8.63128	0.0434615	3.1873355	14	1	8 days	0.48	Nakano	1999 CM ₃
1999 CN ₃	15.4	0.15	19990122	32.12232	286.88765	156.32862	6.64201	0.0966820	2.4056663	13	1	38 days	0.31	Williams	1999 CN ₃
1999 CP ₃	14.6	0.15	19990122	316.03731	189.17964	0.22414	23.94103	0.2048061	2.3018720	20	1	35 days	0.49	Williams	1999 CP ₃
1999 CR ₃	16.1	0.15	19990122	13.19375	337.40473	134.44623	33.00425	0.1939770	1.8614845	54	1	28 days	0.65	Williams	1999 CR ₃
1999 CS ₃	18.5	0.15	19990211	5.08657	351.75330	135.11625	27.86345	0.4304474	2.4953228	39	1	15 days	0.72	Nakano	1999 CS ₃
1999 CT ₃	18.3	0.15	19990211	276.12496	268.22014	322.00961	34.22886	0.1318816	1.4265893	37	1	15 days	0.71	Williams	1999 CT ₃
1999 CU ₃	16.5	0.15	19990211	266.85446	305.43505	339.28325	11.39971	0.5242085	1.5769351	41	1	15 days	0.62	Nakano	1999 CU ₃
1999 CV ₃	14.8	0.15	19990122	299.64381	96.16673	141.45259	22.85703	0.3938850	1.4594865	237	1	66 days	0.40	M-v 4 Williams	1999 CV ₃
1999 CX ₃	17.1	0.15	19990211	284.75873	80.09720	156.09332	24.11161	0.1096532	1.9167981	24	1	12 days	0.81	Williams	1999 CX ₃
1999 CZ ₃	14.8	0.15	19990211	254.58617	110.09415	142.46348	2.44494	0.0990003	2.1806736	19	1	20 days	0.40	Marsden	1999 CZ ₃

1999 CA ₄	11.3	0.15	19990122	207.28489	287.00698	18.10265	9.91530	0.0707954	3.0260007	19	1	9 days	0.44	Williams	1999 CA ₄
1999 CC ₄	15.3	0.15	19990122	341.70877	14.10647	140.08979	4.09372	0.1644246	2.1779421	12	1	5 days	0.66	E Williams	1999 CC ₄
1999 CD ₄	15.8	0.15	19990211	324.23160	263.76926	294.73357	1.71439	0.2794887	2.2282237	9	1	6 days	0.39	E Williams	1999 CD ₄
1999 CE ₄	15.2	0.15	19990211	113.38770	267.61694	135.08285	2.54721	0.0131813	2.9076233	11	1	7 days	0.44	E Williams	1999 CE ₄
1999 CF ₄	14.7	0.15	19990211	38.93714	260.17477	156.81896	12.73157	0.0567971	2.5294306	12	1	6 days	0.38	Williams	1999 CF ₄
1999 CG ₄	15.1	0.15	19990211	25.35760	136.63188	342.77986	5.25742	0.1555306	2.3612358	17	1	6 days	0.54	Williams	1999 CG ₄
1999 CH ₄	17.6	0.15	19990211	12.05528	145.43282	346.73280	3.34216	0.2639470	2.6007283	8	1	6 days	0.32	Williams	1999 CH ₄
1999 CJ ₄	15.1	0.15	19990211	78.37876	314.85921	108.82487	7.03295	0.1182067	2.2450596	17	1	13 days	0.76	Nakano	1999 CJ ₄
1999 CM ₄	16.0	0.15	19990211	325.51679	91.74896	126.70366	22.52228	0.3162347	2.2921855	19	1	7 days	0.74	Williams	1999 CM ₄
1999 CO ₄	13.9	0.15	19990211	163.85673	178.48601	158.67682	14.09801	0.0466437	2.5666992	18	1	5 days	1.25	E Williams	1999 CO ₄
1999 CP ₄	15.2	0.15	19990211	331.96074	19.04009	148.51137	3.40218	0.0937791	2.3691622	10	1	12 days	0.80	Williams	1999 CP ₄
1999 CQ ₄	13.9	0.15	19990122	302.31807	13.56384	194.99395	4.04613	0.1919487	3.0736312	23	1	35 days	0.53	Williams	1999 CQ ₄
1999 CR ₄	13.4	0.15	19990102	280.87454	279.85994	295.22140	8.89837	0.0486461	2.5957045	22	1	54 days	0.37	Williams	1999 CR ₄
1999 CS ₄	13.6	0.15	19990211	205.99971	132.41663	193.95408	2.42107	0.2114927	2.2515603	10	1	6 days	0.59	E Williams	1999 CS ₄
1999 CT ₄	12.8	0.15	19990211	254.73264	78.81524	215.12772	1.49700	0.2301486	2.9062627	6	1	6 days	1.59	E Williams	1999 CT ₄
1999 CU ₄	12.1	0.15	19990211	164.10076	191.16065	171.13489	22.11611	0.0576719	3.2065051	7	1	4 days	0.85	E Williams	1999 CU ₄
1999 CW ₄	14.6	0.15	19990211	321.93271	13.97496	200.56909	0.71875	0.1643270	2.3546009	7	1	4 days	0.47	E Williams	1999 CW ₄
1999 CX ₄	13.9	0.15	19990211	135.34745	330.16277	21.06619	2.08120	0.0941043	2.8986638	11	1	15 days	0.39	Williams	1999 CX ₄
1999 CY ₄	14.0	0.15	19990211	131.32581	236.13599	107.14579	9.63754	0.0902766	2.3884488	8	1	8 days	0.70	E Williams	1999 CY ₄
1999 CZ ₄	15.7	0.15	19990122	37.99296	329.62451	104.01217	4.94322	0.1660267	2.2925962	11	1	28 days	0.37	Williams	1999 CZ ₄
1999 CB ₅	15.1	0.15	19990211	23.56076	145.22394	315.00295	3.51604	0.1725292	3.0137623	14	1	10 days	0.63	Nakano	1999 CB ₅
1999 CC ₅	12.7	0.15	19990122	204.04923	180.74864	109.04415	16.02593	0.1746130	2.5794344	32	1	44 days	0.49	Williams	1999 CC ₅
1999 CD ₅	16.3	0.15	19990211	0.97053	69.14868	82.19127	4.74975	0.2033486	2.2782416	19	1	9 days	0.59	Nakano	1999 CD ₅
1999 CG ₅	15.7	0.15	19990211	302.89069	194.54437	358.76877	3.66764	0.0456660	2.2112029	11	1	10 days	0.29	Nakano	1999 CG ₅
1999 CH ₅	13.5	0.15	19990211	40.94969	99.34864	331.66696	8.26294	0.2042555	2.7977771	22	1	12 days	0.51	Nakano	1999 CH ₅
1999 CJ ₅	12.7	0.15	19990303	71.14843	55.60121	20.43596	10.30045	0.1537283	3.0369213	9	1	10 days	0.51	Nakano	1999 CJ ₅
1999 CK ₅	14.2	0.15	19990211	236.36712	274.49515	11.19332	12.89407	0.2153908	2.4486934	8	1	7 days	0.32	Nakano	1999 CK ₅
1999 CO ₅	14.3	0.15	19990211	4.34852	103.46527	23.13051	11.61662	0.2096050	2.6481936	13	1	10 days	0.12	Nakano	1999 CO ₅
1999 CP ₅	13.9	0.15	19990303	115.33930	25.02486	13.73709	8.58584	0.1252867	2.6585178	8	1	10 days	0.68	Nakano	1999 CP ₅
1999 CQ ₅	14.7	0.15	19990303	45.28991	87.05719	21.97470	6.61958	0.1208623	2.4196778	8	1	10 days	0.43	Nakano	1999 CQ ₅
1999 CR ₅	13.1	0.15	19990303	37.04900	103.44383	15.60178	9.23440	0.1157886	2.6950896	8	1	10 days	0.26	Nakano	1999 CR ₅
1999 CS ₅	12.8	0.15	19990303	131.83186	289.85126	95.33422	6.36969	0.1093844	2.4075998	8	1	10 days	0.38	Nakano	1999 CS ₅
1999 CT ₅	14.1	0.15	19990303	112.96614	284.79739	116.41850	5.71354	0.1274653	2.5500526	8	1	10 days	0.78	Nakano	1999 CT ₅
1999 CU ₅	13.2	0.15	19990303	3.75479	17.58166	143.82442	15.76591	0.1361494	2.5596615	8	1	10 days	0.27	Nakano	1999 CU ₅
1999 CV ₅	12.6	0.15	19990303	104.93721	41.06449	4.37881	14.57853	0.1426881	2.6075201	8	1	10 days	0.42	Nakano	1999 CV ₅
1999 CW ₅	13.2	0.15	19990303	41.96952	51.95403	53.80314	5.70838	0.1902973	2.5572527	8	1	10 days	0.27	Nakano	1999 CW ₅
1999 CX ₅	17.4	0.15	19990211	330.62230	221.28918	315.23022	20.71554	0.2695574	2.2438366	12	1	3 days	0.80	E Williams	1999 CX ₅
1999 CZ ₅	14.5	0.15	19990211	52.30550	94.16821	328.68276	19.16633	0.1307065	2.4402426	12	1	8 days	0.51	Williams	1999 CZ ₅
1999 CD ₆	16.9	0.15	19990211	197.92446	340.45766	318.55634	17.13080	0.0416791	1.9543957	12	1	8 days	0.46	Williams	1999 CD ₆
1999 CE ₆	15.6	0.15	19990211	115.68838	55.22624	320.89533	25.60230	0.0576257	2.6782663	11	1	3 days	0.79	E Williams	1999 CE ₆
1999 CF ₆	15.8	0.15	19990211	224.70167	307.27190	331.37967	26.78976	0.1191729	2.5417171	11	1	9 days	0.52	Williams	1999 CF ₆
1999 CG ₆	15.6	0.15	19990211	60.21038	290.16357	130.80773	24.50041	0.1749354	2.4692047	16	1	9 days	0.89	Williams	1999 CG ₆
1999 CH ₆	16.9	0.15	19990211	318.20184	220.72613	327.51620	14.51805	0.0470019	1.8357135	13	1	3 days	0.41	E Williams	1999 CH ₆
1999 CI ₆	15.4	0.15	19990211	259.60959	259.80401	356.05044	6.14071	0.1380125	2.2496942	16	1	8 days	0.66	Williams	1999 CI ₆
1999 CU ₆	16.6	0.15	19990211	307.20859	244.59093	332.86186	16.84290	0.2256019	2.6787773	10	1	8 days	0.71	Williams	1999 CU ₆
1999 CV ₆	17.3	0.15	19990211	33.08317	122.43090	329.19617	22.39712	0.1985798	2.2513585	14	1	8 days	0.60	Williams	1999 CV ₆
1999 CD ₇	16.6	0.15	19990211	26.28353	325.32914	136.75805	16.63638	0.2292781	2.7508498	11	1	3 days	0.76	E Williams	1999 CD ₇
1999 CE ₇	14.5	0.15	19990211	218.51310	150.93954	141.54034	19.55293	0.1003830	2.2737538	12	1	3 days	0.30	E Williams	1999 CE ₇
1999 CF ₇	15.0	0.15	19990211	38.97435	331.67030	124.27779	22.13987	0.0961650	2.5396873	13	1	8 days	0.36	Williams	1999 CF ₇
1999 CG ₇	14.8	0.15	19990211	17.26600	337.50162	146.69975	28.99738	0.1454558	2.5598449	13	1	3 days	0.44	E Williams	1999 CG ₇
1999 CH ₇	15.3	0.15	19990211	84.65510	53.32848	347.71303	24.05932	0.1877321	2.3480380	13	1	8 days	0.60	Williams	1999 CH ₇
1999 CI ₇	16.2	0.15	19990211	19.32050	125.40122	344.99139	14.74391	0.2878564	1.8331849	36	1	5 days	0.48	Williams	1999 CI ₇
1999 CY ₇	14.9	0.15	19990211	334.68892	203.19339	345.41460	26.47184	0.1899932	2.2672234	22	1	9 days	0.55	Williams	1999 CY ₇

1999 CZ ₇	14.1	0.15	19990211	279.89127	259.57715	346.52698	20.92618	0.2842983	2.3272661	12	1	7 days	0.56	Williams	1999 CZ ₇
1999 CA ₈	17.1	0.15	19990211	56.96624	262.18103	151.55803	14.53298	0.2701283	1.8307432	14	1	4 days	0.61	Williams	1999 CA ₈
1999 CB ₈	15.5	0.15	19990211	325.95999	245.84203	294.29080	1.83067	0.1492647	2.1608289	23	1	8 days	0.89	E Williams	1999 CB ₈
1999 CC ₈	14.6	0.15	19990211	144.65708	160.78533	165.33985	12.65473	0.1631412	2.9477057	12	1	4 days	0.61	Williams	1999 CC ₈
1999 CD ₈	16.4	0.15	19990211	59.21210	124.04149	313.62713	6.63917	0.1099285	2.3511676	18	1	6 days	0.97	Williams	1999 CD ₈
1999 CE ₈	15.3	0.15	19990211	33.02734	143.46425	318.52103	10.35774	0.1880394	3.2048329	16	1	5 days	0.88	Williams	1999 CE ₈
1999 CF ₈	16.0	0.15	19990211	45.45667	297.18736	143.90519	6.38339	0.0947395	2.3271095	12	1	6 days	0.31	E Williams	1999 CF ₈
1999 CH ₈	12.6	0.15	19990211	296.34985	136.87552	101.22250	12.65532	0.1517034	2.6394907	10	1	6 days	0.62	Nakano	1999 CH ₈
1999 CJ ₈	13.0	0.15	19990211	246.89509	147.06811	133.19566	10.14265	0.0320352	3.0082212	6	1	8 days	0.36	Nakano	1999 CJ ₈
1999 CK ₈	14.4	0.15	19990211	348.67011	113.51306	63.59380	2.77731	0.1153916	2.8603904	6	1	8 days	0.28	Nakano	1999 CK ₈
1999 CL ₈	14.2	0.15	19990211	348.32436	30.69140	147.15823	14.58828	0.1877747	2.6580949	10	1	10 days	0.35	Nakano	1999 CL ₈
1999 CM ₈	9.7	0.15	19990211	174.41183	308.17905	37.00045	16.35006	0.1604996	2.5041179	6	1	8 days	0.09	Nakano	1999 CM ₈
1999 CN ₈	12.4	0.15	19990211	49.66025	5.72391	100.65718	15.44523	0.0829710	2.5838560	6	1	8 days	0.21	Nakano	1999 CN ₈
1999 CO ₈	15.2	0.15	19990211	308.68973	117.06406	95.34816	3.65618	0.0801078	2.1861445	19	1	8 days	0.44	Williams	1999 CO ₈
1999 CP ₈	15.3	0.15	19990211	269.49319	328.53941	267.52516	2.08738	0.0506105	2.2127292	23	1	11 days	0.89	Williams	1999 CP ₈
1999 CQ ₈	15.3	0.15	19990122	277.85384	92.40964	140.28850	7.98768	0.1979925	2.2604782	17	1	25 days	0.59	Williams	1999 CQ ₈
1999 CR ₈	14.5	0.15	19990211	55.18800	278.58985	161.44815	5.19178	0.0421239	2.6796566	21	1	6 days	0.87	E Williams	1999 CR ₈
1999 CT ₈	18.4	0.15	19990211	73.47916	39.76977	337.24418	44.37446	0.3938142	1.2468703	16	1	6 days	1.10	Williams	1999 CT ₈
1999 CU ₈	17.8	0.15	19990211	307.10808	102.34858	109.92526	29.46781	0.2815339	1.8644086	19	1	4 days	0.66	Williams	1999 CU ₈
1999 CV ₈	19.2	0.15	19990211	55.29186	279.13098	132.12942	15.26226	0.3517926	1.2976220	48	1	14 days	0.74	Nakano	1999 CV ₈
1999 CW ₈	18.5	0.15	19990211	338.38405	261.98148	317.37811	33.56375	0.5967177	2.2228757	66	1	14 days	0.81	Williams	1999 CW ₈
1999 CX ₈	15.6	0.15	19990211	192.51334	287.51547	48.51733	4.59297	0.1149524	2.2655440	8	1	2 days	0.51	E Marsden	1999 CX ₈
1999 CZ ₈	15.6	0.15	19990122	308.00457	89.38047	98.32372	6.28381	0.1199820	2.2143548	38	1	40 days	0.60	Williams	1999 CZ ₈
1999 CA ₉	16.0	0.15	19990211	218.22168	151.07942	144.19640	0.74104	0.1609548	2.1876861	18	1	3 days	0.85	Williams	1999 CA ₉
1999 CB ₉	15.1	0.15	19990211	94.30088	349.16903	34.11091	3.99602	0.2305029	2.2776979	29	1	3 days	0.93	E Williams	1999 CB ₉
1999 CC ₉	15.1	0.15	19990211	241.80956	94.64945	208.02009	13.25467	0.2170867	2.5874806	8	1	7 days	0.35	Williams	1999 CC ₉
1999 CD ₉	16.4	0.15	19990211	6.90302	343.02561	157.07210	13.69012	0.0944541	2.6295182	19	1	5 days	1.08	Williams	1999 CD ₉
1999 CF ₉	17.9	0.15	19990211	324.74309	89.49272	157.65945	5.54568	0.5985363	1.7726828	114	1	15 days	0.48	Williams	1999 CF ₉
1999 CG ₉	25.2	0.15	19990122	25.72966	313.37197	139.10294	5.15191	0.0641157	1.0600800	37	1	8 days	0.70	M-v 6 Williams	1999 CG ₉
1999 CH ₉	15.1	0.15	19990122	57.70926	213.88092	191.49566	9.35224	0.1911082	2.4019806	17	1	32 days	0.78	Williams	1999 CH ₉
1999 CJ ₉	14.5	0.15	19990211	358.53700	91.18244	55.51120	1.62656	0.1533999	3.1539650	21	1	8 days	0.57	Williams	1999 CJ ₉
1999 CK ₉	15.1	0.15	19990211	325.47797	228.27154	313.67126	16.29404	0.1793817	3.0914084	12	1	7 days	0.57	Nakano	1999 CK ₉
1999 CL ₉	14.5	0.15	19990211	332.01398	171.39445	10.77232	11.67507	0.1531018	2.6646642	19	1	13 days	0.54	Nakano	1999 CL ₉
1999 CM ₉	14.7	0.15	19990211	313.40313	115.03269	85.08066	12.49104	0.0615121	2.9359176	10	1	6 days	0.50	Nakano	1999 CM ₉
1999 CN ₉	14.6	0.15	19990211	39.69096	66.09819	22.75868	8.63741	0.3014734	2.4816736	6	1	7 days	0.57	Nakano	1999 CN ₉
1999 CO ₉	13.4	0.15	19990211	215.25846	260.83735	45.99520	7.86102	0.0293046	2.2616430	6	1	7 days	0.17	Nakano	1999 CO ₉
1999 CP ₉	12.6	0.15	19990211	48.50393	89.99171	11.51884	16.57065	0.1159219	2.8940312	6	1	7 days	0.43	E Nakano	1999 CP ₉
1999 CQ ₉	14.0	0.15	19990211	349.52517	76.66025	97.93617	8.29657	0.1981377	2.5822025	6	1	7 days	0.28	Nakano	1999 CQ ₉
1999 CR ₉	15.7	0.15	19990211	265.92800	297.40022	328.83929	7.26894	0.1441878	2.2841013	8	1	9 days	0.18	Williams	1999 CR ₉
1999 CU ₉	14.3	0.15	19990211	175.09173	28.64783	323.62095	10.49275	0.2406164	2.4122570	7	1	8 days	0.44	Williams	1999 CU ₉
1999 CV ₉	15.1	0.15	19990211	285.25498	295.22894	328.80679	14.65618	0.1974331	2.5430989	10	1	8 days	0.43	Williams	1999 CV ₉
1999 CZ ₉	14.5	0.15	19990211	41.81918	167.90455	253.84519	8.68978	0.1639641	2.8313897	12	1	8 days	0.42	E Williams	1999 CZ ₉
1999 CA ₁₀	15.9	0.15	19990211	304.35040	115.62864	120.25656	2.87875	0.1032434	2.1380665	10	1	4 days	0.47	E Williams	1999 CA ₁₀
1999 CB ₁₀	13.6	0.15	19990211	3.58253	30.39650	134.46201	9.64934	0.1609177	2.3142139	6	1	7 days	0.36	Williams	1999 CB ₁₀
1999 CD ₁₀	13.4	0.15	19990211	22.45177	44.10328	114.45690	10.80749	0.0888713	2.8445681	6	1	7 days	0.39	Williams	1999 CD ₁₀
1999 CG ₁₀	13.5	0.15	19990211	4.31579	122.39707	38.90195	6.74816	0.0827602	2.6534448	6	1	6 days	0.18	Nakano	1999 CG ₁₀
1999 CH ₁₀	13.1	0.15	19990211	56.11444	354.76710	88.73822	4.10749	0.2478701	2.5945251	6	1	6 days	0.43	Nakano	1999 CH ₁₀
1999 CJ ₁₀	13.2	0.15	19990211	80.53010	69.75136	13.40927	13.45438	0.0301246	2.6229217	6	1	6 days	0.32	E Nakano	1999 CJ ₁₀
1999 CK ₁₀	13.4	0.15	19990211	65.54341	315.25361	123.30405	8.62459	0.1934978	2.3776969	6	1	6 days	0.21	Nakano	1999 CK ₁₀
1999 CN ₁₀	15.4	0.15	19990211	22.84264	333.20767	131.33510	0.69371	0.3037500	3.1557434	24	1	8 days	1.16	Williams	1999 CN ₁₀
1999 CV ₁₀	12.6	0.15	19990211	84.88653	237.86462	139.36741	37.10075	0.2865877	2.8701264	13	1	5 days	0.48	E Williams	1999 CV ₁₀
1999 CD ₁₂	14.5	0.15	19990211	12.16951	338.35701	156.41680	14.49179	0.1035119	2.3865686	17	1	8 days	0.70	Williams	1999 CD ₁₂
1999 CL ₁₂	13.5	0.15	19990211	80.04076	271.01563	149.06583	14.31575	0.0692588	3.1995771	11	1	8 days	1.92	E Williams	1999 CL ₁₂

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1999 CO ₁₂	15.8	0.15	19990211	37.50870	290.15479	172.55052	8.66727	0.0896496	2.2697072	18	1	6 days	0.39	Williams	1999 CO ₁₂
1999 CU ₁₂	16.2	0.15	19990211	19.34343	165.44726	310.96316	10.75931	0.2370778	2.6917298	18	1	6 days	0.51	Williams	1999 CU ₁₂
1999 CV ₁₂	17.2	0.15	19990211	359.01895	346.54451	162.48254	14.17497	0.0983810	2.4875253	12	1	4 days	0.33	Williams	1999 CV ₁₂
1999 CX ₁₂	15.3	0.15	19990211	337.39204	346.38490	187.60226	5.75621	0.0548872	2.7331185	19	1	5 days	0.63	E Williams	1999 CX ₁₂
1999 CY ₁₂	15.9	0.15	19990211	325.40281	2.67062	183.49054	6.90473	0.0373609	2.8075377	17	1	4 days	0.80	E Williams	1999 CY ₁₂
1999 CC ₁₃	16.0	0.15	19990211	48.14652	257.82450	184.80282	5.53931	0.1821067	2.5600100	21	1	5 days	0.81	E Williams	1999 CC ₁₃
1999 CG ₁₃	16.2	0.15	19990211	76.60797	247.17375	176.15425	7.42800	0.0808858	2.3847337	14	1	4 days	0.64	E Williams	1999 CG ₁₃
1999 CP ₁₃	17.0	0.15	19990211	245.78892	325.77517	301.07882	5.30765	0.0210267	2.3311652	9	1	2 days	0.21	E Williams	1999 CP ₁₃
1999 CQ ₁₃	16.8	0.15	19990211	15.50542	186.99220	302.17958	5.15706	0.1564476	2.5973909	18	1	4 days	0.72	E Williams	1999 CQ ₁₃
1999 CR ₁₃	15.1	0.15	19990211	279.26754	84.29795	180.42558	5.71378	0.2887738	2.4232384	15	1	4 days	0.56	E Williams	1999 CR ₁₃
1999 CZ ₁₃	13.1	0.15	19990122	339.43092	115.68447	59.84458	9.37988	0.2621401	3.7527062	83	1	52 days	0.53	Williams	1999 CZ ₁₃
1999 CB ₁₄	13.5	0.15	19990211	25.77053	339.67461	135.63861	10.56462	0.0667671	3.0595473	21	1	10 days	0.69	Williams	1999 CB ₁₄
1999 CC ₁₄	14.8	0.15	19990211	77.93109	46.58350	347.37138	4.03939	0.2846785	2.5749668	19	1	12 days	0.61	Nakano	1999 CC ₁₄
1999 CD ₁₄	16.7	0.15	19990211	21.82578	97.81767	16.52653	1.51704	0.1507257	2.2266284	21	1	12 days	0.77	Williams	1999 CD ₁₄
1999 CF ₁₄	14.3	0.15	19990211	322.78050	56.79505	176.16801	19.71812	0.2370831	2.6723834	10	1	6 days	0.73	Williams	1999 CF ₁₄
1999 CG ₁₄	12.6	0.15	19990211	273.97036	98.16802	177.24760	10.06569	0.0647034	3.0406370	11	1	11 days	0.65	Williams	1999 CG ₁₄
1999 CH ₁₄	14.0	0.15	19990211	99.69569	64.95664	356.83732	5.16861	0.1419962	2.2263570	12	1	11 days	1.08	Williams	1999 CH ₁₄
1999 CJ ₁₄	13.2	0.15	19990211	331.39417	36.91980	180.13179	17.55716	0.1540825	2.8934612	13	1	11 days	0.62	Williams	1999 CJ ₁₄
1999 CK ₁₄	13.6	0.15	19990211	308.53435	250.79902	315.63747	7.58886	0.1507891	3.1150551	15	1	7 days	0.95	E Williams	1999 CK ₁₄
1999 CN ₁₄	14.7	0.15	19990211	330.86470	36.66236	153.52820	13.60459	0.1357750	2.6224634	17	1	8 days	0.57	Williams	1999 CN ₁₄
1999 CQ ₁₄	13.7	0.15	19990211	18.48440	326.74936	163.96975	13.84149	0.1000381	2.5955287	13	1	6 days	0.62	Williams	1999 CQ ₁₄
1999 CS ₁₄	13.0	0.15	19990211	247.85322	89.68371	214.56453	1.77194	0.2274426	2.8277850	7	1	8 days	0.73	E Williams	1999 CS ₁₄
1999 CT ₁₄	14.0	0.15	19990211	30.18187	321.49330	165.83557	13.13836	0.1181253	2.4203899	7	1	8 days	0.33	Williams	1999 CT ₁₄
1999 CU ₁₄	13.2	0.15	19990211	239.23614	140.51030	166.42142	5.02796	0.1831654	2.7106399	8	1	8 days	0.88	Williams	1999 CU ₁₄
1999 CV ₁₄	13.0	0.15	19990211	40.43667	306.67070	170.80579	16.08388	0.1384949	3.1064834	9	1	8 days	0.30	Williams	1999 CV ₁₄
1999 CW ₁₄	15.0	0.15	19990211	331.87030	31.40433	171.87700	2.58490	0.1593715	2.4336998	8	1	8 days	0.79	Williams	1999 CW ₁₄
1999 CX ₁₄	13.8	0.15	19990211	148.42324	24.72099	348.66426	4.74523	0.1305530	2.3242371	8	1	8 days	0.58	Williams	1999 CX ₁₄
1999 CY ₁₄	13.7	0.15	19990211	7.67000	11.89733	145.99250	3.66682	0.0775491	2.7879761	6	1	8 days	0.30	Williams	1999 CY ₁₄
1999 CT ₁₅	17.1	0.15	19990122	6.36627	137.06405	341.93724	34.79497	0.3103707	2.5865206	13	1	26 days	0.63	Williams	1999 CT ₁₅
1999 CG ₁₆	14.5	0.15	19990211	288.90373	264.09325	321.15347	6.69959	0.2230013	2.7380964	10	1	8 days	0.63	Williams	1999 CG ₁₆
1999 CK ₁₆	13.8	0.15	19990211	47.10699	245.99279	211.10446	1.33433	0.0609663	2.8833217	14	1	12 days	0.80	Williams	1999 CK ₁₆
1999 CL ₁₆	14.0	0.15	19990211	40.55804	288.19787	151.74143	23.65619	0.2925062	3.1891931	8	1	12 days	0.27	Williams	1999 CL ₁₆
1999 CM ₁₆	13.7	0.15	19990122	272.26176	71.76163	166.54978	5.58617	0.0535267	2.5514960	18	1	34 days	0.44	Williams	1999 CM ₁₆
1999 CN ₁₆	13.8	0.15	19990211	281.54199	270.99990	357.89250	14.29163	0.1053604	2.6350612	9	1	11 days	0.95	Williams	1999 CN ₁₆
1999 CO ₁₆	14.2	0.15	19990122	187.04996	280.50641	27.66725	2.17816	0.0270550	2.9484392	21	1	37 days	0.51	Williams	1999 CO ₁₆
1999 CP ₁₆	14.0	0.15	19990211	294.40646	241.54329	329.64088	13.02199	0.0634297	2.6368251	14	1	9 days	0.58	Williams	1999 CP ₁₆
1999 CT ₁₆	14.1	0.15	19990211	82.07944	289.63487	90.04956	17.25714	0.1803406	2.6187174	13	1	9 days	0.92	E Williams	1999 CT ₁₆
1999 CU ₁₆	14.7	0.15	19990211	293.37839	229.92561	329.95755	10.50403	0.0976062	2.7839879	10	1	3 days	0.84	E Williams	1999 CU ₁₆
1999 CX ₁₆	14.1	0.15	19990211	102.65129	357.29914	13.93853	10.75431	0.0698663	3.0253773	13	1	3 days	1.01	E Williams	1999 CX ₁₆
1999 CY ₁₆	14.9	0.15	19990211	67.38145	344.14282	51.65803	8.78964	0.1931815	2.4503380	12	1	3 days	0.61	E Williams	1999 CY ₁₆
1999 CM ₁₇	14.3	0.15	19990211	337.71623	170.68662	345.73633	11.34197	0.1803568	3.2600111	12	1	3 days	0.83	E Williams	1999 CM ₁₇
1999 CQ ₁₇	15.2	0.15	19990211	57.40896	2.52790	48.93419	9.81112	0.1472480	2.7369879	13	1	3 days	1.05	E Williams	1999 CQ ₁₇
1999 CT ₁₇	14.1	0.15	19990211	152.87238	349.89764	332.20320	12.79308	0.2156680	2.6059540	11	1	3 days	0.86	E Williams	1999 CT ₁₇
1999 CY ₁₇	15.0	0.15	19990122	156.15189	233.68674	87.18973	7.17151	0.1665992	2.2319706	15	1	27 days	0.61	Williams	1999 CY ₁₇
1999 CE ₁₈	15.6	0.15	19990122	50.00847	346.22609	57.27866	10.63399	0.2637005	2.3359903	11	1	21 days	1.03	Marsden	1999 CE ₁₈
1999 CJ ₁₈	14.0	0.15	19990211	59.52481	343.61237	75.10934	11.21017	0.0941827	2.9786558	13	1	9 days	0.49	Williams	1999 CJ ₁₈
1999 CA ₁₉	14.2	0.15	19990211	159.71812	234.34157	90.43058	12.12485	0.1022879	3.0215282	11	1	9 days	0.76	E Williams	1999 CA ₁₉
1999 CC ₁₉	15.6	0.15	19990122	357.28180	14.18340	114.40864	13.24563	0.1241741	2.3992026	16	1	28 days	0.41	Williams	1999 CC ₁₉
1999 CG ₁₉	15.1	0.15	19990211	304.61730	257.46007	316.55553	2.01391	0.2576201	2.5643798	13	1	3 days	0.63	E Williams	1999 CG ₁₉
1999 CH ₁₉	15.6	0.15	19990211	284.91547	89.21461	119.57197	3.68827	0.0160058	2.3460740	13	1	9 days	0.71	E Williams	1999 CH ₁₉
1999 CJ ₁₉	15.5	0.15	19990211	308.13642	219.99712	351.92463	1.88904	0.2604652	2.3806736	13	1	3 days	0.38	E Williams	1999 CJ ₁₉
1999 CK ₁₉	15.0	0.15	19990122	168.10303	344.15708	331.26525	4.13978	0.1400929	2.3815863	15	1	22 days	0.67	Williams	1999 CK ₁₉
1999 CN ₁₉	12.3	0.15	19990211	131.80944	211.95531	130.89318	22.43628	0.2203191	3.1153815	13	1	3 days	0.30	E Williams	1999 CN ₁₉

1999 CQ ₁₉	15.9	0.15	19990211	78.16612	326.84776	68.89880	0.28946	0.1649593	2.4442523	13	1	8 days	0.74	E Williams	1999 CQ ₁₉
1999 CS ₁₉	14.6	0.15	19990211	283.37139	269.42052	314.67070	8.77343	0.1289236	3.1282994	13	1	3 days	0.50	E Williams	1999 CS ₁₉
1999 CV ₁₉	14.9	0.15	19990211	126.89231	31.71353	321.55789	7.67105	0.1659806	2.2508922	13	1	8 days	0.40	Williams	1999 CV ₁₉
1999 CW ₁₉	15.3	0.15	19990211	71.14307	298.72236	103.95298	3.53999	0.1707789	2.5899923	13	1	8 days	0.60	E Williams	1999 CW ₁₉
1999 CX ₁₉	13.8	0.15	19990211	263.05365	136.33824	116.15114	11.13565	0.2242439	3.1268411	16	1	8 days	0.48	E Williams	1999 CX ₁₉
1999 CY ₁₉	14.4	0.15	19990211	311.86477	69.93155	116.06429	10.02084	0.0624360	3.0660672	13	1	8 days	0.72	E Williams	1999 CY ₁₉
1999 CR ₂₀	14.1	0.15	19990122	28.75394	21.86764	70.51695	4.85629	0.0966370	2.7513943	13	1	22 days	0.32	Williams	1999 CR ₂₀
1999 CU ₂₀	14.4	0.15	19990211	195.29447	334.58874	325.28398	14.09140	0.1181608	2.6015800	13	1	8 days	0.65	E Williams	1999 CU ₂₀
1999 CV ₂₀	15.1	0.15	19990211	237.07103	285.41228	340.40852	5.46677	0.1075283	2.3731080	16	1	8 days	0.42	Williams	1999 CV ₂₀
1999 CB ₂₁	13.8	0.15	19990122	349.63711	49.68235	93.09701	2.65294	0.1017750	3.1311429	13	1	34 days	0.30	Williams	1999 CB ₂₁
1999 CF ₂₁	14.5	0.15	19990122	311.43788	234.72776	312.60234	12.58048	0.1041592	2.6272163	16	1	21 days	0.68	D Williams	1999 CF ₂₁
1999 CG ₂₁	17.0	0.15	19990122	10.22778	156.14696	321.37136	1.03447	0.0454932	2.2222654	16	1	35 days	0.52	Williams	1999 CG ₂₁
1999 CH ₂₁	15.6	0.15	19990211	330.04418	224.25432	314.45111	6.44124	0.1983414	3.1847183	10	1	8 days	0.70	Williams	1999 CH ₂₁
1999 CJ ₂₁	15.2	0.15	19990211	120.16450	30.41869	325.65287	2.41537	0.2101375	2.6589040	13	1	8 days	0.90	E Williams	1999 CJ ₂₁
1999 CN ₂₁	15.9	0.15	19990211	350.84659	133.31389	13.81134	2.53740	0.1207008	2.3804234	13	1	3 days	0.58	E Williams	1999 CN ₂₁
1999 CO ₂₁	15.3	0.15	19990211	322.77568	117.93279	65.94183	2.69506	0.1439242	2.9732616	12	1	3 days	0.75	E Williams	1999 CO ₂₁
1999 CQ ₂₁	15.0	0.15	19990211	279.36978	245.07704	349.52001	5.90440	0.1715896	2.5416227	12	1	3 days	0.67	E Williams	1999 CQ ₂₁
1999 CT ₂₁	14.6	0.15	19990211	285.60411	115.99747	105.67615	7.11284	0.1108524	2.5211997	13	1	3 days	0.44	E Williams	1999 CT ₂₁
1999 CO ₂₂	15.3	0.15	19990122	14.85953	351.24000	117.01656	18.61766	0.1646599	3.1148289	10	1	22 days	0.69	Williams	1999 CO ₂₂
1999 CR ₂₂	16.1	0.15	19990211	342.07985	73.91348	84.73805	6.59608	0.1466257	2.9989145	11	1	8 days	0.69	Williams	1999 CR ₂₂
1999 CV ₂₂	16.5	0.15	19990211	357.65965	169.26321	329.26678	10.86683	0.1476385	2.5978912	11	1	3 days	0.64	E Williams	1999 CV ₂₂
1999 CW ₂₂	15.7	0.15	19990122	351.45073	59.77143	79.26547	3.44983	0.0798155	2.2257431	16	1	22 days	0.49	Williams	1999 CW ₂₂
1999 CZ ₂₂	15.1	0.15	19990211	218.22031	191.57750	92.19468	5.34254	0.1071106	2.4230151	12	1	3 days	0.47	E Williams	1999 CZ ₂₂
1999 CC ₂₃	15.5	0.15	19990122	8.12889	5.68576	116.40801	4.21320	0.0501299	2.6573468	13	1	30 days	0.59	Williams	1999 CC ₂₃
1999 CD ₂₃	14.8	0.15	19990211	312.25615	247.02259	324.18586	7.99317	0.2626290	2.8913825	13	1	3 days	0.45	E Williams	1999 CD ₂₃
1999 CG ₂₃	15.7	0.15	19990211	343.62358	141.81297	16.69389	1.35129	0.1317734	2.3487078	13	1	3 days	0.80	E Williams	1999 CG ₂₃
1999 CJ ₂₃	16.3	0.15	19990211	297.21182	254.00396	320.96932	4.75623	0.1484663	2.7065227	11	1	3 days	0.91	E Williams	1999 CJ ₂₃
1999 CM ₂₃	14.8	0.15	19990122	292.47464	224.73169	344.08192	1.45635	0.0851317	2.9751247	16	1	30 days	0.47	Williams	1999 CM ₂₃
1999 CO ₂₃	15.4	0.15	19990211	33.00492	26.16220	68.13311	1.82323	0.1225945	3.1995779	12	1	3 days	0.43	E Williams	1999 CO ₂₃
1999 CR ₂₃	15.3	0.15	19990211	172.99725	355.91497	325.00366	7.85928	0.2204531	2.3581078	12	1	3 days	0.68	E Williams	1999 CR ₂₃
1999 CS ₂₃	13.7	0.15	19990211	283.85020	105.09187	127.51801	10.24094	0.1723222	3.1617231	13	1	3 days	0.62	E Williams	1999 CS ₂₃
1999 CV ₂₃	16.3	0.15	19990211	345.44560	162.43906	2.41857	0.64844	0.2817131	2.7489629	13	1	3 days	0.52	E Williams	1999 CV ₂₃
1999 CX ₂₃	15.2	0.15	19990211	75.97248	273.10306	127.40333	5.34466	0.1861295	2.4757778	11	1	3 days	0.81	E Williams	1999 CX ₂₃
1999 CZ ₂₃	14.9	0.15	19990211	70.66956	268.44682	137.17983	9.80810	0.1793339	3.1188415	12	1	3 days	0.68	E Williams	1999 CZ ₂₃
1999 CD ₂₄	16.9	0.15	19990211	36.31757	317.68356	126.74158	3.64122	0.2198903	2.3087633	13	1	3 days	0.77	E Williams	1999 CD ₂₄
1999 CG ₂₄	16.6	0.15	19990211	34.87803	95.81515	0.89827	2.53379	0.0941479	2.1530418	12	1	3 days	0.49	E Williams	1999 CG ₂₄
1999 CL ₂₄	14.8	0.15	19990211	104.39538	250.96150	115.08259	10.26495	0.2600515	2.3895652	19	1	12 days	0.62	Williams	1999 CL ₂₄
1999 CO ₂₄	14.1	0.15	19990211	296.80424	128.98169	81.82667	7.18101	0.1191154	2.7225251	11	1	8 days	0.39	Williams	1999 CO ₂₄
1999 CQ ₂₄	15.0	0.15	19990211	47.58022	354.19981	83.45719	6.23135	0.1169622	2.2305529	13	1	8 days	0.28	Williams	1999 CQ ₂₄
1999 CZ ₂₄	15.6	0.15	19990211	5.17406	34.71589	95.01116	14.08612	0.1300688	2.6463825	12	1	8 days	0.66	Williams	1999 CZ ₂₄
1999 CC ₂₅	16.5	0.15	19990211	301.29921	153.30484	62.25783	6.21596	0.1922422	2.3556433	12	1	9 days	0.55	Williams	1999 CC ₂₅
1999 CH ₂₅	16.7	0.15	19990122	340.74983	97.13735	59.50015	3.21635	0.1528003	2.3957247	16	1	22 days	0.52	Williams	1999 CH ₂₅
1999 CK ₂₅	16.1	0.15	19990122	14.50747	79.09022	33.89916	3.64832	0.1107815	2.4760121	13	1	22 days	0.66	Williams	1999 CK ₂₅
1999 CU ₂₅	14.0	0.15	19990211	71.87088	336.10439	83.87009	3.03564	0.0568548	2.8864038	16	1	9 days	0.34	E Williams	1999 CU ₂₅
1999 CW ₂₅	14.3	0.15	19990211	177.54601	343.58963	336.15352	8.59583	0.1018072	3.1718586	12	1	9 days	0.59	E Williams	1999 CW ₂₅
1999 CX ₂₅	14.5	0.15	19990122	349.46878	18.66280	126.99089	10.57675	0.0376827	3.0472919	19	1	37 days	0.62	Williams	1999 CX ₂₅
1999 CY ₂₅	15.1	0.15	19990211	251.98640	162.50197	100.66421	2.98661	0.1615475	2.4732530	16	1	9 days	0.56	E Williams	1999 CY ₂₅
1999 CB ₂₆	15.8	0.15	19990211	65.46183	270.04815	138.69944	2.35317	0.2177983	2.5619275	13	1	3 days	0.82	E Williams	1999 CB ₂₆
1999 CL ₂₆	15.7	0.15	19990211	14.78681	146.25058	328.78154	8.16712	0.2514943	2.9755150	13	1	3 days	0.65	E Williams	1999 CL ₂₆
1999 CQ ₂₆	17.5	0.15	19990211	339.02978	69.29675	108.93014	3.34571	0.2817856	2.5691048	12	1	3 days	0.60	E Williams	1999 CQ ₂₆
1999 CR ₂₆	15.2	0.15	19990211	320.00606	119.88062	65.56170	2.98540	0.0693120	2.8474931	11	1	8 days	0.95	E Williams	1999 CR ₂₆
1999 CS ₂₆	15.8	0.15	19990211	320.26921	110.33480	80.04767	3.37451	0.1344234	2.4136797	16	1	9 days	0.50	Williams	1999 CS ₂₆
1999 CV ₂₆	14.6	0.15	19990211	331.11576	66.18470	121.62783	8.90804	0.2532378	2.6404929	13	1	3 days	0.49	E Williams	1999 CV ₂₆

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1999 CW ₂₆	17.3	0.15	19990211	345.94346	117.97663	42.77793	2.67722	0.1881734	2.3877406	12	1	3 days	0.76	E Williams	1999 CW ₂₆
1999 CC ₂₇	16.0	0.15	19990211	326.57330	122.26716	72.27136	4.09379	0.2657081	2.7750707	12	1	3 days	0.85	E Williams	1999 CC ₂₇
1999 CJ ₂₇	15.3	0.15	19990211	57.36499	353.01634	56.23192	6.15164	0.2678200	2.6289693	13	1	9 days	0.35	Williams	1999 CJ ₂₇
1999 CM ₂₇	17.3	0.15	19990211	27.02760	47.42883	56.98953	5.38621	0.1073865	2.2263553	12	1	9 days	0.37	Williams	1999 CM ₂₇
1999 CN ₂₇	15.3	0.15	19990211	109.32291	351.76507	22.26948	6.96080	0.1243878	2.3063102	13	1	8 days	0.37	Williams	1999 CN ₂₇
1999 CS ₂₇	15.6	0.15	19990211	270.04443	137.27238	97.01546	17.05694	0.0671607	2.5510374	13	1	8 days	0.66	Williams	1999 CS ₂₇
1999 CZ ₂₇	14.0	0.15	19990211	334.88622	83.03734	83.69940	13.88070	0.0825868	2.8418212	13	1	9 days	0.49	Williams	1999 CZ ₂₇
1999 CK ₂₈	13.9	0.15	19990211	82.10943	289.02123	123.20953	21.21679	0.0432101	3.1873456	13	1	9 days	0.69	E Williams	1999 CK ₂₈
1999 CL ₂₈	14.3	0.15	19990211	79.96022	294.51298	111.66241	10.60044	0.1122643	3.1299538	11	1	3 days	0.73	E Williams	1999 CL ₂₈
1999 CM ₂₈	16.4	0.15	19990211	355.65770	80.16892	66.05249	4.20561	0.1969436	2.5445392	12	1	3 days	0.68	E Williams	1999 CM ₂₈
1999 CO ₂₈	16.5	0.15	19990211	355.22639	104.15196	42.04120	2.71136	0.1202099	2.6189511	12	1	9 days	0.50	Williams	1999 CO ₂₈
1999 CP ₂₈	14.8	0.15	19990211	182.10301	325.83621	352.07978	6.44763	0.0826954	2.7747810	10	1	8 days	0.47	Williams	1999 CP ₂₈
1999 CR ₂₈	15.7	0.15	19990211	14.85896	145.80629	335.14797	10.40546	0.1218754	3.0678295	12	1	9 days	0.51	Williams	1999 CR ₂₈
1999 CT ₂₈	15.8	0.15	19990211	113.19223	241.03736	127.32840	7.74044	0.2097402	2.3411178	11	1	8 days	0.60	Williams	1999 CT ₂₈
1999 CU ₂₈	14.7	0.15	19990211	17.91794	138.09354	333.93764	8.21276	0.2356061	2.7156349	16	1	8 days	0.34	Williams	1999 CU ₂₈
1999 CV ₂₈	15.3	0.15	19990211	350.53254	185.76683	327.62308	7.96331	0.1257557	3.0728113	12	1	8 days	1.27	E Williams	1999 CV ₂₈
1999 CX ₂₈	15.7	0.15	19990211	332.79321	264.11053	276.78789	0.66495	0.1840492	3.1994201	12	1	3 days	0.79	E Williams	1999 CX ₂₈
1999 CY ₂₈	18.4	0.15	19990211	357.04370	356.33818	149.66612	1.62225	0.1716399	2.1066572	11	1	3 days	0.99	E Williams	1999 CY ₂₈
1999 CF ₂₉	16.3	0.15	19990211	290.02286	250.12278	334.01527	7.26710	0.1091475	2.3089721	12	1	3 days	0.76	E Williams	1999 CF ₂₉
1999 CT ₂₉	13.2	0.15	19990122	192.38060	345.27245	326.07944	12.72630	0.1757291	2.6614379	13	1	31 days	0.23	Williams	1999 CT ₂₉
1999 CV ₂₉	14.0	0.15	19990211	297.19625	91.98673	140.67049	12.89839	0.2278448	3.8979538	11	1	3 days	0.90	E Williams	1999 CV ₂₉
1999 CX ₂₉	15.7	0.15	19990211	33.96303	308.32998	140.68295	4.47221	0.2469714	2.7494002	13	1	3 days	0.60	E Williams	1999 CX ₂₉
1999 CY ₂₉	14.8	0.15	19990211	74.21817	75.58573	340.06249	4.48793	0.1141827	2.4339187	11	1	3 days	0.71	E Williams	1999 CY ₂₉
1999 CC ₃₀	17.0	0.15	19990211	326.74684	80.97639	106.34792	1.47094	0.1476073	2.1045412	13	1	3 days	0.61	E Williams	1999 CC ₃₀
1999 CE ₃₀	14.9	0.15	19990211	274.37641	252.39758	1.43216	2.16285	0.2161694	2.4279718	13	1	3 days	0.39	E Williams	1999 CE ₃₀
1999 CK ₃₀	17.9	0.15	19990211	34.19311	1.42492	89.79019	1.51334	0.2104950	2.2265251	11	1	3 days	0.59	E Williams	1999 CK ₃₀
1999 CN ₃₀	14.2	0.15	19990211	265.38048	113.58676	129.01919	8.63200	0.0418065	3.2302854	12	1	3 days	0.71	E Williams	1999 CN ₃₀
1999 CO ₃₀	17.6	0.15	19990211	35.87985	68.80761	18.44840	1.86753	0.2290961	2.2750950	12	1	3 days	0.86	E Williams	1999 CO ₃₀
1999 CP ₃₀	17.5	0.15	19990211	26.76970	4.33641	89.36122	2.26869	0.2994076	2.6938956	11	1	3 days	1.04	E Williams	1999 CP ₃₀
1999 CS ₃₀	15.5	0.15	19990211	225.88604	303.94254	338.57832	7.56083	0.0868898	2.4457047	12	1	8 days	0.64	Williams	1999 CS ₃₀
1999 CT ₃₀	13.7	0.15	19990211	14.29970	131.44918	348.02631	5.66654	0.2121022	3.2194824	13	1	3 days	0.44	E Williams	1999 CT ₃₀
1999 CZ ₃₀	14.1	0.15	19990211	134.81407	257.51045	91.17898	3.59677	0.2995238	2.3424632	12	1	3 days	0.62	E Williams	1999 CZ ₃₀
1999 CA ₃₁	14.3	0.15	19990211	276.77843	183.99329	69.76267	3.09931	0.2471350	3.2355095	11	1	3 days	0.85	E Williams	1999 CA ₃₁
1999 CD ₃₁	15.7	0.15	19990211	85.67320	58.29410	338.26984	10.72490	0.1679399	2.5849363	11	1	8 days	0.67	Williams	1999 CD ₃₁
1999 CE ₃₁	16.1	0.15	19990211	36.24448	355.42325	95.63801	3.21792	0.1786359	2.3676984	15	1	8 days	0.50	Williams	1999 CE ₃₁
1999 CF ₃₁	14.4	0.15	19990211	186.08213	324.86376	352.14321	6.37779	0.1135466	2.6054619	13	1	3 days	0.95	E Williams	1999 CF ₃₁
1999 CH ₃₁	17.3	0.15	19990211	10.85710	79.19028	45.02736	3.11781	0.2096130	2.5214258	12	1	3 days	0.72	E Williams	1999 CH ₃₁
1999 CJ ₃₁	16.6	0.15	19990211	59.03700	68.79445	4.89665	4.45005	0.0845576	2.3193088	15	1	8 days	0.62	Williams	1999 CJ ₃₁
1999 CK ₃₁	16.2	0.15	19990211	25.01710	19.01981	84.44244	4.60387	0.1925227	2.7227813	15	1	8 days	0.58	Williams	1999 CK ₃₁
1999 CO ₃₁	15.1	0.15	19990211	304.71774	130.18923	82.42533	5.30622	0.1622967	2.3407082	13	1	8 days	0.49	Williams	1999 CO ₃₁
1999 CP ₃₁	14.9	0.15	19990211	53.71845	339.45132	91.15220	6.28548	0.1563292	2.6870261	13	1	8 days	0.34	Williams	1999 CP ₃₁
1999 CC ₃₂	14.3	0.15	19990211	283.08621	225.32165	23.36695	9.30099	0.2764648	2.3079958	33	1	12 days	0.51	Williams	1999 CC ₃₂
1999 CJ ₃₂	13.7	0.15	19990211	311.30790	82.65491	121.50206	18.11790	0.1497612	3.1899148	13	1	8 days	0.33	Williams	1999 CJ ₃₂
1999 CK ₃₂	13.8	0.15	19990211	253.92967	133.58305	114.15933	13.74632	0.0084752	3.1063156	15	1	8 days	0.38	E Williams	1999 CK ₃₂
1999 CM ₃₂	15.7	0.15	19990211	259.24531	242.05480	17.22506	5.59817	0.1690069	2.2583901	15	1	8 days	0.63	Williams	1999 CM ₃₂
1999 CN ₃₂	14.4	0.15	19990211	191.42534	207.59510	104.10237	10.28985	0.0807078	3.0673575	16	1	8 days	0.71	Williams	1999 CN ₃₂
1999 CO ₃₂	15.2	0.15	19990211	256.10500	210.28843	53.00310	4.89874	0.1736850	2.2556180	13	1	8 days	0.37	Williams	1999 CO ₃₂
1999 CQ ₃₂	14.6	0.15	19990211	345.99340	164.94868	352.26058	9.26090	0.0584122	2.9810308	16	1	9 days	0.42	Williams	1999 CQ ₃₂
1999 CR ₃₂	16.0	0.15	19990211	11.89367	13.52145	114.40983	7.02517	0.0842257	2.3040342	13	1	3 days	0.54	E Williams	1999 CR ₃₂
1999 CS ₃₂	16.1	0.15	19990211	249.73573	163.47311	108.64712	6.79796	0.2034577	2.2652886	13	1	3 days	0.61	E Williams	1999 CS ₃₂
1999 CV ₃₂	15.4	0.15	19990211	67.83234	346.96017	72.36241	3.19487	0.1333381	2.3727680	13	1	3 days	0.44	E Williams	1999 CV ₃₂
1999 CW ₃₂	15.4	0.15	19990211	355.88037	21.52206	127.95012	11.82385	0.2046241	3.0523990	12	1	3 days	0.49	E Williams	1999 CW ₃₂
1999 CX ₃₂	15.8	0.15	19990211	321.51417	207.13218	345.48863	7.85054	0.1417570	2.2765336	13	1	3 days	0.42	E Williams	1999 CX ₃₂

1999 CY ₃₂	16.9	0.15	19990211	29.25410	64.04039	33.55476	2.25464	0.2171186	2.4613605	12	1	3 days	0.77	E Williams	1999 CY ₃₂
1999 CA ₃₃	16.6	0.15	19990211	336.42790	119.99191	59.33683	2.49893	0.2133037	2.8488294	12	1	3 days	0.90	E Williams	1999 CA ₃₃
1999 CC ₃₃	16.1	0.15	19990211	272.16620	235.70461	6.98514	3.35493	0.1037342	2.1667707	13	1	3 days	0.69	E Williams	1999 CC ₃₃
1999 CD ₃₃	15.0	0.15	19990122	234.00206	299.07234	343.51690	7.30431	0.2174146	2.4409383	14	1	31 days	0.76	Williams	1999 CD ₃₃
1999 CE ₃₃	15.8	0.15	19990211	322.02899	95.94558	99.31402	3.76882	0.1697164	2.3690906	13	1	3 days	0.38	E Williams	1999 CE ₃₃
1999 CG ₃₃	15.7	0.15	19990211	1.48412	102.18824	39.98720	2.26780	0.1002237	2.9265022	12	1	3 days	0.74	E Williams	1999 CG ₃₃
1999 CK ₃₃	16.3	0.15	19990211	24.14949	125.28398	345.66761	4.06904	0.1575723	2.2767927	13	1	3 days	0.56	E Williams	1999 CK ₃₃
1999 CP ₃₃	15.8	0.15	19990211	302.77888	250.95259	326.15092	0.14580	0.1544333	2.4585438	13	1	3 days	0.29	E Williams	1999 CP ₃₃
1999 CR ₃₃	16.9	0.15	19990211	19.84044	158.32876	316.55607	1.67524	0.1836723	2.4367386	12	1	3 days	0.77	E Williams	1999 CR ₃₃
1999 CT ₃₃	15.9	0.15	19990211	32.66204	307.14016	141.54902	3.46870	0.2680247	2.3376535	13	1	3 days	0.43	E Williams	1999 CT ₃₃
1999 CX ₃₃	14.9	0.15	19990211	272.37203	282.27071	323.47044	2.64959	0.1148088	2.9912990	12	1	3 days	0.52	E Williams	1999 CX ₃₃
1999 CH ₃₄	15.7	0.15	19990211	323.59059	83.93718	119.87617	2.03518	0.2499544	3.1992614	13	1	3 days	0.88	E Williams	1999 CH ₃₄
1999 CK ₃₄	16.5	0.15	19990122	35.86506	120.21143	336.13765	4.40499	0.0824440	2.2144863	14	1	22 days	0.44	Williams	1999 CK ₃₄
1999 CN ₃₄	16.8	0.15	19990211	340.56569	108.06346	62.49265	1.40371	0.1403999	2.3529254	12	1	3 days	0.73	E Williams	1999 CN ₃₄
1999 CU ₃₄	16.5	0.15	19990211	33.30102	93.65137	5.18576	3.23232	0.1643060	2.3124581	13	1	3 days	0.74	E Williams	1999 CU ₃₄
1999 CY ₃₄	14.7	0.15	19990211	120.97376	275.68515	84.75299	3.94478	0.2765986	2.3265106	11	1	3 days	0.62	E Williams	1999 CY ₃₄
1999 CE ₃₅	16.0	0.15	19990211	333.28396	84.40474	96.08929	5.16616	0.1766565	2.2133468	13	1	3 days	0.51	E Williams	1999 CE ₃₅
1999 CF ₃₅	14.2	0.15	19990211	94.11858	29.50923	0.86209	9.53366	0.1490935	3.1137470	15	1	8 days	0.35	Williams	1999 CF ₃₅
1999 CG ₃₅	15.5	0.15	19990211	209.86819	205.70807	95.06500	8.26463	0.1769299	2.5601515	11	1	8 days	0.74	Williams	1999 CG ₃₅
1999 CJ ₃₅	13.4	0.15	19990211	184.67933	315.56812	1.50473	10.30138	0.0864195	3.0110542	13	1	8 days	0.51	Williams	1999 CJ ₃₅
1999 CN ₃₅	15.5	0.15	19990211	19.98003	354.93120	115.71848	14.43094	0.2254534	2.6045185	12	1	8 days	0.49	Williams	1999 CN ₃₅
1999 CB ₃₆	15.0	0.15	19990211	259.57000	230.71914	32.56522	10.51897	0.2013377	2.4422616	13	1	8 days	0.49	Williams	1999 CB ₃₆
1999 CC ₃₆	15.4	0.15	19990211	46.58950	12.76760	45.42281	7.91895	0.3430995	2.6357685	12	1	8 days	0.29	Williams	1999 CC ₃₆
1999 CE ₃₆	15.6	0.15	19990211	2.83807	39.34878	99.34698	9.64582	0.1464700	2.3775647	13	1	8 days	0.47	Williams	1999 CE ₃₆
1999 CL ₃₆	16.0	0.15	19990211	201.88858	221.77713	84.63771	7.82829	0.1756666	2.2535498	11	1	8 days	0.65	Williams	1999 CL ₃₆
1999 CO ₃₆	15.1	0.15	19990211	10.87156	12.69799	116.37471	12.32151	0.1171302	2.6527655	12	1	3 days	0.86	E Williams	1999 CO ₃₆
1999 CP ₃₆	16.6	0.15	19990211	349.62735	97.46198	59.77074	5.05531	0.1690728	2.5176577	13	1	3 days	0.63	E Williams	1999 CP ₃₆
1999 CQ ₃₆	15.3	0.15	19990211	43.02357	42.69228	40.11191	5.71780	0.1831914	2.6875554	12	1	3 days	0.66	E Williams	1999 CQ ₃₆
1999 CT ₃₆	15.0	0.15	19990211	89.92227	308.80545	86.77998	6.32649	0.1573442	2.2513115	13	1	3 days	0.51	E Williams	1999 CT ₃₆
1999 CU ₃₆	17.6	0.15	19990211	9.14243	123.50281	2.95921	6.61735	0.2573056	2.6337785	10	1	3 days	0.74	E Williams	1999 CU ₃₆
1999 CV ₃₆	16.1	0.15	19990211	281.02175	219.64209	12.75622	6.06895	0.0920303	2.3665991	12	1	3 days	0.45	E Williams	1999 CV ₃₆
1999 CM ₃₇	14.5	0.15	19990122	32.17587	356.03191	103.40682	3.20864	0.1421859	3.1233372	16	1	22 days	0.68	Williams	1999 CM ₃₇
1999 CQ ₃₇	15.3	0.15	19990211	313.33026	222.79600	341.17651	9.52061	0.1180482	3.1728293	12	1	3 days	0.56	E Williams	1999 CQ ₃₇
1999 CS ₃₇	17.6	0.15	19990211	356.35816	172.22074	338.77753	8.46456	0.1768333	2.4410777	11	1	3 days	0.83	E Williams	1999 CS ₃₇
1999 CU ₃₇	15.7	0.15	19990211	105.39601	276.35702	118.79305	3.89015	0.0540227	2.7812460	12	1	3 days	0.86	E Williams	1999 CU ₃₇
1999 CW ₃₇	14.1	0.15	19990211	278.67915	146.97055	111.28240	3.47263	0.2653648	3.2119378	13	1	3 days	0.66	E Williams	1999 CW ₃₇
1999 CX ₃₇	15.9	0.15	19990211	278.94732	283.04269	328.45080	4.35017	0.2154883	2.6837420	13	1	3 days	0.75	E Williams	1999 CX ₃₇
1999 CA ₃₈	14.5	0.15	19990211	301.64599	89.22496	140.59240	4.51359	0.2278444	3.2074180	13	1	3 days	0.65	E Williams	1999 CA ₃₈
1999 CB ₃₈	16.4	0.15	19990211	18.59657	132.65111	340.48088	2.11155	0.2570084	2.5449733	13	1	3 days	0.33	E Williams	1999 CB ₃₈
1999 CE ₃₈	15.8	0.15	19990211	25.80808	332.58089	141.79994	4.22508	0.1042676	2.5397537	13	1	3 days	0.86	E Williams	1999 CE ₃₈
1999 CN ₃₈	17.2	0.15	19990211	34.95237	24.11149	67.84375	0.69227	0.2283510	2.2924493	13	1	3 days	0.76	E Williams	1999 CN ₃₈
1999 CS ₃₈	16.2	0.15	19990211	308.66491	83.22221	134.51439	8.20899	0.1919200	2.5402978	13	1	3 days	0.73	E Williams	1999 CS ₃₈
1999 CV ₃₈	15.3	0.15	19990122	97.26265	301.99400	88.29565	2.07095	0.1391887	2.5127039	11	1	22 days	0.69	Williams	1999 CV ₃₈
1999 CB ₃₉	15.3	0.15	19990211	306.32197	81.36641	127.34125	6.82619	0.0816681	2.2962046	13	1	3 days	0.50	E Williams	1999 CB ₃₉
1999 CG ₃₉	16.3	0.15	19990211	43.86483	93.11414	359.58873	5.05419	0.1044298	2.3851681	12	1	3 days	0.56	E Williams	1999 CG ₃₉
1999 CJ ₃₉	14.8	0.15	19990211	307.40406	221.77924	350.39426	8.22091	0.1286681	3.2432098	12	1	3 days	0.77	E Williams	1999 CJ ₃₉
1999 CK ₃₉	16.7	0.15	19990211	344.28215	125.36315	44.98336	2.58207	0.2179468	2.4332515	13	1	3 days	0.85	E Williams	1999 CK ₃₉
1999 CH ₄₀	15.2	0.15	19990211	353.88727	38.70001	112.74818	13.79417	0.1184779	2.5706948	16	1	9 days	0.51	Williams	1999 CH ₄₀
1999 CJ ₄₀	14.6	0.15	19990211	122.87025	301.98070	76.63754	8.51463	0.0201047	2.7413542	13	1	9 days	0.56	Williams	1999 CJ ₄₀
1999 CM ₄₀	16.1	0.15	19990211	8.75700	84.69978	47.03895	6.46718	0.1281295	2.2227041	16	1	9 days	0.37	Williams	1999 CM ₄₀
1999 CO ₄₀	14.1	0.15	19990211	262.21678	158.98594	97.93520	14.27033	0.1447587	2.6895815	13	1	8 days	0.52	Williams	1999 CO ₄₀
1999 CQ ₄₀	14.3	0.15	19990211	12.31500	60.50712	67.63512	10.67913	0.0781731	2.9844220	16	1	13 days	0.41	Williams	1999 CQ ₄₀
1999 CT ₄₀	15.4	0.15	19990211	328.46292	158.19550	19.76458	12.18700	0.0719939	2.5870096	13	1	13 days	0.39	Williams	1999 CT ₄₀

1999 CM ₄₁	16.1	0.15	19990122	341.38514	130.72351	31.28994	4.61553	0.1297031	2.2690845	13	1	22 days	0.61	Williams	1999 CM ₄₁
1999 CB ₄₂	13.7	0.15	19990211	145.56624	229.22288	128.06138	11.18909	0.1068972	3.0238048	16	1	8 days	0.81	Williams	1999 CB ₄₂
1999 CE ₄₂	15.9	0.15	19990211	295.90724	198.18886	28.40433	2.92488	0.1330945	2.3837376	16	1	8 days	0.64	Williams	1999 CE ₄₂
1999 CF ₄₂	16.8	0.15	19990211	81.08748	53.19386	354.23068	5.82100	0.1688850	2.2762644	11	1	8 days	0.51	Williams	1999 CF ₄₂
1999 CG ₄₂	15.2	0.15	19990211	85.53986	30.70361	351.61272	8.54380	0.3768368	2.6769533	12	1	8 days	1.09	Williams	1999 CG ₄₂
1999 CH ₄₂	15.8	0.15	19990122	255.21507	270.07222	346.95363	5.87129	0.0995446	2.2793463	16	1	22 days	0.74	Williams	1999 CH ₄₂
1999 CJ ₄₂	15.3	0.15	19990211	340.19697	60.77707	108.27590	3.21065	0.0225558	2.9104784	11	1	8 days	0.71	E Williams	1999 CJ ₄₂
1999 CK ₄₂	14.4	0.15	19990122	17.89445	23.21709	96.18826	2.71561	0.1490566	3.1821166	16	1	27 days	0.57	Williams	1999 CK ₄₂
1999 CL ₄₂	16.9	0.15	19990211	293.63934	256.70912	340.45501	8.37778	0.2024059	2.4600066	11	1	8 days	0.60	Williams	1999 CL ₄₂
1999 CM ₄₂	14.5	0.15	19990211	222.72866	305.58196	348.38695	8.11828	0.1155138	2.7723686	13	1	8 days	0.56	Williams	1999 CM ₄₂
1999 CO ₄₂	13.9	0.15	19990211	289.72134	124.53910	117.78302	3.10562	0.2111986	3.1129022	13	1	3 days	0.58	E Williams	1999 CO ₄₂
1999 CT ₄₂	15.2	0.15	19990211	186.64658	310.22018	12.46475	1.86268	0.0618867	2.8895780	11	1	8 days	0.88	E Williams	1999 CT ₄₂
1999 CV ₄₂	16.4	0.15	19990211	210.66885	322.72737	342.34265	5.06143	0.1505697	2.3070204	11	1	8 days	0.55	Williams	1999 CV ₄₂
1999 CH ₄₃	15.8	0.15	19990211	59.95724	86.19761	349.13139	8.85412	0.1244622	2.6575005	15	1	8 days	0.71	Williams	1999 CH ₄₃
1999 CK ₄₃	15.8	0.15	19990211	294.25648	172.96610	55.96573	3.34514	0.1342918	2.4373292	15	1	8 days	0.54	Williams	1999 CK ₄₃
1999 CO ₄₃	15.4	0.15	19990211	323.21556	168.67839	22.50513	4.41161	0.0892315	2.2803201	16	1	8 days	0.38	Williams	1999 CO ₄₃
1999 CG ₄₄	13.8	0.15	19990122	78.63200	39.26418	17.78878	15.08718	0.0426066	3.2512849	20	1	11 days	0.49	Williams	1999 CG ₄₄
1999 CL ₄₄	16.1	0.15	19990211	45.13413	335.93959	108.89298	4.46813	0.1317542	2.2914434	15	1	8 days	0.45	Williams	1999 CL ₄₄
1999 CZ ₄₄	14.5	0.15	19990211	46.37812	326.58548	125.48014	14.35667	0.1116612	2.6324512	13	1	8 days	0.32	Williams	1999 CZ ₄₄
1999 CA ₄₅	16.2	0.15	19990211	102.00819	279.60500	111.87559	7.50432	0.1390442	2.2259253	13	1	8 days	0.62	Williams	1999 CA ₄₅
1999 CB ₄₅	14.3	0.15	19990211	17.58394	8.55281	120.81026	11.33637	0.0640080	2.9721967	12	1	8 days	0.42	Williams	1999 CB ₄₅
1999 CF ₄₅	15.5	0.15	19990211	30.02368	1.74950	112.50195	6.69231	0.0751210	2.3152277	13	1	3 days	0.49	E Williams	1999 CF ₄₅
1999 CG ₄₅	16.2	0.15	19990211	319.50754	160.08792	46.45287	3.44647	0.1943650	2.3914380	13	1	3 days	0.73	E Williams	1999 CG ₄₅
1999 CN ₄₅	14.7	0.15	19990211	181.86728	319.64125	9.37149	5.21352	0.0620901	2.7989467	12	1	9 days	0.49	Williams	1999 CN ₄₅
1999 CO ₄₅	14.4	0.15	19990211	56.34157	59.72379	9.39511	2.88489	0.2151709	2.5709481	13	1	3 days	0.49	E Williams	1999 CO ₄₅
1999 CQ ₄₅	15.6	0.15	19990211	32.31078	330.92132	127.70509	4.24563	0.2249728	2.5202951	13	1	3 days	0.69	E Williams	1999 CQ ₄₅
1999 CS ₄₅	17.6	0.15	19990211	18.49231	328.67537	134.47600	7.49248	0.4004792	2.7569173	12	1	9 days	0.49	Williams	1999 CS ₄₅
1999 CT ₄₅	15.2	0.15	19990211	74.05475	54.51319	15.87916	2.97542	0.0428647	2.4331709	12	1	3 days	0.56	E Williams	1999 CT ₄₅
1999 CZ ₄₅	17.1	0.15	19990211	31.65479	342.64792	117.25043	1.57663	0.2138260	2.2506300	11	1	3 days	0.63	E Williams	1999 CZ ₄₅
1999 CE ₄₆	16.1	0.15	19990211	54.98903	267.77358	157.88619	2.51525	0.2640641	2.5722876	13	1	3 days	1.02	E Williams	1999 CE ₄₆
1999 CF ₄₆	14.7	0.15	19990211	278.63697	66.56345	171.30895	0.81113	0.0539221	2.5393292	13	1	3 days	0.76	E Williams	1999 CF ₄₆
1999 CG ₄₆	14.4	0.15	19990211	273.18472	104.17121	145.96343	6.63207	0.1187155	2.2964745	13	1	3 days	0.45	E Williams	1999 CG ₄₆
1999 CJ ₄₆	16.2	0.15	19990211	324.93068	193.31673	4.72610	1.40569	0.1630771	2.8153969	11	1	3 days	1.08	E Williams	1999 CJ ₄₆
1999 CL ₄₆	14.0	0.15	19990211	53.62348	92.16239	339.45703	5.76798	0.2380476	2.9968502	12	1	3 days	0.85	E Williams	1999 CL ₄₆
1999 CR ₄₆	14.4	0.15	19990211	21.18378	22.63002	90.13049	2.28558	0.2753075	3.1822271	13	1	3 days	0.52	E Williams	1999 CR ₄₆
1999 CY ₄₆	14.3	0.15	19990211	178.76135	205.75068	125.56234	8.06173	0.1066235	2.2673133	13	1	3 days	0.73	E Williams	1999 CY ₄₆
1999 CZ ₄₆	16.4	0.15	19990211	10.34739	96.54650	40.23339	2.90710	0.0960374	2.3832362	12	1	9 days	0.81	Williams	1999 CZ ₄₆
1999 CD ₄₇	14.9	0.15	19990211	309.66710	202.50603	3.74978	5.82132	0.0644679	2.2845389	13	1	3 days	0.44	E Williams	1999 CD ₄₇
1999 CK ₄₇	13.8	0.15	19990211	346.78012	94.24068	73.24169	1.88432	0.0593962	3.1571339	14	1	11 days	0.71	Williams	1999 CK ₄₇
1999 CM ₄₇	16.6	0.15	19990211	36.50836	107.13899	348.22470	2.90209	0.2048735	2.2736966	12	1	3 days	0.82	E Williams	1999 CM ₄₇
1999 CN ₄₇	14.3	0.15	19990211	273.18745	273.26150	340.99150	5.92526	0.1481519	2.2922449	13	1	3 days	0.42	E Williams	1999 CN ₄₇
1999 CO ₄₇	14.0	0.15	19990211	60.84978	89.96607	337.59186	9.62195	0.2137829	3.1706175	12	1	3 days	0.75	E Williams	1999 CO ₄₇
1999 CS ₄₇	14.8	0.15	19990211	15.54952	332.58675	149.56264	13.37104	0.2812218	3.0842867	13	1	3 days	0.43	E Williams	1999 CS ₄₇
1999 CV ₄₇	17.1	0.15	19990211	13.09325	121.28609	5.51716	0.65592	0.2664587	2.7108277	12	1	3 days	0.85	E Williams	1999 CV ₄₇
1999 CX ₄₇	14.8	0.15	19990211	269.90427	26.61772	227.85812	0.22801	0.1031436	3.0713522	10	1	3 days	0.84	E Williams	1999 CX ₄₇
1999 CA ₄₈	15.0	0.15	19990211	290.76939	269.01340	323.57319	3.35183	0.1052041	2.3946287	13	1	3 days	0.66	E Williams	1999 CA ₄₈
1999 CD ₄₈	15.1	0.15	19990211	4.20536	174.30312	332.75148	12.67229	0.0251517	2.5336192	12	1	3 days	0.72	E Williams	1999 CD ₄₈
1999 CE ₄₈	16.0	0.15	19990211	321.28245	123.43464	74.74979	0.48574	0.1045655	2.5114213	12	1	3 days	0.64	E Williams	1999 CE ₄₈
1999 CF ₄₈	14.4	0.15	19990211	102.90045	249.88297	150.33116	10.07397	0.0987569	3.2198996	11	1	3 days	0.82	E Williams	1999 CF ₄₈
1999 CG ₄₈	15.3	0.15	19990211	18.48884	340.91124	146.94995	15.41455	0.1264807	2.6455713	12	1	3 days	0.48	E Williams	1999 CG ₄₈
1999 CX ₄₈	15.6	0.15	19990211	86.86933	303.27856	111.44292	5.57997	0.0722541	2.1910957	12	1	3 days	0.65	E Williams	1999 CX ₄₈
1999 CY ₄₈	14.8	0.15	19990211	42.82487	346.57159	106.34088	4.80474	0.1544511	2.3304650	13	1	3 days	0.41	E Williams	1999 CY ₄₈
1999 CZ ₄₈	13.9	0.15	19990211	282.08319	245.42242	354.43205	11.61059	0.0982109	2.9023978	12	1	3 days	0.83	E Williams	1999 CZ ₄₈

1999 CC ₄₉	16.4	0.15	19990211	10.98630	18.26224	114.83718	7.03776	0.1887955	2.7730596	12	1	3 days	1.13	E Williams	1999 CC ₄₉
1999 CD ₄₉	16.4	0.15	19990211	17.40874	33.34350	84.61044	4.14584	0.2695449	2.6707727	13	1	3 days	0.66	E Williams	1999 CD ₄₉
1999 CE ₄₉	15.7	0.15	19990211	34.33728	0.31488	99.64917	4.57375	0.1833759	2.1701814	13	1	3 days	0.48	E Williams	1999 CE ₄₉
1999 CG ₄₉	16.1	0.15	19990211	295.65280	123.99846	101.05261	7.21088	0.1128746	2.3542886	13	1	8 days	0.75	Williams	1999 CG ₄₉
1999 CK ₄₉	15.0	0.15	19990211	238.78502	263.50859	17.43378	9.37119	0.1181387	3.0144850	11	1	8 days	0.71	Williams	1999 CK ₄₉
1999 CL ₄₉	14.9	0.15	19990211	316.87079	104.43786	91.56807	10.08299	0.0496914	2.9952298	13	1	8 days	0.44	Williams	1999 CL ₄₉
1999 CM ₄₉	15.8	0.15	19990211	302.74855	130.56550	89.91482	8.80453	0.1424589	2.5709579	13	1	8 days	0.69	Williams	1999 CM ₄₉
1999 CN ₄₉	16.8	0.15	19990211	346.15789	135.84119	28.99315	7.31540	0.1252007	2.3029338	12	1	8 days	0.49	Williams	1999 CN ₄₉
1999 CO ₄₉	14.4	0.15	19990211	240.55722	264.30215	19.27228	11.44298	0.1805076	2.5989913	13	1	8 days	0.54	Williams	1999 CO ₄₉
1999 CR ₄₉	15.3	0.15	19990211	244.37179	191.57833	83.41809	10.32904	0.1074854	2.7721598	12	1	8 days	0.79	Williams	1999 CR ₄₉
1999 CS ₄₉	14.9	0.15	19990211	172.27933	340.07765	351.51203	24.23355	0.2342708	2.3609303	13	1	8 days	0.53	Williams	1999 CS ₄₉
1999 CT ₄₉	15.6	0.15	19990211	59.60237	339.72669	92.65444	12.17403	0.1541270	2.6051391	13	1	8 days	0.55	Williams	1999 CT ₄₉
1999 CX ₄₉	16.5	0.15	19990211	315.90263	121.35595	83.21547	7.31586	0.1377749	2.3006705	13	1	8 days	0.43	Williams	1999 CX ₄₉
1999 CY ₄₉	14.2	0.15	19990211	11.24751	106.07714	24.16179	6.59422	0.2568801	3.0172292	16	1	5 days	0.83	E Williams	1999 CY ₄₉
1999 CL ₅₀	15.7	0.15	19990211	32.51230	324.29972	134.19616	2.46433	0.2446560	2.4194977	13	1	3 days	0.49	E Williams	1999 CL ₅₀
1999 CN ₅₀	14.9	0.15	19990211	46.87448	288.19055	148.50148	11.84513	0.2773199	2.6915477	13	1	3 days	0.50	E Williams	1999 CN ₅₀
1999 CR ₅₀	14.5	0.15	19990211	200.34830	343.99221	333.30030	13.50894	0.0987560	2.6647311	13	1	3 days	0.65	E Williams	1999 CR ₅₀
1999 CT ₅₀	14.4	0.15	19990211	345.30487	257.55295	275.22525	0.08102	0.1200599	3.1542835	13	1	3 days	0.73	E Williams	1999 CT ₅₀
1999 CU ₅₀	15.2	0.15	19990122	65.55791	273.11336	150.93560	2.80194	0.1578286	2.4114965	16	1	29 days	0.51	Williams	1999 CU ₅₀
1999 CV ₅₀	14.5	0.15	19990211	78.62331	263.14961	144.66528	3.99524	0.2277504	2.3058071	13	1	3 days	0.43	E Williams	1999 CV ₅₀
1999 CW ₅₀	15.8	0.15	19990211	240.09694	285.24556	352.23525	1.60425	0.0431921	2.4958089	9	1	3 days	0.71	E Williams	1999 CW ₅₀
1999 CA ₅₁	15.2	0.15	19990211	286.76818	107.52008	130.11178	2.78037	0.1038575	2.2273575	13	1	3 days	0.45	E Williams	1999 CA ₅₁
1999 CC ₅₁	16.3	0.15	19990211	45.67423	294.18202	144.43901	9.33595	0.2784953	2.6361836	10	1	3 days	0.75	E Williams	1999 CC ₅₁
1999 CF ₅₁	13.6	0.15	19990211	35.59064	316.68807	137.93394	7.50571	0.2817816	3.8517202	13	1	3 days	0.49	E Williams	1999 CF ₅₁
1999 CN ₅₁	14.6	0.15	19990122	110.58209	263.10980	120.57808	5.95682	0.1426449	2.1873727	48	1	37 days	0.56	Williams	1999 CN ₅₁
1999 CR ₅₁	13.8	0.15	19990211	21.08589	359.04261	133.71664	11.02305	0.0463758	2.9923883	13	1	8 days	0.42	E Williams	1999 CR ₅₁
1999 CA ₅₂	13.2	0.15	19990211	308.94862	168.69128	50.47629	6.01076	0.1718243	2.6502530	15	1	5 days	0.57	Williams	1999 CA ₅₂
1999 CE ₅₂	13.4	0.15	19990211	130.79090	300.81068	63.69581	6.95252	0.2091088	2.2678810	19	1	9 days	0.38	Williams	1999 CE ₅₂
1999 CY ₅₃	14.1	0.15	19990211	352.60690	68.20647	96.10569	2.75224	0.0430383	3.0534530	12	1	8 days	0.81	E Williams	1999 CY ₅₃
1999 CC ₅₄	14.0	0.15	19990211	263.18545	286.47266	342.90876	10.64250	0.1451545	3.0485168	12	1	8 days	0.59	Williams	1999 CC ₅₄
1999 CD ₅₄	16.1	0.15	19990211	286.50582	249.34988	358.81538	2.42414	0.1776564	2.3190529	13	1	8 days	0.45	Williams	1999 CD ₅₄
1999 CE ₅₄	15.9	0.15	19990211	352.73009	186.13833	338.30690	13.92513	0.1437436	2.7639693	12	1	8 days	0.64	Williams	1999 CE ₅₄
1999 CH ₅₄	16.1	0.15	19990211	262.01282	296.33398	331.96335	4.02346	0.1447469	2.2596180	13	1	8 days	0.85	Williams	1999 CH ₅₄
1999 CO ₅₄	14.2	0.15	19990211	169.28320	197.26736	148.54470	10.34371	0.1288407	2.9580629	12	1	8 days	0.71	E Williams	1999 CO ₅₄
1999 CP ₅₄	16.3	0.15	19990211	77.27668	348.23012	66.38331	1.15236	0.1953550	2.2499886	11	1	8 days	0.58	Williams	1999 CP ₅₄
1999 CV ₅₄	15.6	0.15	19990211	306.38003	158.43410	64.50728	3.46576	0.1457481	2.4114490	13	1	8 days	0.54	Williams	1999 CV ₅₄
1999 CZ ₅₄	12.7	0.15	19990211	79.13358	325.18929	102.75498	6.82441	0.0996567	3.4230047	14	1	13 days	0.83	Nakano	1999 CZ ₅₄
1999 CB ₅₅	15.3	0.15	19990211	294.28310	141.27672	93.13344	5.49179	0.1290816	2.4437672	13	1	8 days	0.48	Williams	1999 CB ₅₅
1999 CC ₅₅	16.0	0.15	19990211	122.05449	294.83571	90.60972	5.54507	0.0809780	2.3240055	13	1	8 days	0.75	Williams	1999 CC ₅₅
1999 CD ₅₅	15.1	0.15	19990211	65.27114	349.15842	94.28214	5.84166	0.0679834	2.7490513	11	1	8 days	0.63	Williams	1999 CD ₅₅
1999 CE ₅₅	14.3	0.15	19990211	249.04790	142.05563	133.12131	14.74328	0.0756591	2.5973331	13	1	9 days	0.30	Williams	1999 CE ₅₅
1999 CF ₅₅	14.9	0.15	19990211	36.11631	116.48173	358.93810	12.81640	0.0478037	2.5802125	13	1	8 days	0.47	E Williams	1999 CF ₅₅
1999 CH ₅₅	14.5	0.15	19990211	277.59439	195.66838	58.92724	6.18032	0.1299511	3.1330684	12	1	9 days	0.53	E Williams	1999 CH ₅₅
1999 CJ ₅₆	14.7	0.15	19990211	131.54907	260.49085	114.08127	7.90032	0.1272230	2.2835789	17	1	13 days	0.45	Williams	1999 CJ ₅₆
1999 CY ₅₆	14.0	0.15	19990211	64.41066	90.95425	346.08560	8.16752	0.1350369	2.6108076	14	1	12 days	0.60	Williams	1999 CY ₅₆
1999 CC ₅₉	16.8	0.15	19990211	43.44441	43.84909	40.48622	3.45840	0.2176616	2.2251145	11	1	3 days	0.44	E Williams	1999 CC ₅₉
1999 CR ₅₉	14.3	0.15	19990211	129.41459	133.76033	213.88043	4.86671	0.1761621	2.3136288	10	1	5 days	0.65	E Williams	1999 CR ₅₉
1999 CT ₅₉	14.4	0.15	19990211	320.62111	49.50197	148.21630	11.88524	0.2944718	3.5030950	12	1	5 days	0.51	E Williams	1999 CT ₅₉
1999 CR ₆₀	15.9	0.15	19990122	319.56234	263.21235	285.95353	2.27268	0.1226635	2.3688460	16	1	25 days	0.71	Williams	1999 CR ₆₀
1999 CY ₆₀	14.8	0.15	19990122	9.18675	316.98226	166.03458	4.41251	0.2358361	3.0909219	13	1	25 days	0.38	Williams	1999 CY ₆₀
1999 CB ₆₁	15.7	0.15	19990211	278.62478	351.32626	242.66017	2.39928	0.0928598	2.1813643	13	1	6 days	0.42	Williams	1999 CB ₆₁
1999 CD ₆₁	14.0	0.15	19990211	237.65165	80.58349	192.98024	4.42678	0.1132239	3.2757012	12	1	6 days	0.72	E Williams	1999 CD ₆₁
1999 CE ₆₁	15.5	0.15	19990211	108.35250	120.82184	267.83031	4.07939	0.0409647	2.7404338	13	1	6 days	0.53	E Williams	1999 CE ₆₁

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1999 CF ₆₁	15.6	0.15	19990211	152.65531	86.76741	256.41787	2.89672	0.1207472	2.1837666	13	1	6 days	0.46	Williams	1999 CF ₆₁
1999 CH ₆₁	14.9	0.15	19990122	324.28170	356.34855	182.88046	5.20680	0.1050035	3.1413997	13	1	33 days	0.56	Williams	1999 CH ₆₁
1999 CW ₆₁	15.3	0.15	19990211	88.36330	95.81081	290.66535	11.91826	0.1901748	2.5696646	13	1	7 days	0.63	Williams	1999 CW ₆₁
1999 CZ ₆₁	14.1	0.15	19990211	351.16223	324.44264	180.62659	11.51162	0.0739158	3.1342944	12	1	7 days	1.00	Williams	1999 CZ ₆₁
1999 CJ ₆₂	13.2	0.15	19990122	331.49457	238.40165	285.92738	9.88353	0.0528958	3.0049032	13	1	33 days	0.26	Williams	1999 CJ ₆₂
1999 CL ₆₂	15.1	0.15	19990211	298.44527	293.06603	293.21701	10.02734	0.2560044	2.8636727	11	1	5 days	0.76	E Williams	1999 CL ₆₂
1999 CN ₆₂	14.1	0.15	19990211	91.96896	254.51653	144.83945	5.71943	0.0452392	2.3830829	15	1	6 days	0.45	E Williams	1999 CN ₆₂
1999 CP ₆₂	14.3	0.15	19990102	41.61342	278.34161	149.57356	14.96241	0.1731688	2.5970462	19	1	52 days	0.38	Williams	1999 CP ₆₂
1999 CQ ₆₂	15.1	0.15	19990122	38.84567	288.73814	150.09676	13.00041	0.1592419	2.6985349	16	1	32 days	0.57	Williams	1999 CQ ₆₂
1999 CX ₆₃	13.7	0.15	19990211	45.77420	256.94966	176.32233	9.39048	0.1940936	3.9876964	13	1	7 days	0.77	E Williams	1999 CX ₆₃
1999 CT ₆₄	13.7	0.15	19990211	93.70271	184.69886	198.97199	15.33846	0.2143385	3.0978028	13	1	6 days	0.63	Williams	1999 CT ₆₄
1999 CU ₆₄	14.5	0.15	19990211	299.23618	300.87593	276.80712	15.33330	0.1288825	2.7508365	13	1	6 days	0.35	Williams	1999 CU ₆₄
1999 CA ₆₅	13.8	0.15	19990211	161.02079	102.56855	233.81077	9.35503	0.1238625	2.9659312	12	1	6 days	0.64	Williams	1999 CA ₆₅
1999 CC ₆₅	14.9	0.15	19990211	156.74834	57.93277	280.99664	11.79406	0.1719690	2.5928119	12	1	6 days	0.47	Williams	1999 CC ₆₅
1999 CH ₆₅	13.7	0.15	19990211	282.78648	352.44684	234.93195	6.61751	0.0745312	2.7562129	13	1	6 days	0.36	Williams	1999 CH ₆₅
1999 CP ₆₅	13.9	0.15	19990211	111.80990	176.49232	206.59244	5.07565	0.0616155	2.4856817	13	1	6 days	0.72	Williams	1999 CP ₆₅
1999 CQ ₆₅	16.5	0.15	19990211	44.53245	237.46984	194.45529	5.04896	0.2489960	2.5976568	13	1	6 days	0.49	Williams	1999 CQ ₆₅
1999 CU ₆₅	15.3	0.15	19990211	70.09563	259.28505	148.73242	19.00879	0.2036927	2.8412239	13	1	6 days	0.67	Williams	1999 CU ₆₅
1999 CV ₆₅	15.5	0.15	19990211	13.31662	328.55201	153.60963	6.10561	0.1686157	3.1348861	15	1	6 days	0.53	E Williams	1999 CV ₆₅
1999 CW ₆₅	15.3	0.15	19990211	17.11474	241.66393	240.71080	0.96992	0.0615853	2.8981983	13	1	6 days	0.63	E Williams	1999 CW ₆₅
1999 CA ₆₆	16.3	0.15	19990122	342.75522	11.38392	146.63522	13.95951	0.1064427	2.6684094	15	1	25 days	0.89	Williams	1999 CA ₆₆
1999 CF ₆₆	15.2	0.15	19990211	235.36350	74.32078	195.59780	3.94832	0.0382902	2.3547892	13	1	6 days	0.46	Williams	1999 CF ₆₆
1999 CK ₆₆	15.9	0.15	19990211	234.36062	11.80654	266.63086	3.93439	0.1379277	2.2942439	12	1	6 days	0.34	Williams	1999 CK ₆₆
1999 CL ₆₆	16.6	0.15	19990211	295.84584	34.46283	183.16007	4.35523	0.1120913	2.2802665	13	1	6 days	0.53	Williams	1999 CL ₆₆
1999 CM ₆₆	15.9	0.15	19990211	330.44634	24.40834	157.58737	12.17132	0.1641825	2.6394713	12	1	6 days	0.65	Williams	1999 CM ₆₆
1999 CR ₆₆	13.9	0.15	19990211	26.87227	297.93754	171.37362	10.84666	0.0940746	3.0505611	12	1	9 days	0.50	Marsden	1999 CR ₆₆
1999 CA ₆₇	16.4	0.15	19990211	4.31451	301.71026	193.03043	9.21022	0.2502095	2.7665507	13	1	7 days	0.40	Williams	1999 CA ₆₇
1999 CN ₆₇	13.1	0.15	19990211	104.03992	137.08431	251.96733	8.93693	0.0964037	3.0012246	13	1	7 days	0.41	Williams	1999 CN ₆₇
1999 CW ₆₇	14.9	0.15	19990211	340.61143	253.53966	276.67206	6.39057	0.1593497	2.7945532	13	1	7 days	0.42	Williams	1999 CW ₆₇
1999 CC ₆₉	14.7	0.15	19990211	160.40522	170.36116	170.03150	9.67178	0.0554466	2.5527392	13	1	7 days	0.31	Williams	1999 CC ₆₉
1999 CX ₇₂	15.2	0.15	19990211	305.16203	354.45482	219.10539	8.95064	0.1058466	2.7657653	13	1	6 days	0.48	Williams	1999 CX ₇₂
1999 CA ₇₃	15.3	0.15	19990211	85.20499	200.61767	192.28540	11.06392	0.2653952	2.6566711	12	1	6 days	0.40	Williams	1999 CA ₇₃
1999 CB ₇₃	15.9	0.15	19990211	106.45926	160.32646	229.15707	7.28966	0.1150721	2.3477091	12	1	6 days	0.40	Williams	1999 CB ₇₃
1999 CK ₇₃	14.7	0.15	19990122	328.05068	308.30215	234.01763	4.89310	0.1181123	2.8574835	12	1	32 days	0.82	Williams	1999 CK ₇₃
1999 CN ₇₃	16.2	0.15	19990122	336.23194	259.13887	269.19525	4.33742	0.1025367	2.2796637	16	1	32 days	0.75	Williams	1999 CN ₇₃
1999 CE ₇₄	14.1	0.15	19990211	277.69261	333.70904	270.75519	1.56324	0.1340768	2.4335860	18	1	11 days	0.45	Nakano	1999 CE ₇₄
1999 CK ₇₄	15.8	0.15	19990211	27.77212	178.84170	294.94432	3.24457	0.1080118	2.7576809	16	1	6 days	0.48	Williams	1999 CK ₇₄
1999 CM ₇₄	15.1	0.15	19990211	229.23643	44.64978	251.68120	2.82570	0.2414978	2.3395666	16	1	6 days	0.65	Williams	1999 CM ₇₄
1999 CR ₇₄	14.2	0.15	19990211	335.03306	354.90630	180.97477	9.16774	0.0449107	3.1697947	13	1	6 days	0.35	E Williams	1999 CR ₇₄
1999 CY ₇₄	13.8	0.15	19990211	88.35687	147.65551	267.80187	9.99054	0.0508553	2.9931377	12	1	6 days	0.35	Williams	1999 CY ₇₄
1999 CX ₇₅	17.0	0.15	19990211	13.10734	204.46459	285.82150	3.26184	0.1356032	2.3652118	13	1	6 days	0.50	Williams	1999 CX ₇₅
1999 CY ₇₅	13.7	0.15	19990211	130.89274	55.50365	309.18426	7.89122	0.1909970	2.9251570	16	1	6 days	0.35	Williams	1999 CY ₇₅
1999 CA ₇₆	15.9	0.15	19990211	213.69794	123.64625	177.08135	4.58100	0.1016484	2.2950780	16	1	6 days	0.72	E Williams	1999 CA ₇₆
1999 CC ₇₆	15.1	0.15	19990211	230.78995	325.19481	321.31596	14.43233	0.0952912	2.6182710	16	1	6 days	0.56	Williams	1999 CC ₇₆
1999 CK ₇₆	17.6	0.15	19990211	24.21588	314.49338	159.95633	2.71401	0.1476954	2.2193315	16	1	6 days	0.67	E Williams	1999 CK ₇₆
1999 CU ₈₀	15.0	0.15	19990211	153.67210	190.09108	158.22634	13.92093	0.1516278	2.5461687	12	1	6 days	0.80	E Williams	1999 CU ₈₀
1999 CZ ₈₀	13.4	0.15	19990211	167.71301	112.22553	237.21709	10.61599	0.0944927	3.2160293	12	1	7 days	0.46	Williams	1999 CZ ₈₀
1999 CG ₈₁	14.9	0.15	19990211	346.22237	231.01582	298.88407	5.93641	0.0531189	2.3392689	11	1	6 days	0.28	Williams	1999 CG ₈₁
1999 CF ₈₂	16.6	0.15	19990211	335.58528	69.29149	99.31780	2.44150	0.1344826	2.2210075	9	1	8 days	0.76	Williams	1999 CF ₈₂
1999 CG ₈₂	16.7	0.15	19990211	283.20419	117.88745	102.63345	2.73282	0.1023865	2.3217723	13	1	4 days	1.14	E Marsden	1999 CG ₈₂
1999 CP ₈₂	16.4	0.15	19990211	358.87320	120.38145	5.42527	8.87364	0.2314341	2.6877196	16	1	9 days	0.42	Williams	1999 CP ₈₂
1999 CQ ₈₂	14.0	0.15	19990211	179.72471	260.54723	39.25284	10.22481	0.1722962	2.5900192	13	1	9 days	0.54	Williams	1999 CQ ₈₂
1999 CW ₈₂	16.1	0.15	19990211	346.13115	160.48341	344.80120	3.55788	0.1338886	2.2462196	12	1	3 days	0.61	E Williams	1999 CW ₈₂

1999 CY ₈₂	14.2	0.15	19990122	51.11506	52.01510	357.85283	8.43877	0.1638957	3.1036482	13	1	22 days	0.65	Williams	1999 CY ₈₂
1999 CL ₈₃	14.7	0.15	19990211	345.06152	104.71607	46.25309	8.58829	0.2717420	3.1613246	13	1	3 days	0.79	E Williams	1999 CL ₈₃
1999 CN ₈₃	14.9	0.15	19990211	344.08263	163.93456	349.28976	9.82508	0.2572079	2.8002782	12	1	3 days	0.96	E Williams	1999 CN ₈₃
1999 CO ₈₃	14.6	0.15	19990211	92.31298	304.04375	68.19037	3.92519	0.1833343	2.3980347	13	1	3 days	0.84	E Williams	1999 CO ₈₃
1999 CP ₈₃	13.8	0.15	19990211	330.66126	90.91381	85.24818	4.31571	0.2661329	2.7908500	13	1	3 days	0.72	E Williams	1999 CP ₈₃
1999 CU ₈₃	13.9	0.15	19990211	76.49936	47.94871	327.66577	9.36870	0.2708859	3.1893923	12	1	3 days	0.80	E Williams	1999 CU ₈₃
1999 CX ₈₃	15.0	0.15	19990211	304.12779	123.23152	91.04085	15.95411	0.2939878	2.8279144	13	1	3 days	0.80	E Williams	1999 CX ₈₃
1999 CF ₈₄	16.4	0.15	19990211	318.98824	139.45087	58.18007	7.50244	0.2868637	2.4938688	12	1	3 days	0.64	E Williams	1999 CF ₈₄
1999 CO ₈₄	14.5	0.15	19990122	338.33934	137.81504	15.20306	5.96295	0.1835358	2.5436300	13	1	22 days	0.37	Williams	1999 CO ₈₄
1999 CJ ₈₅	16.5	0.15	19990211	62.88771	313.83461	106.29326	6.75050	0.0452374	2.2376117	10	1	3 days	0.62	E Williams	1999 CJ ₈₅
1999 CQ ₈₅	17.1	0.15	19990211	12.95287	43.67315	70.94646	5.78629	0.1316465	2.2321496	11	1	9 days	0.64	Williams	1999 CQ ₈₅
1999 CR ₈₅	15.5	0.15	19990211	19.32383	15.52851	89.31942	7.85735	0.1443593	2.4186474	13	1	9 days	0.54	E Williams	1999 CR ₈₅
1999 CW ₈₅	14.6	0.15	19990122	162.80569	349.99849	327.23938	5.16244	0.2134597	2.2048088	18	1	28 days	0.59	Williams	1999 CW ₈₅
1999 CF ₈₆	16.3	0.15	19990211	278.83127	125.39956	95.89362	1.60760	0.0518321	2.1911689	13	1	8 days	0.50	E Williams	1999 CF ₈₆
1999 CG ₈₆	16.9	0.15	19990211	315.38119	93.91975	103.29233	2.64274	0.1889250	2.3650819	14	1	8 days	0.72	Williams	1999 CG ₈₆
1999 CH ₈₆	15.0	0.15	19990211	344.55092	73.12577	76.63599	2.29482	0.0570677	2.7498881	11	1	3 days	0.63	E Williams	1999 CH ₈₆
1999 CJ ₈₆	16.3	0.15	19990211	259.51798	239.45829	11.94033	2.11489	0.1692170	2.3442365	12	1	8 days	0.84	Williams	1999 CJ ₈₆
1999 CO ₈₆	16.2	0.15	19990122	29.70459	115.87528	331.04058	7.60094	0.1482230	2.1993909	19	1	27 days	0.63	Williams	1999 CO ₈₆
1999 CZ ₈₆	16.3	0.15	19990122	10.58621	32.87655	74.24550	6.11618	0.2610155	2.6560218	13	1	22 days	0.76	Williams	1999 CZ ₈₆
1999 CJ ₈₇	16.1	0.15	19990122	5.34080	74.28570	46.30606	2.23724	0.1258724	2.4193049	11	1	22 days	0.56	Williams	1999 CJ ₈₇
1999 CK ₈₇	16.3	0.15	19990211	43.18023	39.59886	32.35997	2.62391	0.2080691	2.2805885	13	1	8 days	0.52	Williams	1999 CK ₈₇
1999 CL ₈₇	15.8	0.15	19990122	344.19943	149.77546	358.74107	3.31506	0.1192156	2.5803439	14	1	22 days	0.75	Williams	1999 CL ₈₇
1999 CP ₈₇	17.2	0.15	19990211	347.01995	22.15506	137.49475	3.24432	0.2908674	2.5771475	13	1	2 days	0.98	E Williams	1999 CP ₈₇
1999 CU ₈₇	16.6	0.15	19990211	322.45066	216.26748	336.28580	4.93030	0.2195766	2.3313746	12	1	3 days	0.82	E Williams	1999 CU ₈₇
1999 CC ₈₉	15.7	0.15	19990122	39.29315	317.44294	117.30708	3.14192	0.1957053	2.4350020	16	1	30 days	0.67	Williams	1999 CC ₈₉
1999 CG ₈₉	16.0	0.15	19990211	359.47678	149.09721	349.15272	1.50099	0.0880225	2.3282633	13	1	3 days	0.56	E Williams	1999 CG ₈₉
1999 CK ₈₉	16.3	0.15	19990211	71.66455	76.75565	325.66962	9.75446	0.2135066	2.4212777	11	1	3 days	0.68	E Williams	1999 CK ₈₉
1999 CL ₈₉	15.6	0.15	19990211	313.58290	219.74344	336.78775	4.85645	0.1361394	2.7006876	10	1	3 days	0.66	E Williams	1999 CL ₈₉
1999 CM ₈₉	15.0	0.15	19990211	103.76246	20.61497	353.70758	3.32257	0.1823399	2.7388182	9	1	3 days	0.73	E Williams	1999 CM ₈₉
1999 CQ ₈₉	15.1	0.15	19990211	290.58263	107.14479	119.77320	11.52033	0.1874591	3.2212895	11	1	3 days	0.83	E Williams	1999 CQ ₈₉
1999 CR ₈₉	15.8	0.15	19990211	56.95894	343.19820	78.35601	3.96955	0.1666020	2.4769383	12	1	3 days	0.78	E Williams	1999 CR ₈₉
1999 CS ₈₉	16.2	0.15	19990211	340.61977	159.49246	2.71495	4.37360	0.1314967	2.1254242	12	1	3 days	0.71	E Williams	1999 CS ₈₉
1999 CW ₈₉	17.9	0.15	19990211	4.33102	36.95059	92.42391	8.62775	0.2560048	2.3735207	10	1	8 days	0.68	Williams	1999 CW ₈₉
1999 CB ₉₀	15.2	0.15	19990211	317.38524	121.41776	67.57343	8.41229	0.1194478	2.2973542	13	1	8 days	0.55	Williams	1999 CB ₉₀
1999 CE ₉₀	15.2	0.15	19990211	56.48891	14.21671	49.80864	2.31013	0.1647366	2.7649062	12	1	3 days	0.77	E Williams	1999 CE ₉₀
1999 CG ₉₀	15.5	0.15	19990211	273.62588	269.82656	322.17272	10.47575	0.0614671	2.6813946	12	1	3 days	0.80	E Williams	1999 CG ₉₀
1999 CF ₉₁	15.5	0.15	19990211	252.35994	184.08597	67.93446	4.95321	0.0504929	2.5848977	16	1	9 days	1.01	Williams	1999 CF ₉₁
1999 CG ₉₁	16.5	0.15	19990211	350.09943	161.18224	353.72032	6.72905	0.2209719	3.0741825	10	1	3 days	0.99	E Williams	1999 CG ₉₁
1999 CJ ₉₁	14.1	0.15	19990211	103.37485	51.92180	333.05144	17.20582	0.0996544	3.1128376	15	1	8 days	0.80	E Williams	1999 CJ ₉₁
1999 CK ₉₁	15.9	0.15	19990211	35.31291	129.03109	327.68201	4.74663	0.1218601	2.2671926	16	1	8 days	0.40	Williams	1999 CK ₉₁
1999 CM ₉₁	15.8	0.15	19990211	341.20135	25.88695	141.12842	11.58672	0.1567850	2.5537306	12	1	3 days	0.54	E Williams	1999 CM ₉₁
1999 CO ₉₁	16.4	0.15	19990211	54.53782	94.43255	321.29080	11.43857	0.2819190	2.6450136	15	1	8 days	0.76	Williams	1999 CO ₉₁
1999 CC ₉₂	16.9	0.15	19990211	2.23809	122.19061	15.07463	4.60021	0.1579030	2.5612737	14	1	8 days	0.51	Williams	1999 CC ₉₂
1999 CD ₉₂	17.9	0.15	19990211	30.56500	53.34680	41.90528	3.37933	0.2031214	2.2545610	11	1	3 days	0.90	E Williams	1999 CD ₉₂
1999 CE ₉₂	17.1	0.15	19990211	350.94024	56.12218	96.95399	5.72280	0.1598857	2.5277271	10	1	8 days	0.79	Williams	1999 CE ₉₂
1999 CT ₉₂	15.3	0.15	19990211	258.18293	268.63046	341.73454	13.80557	0.0730315	2.6040628	15	1	8 days	0.53	Williams	1999 CT ₉₂
1999 CU ₉₂	15.6	0.15	19990211	32.63051	44.55443	58.38171	5.21150	0.0820674	2.7149255	15	1	8 days	0.40	Williams	1999 CU ₉₂
1999 CW ₉₂	15.4	0.15	19990211	272.40902	185.69257	69.14782	4.01422	0.2295323	2.6918569	12	1	3 days	0.95	E Williams	1999 CW ₉₂
1999 CX ₉₂	14.9	0.15	19990211	291.40801	239.28312	342.72045	11.13158	0.1093012	2.6358741	12	1	3 days	0.84	E Williams	1999 CX ₉₂
1999 CF ₉₃	17.1	0.15	19990211	347.48924	63.88255	96.63748	3.05420	0.1612829	2.3092920	12	1	3 days	0.59	E Williams	1999 CF ₉₃
1999 CT ₉₃	14.8	0.15	19990211	87.10491	270.73410	132.59145	9.00349	0.1374162	3.2156055	10	1	3 days	0.85	E Williams	1999 CT ₉₃
1999 CU ₉₃	15.0	0.15	19990211	60.67847	293.37554	127.04919	7.11715	0.2210171	2.9535766	12	1	3 days	1.24	E Williams	1999 CU ₉₃
1999 CV ₉₃	15.1	0.15	19990211	245.26159	169.34262	102.29068	3.69310	0.1281858	2.5522469	13	1	3 days	0.72	E Williams	1999 CV ₉₃

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1999 CX ₉₃	15.3	0.15	19990211	328.08349	67.92904	118.07998	8.12581	0.1509444	3.0256023	12	1	3 days	0.83	E Williams	1999 CX ₉₃
1999 CA ₉₄	16.2	0.15	19990211	2.00056	114.57227	24.92943	4.37695	0.1179728	2.1935578	13	1	3 days	0.64	E Williams	1999 CA ₉₄
1999 CD ₉₄	15.0	0.15	19990211	303.13600	160.95960	52.18967	5.90788	0.1428900	2.8180065	12	1	8 days	0.57	Williams	1999 CD ₉₄
1999 CH ₉₄	14.7	0.15	19990211	210.71828	265.11934	29.40323	9.27284	0.0840392	2.9879368	12	1	8 days	0.81	Williams	1999 CH ₉₄
1999 CQ ₉₄	16.3	0.15	19990211	15.46720	15.45467	106.23766	14.61032	0.1472613	2.6234727	13	1	8 days	0.70	Williams	1999 CQ ₉₄
1999 CX ₉₄	15.5	0.15	19990211	16.48248	109.44450	11.80815	5.60207	0.1290542	2.3654276	12	1	3 days	0.52	E Williams	1999 CX ₉₄
1999 CY ₉₄	15.8	0.15	19990211	320.65271	97.17704	94.29420	6.06797	0.1093450	2.2841258	17	1	13 days	0.61	Nakano	1999 CY ₉₄
1999 CB ₉₅	17.7	0.15	19990211	333.40957	117.41250	63.44106	2.91478	0.1673977	2.2771528	11	1	3 days	0.60	E Williams	1999 CB ₉₅
1999 CM ₉₅	16.5	0.15	19990211	1.35244	6.28787	137.40793	5.10117	0.0901688	2.6816677	12	1	3 days	0.59	E Williams	1999 CM ₉₅
1999 CO ₉₅	16.4	0.15	19990211	273.20639	278.15675	334.07976	2.66991	0.1725605	2.3538144	12	1	3 days	1.17	E Williams	1999 CO ₉₅
1999 CS ₉₅	14.6	0.15	19990211	289.90373	251.89441	349.85530	7.00304	0.2242227	2.5164075	13	1	3 days	0.58	E Williams	1999 CS ₉₅
1999 CT ₉₅	16.3	0.15	19990211	46.30223	7.13830	87.35575	3.46247	0.0588631	2.2229772	13	1	3 days	0.64	E Williams	1999 CT ₉₅
1999 CU ₉₅	16.5	0.15	19990211	23.45253	134.89170	341.26303	12.09202	0.1225099	2.6580749	13	1	3 days	0.61	E Williams	1999 CU ₉₅
1999 CV ₉₆	16.2	0.15	19990211	341.98507	180.76546	348.12591	8.41670	0.0727757	2.6438859	11	1	8 days	0.85	E Williams	1999 CV ₉₆
1999 CX ₉₆	16.0	0.15	19990211	160.04700	341.85923	1.48920	3.65745	0.1525917	2.3209479	11	1	8 days	0.62	E Williams	1999 CX ₉₆
1999 CA ₉₇	13.7	0.15	19990211	190.26879	155.55760	163.78194	1.95808	0.0406101	2.9897401	13	1	8 days	0.62	E Williams	1999 CA ₉₇
1999 CB ₉₇	16.9	0.15	19990211	14.87197	335.61280	151.22292	4.67747	0.1702504	2.5600644	11	1	8 days	0.63	Williams	1999 CB ₉₇
1999 CC ₉₇	16.2	0.15	19990211	29.97128	310.23480	145.10328	11.58421	0.2851031	3.1462982	11	1	8 days	0.34	Williams	1999 CC ₉₇
1999 CD ₉₇	14.9	0.15	19990211	39.91177	119.19066	335.54976	2.90854	0.1574264	2.7110438	16	1	8 days	0.44	E Williams	1999 CD ₉₇
1999 CE ₉₇	16.1	0.15	19990211	242.25444	153.79789	125.73090	2.10984	0.1436147	2.4057064	11	1	8 days	1.10	E Williams	1999 CE ₉₇
1999 CF ₉₇	17.6	0.15	19990211	1.77017	36.48578	108.81922	3.18843	0.1212371	2.3385162	10	1	8 days	0.79	Williams	1999 CF ₉₇
1999 CG ₉₇	16.7	0.15	19990211	7.48564	17.83824	118.93561	5.58599	0.1895537	2.4936615	11	1	3 days	1.09	E Williams	1999 CG ₉₇
1999 CK ₉₇	15.8	0.15	19990211	236.85827	168.98978	121.00710	8.86010	0.2179279	2.3359468	10	1	8 days	0.66	Williams	1999 CK ₉₇
1999 CT ₉₇	16.2	0.15	19990211	82.25074	338.94426	67.75318	3.43915	0.1130167	2.4727425	10	1	3 days	0.81	E Williams	1999 CT ₉₇
1999 CZ ₉₇	16.4	0.15	19990211	87.16314	14.51459	38.63924	3.29796	0.0766214	2.2880078	13	1	9 days	0.62	Williams	1999 CZ ₉₇
1999 CB ₉₈	15.6	0.15	19990211	279.50456	272.22251	337.63065	12.11007	0.1726896	2.5448687	11	1	3 days	0.89	E Williams	1999 CB ₉₈
1999 CC ₉₈	14.8	0.15	19990211	301.84543	238.62057	350.91193	3.65289	0.1993244	2.9465634	12	1	3 days	0.99	E Williams	1999 CC ₉₈
1999 CG ₉₈	15.4	0.15	19990211	14.61919	64.32005	64.84247	0.97120	0.1595410	2.7008940	14	1	11 days	0.65	Williams	1999 CG ₉₈
1999 CM ₉₈	16.5	0.15	19990211	43.72292	121.18479	323.46327	4.25208	0.2301738	2.4600645	12	1	6 days	0.86	E Williams	1999 CM ₉₈
1999 CO ₉₈	16.7	0.15	19990211	21.54839	123.25895	351.17339	3.33780	0.2405636	2.4082164	13	1	3 days	0.69	E Williams	1999 CO ₉₈
1999 CR ₉₈	15.6	0.15	19990211	46.61672	330.88167	105.54371	5.30997	0.2506635	2.3100230	12	1	3 days	0.70	E Williams	1999 CR ₉₈
1999 CS ₉₈	17.2	0.15	19990211	28.48688	332.16825	126.86812	9.51938	0.2805696	2.5651923	12	1	3 days	0.90	E Williams	1999 CS ₉₈
1999 CV ₉₈	15.9	0.15	19990211	10.51388	26.82448	108.97084	9.41521	0.0999543	2.6534855	10	1	8 days	0.56	Williams	1999 CV ₉₈
1999 CJ ₉₉	16.5	0.15	19990211	265.62844	57.45866	199.95147	0.28761	0.1000242	2.1900990	12	1	3 days	0.83	E Williams	1999 CJ ₉₉
1999 CO ₉₉	13.4	0.15	19990211	295.25486	268.22609	338.96875	14.66784	0.2514291	2.8170523	13	1	3 days	0.39	E Williams	1999 CO ₉₉
1999 CU ₉₉	14.0	0.15	19990211	155.86019	288.09282	62.20041	7.47226	0.1203460	2.8408415	18	1	9 days	0.73	Williams	1999 CU ₉₉
1999 CG ₁₀₀	14.7	0.15	19990211	239.74256	164.43807	122.99757	3.23037	0.1175305	2.9360145	12	1	8 days	0.53	E Williams	1999 CG ₁₀₀
1999 CH ₁₀₀	15.1	0.15	19990211	150.17191	14.46851	345.10307	5.84514	0.0956038	2.1966051	12	1	8 days	0.76	E Williams	1999 CH ₁₀₀
1999 CJ ₁₀₀	15.5	0.15	19990211	49.80299	113.97038	335.80548	12.15376	0.1535374	2.6815604	13	1	8 days	0.61	Williams	1999 CJ ₁₀₀
1999 CK ₁₀₀	15.9	0.15	19990211	31.39264	140.39799	333.61302	3.63396	0.1294293	2.5659009	13	1	8 days	1.02	Williams	1999 CK ₁₀₀
1999 CL ₁₀₀	15.3	0.15	19990211	24.97039	327.87384	150.49144	8.96664	0.1858920	2.7166450	23	1	14 days	0.85	Williams	1999 CL ₁₀₀
1999 CA ₁₀₁	16.4	0.15	19990211	357.08947	157.18216	359.78636	13.43259	0.1873424	2.6423605	13	1	8 days	0.92	E Williams	1999 CA ₁₀₁
1999 CB ₁₀₁	16.3	0.15	19990211	277.72915	192.47603	51.93533	5.62051	0.0623806	2.3038170	11	1	9 days	0.70	Williams	1999 CB ₁₀₁
1999 CA ₁₀₂	15.0	0.15	19990211	245.84279	195.73420	73.25417	12.22119	0.0551750	3.0103277	10	1	8 days	0.90	Williams	1999 CA ₁₀₂
1999 CM ₁₀₂	15.3	0.15	19990211	56.82780	102.39348	299.57753	4.54409	0.2694182	2.7400470	10	1	5 days	0.64	E Williams	1999 CM ₁₀₂
1999 CO ₁₀₂	16.2	0.15	19990211	12.58089	325.63758	146.78309	9.89451	0.1687142	2.5568957	11	1	5 days	0.85	E Williams	1999 CO ₁₀₂
1999 CT ₁₀₂	15.0	0.15	19990211	119.97190	41.23782	305.65816	16.56724	0.2655963	2.5852327	10	1	5 days	0.86	E Williams	1999 CT ₁₀₂
1999 CB ₁₀₃	15.7	0.15	19990211	297.06856	22.76542	177.49840	7.00388	0.0500388	2.3634912	13	1	7 days	0.54	Williams	1999 CB ₁₀₃
1999 CG ₁₀₃	14.5	0.15	19990211	262.17898	90.28695	157.31057	12.42671	0.1692818	2.6899015	10	1	6 days	0.62	Williams	1999 CG ₁₀₃
1999 CP ₁₀₃	15.2	0.15	19990122	1.69960	247.46791	238.57280	9.45882	0.1277474	2.5389961	12	1	32 days	0.58	Williams	1999 CP ₁₀₃
1999 CT ₁₀₃	15.6	0.15	19990211	335.30645	292.80191	237.30883	3.25694	0.1771060	2.4602927	13	1	5 days	0.79	E Williams	1999 CT ₁₀₃
1999 CV ₁₀₃	14.7	0.15	19990211	292.88221	81.18167	135.02217	10.43117	0.1418651	2.4219168	13	1	2 days	0.64	E Williams	1999 CV ₁₀₃
1999 CW ₁₀₃	16.1	0.15	19990211	288.86072	267.33248	308.69914	5.52899	0.0877666	2.2973634	12	1	5 days	0.71	E Williams	1999 CW ₁₀₃

1999 CX ₁₀₃	14.8	0.15	19990211	70.64329	138.28092	259.84901	1.70125	0.2255269	2.5486307	12	1	5 days	0.83	E Williams	1999 CX ₁₀₃
1999 CA ₁₀₄	14.9	0.15	19990211	226.90855	48.97538	227.73224	6.73762	0.2050411	2.3209883	11	1	7 days	0.55	Williams	1999 CA ₁₀₄
1999 CB ₁₀₄	16.4	0.15	19990211	72.64801	232.65331	168.08343	2.07885	0.1914303	2.2978255	10	1	5 days	0.85	E Williams	1999 CB ₁₀₄
1999 CC ₁₀₄	14.3	0.15	19990211	152.60256	34.58343	313.23959	2.71416	0.1725047	2.7038676	15	1	12 days	1.15	Williams	1999 CC ₁₀₄
1999 CK ₁₀₄	15.1	0.15	19990122	28.73074	192.30884	269.69102	0.62062	0.1742752	3.1180073	14	1	25 days	0.75	Williams	1999 CK ₁₀₄
1999 CQ ₁₀₄	15.5	0.15	19990211	324.70965	285.49731	261.30411	2.84335	0.1309180	2.4277454	13	1	6 days	0.45	Williams	1999 CQ ₁₀₄
1999 CG ₁₀₅	15.2	0.15	19990122	351.67603	252.51234	249.78765	10.57937	0.1023977	2.4447524	12	1	30 days	0.46	Williams	1999 CG ₁₀₅
1999 CM ₁₀₅	16.8	0.15	19990211	320.04274	276.21746	273.86600	5.85664	0.1510726	2.3181597	12	1	7 days	0.49	Williams	1999 CM ₁₀₅
1999 CN ₁₀₅	14.5	0.15	19990122	323.98518	13.03048	157.15745	10.94779	0.0485659	2.9687174	16	1	33 days	0.61	Williams	1999 CN ₁₀₅
1999 CP ₁₀₅	15.3	0.15	19990211	300.04084	338.71212	237.26309	3.25652	0.1755072	2.3081069	13	1	5 days	0.67	E Williams	1999 CP ₁₀₅
1999 CR ₁₀₅	14.5	0.15	19990211	74.31074	107.63553	290.64144	7.40350	0.2047234	2.6503245	13	1	5 days	0.66	E Williams	1999 CR ₁₀₅
1999 CS ₁₀₅	12.5	0.15	19990211	236.37437	313.86967	312.22440	12.83754	0.0909335	3.2251156	15	1	6 days	0.74	E Williams	1999 CS ₁₀₅
1999 CT ₁₀₅	14.0	0.15	19990211	108.30354	231.20748	141.18242	10.24533	0.1438725	2.6064750	11	1	5 days	0.46	E Williams	1999 CT ₁₀₅
1999 CU ₁₀₅	14.3	0.15	19990211	203.91171	123.13661	177.51808	4.71444	0.2375018	2.5643725	11	1	5 days	0.69	E Williams	1999 CU ₁₀₅
1999 CV ₁₀₅	16.4	0.15	19990211	38.63074	252.06633	192.85571	4.07275	0.1598622	2.5184260	12	1	5 days	1.03	E Williams	1999 CV ₁₀₅
1999 CY ₁₀₅	15.8	0.15	19990211	58.98820	254.90991	153.81725	6.77467	0.2628303	2.4311043	11	1	5 days	1.09	E Williams	1999 CY ₁₀₅
1999 CW ₁₀₆	15.0	0.15	19990122	12.11783	294.11776	185.73955	14.03912	0.0925980	2.7166744	13	1	30 days	0.46	Williams	1999 CW ₁₀₆
1999 CM ₁₀₇	16.1	0.15	19990211	2.98787	236.10553	262.20831	12.19268	0.1256693	2.6718060	12	1	6 days	0.55	Williams	1999 CM ₁₀₇
1999 CP ₁₀₇	14.8	0.15	19990211	318.31503	353.98992	191.19718	10.26054	0.0318321	3.1101205	11	1	6 days	1.20	E Williams	1999 CP ₁₀₇
1999 CY ₁₀₇	15.5	0.15	19990211	17.99393	327.41471	152.60886	9.88767	0.0694455	3.1190936	10	1	6 days	0.43	Williams	1999 CY ₁₀₇
1999 CC ₁₀₈	17.7	0.15	19990211	352.05025	350.98954	161.13728	3.67592	0.1390620	2.2610294	12	1	6 days	0.64	Williams	1999 CC ₁₀₈
1999 CO ₁₀₈	15.5	0.15	19990122	348.07805	345.04661	165.51664	13.57597	0.1116227	2.5357035	11	1	30 days	0.54	Williams	1999 CO ₁₀₈
1999 CK ₁₀₉	14.8	0.15	19990211	356.62838	278.98979	227.16737	10.49009	0.1518323	2.6928770	12	1	6 days	0.40	Williams	1999 CK ₁₀₉
1999 CL ₁₁₁	15.9	0.15	19990211	325.42012	22.88067	166.88296	2.37219	0.1474775	2.3637559	17	1	14 days	0.82	Williams	1999 CL ₁₁₁
1999 CU ₁₁₁	15.0	0.15	19990122	354.99317	302.13084	205.43116	8.48971	0.1162535	3.0469981	11	1	30 days	0.61	Williams	1999 CU ₁₁₁
1999 CE ₁₁₂	15.0	0.15	19990211	286.84557	356.30417	246.37368	10.54327	0.1811512	2.5566981	13	1	6 days	0.39	Williams	1999 CE ₁₁₂
1999 CO ₁₁₂	15.3	0.15	19990211	261.06653	339.89981	274.86055	9.45470	0.0642484	2.9198067	13	1	6 days	0.91	E Williams	1999 CO ₁₁₂
1999 CX ₁₁₂	16.5	0.15	19990211	11.16491	217.69622	275.56459	2.53421	0.1245359	2.7245184	12	1	6 days	0.85	Williams	1999 CX ₁₁₂
1999 CY ₁₁₂	17.5	0.15	19990211	331.34135	353.13998	193.25759	2.20952	0.1606392	2.3530195	12	1	6 days	0.58	Williams	1999 CY ₁₁₂
1999 CE ₁₁₄	15.9	0.15	19990211	33.51941	288.78032	166.74340	7.05805	0.2289670	2.8242909	15	1	6 days	0.62	E Williams	1999 CE ₁₁₄
1999 CT ₁₁₆	15.5	0.15	19990211	33.07642	254.68379	224.15019	9.46022	0.0342947	2.3455715	13	1	6 days	0.41	Williams	1999 CT ₁₁₆
1999 CC ₁₁₈	15.1	0.15	19990211	300.80275	292.14272	310.93195	13.08950	0.1963777	2.6047719	12	1	6 days	0.45	Williams	1999 CC ₁₁₈
1999 CN ₁₁₈	15.6	0.15	19990211	124.62726	86.32165	285.84817	1.07046	0.1036510	2.2746379	13	1	4 days	0.74	E Williams	1999 CN ₁₁₈
1999 CU ₁₁₈	13.5	0.15	19990211	72.76988	149.39229	255.31050	15.73673	0.2615079	3.1669964	11	1	4 days	0.16	Williams	1999 CU ₁₁₈
1999 CV ₁₁₈	7.4	0.15	19990211	297.72230	268.70526	305.23783	6.45510	0.2506697	42.2468863	4	1	8 days	0.08	E Marsden	1999 CV ₁₁₈
1999 CW ₁₁₈	7.8	0.15	19990211	0.00000	13.26662	153.25256	0.74482	0.0000000	43.4519461	5	1	8 days	0.10	E Marsden	1999 CW ₁₁₈
1999 CX ₁₁₈	6.8	0.15	19990211	0.00000	356.06795	175.38701	1.93086	0.0000000	44.6999169	4	1	8 days	0.04	E Marsden	1999 CX ₁₁₈
1999 CY ₁₁₈	8.2	0.15	19990211	180.00355	180.15763	163.27709	40.62617	0.0624737	36.2946531	4	1	2 days	0.17	E Marsden	1999 CY ₁₁₈
1999 CZ ₁₁₈	7.8	0.15	19990211	180.10825	359.45917	345.02333	38.67696	0.0949955	44.5525312	4	1	2 days	0.09	E Marsden	1999 CZ ₁₁₈
1999 CA ₁₁₉	7.7	0.15	19990211	0.00000	32.44453	133.92635	0.32856	0.0000000	45.4214522	4	1	2 days	0.21	E Marsden	1999 CA ₁₁₉
1999 DA	7.9	0.15	19990211	0.00000	61.94402	78.08260	3.15442	0.0000000	46.0709971	9	1	1 days	0.16	E Marsden	1999 DA
1999 DC	11.9	0.15	19990211	55.02218	245.22805	196.17986	5.77587	0.1317985	3.9936072	19	1	5 days	0.55	E Williams	1999 DC
1999 DD	15.6	0.15	19990211	83.68680	243.56516	169.22279	10.67209	0.1084079	2.7502534	9	1	2 days	0.14	E Williams	1999 DD
1999 DE	15.2	0.15	19990211	289.79631	23.13313	204.96865	4.44811	0.0749183	3.0680246	19	1	5 days	0.64	E Williams	1999 DE
1999 DN	13.4	0.15	19990211	54.20057	127.78745	311.54662	7.54637	0.1877310	3.9462499	15	1	5 days	0.95	E Williams	1999 DN
1999 DO	14.7	0.15	19990211	203.74234	149.57009	162.67116	14.93338	0.0976400	2.6721284	22	1	6 days	0.88	E Williams	1999 DO
1999 DQ	14.3	0.15	19990211	183.59236	165.23555	159.46960	22.27014	0.0432920	3.1071075	17	1	7 days	0.95	Williams	1999 DQ
1999 DZ	15.0	0.15	19990211	22.95047	136.01918	0.71516	7.24052	0.2127595	2.3882492	10	1	6 days	0.58	Williams	1999 DZ
1999 DE ₁	15.2	0.15	19990211	298.40670	37.01393	183.11909	3.56480	0.0759073	2.2048154	19	1	7 days	0.57	E Williams	1999 DE ₁
1999 DQ ₁	13.0	0.15	19990211	243.67719	301.30225	330.46064	17.96535	0.1836365	3.1705661	16	1	9 days	0.48	Williams	1999 DQ ₁
1999 DT ₁	15.8	0.15	19990211	46.49020	110.27749	332.25967	15.57322	0.1210350	2.6357258	15	1	9 days	0.54	Williams	1999 DT ₁
1999 DU ₁	15.7	0.15	19990211	77.55106	330.99249	61.36367	7.37190	0.2191322	2.5476304	14	1	9 days	0.70	Williams	1999 DU ₁
1999 DV ₁	14.6	0.15	19990211	313.86098	88.87361	97.09298	11.05129	0.0507103	2.7416957	16	1	9 days	0.72	Williams	1999 DV ₁

1999 DW ₁	14.5	0.15	19990211	244.54810	166.82086	90.60596	10.94526	0.0668524	3.0229196	15	1	9 days	0.70	Williams	1999 DW ₁
1999 DX ₁	14.3	0.15	19990211	167.08264	143.74628	186.24690	4.19396	0.1949757	2.7404310	15	1	7 days	0.70	Williams	1999 DX ₁
1999 DY ₁	16.0	0.15	19990211	94.54858	0.84013	43.62218	5.96521	0.1377191	2.2646656	15	1	9 days	0.65	Williams	1999 DY ₁
1999 DZ ₁	14.0	0.15	19990211	191.68977	203.08654	122.56034	11.39423	0.0164222	3.0307103	16	1	9 days	0.59	E Williams	1999 DZ ₁
1999 DA ₂	15.7	0.15	19990211	345.40369	103.90628	68.65720	5.27941	0.1024018	2.5762342	14	1	9 days	0.71	Williams	1999 DA ₂
1999 DB ₂	18.8	0.15	19990211	343.03887	251.53782	328.24738	11.51200	0.6144875	2.9489175	45	1	9 days	0.65	Williams	1999 DB ₂
1999 DC ₂	14.5	0.15	19990211	330.61355	40.43668	160.33369	23.39210	0.2054570	2.4077484	24	1	8 days	0.60	Williams	1999 DC ₂
1999 DD ₂	17.2	0.15	19990211	255.11528	304.63998	326.81450	5.57041	0.2022024	2.1627730	17	1	3 days	0.50	Williams	1999 DD ₂
1999 DE ₂	14.5	0.15	19990211	102.14152	78.33032	328.65447	11.27140	0.1760173	2.6350440	7	1	6 days	0.23	Williams	1999 DE ₂
1999 DF ₂	14.3	0.15	19990211	147.54821	162.99049	212.84856	4.75674	0.0957709	2.6538802	8	1	6 days	0.33	E Williams	1999 DF ₂
1999 DG ₂	14.0	0.15	19990303	50.40341	60.49110	18.38728	10.82797	0.3391820	2.9871157	6	1	3 days	0.60	E Nakano	1999 DG ₂
1999 DH ₂	14.5	0.15	19990303	46.14300	347.15225	105.84994	5.87255	0.2718274	2.4795528	6	1	3 days	0.58	Nakano	1999 DH ₂
1999 DJ ₂	11.7	0.15	19990303	346.50747	115.32823	63.66929	13.68098	0.0518205	3.1098706	6	1	4 days	0.41	Nakano	1999 DJ ₂
1999 DK ₂	11.9	0.15	19990303	37.24982	69.70948	45.90584	15.19593	0.1227919	2.5975826	6	1	4 days	0.31	Nakano	1999 DK ₂
1999 DL ₂	14.5	0.15	19990303	268.62014	167.35627	115.81401	8.90767	0.2177554	2.3917050	6	1	3 days	0.47	Nakano	1999 DL ₂
1999 DM ₂	10.9	0.15	19990303	113.42467	333.34064	59.95520	15.27188	0.1881236	2.8346330	6	1	4 days	0.25	Nakano	1999 DM ₂
1999 DO ₂	11.2	0.15	19990303	13.92157	103.28380	46.11104	17.54991	0.0965083	3.1953404	6	1	4 days	0.56	E Nakano	1999 DO ₂
1999 DP ₂	14.0	0.15	19990303	123.07673	299.17354	90.48380	4.97063	0.1892863	2.1723284	9	1	4 days	0.45	Nakano	1999 DP ₂
1999 DQ ₂	12.8	0.15	19990303	174.07688	334.04458	20.06217	10.96963	0.0452763	2.7642031	6	1	3 days	0.44	Nakano	1999 DQ ₂
1999 DR ₂	14.1	0.15	19990303	285.08179	149.78437	109.05123	7.58757	0.1404130	2.2917335	6	1	3 days	0.19	Nakano	1999 DR ₂
1999 DS ₂	13.8	0.15	19990211	356.33085	176.32284	344.16980	9.14879	0.1587266	2.7647022	18	1	12 days	0.37	Williams	1999 DS ₂
1999 DU ₂	13.7	0.15	19990303	190.38326	294.62280	26.21539	4.20823	0.1591184	2.4724036	6	1	2 days	0.35	E Nakano	1999 DU ₂
1999 DW ₂	15.5	0.15	19990303	50.11321	263.35905	193.09148	5.42638	0.1165931	2.3330869	10	1	5 days	0.48	Nakano	1999 DW ₂
1999 DX ₂	14.5	0.15	19990303	316.76740	43.43269	153.27742	20.69116	0.0273313	2.6607925	11	1	3 days	0.21	Nakano	1999 DX ₂
1999 DY ₂	21.5	0.15	19990211	355.84467	160.98650	352.43972	7.60524	0.4622882	2.0393186	40	1	8 days	0.74	Williams	1999 DY ₂
1999 DZ ₂	14.3	0.15	19990303	186.66328	297.66982	54.36309	6.88117	0.0417261	2.1877553	6	1	2 days	0.49	E Nakano	1999 DZ ₂
1999 DA ₃	13.4	0.15	19990303	275.17002	165.27588	108.51390	7.97429	0.0769370	2.7045675	6	1	2 days	0.37	E Nakano	1999 DA ₃
1999 DB ₃	12.7	0.15	19990303	304.91870	93.55055	148.02988	14.11154	0.0626095	2.6359871	6	1	2 days	0.27	Nakano	1999 DB ₃
1999 DC ₃	13.8	0.15	19990303	316.44158	175.35355	61.69487	7.98629	0.1811154	2.3191986	6	1	2 days	0.21	Nakano	1999 DC ₃
1999 DG ₃	15.4	0.15	19990211	116.71341	51.89443	318.23985	6.50459	0.2275729	2.2178644	7	1	10 days	0.49	E Williams	1999 DG ₃
1999 DH ₃	13.2	0.15	19990211	1.88006	45.52981	163.50154	4.76400	0.2356915	2.8791306	11	1	6 days	1.46	E Williams	1999 DH ₃
1999 DJ ₃	21.1	0.15	19990211	323.41562	241.50274	329.44217	29.15259	0.3189400	1.6607763	18	1	6 days	0.39	Williams	1999 DJ ₃
1999 DK ₃	16.8	0.15	19990303	323.30887	103.18040	149.92471	42.97151	0.4416670	2.1042097	48	1	7 days	0.60	Nakano	1999 DK ₃
1999 DQ ₃	12.7	0.15	19990303	314.41720	126.10397	99.48514	13.61676	0.0978233	2.6165629	7	1	5 days	0.23	Nakano	1999 DQ ₃
1999 DR ₃	11.8	0.15	19990303	348.03481	109.13458	76.73220	12.11419	0.0495616	3.0193281	6	1	5 days	0.16	Nakano	1999 DR ₃
1999 DS ₃	13.4	0.15	19990303	319.49359	163.68426	66.82045	11.40493	0.2075659	2.6271217	7	1	5 days	0.56	Nakano	1999 DS ₃
1999 DU ₃	14.2	0.15	19990211	311.04982	134.27147	111.19735	2.53640	0.2533750	3.2147471	9	1	3 days	0.22	E Marsden	1999 DU ₃
1999 DW ₃	18.4	0.15	19990211	277.44790	327.78973	280.65394	1.86350	0.1710112	2.1372042	12	1	4 days	0.49	E Williams	1999 DW ₃
1999 DH ₄	13.7	0.15	19990211	299.99232	138.01747	133.52841	10.41112	0.0882039	2.8498636	11	1	2 days	0.61	E Williams	1999 DH ₄
1999 DJ ₄	17.8	0.15	19990211	334.80613	197.50957	19.89398	9.00662	0.4685550	1.7977803	78	1	3 days	0.85	Marsden	1999 DJ ₄
2017 P-L	14.7	0.15	19990122	207.88758	55.38353	262.63328	2.25031	0.2176275	2.2336341	36	5	1960–1999	0.78	M-v Williams	31160 2017 P-L
2042 P-L	14.9	0.15	19990122	4.98267	262.09523	231.35358	4.76915	0.0418273	2.3942125	30	3	1960–1999	0.70	M-v Williams	33784 2042 P-L
2073 P-L	15.4	0.15	19990122	33.32330	252.81038	213.79216	2.84161	0.1852885	2.5678853	27	4	1960–1999	0.63	M-v Williams	30797 2073 P-L
2505 P-L	14.9	0.15	19990122	48.07688	46.14672	4.91485	6.57985	0.1632193	2.4135156	24	2	1960–1999	0.63	M-v Williams	33784 2505 P-L
2549 P-L	13.8	0.15	19990122	296.28314	283.34739	167.68234	2.13723	0.0350771	2.8340921	60	3	1960–1998	0.69	M-v Williams	33383 2549 P-L
2629 P-L	14.7	0.15	19990122	99.27854	8.40058	13.57146	1.86152	0.0701885	3.0186964	26	3	1960–1999	0.74	M-v Williams	31000 2629 P-L
2698 P-L	15.7	0.15	19990122	214.10487	277.85101	6.05536	7.63716	0.0689685	2.2464170	18	3	1960–1999	0.67	M-v Williams	31022 2698 P-L
2743 P-L	15.5	0.15	19990122	322.35508	59.34006	126.67028	0.78500	0.1605045	2.3879338	37	3	1960–1999	0.85	M-v Williams	33784 2743 P-L
2778 P-L	14.7	0.15	19990122	235.51572	85.19520	167.69055	1.62044	0.0247050	2.3955767	36	3	1960–1999	0.75	M-v Williams	33784 2778 P-L
3086 P-L	12.9	0.15	19990122	203.52405	58.73047	246.11597	9.16671	0.0840836	2.9905105	49	5	1960–1999	0.70	M-v Williams	31160 3086 P-L
3087 P-L	12.5	0.15	19990122	67.70852	86.99550	261.44218	8.31221	0.1055929	3.0616316	51	3	1960–1999	0.61	M-v Williams	33588 3087 P-L
3520 P-L	13.5	0.15	19990122	106.83596	141.47904	243.39826	9.50574	0.1239678	3.0157624	38	4	1960–1999	0.68	M-v Williams	31294 3520 P-L
3538 P-L	14.6	0.15	19990122	114.44255	69.82848	291.62042	4.18991	0.2461664	2.2560682	46	5	1960–1999	0.76	M-v Williams	28891 3538 P-L

4070 P-L	14.5	0.15	19990122	17.38486	190.43063	300.66651	3.03557	0.1208704	2.5585489	25	4	1960-1999	0.72	M-v	2	Williams	33588	4070 P-L
4088 P-L	15.5	0.15	19990122	20.48170	149.89884	312.62865	2.69997	0.1996959	2.5765396	33	2	1960-1999	0.60	M-v	5	Williams	33735	4088 P-L
4204 P-L	14.2	0.15	19990122	164.90445	145.34037	206.78687	9.94247	0.0526185	2.9879300	23	4	1960-1999	0.64	M-v	1	Williams	31294	4204 P-L
4226 P-L	15.0	0.15	19990122	337.48925	237.04213	264.57489	1.70959	0.1256923	2.4033650	20	3	1960-1999	0.53	M-v	4	Spahr	33784	4226 P-L
4556 P-L	13.5	0.15	19990122	130.98490	330.02268	43.60060	3.14862	0.1328428	3.0012199	22	4	1960-1999	0.79	M-v	2	Williams	31022	4556 P-L
4592 P-L	14.1	0.15	19990122	163.40233	160.11070	160.02046	5.32421	0.1761325	2.7568583	28	4	1960-1999	0.64	M-v	2	Williams	25229	4592 P-L
4634 P-L	14.9	0.15	19990122	177.48964	306.14265	15.99170	4.79205	0.1972888	2.2421172	37	6	1956-1999	0.55	M-v	2	Williams	31022	4634 P-L
4648 P-L	15.3	0.15	19990122	131.92675	97.63347	186.79033	0.94868	0.1761797	2.4150249	23	2	1960-1998	0.58	M-v	5	Spahr	33784	4648 P-L
4654 P-L	15.6	0.15	19990122	216.01708	344.01212	310.36656	1.33901	0.2496296	2.5382407	20	2	1960-1999	0.53	M-v	5	Williams	33735	4654 P-L
4658 P-L	14.0	0.15	19990122	117.84375	295.44360	32.69398	3.77219	0.1834244	2.7789474	19	2	1960-1996	0.67	M-v	5	Williams	28620	4658 P-L
4721 P-L	14.9	0.15	19990122	344.59873	155.46076	10.81666	2.40700	0.0246779	2.7495515	22	4	1960-1999	0.68	M-v	2	Williams	27732	4721 P-L
4722 P-L	14.5	0.15	19990122	305.63671	343.90525	211.06304	1.49810	0.1539144	2.3863723	26	4	1960-1999	0.73	M-v	2	Williams	22086	4722 P-L
4735 P-L	16.2	0.15	19990122	102.30421	343.78294	51.46304	2.64477	0.0238261	2.1252878	24	5	1960-1999	0.54	M-v	2	Williams	29948	4735 P-L
4812 P-L	15.3	0.15	19990122	14.89206	349.80047	59.85583	0.85821	0.2125070	3.0758494	33	3	1960-1999	0.70	M-v	3	Williams	33588	4812 P-L
4838 P-L	15.3	0.15	19990122	1.32146	90.66566	22.32221	1.53239	0.1921228	2.2653618	30	2	1960-1999	0.74	M-v	3	Williams	33784	4838 P-L
4865 P-L	15.6	0.15	19990122	191.62330	276.53796	37.55942	2.02050	0.0096581	2.1228477	22	4	1960-1999	0.71	M-v	2	Williams	23993	4865 P-L
6059 P-L	14.1	0.15	19990122	26.03058	200.25708	222.37365	3.61375	0.0514558	2.7883351	27	2	1960-1999	0.74	M-v	4	Spahr	33588	6059 P-L
6062 P-L	15.1	0.15	19990122	42.49764	105.07338	328.77857	2.06324	0.1449829	2.4056799	29	4	1949-1999	0.57	M-v	4	Williams	33784	6062 P-L
6073 P-L	14.1	0.15	19990122	243.49188	292.31385	343.04844	3.88824	0.0513822	2.7392826	40	6	1960-1999	0.77	M-v	1	Williams	31022	6073 P-L
6128 P-L	15.8	0.15	19990122	151.57452	110.72515	224.65414	0.84664	0.1618754	2.5572297	20	4	1960-1999	0.35	M-v	3	Williams	31023	6128 P-L
6615 P-L	14.2	0.15	19990122	331.78964	180.12815	19.12117	4.70779	0.0941513	2.2325906	26	5	1954-1999	0.47	M-v	1	Williams	31023	6615 P-L
6644 P-L	15.3	0.15	19990122	244.64940	140.67980	154.23082	5.32303	0.2088653	2.5252173	26	5	1960-1999	0.57	M-v	3	Williams	27732	6644 P-L
6647 P-L	14.3	0.15	19990122	106.56593	305.82680	34.82471	3.02602	0.2252639	2.4074913	23	4	1960-1999	0.67	M-v	4	Spahr	33784	6647 P-L
6691 P-L	15.3	0.15	19990122	337.49980	144.29071	15.25160	6.23182	0.0956033	2.3896674	25	2	1960-1999	0.62	M-v	4	Williams	33736	6691 P-L
6742 P-L	16.3	0.15	19990122	54.45617	344.20254	89.33982	2.39617	0.1507903	2.2562408	20	3	1960-1999	0.69	M-v	5	Williams	20347	6742 P-L
7075 P-L	13.4	0.15	19990122	162.11657	135.09286	203.94036	9.42936	0.1808653	2.9929290	21	4	1960-1999	0.81	M-v	2	Williams	20516	7075 P-L
7636 P-L	15.3	0.15	19990122	239.22973	228.24012	56.33085	4.19904	0.1209245	2.2338051	18	4	1960-1999	0.62	M-v	2	Williams	27321	7636 P-L
9062 P-L	14.1	0.15	19990122	85.00228	141.19047	240.69582	2.47308	0.1899848	2.5748058	22	4	1960-1999	0.59	M-v	1	Williams	33384	9062 P-L
9076 P-L	13.3	0.15	19990122	79.54237	194.30671	196.17177	13.58432	0.1869708	2.5749350	37	5	1960-1999	0.67	M-v	1	Williams	31023	9076 P-L
9094 P-L	15.5	0.15	19990122	107.88807	166.91238	196.85386	9.41644	0.2573419	2.3998262	21	5	1960-1999	0.66	M-v	1	Williams	30696	9094 P-L
9575 P-L	15.5	0.15	19990122	128.04385	281.28201	78.64015	2.90357	0.1874252	2.1269646	20	4	1951-1999	0.64	M-v	2	Williams	27732	9575 P-L
1102 T-1	15.0	0.15	19990122	242.75323	49.37638	214.28854	6.29644	0.0904756	2.3211794	37	4	1971-1999	0.68	M-v	1	Williams	30914	1102 T-1
1208 T-1	15.1	0.15	19990122	128.21993	169.12253	219.15881	4.36945	0.0570008	2.3097880	30	4	1971-1999	0.76	M-v	3	Williams	30914	1208 T-1
2234 T-1	13.8	0.15	19990122	33.30223	94.41686	14.21089	12.93160	0.1103670	2.5283192	25	3	1971-1999	0.89	M-v	3	Williams	33589	2234 T-1
3273 T-1	15.1	0.15	19990122	139.91067	256.91274	14.37330	2.30537	0.1923400	2.3818858	25	2	1971-1999	0.81	M-v	4	Williams	33736	3273 T-1
3277 T-1	13.0	0.15	19990122	215.93787	133.26601	175.93312	0.51162	0.1365984	3.1929654	30	5	1971-1999	0.95	M-v	2	Williams	31161	3277 T-1
3300 T-1	15.8	0.15	19990122	177.63954	344.54726	327.99135	2.33207	0.1937338	2.1574826	36	4	1971-1999	0.87	M-v	2	Williams	33589	3300 T-1
4062 T-1	13.3	0.15	19990122	38.24604	297.51298	172.72564	10.77725	0.0142281	3.1828159	32	5	1971-1999	0.92	M-v	1	Williams	31161	4062 T-1
4264 T-1	14.3	0.15	19990122	205.80980	253.05182	29.59848	8.35460	0.1816733	2.8485825	22	3	1971-1999	0.89	M-v	3	Williams	31132	4264 T-1
4290 T-1	12.2	0.15	19990122	124.40574	222.52376	24.00063	12.49361	0.1249388	3.3725941	46	3	1971-1998	0.68	M-v	3	Williams	33056	4290 T-1
4342 T-1	15.0	0.15	19990122	344.03772	92.33469	50.49494	5.20910	0.0764455	2.5451766	18	3	1971-1999	0.83	M-v	4	Williams	33784	4342 T-1
1045 T-2	14.0	0.15	19990122	143.76669	166.69654	199.73903	7.83449	0.1417775	2.2695944	39	6	1955-1999	0.94	M-v	2	Williams	31294	1045 T-2
1176 T-2	15.5	0.15	19990122	243.94537	322.88962	305.48776	2.24368	0.1408102	2.2592064	29	4	1973-1999	0.82	M-v	2	Williams	30914	1176 T-2
1282 T-2	13.3	0.15	19990122	90.70036	123.90067	251.54719	1.15299	0.0764072	2.8441490	53	3	1973-1999	0.88	M-v	4	Spahr	33785	1282 T-2
1353 T-2	15.0	0.15	19990122	51.26121	72.79076	7.91969	0.80858	0.1191048	2.5236582	50	5	1973-1999	0.83	M-v	3	Williams	33785	1353 T-2
2112 T-2	14.4	0.15	19990122	152.40279	277.37369	71.01948	0.17887	0.1668549	3.2248761	32	3	1973-1999	0.60	M-v	5	Williams	33785	2112 T-2
2216 T-2	13.4	0.15	19990122	204.40968	275.13610	31.39871	0.84514	0.2187431	3.1922306	34	4	1973-1999	0.77	M-v	2	Williams	29142	2216 T-2
2235 T-2	15.0	0.15	19990122	149.97801	187.68010	174.74437	2.06800	0.1582514	3.2146366	26	3	1973-1999	0.72	M-v	5	Williams	30466	2235 T-2
2330 T-2	14.8	0.15	19990122	11.31693	112.19801	4.52887	4.50884	0.0706098	2.5246380	25	3	1973-1999	1.01	M-v	5	Williams	30914	2330 T-2
3044 T-2	13.4	0.15	19990122	25.34336	341.09284	123.52141	2.74183	0.0929294	3.2380173	43	3	1973-1999	0.91	M-v	4	Williams	33736	3044 T-2
3092 T-2	14.7	0.15	19990122	325.81834	77.77956	7.85841	12.94882	0.0413181	2.5756633	27	2	1973-1998	0.79	M-v	5	Spahr	33327	3092 T-2
3211 T-2	13.6	0.15	19990122	318.06525	131.39942	72.76829	2.67168	0.1536869	3.1819036	27	3	1973-1999	0.71	M-v	5	Williams	15728	3211 T-2
3222 T-2	15.9	0.15	19990122	63.66589	319.82129	30.90996	3.33940	0.1434051	2.3226966	37	2	1973-1998	0.86	M-v	5	Spahr	33589	3222 T-2

3281 T-2	14.6	0.15	19990122	147.55415	171.53124	161.11205	4.49817	0.1813808	2.2810550	57	3	1973-1999	0.71	M-v	3	Williams	33785	3281 T-2
4101 T-2	12.9	0.15	19990122	270.44450	175.13500	87.46719	1.85298	0.1416205	3.1625367	31	5	1973-1999	0.68	M-v	2	Marsden	31161	4101 T-2
4224 T-2	17.7	0.15	19990122	142.91534	198.64231	145.23457	4.22807	0.1716131	2.2800991	21	3	1973-1999	0.64	M-v	4	Williams	22414	4224 T-2
4234 T-2	12.8	0.15	19990122	224.60643	259.13891	29.92766	5.25710	0.1274463	3.1934019	46	7	1971-1999	0.79	M-v	1	Williams	30696	4234 T-2
4297 T-2	12.9	0.15	19990122	262.80106	55.49743	76.11030	3.42910	0.0378326	3.3866986	37	3	1973-1998	0.82	M-v	4	Spahr	33327	4297 T-2
4311 T-2	15.6	0.15	19990122	259.84590	115.59785	139.12625	3.49884	0.0986706	2.2628786	39	3	1973-1999	0.68	M-v	3	Williams	33785	4311 T-2
5058 T-2	13.7	0.15	19990122	314.50105	295.97787	270.66676	7.16885	0.1196851	2.7860023	35	5	1973-1999	0.81	M-v	2	Williams	31161	5058 T-2
5211 T-2	12.9	0.15	19990122	355.47481	207.55817	228.67687	9.19012	0.2098105	2.9043572	69	3	1973-1999	0.66	M-v	3	Williams	33785	5211 T-2
1083 T-3	15.7	0.15	19990122	65.78994	86.39879	319.34110	5.09857	0.1734788	2.5475456	26	3	1977-1999	0.91	M-v	5	Williams	25337	1083 T-3
1084 T-3	14.0	0.15	19990122	49.88979	125.11848	248.68528	8.38043	0.0977696	2.9839070	46	3	1977-1999	0.77	M-v	2	Williams	33785	1084 T-3
1107 T-3	12.9	0.15	19990122	177.31037	66.61891	241.50597	13.00550	0.1521543	2.8859614	39	4	1977-1999	0.86	M-v	3	Williams	33589	1107 T-3
2173 T-3	15.2	0.15	19990122	104.93924	188.17897	211.96494	8.38133	0.1378223	2.2426523	25	3	1977-1996	1.01	M-v	5	Williams	28320	2173 T-3
2182 T-3	14.9	0.15	19990122	253.59055	3.89025	237.81906	2.60213	0.0987568	2.2397568	33	3	1977-1999	0.83	M-v	3	Williams	33785	2182 T-3
2189 T-3	14.9	0.15	19990122	50.21534	121.82399	247.29047	3.07276	0.1990108	2.5833755	37	2	1977-1998	0.89	M-v	5	Spahr	33736	2189 T-3
2193 T-3	14.8	0.15	19990122	27.03957	90.54883	359.60465	3.78853	0.2008407	2.5532905	37	3	1977-1999	0.79	M-v	3	Williams	33785	2193 T-3
2219 T-3	15.3	0.15	19990122	116.82499	54.48042	329.29398	2.79333	0.0547169	2.5147911	31	2	1977-1999	0.83	M-v	5	Williams	33737	2219 T-3
2326 T-3	14.7	0.15	19990122	133.06564	81.11338	281.11944	2.28792	0.0439420	2.5187851	41	5	1953-1999	0.86	M-v	4	Williams	30915	2326 T-3
3357 T-3	13.1	0.15	19990122	106.75369	30.20196	14.82267	2.11391	0.0463085	2.8778363	48	5	1977-1999	0.95	M-v	1	Williams	31161	3357 T-3
3423 T-3	15.7	0.15	19990122	10.96214	343.88667	102.77275	1.61889	0.1664994	2.5676531	31	2	1977-1999	0.84	M-v	4	Spahr	33785	3423 T-3
3813 T-3	16.8	0.15	19990122	126.95152	316.44735	25.01692	1.64464	0.1556890	2.5341844	21	4	1977-1999	0.79	M-v	5	Williams	33785	3813 T-3
4050 T-3	14.6	0.15	19990122	46.54960	284.60993	135.64076	5.07799	0.1448387	2.5532373	49	3	1971-1999	0.66	M-v	3	Williams	33785	4050 T-3
4094 T-3	14.8	0.15	19990122	152.24643	281.14202	60.69060	4.95064	0.0732688	2.5158627	49	5	1977-1999	0.92	M-v	4	Williams	30915	4094 T-3
4196 T-3	15.0	0.15	19990122	17.88292	254.97281	148.90238	4.81474	0.0966336	2.5901617	27	2	1977-1998	0.75	M-v	5	Spahr	33329	4196 T-3
4205 T-3	13.8	0.15	19990122	93.13920	218.35431	97.95259	3.56160	0.2107971	2.5780104	37	2	1977-1998	0.67	M-v	4	Spahr	33590	4205 T-3
4314 T-3	13.0	0.15	19990122	238.62935	179.64548	119.10476	3.24622	0.0478229	2.8400955	46	10	1954-1999	0.82	M-v	1	Williams	31161	4314 T-3
5082 T-3	15.4	0.15	19990122	35.35461	247.39299	108.31269	5.57247	0.1488212	2.3130006	29	2	1977-1998	0.87	M-v	3	Williams	33537	5082 T-3
5083 T-3	15.5	0.15	19990122	10.26749	351.13997	129.92700	7.41604	0.0856646	2.2554492	25	2	1977-1999	0.71	M-v	5	Williams	33737	5083 T-3

1996 TK₂₇ = 1996 TT₃₆ (A. Doppler)1997 BB = 1997 CS₁ (A. Doppler)1997 ER₁₆ = 1997 GS₂₆ (A. Doppler)1997 EA₃₁ = 1997 GU₂₈ (A. Doppler)1997 EV₄₉ = 1997 GS₂₈ (A. Doppler)1997 EL₅₅ = 1997 HO₁₄ (A. Doppler)1997 FG₃ = 1997 GL₁₉ (A. Doppler)1997 GZ₃₅ = 1997 HO₁₃ (A. Doppler)1997 GN₄₀ = 1997 HR₈ (A. Doppler)1997 GO₄₀ = 1997 HV₉ (A. Doppler)1997 GP₄₀ = 1997 HD₁₂ (A. Doppler)1997 JU₁₅ = 1997 LP₂ (A. Doppler)1997 JY₁₇ = 1997 KP₂ (A. Doppler)1997 NM₃ = 1997 ON₁ (A. Doppler)1997 WC₃₁ = 1998 BF₃₄ (A. Doppler)1997 WY₄₄ = 1997 YZ₉ (A. Doppler)1998 FQ₈₇ = 1998 HY₁₂ (A. Doppler)1998 HN₁ = 1998 FN₇₃ (A. Doppler)1998 HH₇₇ = 1998 MK₁₄ (A. Doppler)1998 SW₁₃ = 1998 QU₃₉ (A. Doppler)1998 SR₂₁ = 1998 UD₃₇ (A. Doppler)1998 SH₆₄ = 1998 UE₃₈ (A. Doppler, MPC 33785)1998 SS₆₄ = 1998 US₃₈ (A. Doppler)1998 SM₁₃₃ = 1998 UW₂₁ (A. Doppler)1998 SA₁₄₁ = 1998 UB₂₂ (A. Doppler)1998 SR₁₆₄ = 1998 VS₃₀ (A. Doppler, MPC 33785)1998 TH₃₃ = 1998 VB₁₁ (A. Doppler)1998 UM₃ = 1998 QT₂₁ (A. Doppler)1998 UZ₂₈ = 1999 AB₂₁ (G. V. Williams)1998 UW₃₄ = 1999 AT₁₀ (G. V. Williams, A. Doppler)1998 UV₃₆ = 1998 VP₈ (A. Doppler)1998 UG₄₀ = 1998 VS₈ (A. Doppler)1998 VH₄ = 1998 XM₉ (A. Doppler)1998 VJ₈ = 1998 UP₃₈ (A. Doppler)1998 VD₁₃ = 1998 SS₁₃ (A. Doppler)1998 VW₄₃ = 1998 WJ₃₀ (A. Doppler)1998 WX₆ = 1998 XK₇₃ (G. V. Williams, MPC 33786)1998 WY₉ = 1998 WC₁₂ (A. Doppler)1998 WZ₉ = 1998 WZ₁₁ (A. Doppler)1998 WW₁₈ = 1998 WG₄ (G. V. Williams, MPC 33590)1998 XW₂ = 1998 RP₄₀ (A. Doppler)1998 XP₂₇ = 1999 BA₇ (A. Doppler)1998 XY₄₈ = 1999 BV₁₆ (A. Doppler)1998 XC₄₉ = 1999 BU₁₆ (A. Doppler)1998 XG₆₁ = 1999 BR₂₅ (A. Doppler)1998 XR₇₃ = 1999 BX₁₆ (A. Doppler)1998 XJ₇₄ = 1999 BN₁₇ (A. Doppler)1998 XN₈₉ = 1999 BQ₂₁ (A. Doppler)1998 YX₂ = 1998 VF₄₄ (G. V. Williams)1999 AD₃₃ = 1999 BR₉ (G. V. Williams)

1999 BH₁₂ = 1999 BG₈ (G. V. Williams)
 1999 BK₂₆ = 1999 BG₂₈ (A. Doppler)
 1999 BM₂₆ = 1999 BA₃₃ (A. Doppler)
 1999 CF₂₁ = 1999 BR₃₃ (G. V. Williams)

EPHEMERIDES

P/1999 D1 (Hermann)		Elements <i>MPC</i> 33858						
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1 m_2
1999 02 21		12 14.64	+03 04.2	0.721	1.652	149.5	17.7	16.5
1999 03 03		12 06.36	-01 35.1	0.692	1.658	159.9	11.9	16.4
1999 03 13		11 55.14	-06 11.4	0.685	1.671	168.8	6.6	16.4
1999 03 23		11 43.07	-10 23.1	0.704	1.692	168.7	6.6	16.5
1999 04 02		11 32.53	-13 54.8	0.746	1.720	160.2	11.3	16.7
1999 04 12		11 25.23	-16 42.6	0.810	1.754	150.8	16.2	17.0
1999 04 22		11 22.05	-18 52.3	0.892	1.794	142.1	20.1	17.3
1999 05 02		11 23.06	-20 34.4	0.989	1.839	134.2	23.1	17.6
1999 05 12		11 27.79	-21 58.2	1.100	1.889	127.1	25.3	18.0
1999 05 22		11 35.67	-23 11.2	1.222	1.943	120.6	26.6	18.3
1999 06 01		11 46.08	-24 18.8	1.354	2.001	114.6	27.4	18.7
1999 06 11		11 58.46	-25 23.8	1.494	2.061	108.9	27.8	19.0
1999 06 21		12 12.42	-26 28.0	1.643	2.124	103.5	27.7	19.3
1999 07 01		12 27.59	-27 32.4	1.798	2.189	98.3	27.4	19.7
1999 07 11		12 43.71	-28 36.8	1.959	2.256	93.2	26.7	20.0
1999 07 21		13 00.58	-29 41.2	2.125	2.325	88.1	25.9	20.3
1999 07 31		13 18.06	-30 45.1	2.295	2.395	83.1	24.9	20.6
1999 08 10		13 36.01	-31 47.9	2.468	2.465	78.0	23.7	20.9

1999 AU ₂₃		$a, e, i = 2.16, 0.41, 20$				Elements <i>MPC</i> 34041		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03		05 15.46	+20 23.0	1.072	1.553	97.6	39.2	19.9
1999 03 13		05 41.02	+18 27.7	1.198	1.603	93.5	38.2	20.1
1999 03 23		06 05.27	+16 46.2	1.331	1.654	89.3	37.0	20.4
1999 04 02		06 28.47	+15 13.7	1.470	1.706	85.2	35.7	20.7
1999 04 12		06 50.79	+13 46.3	1.611	1.758	80.9	34.3	20.9
1999 04 22		07 12.40	+12 21.2	1.756	1.811	76.7	32.7	21.1
1999 05 02		07 33.38	+10 56.2	1.901	1.864	72.5	31.0	21.3
1999 05 12		07 53.79	+09 29.9	2.046	1.916	68.2	29.3	21.4
1999 05 22		08 13.69	+08 01.2	2.191	1.968	63.9	27.5	21.6
1999 06 01		08 33.11	+06 29.6	2.333	2.019	59.6	25.7	21.7

1999 CW ₈		$a, e, i = 2.22, 0.60, 34$				Elements <i>MPC</i> 34048		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03		06 40.23	-15 00.2	0.299	1.144	113.5	52.6	18.1
1999 03 13		05 52.02	-27 22.6	0.341	1.069	93.3	68.1	18.7
1999 03 23		05 13.08	-35 48.7	0.397	1.003	79.5	77.6	19.2
1999 04 02		04 38.80	-41 32.8	0.453	0.950	70.6	82.7	19.6
1999 04 12		04 05.15	-45 15.4	0.504	0.914	65.2	84.7	19.8
1999 04 22		03 30.87	-47 08.0	0.547	0.897	62.7	84.5	19.9
1999 05 02		02 57.17	-47 15.9	0.578	0.902	62.6	82.7	20.0
1999 05 12		02 26.40	-45 53.1	0.597	0.928	64.7	79.7	20.0
1999 05 22		01 59.61	-43 26.1	0.602	0.973	68.8	75.9	20.0
1999 06 01		01 35.78	-40 20.4	0.595	1.033	74.8	71.4	19.9
1999 06 11		01 12.70	-36 54.1	0.577	1.103	82.7	66.0	19.8

1999 06 21	00 47.48	-33 15.2	0.552	1.180	92.8	59.3	19.7
1999 07 01	00 17.41	-29 19.6	0.526	1.262	105.4	51.0	19.5
1999 07 11	23 40.94	-24 57.6	0.506	1.347	120.6	40.5	19.3
1999 07 21	22 58.96	-20 05.2	0.505	1.432	138.1	28.3	19.0
1999 07 31	22 16.05	-15 01.5	0.532	1.518	156.6	15.4	18.9
1999 08 10	21 38.06	-10 27.4	0.592	1.603	172.7	4.6	18.8
1999 08 20	21 08.78	-06 53.1	0.685	1.687	167.2	7.6	19.4
1999 08 30	20 48.86	-04 21.3	0.805	1.769	154.0	14.5	20.1
1999 09 09	20 36.99	-02 38.4	0.947	1.849	142.2	19.5	20.7
1999 09 19	20 31.46	-01 27.8	1.106	1.928	131.9	22.8	21.2
1999 09 29	20 30.72	-00 36.3	1.277	2.004	122.7	24.9	21.7
1999 10 09	20 33.55	+00 05.3	1.458	2.078	114.2	26.0	22.1

1999 BY ₉		$a, e, i = 1.83, 0.30, 1$				Elements <i>MPC</i> 34043		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03		06 49.73	+20 49.5	0.552	1.352	119.6	39.6	18.3
1999 03 13		07 02.29	+20 34.8	0.578	1.327	112.6	43.7	18.5
1999 03 23		07 20.12	+20 08.2	0.606	1.307	106.8	46.9	18.7
1999 04 02		07 42.30	+19 24.8	0.634	1.292	102.2	49.1	18.8
1999 04 12		08 07.84	+18 20.8	0.664	1.282	98.5	50.7	18.9
1999 04 22		08 35.94	+16 53.4	0.696	1.277	95.6	51.6	19.0
1999 05 02		09 05.80	+15 01.8	0.730	1.277	93.3	52.0	19.2
1999 05 12		09 36.71	+12 47.2	0.767	1.283	91.4	51.9	19.3
1999 05 22		10 08.14	+10 12.4	0.809	1.295	89.9	51.4	19.4
1999 06 01		10 39.63	+07 21.8	0.857	1.311	88.6	50.6	19.5
1999 06 11		11 10.85	+04 20.8	0.911	1.332	87.3	49.6	19.7
1999 06 21		11 41.65	+01 14.7	0.972	1.357	86.1	48.3	19.8
1999 07 01		12 11.90	-01 51.3	1.040	1.386	84.7	46.9	20.0
1999 07 11		12 41.57	-04 52.4	1.116	1.417	83.2	45.4	20.1
1999 07 21		13 10.72	-07 45.1	1.200	1.452	81.4	43.8	20.3
1999 07 31		13 39.38	-10 26.6	1.290	1.488	79.4	42.1	20.5
1999 08 10		14 07.59	-12 54.6	1.387	1.526	77.2	40.4	20.6
1999 08 20		14 35.46	-15 07.7	1.491	1.565	74.7	38.6	20.8
1999 08 30		15 03.01	-17 04.9	1.599	1.605	72.0	36.7	20.9
1999 09 09		15 30.28	-18 45.5	1.712	1.645	69.0	34.9	21.1
1999 09 19		15 57.30	-20 09.2	1.828	1.686	65.7	32.9	21.2
1999 09 29		16 24.04	-21 16.0	1.946	1.726	62.3	30.9	21.4

1999 CT ₃		$a, e, i = 1.43, 0.13, 34$				Elements <i>MPC</i> 34046		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03		07 14.24	+21 02.0	0.561	1.393	125.3	35.5	19.2
1999 03 13		07 07.62	+13 45.4	0.624	1.374	114.3	41.2	19.6
1999 03 23		07 08.20	+07 49.4	0.696	1.355	105.0	45.2	19.9
1999 04 02		07 13.82	+02 56.9	0.770	1.337	97.3	47.8	20.2
1999 04 12		07 23.01	-01 10.6	0.843	1.320	90.9	49.4	20.4
1999 04 22		07 34.94	-04 48.8	0.911	1.303	85.6	50.2	20.5
1999 05 02		07 49.07	-08 09.3	0.972	1.288	81.2	50.6	20.7
1999 05 12		08 05.09	-11 20.1	1.024	1.275	77.6	50.7	20.8
1999 05 22		08 22.97	-14 27.0	1.067	1.263	74.8	50.6	20.8
1999 06 01		08 42.72	-17 34.2	1.101	1.254	72.6	50.5	20.9
1999 06 11		09 04.52	-20 43.8	1.125	1.246	71.0	50.4	20.9
1999 06 21		09 28.72	-23 56.7	1.142	1.241	69.9	50.3	20.9
1999 07 01		09 55.69	-27 12.3	1.152	1.239	69.4	50.2	20.9
1999 07 11		10 25.98	-30 27.0	1.157	1.239	69.1	50.1	20.9

1999 07 21	11 00.17	-33 35.4	1.161	1.241	69.2	49.9	21.0
1999 07 31	11 38.69	-36 28.1	1.165	1.246	69.3	49.7	21.0
1999 08 10	12 21.74	-38 52.2	1.173	1.254	69.5	49.2	21.0
1999 08 20	13 08.88	-40 33.7	1.188	1.263	69.5	48.6	21.0
1999 08 30	13 58.79	-41 20.2	1.213	1.275	69.3	47.8	21.0
1999 09 09	14 49.47	-41 04.9	1.248	1.288	68.7	46.8	21.1
1999 09 19	15 38.76	-39 49.9	1.295	1.303	67.7	45.5	21.2
1999 09 29	16 24.97	-37 44.5	1.353	1.320	66.2	44.0	21.3
1999 10 09	17 07.29	-35 01.6	1.421	1.337	64.4	42.3	21.3
1999 10 19	17 45.65	-31 53.9	1.497	1.355	62.1	40.5	21.4
1999 10 29	18 20.39	-28 31.5	1.579	1.374	59.5	38.5	21.5
1999 11 08	18 52.09	-25 01.5	1.665	1.393	56.7	36.5	21.6
1999 11 18	19 21.31	-21 28.2	1.752	1.412	53.7	34.3	21.7
1999 11 28	19 48.55	-17 53.9	1.839	1.431	50.5	32.2	21.8
1999 12 08	20 14.27	-14 19.5	1.923	1.450	47.3	30.0	21.8
1999 12 18	20 38.83	-10 45.3	2.004	1.468	44.2	27.8	21.9
1999 12 28	21 02.52	-07 11.2	2.080	1.486	41.0	25.7	21.9
2000 01 07	21 25.60	-03 36.8	2.150	1.503	38.0	23.8	22.0

1999 CF₉		$a, e, i = 1.77, 0.60, 6$				Elements <i>MPC</i> 34048	
Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03	08 12.57	+18 31.7	0.217	1.164	139.2	33.8	16.3
1999 03 08	07 40.13	+22 13.7	0.191	1.116	126.1	46.0	16.3
1999 03 13	06 59.15	+26 14.7	0.171	1.068	111.2	60.2	16.4
1999 03 18	06 07.72	+30 04.8	0.157	1.020	94.7	76.5	16.6
1999 03 23	05 05.55	+32 50.8	0.149	0.973	76.7	94.7	17.1
1999 03 28	03 56.77	+33 31.7	0.149	0.928	58.1	114.1	18.0
1999 04 02	02 50.55	+31 44.5	0.159	0.884	40.2	133.1	19.7

1999 05 12	00 22.72	+10 49.2	0.509	0.717	41.9	109.7	19.9
1999 05 22	00 38.48	+10 22.4	0.627	0.752	47.8	94.0	19.6
1999 06 01	00 58.54	+10 43.5	0.733	0.814	52.6	81.7	19.6
1999 06 11	01 19.61	+11 24.6	0.822	0.894	57.1	72.4	19.8
1999 06 21	01 39.85	+12 08.4	0.890	0.984	61.7	65.5	19.9
1999 07 01	01 58.28	+12 45.4	0.939	1.079	66.8	60.0	20.1
1999 07 11	02 14.36	+13 10.4	0.969	1.175	72.5	55.6	20.2
1999 07 21	02 27.62	+13 20.1	0.983	1.271	78.9	51.7	20.3
1999 07 31	02 37.61	+13 12.3	0.982	1.365	86.2	47.9	20.3
1999 08 10	02 43.88	+12 45.1	0.969	1.456	94.5	44.0	20.3
1999 08 20	02 45.85	+11 56.2	0.949	1.544	103.8	39.5	20.3
1999 08 30	02 43.06	+10 44.0	0.928	1.629	114.4	34.4	20.2
1999 09 09	02 35.25	+09 08.2	0.910	1.711	126.3	28.3	20.1
1999 09 19	02 22.65	+07 11.5	0.903	1.789	139.4	21.4	20.0
1999 09 29	02 06.38	+05 02.3	0.914	1.864	153.3	14.0	19.9
1999 10 09	01 48.33	+02 54.2	0.950	1.936	166.7	6.8	19.7
1999 10 19	01 30.81	+01 02.5	1.014	2.004	171.3	4.3	19.8
1999 10 29	01 15.87	-00 21.4	1.106	2.069	160.7	9.1	20.3
1999 11 08	01 04.63	-01 13.5	1.223	2.131	148.5	14.1	20.8
1999 11 18	00 57.45	-01 35.1	1.362	2.190	136.9	18.0	21.2
1999 11 28	00 54.12	-01 30.9	1.517	2.247	126.3	20.7	21.6
1999 12 08	00 54.10	-01 06.2	1.686	2.300	116.4	22.6	21.9

1999 CV₁₁₈		$a, e, i = 42.25, 0.25, 6$				Elements <i>MPC</i> 34058	
Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03	08 18.71	+19 51.4	38.944	39.712	140.4	0.9	23.5
1999 03 13	08 18.11	+19 53.0	39.056	39.705	130.2	1.1	23.5
1999 03 23	08 17.65	+19 54.2	39.188	39.698	120.2	1.2	23.5
1999 04 02	08 17.35	+19 54.9	39.335	39.692	110.2	1.4	23.6
1999 04 12	08 17.22	+19 55.0	39.493	39.685	100.3	1.4	23.6
1999 04 22	08 17.26	+19 54.5	39.655	39.678	90.6	1.5	23.6
1999 05 02	08 17.48	+19 53.5	39.818	39.671	80.9	1.4	23.6
1999 05 12	08 17.87	+19 51.9	39.977	39.664	71.3	1.4	23.6
1999 05 22	08 18.41	+19 49.8	40.126	39.657	61.8	1.3	23.6
1999 06 01	08 19.10	+19 47.2	40.262	39.650	52.4	1.2	23.6
1999 06 11	08 19.92	+19 44.2	40.380	39.644	43.0	1.0	23.6
1999 06 21	08 20.85	+19 40.9	40.479	39.637	33.7	0.8	23.6

1997 AP₁₀		$a, e, i = 1.44, 0.64, 7$				Elements <i>MPC</i> 33949	
Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03	08 36.26	+10 17.6	0.796	1.710	145.9	18.9	18.7
1999 03 08	08 24.81	+10 51.4	0.796	1.672	138.2	23.3	18.8
1999 03 13	08 14.52	+11 22.2	0.800	1.633	130.8	27.4	18.9
1999 03 18	08 05.62	+11 49.6	0.809	1.592	123.7	31.3	19.0
1999 03 23	07 58.25	+12 13.3	0.820	1.551	116.9	35.0	19.1
1999 03 28	07 52.44	+12 33.1	0.832	1.507	110.6	38.3	19.1
1999 04 02	07 48.15	+12 49.3	0.845	1.463	104.6	41.4	19.2
1999 04 07	07 45.29	+13 02.0	0.858	1.416	99.0	44.3	19.2
1999 04 12	07 43.77	+13 11.3	0.869	1.369	93.8	46.9	19.3
1999 04 17	07 43.46	+13 17.5	0.878	1.320	88.8	49.5	19.3
1999 04 22	07 44.24	+13 20.8	0.884	1.269	84.2	52.0	19.3
1999 04 27	07 45.97	+13 21.3	0.886	1.217	79.7	54.5	19.3
1999 05 02	07 48.50	+13 19.3	0.884	1.163	75.5	57.0	19.2
1999 05 07	07 51.69	+13 15.0	0.878	1.108	71.5	59.7	19.2
1999 05 12	07 55.38	+13 09.0	0.867	1.051	67.6	62.7	19.1
1999 05 17	07 59.41	+13 01.9	0.850	0.993	63.8	66.0	19.1
1999 05 22	08 03.52	+12 54.5	0.827	0.934	60.1	69.9	19.0

1999 CT₈		$a, e, i = 1.25, 0.39, 44$				Elements <i>MPC</i> 34048	
Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03	08 46.18	+39 38.2	0.510	1.407	136.7	28.9	18.9
1999 03 13	08 22.72	+29 10.6	0.612	1.455	128.5	32.3	19.5
1999 03 23	08 14.28	+21 25.1	0.738	1.501	119.0	35.5	20.1
1999 04 02	08 13.80	+15 43.8	0.878	1.542	110.3	37.5	20.6
1999 04 12	08 17.97	+11 24.9	1.025	1.579	102.3	38.3	21.0
1999 04 22	08 25.13	+07 58.7	1.175	1.612	95.1	38.4	21.3
1999 05 02	08 34.33	+05 05.5	1.323	1.642	88.5	37.8	21.6
1999 05 12	08 45.00	+02 32.7	1.467	1.667	82.4	36.9	21.8
1999 05 22	08 56.81	+00 11.9	1.605	1.689	76.7	35.7	22.0

1999 CU₃		$a, e, i = 1.58, 0.52, 11$				Elements <i>MPC</i> 34046	
Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03	08 59.89	+22 08.6	0.957	1.876	148.8	15.9	18.6
1999 03 13	08 42.31	+21 53.0	0.973	1.818	135.1	22.7	18.8
1999 03 23	08 29.79	+21 13.9	1.006	1.757	122.6	28.6	19.0
1999 04 02	08 22.92	+20 17.6	1.049	1.692	111.4	33.4	19.1
1999 04 12	08 21.36	+19 09.2	1.094	1.624	101.5	37.2	19.3

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1999 04 22	08 24.49	+17 50.7	1.137	1.553	92.7	40.3	19.3
1999 05 02	08 31.57	+16 22.4	1.174	1.478	85.0	42.8	19.4
1999 05 12	08 41.94	+14 43.4	1.200	1.401	78.1	44.9	19.3
1999 05 22	08 55.11	+12 51.9	1.214	1.321	72.1	46.8	19.3
1999 06 01	09 10.68	+10 46.0	1.214	1.238	66.8	48.8	19.2
1999 06 11	09 28.40	+08 23.7	1.197	1.154	62.2	51.1	19.1

1999 DJ ₃		$a, e, i = 1.66, 0.32, 29$				Elements <i>MPC</i> 34059	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 03 03		09 07.80	-04 31.5	0.285	1.248	151.2	22.5
1999 03 08		08 45.72	-10 59.5	0.292	1.231	140.2	31.1
1999 03 13		08 26.01	-16 44.8	0.306	1.215	130.3	38.6
1999 03 18		08 09.23	-21 38.6	0.326	1.200	121.8	44.9
1999 03 23		07 55.55	-25 43.5	0.350	1.186	114.6	49.8
1999 03 28		07 44.80	-29 07.8	0.375	1.173	108.7	53.7
1999 04 02		07 36.64	-32 00.6	0.402	1.162	103.7	56.6
1999 04 07		07 30.73	-34 29.6	0.428	1.153	99.7	58.9
1999 04 12		07 26.77	-36 41.1	0.453	1.145	96.4	60.5

1999 CU ₁₁₈		$a, e, i = 3.17, 0.26, 16$				Elements <i>MPC</i> 34058	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 03 03		09 21.20	-07 18.4	2.271	3.185	152.9	8.2
1999 03 13		09 15.44	-06 23.7	2.345	3.210	144.9	10.2
1999 03 23		09 11.61	-05 26.7	2.443	3.235	136.0	12.4
1999 04 02		09 09.93	-04 32.3	2.561	3.259	126.8	14.2
1999 04 12		09 10.35	-03 44.2	2.694	3.284	117.8	15.7
1999 04 22		09 12.76	-03 04.8	2.839	3.308	109.1	16.7
1999 05 02		09 16.94	-02 35.5	2.992	3.331	100.8	17.3
1999 05 12		09 22.66	-02 16.9	3.150	3.355	92.8	17.5
1999 05 22		09 29.69	-02 08.9	3.308	3.378	85.2	17.4
1999 06 01		09 37.81	-02 11.2	3.466	3.401	77.9	16.9
1999 06 11		09 46.82	-02 23.3	3.620	3.423	70.8	16.3
1999 06 21		09 56.57	-02 44.5	3.768	3.445	63.9	15.4
1999 07 01		10 06.90	-03 14.1	3.909	3.467	57.3	14.3
1999 07 11		10 17.69	-03 51.3	4.041	3.488	50.8	13.0
1999 07 21		10 28.85	-04 35.5	4.162	3.509	44.4	11.7
1999 07 31		10 40.29	-05 25.9	4.271	3.530	38.2	10.2
1999 08 10		10 51.92	-06 21.7	4.367	3.550	32.2	8.7

1999 DA		$a, e, i = 46.07, 0.00, 3$				Elements <i>MPC</i> 34058	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 03 03		09 31.73	+17 38.5	45.154	46.071	157.4	0.5
1999 03 13		09 31.07	+17 41.4	45.231	46.071	147.3	0.7
1999 03 23		09 30.50	+17 43.8	45.334	46.071	137.3	0.8
1999 04 02		09 30.02	+17 45.6	45.459	46.071	127.3	1.0
1999 04 12		09 29.66	+17 46.8	45.602	46.071	117.4	1.1
1999 04 22		09 29.44	+17 47.3	45.758	46.071	107.5	1.2
1999 05 02		09 29.35	+17 47.2	45.923	46.071	97.8	1.2
1999 05 12		09 29.41	+17 46.3	46.092	46.071	88.2	1.3
1999 05 22		09 29.61	+17 44.7	46.261	46.071	78.6	1.2
1999 06 01		09 29.95	+17 42.6	46.423	46.071	69.1	1.2
1999 06 11		09 30.42	+17 39.8	46.576	46.071	59.6	1.1
1999 06 21		09 31.00	+17 36.6	46.714	46.071	50.3	1.0

1999 07 01	09 31.69	+17 32.9	46.834	46.071	40.9	0.8	24.7
1999 07 11	09 32.47	+17 28.8	46.934	46.071	31.6	0.7	24.7

1999 CN ₁₁₈		$a, e, i = 2.27, 0.10, 1$				Elements <i>MPC</i> 34058	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 03 03		09 41.36	+12 31.8	1.480	2.440	161.4	7.4
1999 03 13		09 33.52	+13 10.6	1.540	2.448	149.4	11.9
1999 03 23		09 28.30	+13 36.8	1.621	2.455	138.1	15.7
1999 04 02		09 26.06	+13 49.3	1.721	2.462	127.7	18.7
1999 04 12		09 26.75	+13 48.3	1.834	2.468	118.0	21.0
1999 04 22		09 30.14	+13 34.4	1.957	2.474	109.1	22.6
1999 05 02		09 35.89	+13 08.7	2.085	2.480	100.8	23.5
1999 05 12		09 43.61	+12 32.3	2.217	2.485	93.1	23.9
1999 05 22		09 52.97	+11 46.0	2.349	2.490	85.9	23.9
1999 06 01		10 03.66	+10 50.7	2.479	2.494	79.0	23.5
1999 06 11		10 15.42	+09 47.3	2.607	2.498	72.5	22.8
1999 06 21		10 28.07	+08 36.5	2.729	2.501	66.3	21.8
1999 07 01		10 41.41	+07 19.1	2.846	2.504	60.3	20.7
1999 07 11		10 55.33	+05 55.8	2.955	2.506	54.5	19.3
1999 07 21		11 09.73	+04 27.3	3.056	2.508	48.9	17.8
1999 07 31		11 24.53	+02 54.4	3.149	2.509	43.3	16.1
1999 08 10		11 39.68	+01 18.0	3.232	2.510	37.9	14.4
1999 08 20		11 55.14	-00 21.4	3.305	2.510	32.5	12.5

1999 CV ₃		$a, e, i = 1.46, 0.39, 23$				Elements <i>MPC</i> 34046	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 03 03		09 56.31	+53 43.4	0.214	1.146	131.9	40.1
1999 03 08		09 47.62	+63 58.3	0.219	1.116	119.2	50.9
1999 03 13		09 33.8	+73 01.2	0.230	1.087	107.9	60.5
1999 03 18		09 05.2	+80 38.3	0.245	1.059	98.3	68.5
1999 03 23		07 12	+86 33.5	0.263	1.031	90.2	75.0
1999 03 28		00 29	+86 13.3	0.282	1.006	83.5	80.3
1999 04 02		23 03.5	+81 50.4	0.301	0.982	77.9	84.6
1999 04 07		22 41.6	+77 37.7	0.320	0.959	73.4	88.0
1999 04 12		22 33.2	+73 42.4	0.338	0.940	69.6	90.7
1999 04 17		22 30.4	+70 00.2	0.355	0.922	66.6	92.7
1999 04 22		22 30.92	+66 26.8	0.371	0.908	64.3	94.1
1999 04 27		22 33.85	+62 59.3	0.386	0.897	62.6	94.9
1999 05 02		22 38.74	+59 36.0	0.400	0.889	61.5	95.2
1999 05 07		22 45.25	+56 16.6	0.412	0.885	60.9	95.1
1999 05 12		22 53.08	+53 01.1	0.423	0.885	60.9	94.4
1999 05 17		23 01.97	+49 49.5	0.433	0.888	61.3	93.4
1999 05 22		23 11.67	+46 41.6	0.442	0.895	62.1	92.0
1999 05 27		23 21.99	+43 37.2	0.449	0.906	63.4	90.3
1999 06 01		23 32.75	+40 35.9	0.455	0.919	65.0	88.3
1999 06 06		23 43.76	+37 37.5	0.460	0.936	67.0	86.1
1999 06 11		23 54.83	+34 40.9	0.463	0.956	69.3	83.7
1999 06 16		00 05.77	+31 44.9	0.465	0.977	71.9	81.2
1999 06 21		00 16.44	+28 47.6	0.465	1.001	74.9	78.5
1999 06 26		00 26.71	+25 47.5	0.463	1.027	78.1	75.7
1999 07 01		00 36.45	+22 42.8	0.461	1.053	81.6	72.7
1999 07 06		00 45.54	+19 31.8	0.458	1.081	85.5	69.6
1999 07 11		00 53.83	+16 12.6	0.453	1.110	89.6	66.3
1999 07 16		01 01.18	+12 43.5	0.449	1.140	94.1	62.8

1999 MAR. 2

M.P.C. 34065

1999 07 21	01 07.46	+09 03.0	0.445	1.170	98.8	59.1	15.5
1999 07 26	01 12.56	+05 10.7	0.441	1.200	103.9	55.2	15.4
1999 07 31	01 16.36	+01 06.9	0.438	1.231	109.2	51.2	15.4
1999 08 05	01 18.73	-03 07.1	0.437	1.261	114.7	46.9	15.3
1999 08 10	01 19.53	-07 28.6	0.438	1.292	120.4	42.6	15.2
1999 08 15	01 18.68	-11 53.1	0.442	1.322	126.0	38.3	15.2
1999 08 20	01 16.13	-16 14.4	0.450	1.352	131.3	34.2	15.1
1999 08 25	01 11.94	-20 25.5	0.461	1.381	136.2	30.4	15.1
1999 08 30	01 06.20	-24 19.2	0.477	1.410	140.3	27.2	15.2
1999 09 04	00 59.09	-27 49.5	0.498	1.439	143.3	24.8	15.2
1999 09 09	00 50.91	-30 51.1	0.523	1.467	145.0	23.2	15.3
1999 09 14	00 42.04	-33 21.1	0.553	1.495	145.4	22.5	15.5
1999 09 19	00 32.95	-35 18.4	0.587	1.522	144.6	22.5	15.6
1999 09 24	00 24.09	-36 44.2	0.626	1.548	142.7	23.1	15.8
1999 09 29	00 15.83	-37 41.1	0.668	1.574	140.1	24.1	16.0
1999 10 04	00 08.48	-38 12.5	0.714	1.599	137.1	25.2	16.2
1999 10 09	00 02.24	-38 21.8	0.763	1.624	133.9	26.3	16.5
1999 10 14	23 57.25	-38 12.5	0.815	1.648	130.5	27.4	16.7
1999 10 19	23 53.55	-37 48.1	0.869	1.671	127.0	28.4	16.9
1999 10 24	23 51.10	-37 11.5	0.926	1.693	123.6	29.3	17.1
1999 10 29	23 49.83	-36 25.2	0.985	1.715	120.2	30.1	17.2
1999 11 03	23 49.63	-35 31.3	1.046	1.736	116.8	30.7	17.4
1999 11 08	23 50.41	-34 31.2	1.108	1.756	113.5	31.2	17.6
1999 11 13	23 52.09	-33 26.2	1.172	1.776	110.2	31.5	17.7
1999 11 18	23 54.55	-32 17.6	1.236	1.795	107.0	31.8	17.9
1999 11 23	23 57.70	-31 06.1	1.302	1.813	103.9	31.9	18.0
1999 11 28	00 01.45	-29 52.5	1.368	1.830	100.8	32.0	18.2
1999 12 03	00 05.74	-28 37.3	1.435	1.847	97.7	31.9	18.3
1999 12 08	00 10.50	-27 20.8	1.502	1.863	94.7	31.8	18.4
1999 12 13	00 15.68	-26 03.4	1.570	1.878	91.8	31.6	18.5
1999 12 18	00 21.23	-24 45.5	1.637	1.893	88.9	31.3	18.6
1999 12 23	00 27.11	-23 27.3	1.704	1.907	86.0	31.0	18.7
1999 12 28	00 33.27	-22 09.0	1.771	1.920	83.1	30.6	18.8
2000 01 02	00 39.69	-20 50.8	1.837	1.932	80.3	30.1	18.9
2000 01 07	00 46.35	-19 32.9	1.902	1.944	77.6	29.6	18.9
2000 01 12	00 53.23	-18 15.3	1.966	1.955	74.8	29.0	19.0
2000 01 17	01 00.30	-16 58.2	2.030	1.965	72.1	28.5	19.1
2000 01 22	01 07.54	-15 41.8	2.092	1.975	69.5	27.8	19.1
2000 01 27	01 14.95	-14 26.2	2.153	1.984	66.8	27.1	19.2
2000 02 01	01 22.51	-13 11.4	2.212	1.992	64.2	26.4	19.2
2000 02 06	01 30.22	-11 57.6	2.270	1.999	61.6	25.7	19.3

1999 DB₂ $a, e, i = 2.95, 0.61, 12$

Elements MPC 34059

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03	10 13.07	+02 40.6	0.417	1.403	169.0	7.7	18.2
1999 03 13	09 56.24	-01 51.1	0.368	1.338	155.9	17.7	18.2
1999 03 23	09 39.91	-07 13.0	0.335	1.279	142.8	28.1	18.2
1999 04 02	09 27.38	-13 12.8	0.314	1.228	130.9	38.0	18.3
1999 04 12	09 20.91	-19 39.1	0.302	1.187	121.2	46.2	18.3
1999 04 22	09 22.11	-26 25.5	0.294	1.157	114.2	52.4	18.4
1999 05 02	09 32.30	-33 30.6	0.290	1.140	110.1	56.1	18.4
1999 05 12	09 53.37	-40 45.0	0.289	1.137	109.0	57.1	18.4
1999 05 22	10 29.08	-47 43.3	0.292	1.148	110.7	55.5	18.4

1999 06 01	11 24.02	-53 33.1	0.301	1.173	114.9	51.7	18.4
1999 06 11	12 38.37	-56 51.1	0.320	1.209	120.4	46.4	18.5
1999 06 21	13 59.71	-56 38.5	0.351	1.256	126.2	40.8	18.6
1999 07 01	15 09.96	-53 31.0	0.398	1.312	130.7	36.0	18.9
1999 07 11	16 02.86	-49 01.2	0.462	1.374	133.1	32.7	19.2
1999 07 21	16 42.12	-44 23.2	0.543	1.442	133.0	31.0	19.6
1999 07 31	17 12.64	-40 12.6	0.640	1.513	130.8	30.5	20.0
1999 08 10	17 37.81	-36 38.6	0.754	1.588	127.3	30.5	20.5
1999 08 20	17 59.82	-33 39.3	0.882	1.664	122.8	30.7	21.0
1999 08 30	18 19.91	-31 08.6	1.024	1.742	117.8	30.9	21.4
1999 09 09	18 38.76	-28 59.8	1.178	1.819	112.5	30.8	21.8
1999 09 19	18 56.86	-27 06.9	1.343	1.897	107.0	30.4	22.1

1999 DY₂ $a, e, i = 2.04, 0.46, 8$

Elements MPC 34059

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03	10 59.08	+22 03.6	0.112	1.100	165.0	13.5	17.7
1999 03 08	11 10.47	+13 29.6	0.114	1.106	171.6	7.5	17.6
1999 03 13	11 20.31	+05 21.4	0.121	1.114	176.7	3.0	17.4
1999 03 18	11 28.81	-01 47.9	0.131	1.125	174.2	5.2	17.8
1999 03 23	11 36.27	-07 43.0	0.144	1.139	169.6	9.1	18.2
1999 03 28	11 43.01	-12 24.6	0.161	1.155	165.7	12.3	18.6
1999 04 02	11 49.22	-16 01.2	0.181	1.173	162.5	14.8	19.0
1999 04 07	11 55.10	-18 44.0	0.203	1.193	159.7	16.9	19.3
1999 04 12	12 00.80	-20 43.7	0.227	1.215	157.3	18.6	19.7
1999 04 17	12 06.50	-22 10.1	0.254	1.238	154.9	20.1	20.0
1999 04 22	12 12.34	-23 11.3	0.283	1.263	152.7	21.4	20.3
1999 04 27	12 18.39	-23 53.9	0.314	1.289	150.4	22.7	20.6
1999 05 02	12 24.67	-24 23.1	0.348	1.316	148.1	23.9	20.9
1999 05 07	12 31.19	-24 42.5	0.385	1.344	145.7	25.0	21.2
1999 05 12	12 37.95	-24 55.2	0.424	1.373	143.2	26.1	21.5
1999 05 17	12 44.97	-25 03.4	0.466	1.403	140.7	27.2	21.8
1999 05 22	12 52.25	-25 09.1	0.510	1.433	138.1	28.1	22.1

1999 CY₁₁₈ $a, e, i = 36.29, 0.06, 41$

Elements MPC 34058

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03	10 59.42	+06 38.1	37.571	38.562	178.5	0.0	24.0
1999 03 13	10 58.60	+06 45.0	37.580	38.562	171.3	0.2	24.1
1999 03 23	10 57.80	+06 51.6	37.618	38.562	161.1	0.5	24.1
1999 04 02	10 57.06	+06 57.9	37.685	38.562	151.0	0.7	24.1
1999 04 12	10 56.40	+07 03.6	37.778	38.562	141.0	0.9	24.2
1999 04 22	10 55.85	+07 08.7	37.895	38.562	131.0	1.1	24.2
1999 05 02	10 55.43	+07 12.9	38.031	38.562	121.2	1.3	24.2
1999 05 12	10 55.14	+07 16.3	38.182	38.562	111.4	1.4	24.2
1999 05 22	10 55.01	+07 18.7	38.344	38.562	101.7	1.5	24.2
1999 06 01	10 55.04	+07 20.1	38.511	38.562	92.1	1.5	24.3
1999 06 11	10 55.23	+07 20.5	38.680	38.562	82.6	1.5	24.3
1999 06 21	10 55.57	+07 20.0	38.845	38.562	73.1	1.4	24.3
1999 07 01	10 56.05	+07 18.6	39.002	38.562	63.7	1.4	24.3
1999 07 11	10 56.68	+07 16.3	39.146	38.562	54.3	1.2	24.3
1999 07 21	10 57.42	+07 13.2	39.274	38.562	45.0	1.1	24.3
1999 07 31	10 58.27	+07 09.5	39.382	38.562	35.6	0.9	24.2

1999 CZ ₁₁₈		$a, e, i = 44.55, 0.09, 39$				Elements <i>MPC</i> 34058		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03		11 04.29	+06 13.9	47.795	48.785	177.2	0.1	24.7
1999 03 13		11 03.58	+06 17.2	47.799	48.785	172.6	0.2	24.7
1999 03 23		11 02.88	+06 20.4	47.834	48.785	162.5	0.4	24.7
1999 04 02		11 02.22	+06 23.3	47.897	48.785	152.4	0.5	24.7
1999 04 12		11 01.63	+06 25.9	47.987	48.785	142.4	0.7	24.8
1999 04 22		11 01.11	+06 27.9	48.100	48.785	132.5	0.9	24.8
1999 05 02		11 00.70	+06 29.3	48.234	48.785	122.7	1.0	24.8
1999 05 12		11 00.39	+06 30.1	48.383	48.785	112.9	1.1	24.8
1999 05 22		11 00.20	+06 30.1	48.543	48.785	103.2	1.2	24.8
1999 06 01		11 00.14	+06 29.3	48.710	48.785	93.6	1.2	24.9
1999 06 11		11 00.20	+06 27.8	48.879	48.785	84.1	1.2	24.9
1999 06 21		11 00.39	+06 25.5	49.045	48.785	74.6	1.2	24.9
1999 07 01		11 00.69	+06 22.5	49.204	48.785	65.1	1.1	24.9
1999 07 11		11 01.10	+06 18.9	49.350	48.785	55.7	1.0	24.9
1999 07 21		11 01.61	+06 14.6	49.481	48.785	46.3	0.9	24.9
1999 07 31		11 02.21	+06 09.8	49.592	48.785	36.9	0.7	24.8

1999 CC ₁₁₈		$a, e, i = 2.60, 0.20, 13$				Elements <i>MPC</i> 34058		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03		11 04.53	−08 23.8	1.417	2.386	164.3	6.5	18.2
1999 03 13		10 53.88	−08 20.9	1.391	2.365	165.3	6.1	18.2
1999 03 23		10 43.77	−08 03.2	1.391	2.345	158.0	9.2	18.3
1999 04 02		10 35.48	−07 37.3	1.417	2.325	148.1	13.1	18.5
1999 04 12		10 29.86	−07 10.2	1.463	2.306	137.8	17.0	18.6
1999 04 22		10 27.38	−06 48.2	1.526	2.287	128.1	20.2	18.8
1999 05 02		10 28.11	−06 35.9	1.602	2.269	119.0	22.9	19.0
1999 05 12		10 31.85	−06 35.9	1.688	2.251	110.6	24.8	19.1
1999 05 22		10 38.28	−06 49.4	1.779	2.234	102.9	26.2	19.3
1999 06 01		10 47.06	−07 16.7	1.873	2.217	95.8	27.1	19.4
1999 06 11		10 57.83	−07 57.0	1.968	2.202	89.2	27.5	19.5
1999 06 21		11 10.32	−08 49.5	2.063	2.187	83.1	27.5	19.6
1999 07 01		11 24.27	−09 53.1	2.156	2.173	77.3	27.2	19.7
1999 07 11		11 39.50	−11 06.3	2.247	2.160	71.9	26.6	19.7
1999 07 21		11 55.85	−12 27.7	2.335	2.148	66.8	25.8	19.8
1999 07 31		12 13.21	−13 55.9	2.419	2.137	61.9	24.8	19.8
1999 08 10		12 31.50	−15 29.0	2.500	2.127	57.1	23.6	19.8
1999 08 20		12 50.68	−17 05.6	2.576	2.119	52.6	22.3	19.9
1999 08 30		13 10.68	−18 43.8	2.647	2.111	48.1	20.9	19.9
1999 09 09		13 31.50	−20 21.8	2.714	2.105	43.7	19.3	19.9
1999 09 19		13 53.13	−21 57.8	2.777	2.100	39.4	17.7	19.9
1999 09 29		14 15.52	−23 29.8	2.834	2.097	35.2	16.0	19.8
1999 10 09		14 38.66	−24 56.0	2.887	2.094	31.0	14.2	19.8

1999 CV ₈		$a, e, i = 1.30, 0.35, 15$				Elements <i>MPC</i> 34048		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03		11 09.28	+37 27.7	0.332	1.288	149.4	23.1	18.4
1999 03 13		10 53.13	+39 23.1	0.406	1.340	142.8	26.6	19.1
1999 03 23		10 43.63	+39 24.5	0.491	1.390	135.5	30.2	19.7
1999 04 02		10 40.52	+38 17.6	0.584	1.437	128.4	33.0	20.2
1999 04 12		10 42.51	+36 31.1	0.684	1.481	121.8	35.1	20.7
1999 04 22		10 48.39	+34 20.9	0.789	1.522	115.6	36.5	21.1
1999 05 02		10 57.14	+31 56.7	0.899	1.560	109.7	37.4	21.4

1999 05 12	11 07.92	+29 24.3	1.011	1.595	104.2	37.9	21.8
1999 05 22	11 20.23	+26 46.6	1.126	1.626	98.9	38.0	22.0

1999 CA ₁₁₉		$a, e, i = 45.42, 0.00, 0$				Elements <i>MPC</i> 34058		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03		11 10.72	+05 28.9	44.433	45.421	175.4	0.1	24.3
1999 03 13		11 10.01	+05 33.3	44.432	45.421	174.4	0.1	24.3
1999 03 23		11 09.32	+05 37.7	44.462	45.421	164.2	0.3	24.3
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 07 11		11 07.89	+05 46.4	45.960	45.421	57.5	1.1	24.5
1999 07 21		11 08.48	+05 42.7	46.094	45.421	48.1	1.0	24.5
1999 07 31		11 09.16	+05 38.4	46.209	45.421	38.7	0.8	24.4

1999 CW ₁₁₈		$a, e, i = 43.45, 0.00, 1$				Elements <i>MPC</i> 34058		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03		11 11.30	+05 24.9	42.464	43.452	175.3	0.1	24.2
1999 03 13		11 10.57	+05 29.5	42.463	43.452	174.5	0.1	24.2
1999 03 23		11 09.85	+05 34.1	42.491	43.452	164.4	0.4	24.2
1999 04 02		11 09.17	+05 38.4	42.549	43.452	154.3	0.6	24.2
1999 04 12		11 08.56	+05 42.2	42.634	43.452	144.3	0.8	24.3
1999 04 22		11 08.03	+05 45.5	42.743	43.452	134.4	0.9	24.3
1999 05 02		11 07.62	+05 48.1	42.873	43.452	124.5	1.1	24.3
1999 05 12		11 07.32	+05 50.0	43.019	43.452	114.8	1.2	24.3
1999 05 22		11 07.15	+05 51.0	43.178	43.452	105.1	1.3	24.3
1999 06 01		11 07.12	+05 51.2	43.344	43.452	95.5	1.3	24.4
1999 06 11		11 07.23	+05 50.5	43.512	43.452	85.9	1.3	24.4
1999 06 21		11 07.48	+05 48.9	43.679	43.452	76.4	1.3	24.4
1999 07 01		11 07.86	+05 46.5	43.839	43.452	67.0	1.2	24.4
1999 07 11		11 08.37	+05 43.3	43.988	43.452	57.6	1.1	24.4
1999 07 21		11 08.99	+05 39.4	44.122	43.452	48.2	1.0	24.4
1999 07 31		11 09.70	+05 34.9	44.238	43.452	38.9	0.8	24.4

1999 CX ₁₁₈		$a, e, i = 44.70, 0.00, 2$				Elements <i>MPC</i> 34058		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03		11 29.43	+03 09.3	43.723	44.700	170.2	0.2	23.3
1999 03 13		11 28.73	+03 13.9	43.706	44.700	179.5	0.0	23.3
1999 03 23		11 28.02	+03 18.5	43.720	44.700	169.4	0.2	23.3
1999 04 02		11 27.35	+03 22.9	43.763	44.700	159.3	0.5	23.4
1999 04 12		11 26.72	+03 27.0	43.835	44.700	149.3	0.7	23.4
1999 04 22		11 26.17	+03 30.6	43.932	44.700	139.4	0.8	23.4
1999 05 02		11 25.71	+03 33.7	44.052	44.700	129.5	1.0	23.4
1999 05 12		11 25.37	+03 36.0	44.190	44.700	119.8	1.1	23.4
1999 05 22		11 25.14	+03 37.5	44.343	44.700	110.1	1.2	23.5
1999 06 01		11 25.04	+03 38.2	44.505	44.700	100.4	1.3	23.5
1999 06 11		11 25.08	+03 38.1	44.673	44.700	90.9	1.3	23.5

1999 06 21	11 25.26	+03 37.1	44.841	44.700	81.4	1.3	23.5
1999 07 01	11 25.56	+03 35.2	45.005	44.700	71.9	1.2	23.5
1999 07 11	11 25.99	+03 32.6	45.160	44.700	62.5	1.2	23.5
1999 07 21	11 26.54	+03 29.2	45.303	44.700	53.1	1.0	23.5
1999 07 31	11 27.18	+03 25.1	45.428	44.700	43.7	0.9	23.5
1999 08 10	11 27.92	+03 20.5	45.533	44.700	34.4	0.7	23.5

1999 DK ₃		$a, e, i = 2.10, 0.44, 43$				Elements <i>MPC</i> 34059	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 03 03	12 17.03	+33 44.1	0.690	1.614	147.1	19.5	18.0
1999 03 08	12 16.24	+39 07.3	0.676	1.586	143.0	22.1	18.0
1999 03 13	12 14.54	+44 24.1	0.671	1.557	137.7	25.5	18.1
1999 03 18	12 11.93	+49 23.1	0.674	1.528	131.6	29.2	18.1
1999 03 23	12 08.53	+53 55.5	0.685	1.500	125.3	32.8	18.2
1999 03 28	12 04.51	+57 56.1	0.701	1.473	119.2	36.3	18.3
1999 04 02	12 00.14	+61 23.2	0.720	1.445	113.4	39.4	18.5
1999 04 07	11 55.73	+64 17.6	0.742	1.419	108.0	42.1	18.6
1999 04 12	11 51.71	+66 41.7	0.766	1.393	103.2	44.5	18.6
1999 04 17	11 48.56	+68 38.7	0.789	1.368	98.8	46.5	18.7
1999 04 22	11 46.8	+70 12.2	0.812	1.344	94.8	48.2	18.8
1999 04 27	11 46.8	+71 26.0	0.833	1.321	91.3	49.6	18.9
1999 05 02	11 49.0	+72 23.1	0.851	1.299	88.2	50.8	18.9
1999 05 07	11 53.6	+73 06.0	0.867	1.278	85.6	51.9	18.9
1999 05 12	12 00.5	+73 36.2	0.880	1.259	83.3	52.8	19.0
1999 05 17	12 10.0	+73 55.0	0.889	1.242	81.3	53.6	19.0
1999 05 22	12 21.9	+74 02.9	0.895	1.226	79.8	54.3	19.0
1999 05 27	12 35.9	+74 00.1	0.896	1.213	78.6	55.0	19.0
1999 06 01	12 51.9	+73 46.3	0.894	1.201	77.7	55.6	19.0
1999 06 06	13 09.3	+73 20.8	0.887	1.191	77.2	56.2	19.0
1999 06 11	13 27.8	+72 42.2	0.877	1.184	77.1	56.7	18.9
1999 06 16	13 47.1	+71 49.3	0.862	1.178	77.2	57.2	18.9
1999 06 21	14 06.7	+70 40.7	0.845	1.175	77.8	57.7	18.9
1999 06 26	14 26.34	+69 14.4	0.823	1.175	78.6	58.0	18.8
1999 07 01	14 45.73	+67 28.4	0.799	1.177	79.8	58.2	18.8
1999 07 06	15 04.65	+65 19.9	0.773	1.181	81.3	58.3	18.7
1999 07 11	15 23.00	+62 45.8	0.745	1.187	83.2	58.2	18.6
1999 07 16	15 40.75	+59 42.6	0.716	1.196	85.5	57.9	18.6
1999 07 21	15 57.88	+56 06.8	0.687	1.207	88.0	57.3	18.5
1999 07 26	16 14.42	+51 55.2	0.660	1.220	90.9	56.4	18.4
1999 07 31	16 30.39	+47 05.0	0.635	1.235	94.0	55.1	18.3
1999 08 05	16 45.83	+41 35.7	0.615	1.251	97.3	53.5	18.2
1999 08 10	17 00.83	+35 29.4	0.601	1.270	100.6	51.7	18.1
1999 08 15	17 15.46	+28 53.5	0.594	1.290	103.7	49.8	18.1
1999 08 20	17 29.78	+21 59.7	0.596	1.311	106.3	47.8	18.1
1999 08 25	17 43.83	+15 03.4	0.608	1.333	108.3	46.0	18.1
1999 08 30	17 57.63	+08 20.3	0.630	1.357	109.5	44.6	18.2
1999 09 04	18 11.23	+02 03.9	0.662	1.381	109.8	43.4	18.3
1999 09 09	18 24.65	-03 36.8	0.703	1.407	109.4	42.5	18.4
1999 09 14	18 37.93	-08 37.3	0.753	1.433	108.3	41.8	18.6
1999 09 19	18 51.08	-12 57.2	0.809	1.460	106.7	41.2	18.8
1999 09 24	19 04.10	-16 38.7	0.871	1.488	104.8	40.7	19.0
1999 09 29	19 16.98	-19 45.2	0.939	1.516	102.7	40.2	19.2
1999 10 04	19 29.73	-22 20.8	1.010	1.544	100.3	39.6	19.3

1999 10 09	19 42.36	-24 29.4	1.085	1.572	97.9	39.0	19.5
1999 10 14	19 54.86	-26 14.7	1.162	1.601	95.4	38.3	19.7
1999 10 19	20 07.24	-27 39.7	1.241	1.630	92.9	37.6	19.8
1999 10 24	20 19.48	-28 47.4	1.322	1.659	90.3	36.8	20.0
1999 10 29	20 31.57	-29 40.1	1.405	1.689	87.8	36.0	20.1
1999 11 03	20 43.51	-30 19.8	1.487	1.718	85.2	35.1	20.3
1999 11 08	20 55.31	-30 48.1	1.571	1.747	82.7	34.2	20.4
1999 11 13	21 06.96	-31 06.6	1.654	1.776	80.1	33.3	20.5
1999 11 18	21 18.47	-31 16.5	1.738	1.805	77.6	32.3	20.6
1999 11 23	21 29.83	-31 18.9	1.821	1.834	75.0	31.4	20.8
1999 11 28	21 41.03	-31 14.7	1.903	1.862	72.5	30.4	20.9
1999 12 03	21 52.08	-31 04.7	1.985	1.891	70.0	29.3	21.0
1999 12 08	22 02.99	-30 49.6	2.065	1.919	67.6	28.3	21.0
1999 12 13	22 13.77	-30 30.0	2.145	1.947	65.1	27.3	21.1
1999 12 18	22 24.41	-30 06.6	2.223	1.975	62.7	26.3	21.2
1999 12 23	22 34.92	-29 39.7	2.299	2.002	60.3	25.2	21.3
1999 12 28	22 45.29	-29 09.9	2.374	2.030	57.9	24.2	21.3

(9162) 1987 OA		$a, e, i = 1.50, 0.60, 9$				Elements <i>MPC</i> 32415	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 03 03	15 00.66	-12 52.6	1.135	1.799	115.5	29.8	21.1
1999 03 13	14 54.62	-11 18.8	1.085	1.862	127.2	25.1	21.0
1999 03 23	14 43.79	-09 21.4	1.048	1.922	140.1	19.4	20.8
1999 04 02	14 28.90	-07 06.5	1.031	1.977	153.7	13.0	20.6
1999 04 12	14 11.54	-04 46.0	1.040	2.029	166.7	6.5	20.4
1999 04 22	13 53.82	-02 35.3	1.078	2.076	170.6	4.5	20.4
1999 05 02	13 37.88	-00 48.7	1.146	2.120	159.9	9.4	20.9
1999 05 12	13 25.16	+00 26.5	1.239	2.161	147.6	14.5	21.3
1999 05 22	13 16.30	+01 09.2	1.354	2.198	136.0	18.7	21.6
1999 06 01	13 11.31	+01 23.0	1.485	2.231	125.4	21.7	22.0

1999 DJ ₄		$a, e, i = 1.80, 0.47, 9$				Elements <i>MPC</i> 34059	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 03 03	15 15.91	+14 48.0	0.168	1.074	115.3	56.5	16.1
1999 03 08	16 02.01	+08 54.8	0.151	1.049	108.1	64.1	16.1
1999 03 13	16 53.04	+01 32.9	0.142	1.027	99.4	72.7	16.2
1999 03 18	17 45.74	-06 20.0	0.142	1.007	90.6	81.2	16.4
1999 03 23	18 36.15	-13 25.6	0.151	0.990	83.1	88.2	16.8
1999 03 28	19 21.36	-18 56.6	0.167	0.976	77.7	92.7	17.2
1999 04 02	20 00.32	-22 49.5	0.188	0.966	74.3	94.9	17.5
1999 04 07	20 33.35	-25 23.4	0.212	0.959	72.5	95.3	17.7
1999 04 12	21 01.32	-27 00.0	0.238	0.956	71.9	94.4	17.9
1999 04 17	21 25.19	-27 57.0	0.265	0.956	72.1	92.6	18.1
1999 04 22	21 45.78	-28 26.6	0.292	0.961	72.9	90.2	18.2
1999 04 27	22 03.77	-28 37.5	0.318	0.969	74.1	87.5	18.3
1999 05 02	22 19.65	-28 35.8	0.343	0.981	75.6	84.5	18.4
1999 05 07	22 33.77	-28 25.9	0.367	0.995	77.4	81.5	18.5
1999 05 12	22 46.35	-28 11.4	0.389	1.013	79.4	78.4	18.5
1999 05 17	22 57.52	-27 55.3	0.410	1.034	81.6	75.3	18.6
1999 05 22	23 07.37	-27 39.5	0.428	1.058	84.1	72.2	18.6
1999 05 27	23 15.94	-27 25.7	0.444	1.083	86.8	69.1	18.6
1999 06 01	23 23.29	-27 15.4	0.457	1.110	89.7	66.0	18.7
1999 06 06	23 29.38	-27 09.6	0.469	1.139	92.9	62.8	18.7
1999 06 11	23 34.18	-27 09.6	0.479	1.169	96.3	59.7	18.7

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1999 06 21	23 39.53	-27 28.8	0.492	1.233	104.1	53.1	18.7
1999 07 01	23 38.76	-28 13.8	0.502	1.299	113.2	46.0	18.6
1999 07 11	23 31.26	-29 19.7	0.511	1.366	123.5	38.4	18.6
1999 07 21	23 16.85	-30 32.9	0.524	1.434	134.8	30.2	18.5
1999 07 31	22 56.72	-31 31.2	0.548	1.502	146.4	22.0	18.4
1999 08 10	22 33.59	-31 54.2	0.587	1.569	156.4	15.0	18.5
1999 08 20	22 11.19	-31 31.5	0.645	1.635	160.8	11.8	18.6
1999 08 30	21 52.78	-30 28.3	0.723	1.699	156.9	13.5	19.0
1999 09 09	21 39.91	-28 58.7	0.821	1.761	148.6	17.3	19.5
1999 09 19	21 32.71	-27 15.5	0.936	1.821	139.5	21.0	20.0
1999 09 29	21 30.49	-25 27.4	1.067	1.879	130.6	23.9	20.4
1999 10 09	21 32.29	-23 38.9	1.210	1.936	122.1	25.9	20.8
1999 10 19	21 37.23	-21 51.2	1.363	1.990	114.1	27.2	21.2
1999 10 29	21 44.58	-20 04.6	1.524	2.041	106.4	27.8	21.5
1999 11 08	21 53.75	-18 18.7	1.691	2.091	99.1	27.9	21.8
1999 11 18	22 04.30	-16 32.7	1.860	2.138	92.1	27.5	22.0

1996 AS ₁		$a, e, i = 1.75, 0.36, 14$				Elements <i>MPC</i> 31107		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 03		18 04.58	-37 50.4	1.280	1.350	71.7	44.2	21.4
1999 03 13		18 50.40	-37 07.8	1.200	1.304	72.2	46.5	21.2
1999 03 23		19 36.62	-35 16.6	1.131	1.261	72.4	48.9	21.1
1999 04 02		20 21.78	-32 15.0	1.074	1.222	72.1	51.1	21.0
1999 04 12		21 04.73	-28 07.5	1.027	1.187	71.6	53.2	20.9
1999 04 22		21 44.82	-23 04.4	0.991	1.159	71.0	55.1	20.8
1999 05 02		22 21.91	-17 19.4	0.966	1.138	70.3	56.5	20.8
1999 05 12		22 56.28	-11 07.6	0.951	1.124	69.9	57.5	20.7
1999 05 22		23 28.30	-04 44.2	0.944	1.118	69.7	58.1	20.7
1999 06 01		23 58.42	+01 37.5	0.943	1.121	69.8	58.1	20.7
1999 06 11		00 27.05	+07 46.6	0.946	1.133	70.5	57.6	20.7
1999 06 21		00 54.45	+13 35.1	0.952	1.152	71.6	56.8	20.8
1999 07 01		01 20.78	+18 57.9	0.958	1.178	73.2	55.7	20.8
1999 07 11		01 46.09	+23 52.4	0.962	1.211	75.4	54.3	20.8
1999 07 21		02 10.19	+28 18.0	0.963	1.249	78.2	52.8	20.8
1999 07 31		02 32.83	+32 15.3	0.960	1.291	81.6	51.1	20.9
1999 08 10		02 53.57	+35 46.7	0.951	1.336	85.6	49.2	20.9
1999 08 20		03 11.75	+38 54.3	0.938	1.383	90.3	47.0	20.8
1999 08 30		03 26.59	+41 40.4	0.919	1.432	95.8	44.5	20.8
1999 09 09		03 37.09	+44 06.7	0.897	1.482	102.1	41.7	20.7
1999 09 19		03 42.04	+46 11.8	0.873	1.533	109.2	38.2	20.7
1999 09 29		03 40.41	+47 50.5	0.850	1.583	117.2	34.2	20.6
1999 10 09		03 31.55	+48 52.2	0.831	1.633	126.1	29.7	20.5
1999 10 19		03 16.09	+49 01.6	0.821	1.682	135.2	24.7	20.3
1999 10 29		02 56.61	+48 06.0	0.825	1.730	143.9	19.8	20.3
1999 11 08		02 36.93	+46 05.0	0.847	1.777	150.2	16.1	20.3
1999 11 18		02 20.73	+43 15.2	0.891	1.822	151.6	15.0	20.4
1999 11 28		02 10.03	+40 04.7	0.956	1.866	147.7	16.4	20.6
1999 12 08		02 05.07	+36 59.7	1.043	1.909	140.5	19.2	21.0
1999 12 18		02 05.25	+34 17.5	1.148	1.949	132.1	22.0	21.3
1999 12 28		02 09.59	+32 05.6	1.268	1.988	123.5	24.3	21.6
2000 01 07		02 17.18	+30 24.4	1.401	2.026	115.2	26.1	22.0

1999 MAR. 2

1993 BW ₂		$a, e, i = 1.34, 0.31, 22$				Elements <i>MPC</i> 32305		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 13		03 22.06	+13 05.4	1.090	1.040	59.7	55.6	19.8
1999 03 18		03 43.22	+16 06.2	1.107	1.061	60.3	54.6	19.8
1999 03 23		04 04.50	+18 53.6	1.129	1.083	60.9	53.5	19.9
1999 03 28		04 25.88	+21 26.1	1.154	1.105	61.3	52.4	20.0
1999 04 02		04 47.30	+23 42.4	1.183	1.128	61.6	51.2	20.0
1999 04 07		05 08.73	+25 41.8	1.215	1.152	61.7	49.9	20.1
1999 04 12		05 30.11	+27 24.1	1.250	1.175	61.8	48.7	20.2
1999 04 17		05 51.37	+28 49.4	1.287	1.199	61.7	47.4	20.2
1999 04 22		06 12.43	+29 58.3	1.327	1.223	61.5	46.2	20.3
1999 04 27		06 33.22	+30 51.4	1.368	1.247	61.1	45.0	20.4
1999 05 02		06 53.65	+31 29.6	1.411	1.271	60.7	43.8	20.5
1999 05 07		07 13.67	+31 53.8	1.455	1.294	60.2	42.6	20.5
1999 05 12		07 33.22	+32 05.2	1.500	1.318	59.6	41.4	20.6
1999 05 17		07 52.27	+32 04.9	1.545	1.340	58.9	40.2	20.7
1999 05 22		08 10.77	+31 53.9	1.592	1.363	58.1	39.1	20.7

1993 XN ₂		$a, e, i = 2.12, 0.54, 25$				Elements <i>MPC</i> 29662		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 03 23		17 09.47	-20 26.5	2.070	2.502	103.8	22.8	21.2
1999 04 02		17 14.04	-21 26.8	1.887	2.450	112.5	22.1	20.9
1999 04 12		17 15.98	-22 36.0	1.712	2.397	121.8	20.8	20.6
1999 04 22		17 14.63	-23 56.6	1.549	2.342	131.8	18.7	20.3
1999 05 02		17 09.33	-25 30.2	1.401	2.285	142.5	15.6	19.9
1999 05 12		16 59.47	-27 16.0	1.274	2.226	154.0	11.5	19.5
1999 05 22		16 44.75	-29 09.2	1.170	2.165	165.3	6.8	19.0
1999 06 01		16 25.68	-31 00.8	1.095	2.102	170.8	4.4	18.7
1999 06 11		16 03.81	-32 39.5	1.049	2.037	161.6	9.1	18.8
1999 06 21		15 41.66	-33 57.4	1.030	1.971	148.8	15.5	18.9
1999 07 01		15 22.06	-34 55.2	1.035	1.902	136.0	21.8	19.0
1999 07 11		15 07.03	-35 40.3	1.057	1.832	124.1	27.3	19.2
1999 07 21		14 57.61	-36 23.0	1.090	1.761	113.4	32.0	19.3
1999 07 31		14 53.95	-37 11.8	1.127	1.688	103.9	35.7	19.4
1999 08 10		14 55.73	-38 11.4	1.163	1.614	95.5	38.7	19.4
1999 08 20		15 02.63	-39 23.7	1.193	1.539	88.1	41.1	19.4
1999 08 30		15 14.36	-40 48.1	1.215	1.464	81.8	43.0	19.4
1999 09 09		15 30.86	-42 21.8	1.226	1.390	76.3	44.8	19.4
1999 09 19		15 52.36	-44 00.4	1.225	1.317	71.6	46.4	19.3
1999 09 29		16 19.24	-45 36.9	1.211	1.246	67.8	48.1	19.2
1999 10 09		16 52.05	-47 00.3	1.184	1.180	64.8	50.0	19.1
1999 10 19		17 31.30	-47 55.4	1.145	1.119	62.6	52.2	19.0
1999 10 29		18 16.91	-48 00.8	1.096	1.067	61.2	54.7	18.8
1999 11 08		19 07.81	-46 49.9	1.039	1.025	60.6	57.4	18.7
1999 11 18		20 01.61	-43 56.2	0.980	0.997	60.9	60.0	18.6
1999 11 28		20 55.09	-39 00.0	0.924	0.984	61.9	62.2	18.5
1999 12 08		21 45.63	-31 57.4	0.878	0.988	63.7	63.4	18.4
1999 12 18		22 32.01	-23 06.5	0.852	1.007	66.1	63.3	18.4
1999 12 28		23 14.26	-13 08.0	0.849	1.041	68.7	61.7	18.4
2000 01 07		23 53.19	-02 56.0	0.875	1.087	71.3	59.0	18.5
2000 01 17		00 29.87	+06 39.4	0.928	1.143	73.3	55.6	18.6
2000 01 27		01 05.16	+15 05.8	1.005	1.206	74.6	51.9	18.8
2000 02 06		01 39.78	+22 11.2	1.102	1.274	75.0	48.4	19.1

1999 MAR. 2

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2000 02 16	02 14.20	+27 57.2	1.214	1.346	74.6	45.0	19.3
2000 02 26	02 48.63	+32 31.3	1.337	1.420	73.5	42.0	19.5
2000 03 07	03 23.12	+36 02.6	1.469	1.494	71.8	39.1	19.8
2000 03 17	03 57.56	+38 40.1	1.607	1.569	69.7	36.5	20.0
2000 03 27	04 31.69	+40 31.1	1.750	1.644	67.2	34.0	20.2
2000 04 06	05 05.25	+41 42.3	1.895	1.717	64.3	31.7	20.4
2000 04 16	05 37.96	+42 19.5	2.042	1.790	61.2	29.4	20.6

1996 FR₃ $a, e, i = 2.17, 0.80, 8$ Elements *MPC* 34013

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 04 02	04 41.66	+32 51.5	0.517	0.884	62.1	86.8	18.1		
1999 04 07	05 44.21	+33 45.6	0.522	0.960	70.3	79.0	18.0		
1999 04 12	06 42.62	+32 48.2	0.548	1.034	77.6	71.2	18.0		
1999 04 17	07 32.39	+30 35.9	0.593	1.107	83.5	64.3	18.1		
1999 04 22	08 12.75	+27 50.4	0.653	1.177	87.8	58.5	18.2		
1999 04 27	08 45.05	+25 00.1	0.724	1.247	90.7	53.8	18.4		
1999 05 02	09 11.15	+22 18.6	0.803	1.314	92.3	50.0	18.7		
1999 05 07	09 32.64	+19 50.9	0.889	1.380	93.0	46.9	18.9		
1999 05 12	09 50.76	+17 37.5	0.980	1.444	93.0	44.3	19.2		
1999 05 17	10 06.38	+15 37.1	1.075	1.507	92.4	42.1	19.4		
1999 05 22	10 20.15	+13 47.9	1.173	1.568	91.4	40.2	19.6		
1999 05 27	10 32.50	+12 08.2	1.274	1.627	90.0	38.5	19.8		
1999 06 01	10 43.76	+10 36.5	1.376	1.685	88.3	37.0	20.0		
1999 06 06	10 54.17	+09 11.4	1.480	1.742	86.4	35.5	20.2		
1999 06 11	11 03.90	+07 51.8	1.586	1.797	84.4	34.2	20.4		
1999 06 16	11 13.11	+06 36.9	1.692	1.851	82.2	32.9	20.6		
1999 06 21	11 21.89	+05 25.8	1.799	1.904	79.9	31.7	20.7		
1999 06 26	11 30.32	+04 18.1	1.905	1.956	77.5	30.5	20.9		
1999 07 01	11 38.46	+03 13.3	2.012	2.006	75.0	29.3	21.0		
1999 07 06	11 46.36	+02 11.0	2.119	2.056	72.5	28.1	21.1		
1999 07 11	11 54.07	+01 10.9	2.225	2.104	69.9	27.0	21.3		
1999 07 16	12 01.61	+00 12.6	2.330	2.151	67.2	25.8	21.4		
1999 07 21	12 09.02	-00 44.0	2.434	2.198	64.5	24.7	21.5		
1999 07 26	12 16.30	-01 39.0	2.537	2.243	61.8	23.5	21.6		
1999 07 31	12 23.49	-02 32.6	2.638	2.287	59.0	22.4	21.7		
1999 08 05	12 30.59	-03 25.0	2.737	2.331	56.2	21.2	21.8		
1999 08 10	12 37.61	-04 16.1	2.835	2.373	53.4	20.0	21.8		
1999 08 15	12 44.58	-05 06.2	2.930	2.415	50.5	18.9	21.9		
1999 08 20	12 51.49	-05 55.2	3.022	2.456	47.6	17.7	22.0		

104P/Kowal 2Elements *MPC* 31070

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 04 02	13 59.79	-25 33.3	2.675	3.590	152.2	7.4	20.2	22.4	
1999 04 12	13 51.42	-24 40.4	2.673	3.640	162.1	4.8	20.2	22.4	
1999 04 22	13 42.89	-23 36.1	2.702	3.690	167.9	3.3	20.3	22.3	
1999 05 02	13 34.94	-22 25.1	2.760	3.739	164.1	4.2	20.4	22.4	

111P/Helin-Roman-CrockettElements *MPC* 25932

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 04 02	15 21.61	-14 24.2	3.468	4.281	139.9	8.6	20.3	22.4	
1999 04 12	15 17.51	-14 06.3	3.389	4.291	150.7	6.6	20.3	22.3	
1999 04 22	15 12.27	-13 45.2	3.336	4.301	161.6	4.2	20.3	22.2	
1999 05 02	15 06.27	-13 22.6	3.311	4.311	172.2	1.8	20.3	22.0	
1999 05 12	14 59.99	-13 00.3	3.315	4.321	174.0	1.4	20.3	22.0	

1999 05 22	14 53.90	-12 40.2	3.349	4.331	163.9	3.7	20.4	22.2	
1999 06 01	14 48.48	-12 24.2	3.412	4.340	153.1	6.1	20.4	22.3	
1999 06 11	14 44.08	-12 13.8	3.499	4.350	142.6	8.2	20.5	22.5	

61P/Shajn-SchaldachElements *MPC* 31664

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 04 02	17 02.78	-16 02.5	4.057	4.576	115.5	11.4		22.5	
1999 04 12	17 02.07	-15 45.8	3.897	4.551	125.4	10.3		22.4	
1999 04 22	16 59.79	-15 27.4	3.753	4.526	135.6	8.9		22.3	
1999 05 02	16 56.04	-15 08.0	3.630	4.501	146.0	7.2		22.1	
1999 05 12	16 50.98	-14 48.3	3.530	4.474	156.5	5.2		21.9	
1999 05 22	16 44.92	-14 29.3	3.458	4.448	166.4	3.1		21.7	
1999 06 01	16 38.26	-14 12.1	3.414	4.421	172.2	1.8		21.6	
1999 06 11	16 31.46	-13 57.8	3.401	4.394	166.3	3.1		21.7	
1999 06 21	16 25.02	-13 47.4	3.416	4.366	156.3	5.4		21.8	
1999 07 01	16 19.39	-13 41.8	3.459	4.338	145.9	7.6		21.9	
1999 07 11	16 14.92	-13 41.5	3.525	4.310	135.5	9.5		22.0	
1999 07 21	16 11.86	-13 46.9	3.611	4.281	125.4	11.2		22.1	
1999 07 31	16 10.37	-13 57.6	3.712	4.251	115.7	12.4		22.2	
1999 08 10	16 10.48	-14 13.3	3.824	4.222	106.3	13.3		22.3	
1999 08 20	16 12.18	-14 33.2	3.943	4.192	97.2	13.9		22.4	
1999 08 30	16 15.40	-14 56.4	4.064	4.161	88.4	14.0		22.4	
1999 09 09	16 20.04	-15 22.2	4.185	4.130	80.0	13.9		22.5	
1999 09 19	16 25.99	-15 49.4	4.301	4.099	71.8	13.5		22.5	
1999 09 29	16 33.13	-16 17.3	4.409	4.068	63.8	12.8		22.5	
1999 10 09	16 41.35	-16 44.8	4.508	4.036	56.0	11.8		22.5	
1999 10 19	16 50.54	-17 11.1	4.595	4.003	48.4	10.7		22.5	
1999 10 29	17 00.57	-17 35.5	4.668	3.971	40.9	9.4		22.5	
1999 11 08	17 11.36	-17 57.1	4.725	3.938	33.6	8.0		22.4	

P/1988 V1 (Ge-Wang)Elements *MPC* 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		

M.P.C. 34070

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

84P/Giclas

Date	TT	α_{2000}	δ_{2000}	Δ	r	Elements <i>MPC</i> 27082			
						ϵ	ϕ	m_1	m_2
1999 04 02		22 54.38	−10 19.6	3.022	2.226	31.0	13.4	18.9	21.4
1999 04 12		23 15.15	−08 30.2	2.920	2.182	35.4	15.4	18.6	21.4
1999 04 22		23 36.12	−06 37.2	2.815	2.140	39.7	17.5	18.4	21.3
1999 05 02		23 57.30	−04 41.9	2.707	2.099	43.8	19.4	18.1	21.3
1999 05 12		00 18.73	−02 45.3	2.599	2.061	47.8	21.3	17.9	21.2
1999 05 22		00 40.40	−00 49.2	2.490	2.025	51.7	23.1	17.6	21.1
1999 06 01		01 02.31	+01 05.1	2.382	1.991	55.5	24.8	17.4	21.0
1999 06 11		01 24.47	+02 55.8	2.276	1.961	59.2	26.4	17.1	20.9
1999 06 21		01 46.81	+04 41.3	2.171	1.933	62.9	27.9	16.9	20.9
1999 07 01		02 09.27	+06 19.7	2.069	1.909	66.6	29.3	16.7	20.8
1999 07 11		02 31.77	+07 49.5	1.970	1.889	70.3	30.5	16.5	20.7
1999 07 21		02 54.13	+09 09.2	1.874	1.872	74.1	31.5	16.3	20.6
1999 07 31		03 16.17	+10 17.5	1.781	1.859	78.1	32.3	16.1	20.5
1999 08 10		03 37.66	+11 13.6	1.691	1.851	82.2	32.9	16.0	20.4
1999 08 20		03 58.28	+11 57.2	1.604	1.846	86.7	33.2	15.9	20.2
1999 08 30		04 17.68	+12 28.6	1.521	1.846	91.4	33.1	15.7	20.1
1999 09 09		04 35.49	+12 48.6	1.440	1.851	96.7	32.7	15.6	20.0
1999 09 19		04 51.23	+12 59.0	1.363	1.859	102.4	31.9	15.6	19.9
1999 09 29		05 04.44	+13 02.0	1.290	1.872	108.9	30.4	15.5	19.7
1999 10 09		05 14.65	+13 00.7	1.222	1.888	116.1	28.4	15.5	19.6
1999 10 19		05 21.37	+12 58.6	1.163	1.909	124.1	25.6	15.4	19.4
1999 10 29		05 24.32	+12 59.3	1.113	1.933	133.1	22.0	15.5	19.2
1999 11 08		05 23.40	+13 06.4	1.076	1.960	143.0	17.7	15.5	19.0
1999 11 18		05 18.96	+13 22.6	1.056	1.990	153.6	12.8	15.6	18.9
1999 11 28		05 11.91	+13 49.2	1.056	2.024	164.3	7.6	15.7	18.7
1999 12 08		05 03.60	+14 25.8	1.080	2.060	171.6	4.0	15.9	18.6
1999 12 18		04 55.62	+15 10.8	1.129	2.098	166.6	6.3	16.2	18.9
1999 12 28		04 49.38	+16 02.0	1.201	2.139	156.3	10.6	16.5	19.2
2000 01 07		04 45.77	+16 57.0	1.296	2.181	145.8	14.7	16.8	19.6
2000 01 17		04 45.25	+17 53.7	1.411	2.225	135.8	17.9	17.2	19.9
2000 01 27		04 47.79	+18 50.3	1.543	2.270	126.5	20.4	17.6	20.2
2000 02 06		04 53.12	+19 44.9	1.688	2.317	117.7	22.1	17.9	20.5
2000 02 16		05 00.91	+20 36.2	1.843	2.365	109.5	23.2	18.3	20.8

1999 MAR. 2

2000 02 26	05 10.74	+21 22.9	2.007	2.413	101.8	23.7	18.7	21.0
2000 03 07	05 22.25	+22 04.0	2.177	2.463	94.5	23.7	19.0	21.3
2000 03 17	05 35.12	+22 38.7	2.350	2.512	87.6	23.3	19.4	21.5
2000 03 27	05 49.06	+23 06.3	2.525	2.563	80.9	22.6	19.7	21.6
2000 04 06	06 03.81	+23 26.4	2.699	2.613	74.4	21.6	20.0	21.8
2000 04 16	06 19.19	+23 38.8	2.871	2.664	68.1	20.5	20.3	21.9
2000 04 26	06 34.98	+23 43.3	3.040	2.715	61.9	19.1	20.6	22.1
2000 05 06	06 51.04	+23 40.1	3.203	2.767	55.9	17.6	20.9	22.2
2000 05 16	07 07.25	+23 29.4	3.360	2.818	50.0	15.9	21.1	22.2
2000 05 26	07 23.48	+23 11.5	3.509	2.869	44.1	14.2	21.4	22.3
2000 06 05	07 39.65	+22 46.9	3.648	2.919	38.2	12.4	21.6	22.4
2000 06 15	07 55.67	+22 16.0	3.777	2.970	32.4	10.6	21.8	22.4

118P/Shoemaker-Levy 4

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2	Elements <i>MPC</i> 31348
1999 04 12		17 12.56	−13 11.9	3.985	4.606	122.8	10.5	21.6	22.5	
1999 04 22		17 09.94	−12 51.0	3.880	4.624	133.0	9.1	21.6	22.4	
1999 05 02		17 05.89	−12 30.4	3.795	4.643	143.3	7.4	21.6	22.3	
1999 05 12		17 00.64	−12 11.2	3.734	4.660	153.6	5.5	21.5	22.1	
1999 05 22		16 54.47	−11 54.2	3.700	4.677	163.1	3.6	21.5	22.0	
1999 06 01		16 47.81	−11 40.5	3.694	4.694	169.2	2.3	21.6	22.0	
1999 06 11		16 41.09	−11 31.0	3.719	4.710	165.9	3.0	21.6	22.0	
1999 06 21		16 34.75	−11 26.4	3.773	4.726	157.1	4.8	21.6	22.2	
1999 07 01		16 29.19	−11 27.1	3.854	4.741	147.2	6.7	21.7	22.3	
1999 07 11		16 24.71	−11 33.0	3.960	4.755	137.1	8.4	21.8	22.5	

14P/Wolf

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2	Elements <i>MPC</i> 29882
1999 04 22		17 12.43	+00 41.3	3.434	4.151	129.9	10.7		22.4	
1999 05 02		17 09.43	+01 56.6	3.311	4.117	138.1	9.4		22.3	
1999 05 12		17 05.00	+03 08.4	3.210	4.082	145.4	8.1		22.2	
1999 05 22		16 59.36	+04 13.0	3.135	4.047	150.6	7.0		22.0	
1999 06 01		16 52.93	+05 07.0	3.086	4.012	152.5	6.7		22.0	
1999 06 11		16 46.17	+05 47.7	3.063	3.977	150.3	7.3		22.0	
1999 06 21		16 39.59	+06 13.1	3.067	3.941	144.9	8.5		22.0	
1999 07 01		16 33.71	+06 22.6	3.094	3.906	137.6	10.1		22.1	
1999 07 11		16 28.94	+06 17.1	3.142	3.869	129.5	11.7		22.1	
1999 07 21		16 25.61	+05 58.1	3.208	3.833	121.1	13.1		22.2	
1999 07 31		16 23.92	+05 28.0	3.287	3.797	112.7	14.3		22.3	
1999 08 10		16 23.93	+04 49.1	3.375	3.760	104.5	15.1		22.4	
1999 08 20		16 25.67	+04 04.2	3.469	3.723	96.5	15.7		22.4	
1999 08 30		16 29.08	+03 15.4	3.566	3.685	88.8	15.9		22.5	
1999 09 09		16 34.04	+02 24.8	3.662	3.648	81.3	15.8		22.5	
1999 09 19		16 40.47	+01 34.3	3.754	3.611	74.1	15.5		22.5	
1999 09 29		16 48.24	+00 45.6	3.841	3.573	67.1	15.0		22.5	
1999 10 09		16 57.22	−00 00.1	3.920	3.535	60.4	14.2		22.5	
1999 10 19		17 07.30	−00 41.5	3.989	3.497	54.0	13.3		22.5	
1999 10 29		17 18.37	−01 17.5	4.048	3.459	47.8	12.3		22.5	
1999 11 08		17 30.32	−01 47.2	4.094	3.421	41.9	11.2		22.4	
1999 11 18		17 43.06	−02 09.6	4.128	3.383	36.4	10.0		22.4	
1999 11 28		17 56.46	−02 24.1	4.149	3.345	31.3	8.8		22.3	

1999 MAR. 2

M.P.C. 34071

106P/Schuster		Elements MPC 27082							
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 04 22		22 24.43	-29 09.2	2.973	2.720	65.7	19.7	21.6	22.5
1999 05 02		22 41.30	-28 30.6	2.800	2.656	71.4	21.1	21.3	22.4
1999 05 12		22 57.97	-27 55.5	2.625	2.592	77.0	22.3	21.1	22.2
1999 05 22		23 14.38	-27 25.4	2.450	2.528	82.6	23.4	20.8	22.1
1999 06 01		23 30.44	-27 01.7	2.277	2.463	88.2	24.3	20.5	21.9
1999 06 11		23 46.09	-26 46.0	2.108	2.399	93.7	25.0	20.2	21.7
1999 06 21		00 01.17	-26 39.8	1.943	2.334	99.3	25.4	19.9	21.4
1999 07 01		00 15.51	-26 44.6	1.785	2.270	104.9	25.6	19.5	21.2
1999 07 11		00 28.88	-27 01.7	1.634	2.207	110.6	25.6	19.2	21.0
1999 07 21		00 40.95	-27 32.0	1.491	2.144	116.2	25.2	18.8	20.7
1999 07 31		00 51.31	-28 15.3	1.359	2.082	121.9	24.5	18.5	20.4
1999 08 10		00 59.46	-29 10.1	1.237	2.021	127.5	23.4	18.1	20.1
1999 08 20		01 04.76	-30 12.5	1.128	1.962	132.9	22.2	17.8	19.8
1999 08 30		01 06.64	-31 14.8	1.032	1.905	137.9	20.8	17.4	19.5
1999 09 09		01 04.58	-32 05.5	0.950	1.851	142.0	19.6	17.1	19.2
1999 09 19		00 58.48	-32 28.0	0.883	1.799	144.6	18.9	16.8	19.0
1999 09 29		00 49.04	-32 03.4	0.832	1.750	145.1	19.1	16.5	18.8
1999 10 09		00 37.77	-30 35.6	0.798	1.706	143.1	20.6	16.3	18.7
1999 10 19		00 26.87	-27 56.2	0.780	1.666	139.0	23.1	16.1	18.7
1999 10 29		00 18.48	-24 09.2	0.779	1.631	133.6	26.2	16.0	18.7
1999 11 08		00 13.98	-19 28.6	0.793	1.601	127.4	29.5	15.9	18.8
1999 11 18		00 13.98	-14 12.8	0.821	1.578	121.1	32.4	15.9	18.9
1999 11 28		00 18.37	-08 40.1	0.863	1.562	115.0	34.9	16.0	19.1
1999 12 08		00 26.70	-03 05.0	0.916	1.552	109.4	36.8	16.1	19.3
1999 12 18		00 38.48	+02 22.4	0.981	1.550	104.2	38.0	16.2	19.4
1999 12 28		00 53.22	+07 35.0	1.054	1.555	99.4	38.6	16.4	19.6
2000 01 07		01 10.52	+12 28.5	1.137	1.567	95.0	38.7	16.6	19.8
2000 01 17		01 30.09	+17 00.2	1.228	1.586	90.9	38.3	16.8	20.0
2000 01 27		01 51.65	+21 08.2	1.326	1.611	87.1	37.6	17.1	20.2
2000 02 06		02 15.03	+24 51.1	1.430	1.642	83.5	36.6	17.4	20.3
2000 02 16		02 40.04	+28 08.1	1.541	1.679	79.9	35.4	17.6	20.5
2000 02 26		03 06.47	+30 58.2	1.658	1.721	76.5	34.0	17.9	20.7
2000 03 07		03 34.08	+33 21.1	1.780	1.767	73.0	32.5	18.2	20.9
2000 03 17		04 02.64	+35 16.6	1.906	1.817	69.6	30.9	18.5	21.0
2000 03 27		04 31.79	+36 45.1	2.036	1.870	66.1	29.2	18.8	21.2
2000 04 06		05 01.23	+37 47.2	2.169	1.925	62.6	27.5	19.1	21.3
2000 04 16		05 30.61	+38 24.4	2.304	1.983	59.0	25.7	19.4	21.5
2000 04 26		05 59.60	+38 38.4	2.441	2.043	55.3	23.9	19.7	21.6
2000 05 06		06 27.92	+38 31.4	2.577	2.104	51.5	22.1	19.9	21.7
2000 05 16		06 55.35	+38 05.9	2.713	2.166	47.7	20.2	20.2	21.9
2000 05 26		07 21.72	+37 24.3	2.847	2.229	43.8	18.3	20.4	22.0
2000 06 05		07 46.96	+36 29.3	2.977	2.293	39.9	16.5	20.7	22.1
2000 06 15		08 11.02	+35 23.3	3.104	2.357	35.9	14.6	20.9	22.1
2000 06 25		08 33.90	+34 08.6	3.225	2.421	31.8	12.8	21.2	22.2

C/1998 T1 (LINEAR)		Elements MPC 33451							
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 04 22		23 35.64	-02 47.7	2.396	1.721	38.1	21.1	12.3	
1999 04 27		23 36.26	-03 08.0	2.277	1.687	43.0	24.0	12.1	
1999 05 02		23 36.58	-03 33.2	2.150	1.654	48.0	26.9	11.8	
1999 05 07		23 36.51	-04 04.5	2.016	1.623	53.0	29.8	11.6	

1999 05 12	23 35.94	-04 43.6	1.875	1.595	58.3	32.6	11.4
1999 05 17	23 34.71	-05 33.2	1.728	1.569	63.7	35.3	11.1
1999 05 22	23 32.61	-06 36.3	1.577	1.546	69.4	37.8	10.9
1999 05 27	23 29.31	-07 58.0	1.421	1.525	75.5	40.0	10.6
1999 06 01	23 24.35	-09 45.4	1.263	1.508	82.2	41.8	10.3
1999 06 06	23 16.91	-12 09.5	1.103	1.493	89.6	42.8	10.0
1999 06 11	23 05.62	-15 27.6	0.946	1.482	98.1	42.7	9.6
1999 06 16	22 47.92	-20 06.4	0.795	1.474	108.4	40.8	9.2
1999 06 21	22 18.71	-26 42.0	0.658	1.469	121.2	36.3	8.8
1999 06 26	21 27.59	-35 32.5	0.549	1.468	137.3	28.0	8.4
1999 07 01	19 57.80	-44 35.9	0.490	1.470	153.1	18.2	8.1
1999 07 06	17 54.33	-47 47.0	0.499	1.476	151.9	19.0	8.2
1999 07 11	16 12.90	-43 41.9	0.574	1.485	136.1	28.3	8.5
1999 07 16	15 13.46	-37 47.1	0.693	1.497	121.1	35.5	9.0
1999 07 21	14 39.96	-32 50.7	0.836	1.513	109.2	39.4	9.4
1999 07 26	14 20.02	-29 09.9	0.990	1.531	99.5	40.9	9.8
1999 07 31	14 07.50	-26 28.0	1.151	1.552	91.4	40.8	10.2
1999 08 05	13 59.36	-24 28.0	1.312	1.577	84.3	39.8	10.6
1999 08 10	13 54.01	-22 57.8	1.473	1.603	77.9	38.2	10.9
1999 08 15	13 50.53	-21 49.3	1.632	1.632	71.9	36.2	11.2
1999 08 20	13 48.35	-20 56.7	1.786	1.663	66.4	33.9	11.5
1999 08 25	13 47.12	-20 16.2	1.936	1.697	61.1	31.4	11.7
1999 08 30	13 46.59	-19 45.0	2.081	1.732	56.0	28.9	12.0
1999 09 04	13 46.60	-19 21.0	2.219	1.769	51.1	26.3	12.2
1999 09 09	13 47.03	-19 03.0	2.351	1.807	46.2	23.7	12.4
1999 09 14	13 47.80	-18 49.7	2.476	1.847	41.5	21.2	12.6
1999 09 19	13 48.82	-18 40.2	2.593	1.888	36.9	18.6	12.8

OPPOSITION DATA

Planet	Opposition	α_{2000}	δ_{2000}	V	$\dot{\alpha}$	$\dot{\delta}$	ϕ_{MIN}	MPC
1993 NX	1999 02 02.0	09 00.85	+14 25.7	19.4	-1.03	+ 4.3	0.8/02.6	30979
1997 YO ₁₄	1999 02 02.1	09 01.31	+16 46.6	17.7	-0.97	+ 3.0	0.1/02.2	34019
1997 VM ₅	1999 02 02.1	09 01.36	+17 20.5	18.6	-0.79	+ 3.4	0.1/02.1	34018
1997 TC ₉	1999 02 02.1	09 01.43	+04 10.9	20.1	-0.88	+ 4.2	3.8/05.2	30882
1999 BY ₂₅	1999 02 02.2	09 01.49	+25 57.3	17.2	-0.97	+ 0.2	2.6/31.4	33990
1993 TB ₃₉	1999 02 02.2	09 01.51	+14 40.3	16.4	-0.89	+ 7.3	0.9/02.8	34010
6062 P-L	1999 02 02.2	09 01.54	+18 00.9	17.3	-1.06	+ 3.2	0.5/02.0	34060
1991 GS ₁₀	1999 02 02.3	09 02.20	+24 32.8	17.5	-0.97	+ 4.9	3.2/31.5	34007
1981 EX ₃₄	1999 02 02.3	09 02.31	+11 09.3	18.3	-0.86	+ 6.0	1.9/03.8	34003
1989 GE ₃	1999 02 02.3	09 02.35	+20 06.5	17.4	-0.91	+ 2.3	1.2/01.7	33927
1999 AZ ₇	1999 02 02.3	09 02.37	+26 07.5	16.8	-1.07	- 1.6	2.7/31.8	34039
1990 OF ₁	1999 02 02.4	09 02.40	+07 59.6	17.5	-0.74	+ 5.5	2.2/04.7	33742
1997 TO ₂₄	1999 02 02.4	09 02.43	+26 36.4	18.8	-0.90	+ 3.3	2.5/31.2	31013
1997 VN ₁	1999 02 02.4	09 02.58	+15 42.3	17.4	-0.81	+ 3.7	0.3/02.7	34018
1991 RQ ₇	1999 02 02.4	09 02.67	+15 00.3	18.1	-0.84	+ 2.0	0.5/02.9	34007
1402 T-2	1999 02 02.5	09 02.97	+18 38.0	19.5	-1.02	+ 3.5	0.6/02.2	28892
1995 GA ₈	1999 02 02.6	09 03.12	+23 48.5	17.8	-1.01	+ 3.0	3.1/01.0	34013
1998 YE ₂	1999 02 02.6	09 03.32	+15 52.1	17.8	-0.92	+ 1.3	0.3/02.8	33975
1998 XQ ₁₀	1999 02 02.6	09 03.37	+13 51.7	17.1	-1.07	+ 2.1	1.2/03.2	34032
1997 WC ₃₄	1999 02 02.7	09 03.53	+16 52.0	18.2	-0.78	+ 3.8	0.0/02.7	31252
1981 EN ₁₄	1999 02 02.7	09 03.61	+14 13.1	17.7	-1.03	+ 3.6	1.1/03.3	34002
1994 AP ₇	1999 02 02.7	09 03.72	+19 00.5	18.2	-0.88	+ 4.8	0.7/02.2	34011

(9871)	1999 02 02.7	09 03.80 +22 44.3 15.7	-1.15 + 2.5	2.5/01.5	33462
(8198)	1999 02 02.7	09 03.82 -03 50.2 18.3	-0.90 + 3.6	6.4/07.7	34001
1999 BO ₁₄	1999 02 02.7	09 03.95 +29 52.5 17.3	-1.22 - 0.1	6.2/31.4	33988
1992 DE ₁₁	1999 02 02.8	09 03.93 +15 36.1 19.2	-1.03 + 5.6	0.4/03.1	33744
1985 RB ₃	1999 02 02.8	09 04.12 +24 40.5 17.6	-1.14 + 2.8	3.1/01.2	34004
1994 VQ ₇	1999 02 02.8	09 04.37 +11 49.0 18.1	-1.07 + 4.6	1.9/04.0	30663
3300 T-1	1999 02 02.9	09 04.54 +17 42.7 18.9	-1.15 + 4.1	0.4/02.7	34060
1981 EG ₂₅	1999 02 02.9	09 04.76 +25 31.3 18.7	-1.09 + 2.3	2.8/01.1	34002
1981 EH ₁₃	1999 02 03.0	09 04.84 +12 42.6 19.9	-1.00 + 3.9	1.3/03.9	30892
1997 OH ₂	1999 02 03.0	09 05.17 +13 49.8 20.9	-1.00 + 4.9	1.0/03.8	30788
1994 UD	1999 02 03.1	09 05.12 +26 08.8 16.9	-1.13 + 5.9	4.0/31.9	34011
(8128)	1999 02 03.1	09 05.38 +18 08.9 16.5	-0.86 + 2.6	0.4/02.8	31070
1995 BP ₃	1999 02 03.1	09 05.42 +11 20.4 17.7	-0.90 + 8.8	2.0/04.6	34012
(8171)	1999 02 03.1	09 05.50 +23 08.8 17.6	-0.92 + 1.7	1.9/01.8	31080
(9986)	1999 02 03.2	09 05.63 -00 22.5 16.3	-1.02 - 0.2	6.3/06.4	33668
1996 PH	1999 02 03.2	09 05.92 +16 11.9 19.4	-1.01 + 3.4	0.1/03.4	33696
1993 TG ₁₉	1999 02 03.2	09 05.93 +23 35.4 18.1	-1.07 + 4.7	2.4/01.7	34010
1997 UK	1999 02 03.2	09 06.01 +15 57.4 17.8	-1.00 + 4.4	0.3/03.4	34017
1997 TF ₁₇	1999 02 03.3	09 06.12 +14 58.6 19.0	-0.97 + 5.9	0.5/03.7	31146
1992 VL	1999 02 03.3	09 06.31 +21 47.0 17.6	-0.88 + 5.6	1.5/02.1	33935
1996 FT ₆	1999 02 03.4	09 06.49 +11 26.9 18.2	-1.02 + 5.9	1.7/04.7	34013
1999 AM ₄	1999 02 03.4	09 06.50 +22 44.6 17.2	-1.11 + 6.8	2.8/01.9	34038
1999 CH ₁₆	1999 02 03.5	09 06.78 +17 27.4 17.5	-0.99 + 1.4	0.4/03.3	33994
1997 RV ₈	1999 02 03.5	09 06.92 +25 02.2 17.9	-1.04 + 4.0	2.7/01.6	33952
1994 TG ₁	1999 02 03.5	09 07.05 +27 02.0 16.5	-1.14 + 4.4	4.5/01.2	33941
1996 FA ₂	1999 02 03.5	09 07.23 +22 14.0 18.6	-1.21 + 2.8	2.3/02.4	34013
1978 SW ₇	1999 02 03.6	09 07.29 +19 04.2 17.0	-1.07 + 2.8	0.9/03.1	33738
1975 SR	1999 02 03.6	09 07.53 +13 17.4 19.6	-1.02 + 5.0	1.1/04.4	34001
1990 SL ₁₀	1999 02 03.7	09 07.57 +38 51.7 18.4	-1.32 + 1.8	8.2/29.9	33742
1998 XP ₁₀	1999 02 03.7	09 07.73 +15 34.1 17.5	-1.00 + 4.2	0.4/03.9	34032
1083 T-3	1999 02 03.7	09 07.88 +17 15.5 18.6	-1.06 + 2.2	0.3/03.6	34061
1996 JZ ₁₁	1999 02 03.8	09 08.00 +18 44.6 19.7	-1.08 + 5.8	0.8/03.3	30876
2330 T-2	1999 02 03.8	09 08.14 +22 46.0 17.6	-1.05 + 2.9	2.5/02.5	34060
1997 VN ₃	1999 02 03.8	09 08.25 -11 47.3 18.0	-0.93 + 1.7	9.1/10.1	34018
1997 TF ₂₆	1999 02 03.9	09 08.59 +19 48.3 17.6	-0.97 + 2.7	1.1/03.2	34017
1997 ST ₂₃	1999 02 03.9	09 08.67 +19 27.7 20.3	-0.95 + 3.7	1.0/03.3	32314
1990 QR ₅	1999 02 03.9	09 08.81 +16 58.5 18.3	-0.77 + 3.9	0.1/03.9	34006
1997 QP ₃	1999 02 04.0	09 08.85 +12 02.2 19.2	-0.96 + 4.9	1.4/05.1	34016
1998 XR ₁₀	1999 02 04.0	09 08.85 +15 48.8 17.9	-1.02 + 4.2	0.3/04.2	34032
1990 RF ₁	1999 02 04.0	09 08.99 +15 09.9 18.5	-0.79 + 3.5	0.3/04.3	32922
1999 AC ₈	1999 02 04.0	09 09.05 +27 24.2 17.3	-1.19 + 3.3	5.1/01.6	34039
1988 CV ₄	1999 02 04.0	09 09.05 -01 43.0 18.3	-0.71 + 5.2	4.5/09.0	34004
1997 YA	1999 02 04.0	09 09.07 +33 16.5 17.6	-0.93 + 4.8	5.2/30.7	34019
1989 UL ₁	1999 02 04.1	09 09.29 +32 47.1 17.2	-1.08 + 3.9	5.4/31.2	33742
(8076)	1999 02 04.1	09 09.45 +16 43.4 17.9	-0.78 + 3.4	0.1/04.1	30961
1997 SU ₁	1999 02 04.1	09 09.45 +13 35.8 19.2	-0.96 + 4.9	1.0/04.8	33753
1997 VY ₅	1999 02 04.2	09 09.63 +18 41.2 19.2	-1.01 + 4.9	0.8/03.7	34018
1996 BS ₈	1999 02 04.2	09 09.78 +23 41.5 19.0	-1.20 + 4.7	2.9/02.6	30689
1981 EW ₂₇	1999 02 04.2	09 09.86 +06 34.9 17.7	-0.85 + 6.7	3.8/07.0	33923
1998 YF ₂	1999 02 04.2	09 09.93 +18 26.6 17.3	-0.97 + 5.7	0.9/03.8	34035
1998 YJ ₂	1999 02 04.2	09 10.07 +15 51.0 18.5	-1.15 + 1.8	0.2/04.4	34035

1992 EC	1999 02 04.3	09 10.03 +23 27.3 17.2	-1.15 + 2.2	2.8/02.8	34008
1996 NZ	1999 02 04.3	09 10.30 +15 58.7 19.8	-0.96 + 4.2	0.1/04.4	33696
1998 AX ₈	1999 02 04.3	09 10.31 +14 00.3 19.3	-0.83 + 3.5	0.6/04.9	31426
1997 UX	1999 02 04.3	09 10.38 +31 41.7 20.1	-1.08 + 3.4	4.6/31.8	31146
(8096)	1999 02 04.4	09 10.48 +16 57.6 17.8	-1.00 + 5.4	0.2/04.3	30966
1997 QM ₄	1999 02 04.4	09 10.52 +12 10.8 18.9	-1.01 + 6.1	1.5/05.4	30987
1996 HD ₂₄	1999 02 04.4	09 10.60 +07 06.0 18.3	-0.95 + 4.7	3.0/06.6	33751
1992 SH	1999 02 04.4	09 10.60 +01 42.5 17.6	-0.84 + 5.4	4.3/08.2	34009
1997 VY ₈	1999 02 04.4	09 10.60 +13 52.0 17.3	-0.87 + 1.8	0.7/05.0	33755
1998 TC	1999 02 04.4	09 10.64 +03 30.8 16.6	-1.11 - 2.0	5.8/06.6	34025
1998 XC ₉₆	1999 02 04.4	09 10.68 +16 20.2 17.6	-0.80 + 2.8	0.0/04.4	33974
1997 QE ₅	1999 02 04.4	09 10.80 +15 45.9 19.7	-0.90 + 6.4	0.2/04.6	34016
1996 JB ₅	1999 02 04.4	09 10.82 +22 34.0 18.1	-0.99 + 8.5	2.6/02.8	33947
1997 PD ₅	1999 02 04.4	09 10.83 +15 24.3 17.2	-1.14 + 3.4	0.4/04.7	33951
1997 SN ₄	1999 02 04.4	09 10.86 +31 05.5 16.3	-1.15 + 1.3	4.7/01.5	33700
1999 AO ₄	1999 02 04.4	09 10.87 +22 08.9 17.4	-0.95 + 8.5	2.0/02.9	34038
1996 LV ₃	1999 02 04.5	09 11.01 +21 09.0 18.2	-1.01 + 4.9	1.6/03.4	34014
1996 NP ₄	1999 02 04.5	09 11.09 +16 20.5 18.6	-1.03 + 1.9	0.0/04.5	33947
1997 WZ ₂₉	1999 02 04.6	09 11.38 +07 56.5 18.3	-0.79 + 2.9	2.2/06.6	34019
1997 VC ₁	1999 02 04.6	09 11.53 +20 44.0 17.5	-0.89 + 4.2	1.4/03.6	34018
1998 XN ₁₀	1999 02 04.7	09 11.63 +16 55.9 16.9	-0.96 + 6.6	0.3/04.5	34032
(9717)	1999 02 04.7	09 11.93 +30 09.6 16.6	-1.17 + 3.4	5.8/01.6	33191
1998 XS ₁₀	1999 02 04.7	09 11.95 +18 23.0 18.3	-0.95 + 6.9	0.9/04.2	34032
1992 RA ₂	1999 02 04.7	09 11.95 +25 18.5 18.0	-1.07 0.0	3.0/03.0	30757
1998 XD ₉₆	1999 02 04.8	09 12.25 +17 40.3 17.6	-0.86 + 4.8	0.5/04.5	33974
1997 UX ₂₀	1999 02 04.8	09 12.35 +18 29.6 17.8	-0.81 + 3.7	0.7/04.3	34018
1993 FV ₈₂	1999 02 04.8	09 12.41 +20 23.1 18.0	-1.16 + 5.8	1.8/03.9	33234
1991 PU ₂	1999 02 04.8	09 12.42 +19 14.0 17.3	-1.00 - 0.1	1.0/04.3	34007
1996 JJ	1999 02 04.8	09 12.50 +21 47.6 17.0	-1.10 + 8.6	2.4/03.4	33946
1981 EC ₂₈	1999 02 04.9	09 12.65 +22 52.4 18.3	-1.11 + 3.6	2.8/03.4	34003
1999 AR ₄	1999 02 04.9	09 12.78 +23 11.9 17.2	-0.90 + 8.2	2.8/03.0	33978
1997 QP ₄	1999 02 04.9	09 12.82 +15 09.8 18.4	-1.17 + 1.6	0.4/05.2	34016
1995 DC	1999 02 05.1	09 13.23 +24 23.2 17.4	-1.08 + 3.3	3.4/03.2	34012
1999 BR ₅	1999 02 05.1	09 13.29 +14 59.3 17.4	-0.81 + 4.1	0.4/05.4	33986
4208 T-3	1999 02 05.1	09 13.56 +26 24.6 18.0	-1.05 + 4.5	3.6/02.7	33999
1998 XT ₁₀	1999 02 05.2	09 13.67 +19 18.4 18.1	-1.00 + 8.7	1.4/04.3	34032
1995 DS ₁	1999 02 05.3	09 14.05 +11 35.5 16.8	-0.88 + 6.6	1.7/06.5	34012
1997 UD ₂₅	1999 02 05.3	09 14.09 +19 43.6 17.1	-0.88 + 4.7	1.2/04.4	34018
1992 OE ₃	1999 02 05.3	09 14.11 +16 13.7 19.2	-0.91 + 3.4	0.1/05.3	33682
1997 UJ ₃	1999 02 05.3	09 14.35 +15 07.2 17.1	-0.92 + 3.3	0.3/05.6	33957
1981 EL ₁₅	1999 02 05.3	09 14.39 +09 56.5 19.1	-0.92 + 3.2	2.1/06.8	26918
(9958)	1999 02 05.3	09 14.40 +21 45.9 17.4	-1.12 + 7.2	2.3/03.9	33661
1999 CM ₆	1999 02 05.4	09 14.50 +22 39.4 16.7	-1.07 +28.6	3.1/02.9	33993
2679 P-L	1999 02 05.4	09 14.69 +13 27.6 19.3	-1.05 + 6.1	0.9/06.1	30797
1981 FL	1999 02 05.4	09 14.82 +04 16.9 16.5	-0.89 + 7.4	5.4/08.6	33332
1997 SJ ₂₃	1999 02 05.5	09 14.98 +20 54.4 17.3	-1.09 + 4.0	2.0/04.4	33754
2193 T-3	1999 02 05.5	09 15.16 +21 03.2 17.0	-1.03 + 2.5	2.3/04.5	34061
1999 BT ₅	1999 02 05.6	09 15.55 +14 06.7 17.8	-0.97 + 5.2	0.7/06.1	34042
1995 AE ₁	1999 02 05.6	09 15.64 +11 06.7 16.8	-0.93 + 7.4	2.0/06.9	33943
1999 AR ₃	1999 02 05.7	09 15.64 +22 27.1 18.0	-1.11 + 5.4	2.4/04.1	34038
2407 T-3	1999 02 05.7	09 15.98 +17 13.5 19.5	-0.88 + 3.7	0.4/05.4	33785

1999 MAR. 2

M.P.C. 34073

1990 QW 1999 02 05.8 09 16.25 +22 43.3 17.9 -1.16 + 2.6 2.5/04.4 34006
 1992 SS₂₄ 1999 02 05.9 09 16.46 +10 59.3 17.3 -0.91 + 2.7 1.6/07.0 34009
 1990 WJ₄ 1999 02 05.9 09 16.64 +18 07.8 17.1 -0.97 + 7.9 0.9/05.3 34007
 1997 TX₁₀ 1999 02 05.9 09 16.67 +05 01.6 18.9 -0.86 + 7.9 4.3/09.0 34017
 1993 TY₂₆ 1999 02 05.9 09 16.67 +21 05.1 19.1 -1.01 + 5.0 1.7/04.7 31538
 1986 QK₂ 1999 02 05.9 09 16.67 +14 06.3 16.1 -0.95 +10.7 0.6/06.4 33740
 1996 NC 1999 02 06.0 09 17.06 +18 36.9 18.2 -0.88 + 4.8 0.9/05.3 33751
 1997 PM₄ 1999 02 06.0 09 17.14 +14 11.0 18.9 -1.01 + 2.6 0.5/06.4 33951
 2204 T-2 1999 02 06.0 09 17.24 +17 50.0 17.6 -0.91 + 4.0 0.7/05.6 33998
 1997 UG₁ 1999 02 06.0 09 17.26 +31 08.9 17.7 -0.96 + 3.0 4.7/02.3 34017
 1998 XV₁₀ 1999 02 06.0 09 17.32 +18 32.1 17.1 -1.02 + 7.5 1.2/05.4 33973
 1983 RW₃ 1999 02 06.1 09 17.24 +29 42.6 19.0 -1.26 + 1.2 4.9/03.3 34003
 1981 TH₃ 1999 02 06.1 09 17.29 +11 38.4 17.5 -1.06 + 6.2 1.4/07.1 34003
 1997 WB₃₃ 1999 02 06.1 09 17.32 +10 51.1 18.2 -0.75 + 3.6 1.3/07.4 34019
 6128 P-L 1999 02 06.1 09 17.34 +14 26.5 19.7 -0.95 + 4.4 0.4/06.4 34060
 1997 QN₁ 1999 02 06.2 09 17.66 +08 10.1 18.2 -1.05 + 5.0 2.7/08.0 33753
 1997 SE₂ 1999 02 06.2 09 17.69 +14 29.8 19.0 -0.88 + 3.9 0.4/06.5 33953
 1981 EG₂₉ 1999 02 06.3 09 18.04 +03 15.6 18.0 -0.80 + 7.4 5.1/09.9 33924
 1996 PO₉ 1999 02 06.3 09 18.13 +16 08.8 17.2 -0.87 + 7.9 0.1/06.2 33948
 1997 SZ₁₅ 1999 02 06.3 09 18.27 +10 33.7 18.9 -0.97 + 4.3 1.8/07.6 33954
 1999 BX₈ 1999 02 06.3 09 18.33 +12 03.4 16.9 -0.95 + 5.4 1.7/07.3 33987
 1996 HO 1999 02 06.3 09 18.44 +18 59.3 17.8 -0.98 + 8.6 1.3/05.5 34014
 1987 OT 1999 02 06.3 09 18.47 +08 21.3 18.2 -0.84 + 5.4 2.1/08.3 34004
 1981 EE₃₀ 1999 02 06.4 09 18.75 +03 36.7 20.0 -0.98 + 3.8 4.0/09.3 26920
 1996 RR₅ 1999 02 06.4 09 18.84 -13 16.0 19.2 -0.75 + 1.6 6.2/14.0 33696
 1996 HS₂₂ 1999 02 06.5 09 18.91 +18 23.5 18.3 -1.03 + 5.2 1.3/05.8 34014
 1999 AW₃ 1999 02 06.5 09 18.96 +25 37.2 18.1 -1.00 + 6.0 3.5/04.0 34038
 9094 P-L 1999 02 06.5 09 19.00 +02 43.8 19.3 -0.96 + 6.2 4.3/09.9 34060
 1997 UT₂₂ 1999 02 06.5 09 19.01 +20 03.4 18.0 -0.85 + 2.7 1.2/05.5 34018
 1996 EK₁₅ 1999 02 06.5 09 19.31 +16 11.6 18.3 -1.10 + 5.9 0.2/06.5 34013
 1999 AX₃ 1999 02 06.6 09 19.26 +23 02.1 17.2 -1.15 + 5.2 3.4/04.8 34038
 1985 DA₂ 1999 02 06.6 09 19.32 +12 31.5 16.7 -1.16 + 1.9 1.3/07.0 33925
 1994 GR₉ 1999 02 06.6 09 19.41 +16 10.2 16.6 -0.81 + 3.7 0.2/06.5 33747
 1998 YL₂ 1999 02 06.6 09 19.41 +18 30.6 18.6 -1.01 + 5.7 1.2/05.9 33975
 1996 KX₂ 1999 02 06.6 09 19.60 +05 22.2 17.5 -0.85 + 7.0 3.2/09.5 34014
 1989 SE 1999 02 06.7 09 19.79 +25 04.0 18.8 -1.07 + 3.1 3.0/04.6 34005
 1992 YC₁ 1999 02 06.7 09 19.85 +18 52.8 17.0 -0.84 + 4.4 1.1/05.9 33745
 1997 PW₃ 1999 02 06.7 09 19.87 +23 18.2 17.7 -1.16 + 1.9 3.3/05.1 33951
 1998 YP₂ 1999 02 06.7 09 20.04 +13 06.0 18.3 -1.03 - 0.9 1.1/07.2 34035
 1997 SR₃₁ 1999 02 06.7 09 20.07 +19 53.1 18.1 -1.06 + 3.0 1.8/05.8 34017
 1988 RJ₄ 1999 02 06.7 09 20.08 +12 24.6 17.3 -0.91 + 4.5 1.0/07.6 34004
 1995 AV₂ 1999 02 06.8 09 20.28 +23 47.2 16.8 -0.99 + 4.7 3.7/04.8 34012
 1997 QV₃ 1999 02 06.8 09 20.37 +07 35.3 18.0 -0.94 + 5.6 2.8/08.9 33753
 1997 SJ₁₆ 1999 02 06.9 09 20.47 +26 40.9 19.7 -0.99 + 4.4 3.8/04.1 33954
 1999 AA₄ 1999 02 06.9 09 20.52 +19 58.7 17.9 -1.06 + 3.1 1.5/05.9 33977
 1997 UK₂₂ 1999 02 06.9 09 20.85 +16 33.4 18.1 -0.98 + 5.6 0.3/06.7 33754
 1991 SA₁ 1999 02 07.0 09 20.86 +13 23.0 17.8 -0.77 + 6.9 0.6/07.6 33932
 1994 TN₁₆ 1999 02 07.0 09 20.94 +23 50.7 17.7 -1.11 + 3.6 3.8/05.1 33941
 1997 VU₆ 1999 02 07.0 09 21.08 +14 13.6 17.9 -0.86 + 4.6 0.4/07.4 34018
 6381 P-L 1999 02 07.0 09 21.10 +03 41.5 17.9 -0.87 + 7.3 4.3/10.3 33784
 1997 TK₂₄ 1999 02 07.0 09 21.14 +15 58.0 17.9 -0.95 + 3.0 0.2/06.9 33956

1999 BK₉ 1999 02 07.0 09 21.19 +09 10.8 17.1 -1.09 + 2.2 2.4/08.4 34043
 1988 XV₂ 1999 02 07.1 09 21.30 +11 43.6 17.2 -1.15 + 3.5 1.7/07.9 33741
 1993 RM₁₅ 1999 02 07.2 09 21.86 +24 05.5 18.5 -1.08 + 2.5 3.0/05.3 33937
 1997 VE₃ 1999 02 07.2 09 21.96 +01 11.6 18.4 -0.80 + 3.5 4.0/10.9 33961
 1992 HM 1999 02 07.2 09 22.11 +58 37.3 17.2 -1.67 + 3.9 15.1/23.0 33745
 1993 OH₄ 1999 02 07.3 09 22.04 +17 29.0 17.7 -1.06 + 5.2 0.8/06.8 34009
 1993 FJ₂₉ 1999 02 07.3 09 22.15 +14 02.5 17.5 -1.16 + 3.4 0.5/07.6 34009
 1993 FO₄₀ 1999 02 07.3 09 22.23 +19 02.6 17.5 -1.13 + 5.4 1.5/06.5 33746
 1979 MT₂ 1999 02 07.4 09 22.56 +06 13.2 18.5 -0.90 + 1.2 3.0/09.4 30778
 1999 BJ₉ 1999 02 07.4 09 22.56 +12 36.7 18.2 -1.01 + 5.2 1.0/08.1 33987
 1991 SC₁ 1999 02 07.4 09 22.59 +30 56.6 17.6 -0.92 + 3.4 4.4/03.4 33744
 1999 BA₉ 1999 02 07.4 09 22.62 +16 01.7 17.4 -1.11 + 0.5 0.2/07.3 33987
 1993 TM₂₅ 1999 02 07.4 09 22.84 +14 41.6 16.6 -0.86 + 6.9 0.3/07.7 33938
 1991 PP₁₃ 1999 02 07.4 09 22.89 +18 36.9 17.5 -0.91 + 1.4 1.0/06.8 34007
 1998 BT₂₆ 1999 02 07.5 09 22.90 +23 23.9 17.6 -1.00 - 0.4 2.6/05.9 33967
 1997 NN₁ 1999 02 07.5 09 23.18 +14 49.2 17.6 -0.94 + 8.8 0.2/07.7 34015
 1997 OF₁ 1999 02 07.6 09 23.52 +14 15.0 19.2 -1.03 + 4.4 0.4/07.9 34016
 1998 YN₂ 1999 02 07.6 09 23.62 +19 24.3 18.1 -0.98 + 6.3 1.8/06.6 34035
 1988 DD₅ 1999 02 07.6 09 23.64 +04 49.5 17.6 -1.10 + 1.2 4.0/09.8 33741
 1997 UV₈ 1999 02 07.6 09 23.65 -02 14.6 18.2 -0.81 + 4.8 5.2/12.5 33959
 (9743) 1999 02 07.7 09 23.97 +20 51.7 16.4 -1.00 + 6.7 2.2/06.3 33197
 3044 T-2 1999 02 07.8 09 24.18 +16 21.2 17.4 -0.79 + 4.6 0.3/07.5 34060
 3398 T-3 1999 02 07.8 09 24.24 +14 17.2 16.5 -1.04 + 6.3 0.4/08.1 33785
 1997 SN₃ 1999 02 07.8 09 24.49 +13 30.3 16.6 -0.86 + 6.7 0.6/08.4 33754
 1997 UC₁₅ 1999 02 07.9 09 24.60 +15 36.9 18.4 -0.81 + 4.1 0.1/07.8 34018
 1981 EY₄₁ 1999 02 07.9 09 24.66 +12 31.9 18.0 -0.95 + 5.3 1.2/08.6 34003
 1999 BY₈ 1999 02 07.9 09 24.69 +17 05.2 17.4 -0.82 + 4.6 0.6/07.5 34043
 1997 VO₆ 1999 02 07.9 09 24.85 -03 36.5 16.8 -0.79 + 2.6 5.5/12.8 33754
 1999 BD₂₆ 1999 02 07.9 09 24.93 +17 53.0 17.4 -0.98 + 8.1 1.2/07.3 33990
 1992 EE 1999 02 08.0 09 24.97 +22 22.1 17.0 -1.17 + 2.1 3.1/06.5 34008
 1999 AN₅ 1999 02 08.0 09 25.04 +22 54.2 17.3 -1.16 + 3.7 2.9/06.3 34038
 1996 PJ₅ 1999 02 08.0 09 25.11 +20 15.4 18.2 -0.88 + 1.5 1.4/06.9 34014
 (8225) 1999 02 08.1 09 25.30 +15 14.1 17.3 -0.80 + 4.1 0.0/08.1 31092
 4333 T-3 1999 02 08.1 09 25.33 +15 08.6 17.6 -0.72 + 4.4 0.0/08.1 33785
 1987 SQ₁₇ 1999 02 08.1 09 25.49 +19 17.8 17.3 -1.14 + 3.4 1.5/07.2 33740
 1985 RQ 1999 02 08.1 09 25.49 +23 48.8 19.4 -1.03 + 3.7 2.6/06.1 34004
 1998 VS₃₂ 1999 02 08.1 09 25.53 +31 12.4 17.1 -0.85 + 6.1 4.5/03.4 34029
 1993 OE₁₃ 1999 02 08.1 09 25.62 +17 54.0 17.7 -1.03 + 7.2 1.0/07.4 33936
 1990 QP₁₀ 1999 02 08.2 09 25.72 +22 21.1 17.6 -0.82 + 2.8 1.9/06.4 34006
 1997 VR₇ 1999 02 08.2 09 25.73 +30 23.3 17.3 -0.90 + 3.6 4.3/04.2 34018
 (8075) 1999 02 08.2 09 25.74 +10 30.7 17.7 -0.75 + 5.9 1.2/09.5 34001
 1992 OC 1999 02 08.2 09 25.79 +32 56.3 20.4 -1.12 + 2.1 5.0/04.0 30782
 1998 YN₆ 1999 02 08.2 09 25.91 +22 54.0 17.6 -0.78 +10.5 2.3/05.8 33976
 1977 EA₆ 1999 02 08.2 09 26.04 +13 34.4 16.9 -1.06 + 2.9 0.6/08.6 33738
 1991 RF₂ 1999 02 08.2 09 26.05 +18 04.1 16.4 -0.92 + 1.2 0.9/07.6 34007
 1997 RS₃ 1999 02 08.3 09 26.32 +22 33.7 17.5 -0.89 + 3.2 2.5/06.5 33952
 1993 QS 1999 02 08.3 09 26.38 +06 45.9 18.1 -0.91 + 7.6 2.5/10.7 34010
 1996 HQ 1999 02 08.4 09 26.72 +28 20.8 18.3 -1.12 + 5.9 5.6/04.9 34014
 4088 P-L 1999 02 08.4 09 26.83 +14 25.2 17.5 -0.97 + 2.8 0.3/08.6 34060
 1981 EG₂₆ 1999 02 08.5 09 26.94 +25 01.2 17.4 -1.05 + 0.7 4.0/06.4 34003
 1995 DE₈ 1999 02 08.5 09 26.98 +13 02.8 18.2 -0.90 + 6.1 0.8/09.1 34012

1985 HS ₁	1999 02 08.5	09 27.10 -13 11.1 16.5	-0.86 +12.1	11.8/18.1	33740
1998 XB ₁₁	1999 02 08.5	09 27.20 +14 36.5 18.4	-0.99 + 2.9	0.2/08.7	34032
1979 SU ₂	1999 02 08.6	09 27.27 +05 32.1 16.9	-1.01 + 4.6	3.6/11.0	33739
1997 XY ₆	1999 02 08.6	09 27.35 +15 08.0 18.1	-0.93 + 4.6	0.0/08.6	33966
1997 VJ ₁	1999 02 08.6	09 27.64 +11 31.3 17.1	-1.10 - 1.0	1.3/09.3	34018
1994 YU ₂	1999 02 08.7	09 27.65 -02 55.9 17.3	-0.88 +19.0	7.2/15.4	33942
1997 UV ₁₄	1999 02 08.7	09 27.80 +03 54.7 17.4	-0.81 + 5.0	3.5/11.7	34018
1987 RW	1999 02 08.7	09 27.95 +18 57.6 17.2	-1.18 + 2.5	1.6/07.9	33925
1999 BH ₁₀	1999 02 08.7	09 27.95 +13 23.1 17.8	-0.85 + 5.1	0.5/09.2	33987
1988 CQ ₁	1999 02 08.7	09 27.97 +18 32.4 16.7	-0.94 + 8.8	1.6/07.7	34004
3312 T-3	1999 02 08.7	09 28.00 +14 18.5 20.8	-1.06 + 5.7	0.2/08.9	27928
1991 VD ₅	1999 02 08.7	09 28.02 +17 13.7 17.0	-1.11 + 6.7	0.9/08.2	34008
1994 WA	1999 02 08.8	09 28.15 +20 38.6 17.7	-1.08 + 5.9	2.1/07.4	33941
1996 PF ₅	1999 02 08.8	09 28.17 +05 47.2 17.9	-1.03 + 0.1	3.6/10.7	34014
1992 EE ₅	1999 02 08.8	09 28.19 +21 39.7 18.4	-1.15 + 1.9	2.8/07.4	33933
1999 AP ₅	1999 02 08.8	09 28.28 +23 30.2 17.2	-1.16 + 4.4	3.6/06.8	34038
1981 ES ₁₀	1999 02 08.8	09 28.47 +09 55.6 18.9	-1.03 + 3.5	2.1/10.1	22270
1992 EC ₉	1999 02 08.9	09 28.52 +19 20.9 18.0	-1.00 + 8.3	1.8/07.7	33933
(9971)	1999 02 08.9	09 28.62 +19 20.4 16.6	-1.15 + 4.8	1.8/07.9	33664
1992 EY ₉	1999 02 08.9	09 28.69 +14 44.5 18.4	-1.07 + 3.8	0.1/09.0	33745
1992 SJ	1999 02 09.0	09 28.89 +24 05.5 18.3	-0.94 + 3.0	2.5/06.8	34009
5083 T-3	1999 02 09.0	09 29.04 +17 20.1 17.4	-0.96 + 9.8	1.1/08.3	34061
4654 P-L	1999 02 09.1	09 29.35 +14 29.4 19.7	-0.96 + 4.2	0.1/09.2	34060
1998 YX ₂₉	1999 02 09.1	09 29.55 +29 56.9 17.0	-1.25 + 2.4	6.0/05.6	34037
1990 SX ₁₀	1999 02 09.2	09 29.73 +13 09.4 16.7	-1.09 + 2.8	0.6/09.6	34006
6691 P-L	1999 02 09.2	09 30.03 +24 50.3 17.8	-1.11 + 2.8	4.3/06.9	34060
1995 GV ₂	1999 02 09.3	09 30.06 +14 46.1 17.7	-0.87 + 6.0	0.0/09.3	34013
1999 AF ₁₉	1999 02 09.3	09 30.46 +13 13.1 17.2	-0.87 + 1.2	0.4/09.7	34040
1984 ST ₂	1999 02 09.3	09 30.51 +18 27.5 17.4	-1.17 + 3.0	1.4/08.6	33924
1995 DP ₂	1999 02 09.4	09 30.54 +22 42.6 17.7	-1.00 + 3.2	3.4/07.5	34012
1999 AX ₂₁	1999 02 09.4	09 30.61 +09 13.5 17.2	-1.06 + 3.3	2.2/10.7	33980
1998 YT ₂	1999 02 09.4	09 30.64 +20 22.9 17.8	-0.81 + 6.6	1.6/07.8	34035
1998 YB ₂	1999 02 09.4	09 30.67 +13 38.7 18.3	-1.12 + 2.0	0.5/09.7	34035
1980 RE ₁	1999 02 09.4	09 30.80 +05 47.4 18.5	-0.87 + 6.0	2.7/11.9	33739
1981 DJ ₂	1999 02 09.5	09 30.90 -06 33.1 18.2	-0.82 + 4.9	6.3/15.5	34002
1997 SE ₁₆	1999 02 09.5	09 30.93 +20 54.8 17.3	-1.10 + 4.0	2.5/08.0	34017
1997 TH ₁₉	1999 02 09.5	09 30.96 +18 08.6 18.8	-1.04 + 4.3	1.1/08.7	34017
1993 TL ₁₃	1999 02 09.5	09 30.99 +29 24.7 18.2	-1.09 + 4.6	4.8/05.7	34010
1996 TR ₁₄	1999 02 09.5	09 31.03 +24 17.0 18.4	-0.82 + 3.3	2.4/07.0	29631
1997 TM ₁₇	1999 02 09.5	09 31.07 +04 05.7 17.5	-1.05 + 3.5	4.0/12.0	34017
1997 SC ₄	1999 02 09.5	09 31.10 +12 33.5 18.7	-0.85 + 4.3	0.7/10.1	33953
1998 YS ₂	1999 02 09.5	09 31.23 +21 34.3 18.3	-0.76 + 7.2	1.9/07.5	34035
1993 UZ ₂	1999 02 09.5	09 31.24 +52 57.2 18.2	-1.33 + 7.0	12.5/28.3	23126
(8099)	1999 02 09.5	09 31.28 +04 21.3 18.7	-0.90 + 5.8	3.1/12.4	30966
(8234)	1999 02 09.6	09 31.21 +12 46.8 16.3	-0.85 + 4.6	0.6/10.1	31094
1999 AR ₂₁	1999 02 09.6	09 31.43 +13 30.2 17.6	-1.05 + 3.9	0.5/09.9	33980
1979 MU ₂	1999 02 09.6	09 31.43 +11 44.8 20.1	-0.75 + 4.8	0.8/10.4	34002
1994 PU	1999 02 09.7	09 31.65 +15 54.4 17.2	-1.15 + 3.5	0.5/09.4	34011
1102 T-1	1999 02 09.7	09 31.86 +04 00.2 18.1	-0.99 + 5.4	4.1/12.5	34060
1993 TT ₂₆	1999 02 09.7	09 31.96 +12 58.6 19.3	-0.96 + 5.3	0.5/10.2	31007
1991 RP ₂	1999 02 09.7	09 32.02 +00 58.3 17.0	-0.78 + 4.4	4.1/13.5	33743

1999 AZ ₂₁	1999 02 09.8	09 32.02 +07 40.4 17.0	-1.03 + 3.1	3.1/11.4	34040
1999 AR ₅	1999 02 09.8	09 32.24 +26 55.8 17.6	-0.87 + 5.8	3.8/06.4	34038
1996 KQ ₁	1999 02 09.8	09 32.41 +04 42.4 19.0	-0.97 + 7.9	3.8/12.6	34014
1981 EB ₃₈	1999 02 09.8	09 32.48 +15 29.2 19.0	-0.94 + 3.1	0.3/09.7	30780
1990 TE ₉	1999 02 09.9	09 32.75 +15 15.7 17.1	-1.08 + 3.6	0.2/09.8	34006
1998 YM	1999 02 09.9	09 32.78 +07 31.1 18.9	-1.11 - 3.5	3.2/11.2	34034
1997 UB ₁	1999 02 09.9	09 32.88 +22 14.3 18.3	-1.09 + 4.6	2.7/08.1	34017
1997 XB ₂	1999 02 10.0	09 32.81 -02 36.7 18.3	-0.82 + 2.7	4.9/14.3	31252
1999 BB	1999 02 10.0	09 32.83 +13 58.9 16.8	-1.11 + 4.2	0.2/10.1	33983
4224 T-2	1999 02 10.0	09 32.88 +14 00.9 20.9	-1.02 + 6.6	0.2/10.2	34061
1988 UO	1999 02 10.0	09 32.95 +28 46.7 16.8	-0.99 + 3.3	4.2/06.4	33542
1999 AX ₅	1999 02 10.0	09 32.98 +23 43.3 17.9	-1.09 + 6.3	4.1/07.6	34039
1999 DB ₁	1999 02 10.0	09 33.05 +10 50.1 18.3	-1.06 + 5.2	1.4/11.0	33994
1997 YL ₁	1999 02 10.0	09 33.11 +09 45.2 17.0	-0.96 + 7.7	1.8/11.4	34019
1999 BD ₁₂	1999 02 10.1	09 33.25 +29 29.4 17.5	-1.09 + 6.9	5.0/05.9	33988
1998 UJ ₁₆	1999 02 10.1	09 33.31 +21 56.9 17.0	-1.02 + 7.6	3.2/08.1	34026
1991 GH ₈	1999 02 10.1	09 33.55 +29 32.3 19.0	-1.03 + 2.9	4.4/06.4	25081
1997 RR ₁	1999 02 10.2	09 33.75 +18 29.6 17.7	-1.10 + 5.6	1.6/09.2	34016
2698 P-L	1999 02 10.2	09 33.84 +24 33.5 18.7	-1.19 + 2.9	4.0/07.9	34059
1993 RH ₂	1999 02 10.2	09 33.92 +30 43.6 18.5	-1.16 + 1.5	5.2/06.6	34010
1998 YA ₂	1999 02 10.3	09 34.13 +14 33.3 16.9	-1.14 + 2.6	0.0/10.3	34035
1999 AU ₅	1999 02 10.3	09 34.17 +26 47.9 18.3	-0.87 + 5.7	3.8/06.8	34038
1997 TN ₂₆	1999 02 10.3	09 34.18 +33 35.1 18.0	-1.09 + 2.9	5.8/05.5	33957
1997 UY ₁₄	1999 02 10.3	09 34.18 +18 53.9 17.6	-0.86 + 4.3	1.3/09.2	34018
1996 NR ₅	1999 02 10.3	09 34.43 -00 10.4 18.3	-0.93 + 1.8	4.5/13.8	33948
1994 UR ₆	1999 02 10.3	09 34.45 +11 31.0 16.4	-1.07 + 3.5	1.4/11.1	34011
1992 JC ₁	1999 02 10.3	09 34.47 +28 42.6 17.8	-1.07 + 5.0	5.5/06.7	34008
1997 PL	1999 02 10.3	09 34.47 +03 10.9 18.4	-1.05 + 5.4	4.5/13.3	33950
1990 TK ₁₅	1999 02 10.4	09 34.45 +18 35.1 16.6	-1.11 + 2.7	1.6/09.5	33743
1992 GA ₁	1999 02 10.4	09 34.46 -20 56.4 17.1	-0.89 + 7.7	14.2/21.8	33745
1999 BT ₁₂	1999 02 10.4	09 34.78 +07 48.7 18.0	-0.80 + 3.9	1.9/12.2	34044
1999 BJ ₁₅	1999 02 10.4	09 34.79 +08 26.9 17.6	-0.94 + 3.6	2.1/11.9	33989
1999 CE ₅	1999 02 10.4	09 34.80 +18 50.9 18.4	-0.95 + 3.9	1.5/09.4	33992
1999 BC ₂₆	1999 02 10.5	09 34.78 +07 48.5 17.7	-0.80 + 3.8	2.2/12.2	33990
1999 AU ₂₁	1999 02 10.5	09 34.80 +13 33.1 17.8	-0.82 + 4.6	0.3/10.7	33980
(8208)	1999 02 10.5	09 35.16 +28 26.2 17.7	-0.97 + 6.7	4.1/06.5	31088
1981 UJ ₂₃	1999 02 10.5	09 35.18 +30 27.2 17.0	-0.90 + 4.7	4.7/06.0	33739
1992 MD	1999 02 10.6	09 35.18 +18 45.8 17.7	-0.92 + 9.7	1.4/09.3	33934
(8174)	1999 02 10.6	09 35.26 +29 00.3 16.5	-0.86 + 4.3	4.2/06.6	31080
1997 YQ ₁₉	1999 02 10.6	09 35.29 -02 44.4 18.0	-0.72 + 6.0	4.4/15.7	34019
(8280)	1999 02 10.6	09 35.42 +16 12.7 18.4	-0.79 + 4.3	0.5/10.2	31214
1985 QG ₅	1999 02 10.6	09 35.52 +16 40.2 17.7	-0.78 + 3.9	0.6/10.1	34003
3538 P-L	1999 02 10.6	09 35.53 +10 43.3 17.9	-1.09 + 4.2	1.3/11.5	34059
1993 TJ ₃₄	1999 02 10.7	09 35.63 +12 44.9 16.8	-0.82 + 7.5	0.7/11.2	33938
(8094)	1999 02 10.8	09 36.11 +13 34.3 16.7	-0.84 + 5.0	0.2/11.0	30965
1999 AY ₂₁	1999 02 10.8	09 36.22 +08 18.0 18.0	-0.78 + 4.9	1.9/12.5	34040
1995 MC	1999 02 10.8	09 36.29 +03 40.3 17.7	-0.82 + 1.1	2.5/13.4	34013
1991 GO ₇	1999 02 10.8	09 36.32 +00 38.1 18.7	-0.90 + 4.3	4.9/14.4	33931
1978 RE ₃	1999 02 10.8	09 36.35 +13 22.6 18.3	-1.02 + 4.5	0.3/11.1	33738
1996 JZ	1999 02 10.8	09 36.37 +07 00.3 18.1	-0.92 + 8.9	2.6/13.0	33947
1981 ED ₄₃	1999 02 10.9	09 36.50 +23 04.4 18.7	-0.93 + 3.3	2.4/08.7	34003

1999 MAR. 2

M.P.C. 34075

(8155) 1999 02 10.9 09 36.59 +13 24.0 17.6 -0.90 + 5.1 0.3/11.2 31076
 1979 KD 1999 02 11.0 09 36.77 +12 23.6 16.7 -0.90 + 7.4 0.6/11.5 34002
 1997 QW₃ 1999 02 11.0 09 36.77 +15 13.8 20.7 -0.82 + 4.3 0.3/10.7 31010
 1999 CR₁₀₉ 1999 02 11.0 09 36.86 +06 38.7 17.7 -0.72 + 2.2 2.1/13.0 33994
 1978 SO₇ 1999 02 11.2 09 37.57 +15 07.5 17.6 -1.02 + 4.1 0.3/11.0 34002
 1998 DS₈ 1999 02 11.2 09 37.61 +15 55.1 16.8 -0.84 + 5.1 0.6/10.7 33968
 1992 EM₁₇ 1999 02 11.2 09 37.63 +16 22.2 16.5 -0.99 + 7.9 0.9/10.6 34008
 1998 XC₁₁ 1999 02 11.2 09 37.72 +11 48.9 17.6 -0.96 + 0.8 1.2/12.0 34032
 1994 YN₁ 1999 02 11.2 09 37.93 +19 57.7 18.2 -1.04 + 5.4 2.1/09.8 34012
 1995 DD 1999 02 11.3 09 38.08 +26 46.6 17.2 -1.04 + 2.0 3.8/08.3 34012
 2743 P-L 1999 02 11.3 09 38.13 +14 32.3 17.4 -0.98 + 5.4 0.2/11.2 34059
 1999 BQ₉ 1999 02 11.4 09 38.34 +62 09.6 16.3 -0.85 + 4.6 23.7/23.0 34043
 1991 PI₁₁ 1999 02 11.4 09 38.37 +04 58.4 18.8 -0.77 + 5.0 2.3/13.9 34007
 1995 BO₇ 1999 02 11.4 09 38.41 +14 01.4 19.0 -1.07 + 2.0 0.0/11.4 33943
 1981 YG 1999 02 11.4 09 38.56 -06 46.9 15.9 -1.04 - 1.5 8.7/15.8 33540
 1997 UR₉ 1999 02 11.4 09 38.61 +14 32.7 18.4 -0.90 + 4.0 0.1/11.3 33959
 1997 WV₁₂ 1999 02 11.4 09 38.79 +22 12.0 18.0 -0.95 + 4.1 2.8/09.4 34018
 1999 CE 1999 02 11.4 09 38.82 +27 21.6 18.1 -1.13 + 4.3 5.2/08.2 33991
 1994 YT₁ 1999 02 11.5 09 38.82 +19 00.5 17.6 -1.02 + 4.9 2.0/10.3 34012
 1996 HO₂₃ 1999 02 11.5 09 38.86 +05 49.0 17.2 -0.96 + 6.3 3.5/13.8 33946
 1991 VB₉ 1999 02 11.5 09 39.05 +17 13.3 17.9 -0.79 + 4.4 0.9/10.7 33744
 1981 ED₄₅ 1999 02 11.5 09 39.19 +13 36.4 18.9 -1.09 + 1.8 0.2/11.7 34003
 1997 TR₂₃ 1999 02 11.6 09 39.13 +04 20.6 19.7 -0.99 + 5.4 3.6/14.1 30884
 1994 YQ₁ 1999 02 11.6 09 39.45 +23 48.1 17.8 -1.03 + 6.1 3.5/09.0 33749
 1981 EG₂₄ 1999 02 11.6 09 39.45 +13 31.2 19.3 -0.91 + 4.0 8.1/23.0 34002
 1993 RT₇ 1999 02 11.6 09 39.52 +14 56.7 17.8 -0.99 + 3.5 0.4/11.5 33937
 (9942) 1999 02 11.6 09 39.62 +29 32.8 16.5 -1.11 + 2.0 6.0/08.1 33658
 (8247) 1999 02 11.7 09 39.56 +16 09.5 16.9 -0.78 + 4.4 0.6/11.1 31207
 1994 UX₁ 1999 02 11.7 09 39.71 +20 01.6 17.2 -1.10 + 5.5 2.4/10.2 34011
 1999 AZ₅ 1999 02 11.7 09 39.96 +14 28.0 17.9 -0.82 + 4.6 0.2/11.7 33978
 1990 RQ₉ 1999 02 11.7 09 39.97 +05 12.9 17.7 -0.99 + 5.8 3.0/14.1 33929
 1998 VV₃₂ 1999 02 11.8 09 39.96 +34 53.3 16.7 -0.86 + 7.2 6.0/05.1 34029
 1997 XR₁₁ 1999 02 11.8 09 40.03 +07 02.1 17.3 -0.96 + 1.5 2.1/13.4 34019
 1998 YY₂₉ 1999 02 11.8 09 40.25 +44 59.8 16.9 -1.31 +17.3 13.5/30.8 34037
 1997 YH₁ 1999 02 11.8 09 40.26 +31 06.7 17.3 -0.92 + 3.3 5.2/07.2 34019
 1997 UU₃ 1999 02 11.9 09 40.47 -23 04.2 18.8 -0.96 + 3.9 10.8/23.1 31146
 1993 TW₁₇ 1999 02 11.9 09 40.47 -02 50.1 18.3 -0.85 + 8.7 6.2/17.3 33938
 1980 EB 1999 02 11.9 09 40.51 +16 19.7 16.9 -1.02 + 4.3 1.0/11.3 33739
 1996 LL 1999 02 11.9 09 40.55 -02 28.9 18.2 -0.84 + 7.4 5.4/16.9 34014
 1997 VX₇ 1999 02 11.9 09 40.71 +24 11.2 17.9 -1.12 + 2.8 3.9/09.5 34018
 1993 RO₇ 1999 02 12.0 09 40.88 +18 52.4 17.8 -1.00 + 3.4 2.0/10.8 34010
 4189 P-L 1999 02 12.1 09 41.12 +08 28.8 17.6 -0.96 + 2.9 2.3/13.4 33996
 1979 OH₁₀ 1999 02 12.1 09 41.19 +10 58.1 19.2 -0.74 + 6.6 0.8/13.0 29296
 1998 YW₂₉ 1999 02 12.1 09 41.26 +29 55.2 17.8 -1.10 + 2.4 6.2/08.2 33976
 1997 ST₁₇ 1999 02 12.1 09 41.46 +12 32.7 18.7 -0.97 + 5.7 0.4/12.5 31012
 1986 VA 1999 02 12.1 09 41.55 +03 11.1 17.3 -0.81 + 2.7 3.0/14.9 34004
 1990 TD 1999 02 12.2 09 41.58 +05 57.5 17.7 -1.03 + 4.5 2.7/14.2 33929
 1997 RK₇ 1999 02 12.2 09 41.94 +09 37.8 18.5 -1.02 + 3.3 1.4/13.3 33753
 1979 MT₆ 1999 02 12.3 09 42.16 +00 38.2 18.3 -0.98 + 1.3 4.8/15.4 33921
 1997 PF₁ 1999 02 12.3 09 42.25 +11 24.3 18.6 -1.07 + 3.9 0.9/12.9 33950
 2326 T-3 1999 02 12.3 09 42.31 +11 07.7 18.0 -0.96 + 4.2 0.9/13.1 34061

1969 TY₁ 1999 02 12.4 09 42.42 +06 36.6 17.5 -0.76 + 4.6 2.0/14.4 33920
 1989 SV₅ 1999 02 12.4 09 42.49 +25 20.5 17.0 -0.94 + 5.5 5.0/09.2 34005
 1999 AS₃₁ 1999 02 12.4 09 42.58 +14 56.9 18.0 -0.99 + 3.5 0.4/12.2 33982
 1997 YH₃ 1999 02 12.5 09 42.74 +13 47.7 18.4 -0.94 + 4.1 0.0/12.5 33967
 (8552) 1999 02 12.5 09 42.83 +20 47.0 17.7 -0.95 + 3.5 2.7/10.7 34001
 1992 DN₆ 1999 02 12.5 09 42.92 +14 16.0 17.1 -0.98 + 5.8 0.2/12.4 34008
 1999 AC₂₀ 1999 02 12.5 09 42.96 +15 12.7 24.1 -0.89 + 5.3 0.5/12.2 33979
 1997 UK₈ 1999 02 12.5 09 42.97 +17 08.2 17.9 -0.81 + 4.2 1.1/11.6 33958
 1997 VE₈ 1999 02 12.6 09 43.15 +15 14.9 17.9 -0.93 + 3.9 0.5/12.2 34018
 2042 P-L 1999 02 12.6 09 43.27 +04 52.2 17.7 -0.96 + 4.9 3.6/15.0 34059
 1991 VM₁₂ 1999 02 12.6 09 43.34 +15 55.8 18.0 -0.77 + 3.9 0.6/12.0 33932
 1996 RM₅ 1999 02 12.6 09 43.50 +05 48.1 19.0 -0.80 + 7.3 2.3/15.0 33948
 (8112) 1999 02 12.7 09 43.56 +16 37.3 17.8 -0.82 + 6.0 1.0/11.9 34001
 1997 QQ₄ 1999 02 12.7 09 43.56 +17 36.8 18.3 -0.94 + 4.2 1.3/11.7 33952
 1227 T-2 1999 02 12.7 09 43.62 +10 41.1 17.2 -1.01 + 7.0 1.2/13.6 33998
 1997 UT₈ 1999 02 12.7 09 43.79 +05 36.3 18.4 -0.90 + 5.3 2.6/14.9 33959
 1993 FQ₁₆ 1999 02 12.7 09 43.85 +18 54.9 17.4 -1.09 + 6.9 2.1/11.4 33935
 1981 EX₁₂ 1999 02 12.8 09 44.14 -02 21.9 19.1 -0.82 + 5.4 5.1/17.4 26917
 1972 TR₈ 1999 02 12.9 09 44.33 +11 32.8 17.6 -1.02 + 1.7 0.6/13.4 33920
 1981 ED₄ 1999 02 12.9 09 44.43 +05 32.0 19.2 -0.95 + 1.0 3.6/14.7 26915
 1997 UC₁ 1999 02 12.9 09 44.63 +03 45.8 18.6 -0.85 + 6.1 3.2/15.8 33957
 1992 DE₃ 1999 02 13.0 09 44.65 +16 26.1 18.1 -1.09 + 3.2 1.0/12.3 34008
 1997 UM₅ 1999 02 13.0 09 44.73 +21 25.6 18.1 -1.16 + 5.0 3.2/11.0 33958
 1988 FS₂ 1999 02 13.0 09 44.75 +16 57.2 16.5 -1.04 + 4.3 1.4/12.2 33542
 1991 GV₆ 1999 02 13.0 09 44.92 +09 53.0 18.4 -0.89 + 5.0 1.2/14.0 34007
 1990 RW₄ 1999 02 13.1 09 45.04 +11 17.5 17.3 -0.79 + 3.2 0.6/13.7 34006
 1992 OE 1999 02 13.1 09 45.06 +19 45.1 18.5 -1.12 - 0.6 1.8/11.8 34009
 1996 QN₁ 1999 02 13.1 09 45.08 +17 42.4 18.3 -0.90 + 2.1 1.2/12.1 33752
 1990 QF₅ 1999 02 13.1 09 45.09 +25 34.5 16.6 -0.95 + 1.0 3.5/10.2 33742
 1981 ES₃₈ 1999 02 13.1 09 45.12 +04 47.6 18.1 -0.94 + 6.3 3.0/15.5 34003
 1994 TE₁₅ 1999 02 13.1 09 45.24 +05 41.3 18.2 -1.06 + 5.9 2.7/15.2 33941
 1989 VK 1999 02 13.1 09 45.25 +09 04.7 18.1 -1.00 + 4.6 1.6/14.3 34005
 1993 TH₂ 1999 02 13.1 09 45.32 +18 04.0 17.3 -0.95 + 5.2 1.5/11.9 33938
 1981 EP₇ 1999 02 13.1 09 45.39 +03 17.3 19.2 -0.98 + 4.3 3.5/15.8 26916
 1990 SX₁₃ 1999 02 13.2 09 45.50 +14 48.1 17.7 -1.06 + 6.2 0.5/12.9 33929
 (8173) 1999 02 13.2 09 45.50 +21 47.4 17.5 -0.93 + 2.0 2.6/11.2 31080
 1991 EG₁ 1999 02 13.2 09 45.67 -00 52.3 16.3 -0.78 +11.1 5.7/18.1 33930
 1993 NH 1999 02 13.2 09 45.71 -20 45.6 19.7 -1.01 + 2.4 10.1/22.6 31139
 1990 RH₂ 1999 02 13.3 09 45.84 +17 41.9 17.9 -1.12 + 2.7 1.6/12.3 34006
 1981 EA₁₃ 1999 02 13.3 09 45.95 +03 51.6 19.2 -0.98 + 4.4 3.3/15.8 26917
 (8510) 1999 02 13.3 09 46.13 +10 04.6 17.5 -0.77 + 8.2 1.1/14.4 31499
 4094 T-3 1999 02 13.3 09 46.22 +21 38.1 18.4 -0.99 + 5.0 2.8/11.2 34061
 1997 WP₁ 1999 02 13.4 09 46.32 +12 08.3 18.3 -0.85 + 4.3 0.4/13.8 33962
 1997 TQ₂₅ 1999 02 13.4 09 46.36 +00 37.0 18.1 -0.87 + 3.8 3.9/16.8 34017
 1987 PM 1999 02 13.4 09 46.42 +04 31.7 16.7 -0.89 + 2.9 2.8/15.7 33925
 1995 DZ₅ 1999 02 13.4 09 46.46 +15 17.8 19.2 -0.92 + 4.4 0.6/13.0 33944
 1176 T-2 1999 02 13.5 09 46.70 +12 04.4 18.3 -1.08 + 4.5 0.5/13.9 34060
 1984 SN₄ 1999 02 13.5 09 46.71 +13 56.7 19.2 -0.92 + 4.3 0.2/13.4 34003
 1997 TG₂₆ 1999 02 13.5 09 46.82 +11 46.4 18.2 -0.94 + 4.1 0.5/14.0 34017
 1981 EF₇ 1999 02 13.5 09 46.83 +02 55.2 18.1 -0.98 + 4.4 4.3/16.3 33923
 1999 AD₈ 1999 02 13.5 09 46.85 +21 18.7 17.5 -1.10 + 6.0 3.5/11.4 34039

1989 GK ₁	1999 02 13.6	09 47.29 +22 30.5 18.2	-0.88 + 2.5	2.6/11.3	28315	1974 SE	1999 02 15.4	09 54.07 +09 11.9 16.9	-1.08 + 4.8	1.4/16.3	34001
1997 TK ₁₁	1999 02 13.6	09 47.42 +30 02.4 17.6	-1.20 - 0.5	6.6/10.0	33956	1996 NE ₅	1999 02 15.5	09 54.59 +11 07.4 17.5	-0.84 + 4.2	0.5/16.0	33947
1997 XF ₂	1999 02 13.7	09 47.46 +02 50.6 18.1	-0.80 + 2.8	3.0/16.5	33966	1996 HM ₂₂	1999 02 15.5	09 54.69 +17 28.1 18.3	-1.08 + 5.4	1.8/14.3	34014
1990 WS	1999 02 13.7	09 47.63 +07 15.7 18.6	-0.94 + 7.4	2.2/15.5	34006	1999 CV	1999 02 15.5	09 54.85 +20 34.5 18.2	-1.06 + 7.2	2.8/13.3	33991
1995 GJ ₇	1999 02 13.7	09 47.66 +26 21.4 16.4	-1.07 + 2.6	4.9/10.4	34013	1997 VE ₄	1999 02 15.6	09 54.93 -03 19.4 19.3	-0.86 + 4.5	4.4/20.1	33961
1979 MR ₅	1999 02 13.7	09 47.71 +10 30.0 18.6	-1.02 + 4.9	1.0/14.5	34002	(8144)	1999 02 15.6	09 55.01 +14 36.2 16.6	-0.83 + 5.4	0.6/15.1	31074
1993 FF ₃₆	1999 02 13.8	09 48.09 +08 03.9 18.3	-1.02 + 8.4	2.2/15.3	34009	1990 VD ₃	1999 02 15.6	09 55.12 +07 56.3 16.9	-1.00 + 4.0	2.0/16.9	33544
1997 TU ₁₇	1999 02 13.8	09 48.19 +04 33.9 17.5	-1.00 + 6.2	3.4/16.2	33956	1997 XY ₁₀	1999 02 15.7	09 55.23 +21 15.1 18.2	-0.80 + 4.0	2.2/13.3	34019
1997 SX	1999 02 13.9	09 48.48 +29 08.2 17.7	-0.89 + 3.5	4.4/09.6	33952	1988 DA ₅	1999 02 15.7	09 55.29 -06 14.0 18.0	-0.71 + 7.9	5.2/22.0	33926
1997 XC ₁₀	1999 02 14.0	09 48.84 -00 39.4 17.4	-0.78 + 3.9	3.9/17.9	33966	1997 UG ₅	1999 02 15.7	09 55.54 +39 43.3 18.9	-1.04 + 1.1	7.9/08.5	34017
1999 AJ ₂₀	1999 02 14.1	09 49.28 +14 09.8 18.2	-0.71 + 3.2	0.3/13.9	33980	1993 VV ₇	1999 02 15.7	09 55.56 +43 42.2 17.4	-1.13 +12.8	10.8/04.6	34010
(8102)	1999 02 14.1	09 49.40 +16 15.5 17.6	-0.86 + 5.4	1.0/13.3	30967	1993 FU ₃₄	1999 02 15.7	09 55.57 +11 54.1 18.0	-1.05 + 7.4	0.3/16.0	34009
3520 P-L	1999 02 14.1	09 49.41 -01 20.5 18.1	-0.80 + 3.7	4.2/18.2	34059	1981 EX ₂₇	1999 02 15.8	09 55.87 +12 30.1 18.0	-1.00 + 5.5	0.0/15.9	34003
1997 WN ₃₈	1999 02 14.2	09 49.59 +16 28.3 18.8	-0.78 + 4.1	0.9/13.3	34019	1999 BO ₃	1999 02 15.8	09 55.92 +44 53.9 16.8	-1.00 + 3.6	11.7/05.2	34042
1988 CO ₄	1999 02 14.2	09 49.60 +00 51.5 17.2	-1.01 + 2.7	5.1/17.2	33926	1999 AU ₇	1999 02 15.9	09 56.13 +21 56.4 17.4	-1.13 + 5.2	3.9/13.4	34039
1996 HC ₂₆	1999 02 14.2	09 49.74 +18 08.7 19.1	-1.04 + 5.9	1.7/12.9	33946	1993 TG ₃₁	1999 02 15.9	09 56.15 +19 11.9 17.5	-1.02 + 5.8	2.5/14.1	34010
1990 UQ ₂	1999 02 14.4	09 50.25 +27 07.2 17.2	-1.11 + 4.2	4.9/10.8	34006	1999 CX	1999 02 15.9	09 56.28 +18 26.8 17.7	-1.09 + 6.3	2.2/14.3	33991
1990 SS ₉	1999 02 14.4	09 50.34 +17 59.8 17.1	-1.03 + 6.2	2.0/13.1	33742	1997 VQ ₁	1999 02 15.9	09 56.32 -00 49.6 16.5	-0.84 + 3.9	4.3/19.7	31281
1997 WZ ₄₂	1999 02 14.4	09 50.49 +15 14.3 18.4	-0.77 + 4.2	0.6/13.9	33965	1993 TY ₃₈	1999 02 15.9	09 56.33 +09 06.4 16.9	-0.86 + 8.2	1.3/17.0	34010
1997 VC ₅	1999 02 14.4	09 50.49 +28 41.2 18.1	-0.86 + 4.3	4.3/10.0	34018	1995 GC ₂	1999 02 15.9	09 56.36 +19 01.6 17.3	-0.92 + 4.7	2.2/14.2	33944
3086 P-L	1999 02 14.4	09 50.53 -00 48.6 17.6	-0.80 + 3.5	4.0/18.3	34059	1990 QT	1999 02 15.9	09 56.38 +17 10.4 17.6	-1.10 + 3.6	1.6/14.8	33928
1997 UK ₅	1999 02 14.5	09 50.55 +11 04.0 18.4	-1.03 + 1.7	0.6/15.0	33958	4634 P-L	1999 02 16.0	09 56.40 +18 46.5 18.5	-1.10 + 4.6	2.2/14.4	34060
1990 UQ ₃	1999 02 14.5	09 50.70 +08 01.8 18.9	-0.96 + 6.8	1.7/15.9	34006	1993 QN ₇	1999 02 16.0	09 56.40 +15 24.2 18.7	-0.99 + 5.1	1.0/15.2	34010
1996 JY	1999 02 14.5	09 50.84 +02 52.4 18.7	-0.93 + 7.0	3.3/17.4	33555	1993 EL ₅	1999 02 16.0	09 56.45 +13 17.6 18.9	-1.06 + 5.8	0.3/15.8	34009
1997 WZ ₇	1999 02 14.6	09 51.09 +29 05.7 17.8	-0.88 + 4.6	4.4/09.9	33963	1993 RS ₃	1999 02 16.0	09 56.78 -07 19.2 17.5	-0.90 + 7.2	6.7/22.4	33937
1996 HM ₂₅	1999 02 14.6	09 51.10 +28 46.5 18.1	-1.08 + 5.5	5.6/10.2	33946	1997 VH ₆	1999 02 16.1	09 56.89 +20 22.9 18.3	-0.95 + 4.6	2.7/14.0	33962
1969 TQ ₁	1999 02 14.6	09 51.27 +17 26.2 17.5	-0.81 + 4.3	1.3/13.4	33738	1993 UF	1999 02 16.1	09 57.14 +18 30.4 18.4	-0.91 + 9.2	1.9/14.3	33939
(8059)	1999 02 14.7	09 51.31 +35 44.5 16.2	-1.07 + 4.4	7.3/07.9	30957	1997 WD ₁₅	1999 02 16.1	09 57.16 +22 45.2 16.6	-0.95 + 4.1	3.8/13.3	34019
1992 EE ₁	1999 02 14.8	09 51.83 +61 27.2 16.6	-2.06 - 3.1	19.9/28.0	21977	1990 SN ₂₈	1999 02 16.2	09 57.19 +14 31.9 18.2	-1.04 + 4.9	0.7/15.7	34006
1990 QC ₅	1999 02 14.8	09 51.89 +17 44.0 16.9	-1.13 + 4.8	1.9/13.6	33742	1998 BC ₃₅	1999 02 16.2	09 57.26 +15 39.2 17.7	-0.83 + 5.3	1.0/15.3	33968
1999 BZ ₂₉	1999 02 14.8	09 51.91 +15 12.3 17.8	-0.80 + 5.2	0.8/14.2	33991	(8199)	1999 02 16.2	09 57.50 +30 44.8 17.9	-1.00 + 6.0	5.7/10.7	31086
1994 UJ	1999 02 14.8	09 52.06 +19 21.4 18.0	-1.08 + 5.7	2.3/13.2	34011	1981 EK ₂₁	1999 02 16.3	09 57.70 +16 45.9 18.7	-0.97 + 2.6	1.5/15.2	33923
2216 T-2	1999 02 14.8	09 52.09 +14 02.1 18.7	-0.75 + 3.9	0.3/14.6	34060	1981 EK ₂	1999 02 16.3	09 57.97 +00 44.3 18.8	-0.87 + 3.5	3.6/19.5	33922
1999 CJ ₁₆	1999 02 14.9	09 52.31 +11 54.7 17.1	-0.99 + 6.6	0.4/15.2	33994	1992 EO ₇	1999 02 16.3	09 58.02 +24 18.8 17.7	-1.04 + 5.3	5.2/13.1	33933
1987 SB ₃	1999 02 14.9	09 52.38 +22 31.0 18.9	-1.12 + 4.6	3.4/12.5	34004	1994 AD ₁₁	1999 02 16.4	09 58.18 +11 23.1 16.8	-0.96 + 1.7	0.3/16.7	33939
1995 FM	1999 02 14.9	09 52.42 +00 36.5 17.3	-0.82 + 8.9	4.2/18.8	34012	1992 OK	1999 02 16.4	09 58.27 +01 36.3 19.7	-0.83 + 4.2	2.8/19.5	34009
1996 RB	1999 02 15.0	09 52.63 +12 18.3 18.7	-0.83 + 3.0	0.1/15.2	34015	7075 P-L	1999 02 16.5	09 58.38 +01 06.8 18.5	-0.75 + 5.0	2.9/19.8	34060
1979 ML ₇	1999 02 15.0	09 52.66 +14 47.8 19.6	-1.02 + 6.6	0.7/14.5	30779	1991 TL ₃	1999 02 16.5	09 58.42 +07 23.4 18.1	-0.80 + 3.3	1.4/17.9	34007
1997 RZ ₇	1999 02 15.0	09 52.68 +19 26.0 16.7	-1.12 + 0.6	2.2/13.6	34016	(8080)	1999 02 16.5	09 58.43 +07 05.7 17.8	-0.88 + 2.9	1.4/17.9	30962
1999 CZ ₂	1999 02 15.1	09 52.90 +11 57.6 17.0	-0.80 + 4.5	0.3/15.4	33992	1999 CW	1999 02 16.5	09 58.64 +17 52.3 16.4	-0.77 + 6.6	1.8/14.9	33991
1997 XT ₅	1999 02 15.1	09 52.92 +20 13.7 17.4	-0.78 + 5.1	2.0/13.0	34019	1997 QM ₁	1999 02 16.6	09 58.84 +22 37.8 18.8	-1.10 + 3.0	4.1/14.1	34016
1997 UZ ₁	1999 02 15.1	09 52.98 +24 01.7 18.9	-1.11 + 4.0	4.1/12.2	31014	1993 QP ₂	1999 02 16.6	09 59.01 +09 09.8 17.3	-0.97 + 7.1	1.2/17.6	34010
1997 WQ ₃₁	1999 02 15.1	09 53.02 +17 14.2 18.0	-0.84 + 4.6	1.3/13.9	33964	1997 WJ ₇	1999 02 16.6	09 59.09 +09 31.9 18.6	-0.86 + 4.4	0.8/17.5	34018
1999 BZ ₁₄	1999 02 15.1	09 53.03 -01 15.2 18.1	-0.85 + 4.6	5.3/19.1	33989	1997 UT ₃	1999 02 16.6	09 59.10 +11 22.8 17.7	-0.78 + 4.3	7.3/09.0	31280
(8115)	1999 02 15.1	09 53.05 +19 22.3 17.0	-1.11 + 4.6	2.5/13.5	30970	1998 AN ₈	1999 02 16.7	09 59.13 +37 12.5 18.0	-1.09 + 2.9	8.0/09.7	33755
1999 CA ₁₄	1999 02 15.1	09 53.11 +15 47.2 17.2	-0.97 + 7.6	1.3/14.3	33993	1977 EL ₅	1999 02 16.7	09 59.14 -02 45.2 17.8	-0.70 + 7.7	4.0/21.6	34001
1999 CO	1999 02 15.2	09 53.67 +17 18.6 17.4	-0.95 + 7.4	1.7/14.0	34045	4381 T-1	1999 02 16.7	09 59.18 +18 33.7 20.0	-1.05 + 4.8	2.2/15.1	27927
3106 P-L	1999 02 15.3	09 53.78 -00 58.0 19.0	-0.78 + 3.8	3.8/19.2	33996	1993 SS ₁	1999 02 16.7	09 59.34 +12 22.9 16.5	-0.90 + 6.8	9.7/09.0	33747
1981 EM ₂₅	1999 02 15.3	09 53.80 +09 42.1 18.1	-0.93 + 7.0	1.3/16.2	33923	1990 SE ₆	1999 02 16.7	09 59.38 +09 25.8 18.3	-0.95 + 8.3	1.1/17.6	34006
1999 CF ₁	1999 02 15.3	09 53.95 +16 52.6 18.3	-1.02 + 7.5	1.5/14.2	33991	1996 ER	1999 02 16.8	09 59.48 +08 25.3 18.1	-1.03 + 7.4	1.5/17.9	34013
1987 SM ₃	1999 02 15.3	09 54.11 +08 58.8 16.5	-1.14 + 2.7	1.6/16.3	33926	1997 VP	1999 02 16.8	09 59.51 +01 14.7 19.3	-0.98 + 5.3	4.0/19.8	33960

1999 MAR. 2

M.P.C. 34077

1997 WO ₁₂	1999 02 16.8	09 59.80 -01 11.0 17.6	-0.99 + 4.6	5.9/20.4	33963	(8145)	1999 02 18.3	10 05.59 -00 57.6 17.1	-0.85 + 3.9	3.6/22.0	31074
2545 P-L	1999 02 16.8	09 59.87 +23 02.6 18.2	-0.97 + 2.8	3.3/14.1	33995	1997 WA ₂	1999 02 18.3	10 05.62 +14 36.7 17.7	-1.01 + 7.2	1.1/17.5	34018
1996 GF ₁	1999 02 16.9	09 59.91 +15 04.3 17.1	-1.01 + 7.1	1.2/16.1	34013	1997 WH	1999 02 18.3	10 05.68 -03 58.3 18.5	-0.76 + 3.6	4.7/23.0	34018
1993 RK ₄	1999 02 16.9	10 00.04 +10 56.2 17.2	-0.98 + 4.2	0.6/17.3	34010	1997 UA ₅	1999 02 18.3	10 05.75 +22 21.8 19.0	-1.06 + 4.6	3.5/15.5	31147
1996 HQ ₉	1999 02 16.9	10 00.04 -05 54.4 18.1	-0.92 + 6.2	5.9/22.4	34014	1997 SL ₁	1999 02 18.4	10 05.68 +08 40.5 17.8	-0.97 + 7.2	1.2/19.3	34017
1998 WM ₇	1999 02 16.9	10 00.07 +26 47.4 15.6	-0.85 + 8.6	6.5/12.0	34030	1998 WN ₂	1999 02 18.4	10 05.79 +04 39.8 17.8	-1.10 - 0.1	2.9/20.0	34029
1981 EF ₄₂	1999 02 16.9	10 00.30 +14 51.9 18.8	-0.90 + 4.7	0.9/16.3	34003	1968 OK	1999 02 18.4	10 05.86 -08 38.9 18.7	-0.95 + 2.4	6.0/23.9	34001
1990 OD ₂	1999 02 17.0	10 00.31 +23 22.3 18.9	-1.10 + 5.0	3.8/14.0	34005	(9741)	1999 02 18.4	10 05.94 +25 10.2 16.0	-1.08 + 3.8	6.2/14.9	33197
1999 BO ₉	1999 02 17.0	10 00.31 +04 50.8 17.0	-0.85 + 4.8	2.4/19.1	33987	1979 MK ₇	1999 02 18.4	10 06.12 +07 05.8 17.0	-0.79 + 4.6	1.5/19.8	33739
1997 WM ₁₆	1999 02 17.0	10 00.66 +17 51.1 17.7	-1.02 + 7.3	1.9/15.4	34019	1989 TT	1999 02 18.4	10 06.13 +00 59.0 18.1	-0.86 +10.4	3.5/22.1	34005
1987 SZ ₂	1999 02 17.0	10 00.69 +23 58.0 17.6	-1.16 + 3.6	4.6/14.1	34004	1996 GR ₁₇	1999 02 18.5	10 06.36 +21 11.3 17.8	-1.07 + 4.0	3.4/16.0	34014
1997 TE ₂₅	1999 02 17.0	10 00.71 +07 55.0 19.2	-0.88 + 5.4	1.2/18.3	34017	1980 UN ₁	1999 02 18.5	10 06.41 +08 28.9 18.6	-0.89 + 4.6	0.9/19.5	34002
(8221)	1999 02 17.1	10 00.96 +10 36.4 17.4	-0.82 + 4.8	0.5/17.6	31091	1993 PV ₆	1999 02 18.5	10 06.52 +10 18.0 18.5	-0.98 + 4.2	0.4/19.0	33746
1997 QU	1999 02 17.1	10 01.03 +06 44.8 19.3	-0.93 + 6.1	1.7/18.7	34016	1996 HC ₁₉	1999 02 18.7	10 06.96 +08 30.6 17.8	-0.96 + 6.0	1.1/19.6	33751
1989 GF ₁	1999 02 17.1	10 01.06 +13 33.4 16.0	-1.07 + 3.0	0.6/16.8	33741	1988 SX ₂	1999 02 18.7	10 07.24 +13 49.4 19.0	-0.68 + 3.3	0.6/18.1	34005
1999 BP ₂	1999 02 17.1	10 01.11 +23 12.5 17.5	-1.07 + 4.4	4.2/14.3	33984	1999 BS ₁₁	1999 02 18.8	10 07.26 +10 32.1 18.5	-1.09 + 4.7	0.4/19.1	33988
1176 T-1	1999 02 17.2	10 01.26 +06 00.4 17.4	-0.75 + 5.5	1.9/19.1	33997	1981 ET ₄₂	1999 02 18.9	10 07.62 +11 43.6 18.2	-1.00 + 4.9	0.1/18.9	34003
1997 PP ₃	1999 02 17.2	10 01.36 +16 44.8 19.3	-1.07 + 3.2	1.7/16.1	30789	1995 EL ₈	1999 02 18.9	10 07.66 +14 24.7 17.4	-0.88 + 7.1	1.1/18.0	33944
(8178)	1999 02 17.3	10 01.57 +07 14.7 17.7	-1.01 + 4.7	1.6/18.6	31082	1994 XL	1999 02 18.9	10 08.01 +15 10.1 16.6	-0.99 + 2.5	1.8/18.1	33942
1996 GA ₁₉	1999 02 17.3	10 01.66 +20 21.3 17.2	-1.08 + 5.2	3.4/15.1	34014	1993 UC ₈	1999 02 19.0	10 07.99 +12 17.6 19.9	-0.90 + 6.3	0.2/18.8	30759
1991 VW ₈	1999 02 17.3	10 01.70 +11 59.9 18.8	-0.75 + 4.5	0.0/17.4	34008	1998 YL ₄	1999 02 19.0	10 08.06 +07 38.7 17.1	-1.08 + 2.3	1.6/19.9	34035
1997 VW ₆	1999 02 17.3	10 01.82 +10 57.3 18.4	-0.83 + 4.4	0.3/17.7	33962	1997 WQ ₃₇	1999 02 19.0	10 08.11 +15 56.8 17.8	-0.81 + 5.3	1.3/17.7	33346
4125 T-2	1999 02 17.4	10 01.84 +04 30.4 19.4	-0.70 + 6.5	2.0/19.8	29314	1996 NN ₄	1999 02 19.0	10 08.23 +11 25.5 19.0	-0.75 + 4.5	0.0/19.1	34014
1993 TN ₂₉	1999 02 17.4	10 01.85 +14 03.5 20.1	-0.95 + 6.0	0.6/16.8	34010	1997 VS ₅	1999 02 19.0	10 08.26 +13 25.6 19.0	-0.78 + 3.9	0.5/18.5	34018
1997 TJ ₁₀	1999 02 17.4	10 01.89 +11 53.8 18.5	-0.92 + 5.1	0.1/17.5	33955	4735 P-L	1999 02 19.0	10 08.43 +16 39.4 18.4	-1.11 + 5.7	2.2/17.7	34060
1993 FB ₂₄	1999 02 17.4	10 01.93 +15 46.1 18.0	-1.12 + 4.3	1.3/16.5	33746	1993 UV	1999 02 19.1	10 08.46 -08 53.7 18.3	-0.86 + 6.7	6.8/25.7	34010
1985 SW ₄	1999 02 17.4	10 02.02 +21 27.1 17.9	-0.82 + 3.5	2.4/14.8	22698	1991 RK ₅	1999 02 19.1	10 08.62 +23 17.8 17.4	-0.89 + 2.7	3.2/15.9	33545
1990 TR ₅	1999 02 17.4	10 02.25 +02 33.4 19.1	-0.99 + 5.4	3.1/20.1	34006	1981 EX ₃	1999 02 19.1	10 08.63 -02 09.8 17.8	-0.84 + 4.9	4.9/23.2	34002
1997 RK ₃	1999 02 17.5	10 02.42 +22 52.9 17.5	-1.01 + 6.3	3.7/14.4	33952	1286 T-2	1999 02 19.1	10 08.66 +07 29.6 18.2	-0.94 + 8.1	1.7/20.4	33998
1999 AR ₃₄	1999 02 17.6	10 02.60 +10 23.2 16.6	-0.95 + 6.7	0.7/18.1	33982	1989 WS	1999 02 19.1	10 08.74 -03 07.1 17.3	-0.91 + 5.2	4.9/23.5	34005
(8092)	1999 02 17.6	10 02.62 +05 57.0 16.6	-1.01 + 4.8	2.3/19.2	30965	1974 ST ₁	1999 02 19.2	10 08.97 +13 28.0 18.6	-0.98 + 4.6	0.7/18.7	34001
(8062)	1999 02 17.6	10 02.67 +12 27.0 14.7	-1.21 - 1.7	0.2/17.5	30958	1997 WC ₂	1999 02 19.2	10 09.22 +17 43.9 18.4	-0.84 + 4.0	1.9/17.5	33962
1984 LK	1999 02 17.6	10 02.91 +02 51.5 18.8	-0.72 + 3.8	2.0/20.3	33333	1999 BU ₂	1999 02 19.3	10 09.20 +35 42.3 17.3	-1.05 +22.8	10.8/09.1	34042
1999 BR ₂	1999 02 17.6	10 02.97 +25 54.6 17.7	-1.06 + 6.1	5.7/13.6	33984	1997 RP ₁	1999 02 19.3	10 09.24 +12 52.8 19.3	-1.01 + 4.6	0.5/18.9	31010
1992 ED ₉	1999 02 17.6	10 03.01 +20 24.0 17.8	-1.02 + 6.7	3.3/15.3	33933	1990 WD	1999 02 19.4	10 09.71 +21 12.1 18.1	-1.03 + 6.7	3.3/16.6	34006
1997 VY ₁	1999 02 17.7	10 02.99 +07 11.3 17.7	-0.78 + 4.5	1.4/19.1	34018	1970 OF	1999 02 19.4	10 09.91 +09 50.6 18.2	-0.89 + 3.7	0.4/19.9	34001
1985 UQ ₄	1999 02 17.7	10 03.05 +13 33.0 17.7	-0.75 + 4.6	0.4/17.3	34004	9575 P-L	1999 02 19.4	10 10.01 +16 13.8 18.5	-1.11 + 6.4	1.9/18.1	34060
1997 PQ ₄	1999 02 17.7	10 03.06 +10 49.0 18.7	-0.98 + 8.2	0.4/18.1	34016	1997 TS ₁₆	1999 02 19.5	10 09.98 +04 28.9 18.6	-0.93 + 6.4	2.3/21.5	34017
1996 JF ₂	1999 02 17.7	10 03.14 +07 52.0 17.9	-0.84 +10.5	1.5/19.1	34014	1997 VF ₁	1999 02 19.5	10 10.00 +26 19.4 17.9	-1.05 + 1.3	4.5/15.8	34018
1987 QF ₆	1999 02 17.7	10 03.17 -04 15.1 17.0	-0.84 +22.4	6.8/24.4	34004	4234 T-2	1999 02 19.5	10 10.00 +18 11.8 17.7	-0.80 + 3.7	1.8/17.5	34061
(8316)	1999 02 17.7	10 03.24 +03 27.5 16.2	-0.83 + 2.6	2.4/20.0	34001	1998 WB ₃	1999 02 19.5	10 10.09 +14 42.8 17.7	-0.78 + 5.0	1.1/18.5	34029
1992 EU ₆	1999 02 17.7	10 03.32 +16 48.8 18.1	-0.96 + 8.8	1.9/16.3	33933	1996 VS	1999 02 19.5	10 10.21 +01 37.7 18.3	-0.72 + 5.7	2.7/22.6	34015
1992 OV ₁	1999 02 17.7	10 03.34 +04 37.7 18.0	-0.99 + 1.7	2.3/19.5	33934	4093 T-2	1999 02 19.5	10 10.38 +15 22.9 18.4	-0.96 + 4.9	1.7/18.5	33999
1988 SL ₂	1999 02 17.8	10 03.57 +10 46.1 18.2	-0.67 + 4.5	0.3/18.2	33927	1978 RV	1999 02 19.6	10 10.36 +20 52.7 18.9	-0.90 + 3.4	2.5/16.9	33921
1998 WA ₃	1999 02 17.9	10 04.05 +22 12.0 17.9	-0.78 + 8.8	3.2/14.6	34029	1997 QY ₂	1999 02 19.6	10 10.43 +10 51.7 19.6	-1.03 + 4.1	0.1/19.7	34016
1997 UX ₁₄	1999 02 18.1	10 04.75 +28 04.2 18.3	-0.99 + 3.5	5.3/13.6	33960	1997 WP ₁₄	1999 02 19.6	10 10.58 +12 36.8 18.4	-0.79 + 5.1	0.4/19.3	34019
4297 T-3	1999 02 18.2	10 05.18 +07 24.3 17.5	-0.92 + 9.6	1.9/19.6	33999	1990 SG ₃	1999 02 19.6	10 10.74 +13 27.2 17.8	-0.99 + 6.8	0.7/19.1	33742
1991 PT ₁₁	1999 02 18.2	10 05.26 +08 55.0 18.2	-0.77 + 5.0	0.8/19.1	34007	1995 EE ₈	1999 02 19.7	10 11.04 +22 01.7 15.5	-1.20 - 2.0	4.5/17.5	33553
1990 TB ₆	1999 02 18.2	10 05.27 +12 31.9 18.2	-1.10 + 3.0	0.3/18.1	33929	1999 BO ₄	1999 02 19.8	10 11.08 +09 24.0 18.5	-0.99 + 2.2	0.5/20.3	33985
1993 TH ₃₂	1999 02 18.2	10 05.35 +12 19.3 16.8	-0.99 + 6.6	0.2/18.1	34010	1997 SK ₃₁	1999 02 19.8	10 11.15 +13 15.5 19.0	-0.97 + 3.6	0.8/19.3	33955
1986 QN ₁	1999 02 18.3	10 05.37 +18 24.4 18.1	-0.94 + 1.5	2.0/16.6	34004	1997 WD ₃₀	1999 02 19.9	10 11.48 +28 50.2 17.7	-0.91 + 3.5	5.2/14.8	33964

1998 AA	1999 02 19.9	10 11.60 -25 35.9 18.0	-0.99 + 2.7	11.0/03.1	33967	(8195)	1999 02 21.0	10 15.77 -08 36.1 16.9	-0.94 + 3.6	6.1/26.5	31085
1993 UC ₃	1999 02 19.9	10 11.70 +10 43.0 17.5	-0.94 + 4.8	0.2/20.1	34010	1999 BX ₂	1999 02 21.0	10 15.79 +19 38.6 17.1	-0.75 + 7.4	2.9/18.1	33984
1981 EO ₃₂	1999 02 20.0	10 11.84 +05 45.1 19.5	-0.87 + 4.1	1.8/21.5	34003	1999 BC ₈	1999 02 21.0	10 15.84 +06 04.6 17.3	-0.88 + 1.3	1.6/22.2	33986
1999 AQ ₂	1999 02 20.0	10 11.92 +19 59.5 17.2	-1.11 + 3.3	3.9/17.7	34037	1994 YP ₁	1999 02 21.0	10 15.89 +13 06.8 17.8	-1.03 + 4.4	1.0/20.4	33942
1988 VM ₅	1999 02 20.0	10 11.92 +12 55.7 18.6	-0.89 + 5.4	0.5/19.5	34005	1998 BX ₉	1999 02 21.0	10 15.90 +28 15.6 18.1	-0.84 + 5.6	5.2/15.4	34019
1998 WC ₃	1999 02 20.0	10 12.10 +17 10.2 18.1	-0.86 + 6.7	2.1/18.2	33971	1995 DE	1999 02 21.1	10 16.30 +11 01.0 17.2	-0.83 + 9.5	0.1/21.1	34012
7620 P-L	1999 02 20.0	10 12.12 +19 04.5 20.1	-1.04 + 5.0	2.5/17.8	27321	1995 FE ₁₅	1999 02 21.1	10 16.38 +05 36.1 19.7	-0.79 + 7.2	1.5/22.8	33944
1997 YM ₄	1999 02 20.0	10 12.14 -07 15.1 18.3	-0.92 + 2.9	5.6/25.1	34019	1993 HG ₁	1999 02 21.1	10 16.40 +09 24.0 16.5	-1.02 + 7.8	0.6/21.6	34009
1996 HG ₂₆	1999 02 20.0	10 12.16 +00 20.9 17.8	-0.91 + 7.9	4.6/23.4	33946	2112 T-2	1999 02 21.1	10 16.45 +10 58.6 19.5	-0.73 + 4.1	0.1/21.1	34060
1981 EC ₃₃	1999 02 20.0	10 12.24 +06 03.3 18.4	-1.04 + 3.2	2.2/21.4	33924	1353 T-2	1999 02 21.1	10 16.47 +11 35.0 17.7	-0.95 + 5.0	0.3/20.9	34060
1999 BZ ₂	1999 02 20.1	10 12.26 +17 17.4 17.1	-1.03 + 3.1	2.5/18.5	33984	1982 UF ₇	1999 02 21.2	10 16.82 -00 30.4 17.8	-0.78 + 5.2	3.1/24.7	34003
1993 UM ₈	1999 02 20.1	10 12.64 -02 51.7 17.6	-0.80 +10.1	5.0/25.0	34010	1996 JN	1999 02 21.3	10 17.06 +19 43.9 16.7	-0.99 + 7.2	4.0/18.6	34014
1981 EX ₂₅	1999 02 20.1	10 12.68 +07 45.5 18.7	-0.95 + 6.7	1.2/21.2	34003	1997 WP ₃₈	1999 02 21.3	10 17.19 +09 56.5 18.8	-0.79 + 4.3	0.2/21.6	33965
1990 SA ₃	1999 02 20.2	10 12.65 +12 37.4 17.3	-0.99 + 9.0	0.6/19.7	34006	1995 GS ₅	1999 02 21.3	10 17.21 +11 51.0 17.9	-0.86 + 6.7	0.5/21.0	34013
1997 UA ₇	1999 02 20.2	10 12.71 +23 21.9 18.4	-0.86 + 4.0	3.2/16.7	33958	1997 WT ₃₄	1999 02 21.3	10 17.25 +11 37.1 18.0	-0.96 + 6.4	0.3/21.1	34019
1993 TZ ₃₈	1999 02 20.2	10 12.72 +12 16.4 17.7	-0.92 + 7.7	0.4/19.9	34010	1996 TU ₁₉	1999 02 21.4	10 17.24 +10 15.7 19.4	-0.84 + 2.5	0.1/21.5	33696
1999 AE ₂₁	1999 02 20.2	10 12.73 +24 31.8 17.8	-0.98 + 9.4	4.8/15.9	34040	1997 TS ₁₉	1999 02 21.4	10 17.28 +05 22.1 18.4	-0.91 + 4.9	2.3/22.9	33956
1996 QD	1999 02 20.2	10 13.04 -03 53.1 18.3	-0.84 + 6.0	4.6/24.8	34015	1999 CE ₁₄	1999 02 21.4	10 17.46 +01 59.5 17.3	-0.96 + 7.3	3.8/24.0	33993
1992 GP	1999 02 20.3	10 13.13 -00 04.1 16.3	-0.88 + 9.6	4.2/23.9	33934	1997 UY ₁₀	1999 02 21.4	10 17.60 +09 08.0 17.8	-0.81 + 5.0	0.5/22.0	34018
1990 TH ₇	1999 02 20.3	10 13.16 +11 50.9 19.0	-0.71 + 3.9	0.2/20.1	29134	1994 YO ₁	1999 02 21.5	10 17.78 +06 37.4 17.5	-1.03 + 3.7	1.5/22.6	33942
1999 BQ ₄	1999 02 20.4	10 13.42 +10 30.6 18.3	-0.92 + 4.5	0.2/20.5	33985	1996 JT ₃	1999 02 21.5	10 17.87 +07 13.7 18.3	-0.90 + 6.4	1.0/22.6	34014
1997 UR ₃	1999 02 20.4	10 13.70 +16 03.6 18.1	-0.92 + 4.6	1.7/19.0	33958	1999 BB ₃	1999 02 21.5	10 17.89 +19 46.9 17.4	-0.89 + 7.7	3.7/18.7	34042
1988 FB	1999 02 20.4	10 13.72 +16 11.1 16.4	-0.97 + 4.7	2.4/19.0	34004	1997 WE ₈	1999 02 21.5	10 17.90 +01 55.8 17.0	-0.87 + 4.5	3.1/24.0	34018
2138 P-L	1999 02 20.4	10 13.77 +04 34.8 18.3	-0.91 + 5.3	2.4/22.3	33995	1999 BP ₁₀	1999 02 21.5	10 17.90 +11 10.8 18.1	-0.89 + 7.2	0.3/21.4	33988
1992 CK	1999 02 20.4	10 13.85 +13 35.2 16.8	-0.94 + 9.3	1.1/19.7	34008	4311 T-2	1999 02 21.5	10 17.96 +12 04.0 18.1	-0.99 + 7.5	0.6/21.1	34061
2090 T-2	1999 02 20.5	10 13.87 +14 18.4 20.3	-1.07 + 4.4	1.2/19.6	30776	1977 AC ₂	1999 02 21.6	10 18.10 +04 54.1 16.1	-1.04 + 1.2	2.0/23.0	33921
1997 TJ ₁₉	1999 02 20.5	10 13.98 +20 31.5 17.3	-0.92 + 4.2	3.1/17.8	34017	1993 QY	1999 02 21.6	10 18.12 +07 45.8 17.3	-0.89 +14.3	0.9/22.6	33936
1996 NU ₁	1999 02 20.5	10 14.00 +04 17.7 17.0	-0.96 + 2.1	2.2/22.2	33751	1993 XW ₂	1999 02 21.7	10 18.72 +18 25.9 17.1	-0.84 + 7.8	2.3/19.2	33939
1977 EM ₅	1999 02 20.5	10 14.01 +03 40.5 17.3	-0.92 + 9.2	2.7/22.9	34001	1991 LB ₄	1999 02 21.7	10 18.74 -12 58.7 17.5	-0.85 + 4.2	7.9/28.9	31100
1991 TQ	1999 02 20.5	10 14.03 +21 04.1 17.7	-0.82 + 4.6	2.8/17.5	34007	1992 SE ₁	1999 02 21.8	10 18.92 +32 00.6 17.3	-1.03 + 3.8	6.6/15.3	31139
1993 QU ₉	1999 02 20.5	10 14.10 +11 50.2 19.3	-0.95 + 8.1	0.3/20.3	33746	1999 BY ₂	1999 02 21.8	10 18.97 +19 04.5 18.0	-0.78 +12.8	3.2/18.7	34042
1999 AU ₂	1999 02 20.5	10 14.17 +21 29.2 17.6	-1.00 + 3.8	3.8/17.7	33977	1990 VB ₁₄	1999 02 21.8	10 19.10 +08 34.9 17.2	-1.00 + 5.2	0.7/22.4	34006
1997 RD ₁₀	1999 02 20.5	10 14.19 +09 37.2 18.7	-0.89 + 6.2	0.4/21.0	30905	(8187)	1999 02 21.8	10 19.12 +26 35.0 17.8	-0.84 + 5.1	4.4/16.8	31083
1997 WJ ₁₃	1999 02 20.6	10 14.27 -01 00.5 17.9	-0.81 + 3.6	3.6/24.1	33963	(8093)	1999 02 21.9	10 19.18 +15 27.4 17.0	-0.84 + 4.8	1.6/20.4	30965
4132 T-2	1999 02 20.6	10 14.40 +06 16.6 19.1	-0.81 + 6.4	1.5/22.1	33999	1997 QA	1999 02 21.9	10 19.28 +07 15.5 17.3	-1.02 + 3.2	1.1/22.8	33753
1999 DK	1999 02 20.6	10 14.41 +06 02.5 18.5	-0.95 + 6.4	1.6/22.1	33994	1988 SV ₁	1999 02 21.9	10 19.29 +16 39.3 18.1	-0.85 + 8.3	2.1/19.9	33926
1999 BW ₁	1999 02 20.6	10 14.50 +08 43.9 16.7	-0.82 + 7.4	0.7/21.4	33984	1989 GZ ₁	1999 02 21.9	10 19.43 +06 45.8 18.0	-1.01 + 5.5	1.4/23.0	34005
1997 QN ₃	1999 02 20.7	10 14.65 +20 25.4 17.8	-0.95 + 3.5	3.0/18.1	34016	1999 AR ₂₅	1999 02 21.9	10 19.55 +10 34.2 17.9	-1.05 + 5.2	9.7/02.0	33982
1993 OQ ₈	1999 02 20.7	10 14.67 +13 22.4 19.1	-0.97 + 5.9	0.8/20.0	34010	1979 QC ₁	1999 02 22.0	10 19.62 +07 52.1 17.6	-1.14 + 1.7	0.9/22.6	33739
1997 WO ₃	1999 02 20.7	10 14.74 +08 09.5 17.1	-0.91 + 4.4	0.9/21.5	33963	1996 OQ ₁	1999 02 22.0	10 19.71 +09 53.7 17.8	-0.85 + 4.5	0.2/22.2	33751
1997 WH ₁₀	1999 02 20.7	10 14.87 +12 12.5 18.7	-0.82 + 5.6	0.4/20.4	31424	1999 AN ₂₄	1999 02 22.1	10 20.03 +10 39.8 17.4	-0.81 + 5.4	0.1/22.0	33981
1997 PX	1999 02 20.7	10 14.95 +08 52.8 17.9	-0.97 + 7.5	0.8/21.4	34016	1997 XQ ₂	1999 02 22.1	10 20.10 +08 21.0 17.1	-0.84 + 5.5	0.6/22.7	33755
1997 WZ ₃₀	1999 02 20.8	10 14.97 +15 22.4 18.0	-0.86 + 5.0	1.4/19.5	33964	1990 QE ₂	1999 02 22.1	10 20.25 +10 44.8 17.2	-1.11 + 4.0	0.1/22.1	33742
(9859)	1999 02 20.8	10 15.24 +08 50.3 16.3	-0.83 + 4.7	0.6/21.4	33459	1997 SF ₃	1999 02 22.2	10 20.41 +13 28.2 18.4	-1.11 + 3.3	1.2/21.4	33953
1971 UD ₁	1999 02 20.8	10 15.33 +13 05.0 17.8	-1.05 + 6.3	0.9/20.3	29939	1984 QS	1999 02 22.2	10 20.45 +13 13.5 18.2	-0.75 + 4.2	0.7/21.4	34003
1997 TG ₁₀	1999 02 20.9	10 15.47 +03 22.9 18.7	-0.97 + 6.6	2.7/23.1	34017	1999 BE ₁₁	1999 02 22.2	10 20.65 +13 10.2 18.5	-0.96 + 8.3	1.0/21.4	33988
1996 FP ₃	1999 02 20.9	10 15.51 +15 43.7 18.5	-0.99 + 8.5	2.1/19.4	33751	2219 T-3	1999 02 22.2	10 20.67 +09 59.0 18.5	-0.96 + 4.3	0.1/22.4	34061
1997 TO ₁₉	1999 02 20.9	10 15.70 +03 36.3 18.5	-0.98 + 6.4	2.5/23.1	34017	1997 RO ₃	1999 02 22.3	10 21.03 +08 17.9 17.8	-0.92 + 7.4	0.7/23.0	34016
1993 OB	1999 02 20.9	10 15.71 -18 04.3 18.1	-1.05 + 1.6	8.6/01.0	34009	1980 FX ₃	1999 02 22.3	10 21.09 +14 43.3 17.0	-1.04 + 2.8	1.8/21.2	34002
1996 PM ₉	1999 02 20.9	10 15.72 +09 24.8 18.8	-0.80 + 5.0	0.4/21.4	32953	1998 WV ₂₃	1999 02 22.4	10 21.09 +19 00.7 16.3	-1.10 - 0.1	3.3/20.3	33973
1981 EJ ₄₀	1999 02 21.0	10 15.77 +30 48.5 17.7	-1.56 - 5.1	7.2/17.9	34003	1992 SW ₁₆	1999 02 22.4	10 21.10 +08 27.9 18.2	-0.91 + 5.3	0.6/22.9	34009

1993 RS ₁₄	1999 02 22.4	10 21.13 +09 01.6 18.4	-1.00 + 6.4	0.4/22.8	34010	(9974)	1999 02 23.8	10 26.53 +08 03.3 16.6	-1.01 + 5.1	0.7/24.3	33665
1998 WT ₁₉	1999 02 22.4	10 21.14 -07 30.8 15.4	-1.03 + 0.3	7.1/27.0	33972	1990 TB ₁	1999 02 23.8	10 26.55 +15 56.4 17.5	-1.12 + 3.5	2.3/22.2	34006
1996 HR ₁₈	1999 02 22.4	10 21.41 +07 11.4 18.6	-0.95 + 5.7	1.0/23.4	34014	1997 WC ₃₅	1999 02 23.8	10 26.71 +13 51.0 17.3	-0.81 + 5.5	1.3/22.6	33964
1995 FQ	1999 02 22.5	10 21.69 -09 41.4 18.1	-0.88 + 2.8	6.1/28.2	34012	1993 BC ₅	1999 02 23.9	10 27.00 +09 42.4 16.8	-0.77 + 4.6	0.0/24.0	33745
4511 P-L	1999 02 22.5	10 21.69 +08 07.9 20.2	-0.98 + 8.5	0.8/23.2	27123	1995 BA	1999 02 24.0	10 27.17 +13 18.1 16.7	-0.93 + 5.3	1.6/23.0	34012
1999 BA ₃	1999 02 22.5	10 21.72 +20 42.9 17.3	-0.79 + 8.9	4.7/19.0	34042	1997 UJ ₅	1999 02 24.1	10 27.55 +12 26.0 17.9	-1.05 + 4.3	1.0/23.4	33754
1991 SR ₃	1999 02 22.6	10 21.86 +38 28.8 17.0	-1.12 - 0.6	8.7/15.1	31006	1999 AA ₂₃	1999 02 24.1	10 27.56 +23 06.0 17.2	-1.04 + 3.9	6.2/20.3	33980
1997 SD ₁₃	1999 02 22.6	10 21.96 +05 55.3 17.1	-0.91 + 9.2	1.8/24.0	33954	1988 CF ₆	1999 02 24.1	10 27.96 +02 16.4 15.4	-0.94 + 4.7	3.3/26.3	34004
1993 SS ₄	1999 02 22.6	10 22.02 +11 25.2 19.2	-0.97 + 4.9	0.4/22.3	34010	6742 P-L	1999 02 24.2	10 28.15 +13 55.0 18.5	-1.03 + 6.4	1.8/23.0	34060
1997 WN ₄₃	1999 02 22.6	10 22.18 -03 35.9 19.3	-0.88 + 4.1	3.9/26.7	31252	1997 RC	1999 02 24.2	10 28.35 +14 35.6 17.6	-0.85 + 4.8	1.6/22.8	34016
1998 WE ₂₄	1999 02 22.6	10 22.18 -06 44.9 16.8	-0.87 + 2.0	5.6/27.4	33973	1981 EV ₇	1999 02 24.3	10 28.31 +02 40.0 18.1	-0.85 + 4.6	2.2/26.3	34002
1981 EL ₃	1999 02 22.6	10 22.23 -00 33.2 19.1	-0.91 + 2.7	3.8/25.6	26915	1999 AS ₉	1999 02 24.3	10 28.31 +19 29.9 17.7	-1.06 + 7.5	4.0/21.3	33978
1990 OW ₁	1999 02 22.8	10 22.65 +17 03.5 17.7	-1.10 + 5.6	2.6/20.9	33742	1999 CW ₁	1999 02 24.3	10 28.69 +19 54.2 17.4	-1.14 + 0.5	3.7/21.9	33992
1999 AZ ₂₂	1999 02 22.8	10 22.71 +23 47.2 17.0	-1.08 + 4.4	5.7/19.0	33980	1998 CS ₂	1999 02 24.4	10 28.73 +18 35.9 17.4	-0.83 + 5.7	2.8/21.6	33968
1997 WU ₈	1999 02 22.8	10 22.99 +10 10.5 18.5	-0.85 + 5.6	0.0/22.9	33963	1998 WT ₂₃	1999 02 24.4	10 28.74 +29 08.2 15.8	-0.92 + 4.0	6.6/18.4	33972
1995 FN	1999 02 22.9	10 23.32 +26 41.3 17.3	-1.16 + 1.3	6.4/18.6	34012	1997 PF ₂	1999 02 24.4	10 28.79 +13 23.9 20.5	-1.04 + 5.5	1.3/23.3	30903
1981 EU ₇	1999 02 22.9	10 23.36 +02 42.0 18.6	-1.01 + 4.0	2.7/25.0	34002	1998 WU ₂₃	1999 02 24.4	10 29.06 +21 25.4 16.4	-0.98 + 2.3	4.3/21.2	33972
1992 DL ₁₁	1999 02 23.0	10 23.64 +13 54.9 18.1	-0.95 + 8.4	1.4/21.9	33933	1992 ET ₉	1999 02 24.4	10 29.11 +09 43.7 17.1	-0.95 + 8.1	0.1/24.4	33934
1991 DK	1999 02 23.1	10 23.93 +21 31.3 15.6	-1.11 + 0.9	3.8/20.3	33743	1997 SE ₃₀	1999 02 24.5	10 29.23 +05 59.4 16.5	-0.79 + 4.7	1.3/25.6	34017
1996 EK ₂	1999 02 23.1	10 23.98 +06 49.3 18.3	-1.03 + 6.8	1.1/24.1	34013	1999 CV ₁	1999 02 24.6	10 29.48 +19 23.8 17.7	-1.08 + 3.5	3.4/21.9	33992
1997 VH ₁	1999 02 23.1	10 24.15 -03 14.6 18.3	-1.00 + 1.5	4.6/26.6	33961	1995 AZ	1999 02 24.6	10 29.62 +08 10.1 16.5	-0.96 + 5.4	0.5/25.0	34012
1991 GQ ₃	1999 02 23.1	10 24.17 -04 42.3 17.1	-0.82 + 8.6	5.3/28.2	34007	2122 T-3	1999 02 24.7	10 30.07 +03 46.0 18.1	-0.99 + 5.8	2.5/26.4	30914
1981 EJ ₃₃	1999 02 23.2	10 24.21 +07 00.1 19.9	-1.04 + 3.5	1.2/24.0	26921	(8111)	1999 02 24.7	10 30.19 +02 22.0 17.6	-0.81 + 9.4	2.3/27.2	30969
1987 QM	1999 02 23.2	10 24.27 +10 09.4 18.1	-0.92 + 2.0	0.0/23.2	34004	1993 OV ₅	1999 02 24.8	10 30.21 +13 18.0 17.6	-0.97 + 7.8	1.6/23.6	34009
1992 EC ₁₈	1999 02 23.2	10 24.34 +04 35.7 18.3	-0.98 + 6.3	2.0/24.8	34008	1983 WN	1999 02 24.8	10 30.22 -05 55.1 18.7	-0.97 + 5.2	4.9/01.4	34003
1995 BH ₁	1999 02 23.2	10 24.37 +08 51.4 19.0	-1.00 + 5.3	0.4/23.6	33749	4217 T-3	1999 02 24.8	10 30.35 +22 00.4 17.5	-1.09 + 4.7	5.3/21.2	33999
1993 BS ₄	1999 02 23.2	10 24.40 +11 05.0 18.4	-0.75 + 4.2	0.3/22.9	33745	1997 XS ₁₁	1999 02 24.8	10 30.49 -03 17.5 18.0	-0.79 + 3.7	3.9/28.7	33966
1997 UF ₂	1999 02 23.2	10 24.42 +03 32.7 18.7	-0.96 + 6.4	2.1/25.2	34017	1995 DY	1999 02 24.9	10 30.58 +06 58.2 17.4	-0.90 + 5.9	0.8/25.6	34012
1993 SA ₂	1999 02 23.3	10 24.59 +09 35.2 18.3	-1.02 + 3.1	0.1/23.4	34010	1993 BD ₁₃	1999 02 24.9	10 30.79 +04 28.9 17.0	-0.78 + 3.5	1.4/26.4	34009
4062 T-1	1999 02 23.3	10 24.61 +04 54.1 17.7	-0.71 + 7.0	1.5/25.0	34060	(8339)	1999 02 24.9	10 30.96 +09 05.6 17.8	-0.74 + 4.4	0.1/25.1	31352
1997 UJ ₁	1999 02 23.3	10 24.66 +15 19.9 19.3	-0.91 + 4.2	1.8/21.8	34017	1994 YZ ₁	1999 02 24.9	10 30.97 +16 35.3 17.4	-1.00 + 5.3	2.8/22.9	27568
(8156)	1999 02 23.3	10 24.81 +12 04.5 16.3	-0.86 + 5.9	0.7/22.7	31077	1996 HN ₂₄	1999 02 25.0	10 30.94 +20 51.8 16.7	-1.02 + 6.3	5.2/21.5	34014
1981 EO ₄₁	1999 02 23.3	10 24.84 +18 36.7 18.1	-0.94 + 2.8	2.6/21.0	34003	(8114)	1999 02 25.0	10 30.96 +18 35.7 18.6	-0.97 + 7.1	3.2/22.1	30970
1999 AE ₂₄	1999 02 23.3	10 24.93 +23 13.9 18.0	-0.94 + 8.0	4.5/19.2	33981	1994 XV	1999 02 25.0	10 31.01 -32 29.7 17.7	-0.90 + 9.5	17.4/18.5	33247
1996 HJ ₁	1999 02 23.4	10 25.07 +12 23.8 19.2	-0.99 + 5.5	0.8/22.7	31107	5058 T-2	1999 02 25.0	10 31.07 -02 21.3 17.1	-0.87 + 3.3	4.2/28.3	34061
1990 VD ₄	1999 02 23.4	10 25.16 +08 59.1 17.7	-0.97 + 6.4	0.3/23.7	33743	1999 BG ₇	1999 02 25.1	10 31.39 +10 48.3 17.8	-0.79 + 8.9	0.5/24.6	34043
1992 RO ₂	1999 02 23.4	10 25.22 +03 41.2 18.7	-0.80 + 9.4	2.0/25.6	25331	1981 EW ₃₈	1999 02 25.1	10 31.40 +03 29.5 17.9	-0.87 + 4.1	2.0/26.8	34003
1990 RF ₅	1999 02 23.5	10 25.23 +03 16.8 17.9	-0.97 + 6.3	2.2/25.4	34006	1999 CU ₁	1999 02 25.1	10 31.60 +18 12.2 17.1	-0.97 + 3.7	3.5/22.7	33991
1998 YT ₁	1999 02 23.5	10 25.57 +08 41.2 16.9	-1.00 + 6.7	0.4/23.9	34035	4213 P-L	1999 02 25.2	10 31.77 +12 07.8 18.8	-0.87 + 2.8	0.9/24.4	27938
1993 TW ₁	1999 02 23.6	10 25.72 +28 27.1 16.7	-1.04 + 3.5	6.7/18.2	33937	(8147)	1999 02 25.2	10 31.89 +17 29.8 18.6	-0.91 + 4.5	2.3/22.8	31075
1995 FD	1999 02 23.6	10 25.72 +13 43.7 17.4	-0.95 + 3.6	1.6/22.5	34012	1996 GV ₁₈	1999 02 25.4	10 32.46 +21 39.4 18.3	-1.07 + 4.4	4.5/21.9	34014
1990 TR ₁	1999 02 23.6	10 25.73 +04 31.8 17.2	-0.95 + 7.7	1.9/25.2	34006	1994 UC ₂	1999 02 25.4	10 32.48 -00 24.4 17.6	-1.01 + 6.1	3.8/28.3	34011
1991 FZ	1999 02 23.6	10 25.77 +22 45.1 16.6	-1.11 + 1.3	4.5/20.4	34007	1988 BX ₃	1999 02 25.4	10 32.58 -01 15.3 16.8	-0.94 + 5.9	4.2/28.5	33334
1999 AX ₂₄	1999 02 23.6	10 25.77 +11 23.5 17.5	-0.88 + 7.3	0.7/23.1	33982	1989 GR ₄	1999 02 25.4	10 32.85 +04 54.9 16.2	-0.91 + 8.1	1.9/26.8	33543
(9935)	1999 02 23.6	10 26.04 +16 34.3 16.2	-0.93 + 4.1	2.7/21.7	33656	1997 QB ₂	1999 02 25.5	10 32.83 +14 05.3 19.5	-1.03 + 3.7	1.6/24.2	31010
1986 EA ₅	1999 02 23.6	10 26.05 +10 06.6 17.0	-0.89 + 4.9	0.1/23.6	33925	1991 PJ ₁₂	1999 02 25.5	10 32.92 -03 37.9 17.5	-0.79 + 3.9	3.7/01.4	34007
1999 AU ₉	1999 02 23.6	10 26.05 +19 31.3 17.7	-1.08 + 6.3	3.8/20.9	33979	1997 WD ₄₁	1999 02 25.5	10 32.93 -03 23.1 17.4	-0.78 + 3.9	3.9/01.3	33965
1993 BU ₅	1999 02 23.7	10 26.07 +03 49.6 17.1	-0.87 + 1.1	1.8/25.3	34009	1998 WZ ₂₃	1999 02 25.5	10 33.02 +17 33.3 15.9	-1.07 + 3.5	3.2/23.3	34031
1999 BW ₄	1999 02 23.7	10 26.07 +09 18.2 18.5	-0.99 + 2.7	0.2/23.8	33985	1997 VV ₂	1999 02 25.5	10 33.25 -01 12.3 18.8	-0.85 + 7.5	3.4/28.9	33961
(8290)	1999 02 23.7	10 26.39 -02 15.0 17.0	-0.93 + 2.8	3.6/27.1	31216	1997 VW ₃	1999 02 25.5	10 33.27 +09 13.5 17.2	-0.81 + 5.5	0.0/25.6	33961
1997 QV	1999 02 23.8	10 26.45 +06 22.4 19.4	-0.92 +10.1	1.2/24.9	34016	1997 WU ₃₅	1999 02 25.6	10 33.27 +10 05.9 17.5	-0.84 + 4.4	0.3/25.3	33755

1985 PN	1999 02 25.6	10 33.35 +11 02.4 16.2	-0.71 + 9.1	0.6/25.0	33740
1998 YR ₁	1999 02 25.6	10 33.37 +08 41.5 16.2	-0.79 + 9.0	0.1/25.8	33975
1997 SD ₁₁	1999 02 25.6	10 33.52 +02 55.9 16.6	-1.02 + 6.1	2.7/27.5	34017
1981 EN ₁₉	1999 02 25.7	10 33.77 +04 20.0 17.8	-0.84 + 6.1	1.7/27.2	33923
1998 WC ₂₄	1999 02 25.7	10 33.77 +15 17.5 16.0	-1.11 + 0.4	2.4/24.2	34031
1997 SD ₁₀	1999 02 25.7	10 33.81 +12 30.2 18.7	-0.96 + 6.0	1.1/24.7	31011
1979 ML ₂	1999 02 25.7	10 33.88 +17 11.7 17.9	-0.76 + 7.3	2.2/23.0	34002
1999 BF ₈	1999 02 25.7	10 33.91 +12 53.3 16.9	-0.80 + 4.6	1.2/24.6	33986
1990 RN ₁₇	1999 02 25.8	10 34.04 +02 12.6 17.1	-0.73 + 3.4	1.7/27.9	34006
1999 CO ₄₈	1999 02 25.8	10 34.16 +11 58.6 17.8	-0.96 + 1.9	0.9/25.1	33994
1994 XA ₁	1999 02 25.8	10 34.33 +08 48.5 18.0	-1.03 + 5.3	0.1/25.9	33942
1997 TA ₁₇	1999 02 25.9	10 34.34 +04 14.8 19.2	-0.95 + 4.0	1.6/27.2	31146
1997 SN ₂	1999 02 25.9	10 34.44 +06 12.1 18.4	-0.97 + 6.1	1.1/27.0	34017
(8120)	1999 02 25.9	10 34.52 +11 44.5 18.5	-0.94 + 6.1	0.9/25.1	30971
1999 BD ₅	1999 02 25.9	10 34.74 +10 40.3 17.0	-1.00 + 4.5	0.7/25.5	33985
1992 RY ₄	1999 02 25.9	10 34.77 +08 46.3 19.1	-0.92 + 5.0	0.1/26.0	32227
1986 QO ₃	1999 02 25.9	10 34.78 +14 43.6 18.1	-1.01 + 5.4	2.0/24.3	34004
(9918)	1999 02 26.0	10 34.75 +12 47.8 17.1	-0.75 + 6.5	1.2/24.8	33652
1986 PM	1999 02 26.0	10 35.07 +02 34.1 16.9	-1.06 + 4.0	2.5/27.8	34004
1996 HL ₂₅	1999 02 26.1	10 35.11 +10 45.0 17.6	-0.99 + 6.5	0.7/25.6	33946
1981 ED ₁₃	1999 02 26.1	10 35.13 +05 06.8 19.4	-0.93 + 3.0	1.3/27.2	26917
1996 RO ₅	1999 02 26.1	10 35.24 +09 32.0 17.0	-0.83 + 9.9	0.2/25.9	34015
(9947)	1999 02 26.1	10 35.32 +05 01.9 17.9	-1.29 - 0.6	1.4/27.0	33659
1997 OW ₂	1999 02 26.1	10 35.41 -00 50.5 17.4	-1.05 + 5.2	3.8/29.0	34016
1997 RT ₉	1999 02 26.2	10 35.63 +05 32.5 17.4	-0.85 + 7.0	1.1/27.3	33753
1999 AS ₂₃	1999 02 26.2	10 35.86 +11 18.8 17.4	-0.74 + 7.6	0.7/25.5	33981
1997 TZ ₉	1999 02 26.2	10 35.89 +17 30.5 19.0	-0.95 + 3.9	2.8/23.8	33955
4865 P-L	1999 02 26.3	10 35.91 +12 22.7 17.8	-1.09 + 5.7	1.5/25.3	34060
1998 YU ₁	1999 02 26.3	10 35.93 +07 22.3 16.9	-0.92 + 7.0	0.6/27.0	34035
1983 RZ ₄	1999 02 26.3	10 35.95 +02 03.5 18.9	-0.97 + 5.8	2.2/28.3	31272
1996 TD ₄₀	1999 02 26.3	10 36.21 +11 02.6 18.4	-0.75 + 4.8	0.6/25.7	34015
1997 QY ₁	1999 02 26.3	10 36.22 +14 07.0 18.1	-0.99 + 5.2	1.8/24.8	33753
3211 T-2	1999 02 26.3	10 36.23 +13 13.0 17.4	-0.79 + 4.8	1.4/25.0	34060
1994 VD ₁	1999 02 26.3	10 36.25 +23 54.0 17.4	-1.05 + 5.4	6.4/21.8	34011
1982 UK ₇	1999 02 26.4	10 36.39 +15 38.9 17.3	-0.96 + 6.0	2.2/24.4	34003
1981 EV ₃₇	1999 02 26.4	10 36.41 -01 03.4 20.3	-0.90 + 7.6	3.9/01.6	26922
1997 RR ₃	1999 02 26.4	10 36.52 +00 41.6 15.9	-0.78 +11.5	3.0/01.4	34016
1987 YC ₁	1999 02 26.4	10 36.58 +09 10.1 18.3	-0.80 + 4.8	0.1/26.4	33740
1997 WT ₅₂	1999 02 26.4	10 36.60 +28 45.7 17.6	-0.87 + 4.3	6.1/20.0	31395
1978 SS ₆	1999 02 26.5	10 36.64 +08 18.4 17.8	-0.97 + 4.9	0.2/26.6	34002
1998 WB ₂₄	1999 02 26.5	10 37.05 +18 44.1 17.0	-0.83 + 7.8	3.4/23.3	34031
1988 RQ ₁₂	1999 02 26.7	10 37.46 +11 36.4 17.1	-0.70 + 3.3	0.8/25.8	34005
1996 TJ ₁₅	1999 02 26.7	10 37.50 +10 43.5 17.7	-0.73 + 4.6	0.5/26.1	33752
1997 RP ₉	1999 02 26.7	10 37.51 +08 14.5 18.5	-0.94 + 6.5	8.6/19.0	34016
1981 EX ₁₀	1999 02 26.7	10 37.52 -00 17.6 17.9	-0.83 + 6.7	3.2/01.6	34002
1981 EC ₁₆	1999 02 26.7	10 37.72 +02 25.4 17.7	-1.01 + 4.9	2.4/28.5	34002
2268 T-2	1999 02 26.7	10 37.76 +04 41.6 20.6	-0.70 + 5.0	1.0/28.1	28608
1996 OS ₂	1999 02 26.8	10 38.12 +11 57.5 18.4	-0.87 + 4.7	1.0/25.9	34014
1999 BZ ₃	1999 02 26.8	10 38.13 +10 10.1 17.4	-0.99 + 7.5	0.5/26.4	33985
(8070)	1999 02 26.9	10 38.19 +10 00.6 18.4	-0.83 + 5.5	0.4/26.5	30960
1992 BM ₂	1999 02 26.9	10 38.29 +02 28.7 16.7	-0.98 + 7.2	2.5/28.8	33547

1991 RC ₁₀	1999 02 26.9	10 38.40 +12 17.2 17.7	-0.86 + 2.4	1.1/25.9	33931
1998 YE	1999 02 27.0	10 38.58 +00 03.1 16.0	-0.97 + 5.8	3.7/01.5	34034
1997 WK ₄₇	1999 02 27.0	10 38.82 +14 35.9 17.9	-0.81 + 4.7	1.7/25.2	31424
(8119)	1999 02 27.0	10 38.83 +08 45.9 16.8	-0.81 + 5.0	0.1/27.0	30971
1998 XF	1999 02 27.0	10 38.84 +23 14.5 17.1	-1.00 + 2.6	4.9/22.8	34031
1997 WO ₇	1999 02 27.3	10 39.88 +25 36.2 17.1	-0.86 + 3.8	5.3/22.0	34018
1990 DV	1999 02 27.3	10 39.97 -05 38.3 16.1	-0.80 + 4.3	6.0/03.8	34005
1993 UE	1999 02 27.3	10 40.02 +21 47.6 17.9	-0.93 + 8.0	4.1/23.0	34010
3353 T-2	1999 02 27.4	10 40.09 +14 15.8 19.3	-0.76 + 3.8	1.4/25.6	30286
(8183)	1999 02 27.4	10 40.23 +13 09.5 17.1	-0.83 + 5.2	1.5/26.0	31083
1996 HH ₁	1999 02 27.4	10 40.25 +11 39.3 18.1	-1.01 + 7.8	1.3/26.5	34014
1977 RD	1999 02 27.4	10 40.38 +15 33.0 18.3	-1.23 - 1.0	2.2/25.9	20139
1997 TR ₂₆	1999 02 27.4	10 40.40 +13 58.7 18.4	-0.96 + 5.2	1.8/25.8	31146
1985 RJ ₄	1999 02 27.6	10 40.87 +11 05.8 18.7	-0.74 + 4.2	0.7/26.8	23536
1995 BQ ₁₅	1999 02 27.6	10 40.90 +12 42.2 16.3	-0.99 + 5.0	1.6/26.4	33749
(8068)	1999 02 27.7	10 41.22 +08 25.4 17.3	-0.85 + 6.3	0.0/27.7	30959
1990 RS	1999 02 27.7	10 41.47 +11 26.3 17.9	-1.10 + 3.0	1.1/26.9	33929
1931 TC ₂	1999 02 27.7	10 41.50 +10 32.2 17.4	-0.90 + 3.5	0.6/27.1	22696
1997 WB ₁₃	1999 02 27.8	10 41.67 +11 22.4 17.4	-0.90 + 4.9	1.2/26.9	34018
1991 VX ₂	1999 02 27.8	10 41.69 +04 19.9 17.9	-0.75 + 3.8	1.0/01.0	34008
1996 HC ₂₄	1999 02 27.8	10 41.97 +20 10.0 17.9	-1.00 + 5.5	4.2/24.3	34014
1998 WS ₁₉	1999 02 27.9	10 42.00 +22 27.8 16.9	-1.14 - 0.4	6.0/24.6	34031
1993 SO	1999 02 27.9	10 42.11 +06 00.4 18.1	-0.89 + 8.7	0.8/28.7	34010
1990 UW ₃	1999 02 27.9	10 42.23 +10 54.4 18.2	-0.94 + 7.2	1.1/27.1	34006
1997 PV ₅	1999 02 27.9	10 42.34 +10 11.6 18.0	-1.09 + 4.2	0.9/27.5	33951
1990 UN ₂	1999 02 28.0	10 42.49 +18 36.6 17.9	-1.03 + 5.2	3.7/25.0	34006
4721 P-L	1999 02 28.0	10 42.72 +10 21.8 18.3	-0.88 + 4.4	0.8/27.4	34060
1999 CA ₃	1999 02 28.1	10 42.71 +18 46.5 16.9	-0.93 + 7.2	4.0/24.7	33992
1986 CZ ₁	1999 02 28.1	10 42.94 +00 27.0 17.0	-1.08 + 4.0	3.3/02.2	33925
1999 AQ ₂₃	1999 02 28.1	10 42.94 +17 53.5 17.1	-0.82 +11.1	3.4/24.6	33981
1991 GB ₁	1999 02 28.2	10 43.26 +43 06.5 16.7	-1.81 - 3.9	16.2/19.7	34007
1991 SC ₂	1999 02 28.2	10 43.35 +10 50.3 17.6	-0.80 + 5.4	0.8/27.4	34007
1981 EG ₁₀	1999 02 28.3	10 43.74 +02 20.4 17.7	-0.86 + 4.4	1.9/02.1	34002
1997 SX ₃₃	1999 02 28.3	10 43.82 +09 20.5 17.8	-0.78 + 4.6	0.4/28.0	34017
1997 WT ₂₃	1999 02 28.4	10 43.78 +05 35.5 18.5	-0.94 + 5.6	0.8/01.1	34019
1997 XU ₁	1999 02 28.4	10 43.83 +23 28.1 18.1	-0.81 + 5.6	4.2/23.3	33966
1997 QR	1999 02 28.4	10 44.04 +01 50.5 20.5	-0.92 + 4.9	1.9/02.3	31010
1997 WE ₄₇	1999 02 28.4	10 44.06 +25 23.2 18.0	-0.82 + 5.3	5.1/22.7	33965
1990 QK ₃	1999 02 28.5	10 44.36 +09 33.4 17.5	-0.94 + 8.5	0.6/28.0	34006
1996 NF ₄	1999 02 28.5	10 44.42 +01 04.7 18.1	-0.83 + 3.2	2.0/02.6	34014
3052 P-L	1999 02 28.5	10 44.43 +03 30.8 18.0	-0.85 + 2.6	1.3/01.8	28607
1975 XD	1999 02 28.6	10 44.59 +15 58.1 18.1	-0.93 + 7.7	2.8/26.1	34001
1999 AR ₂₃	1999 02 28.6	10 44.78 +18 52.1 16.7	-0.84 +10.6	4.0/24.8	34041
1981 EF ₁₃	1999 02 28.7	10 44.90 +07 04.9 18.2	-0.98 + 1.7	0.3/28.9	34002
(8134)	1999 02 28.7	10 45.00 +03 21.5 18.1	-0.91 + 6.5	1.5/02.1	31072
1997 SG ₁	1999 02 28.7	10 45.05 +07 23.5 16.0	-0.75 +11.7	0.2/28.9	34016
1993 TG ₂₇	1999 02 28.7	10 45.09 +09 37.4 18.9	-0.89 + 6.6	0.5/28.2	32232
1993 TU ₃₆	1999 02 28.7	10 45.10 +23 07.1 17.2	-0.96 + 6.6	4.8/23.8	34010
1997 TW ₁₈	1999 02 28.7	10 45.35 +13 59.6 17.4	-0.94 + 6.0	2.6/26.9	33956
1984 YL ₁	1999 02 28.8	10 45.41 +20 51.5 16.4	-1.03 + 4.9	5.8/25.0	34003
1997 VZ ₄	1999 02 28.8	10 45.62 +18 32.3 17.7	-1.06 + 5.6	3.7/25.7	34018

1999 MAR. 2

M.P.C. 34081

(8204) 1999 02 28.9 10 45.65 +11 46.9 16.1 -0.78 + 5.0 1.3/27.7 31088
 (8308) 1999 02 28.9 10 45.88 +05 57.8 18.0 -0.96 + 6.8 0.7/01.5 31220
 1997 LD 1999 02 28.9 10 45.95 +05 11.6 17.8 -0.96 + 7.5 0.9/01.8 34015
 1998 YH 1999 02 28.9 10 46.07 +02 38.4 16.5 -0.89 + 2.5 2.4/02.4 34034
 1993 QH₁₀ 1999 03 01.0 10 46.02 -26 12.1 16.8 -1.12 0.0 12.2/10.2 31139
 1993 FL₃₄ 1999 03 01.0 10 46.16 +17 17.7 17.1 -0.75 + 3.6 2.5/26.1 33935
 1981 EC₃ 1999 03 01.0 10 46.27 -05 24.8 19.2 -0.97 + 5.9 5.0/05.0 30779
 (8138) 1999 03 01.0 10 46.40 +08 53.2 16.1 -1.08 + 4.7 0.5/28.8 31073
 1990 SN₁₆ 1999 03 01.0 10 46.41 +13 08.4 18.6 -1.04 + 5.1 1.8/27.5 34006
 1996 TM₁₅ 1999 03 01.1 10 46.43 +08 33.9 18.5 -0.73 + 4.7 0.2/28.9 31142
 1994 UP₁₁ 1999 03 01.1 10 46.82 +13 47.2 16.8 -1.04 + 6.3 2.3/27.4 34011
 1997 VQ₆ 1999 03 01.2 10 47.12 +10 53.6 19.1 -0.80 + 4.6 0.9/28.3 31150
 1997 WH₁ 1999 03 01.2 10 47.21 +01 02.2 19.3 -0.98 + 5.7 2.2/03.3 31118
 1992 HG₄ 1999 03 01.2 10 47.21 +06 05.8 17.1 -0.96 + 6.0 0.5/01.8 34008
 1996 TO₃ 1999 03 01.3 10 47.29 -01 53.5 18.4 -0.83 + 2.9 2.8/04.1 30785
 1992 EL₈ 1999 03 01.3 10 47.29 +14 29.8 17.5 -0.96 + 8.0 2.3/27.2 34008
 1997 SZ₉ 1999 03 01.3 10 47.31 -01 12.3 18.3 -1.01 + 4.6 3.2/04.0 34017
 1997 QD₁ 1999 03 01.3 10 47.34 +05 16.5 17.6 -1.10 + 4.4 1.0/02.0 34016
 (8352) 1999 03 01.4 10 47.79 +22 13.4 16.3 -1.12 + 5.4 5.8/25.0 31355
 1997 WT₅₀ 1999 03 01.4 10 47.84 +11 46.0 18.7 -0.94 + 6.1 1.3/28.2 31252
 1997 XY₉ 1999 03 01.5 10 48.24 +05 07.1 17.2 -0.97 + 5.5 0.9/02.3 34019
 1981 DD₃ 1999 03 01.5 10 48.28 -00 32.7 18.9 -0.89 + 3.6 2.7/04.0 34002
 1997 SG₂ 1999 03 01.5 10 48.33 +07 01.0 17.3 -1.12 + 3.0 0.2/01.7 33953
 1997 UG₂ 1999 03 01.6 10 48.29 +05 12.5 18.7 -0.86 + 5.6 0.7/02.3 34017
 1981 EF₂₀ 1999 03 01.6 10 48.48 +05 51.9 17.8 -0.77 + 8.8 0.6/02.2 26918
 6120 P-L 1999 03 01.6 10 48.49 +03 44.0 19.8 -0.85 + 6.4 1.1/02.9 31001
 1993 OP₁₂ 1999 03 01.7 10 48.68 +08 04.7 18.3 -0.95 + 6.7 0.2/01.5 28888
 (8113) 1999 03 01.7 10 48.83 +19 13.7 17.8 -1.04 + 6.7 4.2/26.1 30969
 1998 XD₂₆ 1999 03 01.7 10 48.86 +20 48.4 16.8 -0.94 + 3.0 4.9/25.9 34033
 1997 SX₁₅ 1999 03 01.7 10 48.87 +22 59.5 15.9 -1.14 + 1.3 6.8/25.5 34017
 (9845) 1999 03 01.7 10 49.07 +16 46.7 15.2 -0.77 + 8.3 3.5/26.6 33456
 1986 QG₂ 1999 03 01.8 10 49.02 +10 57.5 19.5 -0.94 + 6.9 1.1/28.7 31135
 1997 WR₅ 1999 03 01.8 10 49.05 +12 13.5 17.4 -0.87 + 5.6 1.6/28.3 31423
 1997 WB₁ 1999 03 01.8 10 49.10 +08 45.5 18.5 -0.91 + 4.6 0.4/01.5 34018
 1990 RF 1999 03 01.8 10 49.31 +01 58.8 16.6 -0.67 + 8.0 1.5/03.8 34006
 1984 RA 1999 03 01.8 10 49.33 +21 39.7 16.6 -0.98 +22.0 6.0/24.2 34003
 (8165) 1999 03 01.9 10 49.49 +18 58.6 17.0 -1.02 + 8.1 4.2/26.2 31079
 1985 RD₂ 1999 03 01.9 10 49.71 +08 22.9 17.9 -1.01 + 3.1 0.3/01.7 34004
 1993 HU₁ 1999 03 01.9 10 49.72 -12 41.0 18.3 -0.89 +10.8 6.7/09.0 31007
 1996 HU 1999 03 02.0 10 49.86 +05 29.8 18.6 -0.90 + 7.1 0.6/02.6 34014
 2314 T-2 1999 03 02.0 10 49.94 +07 23.9 16.6 -0.95 + 7.8 0.0/02.0 33384
 1997 VP₆ 1999 03 02.0 10 50.05 +05 52.6 18.2 -0.90 + 5.6 0.5/02.5 34018
 1991 PG₅ 1999 03 02.0 10 50.05 +06 02.9 18.5 -0.80 + 5.0 0.4/02.5 34007
 1981 DM 1999 03 02.0 10 50.06 -04 56.5 17.6 -0.97 + 4.5 4.9/05.7 34002
 1997 WP₄₄ 1999 03 02.0 10 50.09 +11 27.2 18.4 -0.76 + 4.7 1.1/28.8 34019
 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 OO₃ 1999 03 02.1 10 50.58 +05 49.4 19.2 -0.96 + 5.5 0.5/02.7 30897
 1991 VT₁ 1999 03 02.2 10 50.58 +01 48.6 16.9 -1.04 + 6.1 2.2/04.0 34008
 1996 TX₁₆ 1999 03 02.2 10 50.66 -03 36.6 18.6 -0.75 + 5.6 3.1/05.8 28598
 1988 RW₁₂ 1999 03 02.3 10 50.95 +02 51.0 19.1 -0.90 + 5.0 1.4/03.7 27727
 1978 VU₆ 1999 03 02.3 10 51.07 +04 35.5 18.5 -0.95 + 5.6 1.0/03.2 34002

1981 EW₄₀ 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 19.0/12.0 34005
 1992 DC₁₁ 1999 03 02.3 10 51.14 +08 18.7 17.4 -0.92 + 7.9 0.4/02.0 34008
 1992 EO₅ 1999 03 02.4 10 51.26 +14 58.5 18.4 -0.96 + 8.3 2.7/27.9 33933
 1997 UQ₁₀ 1999 03 02.4 10 51.50 +09 21.3 19.7 -0.86 + 6.5 0.6/01.8 33960
 1998 WD₂₄ 1999 03 02.4 10 51.72 +08 57.3 15.6 -0.95 + 2.0 0.6/02.0 34031
 1991 RB₁₁ 1999 03 02.5 10 51.73 +07 23.3 17.7 -0.75 + 5.0 0.0/02.5 34007
 1989 TL₁₅ 1999 03 02.6 10 52.09 +06 24.1 17.5 -0.93 + 5.2 0.3/02.9 34005
 1991 PC₇ 1999 03 02.6 10 52.26 +11 39.4 17.9 -0.81 + 5.4 1.3/01.2 33931
 1994 UU₆ 1999 03 02.6 10 52.31 +11 18.6 18.1 -1.11 + 4.5 1.7/01.5 33941
 1990 QU₉ 1999 03 02.7 10 52.38 +12 29.3 17.4 -0.90 + 1.4 1.5/01.2 33929
 1990 OM₂ 1999 03 02.7 10 52.40 +08 58.0 17.9 -1.08 + 4.2 0.6/02.2 33928
 1978 UG 1999 03 02.7 10 52.73 +12 05.0 18.2 -0.95 + 5.3 1.6/01.3 34002
 1978 NX₇ 1999 03 02.8 10 53.00 +13 49.2 18.3 -0.73 + 4.9 1.7/28.7 33921
 1992 DL₄ 1999 03 02.8 10 53.15 +12 44.4 17.9 -1.08 + 4.0 2.0/01.3 34008
 1986 XR₅ 1999 03 02.9 10 53.23 +11 52.2 18.0 -0.77 + 4.1 1.2/01.4 34004
 1996 GB₇ 1999 03 02.9 10 53.26 +14 26.4 17.6 -1.07 + 4.3 3.3/28.8 33945
 1978 PH₃ 1999 03 02.9 10 53.45 +06 35.1 17.8 -0.74 + 4.5 0.1/03.1 34002
 1989 SX 1999 03 03.0 10 53.69 +15 06.1 18.8 -0.97 + 4.3 2.5/28.7 34005
 1990 QY 1999 03 03.1 10 53.92 -00 03.7 17.2 -0.75 + 6.2 2.0/05.4 34006
 6073 P-L 1999 03 03.1 10 54.08 +07 07.3 17.6 -0.89 + 4.0 0.0/03.1 34060
 4133 P-L 1999 03 03.1 10 54.18 +09 08.9 19.4 -1.03 + 3.8 0.7/02.6 30914
 2748 P-L 1999 03 03.2 10 54.55 +05 16.2 18.9 -0.85 + 8.0 0.6/04.0 23985
 1997 VE₅ 1999 03 03.2 10 54.67 +12 02.7 17.9 -0.96 + 5.8 1.7/01.7 34018
 1989 CD₆ 1999 03 03.3 10 54.82 +09 29.0 17.5 -0.80 + 5.8 0.8/02.5 34005
 1978 VD₇ 1999 03 03.3 10 54.85 +12 03.3 18.1 -0.83 + 5.1 1.6/01.7 34002
 1997 SP₁₇ 1999 03 03.3 10 54.95 +00 37.2 19.4 -0.84 + 6.7 1.8/05.4 31590
 4556 P-L 1999 03 03.3 10 54.99 +11 13.4 18.1 -0.79 + 4.4 1.2/02.0 34060
 1995 BZ₁ 1999 03 03.4 10 55.19 +15 25.1 18.4 -0.98 + 6.2 3.1/28.8 34012
 1997 WY₃₅ 1999 03 03.4 10 55.23 +23 56.2 18.2 -0.87 + 3.5 4.8/26.1 31282
 1997 QV₂ 1999 03 03.4 10 55.32 +00 31.2 18.9 -1.02 + 5.1 2.2/05.3 31010
 1994 XW 1999 03 03.5 10 55.41 +18 51.6 17.5 -1.03 + 6.6 4.4/27.8 33942
 (8271) 1999 03 03.5 10 55.67 +12 50.4 17.6 -0.89 + 8.3 1.9/01.6 31212
 1991 RX₄ 1999 03 03.5 10 55.68 -01 32.5 18.1 -0.73 + 6.1 2.4/06.4 34007
 1990 QC₆ 1999 03 03.5 10 55.81 +08 00.9 17.8 -1.00 + 6.2 0.4/03.2 34006
 1996 SR₇ 1999 03 03.6 10 55.87 +03 08.4 17.4 -0.89 + 4.9 1.2/04.7 34015
 1993 QZ 1999 03 03.6 10 56.13 +05 56.6 18.1 -0.85 +12.8 8.9/12.0 34010
 6180 P-L 1999 03 03.6 10 56.17 +04 00.0 19.9 -0.82 + 5.4 0.8/04.6 31023
 1981 EP₃₂ 1999 03 03.7 10 56.14 +07 35.2 18.8 -1.13 + 2.5 0.3/03.5 26921
 3277 T-1 1999 03 03.7 10 56.14 +06 37.5 17.8 -0.73 + 4.6 6.4/12.0 34060
 1996 HV₂₁ 1999 03 03.7 10 56.27 +14 31.6 17.4 -1.08 + 4.9 3.4/01.5 33945
 (8224) 1999 03 03.8 10 56.64 +12 12.6 18.7 -0.81 + 5.5 1.5/02.1 31092
 1995 CB₁ 1999 03 03.9 10 57.11 +17 00.0 18.3 -0.94 + 6.8 3.5/28.7 34012
 1981 SC₇ 1999 03 03.9 10 57.12 +19 09.7 18.0 -1.00 + 4.0 4.0/28.3 34003
 1997 YR₂ 1999 03 04.0 10 57.36 +12 17.2 17.8 -0.93 + 5.8 1.8/02.3 33967
 1997 SS₃ 1999 03 04.0 10 57.38 +15 54.2 18.9 -0.98 + 4.8 3.0/01.3 31011
 1999 CD₂ 1999 03 04.0 10 57.38 +15 32.3 17.8 -1.00 + 6.8 3.1/01.3 33992
 (8214) 1999 03 04.0 10 57.68 -17 48.6 16.7 -0.87 + 4.1 8.4/12.0 31090
 1993 NU₁ 1999 03 04.1 10 57.75 +07 33.1 18.5 -0.94 + 6.7 0.3/03.8 34009
 1999 AN₂₂ 1999 03 04.1 10 57.84 +35 02.7 16.5 -0.97 + 4.3 8.3/22.0 34040
 1981 EH₁₂ 1999 03 04.1 10 57.94 -01 32.1 18.6 -0.97 + 5.2 3.3/06.6 26917

1993 OM ₃	1999 03 04.1	10 58.00 +15 18.0 16.2	-0.93 + 9.3	3.8/01.2	33746	1986 QM ₁	1999 03 06.0	11 04.87 +09 27.6 19.0	-0.99 + 6.3	1.2/04.9	29655
1979 MB ₅	1999 03 04.2	10 58.10 +03 11.5 19.3	-0.84 + 5.9	1.0/05.3	30778	1997 SV ₃	1999 03 06.0	11 04.88 +09 02.5 19.6	-0.90 + 3.8	0.9/05.1	31145
(8137)	1999 03 04.2	10 58.17 +09 22.5 18.6	-1.01 + 4.6	0.9/03.4	31072	1988 RX ₂	1999 03 06.0	11 05.00 +06 12.6 16.8	-0.85 + 5.5	0.1/06.0	31136
(8202)	1999 03 04.2	10 58.28 +10 11.4 16.5	-0.80 + 5.8	1.2/03.1	31087	1981 EQ ₁₇	1999 03 06.1	11 05.11 +03 01.8 17.6	-0.91 + 6.3	1.2/07.0	26918
1986 TU ₆	1999 03 04.2	10 58.37 -05 48.0 16.3	-0.81 + 3.3	3.7/08.0	34004	4101 T-2	1999 03 06.1	11 05.12 +08 43.3 17.2	-0.76 + 4.9	0.8/05.2	34061
1997 WX	1999 03 04.3	10 58.51 +13 21.7 17.7	-1.08 + 3.0	2.6/02.5	34018	1991 QG	1999 03 06.1	11 05.29 +00 04.2 19.7	-0.70 + 5.2	1.3/08.1	30896
4204 P-L	1999 03 04.3	10 58.63 -03 45.5 18.7	-0.73 + 6.4	3.0/07.8	34060	1990 SC ₄	1999 03 06.1	11 05.35 -10 46.5 16.8	-0.84 +17.3	6.3/13.0	34006
1992 RC ₄	1999 03 04.3	10 58.68 +04 02.6 17.8	-0.85 + 5.5	0.8/05.2	31103	1999 DP ₁	1999 03 06.1	11 05.52 +31 38.7 16.3	-1.05 + 3.4	9.4/25.5	33995
1997 TT ₃	1999 03 04.4	10 58.96 -07 55.2 17.5	-0.74 + 9.5	5.3/09.8	33955	(8108)	1999 03 06.2	11 05.47 -00 24.0 17.4	-1.01 + 3.9	2.2/08.0	30968
1997 UW ₁₇	1999 03 04.4	10 58.99 +21 13.0 18.0	-0.97 + 4.4	5.3/27.9	33960	1997 VD ₅	1999 03 06.3	11 05.81 +03 58.6 18.9	-0.90 + 6.9	0.6/06.9	31149
2127 T-1	1999 03 04.4	10 59.14 +08 46.4 17.5	-1.05 + 6.9	0.9/03.8	21122	1980 UF ₁	1999 03 06.3	11 06.25 +11 25.2 19.5	-1.08 + 3.7	2.0/04.8	31780
1981 EK ₂₃	1999 03 04.5	10 59.33 +04 33.5 18.7	-0.93 + 6.8	0.6/05.1	34002	1996 HC ₂	1999 03 06.4	11 06.24 +13 31.6 18.3	-1.03 + 8.2	3.0/03.9	33945
1997 SH ₁₁	1999 03 04.5	10 59.38 +11 49.1 20.7	-0.92 + 4.6	1.6/03.0	31011	4070 P-L	1999 03 06.4	11 06.40 +01 35.4 17.1	-0.91 + 4.4	1.7/07.7	34060
1997 UB ₂₅	1999 03 04.6	10 59.48 -00 27.5 17.5	-1.01 + 5.9	2.4/06.7	34018	6783 P-L	1999 03 06.4	11 06.54 +11 22.6 19.8	-0.87 + 4.2	1.7/04.8	21600
1997 XU ₉	1999 03 04.6	10 59.68 +14 28.4 17.9	-1.01 + 5.5	2.6/02.2	31283	1990 QB ₉	1999 03 06.4	11 06.61 +09 27.9 19.3	-0.94 + 8.4	1.3/05.3	23859
(8282)	1999 03 04.6	10 59.86 +06 40.7 17.5	-0.77 + 4.9	0.1/04.6	31215	1982 QX ₁	1999 03 06.5	11 06.55 +12 41.1 17.4	-0.92 + 8.6	2.5/04.2	34003
1997 WD ₃₆	1999 03 04.7	10 59.96 +06 27.7 17.5	-0.82 + 4.6	0.0/04.7	33965	1997 RP ₇	1999 03 06.5	11 06.55 -01 50.9 18.0	-0.93 + 5.5	2.5/08.8	34016
1997 WO ₅₁	1999 03 04.7	11 00.12 +16 33.6 17.2	-0.77 + 5.6	3.4/01.4	33965	1996 VN ₅	1999 03 06.5	11 06.75 +08 53.1 18.0	-0.70 + 4.8	0.8/05.5	31248
(8326)	1999 03 04.8	11 00.32 +07 25.9 17.8	-0.98 + 5.3	0.4/04.5	31349	1990 VF ₆	1999 03 06.5	11 06.86 +18 08.6 19.1	-0.95 + 7.3	4.2/02.5	27308
1989 VP ₁	1999 03 04.9	11 00.64 -04 38.9 17.4	-0.77 +11.1	4.1/09.0	33928	1996 HN ₂₃	1999 03 06.6	11 06.92 +12 25.9 18.5	-1.01 + 6.7	2.5/04.5	30984
3777 T-3	1999 03 04.9	11 00.70 +07 52.5 19.3	-0.94 + 5.7	0.5/04.5	25337	2235 T-2	1999 03 06.6	11 06.98 +05 11.8 20.0	-0.70 + 4.8	0.1/06.8	34060
1991 RO ₁	1999 03 05.0	11 01.31 +03 45.8 17.8	-0.78 + 3.7	0.6/05.8	34007	1993 OA ₃	1999 03 06.6	11 07.15 -30 17.6 17.5	-1.12 + 1.0	11.1/17.4	31276
1987 SE ₇	1999 03 05.0	11 01.40 +00 00.9 18.7	-1.03 + 5.1	2.2/06.9	34004	1986 QO ₁	1999 03 06.6	11 07.23 +10 53.4 17.6	-0.79 + 5.7	1.5/05.0	19674
(8220)	1999 03 05.1	11 01.49 +06 06.9 17.7	-0.96 + 7.8	0.0/05.2	31091	1981 EA ₄₃	1999 03 06.6	11 07.37 +04 54.8 18.9	-0.99 + 5.6	0.3/06.9	34003
1981 EK ₁₁	1999 03 05.1	11 01.64 -05 59.9 18.2	-0.92 + 8.2	4.3/09.3	34002	1988 RB ₆	1999 03 06.7	11 07.39 +06 35.6 18.2	-0.82 + 8.4	0.3/06.4	30288
1994 YR ₁	1999 03 05.1	11 01.70 +21 05.5 17.8	-0.99 + 5.8	5.8/28.5	33942	3357 T-3	1999 03 06.7	11 07.49 +07 19.8 17.0	-0.83 + 4.6	0.5/06.2	34061
1981 EV ₂₅	1999 03 05.1	11 01.75 +04 00.7 18.3	-0.78 + 7.2	0.6/05.9	26919	1978 SC ₅	1999 03 06.7	11 07.49 +09 15.6 18.8	-0.94 + 5.7	1.2/05.6	31271
2017 P-L	1999 03 05.2	11 01.72 +02 21.2 18.1	-1.01 + 6.1	1.3/06.4	34059	1997 YJ ₅	1999 03 06.8	11 07.70 -09 15.8 17.0	-0.76 + 2.3	3.8/11.4	34019
1990 TX	1999 03 05.2	11 01.92 +13 39.9 18.0	-0.99 + 5.9	2.4/03.0	34006	1997 SQ ₃₂	1999 03 06.8	11 07.78 +06 18.2 18.1	-0.97 + 5.4	0.2/06.6	31012
1994 UY ₁₁	1999 03 05.2	11 01.95 +36 46.5 17.0	-1.70 -10.8	15.1/01.8	33941	1989 WH ₃	1999 03 06.8	11 07.81 +07 08.5 17.8	-0.90 + 5.4	0.5/06.4	34005
1981 EA ₅	1999 03 05.2	11 02.16 -08 23.3 18.6	-0.85 + 5.0	4.8/10.0	34002	1996 GO ₁₈	1999 03 06.8	11 07.92 +00 59.7 18.5	-0.95 + 7.4	1.6/08.3	34014
1988 CA ₂	1999 03 05.3	11 02.32 +14 36.0 17.3	-0.91 + 8.6	3.3/02.5	33926	1981 ES ₁₇	1999 03 06.8	11 07.93 +02 16.8 18.6	-0.83 + 5.2	1.0/07.9	26918
1992 ED ₂₂	1999 03 05.3	11 02.37 +13 11.5 17.8	-0.95 + 8.3	2.8/03.0	33934	1997 WL	1999 03 06.9	11 08.20 +18 19.3 17.6	-0.88 + 4.5	4.2/02.9	33962
1981 EL ₁₀	1999 03 05.3	11 02.46 +00 39.8 18.6	-0.86 + 4.1	1.7/07.0	34002	2234 T-1	1999 03 06.9	11 08.28 +18 13.5 16.8	-1.12 + 0.2	5.1/03.7	34060
1993 TC	1999 03 05.4	11 02.55 +33 15.9 18.2	-1.24 + 1.7	8.0/25.3	33686	1997 YG ₂₀	1999 03 07.0	11 08.52 -03 58.4 17.5	-0.83 + 3.0	2.8/09.9	34019
4623 P-L	1999 03 05.4	11 02.64 +10 20.8 16.6	-1.05 + 3.9	1.9/04.2	33996	7636 P-L	1999 03 07.0	11 08.54 +13 00.9 18.1	-1.05 + 5.9	2.9/04.7	34060
1997 US ₃	1999 03 05.4	11 02.72 -12 03.5 17.8	-0.81 + 6.4	5.5/11.7	31280	1997 WL ₂₃	1999 03 07.0	11 08.59 +09 44.4 18.8	-0.86 + 5.1	1.2/05.7	31282
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 RV ₂	1999 03 07.0	11 08.69 +03 10.7 17.1	-0.83 +12.0	0.9/07.9	33952
(8172)	1999 03 05.4	11 02.82 +08 11.1 16.9	-0.78 + 4.7	0.6/04.8	31080	1994 CV ₁₆	1999 03 07.1	11 08.89 +09 48.1 17.5	-0.80 + 5.5	1.4/05.7	34011
1997 UU ₄	1999 03 05.5	11 03.16 +15 10.5 19.2	-0.98 + 5.0	2.8/02.8	31147	1978 UX ₅	1999 03 07.1	11 08.95 -01 34.9 18.4	-0.99 + 7.4	2.8/09.4	34002
1997 WR ₃	1999 03 05.6	11 03.59 +17 16.5 17.1	-1.02 + 5.0	4.0/02.3	33755	1997 SF ₂₅	1999 03 07.1	11 09.09 +12 15.6 18.1	-1.02 + 3.9	2.4/05.2	33954
1994 AT ₂	1999 03 05.7	11 03.81 -01 46.6 18.0	-0.83 + 5.1	2.4/08.2	34011	(8073)	1999 03 07.1	11 09.14 -12 12.4 16.8	-0.98 + 2.8	5.9/12.5	30961
1990 SG ₈	1999 03 05.8	11 04.11 +12 57.8 15.8	-0.93 + 6.2	3.2/03.6	33742	1997 UL ₇	1999 03 07.2	11 09.39 +11 43.2 16.6	-0.92 + 6.8	2.5/05.2	30990
1997 XO ₁₁	1999 03 05.8	11 04.14 -04 59.4 18.0	-0.98 + 5.5	4.0/09.0	34019	1997 WK ₂₁	1999 03 07.2	11 09.49 +01 37.8 17.4	-0.80 + 6.4	1.2/08.5	33964
1988 VS ₃	1999 03 05.8	11 04.38 -09 40.0 18.0	-0.82 + 5.1	4.3/11.0	34005	1991 FK	1999 03 07.3	11 09.53 +17 45.1 14.6	-1.77 - 8.1	6.5/05.6	33930
1997 SJ ₁₁	1999 03 05.9	11 04.33 +09 12.6 19.6	-0.95 + 5.3	1.0/04.9	33954	1994 UH	1999 03 07.3	11 09.75 +08 37.2 16.9	-0.98 + 6.9	1.3/06.3	33551
1997 WQ ₅₄	1999 03 05.9	11 04.41 +08 57.1 17.4	-0.76 + 5.4	0.9/04.9	31424	1989 UA	1999 03 07.3	11 09.86 +22 10.9 16.5	-1.01 + 3.2	5.9/02.4	34005
1951 RX	1999 03 05.9	11 04.66 +04 45.4 18.1	-1.08 + 4.5	0.4/06.3	34001	2026 T-2	1999 03 07.4	11 09.88 -01 23.6 18.3	-0.91 + 8.8	2.7/09.7	27927
1996 NW	1999 03 05.9	11 04.72 +01 30.8 18.9	-0.84 + 5.1	1.4/07.4	34014	2167 T-2	1999 03 07.5	11 10.28 +01 03.9 19.5	-0.97 + 8.2	1.6/08.9	27564
1974 OU ₁	1999 03 06.0	11 04.70 +10 50.1 16.5	-0.89 + 2.2	1.5/04.6	33921	1997 WL ₄₄	1999 03 07.5	11 10.43 +05 08.9 18.2	-0.76 + 5.0	0.0/07.6	34019
1997 VY	1999 03 06.0	11 04.85 +01 14.3 19.9	-0.90 + 5.7	1.3/07.5	31148	1996 WV ₁	1999 03 07.5	11 10.53 -03 27.7 18.5	-0.60 + 4.7	2.0/10.6	34015

1999 MAR. 2

M.P.C. 34083

1997 UM ₉	1999 03 07.5	11 10.69 +17 45.3	17.1 -1.01 + 3.9	4.9/03.9	33558	1990 RQ ₈	1999 03 09.4	11 17.52 +05 14.0	19.0 -0.73 + 4.4	0.2/09.2	34006
1981 EM ₄₅	1999 03 07.6	11 10.68 +00 18.9	19.6 -0.92 + 2.6	1.5/09.0	23245	1999 CL ₅	1999 03 09.5	11 17.92 +09 42.0	17.2 -1.04 + 1.5	1.7/08.2	33992
1992 QR	1999 03 07.6	11 11.04 +17 15.0	16.6 -0.99 +20.6	4.9/02.9	34009	2185 T-2	1999 03 09.6	11 18.22 +06 12.3	17.6 -0.76 + 4.4	0.5/09.1	31161
1981 JE ₂	1999 03 07.7	11 11.21 +10 14.7	17.6 -0.97 + 5.9	1.7/06.2	31415	1976 UY	1999 03 09.6	11 18.27 -11 50.9	18.5 -0.84 + 6.1	4.8/15.2	34001
1997 UV ₂	1999 03 07.7	11 11.31 +02 56.2	17.1 -0.85 + 5.2	0.9/08.5	34017	1985 RG ₃	1999 03 09.6	11 18.34 +12 32.8	18.9 -0.91 + 6.2	2.6/07.1	30868
1997 VW	1999 03 07.7	11 11.41 -14 43.9	15.7 -0.85 + 4.3	7.5/14.3	31423	1996 OQ	1999 03 09.7	11 18.56 +02 09.8	18.4 -0.95 + 5.5	0.8/10.4	34014
(8397)	1999 03 07.8	11 11.67 -15 36.0	16.6 -0.88 + 5.4	6.4/14.9	31365	1997 WS ₃₂	1999 03 09.7	11 18.69 +11 29.8	17.7 -0.99 + 7.0	2.5/07.5	34019
6085 P-L	1999 03 07.8	11 11.72 +03 39.0	18.6 -0.94 + 6.4	0.5/08.4	28319	(8161)	1999 03 09.8	11 18.98 +07 57.7	18.5 -0.72 + 4.7	0.9/08.7	31078
1998 EG ₉	1999 03 07.9	11 11.73 +11 07.4	16.8 -0.90 + 6.9	2.0/06.0	33968	1995 GQ ₂	1999 03 09.8	11 19.00 +09 57.0	20.1 -0.86 + 6.0	1.8/08.1	33248
1981 EA ₂₂	1999 03 07.9	11 11.98 +03 54.1	17.7 -0.76 + 9.4	0.4/08.4	34002	2231 T-2	1999 03 09.9	11 19.46 +10 47.3	19.4 -0.90 + 3.4	1.9/08.0	31576
1995 FQ ₄	1999 03 07.9	11 12.02 +09 09.8	17.4 -0.91 + 5.5	1.3/06.7	34012	1997 TM ₁₉	1999 03 10.0	11 19.59 -00 32.8	19.0 -1.01 + 1.8	1.7/11.4	31146
1984 SR ₅	1999 03 07.9	11 12.08 +09 28.9	18.0 -0.75 + 3.7	1.1/06.6	28084	1997 UP ₈	1999 03 10.0	11 19.69 +08 38.8	17.2 -1.04 + 6.5	1.6/08.7	31280
1990 VW ₆	1999 03 07.9	11 12.12 +11 53.1	18.0 -0.99 + 6.5	2.3/05.9	34006	1997 WQ ₃₄	1999 03 10.0	11 19.77 +14 53.3	17.6 -0.95 + 6.3	3.6/06.6	34019
1988 BN ₄	1999 03 08.0	11 12.17 -08 40.0	16.6 -0.80 + 3.8	4.3/12.4	34004	1992 PN ₁	1999 03 10.2	11 20.53 -07 33.5	18.2 -0.92 + 3.1	3.5/13.8	34009
1979 MW ₁	1999 03 08.0	11 12.33 -02 06.6	18.4 -0.84 + 5.5	2.1/10.4	34002	3175 T-2	1999 03 10.3	11 20.68 +11 07.9	19.0 -1.07 + 4.9	2.6/08.3	31161
1997 WR ₁₁	1999 03 08.0	11 12.34 -02 07.9	17.8 -0.83 + 6.6	2.9/10.4	33963	4595 P-L	1999 03 10.3	11 20.73 +03 40.4	19.1 -0.91 + 6.7	0.2/10.5	31022
1996 TZ ₇	1999 03 08.0	11 12.42 +07 34.2	19.0 -0.77 + 4.3	0.7/07.3	32954	1974 QF ₁	1999 03 10.4	11 20.97 -00 34.0	17.0 -0.98 + 3.7	1.5/11.8	34001
1997 WU ₁₆	1999 03 08.1	11 12.58 -09 49.4	19.0 -0.91 + 6.0	4.4/13.0	31282	(8410)	1999 03 10.4	11 21.00 +08 03.3	17.4 -0.72 + 4.7	1.0/09.1	31368
1989 UW ₅	1999 03 08.1	11 12.70 +12 40.9	18.1 -0.95 + 5.1	2.6/05.8	30895	2779 P-L	1999 03 10.4	11 21.01 +07 38.0	18.4 -1.01 + 6.0	1.2/09.4	31294
1990 WQ ₆	1999 03 08.1	11 12.76 +03 55.1	18.3 -0.92 + 7.5	0.4/08.5	34007	1996 TQ ₁₀	1999 03 10.4	11 21.06 +13 09.7	18.3 -0.72 + 6.5	2.4/07.3	32676
(8067)	1999 03 08.2	11 13.01 +03 50.5	16.5 -1.03 + 1.6	0.4/08.6	30959	1997 WP ₃₂	1999 03 10.4	11 21.09 +05 26.7	17.1 -0.76 + 5.5	0.4/10.0	31424
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 SW ₃₃	1999 03 10.5	11 21.48 +10 20.9	17.2 -0.80 + 3.9	1.9/08.6	32058
1991 PT ₁₆	1999 03 08.2	11 13.18 +05 59.0	17.0 -0.78 + 5.6	0.3/08.0	34007	1978 OP	1999 03 10.5	11 21.62 +23 59.5	18.4 -0.85 + 7.1	5.9/03.4	23245
1045 T-2	1999 03 08.2	11 13.26 -02 05.7	17.3 -0.92 + 8.5	2.5/10.7	34060	(8380)	1999 03 10.5	11 21.66 -17 12.3	16.7 -0.87 + 3.4	6.1/17.4	31361
1996 PY ₇	1999 03 08.3	11 13.24 +08 05.8	17.9 -0.80 + 5.8	1.0/07.3	34014	1997 UZ ₈	1999 03 10.6	11 21.80 -00 53.6	16.8 -0.91 + 6.8	1.8/12.2	34018
1972 TC	1999 03 08.3	11 13.48 -15 23.5	17.5 -0.88 + 5.8	6.5/15.3	34001	1991 NZ ₆	1999 03 10.7	11 22.15 +09 29.5	17.3 -0.79 + 5.7	1.6/08.9	33545
2073 P-L	1999 03 08.4	11 13.80 +01 03.7	18.0 -0.86 + 6.7	1.6/09.7	34059	(8437)	1999 03 10.7	11 22.21 +00 16.6	18.0 -0.88 + 6.1	1.4/11.9	31373
1992 SB ₁₀	1999 03 08.5	11 14.21 +02 53.6	18.6 -0.80 + 7.0	0.7/09.2	33232	1990 SU ₈	1999 03 10.7	11 22.27 +07 05.5	17.9 -0.98 + 9.3	1.1/09.7	31137
1987 QG ₆	1999 03 08.6	11 14.37 +10 01.1	18.6 -0.95 +14.4	1.8/06.8	33740	2173 T-3	1999 03 10.7	11 22.33 -05 52.3	18.3 -0.94 + 8.8	3.7/14.1	34061
1992 EL ₁₇	1999 03 08.6	11 14.41 +12 01.1	18.9 -0.97 + 7.1	2.7/06.3	24106	(8185)	1999 03 10.7	11 22.42 +09 05.3	16.6 -0.82 + 5.0	1.6/09.2	31083
1997 VV ₄	1999 03 08.6	11 14.43 +02 50.8	19.5 -0.86 + 6.0	0.6/09.3	31423	1996 UO	1999 03 10.7	11 22.49 +05 17.8	17.0 -0.82 + 4.7	0.4/10.4	33752
1994 YL ₁	1999 03 08.6	11 14.76 +09 20.6	17.5 -0.99 + 5.7	1.7/07.3	31008	1981 EU ₃₃	1999 03 10.8	11 22.45 -04 40.7	18.1 -0.92 + 6.6	3.0/13.6	31135
1998 DZ ₂	1999 03 08.7	11 14.76 +29 54.2	15.9 -0.95 + 5.2	7.6/28.1	31432	1997 WD ₂	1999 03 10.8	11 22.53 +14 02.3	18.2 -0.95 + 6.1	3.0/07.6	31151
1995 DF ₈	1999 03 08.7	11 14.86 +06 06.2	19.2 -0.88 + 6.9	0.4/08.3	34012	(8237)	1999 03 10.8	11 22.89 +11 21.5	18.0 -1.05 + 4.9	2.7/08.7	31094
1990 VT ₁	1999 03 08.7	11 15.01 +03 03.3	18.0 -0.95 + 6.6	0.6/09.3	34006	1999 AH ₁₀	1999 03 11.0	11 23.37 +06 16.9	17.7 -0.78 + 5.8	0.7/10.3	34039
1981 ER ₂₆	1999 03 08.7	11 15.03 +09 23.2	18.0 -1.07 + 2.6	1.9/07.5	26920	1997 WS ₁	1999 03 11.0	11 23.44 +07 30.9	20.6 -0.89 + 5.2	1.1/09.9	31019
(8189)	1999 03 08.7	11 15.12 +06 54.2	15.7 -0.75 + 5.3	0.7/08.1	31084	1991 PG ₉	1999 03 11.1	11 23.55 +00 50.6	18.0 -0.77 + 7.3	0.9/12.2	34007
1994 XJ	1999 03 08.8	11 15.15 +18 22.4	16.4 -1.01 + 4.9	5.6/04.6	34012	(8223)	1999 03 11.1	11 23.57 +15 07.9	18.5 -0.80 + 6.2	3.0/07.3	31092
1991 GJ ₁	1999 03 08.8	11 15.26 +25 41.7	16.1 -1.10 + 0.0	8.5/03.1	33545	1989 TK ₁₆	1999 03 11.1	11 23.64 +03 35.0	17.9 -0.94 + 6.8	0.1/11.2	25329
1990 QW ₁₇	1999 03 08.8	11 15.31 -02 08.1	17.8 -1.00 + 5.4	2.3/10.9	34006	1987 KG ₅	1999 03 11.1	11 23.85 +14 39.0	17.3 -0.82 + 9.9	3.4/07.2	33925
1997 VK ₅	1999 03 08.9	11 15.62 -06 17.5	15.7 -0.93 + 4.7	4.2/12.3	33558	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 UE ₉	1999 03 08.9	11 15.83 -04 01.4	17.9 -1.03 + 4.6	3.1/11.6	30990	1997 WO ₃₇	1999 03 11.2	11 24.00 +08 36.7	18.9 -0.91 + 6.2	1.5/09.7	31282
1997 WR ₃₈	1999 03 08.9	11 15.87 -00 46.5	18.8 -1.01 + 5.3	2.0/10.6	33266	1993 TS ₃₆	1999 03 11.3	11 24.68 +28 26.2	16.8 -1.04 + 2.9	8.7/04.0	34010
1990 QX ₇	1999 03 09.0	11 16.11 +03 44.8	19.1 -0.72 + 4.2	0.2/09.4	34006	1981 ET ₉	1999 03 11.5	11 25.16 -03 01.6	18.8 -0.98 + 4.5	2.9/13.6	22270
2056 T-2	1999 03 09.1	11 16.47 +05 08.4	19.0 -1.04 + 4.4	0.2/09.0	33535	1996 GD ₂₁	1999 03 11.5	11 25.24 +02 54.6	18.0 -0.96 + 8.1	0.3/11.8	34014
1990 SF ₉	1999 03 09.1	11 16.48 +11 00.9	18.1 -0.76 + 4.0	1.6/07.1	31417	1981 EO ₁₁	1999 03 11.6	11 25.43 +00 07.0	16.9 -0.90 + 5.0	1.7/12.7	34002
1981 ET ₁₅	1999 03 09.2	11 16.57 +05 52.1	17.2 -1.01 + 1.0	0.4/08.9	31271	(9993)	1999 03 11.6	11 25.46 +04 54.7	16.4 -0.81 + 9.5	0.4/11.2	33669
2537 P-L	1999 03 09.3	11 16.94 +10 14.8	18.9 -0.98 + 4.8	1.8/07.6	31160	6644 P-L	1999 03 11.6	11 25.54 +06 11.2	18.8 -0.88 + 7.5	0.8/10.8	34060
1997 XN ₁₂	1999 03 09.3	11 16.94 -02 08.3	18.9 -0.95 + 6.4	2.2/11.4	34019	1978 SA ₇	1999 03 11.6	11 25.81 +03 03.9	17.9 -0.86 + 3.7	0.2/11.9	31134
1981 ET ₄₆	1999 03 09.4	11 17.33 +03 51.7	18.9 -0.85 + 4.7	0.2/09.6	34003	(8105)	1999 03 11.7	11 25.94 +06 01.6	16.3 -0.92 + 8.9	1.0/10.9	30968
1990 VX ₄	1999 03 09.4	11 17.41 +26 57.2	17.5 -1.04 + 4.9	7.9/02.4	33930	1996 JF ₃	1999 03 11.7	11 26.19 +16 17.5	18.0 -1.01 + 5.4	4.4/07.9	27562

1994 BM ₄	1999 03 11.8	11 26.19 −08 36.7 16.8	−0.83 + 5.5	4.4/15.9	34011	1986 RJ ₄	1999 03 14.3	11 35.62 −16 57.7 17.9	−1.28 − 0.6	6.7/19.3	30780
1988 RJ ₁₃	1999 03 11.8	11 26.21 +23 22.8 17.8	−1.05 + 2.1	6.8/05.9	31136	1997 PD ₃	1999 03 14.3	11 35.62 +04 58.4 18.0	−1.01 + 7.7	0.9/13.6	30903
1997 WK ₃₇	1999 03 11.8	11 26.51 +04 42.3 19.2	−0.92 + 6.7	0.3/11.5	31121	1997 RS ₅	1999 03 14.4	11 35.69 +01 53.1 18.3	−0.97 + 7.1	0.3/14.6	34016
2120 T-2	1999 03 11.9	11 26.59 +07 11.0 19.3	−1.04 + 4.8	1.3/10.9	31023	1997 VD ₃	1999 03 14.4	11 35.76 +02 58.3 17.5	−0.84 + 5.6	0.1/14.3	33754
1992 RV	1999 03 11.9	11 26.60 +09 54.0 17.9	−0.89 + 3.5	1.9/10.0	30782	1988 XH ₁	1999 03 14.4	11 35.83 +24 40.8 16.7	−0.90 + 4.7	6.3/06.8	25439
1997 VM ₇	1999 03 12.0	11 26.99 +11 44.1 17.5	−1.02 + 5.4	3.1/09.5	31150	1990 QQ ₈	1999 03 14.4	11 35.86 +05 24.7 19.1	−0.73 + 4.4	0.7/13.5	30686
1993 TT ₁₂	1999 03 12.1	11 27.40 +10 43.6 18.0	−0.98 + 6.0	2.5/09.9	32231	1208 T-1	1999 03 14.4	11 36.09 −03 04.2 18.0	−0.93 + 7.4	2.1/16.3	34060
1993 ST ₄	1999 03 12.1	11 27.49 +05 15.4 17.3	−0.96 + 5.9	0.7/11.6	33747	1999 DN ₂	1999 03 14.5	11 36.16 +12 49.6 17.2	−0.87 + 1.4	3.0/11.5	33995
(8261)	1999 03 12.1	11 27.56 +03 49.9 17.7	−0.76 + 4.6	0.1/12.1	31210	1997 WR ₄₁	1999 03 14.5	11 36.21 +00 45.2 18.8	−0.90 + 6.2	0.6/15.1	31122
6097 P-L	1999 03 12.2	11 27.61 +01 23.4 19.0	−0.96 + 6.0	0.7/12.9	27732	1992 FK ₁	1999 03 14.5	11 36.34 −47 05.6 16.8	−1.07 − 2.5	23.0/08.0	21580
(8260)	1999 03 12.2	11 27.76 +07 56.7 16.7	−1.04 + 7.6	1.8/10.8	31210	(8142)	1999 03 14.5	11 36.36 +06 38.9 18.0	−0.94 + 5.5	1.3/13.3	31073
1994 UO ₁	1999 03 12.2	11 27.80 +01 53.7 17.7	−1.01 + 7.1	0.6/12.7	34011	1997 SU ₁₅	1999 03 14.5	11 36.37 +00 56.8 18.7	−0.92 + 5.6	0.5/15.1	31145
1997 VJ ₃	1999 03 12.2	11 27.98 −01 19.7 17.3	−0.83 + 6.0	1.5/13.9	31281	4107 T-1	1999 03 14.6	11 36.42 +07 28.3 17.3	−0.83 + 2.6	1.5/13.1	31268
4409 T-1	1999 03 12.2	11 28.04 +08 04.1 17.4	−0.90 + 8.3	1.9/10.7	29668	1997 VF ₇	1999 03 14.8	11 37.17 −09 20.5 18.6	−0.77 + 6.2	3.7/19.0	31281
1996 PN ₅	1999 03 12.3	11 27.96 +07 40.7 18.1	−0.83 + 5.3	1.3/10.9	31791	2647 P-L	1999 03 14.8	11 37.39 +03 30.0 17.8	−0.96 + 5.6	0.4/14.5	16438
1999 BK ₁₅	1999 03 12.3	11 28.18 −00 44.0 16.6	−1.05 − 0.1	1.7/13.4	33989	1990 QC ₃	1999 03 14.9	11 37.53 +03 34.4 18.2	−0.95 + 7.4	0.4/14.5	34006
1986 TB ₇	1999 03 12.4	11 28.46 −10 56.8 17.9	−0.75 + 5.0	3.8/17.3	21970	2209 T-1	1999 03 14.9	11 37.60 +06 51.9 18.2	−0.72 + 4.5	1.1/13.4	31294
1989 SR ₄	1999 03 12.5	11 28.80 +09 58.7 19.2	−0.94 + 4.8	2.2/10.5	24582	1992 BM	1999 03 14.9	11 37.66 +01 31.4 16.9	−1.09 + 3.9	0.4/15.2	34008
1993 RB ₇	1999 03 12.6	11 29.08 +00 10.6 17.7	−0.91 + 8.0	1.1/13.7	34010	1951 SY	1999 03 14.9	11 37.74 +04 31.8 19.5	−0.79 + 9.6	0.6/14.2	31414
6132 P-L	1999 03 12.6	11 29.38 +01 23.6 20.4	−0.93 + 5.9	0.6/13.3	30914	1981 ED ₁₄	1999 03 14.9	11 37.79 −01 02.8 17.6	−0.99 + 3.9	1.5/16.0	33739
(8218)	1999 03 12.6	11 29.38 −00 35.2 17.8	−0.94 + 6.9	1.3/13.9	31090	1985 CM ₁	1999 03 15.0	11 37.92 +08 49.2 15.9	−0.89 + 8.5	2.7/12.8	33740
1994 GT	1999 03 12.7	11 29.43 +09 24.1 16.1	−0.79 + 4.7	2.2/10.7	34011	(8087)	1999 03 15.0	11 38.02 +29 16.6 16.7	−0.99 + 3.5	8.5/06.1	30964
1990 ST ₂	1999 03 12.7	11 29.52 +05 56.2 18.2	−0.99 + 5.9	0.9/11.9	31099	1991 GH ₃	1999 03 15.0	11 38.19 +00 40.3 17.0	−0.89 + 5.8	0.6/15.6	33743
1997 WT ₃₇	1999 03 12.7	11 29.84 +03 12.4 16.7	−0.96 + 5.2	0.0/12.8	31424	1979 MC ₅	1999 03 15.1	11 38.44 +01 56.1 19.6	−0.93 + 7.5	0.1/15.3	30778
4408 T-1	1999 03 12.8	11 30.00 +10 36.7 17.7	−0.99 + 5.6	2.5/10.6	30914	1997 SC ₂	1999 03 15.1	11 38.53 −00 31.3 18.8	−0.90 + 6.9	1.0/16.1	34017
1997 SC ₃₄	1999 03 12.8	11 30.11 +24 19.5 18.1	−0.90 + 2.1	6.2/06.3	31012	1989 YP ₅	1999 03 15.1	11 38.56 +08 59.8 17.4	−0.85 + 6.7	2.1/12.9	31137
1992 DF ₁₀	1999 03 12.8	11 30.13 −02 39.5 17.7	−0.95 + 7.7	2.1/14.8	34008	1979 MZ ₇	1999 03 15.1	11 38.64 +03 31.3 20.4	−0.94 + 7.2	0.4/14.8	30779
(8117)	1999 03 12.9	11 30.26 +11 57.2 17.4	−0.84 + 3.0	2.4/10.2	30970	1984 BQ	1999 03 15.1	11 38.68 +15 41.4 15.9	−1.01 + 3.7	5.5/11.1	33540
1996 UC ₃	1999 03 12.9	11 30.29 −01 28.5 19.0	−0.61 + 3.5	1.0/14.5	32055	1981 EA ₃₄	1999 03 15.2	11 38.88 −06 00.4 18.7	−0.79 + 7.7	2.7/18.2	30868
1997 VD ₆	1999 03 12.9	11 30.32 +20 39.7 17.0	−0.81 + 4.6	5.4/07.0	33961	1996 TL ₁₅	1999 03 15.2	11 38.90 −14 36.8 16.6	−0.67 + 8.8	4.7/21.7	30460
1994 VR ₁	1999 03 12.9	11 30.36 +00 41.5 17.4	−1.02 + 6.0	1.0/13.7	33748	1986 TB	1999 03 15.3	11 39.06 +05 40.1 17.8	−1.09 + 2.5	1.1/14.4	31272
1988 BJ	1999 03 12.9	11 30.45 −37 08.3 16.7	−1.74 −10.1	20.5/20.3	30780	1981 EU ₁₆	1999 03 15.3	11 39.30 −02 23.2 19.2	−1.02 + 3.9	2.0/16.7	26918
1990 SB ₂	1999 03 12.9	11 30.49 +13 28.9 17.0	−0.92 +14.3	3.8/09.2	33678	1986 QG ₁	1999 03 15.4	11 39.39 +09 54.4 17.4	−0.93 + 7.2	3.0/12.9	33740
3288 T-2	1999 03 13.0	11 30.80 +06 30.1 17.8	−0.77 + 4.8	1.1/12.0	15729	1978 SA ₈	1999 03 15.4	11 39.56 −00 25.1 17.7	−0.90 + 6.5	0.8/16.3	31414
6676 P-L	1999 03 13.0	11 30.94 +02 54.6 17.1	−0.80 + 4.7	0.1/13.2	33784	1981 EK ₄₀	1999 03 15.4	11 39.58 +00 32.6 18.6	−0.80 + 6.5	0.5/16.0	32213
2494 T-3	1999 03 13.1	11 31.04 −00 24.8 16.5	−1.01 + 4.3	1.6/14.2	33999	1994 TM ₂	1999 03 15.4	11 39.61 +07 30.1 16.3	−1.00 + 7.6	2.2/13.7	29921
1997 VA ₃	1999 03 13.2	11 31.63 −02 18.2 17.0	−0.99 + 5.9	2.1/14.9	34018	1996 PJ ₂	1999 03 15.4	11 39.62 −09 46.0 21.2	−0.95 + 2.7	3.7/19.0	30785
1989 GV ₁	1999 03 13.4	11 32.17 +01 36.2 17.0	−1.06 + 4.3	0.5/13.8	33927	1995 AJ	1999 03 15.4	11 39.66 −08 28.3 17.0	−1.03 + 5.1	3.8/18.7	31277
(9120)	1999 03 13.5	11 32.41 −05 49.4 17.4	−0.96 + 6.5	2.9/16.3	32201	1989 UN ₁	1999 03 15.5	11 39.79 −02 40.1 18.5	−0.87 + 6.8	1.5/17.1	31136
(8706)	1999 03 13.5	11 32.54 +12 52.3 17.0	−0.89 + 3.1	3.2/10.5	31688	4090 T-2	1999 03 15.5	11 40.09 +08 56.0 16.8	−0.91 + 6.7	2.6/13.3	31161
1997 UE ₁	1999 03 13.6	11 32.77 +09 15.6 19.5	−0.91 + 4.6	1.8/11.7	31146	1997 QJ	1999 03 15.5	11 40.12 +03 36.4 19.6	−0.95 + 6.5	0.5/15.1	33951
1996 OE ₂	1999 03 13.8	11 33.55 −18 02.8 17.2	−0.97 + 1.8	7.3/19.9	31109	1997 UO ₇	1999 03 15.6	11 40.09 +02 34.4 18.4	−0.88 + 7.3	0.1/15.5	31015
(8132)	1999 03 13.9	11 34.23 +28 02.2 15.7	−0.97 + 4.2	9.0/05.1	31071	1997 BB ₁	1999 03 15.6	11 40.13 −15 33.1 16.2	−0.74 + 4.6	5.2/21.6	33555
1996 QL	1999 03 13.9	11 34.23 −03 19.1 16.4	−0.90 + 3.0	2.6/15.8	33555	1981 EK ₄₅	1999 03 15.6	11 40.28 −02 17.6 18.9	−1.01 + 4.0	1.6/16.9	25527
1993 RC ₂	1999 03 14.0	11 34.35 +07 33.7 17.9	−1.05 + 2.4	1.6/12.7	31007	1994 LA ₁	1999 03 15.6	11 40.45 +23 37.2 18.1	−0.72 +12.2	6.5/06.6	30900
1997 VN	1999 03 14.1	11 34.59 +04 41.3 19.7	−0.81 + 6.2	0.6/13.5	31148	1997 WK	1999 03 15.6	11 40.47 −01 02.6 16.3	−0.86 + 5.6	1.1/16.7	31251
2213 T-1	1999 03 14.1	11 34.94 +05 44.0 17.2	−0.79 + 3.1	0.8/13.2	28088	1997 TX ₁₆	1999 03 15.7	11 40.49 +19 30.4 17.8	−1.02 + 2.7	6.5/10.4	31146
1991 FX ₂	1999 03 14.1	11 35.03 +13 00.0 16.6	−1.00 + 2.5	3.2/11.2	31137	1997 WU ₂₁	1999 03 15.7	11 40.82 +17 10.3 15.9	−0.78 + 4.7	4.2/10.6	31120
1995 FO ₁₀	1999 03 14.2	11 35.33 +12 25.4 16.7	−0.91 + 4.5	3.3/11.2	32518	1990 SX ₅	1999 03 15.8	11 41.07 +05 36.7 18.7	−0.99 + 5.8	1.3/14.8	31005
1981 EF ₂₂	1999 03 14.2	11 35.35 +00 38.5 18.1	−0.85 + 7.8	0.9/15.0	26919	4109 T-1	1999 03 15.8	11 41.09 +05 18.7 17.5	−0.74 + 4.8	0.9/14.8	28607
1997 YO ₄	1999 03 14.3	11 35.45 +20 50.1 16.8	−0.85 + 3.5	5.8/08.4	33755	1998 DU ₂₀	1999 03 15.8	11 41.17 +02 49.7 18.7	−0.93 + 6.9	0.3/15.6	32315

1999 MAR. 2

M.P.C. 34085

1997 WD ₃	1999 03 15.8	11 41.21 +07 24.4 17.0	-0.82 + 5.2	1.7/14.1	33755	1992 RC ₆	1999 03 17.8	11 48.32 +04 11.6 18.6	-0.89 + 6.2	1.0/16.9	28615
1996 GN ₁₉	1999 03 15.9	11 41.39 -01 23.1 16.5	-0.99 + 8.1	1.3/17.0	33751	1973 SP ₄	1999 03 17.8	11 48.38 +00 29.2 17.5	-0.97 + 3.5	0.2/18.1	33920
1997 VX ₄	1999 03 15.9	11 41.47 +04 00.8 18.7	-0.80 + 5.1	0.6/15.3	31149	1991 RJ ₄	1999 03 18.0	11 49.04 +00 20.3 24.1	-0.84 + 2.9	0.3/18.3	33931
1988 CZ ₂	1999 03 15.9	11 41.49 +08 28.5 17.7	-0.82 + 7.8	3.0/13.7	30755	1997 SL ₃	1999 03 18.0	11 49.16 +00 11.2 19.8	-1.06 + 4.5	0.4/18.4	30987
1989 TN	1999 03 16.0	11 41.56 +07 45.6 18.3	-0.93 + 6.3	1.9/14.1	24582	1997 YS ₃	1999 03 18.2	11 49.69 -08 44.4 17.6	-0.89 + 5.7	3.1/21.5	31255
1996 KN ₁	1999 03 16.0	11 41.56 +16 28.7 17.4	-1.00 + 6.1	5.7/11.2	31241	(8210)	1999 03 18.2	11 49.88 +05 17.4 15.8	-1.02 + 2.7	1.7/17.1	31089
1986 RQ	1999 03 16.0	11 41.62 -07 03.3 17.0	-0.91 + 8.4	3.1/19.0	27932	1997 XV	1999 03 18.3	11 50.21 +00 15.2 16.8	-0.85 + 3.7	0.3/18.6	34019
1997 UO ₈	1999 03 16.0	11 41.65 +23 01.7 15.6	-1.08 + 1.0	7.6/10.0	31280	1997 WO ₂₁	1999 03 18.4	11 50.35 -22 26.7 17.1	-0.76 + 5.7	6.6/27.2	30999
1992 CJ ₃	1999 03 16.0	11 41.99 +02 06.4 17.0	-0.95 + 8.6	0.1/16.0	34008	1990 UH ₁	1999 03 18.4	11 50.43 +17 16.8 17.8	-0.98 + 5.7	5.5/13.2	27120
1988 DK	1999 03 16.1	11 42.10 -08 36.9 17.1	-0.71 + 7.4	3.6/20.0	31273	1992 UO ₆	1999 03 18.4	11 50.44 +14 03.2 18.4	-0.80 + 5.2	3.5/14.1	31103
(8065)	1999 03 16.1	11 42.19 +06 31.6 16.2	-0.93 + 7.7	2.0/14.6	30959	1984 YY ₁	1999 03 18.4	11 50.47 +02 20.6 18.8	-1.03 + 5.6	0.5/18.0	33740
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 VD ₂	1999 03 18.4	11 50.48 -00 28.2 18.3	-0.91 + 5.0	0.5/19.0	31281
1990 QX ₁	1999 03 16.2	11 42.36 +03 13.6 17.8	-0.99 + 6.2	0.5/15.8	34006	1979 HW ₆	1999 03 18.4	11 50.71 +00 16.3 15.9	-0.98 + 6.3	0.3/18.7	34002
1981 EA ₉	1999 03 16.2	11 42.48 -02 37.1 20.0	-0.99 + 4.4	1.4/17.6	31134	1989 RD ₂	1999 03 18.5	11 50.77 +01 50.3 18.2	-0.91 + 6.8	0.3/18.2	27728
(8472)	1999 03 16.2	11 42.54 -12 31.5 17.6	-0.80 + 6.4	4.0/21.2	31489	1997 TE	1999 03 18.5	11 50.79 +09 34.3 17.2	-0.98 + 3.0	2.9/16.0	31145
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 WC ₃₁	1999 03 18.5	11 50.87 -00 18.3 19.2	-0.99 + 7.3	0.4/19.0	34019
1986 RG ₃	1999 03 16.3	11 42.76 +04 29.0 17.9	-0.93 + 9.0	0.9/15.4	30894	1990 SQ ₅	1999 03 18.5	11 51.08 +07 52.7 17.7	-0.90 + 7.7	2.9/16.3	32923
1997 YX ₁₅	1999 03 16.3	11 42.99 -19 19.3 17.1	-0.85 + 2.2	6.3/23.0	31286	1997 WE ₁₁	1999 03 18.6	11 51.11 +03 50.7 21.1	-0.95 + 5.6	0.9/17.7	31021
1992 GM ₄	1999 03 16.4	11 43.02 -03 59.5 17.6	-0.89 + 7.3	2.0/18.3	31584	1999 AA ₂₅	1999 03 18.6	11 51.18 +06 02.4 17.2	-0.89 + 9.7	2.2/16.8	34041
1996 UC	1999 03 16.4	11 43.16 +06 08.8 18.9	-0.71 + 4.6	1.0/15.0	31421	1990 QT ₉	1999 03 18.6	11 51.22 +03 34.2 17.3	-1.00 + 7.1	1.1/17.8	33742
1992 UW ₄	1999 03 16.4	11 43.18 -31 55.1 18.2	-1.08 +10.7	13.9/29.8	31232	9535 P-L	1999 03 18.7	11 51.59 +02 37.3 18.4	-0.78 + 7.2	0.5/18.2	29668
(8160)	1999 03 16.4	11 43.22 +08 27.5 17.0	-1.03 + 6.9	2.5/14.3	31077	1988 RM ₅	1999 03 18.7	11 51.76 +08 04.1 17.7	-0.78 +10.1	2.3/16.1	33675
(8385)	1999 03 16.4	11 43.41 +05 56.4 16.9	-0.76 + 5.2	1.3/15.1	31362	1989 SM ₈	1999 03 18.8	11 52.08 +02 31.6 18.3	-0.93 + 5.5	0.5/18.3	20505
(8140)	1999 03 16.4	11 43.43 -06 04.2 17.7	-0.80 + 6.7	2.5/19.2	31073	1990 RO ₂	1999 03 18.8	11 52.16 -04 49.5 17.4	-1.05 + 4.9	2.4/20.6	31137
1990 MC	1999 03 16.6	11 43.91 -04 32.2 17.6	-0.76 + 7.8	1.7/18.8	29942	1997 VW ₄	1999 03 18.9	11 52.17 +23 35.9 16.7	-1.06 + 0.7	9.1/12.1	34018
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 VA	1999 03 18.9	11 52.19 -04 16.7 19.5	-0.89 + 6.3	1.6/20.6	30993
1992 OW	1999 03 16.7	11 44.18 +19 22.8 20.0	-0.92 + 3.5	4.8/11.1	30782	1997 VG ₄	1999 03 18.9	11 52.51 +03 07.4 16.7	-0.73 + 5.4	0.8/18.2	34018
1983 RG ₂	1999 03 16.7	11 44.30 +12 15.2 18.3	-0.99 + 5.6	3.5/13.4	31272	1979 MT ₁	1999 03 19.0	11 52.71 +06 41.2 18.8	-0.94 + 7.2	2.0/17.1	31375
1999 AF ₂₅	1999 03 16.7	11 44.31 +01 47.5 17.0	-1.06 + 4.7	0.0/16.7	33982	1989 TP ₁₁	1999 03 19.1	11 52.99 -00 34.0 17.5	-0.89 + 7.0	0.4/19.6	31273
1978 UK ₇	1999 03 16.7	11 44.36 +00 27.2 18.4	-0.91 + 6.5	0.4/17.2	32738	(8235)	1999 03 19.1	11 53.26 -01 14.7 17.8	-0.91 + 7.1	0.7/19.8	31094
1997 UK ₁	1999 03 16.7	11 44.49 +07 52.8 18.6	-0.94 + 3.8	2.2/14.9	33957	1981 EE ₂₁	1999 03 19.2	11 53.24 -00 18.9 18.7	-0.77 + 8.3	0.3/19.6	26919
1993 VN	1999 03 16.8	11 44.64 +01 42.2 17.7	-0.91 + 6.5	0.0/16.8	27730	3163 T-2	1999 03 19.2	11 53.47 +06 37.6 18.4	-0.76 + 4.6	2.0/17.3	33785
1990 RG ₂	1999 03 16.8	11 44.76 -00 55.6 17.8	-0.67 + 6.1	0.6/17.8	23671	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 SZ ₄	1999 03 17.0	11 45.20 +04 40.6 18.7	-0.75 + 4.6	0.8/16.0	25529	1994 CV	1999 03 19.4	11 54.18 +00 02.9 18.2	-0.85 + 6.8	0.2/19.6	31140
1996 OB ₁	1999 03 17.0	11 45.24 +04 02.9 20.5	-0.94 + 7.2	0.9/16.2	27723	1992 RM ₂	1999 03 19.5	11 54.64 -07 13.5 18.0	-1.01 + 2.1	2.5/21.8	31275
(8088)	1999 03 17.0	11 45.37 +02 17.3 17.2	-0.94 + 7.5	0.2/16.8	30964	1992 GN ₃	1999 03 19.6	11 54.87 +01 08.2 18.3	-1.00 + 5.6	0.2/19.5	27913
1997 VY ₆	1999 03 17.0	11 45.55 -00 02.2 18.7	-0.83 + 5.5	0.5/17.6	31281	4667 P-L	1999 03 19.6	11 54.90 +06 12.8 18.5	-0.87 + 4.1	1.6/17.9	31294
1979 MG ₃	1999 03 17.1	11 45.96 -11 46.3 18.2	-0.77 + 4.3	3.7/21.6	30778	1997 UA ₂₂	1999 03 19.8	11 55.48 +09 44.5 17.8	-0.95 + 6.7	3.0/16.8	31796
6196 P-L	1999 03 17.2	11 45.97 -02 38.6 18.1	-0.72 + 7.5	1.2/18.7	28312	1997 TL ₁₇	1999 03 19.8	11 55.69 -15 08.2 18.7	-0.86 + 7.6	5.1/25.4	30988
4030 P-L	1999 03 17.3	11 46.47 -02 35.3 18.0	-0.83 + 5.0	1.2/18.6	33784	1985 VL	1999 03 19.8	11 55.79 -10 28.9 16.4	-0.68 + 7.9	3.1/23.9	29133
1997 TY ₁₁	1999 03 17.4	11 46.75 +04 09.7 18.1	-0.99 + 7.2	0.9/16.5	33956	1981 EG ₄	1999 03 19.9	11 56.00 -09 55.3 18.9	-0.97 + 5.4	3.7/23.2	26915
1999 BE ₆	1999 03 17.4	11 46.86 +03 03.7 17.1	-0.86 + 6.7	0.6/16.9	33986	1992 RK ₇	1999 03 19.9	11 56.18 +07 51.9 17.3	-0.84 + 6.3	2.6/17.5	31139
1990 RJ ₃	1999 03 17.4	11 46.93 +00 30.9 17.9	-1.08 + 3.7	0.4/17.7	34006	4137 T-3	1999 03 20.0	11 56.17 +06 36.6 19.7	-0.78 + 5.3	1.7/17.9	33062
1997 WK ₃₅	1999 03 17.5	11 47.08 +00 50.7 17.4	-0.74 + 5.6	0.2/17.7	31989	1979 ME ₄	1999 03 20.0	11 56.46 +20 05.6 18.5	-0.84 + 6.7	5.7/13.1	30778
1996 HU ₂₄	1999 03 17.5	11 47.32 +13 56.4 17.3	-1.05 + 4.2	5.0/13.8	31009	4348 T-1	1999 03 20.0	11 56.57 +08 33.0 17.2	-0.81 + 3.0	2.8/17.5	31001
1979 QD ₂	1999 03 17.6	11 47.48 +02 22.2 19.6	-0.73 + 4.6	0.3/17.3	33922	3266 T-1	1999 03 20.1	11 56.74 +00 28.4 17.5	-0.76 + 4.6	0.0/20.1	22432
1980 TV ₂	1999 03 17.6	11 47.55 +03 24.4 18.3	-1.06 + 4.5	0.7/17.0	31003	1997 SX ₂₁	1999 03 20.1	11 56.80 -00 13.7 17.9	-0.97 + 7.1	0.2/20.3	30988
1984 SY ₅	1999 03 17.6	11 47.56 +04 22.2 17.7	-0.69 + 4.7	0.7/16.6	31272	1997 WC ₂₁	1999 03 20.1	11 56.93 -06 16.9 18.7	-0.90 + 5.0	2.0/22.3	31282
1997 RA ₉	1999 03 17.6	11 47.64 +00 51.9 17.9	-0.92 + 8.6	0.2/17.8	34016	1979 MB ₉	1999 03 20.2	11 56.91 +00 40.8 18.4	-0.74 + 5.2	0.1/20.1	31096
1981 EZ ₂₀	1999 03 17.6	11 47.68 +00 04.9 18.6	-0.83 + 5.7	0.4/18.1	26919	1997 VF ₃	1999 03 20.2	11 57.05 +09 35.0 19.2	-0.99 + 5.8	3.1/17.3	31149
1997 UT ₂₄	1999 03 17.7	11 48.11 -02 17.9 19.8	-0.94 + 5.9	1.1/19.0	31148	1996 HJ ₂₃	1999 03 20.2	11 57.14 +03 17.8 18.5	-0.92 + 6.7	0.9/19.3	28088

1997 WP ₇	1999 03 20.2	11 57.17 -00 14.8 18.3	-1.02 + 6.4	0.2/20.4	31281
1997 XH ₁	1999 03 20.3	11 57.62 +00 54.6 20.1	-0.93 + 5.3	0.2/20.2	31124
1998 AU ₃	1999 03 20.4	11 57.62 +04 28.5 18.1	-0.71 + 4.7	1.1/19.0	31260
1991 AQ ₂	1999 03 20.4	11 57.67 +00 07.6 17.8	-0.92 + 6.0	0.1/20.5	30870
1980 WE ₅	1999 03 20.4	11 57.71 -15 52.4 17.3	-0.71 + 6.5	4.4/26.3	32042
1997 WD ₂₁	1999 03 20.4	11 57.72 -18 32.4 19.0	-0.83 + 6.5	5.6/27.1	31282
1997 VS	1999 03 20.4	11 57.81 +05 52.7 18.9	-0.93 + 5.9	1.8/18.6	31148
1997 UY ₇	1999 03 20.4	11 58.02 -01 26.0 19.7	-0.94 + 6.0	0.5/21.0	31015
1996 SK ₆	1999 03 20.5	11 57.98 -02 35.0 19.5	-0.67 + 5.3	0.6/21.5	31278
1987 QG ₁₀	1999 03 20.5	11 58.02 +06 38.5 17.3	-0.99 + 7.3	2.3/18.4	31226
1997 VZ ₁	1999 03 20.5	11 58.15 -09 24.9 18.3	-0.89 + 6.4	3.2/23.7	31281
1996 RW ₁₀	1999 03 20.5	11 58.17 +01 28.4 21.4	-0.90 + 5.3	0.4/20.1	32953
(8124)	1999 03 20.5	11 58.30 +05 20.1 18.9	-1.02 + 7.0	2.1/18.9	30972
1986 TZ ₃	1999 03 20.5	11 58.34 +06 27.5 17.2	-1.03 + 6.0	2.4/18.6	34004
1990 WS ₂	1999 03 20.6	11 58.35 +02 31.9 16.9	-0.93 + 7.1	0.9/19.8	33545
1981 EE ₁₄	1999 03 20.6	11 58.40 -05 54.9 18.5	-0.90 + 8.1	2.2/22.7	25338
1997 YB ₈	1999 03 20.6	11 58.61 +11 53.9 16.7	-0.73 + 6.7	3.3/16.5	33755
1996 VO ₂₇	1999 03 20.6	11 58.67 +00 53.3 20.4	-0.72 + 4.9	0.2/20.4	33255
(8131)	1999 03 20.6	11 58.68 -03 05.9 17.1	-0.92 + 3.9	1.0/21.7	31071
1997 YY ₅	1999 03 20.7	11 58.75 -11 25.9 15.9	-0.82 + 3.2	3.3/24.3	34019
1996 KG	1999 03 20.7	11 59.13 -01 09.9 17.3	-0.93 + 7.8	0.5/21.2	27453
2251 T-1	1999 03 20.8	11 59.09 +01 57.2 17.5	-0.85 + 4.2	0.6/20.2	31161
1982 YR ₁	1999 03 20.8	11 59.16 +01 28.2 17.9	-0.99 + 4.2	0.5/20.4	31782
1989 FH	1999 03 20.8	11 59.37 +05 47.2 16.5	-0.96 + 6.1	2.5/19.0	27454
1996 YH ₃	1999 03 20.8	11 59.42 +24 32.2 16.6	-0.81 + 2.8	6.3/12.4	33752
1997 WT ₃₉	1999 03 20.9	11 59.45 +10 33.1 18.8	-0.77 + 5.0	3.1/17.4	31122
1988 RB ₁₂	1999 03 20.9	11 59.76 -01 23.9 18.7	-0.91 + 4.5	0.4/21.4	31273
1981 SN	1999 03 21.0	12 00.03 -04 57.4 18.0	-0.86 + 6.9	1.6/22.7	34003
1993 TD	1999 03 21.0	12 00.04 +01 35.3 18.1	-1.01 + 2.9	0.5/20.6	31139
(8181)	1999 03 21.1	12 00.41 -08 25.1 16.6	-0.84 + 5.0	2.6/23.9	31082
1993 OG ₉	1999 03 21.2	12 00.93 +14 38.8 17.6	-0.92 + 8.0	5.5/16.3	24913
1988 VS ₆	1999 03 21.3	12 01.28 -03 26.3 19.0	-0.60 + 4.6	0.7/22.5	33741
1992 YS ₂	1999 03 21.4	12 01.39 +05 03.6 16.5	-0.79 + 4.9	1.6/19.7	31418
1993 OJ ₇	1999 03 21.5	12 01.65 -09 58.3 17.6	-1.01 + 5.0	3.7/24.5	31276
1981 EE ₄₅	1999 03 21.5	12 01.77 +03 36.8 17.0	-0.96 + 2.1	1.3/20.4	31225
1978 SP ₅	1999 03 21.6	12 02.13 -00 52.4 17.0	-0.79 + 6.3	0.2/21.8	29939
1993 RZ ₃	1999 03 21.6	12 02.13 -02 31.9 17.5	-1.02 + 3.9	1.0/22.3	33236
1997 VE ₇	1999 03 21.6	12 02.36 -10 02.5 16.3	-0.87 + 6.3	4.2/25.0	33558
(8353)	1999 03 21.7	12 02.38 -02 05.0 17.0	-0.79 + 5.1	0.6/22.3	31355
1990 TO	1999 03 21.7	12 02.51 +08 55.6 17.7	-0.99 + 5.6	3.1/18.8	31137
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 QQ ₁	1999 03 21.9	12 03.20 +02 40.3 18.6	-0.71 + 4.8	0.7/20.9	31791
2020 P-L	1999 03 21.9	12 03.26 -03 04.7 18.4	-0.93 + 4.5	0.9/22.8	31160
1993 RR	1999 03 22.0	12 03.70 +00 16.8 20.1	-0.95 + 4.2	0.2/21.8	30897
1992 CA ₂	1999 03 22.1	12 04.07 +05 00.4 17.0	-0.92 + 7.9	2.2/20.3	33744
1989 SY ₃	1999 03 22.1	12 04.08 +05 12.5 19.3	-0.94 + 6.6	2.0/20.3	27710
4627 P-L	1999 03 22.1	12 04.12 +01 40.6 20.2	-0.94 + 5.6	0.7/21.5	24909
3290 T-2	1999 03 22.2	12 04.60 +04 50.1 17.7	-0.78 + 3.4	1.6/20.6	31295
1992 OO ₁	1999 03 22.3	12 04.85 +16 21.1 16.2	-0.80 + 9.6	5.9/16.0	33745
1997 UX ₇	1999 03 22.3	12 04.89 -08 49.4 17.5	-0.81 + 7.2	2.7/25.3	34017
1220 T-2	1999 03 22.3	12 04.93 -00 58.0 19.3	-0.72 + 4.7	0.1/22.5	30285

1997 QN	1999 03 22.4	12 04.96 -09 15.7 18.2	-0.96 + 6.6	3.2/25.2	31280
1991 YY	1999 03 22.4	12 05.03 -03 27.6 17.5	-0.97 + 8.1	1.2/23.4	27308
1997 YR ₃	1999 03 22.4	12 05.09 -26 22.6 16.7	-0.81 + 6.6	8.1/01.5	33558
1993 VS	1999 03 22.5	12 05.42 +01 29.4 18.8	-0.88 + 6.0	0.7/21.9	31419
(8077)	1999 03 22.5	12 05.67 +22 51.1 15.4	-0.65 +12.0	9.5/12.3	30962
1995 SO ₃	1999 03 22.5	12 05.70 -19 34.6 17.3	-0.90 + 2.3	6.4/28.3	25966
1997 UT ₂₀	1999 03 22.6	12 05.69 +10 53.3 17.0	-1.01 + 3.0	4.5/19.2	31281
1990 WV ₁	1999 03 22.6	12 05.76 +06 59.8 17.6	-0.89 + 7.7	3.0/20.0	31005
1981 EL ₂₂	1999 03 22.6	12 05.83 -02 41.6 19.6	-1.00 + 2.0	1.0/23.2	26919
1995 CM ₁	1999 03 22.6	12 05.93 -04 06.0 17.3	-1.05 + 2.7	1.2/23.6	31277
1981 EF ₄	1999 03 22.6	12 05.94 -13 12.4 17.2	-0.88 + 6.7	5.6/26.9	26915
1997 WT ₂₁	1999 03 22.6	12 05.98 +03 44.2 17.7	-0.81 + 4.8	1.3/21.3	31282
1994 WD ₄	1999 03 22.6	12 06.06 +01 55.7 16.4	-0.95 + 8.4	1.0/21.8	33552
1995 FB ₁₄	1999 03 22.7	12 06.09 -01 08.3 19.6	-0.86 + 5.7	0.1/22.9	25334
1997 UE	1999 03 22.7	12 06.16 -00 43.8 18.5	-0.93 + 6.3	0.0/22.8	33957
1989 EG ₁	1999 03 22.7	12 06.16 +03 42.4 16.5	-0.85 + 9.6	1.9/21.2	33542
1992 YL ₂	1999 03 22.7	12 06.37 +17 53.4 17.3	-0.79 + 4.7	5.7/16.4	31275
1997 SX ₁	1999 03 22.7	12 06.40 -04 15.7 17.4	-0.83 + 7.2	1.3/24.0	33504
4285 P-L	1999 03 22.8	12 06.49 -04 03.0 19.8	-0.84 + 2.9	1.0/23.9	33324
1996 TS ₁₅	1999 03 22.8	12 06.58 +21 02.1 17.2	-0.90 + 0.8	5.7/16.1	31279
1992 OG ₂	1999 03 22.8	12 06.68 +05 59.7 16.8	-0.83 + 6.5	2.2/20.6	31786
1997 YF ₂	1999 03 22.9	12 07.02 +14 32.8 17.9	-0.74 + 5.3	4.1/17.6	31254
(8180)	1999 03 22.9	12 07.16 -24 35.9 15.9	-0.95 + 3.5	7.7/30.9	31082
1993 BE ₂	1999 03 23.0	12 07.36 +17 24.2 17.4	-0.77 + 4.8	4.9/16.7	31275
1997 UA ₉	1999 03 23.1	12 07.50 +16 40.4 15.4	-0.97 + 3.0	6.4/17.7	31147
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 08.09 -02 15.5 17.7	-0.96 + 7.7	0.5/23.7	31161
(8135)	1999 03 23.2	12 08.12 +05 57.0 17.2	-0.92 + 5.7	2.4/21.1	31072
1978 XU	1999 03 23.3	12 08.23 -07 09.4 17.2	-0.87 + 7.5	2.0/25.4	31579
1107 T-2	1999 03 23.3	12 08.27 -04 30.1 18.6	-0.83 + 5.3	1.1/24.5	31294
1996 NS ₃	1999 03 23.3	12 08.52 +02 12.6 17.9	-0.87 + 6.4	1.1/22.3	31009
1996 RJ ₃	1999 03 23.4	12 08.63 +00 23.6 17.6	-1.00 + 4.3	0.5/23.0	34015
1997 UM ₂₁	1999 03 23.4	12 08.80 +03 54.9 17.5	-1.06 + 3.2	2.2/22.1	31148
1992 DK ₈	1999 03 23.4	12 08.85 -06 06.1 17.9	-0.95 + 7.6	1.8/25.2	27308
1981 EU ₃₀	1999 03 23.4	12 08.93 -05 20.3 19.4	-1.01 + 4.0	1.5/24.8	26920
1981 EJ ₂₃	1999 03 23.5	12 09.16 -02 50.9 16.9	-0.88 + 4.1	0.6/24.1	31271
1981 RQ ₁	1999 03 23.5	12 09.27 +00 52.6 17.8	-0.77 + 5.6	0.5/22.9	31272
1997 UV ₃	1999 03 23.5	12 09.35 +00 49.6 17.7	-0.93 + 5.2	0.6/23.0	31146
3003 T-2	1999 03 23.6	12 09.65 +00 49.0 18.6	-0.76 + 7.6	0.5/23.0	28313
1991 RY ₁₅	1999 03 23.6	12 09.69 +02 43.7 16.2	-0.78 + 5.6	1.1/22.4	31101
1979 MQ ₄	1999 03 23.7	12 09.81 -14 52.2 17.4	-0.76 + 5.1	4.1/28.5	30778
1990 SF ₃	1999 03 23.8	12 10.05 +05 09.4 16.9	-0.95 + 6.9	2.4/21.8	31274
1978 QE ₂	1999 03 23.8	12 10.14 -00 20.1 18.2	-0.94 + 5.4	0.2/23.6	27725
1981 WO	1999 03 23.8	12 10.16 +06 05.3 16.8	-0.87 + 2.4	2.2/21.7	31782
1979 MK ₄	1999 03 23.8	12 10.27 +04 28.6 19.3	-0.95 + 7.8	2.2/22.0	30778
1997 SU	1999 03 23.9	12 10.48 -05 34.7 17.0	-0.89 + 7.6	1.5/25.4	31145
1988 RE ₁₀	1999 03 23.9	12 10.54 +00 28.5 19.6	-0.85 + 6.3	0.5/23.4	29656
4033 P-L	1999 03 23.9	12 10.65 -03 08.4 19.0	-0.95 + 5.8	0.7/24.6	31160
6058 P-L	1999 03 23.9	12 10.72 -05 10.4 18.5	-0.98 + 3.7	1.4/25.2	27938
1996 GB ₁₈	1999 03 24.0	12 10.99 +04 56.9 17.1	-1.07 + 4.4	2.5/22.3	31009
6618 P-L	1999 03 24.0	12 11.16 +02 32.4 19.3	-0.93 + 5.8	1.2/22.9	31131

1999 MAR. 2

M.P.C. 34087

1997 UA₄ 1999 03 24.1 12 11.11 -07 55.9 17.0 -0.93 + 6.5 2.8/26.3 33703
 6667 P-L 1999 03 24.1 12 11.16 -01 05.3 19.8 -0.84 + 2.9 0.0/24.1 32730
 2827 P-L 1999 03 24.2 12 11.56 +03 04.6 17.3 -1.00 + 3.6 1.8/22.9 31294
 1997 VR 1999 03 24.2 12 11.76 -00 22.5 18.4 -0.95 + 7.2 0.3/24.0 31281
 1988 EC 1999 03 24.4 12 12.24 -19 38.0 16.9 -1.55 - 2.4 8.2/28.3 34004
 4642 P-L 1999 03 24.4 12 12.40 -00 03.7 18.7 -0.98 + 6.1 0.4/24.0 24909
 1981 EW₁₈ 1999 03 24.4 12 12.42 -04 23.9 18.3 -1.02 + 3.9 1.1/25.3 31224
 1317 T-2 1999 03 24.4 12 12.51 +01 24.0 18.9 -1.00 + 3.4 1.0/23.7 27939
 2078 P-L 1999 03 24.5 12 12.65 -03 25.2 16.8 -0.97 + 3.4 0.7/25.1 31267
 1990 QA 1999 03 24.5 12 12.70 +12 31.2 17.4 -0.84 + 1.8 3.4/20.3 31273
 1992 JF₃ 1999 03 24.5 12 12.72 -02 13.7 14.6 -0.99 + 4.9 0.4/24.8 31231
 1997 TV₂₆ 1999 03 24.5 12 12.82 +02 21.7 16.3 -0.89 + 5.2 1.6/23.4 33264
 1978 RY₆ 1999 03 24.5 12 12.97 -09 42.1 16.6 -0.80 + 2.8 2.4/27.2 31271
 1981 ED₃₁ 1999 03 24.6 12 13.17 +01 04.7 18.9 -0.92 + 7.3 0.9/23.8 26920
 1990 WB₂ 1999 03 24.6 12 13.36 +13 11.6 16.1 -0.85 + 6.7 6.5/19.6 30895
 1125 T-2 1999 03 24.7 12 13.28 -01 39.7 19.1 -0.70 + 4.7 0.1/24.8 32092
 1993 UD₁ 1999 03 24.7 12 13.30 +08 47.9 18.3 -0.99 + 5.5 3.7/21.4 31419
 1993 DR₂ 1999 03 24.7 12 13.39 -10 14.6 17.7 -0.81 + 3.2 2.4/27.5 31103
 1981 DA₁ 1999 03 24.7 12 13.52 -16 31.2 18.0 -0.79 + 7.4 5.2/30.1 30271
 1991 AS₂ 1999 03 24.8 12 13.85 -09 14.6 18.3 -0.94 + 5.3 2.6/27.3 32743
 (8304) 1999 03 24.9 12 14.14 -04 32.5 16.3 -0.93 + 5.2 1.2/25.9 31219
 (8415) 1999 03 25.0 12 14.46 -00 49.7 17.2 -0.69 + 4.8 0.2/24.8 31369
 1996 VD₁ 1999 03 25.0 12 14.71 +17 23.2 18.4 -0.87 + 1.7 5.3/19.1 31279
 1990 ST₆ 1999 03 25.0 12 14.76 +05 15.0 18.8 -0.73 + 5.0 1.8/22.8 31417
 2370 T-3 1999 03 25.1 12 14.89 -09 20.8 18.2 -0.78 + 6.7 2.3/27.8 23686
 1981 EL₂₁ 1999 03 25.1 12 14.94 -03 10.6 17.4 -0.81 + 5.9 0.5/25.7 29653
 1996 SK₇ 1999 03 25.1 12 14.98 +07 42.2 18.8 -1.00 + 2.2 2.8/22.4 28864
 1981 EK₁₆ 1999 03 25.2 12 15.11 -07 08.2 19.0 -1.04 + 2.8 2.3/26.8 26918
 1997 RA₁₀ 1999 03 25.3 12 15.70 +03 06.2 17.6 -0.90 + 6.7 1.7/23.8 30771
 1997 XS₁₀ 1999 03 25.3 12 15.72 +00 34.4 19.3 -0.96 + 4.9 0.7/24.7 31283
 1997 SH₂₅ 1999 03 25.4 12 15.85 +02 47.2 18.1 -0.94 + 5.8 1.6/24.0 30881
 1992 DF₁ 1999 03 25.4 12 15.87 +17 52.8 19.4 -0.94 +11.7 6.9/18.2 30471
 1990 SX 1999 03 25.4 12 15.87 -10 16.6 17.7 -0.78 + 2.9 2.2/28.1 31274
 1982 SM₆ 1999 03 25.4 12 15.91 -01 15.7 17.3 -1.00 + 3.8 0.2/25.3 30893
 1997 TB₁₀ 1999 03 25.4 12 15.92 -02 31.9 18.7 -0.79 + 5.4 0.2/25.7 31423
 1996 HW₂₅ 1999 03 25.4 12 16.15 +08 29.7 17.9 -0.97 + 5.5 3.3/22.2 31108
 1988 SU₂ 1999 03 25.4 12 16.24 +02 31.9 17.2 -0.85 + 6.1 1.5/24.1 31136
 1997 SB₃ 1999 03 25.6 12 16.57 -03 58.2 18.5 -0.93 + 8.1 0.8/26.3 31011
 1986 QS₁ 1999 03 25.8 12 17.36 +05 27.4 17.5 -0.92 + 7.3 2.5/23.4 27932
 1987 RO₅ 1999 03 25.8 12 17.45 +02 01.6 18.2 -0.55 + 4.2 0.7/24.5 31782
 1981 EY₇ 1999 03 25.8 12 17.55 -09 30.0 18.8 -0.80 + 8.7 3.4/28.6 26916
 1992 EL₃₅ 1999 03 25.8 12 17.60 -00 20.9 17.5 -0.92 + 9.0 0.6/25.3 27935
 (8116) 1999 03 25.9 12 17.73 +04 59.1 17.2 -1.02 + 5.0 2.4/23.8 30970
 1994 LT 1999 03 25.9 12 17.73 +43 11.1 18.2 -1.37 + 1.6 18.0/09.0 24409
 1997 SA₁₆ 1999 03 25.9 12 17.90 -03 10.1 19.2 -0.90 + 5.4 0.4/26.3 31012
 1996 VP₂ 1999 03 25.9 12 17.93 -01 40.5 19.8 -0.73 + 4.8 0.1/25.9 28867
 (8278) 1999 03 25.9 12 18.08 +21 37.5 15.0 -1.01 + 1.9 9.0/18.4 31214
 1986 VM₆ 1999 03 26.1 12 18.42 +02 20.8 18.9 -0.95 + 5.2 1.4/24.8 31136
 1996 KY₄ 1999 03 26.1 12 18.46 +04 06.4 18.5 -0.94 + 5.8 1.9/24.2 32953
 1994 YO 1999 03 26.1 12 18.79 +04 37.2 18.9 -0.97 + 6.6 2.3/24.1 31008
 1992 WN₁ 1999 03 26.2 12 18.87 +05 01.9 17.6 -0.78 + 6.0 2.2/23.8 31275

(8312) 1999 03 26.3 12 19.24 +07 27.8 17.2 -0.81 + 3.0 2.7/23.3 31221
 (8153) 1999 03 26.4 12 19.53 -01 30.3 18.1 -0.94 + 5.4 0.2/26.2 31076
 1993 YR 1999 03 26.4 12 19.86 -11 11.2 18.8 -0.84 + 8.1 2.7/29.7 31140
 1997 UF₁ 1999 03 26.5 12 19.89 -06 10.0 18.3 -0.92 + 7.4 1.4/27.8 31280
 1990 SA₁₅ 1999 03 26.6 12 20.23 -09 36.5 16.6 -0.96 + 6.9 2.7/29.0 31274
 4522 P-L 1999 03 26.6 12 20.57 -02 07.2 17.8 -0.87 + 3.9 0.0/26.7 31294
 (8226) 1999 03 26.6 12 20.60 -03 13.4 16.3 -0.70 + 7.1 0.3/27.0 31092
 1981 EQ₃₅ 1999 03 26.7 12 20.75 -00 34.2 20.0 -0.81 + 5.8 0.7/26.2 26921
 1998 AC₈ 1999 03 26.7 12 20.78 -02 25.8 17.5 -0.73 + 4.8 0.0/26.8 31397
 1997 WL₇ 1999 03 26.7 12 20.90 -07 46.8 17.3 -0.85 + 6.0 1.9/28.6 31796
 1994 CF₁ 1999 03 26.9 12 21.35 -20 12.1 17.4 -0.91 + 3.9 5.4/01.7 31789
 1989 SH₃ 1999 03 26.9 12 21.39 +00 47.1 18.6 -0.89 + 5.8 0.9/25.9 31416
 1995 GF₆ 1999 03 26.9 12 21.46 +02 40.1 18.8 -0.84 + 6.8 1.6/25.3 32945
 1992 PJ₂ 1999 03 26.9 12 21.64 -06 46.7 17.4 -0.95 + 8.2 1.7/28.4 31275
 1996 PT₉ 1999 03 27.0 12 21.72 -04 23.9 18.6 -0.78 + 6.2 0.6/27.7 28304
 1994 AY₂ 1999 03 27.0 12 21.76 -12 44.1 16.5 -0.88 + 4.6 3.7/30.4 31140
 1996 SP₇ 1999 03 27.0 12 22.00 -12 47.0 21.1 -0.79 + 5.5 2.7/30.6 28597
 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 SL₁₇ 1999 03 27.2 12 22.42 -07 31.2 18.3 -1.08 + 2.9 1.9/29.0 31145
 (8266) 1999 03 27.2 12 22.52 -05 19.7 18.1 -1.01 + 4.4 1.0/28.1 31211
 1993 OV₁₀ 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 22.67 -06 49.0 18.1 -0.72 + 7.5 1.3/28.8 21978
 1990 OB₂ 1999 03 27.2 12 22.67 -07 45.3 19.0 -0.78 + 3.1 1.2/28.9 18633
 1994 WL₁ 1999 03 27.2 12 22.71 -09 33.7 16.4 -0.94 + 6.1 3.2/29.6 30900
 1990 QG₃ 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 VK₈ 1999 03 27.3 12 22.94 +01 01.3 18.3 -0.81 + 5.1 1.0/26.2 31134
 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 NU₃ 1999 03 27.4 12 23.25 +05 14.7 18.1 -0.92 + 7.5 2.6/24.8 24910
 1985 SR 1999 03 27.4 12 23.55 +00 27.2 16.7 -0.98 + 5.3 1.1/26.6 34004
 1995 CX 1999 03 27.5 12 23.64 +15 51.1 16.5 -0.91 + 7.6 5.8/21.0 29106
 1996 TT₉ 1999 03 27.5 12 23.67 -02 26.1 18.3 -0.81 + 2.9 0.0/27.5 31245
 1985 CS₂ 1999 03 27.5 12 23.79 -10 22.4 16.1 -0.97 + 4.9 3.4/30.0 33541
 1996 TM₃₆ 1999 03 27.6 12 23.85 -11 44.1 17.3 -1.15 + 0.2 3.7/29.9 32311
 1996 OM₂ 1999 03 27.7 12 24.39 -14 18.8 19.3 -0.81 + 5.4 3.2/31.7 32310
 1997 YU 1999 03 27.8 12 24.87 +00 06.8 18.3 -0.73 + 4.8 0.7/26.9 31283
 1991 PV₁₆ 1999 03 27.8 12 24.87 +02 05.9 17.5 -0.77 + 5.0 1.3/26.3 31274
 1997 SV 1999 03 27.8 12 24.93 +03 06.3 17.4 -1.00 + 3.9 2.0/26.2 31011
 1990 SK 1999 03 27.8 12 25.02 +30 48.3 18.9 -1.26 - 0.1 10.6/18.3 30895
 1996 XR₁ 1999 03 27.9 12 25.04 +03 35.7 18.5 -0.57 + 3.6 1.2/25.7 31589
 1996 HK₁ 1999 03 27.9 12 25.36 +04 35.5 18.5 -1.06 + 4.0 2.8/25.9 31141
 4314 T-3 1999 03 28.0 12 25.37 +02 12.5 16.9 -0.79 + 5.6 1.6/26.4 34061
 (8322) 1999 03 28.0 12 25.64 -01 08.0 18.0 -0.69 + 4.8 0.4/27.5 31348
 1993 OH₆ 1999 03 28.0 12 25.67 +05 28.3 18.1 -0.94 + 6.9 3.0/25.4 24110
 1981 ED₂₈ 1999 03 28.0 12 25.69 -00 11.5 17.6 -0.81 + 6.2 0.8/27.2 27931
 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 NU₄ 1999 03 28.1 12 25.78 -14 23.8 17.3 -0.93 + 3.8 3.9/31.7 29947
 1996 HH₁₀ 1999 03 28.1 12 26.02 -04 05.7 18.3 -0.98 + 8.1 0.5/28.6 32751
 1991 VP₂ 1999 03 28.2 12 26.03 -02 18.4 18.5 -1.03 + 6.6 0.2/28.0 30782
 1981 QY₂ 1999 03 28.2 12 26.29 +00 58.5 16.9 -0.78 + 5.7 1.2/27.0 34003
 1990 SA₂ 1999 03 28.2 12 26.38 -03 11.9 17.6 -0.98 + 5.7 0.1/28.4 31137

1997 SZ ₁	1999 03 28.4	12 26.92 -04 00.5 17.4	-0.89 + 6.9	9.3/18.0	33557	1996 NX ₄	1999 03 30.3	12 34.00 +03 37.0 17.5	-0.81 + 6.7	2.5/27.9	31278
1992 LN	1999 03 28.4	12 27.03 +11 28.8 16.2	-0.94 + 5.2	5.8/23.8	31138	1991 GS ₅	1999 03 30.4	12 34.04 -09 29.1 18.8	-0.84 + 7.7	2.2/01.4	32924
(8157)	1999 03 28.4	12 27.05 -14 22.9 17.2	-0.84 + 5.8	3.7/01.4	31077	1996 XA ₂₇	1999 03 30.4	12 34.23 -23 58.9 17.7	-0.80 + 2.8	4.8/06.1	32056
1997 WZ ₃₆	1999 03 28.4	12 27.07 -02 08.2 19.1	-0.90 + 6.8	0.3/28.2	32683	1996 VB ₉	1999 03 30.5	12 34.51 -00 43.9 17.6	-0.58 + 4.3	0.6/29.5	31792
1997 WQ ₇	1999 03 28.4	12 27.07 -05 43.8 17.4	-1.00 + 6.6	1.1/29.3	31151	1990 QM ₅	1999 03 30.5	12 34.61 +00 02.6 18.9	-0.71 + 4.9	0.9/29.3	31378
1985 RP ₄	1999 03 28.5	12 27.31 +01 42.8 19.0	-0.89 + 6.5	1.4/27.0	25973	1996 QG ₁	1999 03 30.6	12 34.83 -02 36.2 18.5	-0.91 + 6.2	0.4/30.2	28078
1992 UH ₄	1999 03 28.5	12 27.37 +17 41.4 17.7	-0.89 + 3.8	5.9/21.7	31275	1996 TF ₁₅	1999 03 30.6	12 34.99 -02 47.5 18.5	-0.71 + 4.3	0.2/30.3	31421
1997 WT ₃₃	1999 03 28.5	12 27.44 -01 06.2 17.6	-0.92 + 5.3	0.6/28.0	31121	1993 UD ₃	1999 03 30.6	12 35.02 -12 00.3 16.7	-0.92 + 6.3	2.7/02.3	31419
1996 VJ ₄	1999 03 28.6	12 27.52 -18 29.3 17.8	-0.70 + 6.2	4.2/03.2	31112	1998 BR ₄	1999 03 30.6	12 35.02 -09 08.0 19.2	-0.71 + 4.6	1.3/01.5	31264
1996 UL ₁	1999 03 28.6	12 27.61 -08 25.9 18.5	-0.70 + 7.4	1.5/30.6	31421	1994 VO ₇	1999 03 30.6	12 35.06 -06 13.8 17.3	-0.98 + 7.3	1.0/31.5	30900
1988 CE ₂	1999 03 28.6	12 27.87 -13 02.3 17.5	-1.01 + 4.8	3.5/31.7	31273	(8558)	1999 03 30.7	12 35.27 -03 35.7 19.9	-0.72 + 4.6	0.1/30.7	31509
(8216)	1999 03 28.7	12 28.19 +03 27.3 19.1	-0.87 + 5.2	1.9/26.7	31090	4269 P-L	1999 03 30.7	12 35.35 -07 17.1 18.7	-0.73 + 7.0	1.0/32.0	31294
1992 AU ₁	1999 03 28.7	12 28.28 +50 39.2 16.5	-1.13 - 6.6	25.7/09.0	34008	(8089)	1999 03 30.7	12 35.48 +01 09.9 18.9	-1.02 + 4.2	1.8/29.3	30964
1996 UP ₁	1999 03 28.8	12 28.23 -15 03.6 16.9	-0.80 +10.3	4.2/02.2	28891	1995 AM	1999 03 30.8	12 35.58 +03 53.5 20.6	-0.99 + 6.6	2.4/28.4	31008
1980 PY ₂	1999 03 28.8	12 28.51 +11 42.9 18.1	-1.02 + 1.8	4.8/24.6	31096	6615 P-L	1999 03 30.8	12 35.86 -02 09.0 15.9	-1.04 + 3.0	0.8/30.4	34060
(8660)	1999 03 28.9	12 28.77 +06 59.6 15.7	-0.72 + 4.3	2.7/25.5	31677	(9036)	1999 03 30.9	12 36.00 -11 16.5 17.9	-0.73 + 4.2	1.8/02.4	32182
1997 VX	1999 03 28.9	12 28.84 +03 19.8 16.5	-1.03 + 3.6	2.3/27.1	31796	(8159)	1999 03 30.9	12 36.05 +13 13.8 17.9	-0.84 + 6.1	5.0/25.2	31077
1991 RT ₄₀	1999 03 28.9	12 28.86 -01 27.0 17.1	-0.81 + 4.5	0.5/28.4	33744	1981 EV ₄₁	1999 03 30.9	12 36.14 -06 59.2 18.0	-0.86 + 4.7	1.1/31.9	31003
1991 RC ₅	1999 03 29.0	12 29.18 -05 34.3 17.8	-0.86 + 2.3	0.7/29.8	33545	1211 T-2	1999 03 30.9	12 36.23 -09 19.1 17.5	-1.08 + 2.1	2.5/01.5	30797
1997 VE ₆	1999 03 29.1	12 29.33 -04 57.2 18.3	-0.94 + 6.2	0.6/29.7	31394	1993 TN	1999 03 31.0	12 36.53 +02 16.9 16.9	-0.94 + 5.8	2.2/29.1	31139
1996 PW ₂	1999 03 29.1	12 29.35 +00 33.1 19.7	-0.95 + 6.0	1.3/27.9	30785	(8177)	1999 03 31.0	12 36.63 -02 11.2 15.4	-1.04 + 3.1	0.8/30.6	31081
(8079)	1999 03 29.1	12 29.56 -07 25.6 17.8	-0.94 + 5.8	1.4/30.5	30962	(8129)	1999 03 31.1	12 36.88 -04 38.0 16.3	-0.96 + 4.6	0.3/31.4	31071
1986 RK	1999 03 29.1	12 29.59 -12 49.9 17.4	-0.95 + 7.6	3.4/01.3	27454	1998 CV ₁	1999 03 31.2	12 37.02 +07 22.0 18.7	-0.59 + 3.9	2.3/27.3	32059
1997 YN ₈	1999 03 29.1	12 29.67 -02 35.5 16.3	-1.03 + 4.9	0.3/29.0	33706	1997 SP ₁	1999 03 31.2	12 37.24 -03 23.4 18.7	-0.97 + 6.3	0.2/31.1	31011
(8162)	1999 03 29.2	12 29.80 -07 33.0 17.3	-0.98 + 6.3	1.6/30.6	31078	(8550)	1999 03 31.2	12 37.28 -03 04.4 18.5	-0.57 + 3.3	0.2/31.0	31507
1993 XN	1999 03 29.2	12 29.92 -25 25.5 15.8	-0.86 + 5.1	8.6/06.1	33550	1994 VO ₁	1999 03 31.2	12 37.36 -05 54.8 17.9	-1.00 + 6.8	0.7/31.9	31008
1991 AL	1999 03 29.2	12 29.99 +06 45.1 16.1	-0.93 + 5.9	3.8/26.1	31005	1993 XN ₁	1999 03 31.2	12 37.38 +24 46.3 16.3	-0.93 + 4.6	9.9/20.6	34011
1997 WP ₂₂	1999 03 29.2	12 30.00 +00 05.9 18.3	-0.71 + 4.7	0.8/28.2	33558	1998 BK ₁₀	1999 03 31.3	12 37.40 +04 26.3 18.8	-0.90 + 4.5	2.6/28.7	31399
1996 UQ	1999 03 29.2	12 30.02 -06 05.4 18.2	-0.96 + 2.2	0.9/30.1	33555	(8069)	1999 03 31.3	12 37.44 +01 17.7 16.7	-0.86 + 8.8	2.1/29.5	30960
(8279)	1999 03 29.3	12 30.13 +00 10.4 16.6	-0.82 + 4.6	1.1/28.2	31214	1997 TU ₁₈	1999 03 31.3	12 37.59 -01 41.3 16.5	-0.95 + 9.0	0.9/30.6	30883
1997 XA ₁₂	1999 03 29.3	12 30.30 -00 45.9 17.8	-1.02 + 5.1	0.9/28.6	31253	1990 VB ₆	1999 03 31.4	12 37.83 +07 17.2 17.1	-0.90 + 7.5	4.2/27.6	31274
1987 SU ₁	1999 03 29.4	12 30.54 -13 05.2 17.7	-0.99 + 7.0	3.6/01.6	31136	1994 VC	1999 03 31.4	12 38.02 -05 11.5 18.3	-1.04 + 6.0	0.4/31.8	31140
1994 YV ₃	1999 03 29.4	12 30.55 -08 54.4 18.3	-0.99 + 6.0	2.0/31.2	30761	1990 UN ₁	1999 03 31.5	12 38.12 -00 43.4 17.3	-0.92 + 7.9	1.2/30.4	34006
1996 RJ ₄	1999 03 29.4	12 30.77 -00 08.9 18.4	-0.83 + 6.3	1.2/28.4	29115	(8098)	1999 03 31.6	12 38.71 -05 34.5 18.2	-0.95 + 4.9	0.5/01.1	30966
1993 SL ₃	1999 03 29.5	12 30.78 +04 44.2 16.0	-1.41 - 2.0	3.2/27.8	30899	(8318)	1999 03 31.7	12 38.85 -03 25.2 18.3	-0.72 + 4.6	0.2/31.5	31222
3201 T-2	1999 03 29.5	12 30.97 +02 23.8 18.0	-0.80 + 5.9	1.8/27.6	31161	1992 OJ ₉	1999 03 31.8	12 39.21 -05 47.3 15.6	-0.97 + 4.0	0.6/01.3	33231
1991 GC ₁	1999 03 29.6	12 31.20 +00 16.1 16.1	-1.17 - 2.1	1.6/28.8	31137	1991 VD ₂	1999 03 31.9	12 39.76 +00 16.9 17.4	-0.73 + 4.7	1.2/30.5	31786
1991 PF ₁₁	1999 03 29.6	12 31.25 -17 51.0 16.7	-0.88 + 4.1	5.0/03.0	31230	4637 P-L	1999 03 31.9	12 39.82 +00 01.5 19.3	-0.94 + 7.9	1.5/30.5	31022
4197 T-2	1999 03 29.6	12 31.31 +00 56.6 18.1	-1.00 + 5.5	1.6/28.3	30914	3269 T-2	1999 04 01.0	12 40.09 +00 54.3 19.8	-0.75 + 6.5	1.4/30.3	16439
1978 PS ₂	1999 03 29.6	12 31.41 -04 53.1 16.8	-0.91 + 6.8	0.6/30.2	31134	1994 AT ₁	1999 04 01.0	12 40.09 +12 14.4 17.0	-0.91 + 3.0	4.8/27.0	34011
1981 EO ₂₀	1999 03 29.8	12 32.16 -01 43.1 17.4	-0.94 + 7.7	0.7/29.3	28882	1981 EC ₂₇	1999 04 01.0	12 40.11 -02 14.2 18.3	-0.82 + 5.5	0.6/31.4	34003
1993 VA ₅	1999 03 29.8	12 32.29 +06 10.9 17.6	-0.94 + 3.9	3.4/27.0	30873	1992 UX ₄	1999 04 01.1	12 40.24 -21 34.5 17.6	-0.80 + 6.8	4.5/07.3	31418
2316 T-3	1999 03 29.9	12 32.47 -01 37.4 20.4	-1.06 + 4.0	0.7/29.4	31023	1990 SH ₃	1999 04 01.1	12 40.32 +03 49.3 19.3	-0.74 + 4.5	2.0/29.4	32922
1993 BH ₁₃	1999 03 29.9	12 32.47 -00 08.8 17.2	-0.76 + 5.2	1.1/28.8	32745	1990 SN ₃	1999 04 01.1	12 40.32 -00 16.4 16.9	-1.09 + 4.8	1.6/30.9	27325
1983 RP ₂	1999 03 29.9	12 32.67 +00 51.3 17.4	-0.94 + 7.3	1.5/28.6	31272	1992 WT ₁	1999 04 01.1	12 40.38 +06 48.5 17.9	-0.80 + 4.6	2.9/28.5	31103
(8206)	1999 03 30.0	12 32.88 -06 21.4 16.8	-1.01 + 6.3	1.1/30.9	31088	1990 RD ₁	1999 04 01.2	12 40.61 +00 44.9 17.1	-0.68 + 6.6	1.4/30.4	32046
1997 XJ ₂	1999 03 30.1	12 33.12 -04 38.9 18.6	-0.87 + 5.2	0.3/30.5	31124	1981 ER ₁₅	1999 04 01.2	12 40.81 -11 54.9 18.4	-0.91 + 6.4	3.2/03.7	22429
1996 JR ₁	1999 03 30.1	12 33.22 +33 26.9 18.6	-1.21 + 1.6	12.2/17.1	27457	1999 BZ	1999 04 01.2	12 40.98 +33 33.9 17.5	-1.07 - 0.4	13.2/19.3	33983
1996 TU ₉	1999 03 30.1	12 33.28 -02 46.2 19.4	-0.69 + 6.5	0.2/29.9	31245	2503 P-L	1999 04 01.2	12 41.05 -06 11.0 16.9	-1.07 + 1.0	0.6/01.8	27724
1981 EY ₂₈	1999 03 30.3	12 33.68 -17 45.5 18.7	-0.94 + 2.5	4.0/03.5	31271	(8238)	1999 04 01.3	12 41.23 -03 17.9 16.5	-0.94 + 1.9	0.4/01.0	31095
1997 WV ₂₁	1999 03 30.3	12 33.80 -03 12.5 17.5	-0.79 + 4.5	0.1/30.2	30999	6030 P-L	1999 04 01.3	12 41.29 -03 41.5 17.6	-0.64 + 4.7	0.2/01.1	31294