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The current batches of *MPCs* and *MPSs* contain more than 52 500 observations, almost doubling the previous record of 26 700 set in February 1998. This month's 160 new permanent numberings of minor planets also represent a new record, smashing the previous record of 124 set in March.

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ERRATA

<i>MPC</i>	Line	
31298	23	For Yvette Marie Josette read Yvette Marie Josette Andrillat
31298	33	For (b. 1937) read (b. 1947)

NEW OBSERVATORY CODES

The following listing is a continuation to that on *MPC* 31325. The longitudes λ are measured in degrees eastward from Greenwich, and the parallax constants $\rho \cos \phi'$ and $\rho \sin \phi'$ are the product of the geocentric distance (in earth equatorial radii) and the cosine and sine, respectively, of the geocentric latitude.

Obs.	λ	$\rho \cos \phi'$	$\rho \sin \phi'$	
429	149.0400	0.81761	-0.57402	Hawker
635	2.9019	0.73605	+0.67467	Pergignan
831	277.4134	0.87191	+0.48804	Rosemary Hill Observatory, University of Florida
860	313.0347	0.92108	-0.38842	Valinhos

DELETED OBSERVATION

The following observation is to be deleted.

Object	Date	UT	α_{2000}	δ_{2000}	Reference	Obs.
1981 EU ₂₀	1950 12 09.48472		08 06 40.60	+20 51 34.7	<i>MPC</i> 24462	675

IDENTIFICATION CHANGES

Continuation to *MPC* 31326.

Object	Date	UT	α_{2000}	δ_{2000}	Originally	Mag.	Obs.
1943 GD ₁	* 1943 04 08.84966		11 46 33.10	-01 34 05.1	1943 GD		062
1987 QY ₁₂	* 1987 08 27.02495		23 56 58.74	-10 25 02.3	1987 QA ₉	16.5	095
1989 TK ₁₈	* 1989 10 03.23194		00 52 25.37	+04 29 51.9	1989 TY ₁₄		809
1989 TK ₁₈	1989 10 03.24167		00 52 24.55	+04 29 45.2	1989 TY ₁₄		809
1989 TK ₁₈	1989 10 03.25139		00 52 23.72	+04 29 38.5	1989 TY ₁₄		809
1990 QR ₁₉	* 1990 08 18.22361		23 08 51.20	-08 08 33.9	1990 QQ ₉	19.2	809
1990 QR ₁₉	1990 08 18.23681		23 08 50.69	-08 08 44.8	1990 QQ ₉		809
1990 QR ₁₉	1990 08 18.25000		23 08 50.25	-08 08 55.4	1990 QQ ₉		809
1993 HP ₈	* 1993 04 18.43884		12 40 27.60	-00 06 03.5	1993 FO ₃₃	16.0	413
1993 UF ₉	* 1993 10 22.27743		01 01 30.63	+06 27 47.6	1993 TK ₄₆		809
1993 UF ₉	1993 10 22.29826		01 01 29.66	+06 27 41.4	1993 TK ₄₆		809
1993 UF ₉	1993 10 22.31910		01 01 28.50	+06 27 35.9	1993 TK ₄₆		809
1993 UG ₉	* 1993 10 22.21424		00 39 32.33	+05 52 30.7	1993 TW ₄₁	18.5	809
1993 UG ₉	1993 10 22.23507		00 39 31.13	+05 52 26.1	1993 TW ₄₁		809
1993 UG ₉	1993 10 22.25590		00 39 30.06	+05 52 21.5	1993 TW ₄₁		809
1993 UH ₉	* 1993 10 22.21424		00 39 33.09	+05 42 11.0	1993 TV ₄₁	18.3	809
1993 UH ₉	1993 10 22.23507		00 39 31.86	+05 42 06.0	1993 TV ₄₁		809
1993 UH ₉	1993 10 22.25590		00 39 30.64	+05 42 01.1	1993 TV ₄₁		809
1994 RL ₂₉	* 1994 09 06.12708		22 09 01.98	-12 26 13.1	1994 RS ₂₂	19.0	809
1994 RL ₂₉	1994 09 06.14028		22 09 01.40	-12 26 16.9	1994 RS ₂₂		809
1994 RL ₂₉	1994 09 06.15347		22 09 00.82	-12 26 22.4	1994 RS ₂₂		809

OBSERVATIONS OF COMETS

Observations are published here for the following observatory codes:

046 Klet'. 0.57-m *f*/5.2 reflector + CCD. Observers J. Tichá, M. Tichý and Z. Moravec.

056	Skalná Pleso. 0.3-m $f/5$ Zeiss astrograph. Observers G. Červák, J. Svorěn and P. Rychtář.	C/1989 X1	1990 05 27.96250	19 10 06.33	−06 09 35.5	056
118	Modra. 0.6-m $f/5.5$ reflector + CCD. Observers A. Galád, P. Kolény, L. Kornoš and A. Pravda.	C/1989 X1	1990 05 27.98681	19 09 43.25	−06 14 06.4	056
C/1990 K1 (Levy)						
143	Gnosca. 0.20-m $f/6.3$ reflector + CCD. Observer S. Sposetti.	C/1990 K1	1990 05 23.99792	23 58 57.63	+27 59 13.7	056
249	SOHO. SOHO-LASCO coronagraphs C3 and C2. Observers D. A. Biesecker and C. St. Cyr. Reduction by G. V. Williams.	C/1990 K1	1990 05 24.02014	23 58 58.38	+27 59 18.2	056
355	Hadano. 0.28-m $f/5.0$ reflector + CCD. Observer A. Asami.	C/1990 K1	1990 05 26.97639	00 00 33.22	+28 08 33.7	056
360	Kuma Kogen. 0.60-m $f/6.0$ Ritchey-Chrétien + CCD. Observer A. Nakamura.	C/1990 K1	1990 05 27.97569	00 01 04.00	+28 11 45.1	056
402	Dynic Astronomical Observatory. 0.60-m $f/4.0$ reflector + CCD. Observer A. Sugie.	C/1990 K1	1990 07 01.00712	00 08 48.77	+29 48 08.8	056
422	Loomberah. 0.25-m $f/4.1$ reflector + CCD. Observer G. J. Garradd.	C/1990 K1	1990 07 01.03831	00 08 48.46	+29 48 12.2	056
426	Woomera. 0.30-m $f/3.3$ Schmidt-Cassegrain + CCD. Observer F. B. Zoltowski.	C/1990 K1	1990 07 22.89653	23 50 32.38	+29 29 50.3	056
504	Le Creusot. 0.40-m $f/5$ reflector + CCD. Observer J. C. Merlin.	C/1990 K1	1990 07 22.94028	23 50 27.75	+29 29 37.7	056
557	Ondřejov. 0.65-m $f/3.6$ reflector + CCD. Observer L. Šarounová.	C/1990 K1	1990 07 23.93056	23 48 38.26	+29 23 42.5	056
610	Pianoro. 0.25-m $f/4$ Schmidt-Cassegrain. Observer V. Goretti.	C/1990 K1	1990 07 23.96806	23 48 33.98	+29 23 29.9	056
611	Heppenheim. 0.45-m $f/4.4$ reflector + CCD. Observers M. Busch, F. Hormuth, S. Kluegl, J. Rothmel and P. Thiessen. Measured by S. Kluegl and M. Busch.	C/1990 K1	1990 07 24.92083	23 46 40.82	+29 17 01.2	056
634	Crolles. 0.30-m $f/3.45$ reflector + CCD. Observer O. Thizy.	C/1990 K1	1990 07 24.93889	23 46 38.40	+29 16 54.5	056
658	Dominion Astrophysical Observatory. 1.82-m Plaskett telescope + CCD. Observer D. D. Balam.	C/1990 K1	1990 07 31.84306	23 28 26.74	+27 59 24.3	056
704	LINEAR. 1.0-m $f/2.15$ reflector + CCD. Observers M. Blythe, F. Shelly and M. Bezpalko. Measurers J. Stuart and H. Viggh.	C/1990 K1	1990 07 31.88508	23 28 18.40	+27 58 43.2	056
709	Cloudcroft. 0.60-m $f/7$ Ritchey-Chrétien + CCD. Observer W. Offutt.	C/1990 K1	1990 08 13.82188	22 18 19.63	+20 05 37.3	056
732	Oaxaca. 0.20-m $f/3.3$ reflector + CCD. Observer J. Roe.	C/1990 K1	1990 08 13.85868	22 18 01.18	+20 03 05.1	056
758	Cocoa. 0.3-m reflector + CCD. Observer I. Griffin.	C/1990 K1	1990 08 24.83322	20 15 52.69	−01 21 49.8	056
761	Zephyrhills. 0.18-m $f/9.4$ reflector + CCD. Observer R. Kowalski.	C/1990 K1	1990 08 24.93530	20 14 29.62	−01 37 55.2	056
784	Alfred University Observatory. 0.81-m $f/4$ reflector + CCD. Observers D. R. DeGraff and A. C. Schwartz.	C/1990 K1	1990 08 25.94062	20 00 51.88	−04 17 07.7	056
834	Buenos Aires-AAAA. 0.25-m $f/6.3$ reflector + CCD. Observers R. Caprio and R. Mackintosh. Measured by R. Mackintosh and J. R. Carozza.	C/1990 K1	1990 08 25.95104	20 00 43.39	−04 18 44.4	056
844	Los Molinos. 0.35-m $f/6.4$ reflector + CCD. Observers O. Mendez, J. Scheck, J. C. Tulic and T. Gallardo.	C/1990 K1	1990 08 27.82361	19 35 15.23	−09 12 12.9	056
C/1990 N1 (Tsuchiya-Kiuchi)						
860	Valinhos. 0.20-m $f/3.3$ reflector + CCD. Observer P. R. Holvorcem.	C/1990 N1	1990 10 22.13299	10 47 48.77	−04 45 46.8	056
867	Saji Observatory. 1.03-m $f/4.8$ reflector + CCD. Observers M. Yamanishi, A. Miyamoto, M. Aimoto and T. Oribe.	C/1990 N1	1990 10 22.14375	10 47 47.93	−04 46 07.4	056
897	YGCO Chiyoda Observatory. 0.25-m $f/6.0$ reflector + CCD. Observer T. Kojima.	C/1990 N1	1990 10 23.12083	10 46 27.25	−05 16 13.0	056
900	Moriyama. 0.25-m $f/6.3$ reflector + CCD. Observer Y. Ikari.	C/1990 N1	1990 10 23.14028	10 46 25.58	−05 16 49.8	056
954	Teide Observatory. 0.82-m $f/11.3$ reflector + CCD. Observers P. Santos and R. Casas. Measured by J. Licandro and R. Casas.	C/1990 N1	1990 10 24.11505	10 45 02.58	−05 47 31.6	056
C/1995 O1 (Hale-Bopp)						
		C/1995 O1	1997 11 16.17537	07 52 47.47	−55 52 48.6	834
		C/1995 O1	1997 11 16.21267	07 52 44.63	−55 53 36.3	834
		C/1995 O1	1997 11 26.15558	07 38 16.75	−58 58 42.0	834
		C/1995 O1	1997 12 01.17215	07 29 09.27	−60 18 58.2	834
		C/1995 O1	1997 12 02.25032	07 27 01.98	−60 34 57.3	834
		C/1995 O1	1997 12 04.17185	07 23 07.95	−61 02 11.6	834
		C/1995 O1	1997 12 04.21825	07 23 02.11	−61 02 50.2	834
		C/1995 O1	1997 12 08.16826	07 14 30.58	−61 53 44.8	834
		C/1995 O1	1997 12 08.19381	07 14 27.10	−61 54 03.8	834
		C/1995 O1	1997 12 18.20059	06 50 24.54	−63 30 48.9	834
		C/1995 O1	1998 03 09.05971	04 54 39.67	−56 23 20.2	844
		C/1995 O1	1998 03 09.07491	04 54 39.74	−56 23 12.0	844
		C/1995 O1	1998 03 09.09552	04 54 39.84	−56 23 00.9	844
		C/1995 O1	1998 03 11.02641	04 54 50.74	−56 05 23.0	10.8 T 844
		C/1995 O1	1998 03 11.04844	04 54 50.85	−56 05 10.5	10.9 T 844
		C/1995 O1	1998 03 11.06498	04 54 51.05	−56 05 01.4	10.9 T 844
		C/1995 O1	1998 03 16.01414	04 55 43.41	−55 21 04.6	11.9 N 758
Object	Date	UT	α_{2000}	δ_{2000}	Mag.	N Obs.
C/1989 X1 (Austin)						
C/1989 X1	1990 05 19.93507	21 17 24.68	+18 17 38.9			056
C/1989 X1	1990 05 19.94896	21 17 12.64	+18 15 42.2			056
C/1989 X1	1990 05 19.96285	21 17 00.75	+18 13 41.9			056
C/1989 X1	1990 05 26.93056	19 26 40.23	−02 52 16.9			056
C/1989 X1	1990 05 26.95694	19 26 14.57	−02 57 21.5			056

C/1995 O1	1998 03 16.02796	04 55 43.70	-55 20 54.3	11.8 N	758
C/1995 O1	1998 03 19.46365	04 56 38.39	-54 51 32.0	12.9 N	422
C/1995 O1	1998 03 19.46459	04 56 38.41	-54 51 31.6	12.9 N	422
C/1995 O1	1998 03 19.46553	04 56 38.42	-54 51 31.0	12.8 N	422
C/1995 O1	1998 03 19.46648	04 56 38.45	-54 51 30.6	12.9 N	422
C/1995 O1	1998 03 19.46742	04 56 38.46	-54 51 30.1	12.8 N	422
C/1995 O1	1998 03 21.41270	04 57 16.21	-54 35 17.4		426
C/1995 O1	1998 03 21.41716	04 57 16.28	-54 35 15.2		426
C/1995 O1	1998 03 21.42123	04 57 16.36	-54 35 13.1	12.3 N	426
C/1995 O1	1998 03 23.41278	04 57 59.36	-54 18 58.8	12.8 N	422
C/1995 O1	1998 03 23.41358	04 57 59.37	-54 18 58.5	12.8 N	422
C/1995 O1	1998 03 23.41438	04 57 59.38	-54 18 58.0	12.9 N	422
C/1995 O1	1998 03 23.41518	04 57 59.41	-54 18 57.6	12.9 N	422
C/1995 O1	1998 03 23.41599	04 57 59.43	-54 18 57.2	12.8 N	422
C/1995 O1	1998 03 30.97488	05 01 21.37	-53 20 46.4	10.9 T	844
C/1995 O1	1998 03 31.00120	05 01 22.15	-53 20 35.1	10.8 T	844
C/1995 O1	1998 03 31.02986	05 01 23.08	-53 20 21.0	10.8 T	844
C/1995 O1	1998 04 03.50620	05 03 14.18	-52 55 38.7	12.5 N	422
C/1995 O1	1998 04 03.50713	05 03 14.19	-52 55 38.3	12.6 N	422
C/1995 O1	1998 04 03.50807	05 03 14.21	-52 55 37.8	12.6 N	422
C/1995 O1	1998 04 03.50900	05 03 14.26	-52 55 37.5	12.5 N	422
C/1995 O1	1998 04 03.50994	05 03 14.29	-52 55 37.2	12.5 N	422
C/1995 O1	1998 04 04.41243	05 03 44.94	-52 49 25.4		426
C/1995 O1	1998 04 04.41711	05 03 45.10	-52 49 23.4		426
C/1995 O1	1998 04 04.42199	05 03 45.28	-52 49 21.3	12.3 N	426

C/1996 J1 (Evans-Drinkwater)

C/1996 J1-B	1998 02 21.79439	02 26 29.47	+30 30 10.1		118
C/1996 J1-B	1998 02 21.80138	02 26 29.76	+30 30 09.5		118
C/1996 J1-B	1998 02 21.80746	02 26 29.98	+30 30 09.6	16.6 T	118
C/1996 J1-B	1998 03 11.77381	02 39 15.31	+30 27 52.1	17.4 T	118
C/1996 J1-B	1998 03 11.78316	02 39 15.71	+30 27 52.7		118
C/1996 J1-B	1998 03 18.42516	02 44 22.34	+30 31 25.4	17.8 T	402
C/1996 J1-B	1998 03 18.42726	02 44 22.61	+30 31 26.1		402
C/1996 J1-B	1998 03 18.42934	02 44 22.69	+30 31 23.7		402
C/1996 J1-B	1998 03 18.43177	02 44 22.78	+30 31 27.0	17.7 T	360
C/1996 J1-B	1998 03 18.43646	02 44 22.98	+30 31 26.8		360
C/1996 J1-B	1998 03 21.77698	02 47 01.03	+30 33 57.9		1 118
C/1996 J1-B	1998 03 21.78513	02 47 01.43	+30 33 57.8	17.1 T	1 118

C/1997 BA₆ (Spacewatch)

C/1997 BA ₆	1998 02 21.96111	09 09 23.11	-05 57 02.3		118
C/1997 BA ₆	1998 02 21.96519	09 09 22.94	-05 57 02.6		118
C/1997 BA ₆	1998 02 21.97025	09 09 22.73	-05 57 02.7	17.4 T	118
C/1997 BA ₆	1998 02 23.03155	09 08 40.24	-05 57 29.1		118
C/1997 BA ₆	1998 02 23.03549	09 08 40.10	-05 57 29.1		118
C/1997 BA ₆	1998 02 23.04265	09 08 39.81	-05 57 29.2	16.8 T	118
C/1997 BA ₆	1998 03 18.48103	08 54 35.38	-05 54 56.2	17.2 T	402
C/1997 BA ₆	1998 03 18.48381	08 54 35.32	-05 54 56.2		402
C/1997 BA ₆	1998 03 18.48659	08 54 35.21	-05 54 56.2		402
C/1997 BA ₆	1998 03 18.53628	08 54 33.64	-05 54 55.1	17.1 T	360
C/1997 BA ₆	1998 03 18.54080	08 54 33.49	-05 54 54.9		360
C/1997 BA ₆	1998 03 22.92583	08 52 24.19	-05 52 44.6		118
C/1997 BA ₆	1998 03 22.92977	08 52 24.06	-05 52 44.7		118

C/1997 BA ₆	1998 03 22.93679	08 52 23.85	-05 52 44.5	16.6 T	118
C/1997 BA ₆	1998 03 29.78109	08 49 25.22	-05 49 00.2	17.0 T	046
C/1997 BA ₆	1998 03 29.78508	08 49 25.13	-05 49 00.1		046
C/1997 BA ₆	1998 03 29.78887	08 49 25.02	-05 49 00.2		046

C/1997 G2 (Montani)

C/1997 G2	1998 02 20.32137	18 39 05.39	-60 58 15.0	15.1 T	860
C/1997 G2	1998 02 20.32591	18 39 06.04	-60 58 19.6	14.9 T	860
C/1997 G2	1998 03 08.30741	19 30 24.42	-65 29 56.3	16.0 T	860
C/1997 G2	1998 03 08.31159	19 30 25.22	-65 30 00.4	15.2 T	860
C/1997 G2	1998 03 08.31868	19 30 26.74	-65 30 08.5	15.8 T	860
C/1997 G2	1998 03 31.26633	21 12 42.39	-71 14 49.4	14.0 T	844
C/1997 G2	1998 03 31.27995	21 12 47.08	-71 14 59.8	13.8 T	844
C/1997 G2	1998 03 31.29605	21 12 52.52	-71 15 12.2	14.1 T	844

C/1997 J1 (Mueller)

C/1997 J1	1998 02 21.89090	05 34 14.63	+24 45 13.1		118
C/1997 J1	1998 02 21.89359	05 34 14.52	+24 45 11.8		118
C/1997 J1	1998 02 21.89913	05 34 14.30	+24 45 08.6	17.0 T	118
C/1997 J1	1998 03 18.47014	05 25 47.57	+21 43 09.0	17.3 T	360
C/1997 J1	1998 03 18.47517	05 25 47.57	+21 43 06.7		360
C/1997 J1	1998 03 21.83309	05 25 40.76	+21 23 10.1		118
C/1997 J1	1998 03 21.83801	05 25 40.75	+21 23 08.4	17.5 T	118

C/1997 J2 (Meunier-Dupouy)

C/1997 J2	1998 02 21.16525	21 00 35.22	+33 40 38.7		2 118
C/1997 J2	1998 02 21.17245	21 00 35.85	+33 40 36.6		2 118
C/1997 J2	1998 02 21.18274	21 00 36.85	+33 40 33.8	12.7 T	2 118
C/1997 J2	1998 03 21.12037	21 39 51.71	+31 58 59.7		118
C/1997 J2	1998 03 21.12683	21 39 52.18	+31 58 58.4	13.6 T	118
C/1997 J2	1998 03 28.81767	21 48 56.84	+31 42 21.3	12.8 T	402
C/1997 J2	1998 03 28.81976	21 48 56.99	+31 42 21.1		402
C/1997 J2	1998 03 28.82184	21 48 57.14	+31 42 21.0		402
C/1997 J2	1998 04 03.82101	21 55 29.90	+31 31 44.4	12.3 T	360
C/1997 J2	1998 04 03.82361	21 55 30.07	+31 31 44.1		360

C/1997 L1 (Zhu-Balam)

C/1997 L1	1998 03 17.46388	17 22 26.00	+15 33 19.5		658
C/1997 L1	1998 03 17.49047	17 22 26.18	+15 33 36.4		658
C/1997 L1	1998 03 28.75045	17 22 57.09	+17 33 55.4	18.0 T	402
C/1997 L1	1998 03 28.75601	17 22 57.10	+17 34 01.4		402
C/1997 L1	1998 04 03.75903	17 22 37.28	+18 38 29.1	19.2 T	3 360
C/1997 L1	1998 04 03.76441	17 22 37.35	+18 38 33.4		3 360
C/1997 L1	1998 04 03.76979	17 22 37.23	+18 38 35.2		3 360

C/1997 O1 (Tilbrook)

C/1997 O1	1998 03 23.09245	15 36 23.13	+71 55 00.8		1 118
C/1997 O1	1998 03 23.11153	15 36 20.10	+71 55 25.8	17.8 T	1 118

C/1997 T1 (Utsunomiya)

C/1997 T1	1998 03 28.76525	18 05 07.69	-10 53 39.8	15.4 T	402
C/1997 T1	1998 03 28.76734	18 05 07.41	-10 53 41.4		402
C/1997 T1	1998 03 28.76942	18 05 07.15	-10 53 43.3		402
C/1997 T1	1998 03 28.80179	18 05 03.03	-10 54 09.0	15.0 T	355
C/1997 T1	1998 03 28.80752	18 05 02.27	-10 54 13.8		355
C/1997 T1	1998 04 03.69015	17 51 34.55	-12 13 18.9	14.9 T	355

C/1997 T1	1998 04 03.69951	17 51 33.17	-12 13 27.0	355
C/1997 T1	1998 04 03.79132	17 51 19.26	-12 14 44.2 13.8 T	360
C/1997 T1	1998 04 03.80000	17 51 17.93	-12 14 51.1	360
C/1997 T1	1998 04 04.75951	17 48 50.51	-12 28 10.2	426
C/1997 T1	1998 04 04.76400	17 48 49.80	-12 28 14.0	426
C/1997 T1	1998 04 04.76892	17 48 49.03	-12 28 17.8 15.7 N	426

C/1997 W2 (SOHO)

C/1997 W2	1997 11 19.35988	15 33 25.0	-21 53 37	249
Geocentric position (AU)	-0.00468260	-0.00878487	-0.00473885	
C/1997 W2	1997 11 19.41363	15 34 17.1	-21 45 45	249
Geocentric position (AU)	-0.00468067	-0.00878590	-0.00473979	
C/1997 W2	1997 11 19.44323	15 34 46.2	-21 40 59	249
Geocentric position (AU)	-0.00467961	-0.00878647	-0.00474031	
C/1997 W2	1997 11 19.48490	15 35 28.3	-21 35 24	249
Geocentric position (AU)	-0.00467811	-0.00878728	-0.00474103	
C/1997 W2	1997 11 19.52655	15 36 07.5	-21 28 20	249
Geocentric position (AU)	-0.00467661	-0.00878808	-0.00474176	
C/1997 W2	1997 11 19.56824	15 36 47.1	-21 21 23	249
Geocentric position (AU)	-0.00467511	-0.00878889	-0.00474248	

C/1998 E1 (SOHO)

C/1998 E1	1998 03 02.98498	23 12 45.4	-07 44 05	249
Geocentric position (AU)	+0.00829848	+0.00158874	+0.00006560	
C/1998 E1	1998 03 03.02656	23 12 09.8	-07 40 29	249
Geocentric position (AU)	+0.00830166	+0.00157705	+0.00007026	
C/1998 E1	1998 03 03.06823	23 11 26.3	-07 36 41	249
Geocentric position (AU)	+0.00830484	+0.00156534	+0.00007492	
C/1998 E1	1998 03 03.10990	23 10 42.1	-07 32 57	249
Geocentric position (AU)	+0.00830799	+0.00155363	+0.00007959	
C/1998 E1	1998 03 03.15156	23 09 58.5	-07 29 21	249
Geocentric position (AU)	+0.00831113	+0.00154192	+0.00008425	
C/1998 E1	1998 03 03.23494	23 08 30.2	-07 21 41	249
Geocentric position (AU)	+0.00831737	+0.00151849	+0.00009356	
C/1998 E1	1998 03 03.27655	23 07 41.5	-07 17 36	249
Geocentric position (AU)	+0.00832047	+0.00150680	+0.00009821	
C/1998 E1	1998 03 03.31824	23 06 52.2	-07 13 25	249
Geocentric position (AU)	+0.00832355	+0.00149509	+0.00010286	
C/1998 E1	1998 03 03.35988	23 06 04.5	-07 09 50	249
Geocentric position (AU)	+0.00832661	+0.00148339	+0.00010751	

C/1998 F1 (SOHO)

C/1998 F1	1998 03 21.81802	00 15 56.3	-01 08 21	249
Geocentric position (AU)	+0.00859641	+0.00329159	+0.00181037	
C/1998 F1	1998 03 21.86108	00 15 17.8	-01 03 33	249
Geocentric position (AU)	+0.00859516	+0.00330160	+0.00181350	
C/1998 F1	1998 03 21.88211	00 14 57.6	-01 01 00	249
Geocentric position (AU)	+0.00859454	+0.00330649	+0.00181502	
C/1998 F1	1998 03 21.90186	00 14 36.7	-00 58 23	249
Geocentric position (AU)	+0.00859396	+0.00331108	+0.00181646	
C/1998 F1	1998 03 21.94494	00 13 55.7	-00 52 55	249
Geocentric position (AU)	+0.00859269	+0.00332108	+0.00181957	
C/1998 F1	1998 03 21.96597	00 13 35.3	-00 50 08	249
Geocentric position (AU)	+0.00859206	+0.00332597	+0.00182110	

C/1998 F1	1998 03 21.98337	00 13 15.0	-00 46 53	249
Geocentric position (AU)	+0.00859154	+0.00333000	+0.00182235	
C/1998 F1	1998 03 21.98708	00 13 09.3	-00 47 34	249
Geocentric position (AU)	+0.00859143	+0.00333087	+0.00182262	
C/1998 F1	1998 03 21.99200	00 13 07.1	-00 45 49	249
Geocentric position (AU)	+0.00859129	+0.00333201	+0.00182298	
C/1998 F1	1998 03 21.99694	00 12 58.3	-00 44 50	249
Geocentric position (AU)	+0.00859114	+0.00333315	+0.00182334	
C/1998 F1	1998 03 22.02794	00 12 27.3	-00 42 44	249
Geocentric position (AU)	+0.00859021	+0.00334034	+0.00182557	
C/1998 F1	1998 03 22.04900	00 12 05.4	-00 39 12	249
Geocentric position (AU)	+0.00858958	+0.00334523	+0.00182709	
C/1998 F1	1998 03 22.06898	00 11 44.3	-00 36 34	249
Geocentric position (AU)	+0.00858898	+0.00334986	+0.00182854	
C/1998 F1	1998 03 22.08604	00 11 35.4	-00 34 33	249
Geocentric position (AU)	+0.00858846	+0.00335382	+0.00182977	
C/1998 F1	1998 03 22.10334	00 11 14.5	-00 31 57	249
Geocentric position (AU)	+0.00858794	+0.00335783	+0.00183101	
C/1998 F1	1998 03 22.11205	00 10 53.4	-00 30 09	249
Geocentric position (AU)	+0.00858767	+0.00335984	+0.00183164	
C/1998 F1	1998 03 22.11589	00 10 59.6	-00 30 18	249
Geocentric position (AU)	+0.00858756	+0.00336073	+0.00183192	
C/1998 F1	1998 03 22.12906	00 10 42.8	-00 28 31	249
Geocentric position (AU)	+0.00858715	+0.00336378	+0.00183287	
C/1998 F1	1998 03 22.14469	00 10 23.9	-00 26 12	249
Geocentric position (AU)	+0.00858668	+0.00336740	+0.00183399	
C/1998 F1	1998 03 22.15675	00 10 08.7	-00 24 16	249
Geocentric position (AU)	+0.00858631	+0.00337020	+0.00183486	
C/1998 F1	1998 03 22.18731	00 09 28.5	-00 19 32	249
Geocentric position (AU)	+0.00858537	+0.00337727	+0.00183706	
C/1998 F1	1998 03 22.19986	00 09 10.4	-00 17 32	249
Geocentric position (AU)	+0.00858499	+0.00338018	+0.00183796	
C/1998 F1	1998 03 22.21310	00 08 52.1	-00 15 18	249
Geocentric position (AU)	+0.00858458	+0.00338324	+0.00183891	
C/1998 F1	1998 03 22.23006	00 08 29.0	-00 12 28	249
Geocentric position (AU)	+0.00858406	+0.00338716	+0.00184013	

C/1998 G1 (LINEAR)

C/1998 G1	1998 04 02.13056	11 08 19.60	+29 36 13.2	18.9 N	704
C/1998 G1	1998 04 02.15080	11 08 16.58	+29 36 04.3	18.7 N	704
C/1998 G1	1998 04 02.17114	11 08 13.45	+29 35 56.6	18.7 N	704
C/1998 G1	1998 04 02.19142	11 08 10.49	+29 35 48.1	18.6 N	704
C/1998 G1	1998 04 03.13816	11 05 47.52	+29 29 31.1	18.3 N	704
C/1998 G1	1998 04 03.15847	11 05 44.40	+29 29 22.7	18.2 N	704
C/1998 G1	1998 04 03.17885	11 05 41.27	+29 29 15.3	18.5 N	704
C/1998 G1	1998 04 03.19922	11 05 38.14	+29 29 06.8	18.5 N	704
C/1998 G1	1998 04 03.23893	11 05 32.19	+29 28 50.4	18.1 N	704
C/1998 G1	1998 04 03.27993	11 05 25.93	+29 28 33.4	17.9 N	704
C/1998 G1	1998 04 03.30034	11 05 22.81	+29 28 24.6	18.0 N	704
C/1998 G1	1998 04 03.32085	11 05 19.67	+29 28 15.7	17.8 N	704
C/1998 G1	1998 04 03.36455	11 05 13.22	+29 27 58.0	18.3 N	704
C/1998 G1	1998 04 03.36789	11 05 12.66	+29 27 55.9	18.6 N	704
C/1998 G1	1998 04 03.37111	11 05 12.13	+29 27 54.5	18.4 N	704

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C/1998 G1	1998 04 03.37501	11 05 11.51	+29 27 53.5		704	10P	1998 03 17.02838	11 18 13.30	+17 28 28.2		954
C/1998 G1	1998 04 03.37825	11 05 11.08	+29 27 52.8		704	10P	1998 03 17.03098	11 18 13.26	+17 28 29.3		954
C/1998 G1	1998 04 03.38158	11 05 10.55	+29 27 50.5	18.5 N	704	10P	1998 03 17.03359	11 18 13.06	+17 28 30.0		954
C/1998 G1	1998 04 03.38537	11 05 10.10	+29 27 48.0		704	10P	1998 03 17.03880	11 18 12.75	+17 28 31.5		954
C/1998 G1	1998 04 03.38871	11 05 09.45	+29 27 47.0		704	10P	1998 03 17.04140	11 18 12.68	+17 28 32.2		954
C/1998 G1	1998 04 03.39194	11 05 09.08	+29 27 45.1		704	10P	1998 03 18.11285	11 17 23.44	+17 34 08.8	19.3 T	954
C/1998 G1	1998 04 03.39583	11 05 08.39	+29 27 44.7		704	10P	1998 03 18.11476	11 17 23.34	+17 34 08.9		954
C/1998 G1	1998 04 03.39906	11 05 07.95	+29 27 43.9	19.1 N	704	10P	1998 03 18.11667	11 17 23.25	+17 34 09.4		954
C/1998 G1	1998 04 03.40238	11 05 07.40	+29 27 40.9	18.8 N	704	10P	1998 03 18.11858	11 17 23.15	+17 34 09.9		954
C/1998 G1	1998 04 03.40626	11 05 06.64	+29 27 37.6		704	10P	1998 03 18.12047	11 17 23.11	+17 34 10.5		954
C/1998 G1	1998 04 03.40948	11 05 06.14	+29 27 37.3		704	10P	1998 03 18.12240	11 17 22.98	+17 34 11.0		954
C/1998 G1	1998 04 03.41276	11 05 05.89	+29 27 36.6	18.9 N	704	10P	1998 03 18.12431	11 17 22.91	+17 34 12.1		954
C/1998 G1	1998 04 03.54554	11 04 46.20	+29 26 45.5	17.4 N	422	10P	1998 03 18.12622	11 17 22.80	+17 34 12.1		954
C/1998 G1	1998 04 03.54753	11 04 45.90	+29 26 44.8	17.9 N	422	10P	1998 03 18.12813	11 17 22.72	+17 34 12.5		954
C/1998 G1	1998 04 03.54949	11 04 45.49	+29 26 43.8		4 422	10P	1998 03 18.13002	11 17 22.66	+17 34 13.3		954
C/1998 G1	1998 04 04.51542	11 02 21.69	+29 19 48.9	18.0 N	426						
C/1998 G1	1998 04 04.52059	11 02 21.06	+29 19 48.1	18.1 N	426						
C/1998 G1	1998 04 04.54472	11 02 17.38	+29 19 34.0	17.9 N	402						
C/1998 G1	1998 04 04.54682	11 02 17.09	+29 19 32.8		402	21P	1998 04 03.77604	17 35 23.89	+06 13 26.0	19.3 T	360
C/1998 G1	1998 04 04.54890	11 02 16.79	+29 19 32.1		402	21P	1998 04 03.78056	17 35 24.09	+06 13 28.8		360
C/1998 G1	1998 04 04.57462	11 02 12.84	+29 19 20.4	17.9 N	900	21P	1998 04 03.78542	17 35 24.14	+06 13 33.0		360
C/1998 G1	1998 04 04.58434	11 02 11.49	+29 19 16.5		900						
C/1998 G1	1998 04 05.13988	11 00 49.64	+29 15 07.8	17.6 N	709						
C/1998 G1	1998 04 05.14348	11 00 49.09	+29 15 06.0	17.6 N	709						
C/1998 G1	1998 04 05.14816	11 00 48.41	+29 15 04.1	17.5 N	709	29P	1998 02 21.08462	13 40 17.48	-20 50 35.7		118
C/1998 G1	1998 04 05.15472	11 00 47.44	+29 15 00.9	17.5 N	709	29P	1998 02 21.08971	13 40 17.45	-20 50 35.8	13.4 T	118
C/1998 G1	1998 04 05.15978	11 00 46.68	+29 14 58.7	17.4 N	709	29P	1998 02 23.10594	13 40 00.22	-20 52 36.3		118
C/1998 G1	1998 04 05.16552	11 00 45.83	+29 14 56.1	17.6 N	709	29P	1998 02 23.11170	13 40 00.15	-20 52 36.5	15.0 T	118
C/1998 G1	1998 04 05.17016	11 00 45.13	+29 14 54.0	17.5 N	709	29P	1998 03 15.67688	13 34 47.97	-20 56 45.7	13.7 T	897
C/1998 G1	1998 04 05.18030	11 00 43.64	+29 14 49.3	17.5 N	709	29P	1998 03 15.69500	13 34 47.65	-20 56 45.4		897
C/1998 G1	1998 04 05.18493	11 00 42.95	+29 14 47.1	17.6 N	709	29P	1998 03 15.70272	13 34 47.44	-20 56 44.7		897
C/1998 G1	1998 04 05.19149	11 00 41.97	+29 14 44.0	17.4 N	709	29P	1998 03 16.62502	13 34 28.32	-20 56 13.1	13.8 T	897
C/1998 G1	1998 04 05.19491	11 00 41.47	+29 14 42.5	17.4 N	709	29P	1998 03 16.64207	13 34 27.95	-20 56 12.9		897
C/1998 G1	1998 04 05.51900	10 59 54.01	+29 12 18.2		4 422	29P	1998 03 21.03154	13 32 51.74	-20 52 59.5		5 118
C/1998 G1	1998 04 05.52509	10 59 52.93	+29 12 16.3	19.0 N	4 422	29P	1998 03 21.04189	13 32 51.52	-20 52 59.0	13.7 T	5 118
C/1998 G1	1998 04 05.80000	10 59 12.90	+29 10 02.8	18.4 N	557	29P	1998 03 23.48767	13 31 54.71	-20 50 34.4	17.0 N	422
C/1998 G1	1998 04 05.82624	10 59 09.01	+29 09 51.1		557	29P	1998 03 23.48882	13 31 54.66	-20 50 34.7	16.8 N	422
C/1998 G1	1998 04 05.82856	10 59 08.68	+29 09 49.9		557	29P	1998 03 23.48998	13 31 54.58	-20 50 34.9	17.0 N	422
C/1998 G1	1998 04 05.83557	10 59 07.64	+29 09 46.1		557	29P	1998 03 27.01281	13 30 28.85	-20 46 30.5		046
C/1998 G1	1998 04 06.08351	10 58 31.60	+29 07 50.6	17.7 N	784	29P	1998 03 27.01484	13 30 28.75	-20 46 30.8		046
C/1998 G1	1998 04 06.08733	10 58 31.13	+29 07 48.6	17.9 N	784	29P	1998 03 27.01698	13 30 28.75	-20 46 30.4		046
C/1998 G1	1998 04 06.09253	10 58 30.37	+29 07 46.7	17.7 N	784	29P	1998 03 30.58685	13 28 58.29	-20 41 28.5		426
C/1998 G1	1998 04 06.12795	10 58 25.13	+29 07 29.7	17.7 N	784	29P	1998 03 30.60508	13 28 57.81	-20 41 26.7		426
C/1998 G1	1998 04 06.13160	10 58 24.60	+29 07 27.4	17.8 N	784	29P	1998 03 30.62387	13 28 57.33	-20 41 25.0	16.0 N	426
						29P	1998 03 30.64080	13 28 56.88	-20 41 25.5	12.8 T	360
						29P	1998 03 30.64497	13 28 56.74	-20 41 25.2	16.4 N	360
						29P	1998 04 02.20595	13 27 50.01	-20 37 19.5	15.6 T	709
						29P	1998 04 02.21530	13 27 49.73	-20 37 18.4	15.7 T	709
						29P	1998 04 02.22432	13 27 49.56	-20 37 18.0	15.6 T	709
						29P	1998 04 02.23410	13 27 49.27	-20 37 16.9	15.6 T	709
						29P	1998 04 02.24312	13 27 49.04	-20 37 15.7	15.6 T	709
						29P	1998 04 02.70694	13 27 36.70	-20 36 29.8	12.6 T	2 360
						29P	1998 04 02.71111	13 27 36.59	-20 36 29.5	16.5 N	2 360
10P	1998 03 17.00494	11 18 14.43	+17 28 20.5		954						
10P	1998 03 17.00755	11 18 14.32	+17 28 21.1		954						
10P	1998 03 17.01275	11 18 14.02	+17 28 23.4		954						
10P	1998 03 17.01536	11 18 13.99	+17 28 23.5		954						
10P	1998 03 17.01796	11 18 13.89	+17 28 25.2		954						
10P	1998 03 17.02317	11 18 13.56	+17 28 26.1		954						
10P	1998 03 17.02578	11 18 13.44	+17 28 27.0		954						

43P/Wolf-Harrington						69P					
43P	1998 03 11.17284	09 28 29.19	-18 45 47.6	14.8 T	761	69P	1998 02 22.93669	08 06 28.58	+36 08 43.7		118
43P	1998 03 11.21791	09 28 27.93	-18 45 19.2	14.7 T	761	69P	1998 02 22.94376	08 06 28.54	+36 08 46.5	12.5 T	118
43P	1998 03 22.52259	09 25 45.01	-16 44 43.9	14.7 T	900	69P	1998 03 10.84666	08 11 25.81	+37 22 45.3	14.5 T	610
43P	1998 03 22.53696	09 25 44.91	-16 44 34.2		900	69P	1998 03 10.85047	08 11 25.94	+37 22 45.6		610
43P	1998 03 22.87197	09 25 43.71	-16 40 59.2		504	69P	1998 03 10.85402	08 11 26.05	+37 22 46.0		610
43P	1998 03 22.87747	09 25 43.62	-16 40 55.8		118	69P	1998 03 12.50236	08 12 26.97	+37 25 56.2	13.1 T	900
43P	1998 03 22.87758	09 25 43.69	-16 40 56.1	14.5 T	504	69P	1998 03 12.51157	08 12 27.23	+37 25 57.4		900
43P	1998 03 22.88222	09 25 43.58	-16 40 52.9		118	69P	1998 03 14.80344	08 14 00.66	+37 29 01.6		610
43P	1998 03 22.88306	09 25 43.66	-16 40 52.7		504	69P	1998 03 15.49018	08 14 30.75	+37 29 42.7	13.7 T	355
43P	1998 03 22.88459	09 25 43.58	-16 40 51.2	14.8 T	118	69P	1998 03 15.49278	08 14 30.87	+37 29 43.0		355
43P	1998 03 22.88625	09 25 43.63	-16 40 50.7		504	69P	1998 03 15.49846	08 14 31.05	+37 29 43.5		355
43P	1998 03 27.43816	09 25 46.87	-15 52 11.6		426	69P	1998 03 16.83927	08 15 31.89	+37 30 40.2	14.6 T	610
43P	1998 03 27.44441	09 25 46.88	-15 52 08.1		426	69P	1998 03 16.84919	08 15 32.31	+37 30 40.5		610
43P	1998 03 27.45025	09 25 46.89	-15 52 04.0	16.3 T	426	69P	1998 03 16.85597	08 15 32.59	+37 30 40.7		610
43P	1998 04 02.19348	09 26 42.59	-14 53 03.3	16.2 N	732	69P	1998 03 18.81427	08 17 07.60	+37 31 13.8	15.0 T	610
43P	1998 04 02.20001	09 26 42.61	-14 53 00.0	16.4 N	732	69P	1998 03 18.83822	08 17 08.76	+37 31 13.4		610
43P	1998 04 02.20620	09 26 42.64	-14 52 55.8	16.4 N	732	69P	1998 03 18.84611	08 17 09.15	+37 31 13.3		610
43P	1998 04 03.22057	09 26 58.30	-14 42 50.0	17.1 N	732	69P	1998 03 18.84909	08 17 09.29	+37 31 13.2		610
43P	1998 04 03.22699	09 26 58.34	-14 42 46.2	16.6 N	732	69P	1998 03 18.89111	08 17 11.53	+37 31 11.6		143
59P/Kearns-Kwee						69P	1998 03 18.89896	08 17 11.84	+37 31 11.7		143
59P	1990 10 16.06111	06 48 37.17	+32 51 16.1		056	69P	1998 03 18.90679	08 17 12.18	+37 31 11.3		143
59P	1990 10 16.11389	06 48 41.62	+32 51 17.9		056	69P	1998 03 20.99154	08 19 00.43	+37 30 42.2		118
59P	1990 10 19.05319	06 52 36.25	+32 51 22.0		056	69P	1998 03 20.99447	08 19 00.62	+37 30 42.1	13.3 T	118
59P	1990 10 19.07587	06 52 37.80	+32 51 21.6		056	69P	1998 03 22.51441	08 20 24.48	+37 29 45.2	13.5 T	360
59P	1990 10 25.92500	07 00 54.19	+32 50 42.8		056	69P	1998 03 22.51771	08 20 24.66	+37 29 44.9		360
59P	1990 12 13.87720	07 16 27.40	+32 23 40.8		056	69P	1998 03 22.80566	08 20 41.05	+37 29 28.8		610
59P	1990 12 13.90521	07 16 26.60	+32 23 37.4		056	69P	1998 03 22.81517	08 20 41.54	+37 29 27.2		610
59P	1990 12 14.79688	07 15 57.93	+32 22 07.6		056	69P	1998 03 23.00200	08 20 51.92	+37 29 15.4		118
59P	1990 12 14.83750	07 15 56.89	+32 22 03.8		056	69P	1998 03 23.00774	08 20 52.26	+37 29 15.4	13.2 T	118
59P	1990 12 17.74421	07 14 15.33	+32 16 46.6		056	69P	1998 03 25.78863	08 23 37.68	+37 25 47.9	15.2 T	610
59P	1990 12 17.79201	07 14 13.28	+32 16 40.8		056	69P	1998 03 25.79513	08 23 38.08	+37 25 46.9		610
59P	1990 12 22.99514	07 10 41.27	+32 04 50.9		056	69P	1998 03 25.80052	08 23 38.41	+37 25 46.0		610
62P/Tsuchinshan 1						69P	1998 03 25.80644	08 23 38.78	+37 25 45.0		610
62P	1998 03 09.86882	03 39 09.02	+18 50 31.5		504	69P	1998 03 25.81054	08 23 39.03	+37 25 44.3		610
62P	1998 03 09.87669	03 39 10.20	+18 50 38.1		504	69P	1998 03 25.88138	08 23 43.42	+37 25 38.1		143
62P	1998 03 09.88201	03 39 11.04	+18 50 43.9		504	69P	1998 03 25.88921	08 23 43.84	+37 25 36.9		143
62P	1998 03 09.88394	03 39 11.28	+18 50 45.8	16.0 T	504	78P/Gehrels 2					
62P	1998 03 10.77718	03 41 26.29	+19 04 19.7	16.2 T	118	78P	1998 03 10.86381	06 28 31.94	+15 39 25.0	16.0 T	046
62P	1998 03 10.78502	03 41 27.52	+19 04 26.5		118	78P	1998 03 10.86539	06 28 32.06	+15 39 25.1		046
62P	1998 03 18.44674	04 01 34.56	+20 57 02.0	14.4 T	402	78P	1998 03 10.86834	06 28 32.19	+15 39 25.8		046
62P	1998 03 18.44913	04 01 34.90	+20 57 04.2	14.7 T	360	78P	1998 03 11.05884	06 28 41.08	+15 39 51.2	14.7 T	758
62P	1998 03 18.44951	04 01 34.91	+20 57 03.5		402	78P	1998 03 11.07521	06 28 41.93	+15 39 52.5	15.5 T	758
62P	1998 03 18.45229	04 01 35.44	+20 57 06.5		402	78P	1998 03 14.77939	06 31 40.58	+15 47 17.0		610
62P	1998 03 18.45278	04 01 35.48	+20 57 07.0		360	78P	1998 03 14.78296	06 31 40.79	+15 47 17.6		610
62P	1998 03 22.82075	04 13 41.89	+21 57 33.6		118	78P	1998 03 14.78850	06 31 41.13	+15 47 18.6		610
62P	1998 03 22.82525	04 13 42.65	+21 57 36.7		118	78P	1998 03 16.77818	06 33 22.92	+15 50 59.6	15.8 T	610
62P	1998 03 22.82766	04 13 43.05	+21 57 38.9	14.7 T	118	78P	1998 03 16.78372	06 33 23.19	+15 51 00.2		610
69P/Taylor						78P	1998 03 16.79392	06 33 23.69	+15 51 01.4		610
69P	1998 02 20.99596	08 06 29.26	+35 53 34.1		118	78P	1998 03 18.50660	06 34 54.44	+15 54 02.4	14.6 T	360
69P	1998 02 21.00277	08 06 29.21	+35 53 37.4	12.4 T	118	78P	1998 03 18.50938	06 34 54.59	+15 54 02.6		360
						78P	1998 03 18.80253	06 35 10.47	+15 54 32.6	16.2 T	610

1998 APR. 11

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78P	1998 03 18.80569	06 35 10.65	+15 54 33.2		610
78P	1998 03 18.80831	06 35 10.79	+15 54 33.8		610
78P	1998 03 18.81056	06 35 10.91	+15 54 34.2		610
78P	1998 03 21.87632	06 38 01.28	+15 59 29.5	14.5 T	118
78P	1998 03 21.87861	06 38 01.41	+15 59 29.5	14.7 T	118
78P	1998 03 21.88474	06 38 01.76	+15 59 30.2	16.0 T	118
78P	1998 03 30.41840	06 46 39.02	+16 10 23.5		426
78P	1998 03 30.42492	06 46 39.42	+16 10 23.1		426
78P	1998 03 30.43093	06 46 39.80	+16 10 23.6	16.2 T	426
78P	1998 04 05.01545	06 52 48.20	+16 14 56.1	14.7 T	758
78P	1998 04 05.02550	06 52 48.95	+16 14 55.5	14.6 T	758

88P/Howell

88P	1998 03 21.08193	13 53 29.23	-06 31 26.4		118
88P	1998 03 21.09060	13 53 28.99	-06 31 25.0	16.7 T	118
88P	1998 03 25.34362	13 51 14.92	-06 18 23.1	18.0 T	704
88P	1998 03 25.36390	13 51 14.15	-06 18 17.7	18.4 T	704
88P	1998 03 25.38416	13 51 13.39	-06 18 15.0	18.6 T	704
88P	1998 03 25.40429	13 51 12.61	-06 18 11.4	18.9 T	704
88P	1998 03 25.42440	13 51 11.83	-06 18 07.9	18.9 T	704
88P	1998 03 27.01943	13 50 13.24	-06 12 43.9		046
88P	1998 03 27.02216	13 50 13.15	-06 12 43.6		046
88P	1998 03 27.02398	13 50 13.07	-06 12 42.6		046
88P	1998 03 30.59295	13 47 46.08	-05 59 31.9		426
88P	1998 03 30.61123	13 47 45.24	-05 59 27.6		426
88P	1998 03 30.62995	13 47 44.36	-05 59 23.4	17.0 T	426
88P	1998 03 30.65156	13 47 43.38	-05 59 25.6	16.3 T	360
88P	1998 03 30.65781	13 47 43.11	-05 59 24.1		360
88P	1998 03 31.64135	13 46 58.80	-05 55 35.9	16.7 T	402
88P	1998 03 31.64413	13 46 58.61	-05 55 35.0		402
88P	1998 03 31.64691	13 46 58.49	-05 55 34.6		402
88P	1998 04 02.71771	13 45 20.19	-05 47 18.5	16.3 T	360
88P	1998 04 02.72292	13 45 19.91	-05 47 17.2		360

103P/Hartley 2

103P	1998 02 21.76950	03 43 47.24	+03 40 51.2		118
103P	1998 02 21.77351	03 43 48.23	+03 40 54.5		118
103P	1998 02 21.77666	03 43 49.01	+03 40 56.8	12.5 T	118
103P	1998 03 09.89052	04 45 47.13	+06 28 22.3		504
103P	1998 03 09.89123	04 45 47.32	+06 28 22.7		504
103P	1998 03 09.89161	04 45 47.41	+06 28 22.9		504
103P	1998 03 09.89536	04 45 48.17	+06 28 24.6	14.0 T	504
103P	1998 03 18.42821	05 14 54.64	+07 34 11.7	16.2 N	422
103P	1998 03 18.42912	05 14 54.83	+07 34 12.8	16.1 N	422
103P	1998 03 22.46944	05 27 54.66	+07 59 43.5	12.8 T	360
103P	1998 03 22.47240	05 27 55.21	+07 59 44.6		360
103P	1998 03 25.43117	05 37 08.92	+08 16 28.8		426
103P	1998 03 25.44435	05 37 11.28	+08 16 33.2		426
103P	1998 03 25.45093	05 37 12.55	+08 16 35.2	14.5 T	426
103P	1998 03 27.94670	05 44 48.24	+08 29 06.9	15.4 T	634
103P	1998 03 27.95415	05 44 49.68	+08 29 12.8	15.2 T	634
103P	1998 03 31.77346	05 56 09.29	+08 46 06.4	15.0 T	046
103P	1998 03 31.77449	05 56 09.50	+08 46 06.8		046
103P	1998 03 31.77547	05 56 09.63	+08 46 07.0		046

104P/Kowal 2

104P	1998 02 22.77864	02 10 18.31	+11 33 39.7	15.1 T	6	118
104P	1998 03 11.79280	03 06 54.00	+13 08 02.3	15.6 T		118
104P	1998 03 11.80031	03 06 55.56	+13 08 04.1			118
104P	1998 03 18.44132	03 29 29.00	+13 36 43.2	15.0 T		360
104P	1998 03 18.44462	03 29 29.66	+13 36 43.9			360
104P	1998 03 22.78148	03 44 17.95	+13 52 11.6		1	118
104P	1998 03 22.78873	03 44 19.40	+13 52 12.4	14.8 T	1	118

116P/Wild 4

116P	1990 02 19.94306	09 13 22.84	+22 02 53.5			056
116P	1990 02 20.03681	09 13 18.10	+22 03 06.1			056
116P	1990 03 18.87986	08 59 16.15	+21 55 44.6			056
116P	1990 03 18.98125	08 59 15.29	+21 55 28.1			056
116P	1990 03 19.84375	08 59 10.74	+21 53 13.3			056
116P	1990 03 21.78634	08 59 05.82	+21 47 45.0			056
116P	1990 03 21.82292	08 59 05.74	+21 47 39.5			056
116P	1990 03 24.77963	08 59 13.48	+21 38 12.0			056
116P	1990 03 24.81227	08 59 13.64	+21 38 04.9			056
116P	1990 05 19.87013	09 50 18.93	+15 06 23.4			056
116P	1990 05 19.90885	09 50 22.71	+15 06 00.1			056

119P/Parker-Hartley

119P	1998 02 21.04711	11 14 31.12	-02 15 23.6		6	118
119P	1998 02 21.05450	11 14 30.84	-02 15 22.6	17.8 T	6	118
119P	1998 02 23.07207	11 13 21.58	-02 08 44.8			118
119P	1998 02 23.08141	11 13 21.27	-02 08 43.0	17.6 T		118
119P	1998 03 02.64490	11 08 52.61	-01 41 28.4	18.9 T		402
119P	1998 03 02.64767	11 08 52.45	-01 41 28.7			402
119P	1998 03 02.65045	11 08 52.42	-01 41 28.0			402

128P/Shoemaker-Holt 1

128P-B	1998 02 21.81883	04 17 54.15	+17 44 02.1		6	118
128P-B	1998 02 21.83103	04 17 54.73	+17 44 03.9	15.8 T	6	118
128P-B	1998 02 22.86649	04 18 45.03	+17 46 31.5			118
128P-B	1998 02 22.87775	04 18 45.62	+17 46 33.3	16.7 T		118
128P-B	1998 03 10.82044	04 33 42.52	+18 26 38.8	17.6 T		118
128P-B	1998 03 10.82882	04 33 43.03	+18 26 40.2			118
128P-B	1998 03 18.45851	04 42 03.11	+18 45 59.4	16.5 T		360
128P-B	1998 03 18.46337	04 42 03.44	+18 46 00.1			360

129P/Shoemaker-Levy 3

129P	1998 02 22.00235	07 18 53.28	+22 20 31.0			118
129P	1998 02 22.00576	07 18 53.24	+22 20 30.7			118
129P	1998 02 22.01294	07 18 53.17	+22 20 29.9	16.1 T		118
129P	1998 02 22.98768	07 18 42.80	+22 19 08.1			118
129P	1998 02 22.99368	07 18 42.74	+22 19 07.7	15.7 T		118
129P	1998 03 10.92654	07 19 28.83	+21 52 09.1	16.6 T		118
129P	1998 03 10.93987	07 19 29.02	+21 52 08.1			118
129P	1998 03 22.48021	07 24 03.10	+21 27 21.1	16.8 T		360
129P	1998 03 22.48611	07 24 03.30	+21 27 20.2			360
129P	1998 03 22.49132	07 24 03.43	+21 27 19.3			360
129P	1998 03 24.79688	07 25 20.22	+21 21 48.1	16.1 T		611
129P	1998 03 24.81076	07 25 20.67	+21 21 45.7	16.4 T		611
129P	1998 03 31.78421	07 29 53.90	+21 03 49.5	17.0 T		046

129P 1998 03 31.78655 07 29 53.96 +21 03 49.5 046
 129P 1998 03 31.78774 07 29 54.03 +21 03 49.3 046

Note 1: poor configuration of reference stars. 2: bad seeing. 3: faint image. 4: weak image. 5: declination uncertain. 6: measurement difficult.

OBSERVATIONS OF MINOR PLANETS

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

010 Caussols

E. W. Elst, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180 Brussels, Belgium [elst@atmos.oma.be]
 C. Pollas, Observatoire de la Côte d'Azur, Avenue Copernic, F-06130 Grasse, France [pollas@ocar01.obs-azur.fr]
 Observers C. Pollas, D. Albanese
 Measurer E. W. Elst
 0.9-m Schmidt telescope
 1998 BE₈, 3, 1, 0; [3, 1, 0*, 1993/09/18]

012 Uccle

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

1990 WC₉, 6, 2, 1; 1994 CC₁₈, 1, 1, 0; 1996 XG₉, 3, 1, 0; 1998 BD₁, 3, 1, 0; 1998 BJ₄, 3, 1, 0; 1998 DD₃₃ *, 12, 4, 34; 1998 EY₈ *, 12, 4, 15; 1998 EZ₈ *, 12, 4, 29; 1998 EA₉ *, 12, 4, 15; 1998 FX₂, 3, 1, 0; 3216 T-1, 3, 1, 0; 1298 T-2, 6, 2, 19; (1671), 3, 1, 0; (3517), 6, 2, 4; [85, 14, 4*, 1998/02/17–1998/03/24]

033 Tautenburg

F. Börngen, Thüringer Landessternwarte, Sternwarte 5, D-07778 Tautenburg, Germany [boerg@tls.tautenburg.de]
 1.3-m Schmidt telescope
 PPM
 1991 NS₁, 5, 4, 6; 1991 NV₁, 5, 5, 8; 1991 PV₃₁ *, 5, 4, 6; 1991 RU₄₁ *, 5, 5, 8; 1995 WV₂, 4, 2, 4; (1502), 4, 2, 4; (5409), 15, 12, 59; [43, 7, 2*, 1991/07/18–1991/09/14]

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

1978 SQ₄, 3, 1, 0; 1980 PW, 3, 1, 0; 1981 SL, 3, 1, 0; 1984 HR, 6, 2, 2; 1985 UT, 7, 2, 1; 1986 RE₁, 6, 2, 1; 1986 VB₁, 7, 2, 4; 1987 HD₂, 6, 2, 1; 1989 RV₂, 6, 2, 13; 1989 TJ₂, 6, 2, 2; 1990 OT₄, 3, 1, 0; 1995 KH, 6, 2, 13; 1995 NB, 6, 2, 1; 1995 SH₅, 6, 2, 1; 1995 TC, 6, 2, 2; 1995 TF, 3, 1, 0; 1995 TN, 6, 2, 2; 1995 UP₂, 6, 2, 5; 1995 VR, 6, 2, 2; 1996 TM₉, 5, 2, 1; 1996 UN, 6, 2, 25;

1996 UG₁, 6, 2, 1; 1996 VN, 6, 2, 25; 1996 VQ, 6, 2, 1; 1996 VM₅, 6, 2, 2; 1996 XM₂, 6, 2, 25; 1996 XQ₁₃, 6, 2, 1; 1996 XS₁₈, 6, 2, 25; 1996 XU₁₈, 6, 2, 2; 1996 XW₁₈, 3, 1, 0; 1997 AX₁₄, 6, 2, 1; 1997 CQ₁, 6, 2, 4; 1997 CV₁, 3, 1, 0; 1997 ET₁, 3, 1, 0; 1997 EJ₆, 6, 2, 5; 1997 WU₃, 4, 2, 2; 1997 YB₈, 6, 2, 15; 1998 AL₈, 6, 2, 1; 1998 AS₈, 3, 1, 0; 1998 BZ₇, 4, 1, 0; 1998 BN₁₀, 5, 2, 1; 1998 BP₁₀, 6, 2, 1; 1998 BO₂₆, 3, 1, 0; 1998 BM₃₀, 6, 2, 1; 1998 CH, 12, 4, 14; 1998 CN, 6, 2, 1; 1998 CO, 6, 2, 1; 1998 CR, 3, 1, 0; 1998 CU, 4, 2, 1; 1998 CV, 6, 2, 2; 1998 CY, 6, 2, 1; 1998 CK₁, 6, 2, 4; 1998 DP, 18, 6, 27; 1998 DQ, 21, 7, 39; 1998 DR, 19, 6, 39; 1998 DV, 6, 2, 4; 1998 DW, 12, 5, 32; 1998 DQ₁, 5, 2, 1; 1998 DD₃, 13, 4, 33; 1998 DV₉, 7, 2, 3; 1998 DK₁₁, 11, 4, 24; 1998 DW₁₂, 10, 3, 18; 1998 EC₃, 10, 3, 5; 1998 EP₄, 7, 2, 3; 1998 EF₁₂, 9, 2, 1; 1998 FF₂, 13, 4, 8; 1998 FG₂, 17, 4, 7; 1998 FX₂, 16, 4, 6; 1998 FW₄, 12, 3, 6; 1998 FL₅, 12, 3, 5; 1998 FM₅, 19, 5, 5; 1998 FS₅ *, 7, 2, 2; 1998 FM₉, 13, 4, 5; 1998 FN₉, 10, 3, 4; 1998 FR₁₁, 15, 4, 5; 1998 FS₁₁, 10, 3, 4; 1998 FE₁₂ *, 7, 2, 1; 1998 FF₁₂ *, 7, 2, 1; 1998 FG₁₂, 8, 2, 3; 1998 FH₁₂, 10, 3, 4; 1998 FF₁₄, 10, 3, 5; 1998 FF₁₅ *, 12, 2, 2; 1998 FG₁₅, 6, 1, 0; 1998 FD₁₆ *, 9, 2, 3; 1998 FJ₁₆ *, 9, 2, 1; 1998 FT₇₂ *, 7, 2, 1; 1998 FU₇₂ *, 10, 2, 1; 1998 FV₇₂ *, 10, 2, 1; 1998 FH₇₄, 4, 1, 0; (127), 3, 1, 0; (2060), 3, 1, 0; (2576), 6, 2, 1; (3847), 3, 1, 0; (7409), 9, 3, 2; (8343), 3, 1, 0; [707, 95, 9*, 1982/03/23–1998/04/01]

057 Belgrade

V. Protitch-Benishek, Astronomical Observatory, Volgina 7, YG-11050 Belgrade, Yugoslavia [vprotic@aob.aob.bg.ac.yu]
 Observers V. Protitch-Benishek, Vl. Benishek, I. Graovac
 0.14-m $f/10$ Askania astrograph + CCD
 GSC
 1998 FX₂, 40, 5, 6; 1998 FM₅, 4, 1, 0; (190), 4, 1, 0; (547), 2, 1, 0; (567), 4, 1, 0; (569), 1, 1, 0; (1675), 6, 2, 26; [61, 7, 0*, 1998/02/18–1998/03/31]

095 Crimean Astrophysical Observatory

G. R. Kastel', Institute for Theoretical Astronomy, Naberezhnaya Kutuzova 10, St. Petersburg 191187, Russia [kastel@ita.spb.su]
 N. S. Chernykh, Crimean Astrophysical Observatory, Nauchnyj, UA-334413, Ukraine [nik@crao.crimea.ua]
 Observer L. V. Zhuravleva
 0.4-m $f/4$ double astrograph
 PPM

1974 ST₁, 2, 1, 0; 1978 XU, 2, 1, 0; 1979 SO, 5, 3, 22; 1982 QK₃, 1, 1, 0; 1986 QO₄, 2, 1, 0; 1991 GX₇, 2, 1, 0; 1992 GM₄, 1, 1, 0; 1993 TL, 4, 2, 19; 1993 TO, 2, 1, 0; 1993 TE₂, 2, 1, 0; 1993 TL₄₈ *, 3, 2, 3; 1997 WQ₂₂, 2, 1, 0; 1997 WT₂₃, 2, 1, 0; 9058 P-L, 1, 1, 0; (5), 2, 1, 0; (34), 4, 2, 2; (76), 2, 1, 0; (77), 3, 2, 3; (79), 2, 2, 16; (96), 4, 2, 2; (98), 2, 1, 0; (109), 5, 3, 29; (142), 6, 3, 4; (153), 2, 1, 0; (174), 2, 1, 0; (180), 5, 3, 22; (212), 5, 3, 22; (240), 2, 1, 0; (244), 3, 2, 16; (295), 2, 1, 0; (303), 2, 1, 0; (310), 4, 2, 2; (335), 2, 1, 0; (358), 2, 1, 0; (440), 2, 1, 0; (533), 4, 2, 4; (552), 4, 2, 3; (555), 6, 3, 29; (611), 6, 3, 28; (631), 4, 2, 3; (658), 1, 1, 0; (684), 3, 2, 16; (921), 4, 2, 19; (994), 1, 1, 0; (1050), 2, 1, 0; (1066), 2, 1, 0; (1082), 2, 1, 0; (1094), 2, 1, 0; (1154), 2, 1, 0; (1267), 4, 2, 3; (1308), 4, 2, 3; (1381), 8, 4, 29; (1481), 3, 2, 3; (1494), 2, 1, 0; (1552), 3, 2, 16; (1641), 6, 3, 4; (1675), 4, 2, 3; (1718), 4, 2, 19; (1735), 4, 2, 3; (1778), 2, 1, 0; (1827), 6, 3, 4; (1882), 4, 3, 22; (1910), 6, 3, 25; (1960), 4, 2, 3; (1965), 2, 1, 0; (1970), 2, 1, 0; (1977), 2, 1, 0; (1979), 2, 1, 0; (2163), 2, 1, 0; (2167), 2, 1, 0; (2191), 2, 1, 0; (2256), 3, 2, 16; (2324), 2, 1, 0; (2377), 3, 2, 16; (2474), 2, 1, 0; (2475), 5, 3, 22; (2526), 6, 3, 29; (2581), 2, 1, 0; (2665), 4, 2, 4; (2676), 2, 1, 0; (2705), 6, 3, 25; (2709), 1, 1, 0; (2713), 2, 1, 0; (2724), 4, 2, 19; (2736), 2, 1, 0; (2747), 2, 1, 0; (2774), 4, 2, 2; (2955), 2, 1, 0; (3028), 4, 2, 2; (3045), 4, 2, 29; (3085), 2, 1, 0; (3527), 4, 2, 19; (3566), 2, 1, 0; (3577), 5, 3, 22; (3653), 2, 1, 0; (3790), 6, 3, 25; (3907), 3, 2, 3; (3910), 3, 2, 16; (3911), 2, 1, 0; (3916), 4, 2, 19; (3955), 3, 2, 3; (4004), 2, 1, 0; (4109), 2, 1, 0; (4204), 1, 1, 0; (4211), 8, 4, 29; (4239), 2, 1, 0; (4286), 2, 1, 0; (4294), 1, 1, 0; (4449), 1, 1, 0; (4477), 4, 2, 19; (4493), 1, 1, 0; (4575), 2, 1, 0; (4698), 1, 1, 0; (4728), 2, 1, 0; (4762), 1, 1, 0; (4787), 2, 1, 0; (4796), 2, 1, 0; (4808), 2, 1, 0; (4860), 6, 3, 4; (5316), 2, 1, 0; (5350), 4, 2, 4; (5424), 4, 2, 19; (5661), 3, 2, 3; (5705), 2, 1, 0; (5706), 4, 2, 19; (5712), 4, 2, 25; (5716), 3, 2, 16; (5762), 4, 2, 19; (5775), 2, 1, 0; (5796), 2, 1, 0; (6260), 2, 1, 0; (6339), 6, 3, 25; (6341), 2, 1, 0; (6347), 2, 1, 0; (6348), 4, 2, 2; (6387), 2, 1, 0; (6388), 4, 2, 3; (6890), 8, 4, 29; (6982), 2, 1, 0; (7046), 2, 1, 0; (7135), 2, 1, 0; (7161), 2, 1, 0; (7194), 2, 1, 0; (8079), 4, 2, 2; (8110), 1, 1, 0; (8134), 2, 1, 0; (8218), 4, 2, 4; [438, 147, 1*, 1993/08/17–1993/10/14]

098 Asiago Observatory, Cima Ekar

U. Munari, Osservatorio Astronomico di Padova, Sede di Asiago, I-36012 Asiago (VI), Italy [munari@astras.pd.astro.it]

Observers U. Munari, A. Boattini, M. Tombelli
 Measurers M. Tombelli, G. Forti, A. Boattini
 0.67-m $f/3.2$ Schmidt

1991 GW, 4, 2, 1; 1993 YK, 4, 2, 1; 1997 YN₇, 4, 2, 1; 1998 AB₁, 4, 2, 1; 1998 BR₇, 8, 2, 3; 1998 BF₂₃, 4, 2, 3; 1998 BW₄₇, 2, 1, 0; 1998 CC₂, 4, 2, 3; 1998 DS₄, 4, 2, 3; 1998 DX₄, 4, 2, 3; 1998 DN₁₀, 4, 2, 3; 1998 DO₂₀, 4, 2, 3; 1998 DX₃₂, 2, 1, 0; 1998 DZ₃₂ *, 6, 3, 4; 1998 DB₃₃ *, 6, 3, 4; 1998 DC₃₃ *, 6, 3, 4; 1998 DE₃₃ *, 6, 3, 4; 1998 DF₃₃ *, 6, 3, 4; 1998 DG₃₃ *, 6, 3, 4; 1998 DH₃₃ *, 6, 3, 4; 1998 DJ₃₃ *, 4, 2, 1; 1998 DO₃₃ *, 4, 2, 3; 1998 DN₃₅ *, 4, 2, 3; 1998 DO₃₅ *, 4, 2, 3; 1998 DP₃₅ *, 4, 2, 3; 1998 DQ₃₅ *, 4, 2, 3; 1998 DR₃₅ *, 4, 2, 3; 1998 DS₃₅ *, 4, 2, 3; 1998 DT₃₅ *, 4, 2, 3; 1998 DU₃₅ *, 4, 2, 3; 1998 DV₃₅ *, 4, 2, 3; 1998 DW₃₅ *, 4, 2, 3; 1998 DX₃₅ *, 4, 2, 3; (455), 2, 1, 0; (1279), 4, 2, 3; (4758), 4, 2, 3; (5117), 4, 2, 1; (8257), 4, 2, 1; [164, 38, 20*, 1998/02/02–1998/03/03]

104 San Marcello Pistoiese

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

Observers L. Tesi, A. Boattini, E. Gregori, G. Forti

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

0.40-m $f/5$ reflector + CCD

GSC

1974 OE, 2, 1, 0; 1977 EO₁, 4, 1, 0; 1981 FR, 3, 1, 0; 1981 TZ, 3, 1, 0; 1990 YC, 3, 1, 0; 1995 SZ₄, 7, 2, 13; 1995 UP₆, 3, 1, 0; 1996 EN, 3, 1, 0; 1996 OP₂, 5, 2, 1; 1997 XC₉, 6, 2, 1; 1998 BZ₇, 3, 1, 0; 1998 BP₂₄, 7, 2, 13; 1998 CD₂, 9, 3, 43; 1998 DV₉, 3, 1, 0; 1998 DG₁₆, 3, 1, 0; 1998 DK₂₃, 9, 3, 2; 1998 DM₂₃, 7, 2, 3; 1998 EP₄, 3, 1, 0; 1998 FX₂, 3, 1, 0; 1998 FM₅, 5, 1, 0; 1998 FM₉, 3, 1, 0; 1998 FG₁₅, 4, 1, 0; 1998 FK₃₁, 8, 2, 1; 1998 FH₇₄, 4, 1, 0; (1862), 3, 1, 0; (4183), 4, 1, 0; (4527), 7, 2, 1; [124, 27, 0*, 1998/02/15–1998/04/01]

106 Crni vrh

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

Observers H. Mikuž, B. Dintinjana, J. Skvarc

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

USNO SA-1, GSC

1998 FF₂, 5, 2, 10; 1998 FX₂, 10, 3, 6; 1998 FM₅, 8, 2, 3; 1998 FM₉, 7, 2, 6; 1998 FG₁₅, 3, 1, 0; 1998 FH₇₄, 3, 1, 0; [36, 6, 0*, 1998/03/21–1998/03/31]

108 Montelupo

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

[iaua@arcetri.astro.it]

Observers M. Tombelli, A. Boattini, G. Forti

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

GSC

1994 BM, 3, 1, 0; 1996 XN₂₆, 3, 1, 0; 1998 EC₃, 3, 1, 0; 1998 FF₂, 2, 1, 0; 1998 FX₂, 4, 1, 0; 1998 FM₅, 3, 1, 0; [18, 6, 0*, 1998/03/17–1998/03/26]

112 Osservatorio Pleiade

P. Antolini, Via Bertoldi 84, I-37026 Settimo di Pescantina (Verona), Italy

[castvr@chiostro.univr.it]

Observers P. Antolini, F. Castellani

0.60-m $f/3.0$ reflector + CCD

GSC

1998 FX₂, 6, 1, 0; 1998 FM₅, 4, 1, 0; [10, 2, 0*, 1998/03/24–1998/03/26]

113 Volkssternwarte Drebach, Schönbrunn

G. Lehmann, Volkssternwarte Drebach, D-09430 Drebach, Germany

[lehmann@stw-drebach.zp.sn.schule.de]

Observers J. Kandler, G. Lehmann

0.50-m $f/4$ reflector + CCD

GSC

1991 GM₁₀, 7, 2, 1; 1998 FF₁₁ *, 7, 2, 1; [14, 2, 1*, 1998/03/24–1998/03/25]

118 Modra

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

[ago_modra@center.fmph.uniba.sk]

Observers P. Kolény, L. Kornoš, A. Galád, A. Pravda

0.6-m $f/5.5$ reflector + CCD

GSC

1991 VH, 4, 2, 13; 1996 AD₂, 6, 3, 3; 1996 EN, 4, 2, 13; 1996 PK, 4, 2, 9; 1996 YG₁, 4, 2, 14; 1996 YH₁, 11, 4, 24; 1997 WT₂₂, 4, 2, 12; 1998 AV₈, 2, 1, 0; 1998 BE₇, 2, 1, 0; 1998 BZ₇, 3, 1, 0; 1998 BT₂₆, 2, 1, 0; 1998 CB, 2, 1, 0; 1998 CQ, 2, 1, 0; 1998 CH₂, 2, 1, 0; 1998 DG, 3, 1, 0; 1998 DH, 2, 1, 0; 1998 DL, 4, 2, 2; 1998 DS, 3, 1, 0; 1998 DC₁, 2, 1, 0; 1998 DO₁, 4, 2, 6; 1998 DC₂, 6, 2, 8; 1998 DD₂, 2, 1, 0; 1998 DV₉, 2, 1, 0; 1998 DG₁₆, 3, 1, 0; 1998 DU₂₃, 11, 4, 21; 1998 EP₄, 5, 2, 2; 1998 ER₉ *, 19, 7, 9; 1998 FP₅ *, 12, 4, 3; 1998 FQ₅ *, 12, 4, 3; 1998 FE₁₅ *, 6, 2, 1; (1362), 4, 2, 13; (1620), 2, 1, 0; (1862), 2, 1, 0; (1917), 2, 1, 0; (1980), 2, 1, 0; (2204), 2, 1, 0; (2576), 2, 1, 0; (3757), 3, 1, 0; (3758), 2, 1, 0; (4183), 2, 1, 0; (5066), 2, 1, 0; (5751), 4, 2, 13; (6500), 4, 2, 12; (6639), 3, 1, 0; (7304), 4, 2, 12; (7888), 2, 1, 0; (7889), 2, 1, 0; (8373), 4, 2, 12; [196, 48, 4*, 1998/02/28–1998/03/25]

121 Kharkov University, Chuguevskaya Station

V. G. Shevchenko, Astronomical Observatory of the Kharkov State University,

Sumskaya Str. 35, UA-310022 Kharkov, Ukraine

[shevchenko@astron.kharkov.ua]

Yu. N. Krugly, Astronomical Observatory of the Kharkov State University,

Sumskaya Str. 35, UA-310022 Kharkov, Ukraine

[krugly@astron.kharkov.ua]

Observers V. G. Shevchenko, Yu. N. Krugly

0.70-m $f/4$ reflector + CCD

GSC

(39), 4, 1, 0; (214), 3, 1, 0; (1866), 3, 1, 0; (1951), 3, 1, 0; (1980), 8, 1, 0; (6037), 4, 1, 0; [25, 6, 0*, 1997/12/21–1998/03/28]

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

1998 DY₉, 6, 2, 1; 1998 FD *, 8, 3, 2; (1754), 3, 1, 0; (3074), 3, 1, 0; (4616), 3, 1, 0; (4964), 3, 1, 0; (5548), 3, 1, 0; (8391), 3, 1, 0; [32, 8, 1*, 1998/02/27–1998/03/20]

134 Groszschwabhausen

H.-G. Reimann, Astrophysikalisches Institut und Universitätssternwarte Jena,

Schillergäßchen 2, D-07745 Jena, Germany [rei@astro.uni-jena.de]

Observers H.-G. Reimann, O. Fischer

Measurer H.-G. Reimann

0.90-m $f/2$ Schmidt + CCD

GSC

1990 TK₈, 3, 1, 0; [3, 1, 0*, 1998/03/24]

143 Gnosca

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

0.20-m $f/6.3$ reflector + CCD

GSC

1988 VP, 4, 2, 6; 1998 BZ₈, 3, 1, 0; 1998 DQ₁₃, 6, 2, 1; (1521), 6, 2, 1; (1951), 6, 1, 0; (6037), 23, 4, 13; [48, 6, 0*, 1998/03/05–1998/03/31]

292 Burlington

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

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

GSC

1998 DS₃, 2, 1, 0; 1998 DT₃, 3, 1, 0; *[5, 2, 0*, 1998/03/06–1998/03/16]*

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. Y. Li, Y. J. Chen, X. M. Teng, Z. J. Jiang, J. Zhu, H. T. Zhang,
Z. Y. Zheng, X. Zhou, B. Zhao, R. Chen

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

0.60-m Schmidt + CCD

1980 RV₂, 3, 1, 0; 1981 EF₁₄, 4, 1, 0; 1981 EN₄₂, 3, 1, 0; 1982 SM₂, 3, 1, 0; 1983 BD, 6, 2, 1; 1986 QU, 3, 1, 0; 1987 RU₅, 3, 1, 0; 1988 VB₁, 3, 1, 0; 1989 RJ, 3, 1, 0; 1989 SQ, 4, 1, 0; 1989 TU₁₀, 6, 2, 4; 1990 QO₄, 3, 1, 0; 1990 RE₇, 3, 1, 0; 1990 US₃, 6, 2, 12; 1991 PJ₁₂, 3, 1, 0; 1991 RB₉, 3, 1, 0; 1991 VD₆, 3, 1, 0; 1992 WX₂, 3, 1, 0; 1993 FR₂₆, 3, 1, 0; 1993 GG₁, 12, 3, 9; 1993 KT₁, 4, 1, 0; 1993 XN, 3, 1, 0; 1994 ED, 6, 2, 35; 1994 GQ, 3, 1, 0; 1995 AW₂, 3, 1, 0; 1996 SK₈, 7, 2, 2; 1997 BB₁, 4, 1, 0; 1997 TR₂₇, 3, 1, 0; 1997 TS₂₇, 3, 1, 0; 1997 TT₂₇, 3, 1, 0; 1997 VK₅, 3, 1, 0; 1997 WL₇, 3, 1, 0; 1997 WJ₁₃, 3, 1, 0; 1997 WR₃₁, 4, 1, 0; 1997 WB₃₇, 3, 1, 0; 1997 WQ₃₇, 3, 1, 0; 1997 YB₄, 3, 1, 0; 1997 YH₄, 2, 1, 0; 1997 YH₅, 6, 2, 1; 1997 YJ₅, 6, 2, 1; 1997 YB₈, 6, 2, 13; 1998 AX, 3, 1, 0; 1998 AB₂, 3, 1, 0; 1998 BT₁, 5, 1, 0; 1998 BK₄, 3, 1, 0; 1998 BH₈, 4, 1, 0; 1998 BR₈, 3, 1, 0; 1998 BW₈, 3, 1, 0; 1998 BM₄₇, 3, 1, 0; 1998 BU₄₇, 3, 1, 0; 1998 BX₄₇, 3, 1, 0; 1998 BY₄₇, 3, 1, 0; 1998 BZ₄₇, 3, 1, 0; 1998 BH₄₈, 3, 1, 0; 1998 CA₁, 3, 1, 0; 1998 CO₁, 3, 1, 0; 1998 CA₂, 3, 1, 0; 1998 CH₂, 3, 1, 0; 1998 CM₂, 3, 1, 0; 1998 CC₄, 3, 1, 0; 1998 CG₅, 3, 1, 0; 1998 DA, 3, 1, 0; 1998 DD, 3, 1, 0; 1998 DP₁, 3, 1, 0; 1998 DW₂, 8, 2, 487; 1998 DY₇, 3, 1, 0; 1998 DK₈, 4, 1, 0; 1998 DR₈, 3, 1, 0; 1998 DS₉, 12, 3, 13; 1998 DY₁₀, 3, 1, 0; 1998 DK₂₀, 3, 1, 0; 1998 DQ₂₀, 9, 3, 28; 1998 EZ₂, 6, 2, 6; 1998 EA₃, 3, 1, 0; 1998 EB₃, 2, 1, 0; 1998 EC₃, 3, 1, 0; 1998 EW₇, 3, 1, 0; 1998 EX₇, 4, 1, 0; 1998 EZ₇, 4, 1, 0; 1998 EB₈, 6, 2, 15; 1998 EF₈, 6, 2, 2; 1998 EH₈, 10, 3, 4; 1998 EJ₈, 9, 2, 2; 1998 EQ₈, 6, 2, 4; 1998 ES₈, 3, 1, 0; 1998 EV₈, 6, 2, 8; 1998 EB₉ *, 6, 2, 6; 1998 EC₉ *, 15, 5, 17; 1998 EE₉ *, 9, 3, 9; 1998 EF₉ *, 11, 3, 14; 1998 EG₉ *, 7, 2, 6; 1998 EH₉ *, 10, 3, 11; 1998 EJ₉ *, 11, 4, 8; 1998 EK₉ *, 14, 5, 8; 1998 EL₉ *, 6, 2, 2; 1998 EM₉, 10, 3, 10; 1998 ES₉ *, 12, 4, 24; 1998 ET₉ *, 6, 2, 15; 1998 EU₉ *, 6, 2, 15; 1998 EV₉ *, 13, 4, 21; 1998 EW₉ *, 6, 2, 14; 1998 EX₉ *, 12, 4, 16; 1998 EZ₉ *, 6, 2, 8; 1998 EA₁₀ *, 10, 3, 10; 1998 EB₁₀ *, 6, 2, 7; 1998 EC₁₀ *, 9, 3, 7; 1998 ED₁₀ *, 6, 2, 6; 1998 EE₁₀ *, 6, 2, 6; 1998 EJ₁₀, 7, 2, 2; 1998 EW₁₂, 10, 3, 4; 1998 FM₁₂ *, 6, 2, 7; 1998 FN₁₂ *, 9, 3, 4; 1998 FO₁₂ *, 6, 2, 2; 1998 FP₁₂ *, 6, 2, 2; 1998 FQ₁₂ *, 6, 2, 2; 1998 FR₁₂ *, 6, 2, 2; 1998 FS₁₂ *, 12, 3, 6; 1998 FT₁₂ *, 7, 2, 2; 1998 FU₁₂ *, 7, 2, 2; 1998 FC₄₆, 3, 1, 0; 1081 T-1, 3, 1, 0; 2029 T-3, 3, 1, 0; (121), 3, 1, 0; (156), 7, 2, 2; (419), 3, 1, 0; (496), 3, 1, 0; (498), 7, 2, 2; (545), 10, 3, 2; (602), 3, 1, 0; (937), 4, 1, 0; (1278), 3, 1, 0; (1436), 7, 2, 2; (1556), 12, 3, 3; (1683), 4, 1, 0; (1961), 6, 2, 2; (2238), 4, 1, 0; (2307), 7, 2, 5; (2375), 6, 2, 2; (2701), 3, 1, 0; (2999), 3, 1, 0; (3147), 4, 1, 0; (3168), 3, 1, 0; (3218), 3, 1, 0; (3462), 3, 1, 0; (3823), 7, 2, 2; (3826), 3, 1, 0; (3866), 3, 1, 0; (4041), 3, 1, 0; (4576), 7, 2, 5; (4689), 3, 1, 0; (4712), 6, 2, 4; (4837), 5, 2, 15; (4896), 7, 2, 1; (5070), 4, 1, 0; (5318), 3, 1, 0; (5777), 3, 1, 0; (5781), 3, 1, 0; (6086), 3, 1, 0; (6329), 4, 1, 0; (6408), 3, 1, 0; (6492), 3, 1, 0; (6551), 3, 1, 0; (6580), 6, 2, 2; (6760), 4, 1, 0; (7288), 4, 1, 0; (7387), 3, 1, 0; (7692), 16, 4, 6; (8050), 3, 1, 0; (8139), 7, 2, 2; (8195), 4, 1, 0; (8202), 9, 2, 5; (8260), 3, 1, 0; (8376), 6, 2, 8; (8432), 4, 1, 0; *[887, 174, 31*, 1995/12/16–1998/03/26]*

355 Hadano

A. Asami, 28-1 Nishitawara, Hadano, Kanagawa-Ken, 257 Japan
[asami@st.rim.or.jp]

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

GSC

1998 EC₃, 5, 2, 6; 1998 EU₃, 2, 1, 0; 1998 FX₂, 16, 4, 11; 1998 FM₅, 6, 2, 9; *[29, 4, 0*, 1998/03/17–1998/04/04]*

358 Nanyou

T. Okuni, 158-28, Mitsuma-dori, Nanyou, Yamagata-Ken, 999-22 Japan

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

GSC

1994 CE₂, 5, 2, 2; 1998 FF₆₀, 8, 3, 9; 1998 FD₆₁, 7, 3, 6; 1998 FS₇₃ *, 4, 2, 7; *[24, 4, 1*, 1998/03/22–1998/04/02]*

360 Kuma Kogen Astronomical Observatory

A. Nakamura, Shimo-Hatanokawa, Kuma, Kamiukena-Gun, Ehime-Ken, 791-12
Japan [a-nakamu@mx2.nisiq.net]

0.60-m $f/6.0$ Ritchey-Chrétien + CCD

GSC, USNO-SA1.0

1990 BZ, 3, 1, 0; 1991 GR₂, 3, 1, 0; 1994 JF₁, 3, 1, 0; 1995 WE₁, 4, 2, 11; 1995 WC₇, 3, 1, 0; 1996 EN, 3, 1, 0; 1996 SS₄, 3, 1, 0; 1996 VH₈, 3, 1, 0; 1996 YB₁, 6, 2, 1; 1997 AU, 3, 1, 0; 1997 US₉, 3, 1, 0; 1997 WU₂₂, 3, 1, 0; 1997 XP₂, 2, 1, 0; 1998 BZ₇, 3, 1, 0; 1998 BG₉, 3, 1, 0; 1998 CS, 3, 2, 4; 1998 CA₁, 2, 1, 0; 1998 DV₉, 4, 1, 0; 1998 DB₁₃, 3, 1, 0; 1998 DG₁₆, 3, 1, 0; 1998 EC₃, 6, 2, 16; 1998 EP₄, 6, 2, 4; 1998 FF₂, 6, 2, 8; 1998 FG₂, 6, 2, 11; 1998 FX₂, 3, 1, 0; 1998 FL₅, 6, 2, 9; 1998 FM₅, 6, 2, 5; 1998 FO₅, 3, 1, 0; 1998 FM₉, 3, 1, 0; 1998 FN₉, 6, 2, 1; 1998 FR₁₁, 3, 1, 0; 1998 FG₁₂, 6, 2, 3; 1998 FH₁₂, 6, 2, 4; 1998 GL *, 6, 2, 1; 4272 T-2, 3, 1, 0; (1238), 3, 1, 0; (2765), 3, 1, 0; (4651), 2, 1, 0; (5861), 6, 2, 1; (6037), 2, 1, 0; (6414), 2, 1, 0; *[156, 41, 1*, 1998/03/02–1998/04/03]*

365 Kashiwara

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

[nag01736@niftyserve.or.jp]

0.20-m $f/4.0$ reflector + CCD

GSC

1996 VM₅, 4, 2, 4; *[4, 1, 0*, 1998/03/30–1998/04/03]*

367 Yatsuka

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

0.26-m $f/6.0$ reflector + CCD

GSC

1986 AT₂, 2, 1, 0; 1988 LH, 2, 1, 0; 1993 FQ₁₀, 1, 1, 0; 1993 KB₂, 2, 1, 0; 1993 VX₃, 2, 1, 0; 1993 YE₂, 2, 1, 0; 1996 TG₅, 2, 1, 0; 1996 XV₁₉, 2, 1, 0; 1998 EX₆, 2, 1, 0; 1998 FX₂, 2, 1, 0; 1998 FA₅₃, 2, 1, 0; *[21, 11, 0*, 1998/03/15–1998/03/25]*

376 Uenohara

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

0.30-m reflector + CCD

GSC

1988 VK₂, 6, 3, 16; 1991 GW, 9, 5, 53; *[15, 2, 0*, 1998/01/24–1998/03/18]*

385 Nihondaira Observatory

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

[urata@sannet.ne.jp]

0.31-m $f/4.7$ reflector + CCD

GSC, USNO-A1.0

1994 OC, 2, 1, 0; 1995 UW₆, 2, 1, 0; 1996 VW, 2, 1, 0; 1996 VU₇, 2, 1, 0; 1997 AT₁, 2, 1, 0; 1998 AK, 2, 2, 3; 1998 BJ, 2, 1, 0; 1998 BY₂, 2, 1, 0; 1998 BE₄, 2, 1, 0; 1998 BG₄, 2, 1, 0; 1998 DZ₂₃, 2, 1, 0; 1998 DA₂₄, 2, 1, 0; 1998 DB₂₄, 2, 1, 0; 1998 ED₆, 2, 1, 0; 1998 EE₆, 2, 1, 0; 1998 EF₆, 2, 1, 0; 1998 EK₈, 2, 1, 0; 1998 EL₈, 4, 2, 19; 1998 EO₈, 2, 1, 0; 1998 FN₁₁, 3, 1, 0; 1998 GZ *, 2, 1, 0; 1998 GA₁ *, 2, 1, 0; 1998 GB₁ *, 2, 1, 0; (172), 2, 1, 0; *[51, 24, 3*, 1998/03/15–1998/04/03]*

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

GSC corrected to PPM system

(173), 8, 1, 0; (213), 9, 1, 0; (241), 10, 1, 0; (4746), 1, 1, 0; (7413), 72, 3, 4; *[100, 5, 0*, 1998/02/09–1998/03/18]*

399 Kushiro

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

Observer S. Ueda

Measurer H. Kaneda

0.25-m $f/3.4$ hyperboloid astrocamera

GSC

1979 MB₆, 2, 1, 0; 1990 YK, 4, 2, 1; 1992 WX₂, 2, 1, 0; 1995 HK, 2, 1, 0; 1998 AJ₆, 4, 2, 1; 1998 DT₃₁, 4, 2, 13; 1998 DV₃₁, 2, 1, 0; 1998 FC₁₅ *, 4, 2, 3; 1998 FD₁₅ *, 4, 2, 3; 1998 FO₁₅ *, 4, 2, 3; 1998 FJ₄₉, 4, 2, 3; (8416), 2, 1, 0; [38, 12, 3*, 1996/11/03–1998/03/24]

402 Dynic Astronomical Observatory

A. Sugie, Dynic Astronomical Observatory, Taga 283-1, Taga, Inukami-Gun, Shiga-Ken 522-03, Japan [hhf00201@niftyserve.or.jp]

Observers A. Sugie, Y. Ikari

0.60-m $f/5.0$ reflector + CCD

GSC

1995 TG, 9, 3, 14; 1996 VB₅, 6, 2, 13; 1997 CU₂₆, 3, 1, 0; 1997 YL₁₁, 3, 1, 0; 1998 EF, 3, 1, 0; 1998 EC₃, 12, 4, 14; 1998 EU₃, 6, 2, 1; 1998 EP₄, 4, 1, 0; 1998 EX₆, 3, 1, 0; 1998 FF₂, 3, 1, 0; 1998 FG₂, 3, 1, 0; 1998 FX₂, 9, 3, 7; 1998 FL₅, 12, 4, 8; 1998 FM₅, 3, 1, 0; 1998 FM₉, 9, 3, 6; 1998 FN₉, 9, 3, 5; 1998 FS₁₁, 9, 3, 6; 1998 FG₁₂, 3, 1, 0; 1998 FH₇₄, 5, 2, 2; 1998 FJ₇₄, 7, 2, 2; (7888), 3, 1, 0; [124, 21, 0*, 1998/03/17–1998/04/04]

403 Kani

Y. Mizuno, 1445-192, Yato, Kani, Gifu-Ken, 509-0252 Japan [mizuno@oaa.gr.jp]

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

GSC

1998 CH₅, 3, 1, 0; [3, 1, 0*, 1998/02/05]

411 Oizumi

T. Kobayashi, 8-6, Nishi Koizumi 1 Chome, Oizumi, Ora-Gun, Gunma-Ken, 370-05 Japan [kobataka@oaa.iiijnet.or.jp]

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

GSC

1993 YE, 2, 1, 0; 1995 CG, 5, 2, 7; 1996 WD, 5, 2, 2; 1996 XW₅, 3, 1, 0; 1997 AY₂, 2, 1, 0; 1998 EC, 2, 1, 0; 1998 ED, 2, 1, 0; 1998 EE, 4, 2, 12; 1998 EF, 4, 2, 12; 1998 EZ₂, 2, 1, 0; 1998 EC₃, 14, 6, 13; 1998 ES₃, 4, 2, 12; 1998 ET₃, 4, 2, 12; 1998 EU₃, 7, 3, 13; 1998 EX₆, 2, 1, 0; 1998 EA₉, 4, 2, 2; 1998 EC₉, 4, 2, 1; 1998 EM₉ *, 6, 3, 7; 1998 FC *, 7, 3, 6; 1998 FK₃ *, 6, 3, 6; 1998 FH₁₁ *, 7, 4, 6; 1998 FJ₁₁ *, 6, 3, 6; 1998 FK₁₁ *, 8, 4, 9; 1998 FL₁₁ *, 6, 3, 6; 1998 FM₁₁ *, 7, 3, 6; 5090 T-3, 4, 2, 3; [127, 26, 8*, 1998/03/15–1998/03/31]

422 Loomberah

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

0.25-m $f/4.1$ reflector + CCD

ACT, GSC, USNO-A1.0

1993 UU, 2, 1, 0; 1998 BP₂₆, 14, 5, 26; 1998 DG₁₆, 3, 1, 0; 1998 EC₃, 5, 3, 21; 1998 EP₄, 9, 3, 7; 1998 FF₂, 5, 2, 6; 1998 FG₂, 9, 3, 7; 1998 FX₂, 26, 7, 12; 1998 FL₅, 2, 1, 0; 1998 FM₅, 16, 6, 11; 1998 FM₉, 6, 2, 3; 1998 FN₉, 4, 2, 3; 1998 FS₁₁, 3, 1, 0; 1998 FG₁₅, 3, 1, 0; 1998 FJ₇₄, 5, 3, 3; (39), 7, 2, 3; (49), 3, 1, 0; (71), 3, 1, 0; (94), 6, 2, 2; (275), 9, 3, 8; (432), 3, 1, 0; (433), 37, 10, 26; (538), 3, 1, 0; (578), 6, 2, 1; (699), 3, 1, 0; (1036), 3, 1, 0; (1862), 3, 1, 0; (1980), 5, 2, 11; (2938), 3, 1, 0; (3581), 2, 1, 0; (3685), 3, 1, 0; (5870), 2, 1, 0; (7413), 7, 3, 4; [220, 33, 0*, 1998/03/08–1998/04/05]

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

1970 JB, 6, 2, 2; 1991 CU₁, 5, 2, 1; 1991 GO₁, 6, 2, 1; 1992 SV₁₂, 4, 2, 1; 1993 FJ₁₀, 4, 2, 8; 1993 JL₁, 4, 1, 0; [29, 6, 0*, 1998/03/08–1998/04/04]

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-SA1.0, GSC

1969 QR, 6, 2, 2; 1971 UG, 6, 2, 1; 1978 RQ₉, 11, 3, 3; 1981 DJ, 6, 2, 1; 1981 DX, 3, 1, 0; 1986 QY, 6, 2, 1; 1987 DQ₆, 6, 2, 1; 1991 CB₁, 7, 2, 8; 1991 OM₁, 6, 2, 1; 1991 PK₁₁, 8, 3, 6; 1991 PY₁₂, 6, 2, 1; 1992 WH₁, 6, 2, 1; 1993 KB₂, 6, 2, 1; 1994 TH₂, 6, 2, 1; 1995 HG, 5, 2, 1; 1995 UJ₁, 9, 3, 3; 1995 UJ₆, 5, 2, 4; 1996 TN₁₀, 6, 2, 2; 1996 VP₅, 6, 2, 2; 1997 AT₁, 12, 4, 7; 1997 AE₂, 6, 2, 3; 1997 AT₁₈, 11, 4, 12; 1997 AF₂₂, 6, 2, 1; 1997 AN₂₂, 6, 2, 3; 1997 YV₆, 6, 2, 1; 1998 BO₁, 7, 2, 2; 1998 BE₅, 2, 1, 0; 1998 BP₂₆, 9, 3, 16; 1998 BJ₃₃, 6, 2, 2; 1998 DW₉, 9, 3, 18; 1998 DG₁₆, 6, 2, 7; 1998 DN₃₃, 3, 1, 0; 1998 EC₃, 4, 1, 0; 1998 EP₄, 11, 3, 16; 1998 FG *, 15, 5, 19; 1998 FH *, 11, 4, 9; 1998 FJ *, 12, 4, 15; 1998 FJ₁ *, 13, 5, 16; 1998 FK₁ *, 15, 5, 16; 1998 FF₂, 6, 2, 5; 1998 FG₂, 3, 1, 0; 1998 FX₂, 9, 3, 12; 1998 FL₅, 6, 2, 1; 1998 FM₅, 6, 2, 2; 1998 FN₅ *, 12, 4, 12; 1998 FO₅ *, 12, 4, 11; 1998 FM₉, 3, 1, 0; 1998 FN₉, 4, 1, 0; 1998 FG₁₂, 3, 1, 0; 1998 FZ₁₄ *, 11, 4, 12; 1998 FL₁₅ *, 11, 4, 8; 1998 FM₁₅ *, 12, 4, 8; 1998 FN₁₅ *, 11, 4, 8; 1998 FR₅₇, 6, 2, 2; 1998 FS₇₂ *, 8, 3, 5; 1998 FG₇₄ *, 9, 3, 5; 1998 FH₇₄, 6, 2, 2; 1998 FJ₇₄, 7, 2, 2; 1998 GY *, 6, 2, 2; 1998 GC₁, 3, 1, 0; 1998 GF₁ *, 6, 2, 1; 1998 GG₁ *, 5, 2, 1; 1998 GH₁ *, 6, 2, 1; 1998 GJ₁ *, 6, 2, 1; 1998 GK₁ *, 6, 2, 1; 1998 GL₁ *, 7, 2, 1; 2197 P-L, 6, 2, 2; 2080 T-2, 6, 2, 1; 5056 T-2, 6, 2, 1; 5125 T-2, 5, 2, 2; (538), 6, 2, 1; (1167), 6, 2, 1; (1229), 14, 4, 8; (1793), 3, 1, 0; (1862), 3, 1, 0; (2113), 3, 1, 0; (2444), 6, 2, 6; (2501), 6, 2, 2; (3581), 6, 2, 2; (5045), 6, 2, 1; (6037), 6, 2, 11; (8340), 6, 2, 2; [574, 82, 20*, 1998/02/25–1998/04/06]

428 Reedy Creek

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

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

GSC

1991 PU, 5, 3, 30; 1998 AK₅, 8, 5, 7; 1998 AL₁₀, 2, 2, 30; 1998 AM₁₀, 5, 3, 29; 1998 AN₁₀, 4, 3, 29; 1998 BS₁₃, 7, 5, 31; 1998 BU₄₁, 6, 5, 30; 1998 DL₄, 8, 5, 29; 1998 DS₄, 1, 1, 0; 1998 DU₄, 6, 5, 33; 1998 DL₃₅ *, 7, 4, 7; 1998 DM₃₅ *, 6, 4, 7; 1998 EU₁₄ *, 2, 2, 1; 1998 EV₁₄ *, 2, 2, 1; [69, 14, 4*, 1998/02/01–1998/03/06]

429 Hawker

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

[jbcchild@dynamite.com.au]

Observer J. Child

Measurers J. Child, J. Rogers

0.32-m $f/4.8$ reflector + CCD

GSC

1996 TP₁, 3, 1, 0; [3, 1, 0*, 1998/03/21]

468 Astronomical Observatory, Campo Catino

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

Observers F. Mallia, F. Rossi, L. Fortuna, G. Falzone

Measurers M. Di Sora, F. Mallia, L. Fortuna, A. Manchi

0.80-m $f/4.0$ reflector + CCD

GSC

1998 FJ₁₂ *, 10, 2, 6; [10, 1, 1*, 1998/03/20–1998/03/26]

470 Ceccano

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

[gianmasi@fr.flashnet.it]

0.15-m $f/5$ reflector + CCD

GSC, USNO-A1.0

1981 EK₄₁, 5, 2, 8; 1981 FC₁, 4, 2, 8; 1987 DO₆, 2, 1, 0; 1988 EA₂, 3, 1, 0; 1989 FL, 6, 2, 8; 1990 QQ₃, 2, 1, 0; 1991 VN₄, 3, 1, 0; 1991 XS, 2, 1, 0; 1994 EJ₁, 3, 1, 0; 1995 SD₅, 5, 2, 8; 1998 BS₁, 2, 1, 0; 1998 DA, 2, 1, 0; 1998 DR₂, 2, 1, 0; (3800), 3, 1, 0; (8400), 2, 1, 0; [46, 15, 0*, 1998/03/18–1998/03/26]

482 St. Andrews

F. Vincent, Physics & Astronomy, University of St. Andrews, Fife KY16 9SS

Scotland [fv@st-andrews.ac.uk]

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

1998 FX₂, 9, 1, 0; (1116), 21, 7, 121; [30, 2, 0*, 1997/10/03–1998/03/26]

491 Yebes

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

Observers J. F. Lahulla, A. Martín, J. García

0.40-m $f/5$ astrograph + CCD

GSC

(3), 25, 1, 0; [25, 1, 0*, 1998/03/23–1998/03/24]

494 Stakenbridge

B. G. W. Manning, Moonrakers, Stakenbridge, Churchill, Kidderminster, Worcs.

DY10 3LS, England [bgwm@star.sr.bham.ac.uk]

0.26-m $f/7.3$ reflector + CCD

PPM

1994 AM₁, 2, 1, 0; 1996 VP₆, 2, 1, 0; [4, 2, 0*, 1998/03/22]

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

1997 XQ₂, 2, 1, 0; 1998 FX₂, 12, 1, 0; 1998 FM₅, 8, 1, 0; (1862), 2, 1, 0; (3800), 4, 2, 2; [28, 5, 0*, 1998/03/18–1998/03/30]

540 Linz

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

Observers E. Meyer, E. Obermair, H. Raab

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

GSC

1981 ER₆, 5, 2, 2; 1985 GA₁, 5, 2, 2; 1990 TU, 4, 2, 2; 1998 BS₁₃, 6, 2, 3; 1998 DT, 7, 3, 3; 1998 DM₁, 5, 2, 2; 1998 FX₂, 6, 2, 2; 1998 FM₅, 2, 1, 0; (2576), 2, 1, 0; [42, 9, 0*, 1998/03/09–1998/03/31]

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

1983 TC, 2, 1, 0; 1989 WR, 4, 2, 1; 1995 OE, 2, 1, 0; 1996 RQ₂, 2, 1, 0; 1997 XC₉, 6, 3, 2; 1998 CB₄, 4, 2, 8; 1998 DA₃, 2, 1, 0; 1998 DB₃, 2, 1, 0; 1998 DC₃, 2, 1, 0; 1998 DV₁₃, 6, 3, 2; 1998 DL₁₄, 4, 2, 7; 1998 DY₂₃, 3, 1, 0; 1998 FG₁₆ *, 6, 3, 8; 1998 FH₁₆ *, 10, 4, 9; 1998 FE₇₄ *, 6, 3, 2; 1998 FF₇₄ *, 4, 2, 1; (2296), 2, 1, 0; (3508), 2, 1, 0; (8421), 3, 1, 0; [72, 19, 4*, 1998/03/16–1998/03/31]

557 Ondřejov

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

Czech Republic [ppravec@asu.cas.cz]

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

0.65-m $f/3.6$ reflector + CCD

USNO-SA1.0, GSC

1969 TR₁, 2, 1, 0; 1981 EF₂₈, 4, 2, 2; 1981 EO₄₀, 2, 1, 0; 1985 PC₂, 2, 1, 0; 1987 RD₁, 4, 2, 2; 1987 RT₅, 3, 1, 0; 1987 UF₅, 4, 2, 1; 1989 SJ₅, 4, 2, 1; 1990 BY₁, 3, 1, 0; 1990 OT₄, 3, 1, 0; 1990 QV₁, 4, 2, 4; 1990 QY₈, 13, 5, 10; 1992 ES₅, 5, 2, 1; 1992 RJ₃, 4, 2, 7; 1993 FH₂₂, 4, 2, 7; 1995 OJ, 2, 1, 0; 1995 OK, 5, 2, 3; 1995 OD₁, 2, 1, 0; 1995 OE₁, 3, 1, 0; 1996 UG₃, 4, 2, 6; 1996 VB₆, 4, 1, 0; 1997 CB, 2, 1, 0; 1997 UF₉, 2, 1, 0; 1997 WT₂₂, 3, 1, 0; 1998 AQ₈, 2, 1, 0; 1998 BK₁₉, 2, 1, 0; 1998 DP₁, 1, 1, 0; 1998 DV₉, 2, 1, 0; 1998 DF₂₀, 2, 1, 0; 1998 DG₂₀, 5, 2, 7; 1998 EC₃, 4, 2, 9; 1998 EP₄, 4, 1, 0; 1998 FC₂ *, 7, 2, 1; 1998 FD₂ *, 11, 3, 2; 1998 FE₂ *, 12,

4, 5; 1998 FF₂, 14, 3, 5; 1998 FG₂, 8, 2, 9; 1998 FX₂, 14, 3, 6; 1998 FZ₂ *, 6, 2, 1; 1998 FA₃ *, 8, 4, 7; 1998 FB₃ *, 11, 4, 7; 1998 FC₃ *, 8, 4, 7; 1998 FD₃ *, 9, 4, 7; 1998 FE₃ *, 11, 5, 8; 1998 FF₃ *, 9, 3, 2; 1998 FW₄, 4, 2, 8; 1998 FL₅, 4, 1, 0; 1998 FM₅, 14, 4, 6; 1998 FM₉, 4, 2, 6; 1998 FN₉, 5, 2, 7; 1998 FR₁₁, 6, 3, 6; 1998 FS₁₁, 4, 2, 1; 1998 FY₁₁, 4, 2, 2; 1998 FE₁₂, 3, 1, 0; 1998 FG₁₂, 7, 3, 7; 1998 FH₁₂, 6, 3, 5; 1998 FF₁₅, 5, 2, 3; 1998 FE₁₆ *, 5, 2, 3; 1998 FF₆₇, 7, 3, 2; 1998 FD₇₃ *, 7, 3, 7; 1998 FE₇₃ *, 6, 3, 2; 1998 FO₇₃ *, 10, 2, 1; 1998 FP₇₃ *, 8, 3, 5; 1998 FQ₇₃ *, 7, 2, 1; 1998 FH₇₄, 6, 2, 1; 1998 FJ₇₄, 7, 2, 4; 1998 GC₁, 5, 1, 0; 3078 P-L, 7, 2, 1; 5069 T-2, 4, 2, 7; (538), 3, 1, 0; (1862), 3, 1, 0; (1866), 3, 1, 0; (3520), 2, 1, 0; (6037), 8, 3, 3; [402, 74, 16*, 1998/03/19–1998/04/06]

560 Madonna di Dossobuono

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

[astrofil@astbo1.bo.cnr.it]

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

0.40-m $f/3.5$ reflector + CCD

GSC

1978 WB, 5, 2, 2; 1981 EM₁₈, 5, 2, 2; 1995 SZ, 6, 2, 1; 1998 BA₂, 8, 3, 15; 1998 BB₂, 12, 4, 18; 1998 BC₂, 8, 3, 18; 1998 BD₄₂, 7, 2, 18; (844), 3, 1, 0; (2675), 2, 1, 0; (6431), 3, 1, 0; [59, 10, 0*, 1995/09/25–1998/03/05]

561 Piskésető

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

Observers K. Sárneczky, Gy. Szabó, L. Kiss

Measurers L. Kiss, K. Sárneczky

0.60-m Schmidt telescope + CCD

USNO-A1.0

1929 PK, 2, 1, 0; 1998 DA₃₃ *, 9, 2, 2; (753), 4, 2, 1; (1452), 6, 2, 1; (1604), 7, 2, 1; (1727), 9, 2, 1; [37, 6, 1*, 1998/01/04–1998/03/02]

563 Seewalchen

M. Bressler, Sachsenstrasse 40, A-4863 Seewalchen a. A., Austria

0.25-m $f/6$ reflector + CCD

GSC

1991 PT₈, 6, 2, 1; 1991 UC, 10, 2, 1; 1998 CH₅ *, 11, 2, 1; (8047), 7, 2, 1; [34, 4, 1*, 1997/10/28–1998/02/06]

565 Bassano Bresciano

U. Quadri, Osservatorio di Bassano Bresciano, Via S. Michele 4, I-25020 Bassano

Bresciano (BS), Italy [astrofil@astbo1.bo.cnr.it]

Observers U. Quadri, L. Strabla

0.40-m $f/2.5$ Schmidt + CCD

GSC

(260), 2, 1, 0; (704), 5, 2, 3; (2351), 4, 1, 0; (3354), 4, 1, 0; (6770), 2, 1, 0; [17, 5, 0*, 1998/02/12–1998/03/05]

566 Haleakala-NEAT/GEODSS

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

[efh@ipl.jpl.nasa.gov]

Observers E. F. Helin, S. H. Pravdo, K. J. Lawrence, D. L. Rabinowitz, S. Groom,

C. Clark, R. Bamberg, S. Levin, J. Lorre, S. Shaklan, R. Byrd, A. Esquivel,

C. Cotton, D. Bascon

1-m $f/2.2$ Ritchey-Chrétien + CCD

1975 TQ₃, 3, 1, 0; 1976 UT₁, 3, 1, 0; 1977 EU₁, 3, 1, 0; 1977 PP₁, 3, 1, 0; 1977 UM₄, 3, 1, 0; 1978 PE, 3, 1, 0; 1981 DJ, 3, 1, 0; 1981 DK, 3, 1, 0; 1981 EQ, 3, 1, 0; 1981 EG₁, 3, 1, 0; 1981 EM₃, 3, 1, 0; 1981 EJ₇, 3, 1, 0; 1981 EK₇, 3, 1, 0; 1981 EQ₈, 3, 1, 0; 1981 EY₉, 3, 1, 0; 1981 EH₁₁, 3, 1, 0; 1981 EC₁₉, 3, 1, 0; 1981 EJ₁₉, 3, 1, 0; 1981 EF₂₈, 3, 1, 0; 1981 ES₃₅, 3, 1, 0; 1981 EK₄₁, 3, 1, 0; 1981 SD₂, 3, 1, 0; 1982 SA₄, 3, 1, 0; 1983 CZ₂, 6, 2, 58; 1985 UT, 3, 1, 0; 1985 UJ₃, 3, 1, 0; 1986 QX₁, 3, 1, 0; 1986 QT₂, 6, 1, 0; 1987 DO₆, 3, 1, 0; 1987 DQ₆, 3, 1, 0; 1987 HD₂, 3, 1, 0; 1987 SH₄, 3, 1, 0; 1987 UN₁, 3, 1, 0; 1988 FM₁, 3, 1, 0; 1988 LH, 6, 1, 0; 1988 RA₁₁, 3, 1, 0; 1988 SY₁, 3, 1, 0; 1988 VK₂, 3, 1, 0; 1989 CE₆, 3, 1, 0; 1989 EF₆, 3, 1, 0; 1989 QV, 3, 1,

0; 1989 RV₂, 3, 1, 0; 1989 TY₄, 3, 1, 0; 1989 TU₁₀, 3, 1, 0; 1990 BZ, 3, 1, 0; 1990 FG, 3, 1, 0; 1990 GS, 3, 1, 0; 1990 OT₄, 3, 1, 0; 1990 QK₇, 3, 1, 0; 1990 QY₈, 3, 1, 0; 1990 RG₃, 3, 1, 0; 1990 SC₁₃, 3, 1, 0; 1990 TC₄, 3, 1, 0; 1990 TK₈, 3, 1, 0; 1990 UZ, 3, 1, 0; 1990 UJ₅, 6, 2, 1; 1990 VK₆, 3, 1, 0; 1990 VX₆, 3, 1, 0; 1990 WN₅, 3, 1, 0; 1991 EB₅, 3, 1, 0; 1991 FY, 3, 1, 0; 1991 GG₇, 3, 1, 0; 1991 LM, 3, 1, 0; 1991 PY₁₀, 3, 1, 0; 1991 RJ, 3, 1, 0; 1991 RN₅, 6, 2, 1; 1991 RB₉, 3, 1, 0; 1991 YK₁, 3, 1, 0; 1992 BF₂, 3, 1, 0; 1992 EW₂, 3, 1, 0; 1992 EY₁₁, 3, 1, 0; 1992 EC₁₂, 6, 1, 0; 1992 EE₁₃, 3, 1, 0; 1992 GF₄, 6, 2, 1; 1992 PU₃, 3, 1, 0; 1992 RZ₃, 6, 2, 2; 1992 RZ₅, 3, 1, 0; 1992 SV₁₂, 3, 1, 0; 1992 UR, 3, 1, 0; 1992 UZ₁, 3, 1, 0; 1992 UK₅, 3, 1, 0; 1992 WX₂, 3, 1, 0; 1993 BM, 3, 1, 0; 1993 FQ₁₀, 3, 1, 0; 1993 FF₁₈, 3, 1, 0; 1993 FD₂₂, 3, 1, 0; 1993 FT₂₃, 3, 1, 0; 1993 FZ₂₅, 3, 1, 0; 1993 FO₄₈, 3, 1, 0; 1993 FX₈₁, 3, 1, 0; 1993 JL₁, 6, 1, 0; 1993 KB₂, 3, 1, 0; 1993 QB₃, 3, 1, 0; 1993 UU, 6, 2, 1; 1993 VX₃, 3, 1, 0; 1993 XV, 3, 1, 0; 1993 XP₁, 3, 1, 0; 1994 AF, 3, 1, 0; 1994 AS₂, 6, 2, 22; 1994 BM, 3, 1, 0; 1994 BA, 3, 1, 0; 1994 CG₂, 3, 1, 0; 1994 CS₂, 3, 1, 0; 1994 CT₁₂, 3, 1, 0; 1994 CC₁₈, 6, 2, 1; 1994 EB, 3, 1, 0; 1994 LH, 3, 1, 0; 1994 VC₇, 3, 1, 0; 1995 GB, 3, 1, 0; 1995 HK, 3, 1, 0; 1995 HP, 3, 1, 0; 1995 KH, 3, 1, 0; 1995 NB, 3, 1, 0; 1995 QM₂, 3, 1, 0; 1995 QJ₃, 3, 1, 0; 1995 SX₁₉, 3, 1, 0; 1995 TG, 3, 1, 0; 1995 US, 6, 1, 0; 1995 WV₄₂, 3, 1, 0; 1996 PQ, 3, 1, 0; 1996 TG, 3, 1, 0; 1996 TY₄, 6, 2, 1; 1996 UX, 6, 2, 1; 1996 UG₁, 3, 1, 0; 1996 UD₃, 3, 1, 0; 1996 VO₁, 3, 1, 0; 1996 VQ₁, 3, 1, 0; 1996 VC₂, 3, 1, 0; 1996 VK₃, 3, 1, 0; 1996 VN₃, 6, 2, 1; 1996 VS₄, 3, 1, 0; 1996 VM₅, 3, 1, 0; 1996 VP₅, 3, 1, 0; 1996 VU₅, 3, 1, 0; 1996 VV₅, 3, 1, 0; 1996 VB₆, 3, 1, 0; 1996 VD₆, 3, 1, 0; 1996 VA₇, 6, 2, 1; 1996 VZ₇, 3, 1, 0; 1996 VH₈, 3, 1, 0; 1996 VJ₈, 3, 1, 0; 1996 VN₈, 3, 1, 0; 1996 VX₁₅, 6, 1, 0; 1996 VJ₃₀, 3, 1, 0; 1996 WZ, 3, 1, 0; 1996 WC₂, 3, 1, 0; 1996 XC, 3, 1, 0; 1996 XM₂, 3, 1, 0; 1996 XF₃, 3, 1, 0; 1996 XW₁₂, 3, 1, 0; 1996 XA₁₈, 3, 1, 0; 1996 XZ₂₅, 3, 1, 0; 1997 AU₃, 3, 1, 0; 1997 UE₂₅, 3, 1, 0; 1997 WQ₃₇, 9, 3, 54; 1997 WV₅₆, 3, 1, 0; 1997 WU₅₆, 2, 1, 0; 1997 WZ₅₆, 9, 3, 62; 1997 XP₂, 3, 1, 0; 1997 XD₅, 3, 1, 0; 1997 XN₈, 9, 3, 555; 1997 XY₈, 3, 1, 0; 1997 YS₅, 3, 1, 0; 1997 YZ₅, 6, 2, 1; 1997 YP₇, 3, 1, 0; 1997 YD₁₀, 3, 1, 0; 1997 YG₁₀, 3, 1, 0; 1997 YT₁₀, 3, 1, 0; 1997 YP₁₁, 3, 1, 0; 1997 YS₁₁, 3, 1, 0; 1997 YV₁₁, 3, 1, 0; 1997 YE₁₄, 3, 1, 0; 1997 YU₁₆, 3, 1, 0; 1998 AK₅, 3, 1, 0; 1998 AJ₆, 6, 2, 28; 1998 AQ₁₀, 3, 1, 0; 1998 BU, 3, 1, 0; 1998 BE₁, 3, 1, 0; 1998 BO₁, 6, 1, 0; 1998 BB₂, 3, 1, 0; 1998 BC₂, 3, 1, 0; 1998 BW₂, 3, 1, 0; 1998 BJ₄, 3, 1, 0; 1998 BB₁₅, 3, 1, 0; 1998 BZ₂₄, 3, 1, 0; 1998 BL₂₅, 3, 1, 0; 1998 BA₂₆, 3, 1, 0; 1998 BC₂₆, 3, 1, 0; 1998 BE₃₀, 3, 1, 0; 1998 BK₃₀, 3, 1, 0; 1998 BR₃₃, 6, 2, 530; 1998 BD₄₂, 3, 1, 0; 1998 BK₄₇ *, 3, 1, 0; 1998 BL₄₇ *, 3, 1, 0; 1998 BM₄₇ *, 3, 1, 0; 1998 BN₄₇ *, 3, 1, 0; 1998 BO₄₇ *, 3, 1, 0; 1998 BQ₄₇ *, 3, 1, 0; 1998 BR₄₇ *, 3, 1, 0; 1998 BS₄₇ *, 3, 1, 0; 1998 BU₄₇ *, 3, 1, 0; 1998 BV₄₇ *, 3, 1, 0; 1998 BW₄₇ *, 3, 1, 0; 1998 BY₄₇ *, 3, 1, 0; 1998 BZ₄₇ *, 3, 1, 0; 1998 BB₄₈ *, 3, 1, 0; 1998 BG₄₈ *, 3, 1, 0; 1998 BH₄₈ *, 3, 1, 0; 1998 BJ₄₈ *, 3, 1, 0; 1998 CQ, 3, 1, 0; 1998 CR, 3, 1, 0; 1998 CK₁, 3, 1, 0; 1998 CK₃, 3, 1, 0; 1998 CU₃, 3, 1, 0; 1998 CZ₃, 6, 2, 30; 1998 CG₅, 3, 1, 0; 1998 DF, 3, 1, 0; 1998 DX, 3, 1, 0; 1998 DZ₅, 3, 1, 0; 1998 DU₉, 3, 1, 0; 1998 DS₁₀, 3, 1, 0; 1998 DT₁₀, 3, 1, 0; 1998 DD₁₁, 3, 1, 0; 1998 DH₁₁, 3, 1, 0; 1998 DK₁₁, 3, 1, 0; 1998 DQ₁₃, 3, 1, 0; 1998 DG₁₆, 3, 1, 0; 1998 DF₂₀, 6, 1, 0; 1998 DS₂₃, 6, 2, 32; 1998 DC₂₄, 3, 1, 0; 1998 DD₂₉, 3, 1, 0; 1998 DV₃₁, 6, 2, 32; 1998 DC₃₃, 3, 1, 0; 1998 DD₃₃, 3, 1, 0; 1998 DF₃₃, 3, 1, 0; 1998 DL₃₃, 3, 1, 0; 1998 DM₃₃, 3, 1, 0; 1998 DN₃₃ *, 3, 1, 0; 1998 DW₃₃, 3, 1, 0; 1998 DX₃₃, 3, 1, 0; 1998 DZ₃₃, 3, 1, 0; 1998 DF₃₄, 3, 1, 0; 1998 DJ₃₄, 3, 1, 0; 1998 DV₃₄, 3, 1, 0; 1998 DC₃₅, 3, 1, 0; 1998 DJ₃₅, 3, 1, 0; 1998 EF, 6, 2, 28; 1998 EP₁, 3, 1, 0; 1998 EZ₂, 6, 2, 32; 1998 EC₃, 3, 1, 0; 1998 ED₆, 3, 1, 0; 1998 EF₆, 6, 2, 1; 1998 EX₆, 6, 2, 28; 1998 EX₇, 9, 3, 29; 1998 EZ₇, 3, 1, 0; 1998 EJ₈, 3, 1, 0; 1998 EK₈, 3, 1, 0; 1998 EL₈, 3, 1, 0; 1998 ES₈, 3, 1, 0; 1998 EZ₈, 6, 2, 28; 1998 EC₉, 3, 1, 0; 1998 EM₉, 6, 2, 32; 1998 EN₉, 3, 1, 0; 1998 EP₉, 3, 1, 0; 1998 EZ₉, 3, 1, 0; 1998 EA₁₀, 6, 2, 32; 1998 EC₁₀, 3, 1, 0; 1998 EL₁₀, 3, 1, 0; 1998 EC₁₂, 3, 1, 0; 1998 EC₁₃, 6, 1, 0; 1998 ET₁₃, 3, 1, 0; 1998 EY₁₃, 3, 1, 0; 1998 EK₁₄, 3, 1, 0; 1998 EM₁₄, 6, 2, 1; 1998 ET₁₄, 6, 2, 1; 1998 FA, 3, 1, 0; 1998 FB, 3, 1, 0; 1998 FC, 3, 1, 0; 1998 FD, 6, 2, 1; 1998 FH, 3, 1, 0; 1998 FJ₁, 3, 1, 0; 1998 FD₂, 3, 1, 0; 1998 FF₂, 3, 1, 0; 1998 FX₂, 6, 2, 1; 1998 FY₂, 9, 3, 61; 1998 FF₃, 3, 1, 0; 1998 FB₅, 6, 2, 29; 1998 FC₅, 3, 1, 0; 1998 FL₅, 3, 1, 0; 1998 FM₅ *, 15, 3, 2; 1998 FM₉, 3, 1, 0; 1998 FD₁₁ *, 6, 2, 2; 1998 FS₁₁ *, 12, 3, 2; 1998 FT₁₁ *, 6, 2, 1; 1998 FU₁₁ *, 6, 2, 1; 1998 FV₁₁ *, 6, 2, 1; 1998 FW₁₁ *, 6, 2, 1; 1998 FX₁₁ *, 12, 3, 2; 1998 FY₁₁ *, 15, 4, 31; 1998 FZ₁₁ *, 9, 2, 1; 1998 FA₁₂ *, 9, 2, 1; 1998 FB₁₂ *, 6, 2, 2; 1998 FC₁₂ *, 6, 2, 1; 1998 FD₁₂ *, 6, 2, 1; 1998 FV₁₂ *, 6, 2, 1; 1998 FW₁₂ *, 6, 2, 1; 1998 FX₁₂ *, 6, 2, 1; 1998 FY₁₂ *, 6, 2, 1; 1998 FZ₁₂ *, 6, 2, 1; 1998 FA₁₃ *, 6, 2, 1; 1998 FB₁₃ *, 6, 2, 1; 1998 FC₁₃ *, 12, 2, 1; 1998 FD₁₃ *, 6, 2, 1; 1998 FE₁₃ *, 9, 3, 29; 1998 FF₁₃ *, 6, 2, 1; 1998 FG₁₃ *, 6, 2, 1; 1998 FH₁₃ *, 6, 2, 1; 1998 FI₁₃ *, 6, 2, 1; 1998 FK₁₃ *, 6, 2, 1; 1998 FL₁₃ *, 6, 2, 1; 1998 FM₁₃ *, 6, 2, 1; 1998 FN₁₃ *, 6, 2, 1; 1998 FO₁₃ *, 6, 2, 1; 1998 FP₁₃ *, 6, 2, 1; 1998 FQ₁₃ *, 6, 2, 1; 1998 FR₁₃ *, 6, 2, 1; 1998 FS₁₃ *, 6, 2, 1; 1998 FT₁₃ *, 6, 2, 1; 1998 FU₁₃ *, 9, 3, 62; 1998 FV₁₃ *, 6, 2, 1; 1998 FW₁₃ *, 6, 2, 1; 1998 FX₁₃ *, 9, 3, 29; 1998 FY₁₃ *, 6, 2, 2; 1998 FZ₁₃ *, 6, 2, 2; 1998 FA₁₄ *, 6, 2, 2; 1998 FB₁₄ *, 6, 2, 1; 1998 FC₁₄ *, 6, 2, 1; 1998 FD₁₄ *, 6, 2, 1; 1998 FE₁₄ *, 6, 2, 1; 1998 FO₁₄, 3, 1, 0; 1998 FA₁₅, 3, 1, 0; 2727 P-L, 3, 1, 0; 4014 P-L, 3, 1, 0; 4049 P-L, 3, 1, 0; 4119 P-L, 3, 1, 0; 4586 P-L, 3, 1, 0; 5016 P-L, 6, 2, 28; 6114 P-L, 3, 1, 0; 6533 P-L, 3, 1, 0; 6792 P-L, 6, 2, 1; 7603 P-L, 3, 1, 0; 1198 T-1, 3, 1, 0; 2186 T-1, 3, 1, 0; 3271 T-1, 3, 1, 0; 3286 T-1, 3, 1, 0; 4262 T-1, 3, 1, 0; 4283 T-1, 6, 1, 0; 1109 T-2, 3, 1, 0; 2045 T-2, 3, 1, 0; 2275 T-2, 3, 1, 0; 3076 T-2, 3, 1, 0; 3176 T-2, 3, 1, 0; 3187 T-2, 3, 1, 0; 4306 T-2, 3, 1, 0; 5006 T-2, 3, 1, 0; 5162 T-2, 3, 1, 0; 3224 T-3, 3, 1, 0; 3502 T-3, 3, 1, 0; 4326 T-3, 3, 1, 0; (3), 3, 1, 0; (33), 3, 1, 0; (36), 3, 1, 0; (56), 3, 1, 0; (93), 3, 1, 0; (115), 6, 2, 1; (160), 3, 1, 0; (169),

3, 1, 0; (235), 3, 1, 0; (261), 3, 1, 0; (327), 6, 1, 0; (332), 3, 1, 0; (374), 3, 1, 0; (381), 3, 1, 0; (422), 3, 1, 0; (436), 3, 1, 0; (454), 3, 1, 0; (463), 3, 1, 0; (481), 3, 1, 0; (516), 6, 2, 1; (538), 3, 1, 0; (556), 3, 1, 0; (570), 3, 1, 0; (632), 3, 1, 0; (737), 3, 1, 0; (740), 6, 2, 1; (744), 3, 1, 0; (753), 6, 2, 1; (755), 3, 1, 0; (870), 3, 1, 0; (882), 3, 1, 0; (928), 3, 1, 0; (935), 6, 2, 2; (945), 3, 1, 0; (972), 3, 1, 0; (987), 3, 1, 0; (991), 6, 1, 0; (1045), 3, 1, 0; (1046), 3, 1, 0; (1060), 3, 1, 0; (1064), 3, 1, 0; (1091), 3, 1, 0; (1096), 3, 1, 0; (1130), 3, 1, 0; (1131), 3, 1, 0; (1153), 3, 1, 0; (1168), 3, 1, 0; (1204), 3, 1, 0; (1219), 3, 1, 0; (1227), 3, 1, 0; (1228), 3, 1, 0; (1285), 3, 1, 0; (1302), 3, 1, 0; (1324), 3, 1, 0; (1353), 3, 1, 0; (1360), 3, 1, 0; (1375), 6, 1, 0; (1382), 6, 2, 1; (1417), 3, 1, 0; (1453), 3, 1, 0; (1457), 3, 1, 0; (1471), 3, 1, 0; (1488), 3, 1, 0; (1521), 3, 1, 0; (1595), 3, 1, 0; (1639), 3, 1, 0; (1653), 6, 1, 0; (1681), 3, 1, 0; (1690), 3, 1, 0; (1719), 3, 1, 0; (1754), 6, 2, 1; (1768), 3, 1, 0; (1785), 3, 1, 0; (1809), 3, 1, 0; (1831), 3, 1, 0; (1836), 3, 1, 0; (1855), 3, 1, 0; (1856), 3, 1, 0; (1949), 3, 1, 0; (2011), 6, 2, 1; (2165), 6, 2, 1; (2214), 3, 1, 0; (2231), 3, 1, 0; (2239), 3, 1, 0; (2285), 3, 1, 0; (2296), 3, 1, 0; (2313), 3, 1, 0; (2366), 3, 1, 0; (2385), 3, 1, 0; (2403), 3, 1, 0; (2450), 3, 1, 0; (2461), 3, 1, 0; (2492), 6, 2, 1; (2566), 3, 1, 0; (2607), 3, 1, 0; (2624), 3, 1, 0; (2651), 3, 1, 0; (2754), 3, 1, 0; (2764), 6, 2, 1; (2772), 3, 1, 0; (2778), 3, 1, 0; (2804), 3, 1, 0; (2816), 6, 2, 1; (2831), 6, 2, 1; (2838), 3, 1, 0; (2857), 3, 1, 0; (2868), 3, 1, 0; (2925), 3, 1, 0; (2932), 3, 1, 0; (2971), 3, 1, 0; (2976), 3, 1, 0; (2978), 6, 1, 0; (2981), 3, 1, 0; (3009), 3, 1, 0; (3020), 3, 1, 0; (3030), 3, 1, 0; (3036), 3, 1, 0; (3070), 3, 1, 0; (3075), 3, 1, 0; (3097), 3, 1, 0; (3106), 3, 1, 0; (3126), 3, 1, 0; (3146), 3, 1, 0; (3183), 3, 1, 0; (3204), 3, 1, 0; (3206), 3, 1, 0; (3280), 3, 1, 0; (3284), 3, 1, 0; (3306), 3, 1, 0; (3307), 3, 1, 0; (3329), 6, 1, 0; (3358), 3, 1, 0; (3463), 3, 1, 0; (3489), 3, 1, 0; (3524), 3, 1, 0; (3535), 3, 1, 0; (3559), 3, 1, 0; (3592), 3, 1, 0; (3602), 6, 2, 1; (3623), 9, 2, 1; (3652), 3, 1, 0; (3655), 3, 1, 0; (3704), 3, 1, 0; (3729), 3, 1, 0; (3773), 6, 2, 1; (3831), 3, 1, 0; (3844), 3, 1, 0; (3852), 6, 2, 1; (3858), 3, 1, 0; (3863), 3, 1, 0; (3886), 3, 1, 0; (3897), 3, 1, 0; (3905), 6, 2, 1; (3942), 3, 1, 0; (3953), 3, 1, 0; (3970), 3, 1, 0; (4049), 3, 1, 0; (4056), 3, 1, 0; (4083), 3, 1, 0; (4124), 3, 1, 0; (4127), 3, 1, 0; (4147), 3, 1, 0; (4194), 3, 1, 0; (4200), 3, 1, 0; (4250), 3, 1, 0; (4299), 3, 1, 0; (4304), 6, 2, 1; (4308), 3, 1, 0; (4353), 6, 2, 1; (4377), 3, 1, 0; (4390), 3, 1, 0; (4392), 3, 1, 0; (4397), 6, 2, 1; (4398), 3, 1, 0; (4428), 6, 2, 2; (4444), 3, 1, 0; (4446), 3, 1, 0; (4522), 3, 1, 0; (4527), 3, 1, 0; (4577), 3, 1, 0; (4597), 3, 1, 0; (4616), 6, 2, 1; (4624), 3, 1, 0; (4657), 3, 1, 0; (4712), 3, 1, 0; (4720), 3, 1, 0; (4743), 3, 1, 0; (4745), 3, 1, 0; (4755), 3, 1, 0; (4759), 3, 1, 0; (4781), 3, 1, 0; (4817), 3, 1, 0; (4824), 3, 1, 0; (4830), 3, 1, 0; (4848), 6, 2, 1; (4904), 3, 1, 0; (4911), 3, 1, 0; (4945), 3, 1, 0; (4966), 3, 1, 0; (4975), 3, 1, 0; (5003), 3, 1, 0; (5048), 3, 1, 0; (5072), 3, 1, 0; (5136), 3, 1, 0; (5140), 3, 1, 0; (5167), 3, 1, 0; (5169), 3, 1, 0; (5278), 3, 1, 0; (5308), 6, 2, 1; (5348), 3, 1, 0; (5352), 3, 1, 0; (5364), 3, 1, 0; (5433), 3, 1, 0; (5467), 3, 1, 0; (5485), 6, 2, 1; (5520), 3, 1, 0; (5521), 3, 1, 0; (5544), 6, 1, 0; (5592), 3, 1, 0; (5595), 3, 1, 0; (5745), 3, 1, 0; (5817), 3, 1, 0; (5850), 3, 1, 0; (5859), 3, 1, 0; (5874), 3, 1, 0; (5875), 3, 1, 0; (5969), 3, 1, 0; (5972), 3, 1, 0; (5973), 6, 2, 1; (5975), 3, 1, 0; (5994), 3, 1, 0; (5998), 3, 1, 0; (6026), 3, 1, 0; (6028), 3, 1, 0; (6030), 3, 1, 0; (6037), 3, 1, 0; (6052), 3, 1, 0; (6113), 3, 1, 0; (6336), 3, 1, 0; (6478), 3, 1, 0; (6510), 3, 1, 0; (6512), 3, 1, 0; (6520), 3, 1, 0; (6521), 6, 2, 1; (6559), 3, 1, 0; (6561), 3, 1, 0; (6565), 3, 1, 0; (6575), 3, 1, 0; (6579), 3, 1, 0; (6591), 3, 1, 0; (6644), 3, 1, 0; (6649), 3, 1, 0; (6674), 3, 1, 0; (6747), 3, 1, 0; (6797), 3, 1, 0; (7123), 3, 1, 0; (7129), 3, 1, 0; (7143), 3, 1, 0; (7228), 6, 2, 1; (7230), 3, 1, 0; (7235), 3, 1, 0; (7257), 6, 2, 2; (7273), 3, 1, 0; (7275), 3, 1, 0; (7281), 3, 1, 0; (7297), 3, 1, 0; (7303), 3, 1, 0; (7309), 6, 2, 1; (7311), 3, 1, 0; (7340), 6, 2, 1; (7356), 3, 1, 0; (7371), 3, 1, 0; (7376), 3, 1, 0; (7390), 3, 1, 0; (7408), 3, 1, 0; (7489), 3, 1, 0; (7530), 3, 1, 0; (7574), 3, 1, 0; (7593), 3, 1, 0; (7607), 3, 1, 0; (7638), 3, 1, 0; (8228), 3, 1, 0; (8269), 3, 1, 0; (8275), 3, 1, 0; (8276), 3, 1, 0; (8350), 6, 2, 1; (8359), 3, 1, 0; (8378), 3, 1, 0; (8387), 3, 1, 0; (8389), 3, 1, 0; (8390), 3, 1, 0; (8404), 6, 2, 1; (8421), 3, 1, 0; (8431), 6, 2, 475; (8432), 3, 1, 0; [2477, 665, 67*, 1996/05/21-1998/03/29]

568 Mauna Kea

B. Gladman, Institute for Theoretical Astrophysics, 60 Saint George Street,
Toronto, ON M5S 1A7, Canada [gladman@cita.utoronto.ca]

Observers J. J. Kavelaars, B. Gladman

3.6-m Canada-France-Hawaii Telescope + CCD

1994 GV₉, 2, 1, 0; 1997 GA₄₅ *, 2, 1, 0; [4, 2, 1*, 1997/04/03]

587 Sormano

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

[sormano@tin.it]

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

0.5-m reflector + CCD

GSC

1, 0; 1998 EM₈, 9, 4, 13; 1998 FF₂, 2, 1, 0; 1998 FM₅, 4, 1, 0; 1998 FM₉, 4, 2, 6; 1998 FR₁₁, 3, 1, 0; 1998 FH₇₄, 3, 1, 0; (39), 3, 1, 0; (4913), 4, 2, 1; (5783), 3, 1, 0; [93, 24, 0*, 1998/03/16–1998/03/31]

589 Santa Lucia Stroncone

A. Vagnozzi, Via Santa Lucia 68, I-05039 Stroncone (Terni), Italy
[vagnozzi@freenet.hut.fi]

Observers A. Vagnozzi, G. Bernabei, V. Risoldi, V. Scirri
0.50-m $f/2.8$ Ritchey-Chrétien + CCD
GSC

1995 OB₁, 3, 1, 0; 1995 SQ₂, 3, 1, 0; 1996 QU, 2, 1, 0; 1998 BW₇, 5, 1, 0; 1998 DX, 12, 4, 13; 1998 DU₁₀, 2, 1, 0; 1998 FB *, 19, 6, 12; 1998 FM₁ *, 14, 4, 9; 1998 FA₁₅ *, 13, 4, 3; 1998 FR₇₃ *, 6, 2, 1; 2282 T-3, 9, 3, 6; (959), 3, 1, 0; [91, 12, 4*, 1998/03/15–1998/03/29]

595 Farra d'Isonzo

L. Bittesini, Via dei Conventi 10, I-34070 Farra D'Isonzo (GO), Italy
[ccaf@tmedia.it]

Observers A. Toso, W. Boschin, L. Drigo, G. Lombardi, E. Pettarin, F. Piani
Measurers L. Drigo, G. Lombardi, E. Pettarin, A. Toso
0.4-m $f/4.5$ reflector + CCD
GSC

1990 SS₆, 2, 1, 0; 1994 BN₄, 4, 2, 2; 1994 FS, 6, 3, 19; 1994 LH, 4, 2, 1; 1996 LP₁, 5, 2, 4; 1997 AQ₁₇, 4, 2, 2; 1998 BJ₁₉, 5, 3, 20; 1998 BK₁₉, 5, 2, 15; 1998 BM₂₆, 3, 2, 2; 1998 CQ₁, 3, 2, 1; 1998 CC₄, 3, 2, 1; 1998 DW₁, 4, 2, 2; 1998 DX₁, 4, 2, 4; 1998 DJ₁₄, 6, 3, 24; 1998 DR₂₃, 3, 1, 0; 1998 DS₂₃, 4, 2, 16; 1998 FH₁₅ *, 4, 2, 1; 1998 FJ₁₅ *, 4, 2, 1; 1998 FK₁₅ *, 4, 2, 1; (3280), 3, 1, 0; (8373), 2, 1, 0; [82, 21, 3*, 1998/03/02–1998/03/28]

596 Colleverde di Guidonia

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[v.casulli@priminet.it]

0.40-m $f/3.2$ reflector + CCD
GSC

1974 OE, 3, 1, 0; 1981 EH₁₁, 3, 1, 0; 1990 KF, 2, 1, 0; 1994 EB, 3, 1, 0; 1994 LL, 2, 1, 0; 1995 SB₂, 3, 1, 0; 1996 RB₄, 2, 1, 0; 1996 TG, 3, 1, 0; 1997 AP₁₇, 5, 2, 2; 1998 CB₂, 3, 1, 0; 1998 DO, 3, 1, 0; 1998 DJ₁₁, 9, 3, 17; 1998 DP₁₃, 5, 2, 12; (454), 3, 1, 0; (1797), 3, 1, 0; (3279), 3, 1, 0; (6530), 3, 1, 0; [58, 17, 0*, 1998/03/05–1998/03/28]

610 Pianoro

V. Goretti, Via Resistenza 93, I-40065 Pianoro (BO), Italy
[astrofil@astboi.bo.cnr.it]

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

1971 SB, 5, 1, 0; 1977 EO₁, 4, 1, 0; 1978 RQ₉, 4, 1, 0; 1988 EA₂, 9, 2, 9; 1990 BY₁, 4, 1, 0; 1998 FX₂, 22, 3, 4; 1998 FM₅, 10, 2, 3; (1229), 4, 1, 0; (5870), 4, 1, 0; (6037), 11, 3, 8; (8346), 4, 1, 0; (8389), 4, 1, 0; [85, 12, 0*, 1998/03/10–1998/03/29]

611 Starkenburg Sternwarte, Heppenheim

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

Observers M. Busch, F. Hormuth, S. Kluegl, J. Rothermel, P. Thiessen, P. Geffert,
A. Seib, K. Sonneberg, L. Kurtze, K. Sonnenberg, R. Stoss, C. Daume
Measurers S. Kluegl, M. Busch, F. Hormuth, R. Stoss, J. Rothermel, L. Kurtze,
J. Rothermel

0.45-m $f/4.4$ Newtonian reflector + CCD, 0.20-m $f/6$ Newtonian reflector + CCD,
0.19-m $f/4$ Flat-Field camera + CCD

USNO-SA1.0

1990 TK₈, 2, 1, 0; 1990 TR₁₂, 2, 1, 0; 1995 SM₅₄, 2, 1, 0; 1998 CC₂, 4, 2, 4; 1998 DK₁, 5, 2, 15; 1998 FW₁₅ *, 9, 4, 3; (625), 2, 1, 0; [26, 7, 1*, 1998/03/09–1998/03/31]

619 Sabadell

F. Casarramona, P.O. Box 50, E-8200 Sabadell (BCN), Spain
[astrosab@redestb.es]

Observers F. Casarramona, E. Vigil, A. Ruiz

Measurer F. Casarramona

0.51-m $f/3.9$ reflector + CCD

GSC

(405), 6, 2, 2; (1258), 6, 2, 2; [12, 2, 0*, 1998/03/13–1998/03/15]

620 Observatorio Astronómico de Mallorca

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

[astroam@dinky.bitel.es]

Observers R. Pacheco, A. Lopez

Measurer A. Lopez

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

GSC

1998 DD₁₁, 6, 2, 8; 1998 FN₁ *, 5, 2, 1; 1998 FO₁ *, 6, 2, 1; 1998 FE₂, 7, 2, 6; 1998 FG₂, 4, 1, 0; 1998 FX₂, 5, 1, 0; 1998 FM₅, 20, 2, 2; 1998 FV₁₅ *, 8, 2, 6; [61, 8, 3*, 1998/03/19–1998/03/28]

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

GSC

1981 ES₁₉, 3, 1, 0; 1998 FM₃, 3, 1, 0; 1998 FO₅, 6, 2, 7; 1998 FK₇₄ *, 15, 4, 4; 1998 FL₇₄ *, 21, 5, 10; 1998 FM₇₄ *, 6, 2, 2; 1998 FN₇₄ *, 15, 4, 4; 1998 FO₇₄ *, 17, 3, 7; 1998 FP₇₄ *, 8, 3, 7; 1998 FQ₇₄ *, 9, 3, 7; (3757), 8, 2, 1; [111, 11, 7*, 1998/03/21–1998/04/01]

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

1998 CU₃, 8, 3, 5; 1998 DJ₂₀, 3, 1, 0; 1998 DK₂₀, 3, 1, 0; [14, 3, 0*, 1998/03/22–1998/03/27]

628 Mülheim-Ruhr

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

0.2-m Schmidt-Cassegrain + CCD

GSC

(311), 4, 1, 0; [4, 1, 0*, 1998/03/24]

629 JATE Observatory, Szeged

L. Kiss, H-6725 Szeged, Pf. 596, Hungary [l.kiss@physx.u-szeged.hu]

Observers L. Kiss, K. Sárneczky, Gy. Szabó

Measurers K. Sárneczky, L. Kiss

0.28-m Schmidt-Cassegrain + CCD

GSC

1971 SB, 4, 1, 0; 1998 FM₅, 4, 1, 0; [8, 2, 0*, 1998/03/25]

631 Hamburg-Georgswerder

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

[michael.buck@hamburg.netsurf.de]

0.15-m $f/8$ refractor + CCD

GSC

1992 YW₃, 4, 2, 1; 1993 HG, 1, 1, 0; 1994 ER₃, 4, 2, 1; 1994 JS₁, 4, 2, 1; (6037), 4, 2, 1; (8359), 4, 2, 1; [21, 6, 0*, 1998/03/23–1998/03/24]

633 Romito

M. Bernazzani, via Provinciale 170, I-19030 Romito Magra (SP), Italy
[naidabis@col.it]

Observers N. Biso, M. Bernazzani

Measurer M. Bernazzani

0.30-m $f/5.1$ Schmidt-Cassegrain + CCD

GSC

1993 FF₁₈, 3, 1, 0; (1045), 3, 1, 0; (3729), 3, 1, 0; (3800), 3, 1, 0; (4837), 3, 1, 0; (7309), 3, 1, 0;
[18, 6, 0*, 1998/03/22–1998/03/29]

635 Perpignan

J.-M. Llapasset, 66 Cours De Lassus, F-66000 Perpignan, France [Jean-Marie.Llapasset@wanadoo.fr]

Observers J.-M. Llapasset, G. Authier

Measurer J.-M. Llapasset

0.28-m $f/6.3$ reflector + CCD

USNO

(39), 2, 1, 0; [2, 1, 0*, 1998/03/21]

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]

Observers D. D. Balam, G. C. L. Aikman

1.82-m Plaskett telescope + CCD

GSC, USNO-A1.0

1991 VH, 3, 1, 0; 1993 BW₂, 3, 1, 0; 1994 CN₂, 3, 1, 0; 1996 EN, 3, 1, 0; 1996 FG₃, 2, 1, 0;
1996 SY₄, 3, 1, 0; 1997 SE₅, 2, 1, 0; 1997 UF₉, 3, 1, 0; 1997 WS₂₂, 4, 1, 0; 1997 WT₂₂, 9, 3, 11;
1997 XF₁₁, 10, 3, 5; 1997 YL₁₁, 3, 1, 0; 1998 AK₈, 3, 1, 0; 1998 BX₇, 5, 2, 11; 1998 BG₉, 6, 2,
12; 1998 DV₉, 10, 3, 11; 1998 EC₃, 6, 2, 12; 1998 EP₄, 3, 1, 0; 1998 FF₂, 3, 1, 0; 1998 FG₂, 3, 1,
0; 1998 FL₃, 5, 2, 1; 1998 FW₄, 3, 1, 0; 1998 FL₅, 3, 1, 0; 1998 FM₅, 3, 1, 0; 1998 FM₉, 3, 1, 0;
1998 FN₉, 3, 1, 0; 1998 FR₁₁, 3, 1, 0; 1998 FS₁₁, 3, 1, 0; 1998 FG₁₂, 3, 1, 0; 1998 FH₁₂, 9, 3, 2;
1998 FF₁₄, 9, 3, 2; 1998 FG₁₅, 3, 1, 0; (3800), 2, 1, 0; (4183), 2, 1, 0; (6037), 3, 1, 0; [144, 35,
0*, 1998/03/07–1998/03/29]

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

1998 FX₂, 4, 1, 0; 1998 FM₅, 4, 1, 0; (6037), 5, 1, 0; [13, 3, 0*, 1998/03/11–1998/04/02]

673 Table Mountain Observatory

D. L. Rabinowitz, Jet Propulsion Laboratory, Pasadena, CA 91109, U.S.A.

[dlr@ipl.jpl.nasa.gov]

Observers D. L. Rabinowitz, L. Benner

0.6-m reflector + CCD

1998 FW₄, 2, 1, 0; [2, 1, 0*, 1998/03/24]

675 Palomar

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@rulh11.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), D. H. Levy (3, S), C. S. Shoemaker (3, S), E. M. Shoemaker (3, S)

Measurers K. Lawrence (2), B. A. Skiff (6), C. S. Shoemaker (3), C. J. van

Houten (4), I. van Houten-Groeneveld (4), A. Wisse (4)

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

(2) 1997 XF₁₁, 6, 3, 3; [6, 1, 0*, 1990/03/22–1990/03/25]

(3) 1981 JB₂, 2, 1, 0; 1988 PC₁, 4, 2, 3; 1990 VF₈, 4, 2, 2; 1991 VD₅, 4, 2, 3; [14, 4, 0*,
1994/08/01–1994/10/03]

(4) 4053 P-L *, 8, 8, 32; 4071 P-L *, 8, 7, 32; 4134 P-L *, 7, 4, 4; 4584 P-L *, 8, 8, 32; 6044 P-L *,
8, 8, 32; 6681 P-L *, 7, 4, 4; 9616 P-L *, 3, 3, 9; 1145 T-1 *, 10, 8, 51; 1274 T-1 *, 15, 8, 51;
2301 T-1 *, 6, 5, 9; 3274 T-1 *, 14, 9, 53; 4111 T-1 *, 10, 7, 51; 4265 T-1 *, 12, 8, 53; 4623 T-1 *,
3, 3, 3; 1059 T-2 *, 15, 8, 16; 1364 T-2 *, 15, 8, 16; 1474 T-2 *, 14, 8, 16; 2115 T-2 *, 15, 8, 16;
2231 T-2 *, 15, 8, 16; 3089 T-2 *, 15, 8, 16; 3260 T-2 *, 15, 8, 16; 3305 T-2 *, 21, 8, 16; 4072 T-2 *,
15, 8, 16; 3446 T-3 *, 13, 7, 15; 3468 T-3 *, 11, 6, 14; 4039 T-3 *, 12, 6, 14; 5090 T-3 *, 8, 4, 9;
[303, 27, 27*, 1960/09/24–1977/10/22]

(6) 1953 KF *, 2, 1, 0; 1981 ET₁₈, 2, 1, 0; 1981 ES₂₄, 2, 1, 0; [6, 3, 1*, 1953/05/18–1979/10/18]

(9) 1977 QD₂, 1, 1, 0; 1978 UP₂, 2, 1, 0; 1980 TE₇, 1, 1, 0; 1981 ES₂₀, 1, 1, 0; 1982 SP₆, 2, 1,
0; 1983 CH, 3, 2, 472; 1987 BM₁, 1, 1, 0; 1988 VM₃, 2, 1, 0; 1989 AC₇, 1, 1, 0; 1989 CV₁, 1, 1,
0; 1989 CJ₈, 2, 1, 0; 1991 PZ₁₇, 2, 1, 0; 1991 VD₁, 2, 1, 0; 1991 XH, 2, 1, 0; 1992 CQ₂, 2, 1,
0; 1992 TW, 2, 1, 0; 1993 BN₃, 1, 1, 0; 1993 DG₂, 2, 1, 0; 1993 FT₃₃, 1, 1, 0; 1993 GG₁, 2, 1,
0; 1995 HE, 2, 1, 0; 1995 VK, 1, 1, 0; 1995 VA₂, 2, 1, 0; 1995 WV₄₂, 1, 1, 0; 1995 XD, 2, 1, 0;
1995 YD₁, 2, 1, 0; 1995 YY₁, 2, 1, 0; 1996 HR₂₁, 2, 1, 0; 1996 VQ, 2, 1, 0; 1996 WZ₁, 2, 1, 0;
1997 AD₇, 2, 1, 0; 1997 RX₆, 2, 1, 0; 1997 XF₁₁, 3, 2, 26; 2559 P-L, 2, 1, 0; 4004 P-L, 1, 1, 0;
4604 P-L, 1, 1, 0; 2075 T-2, 2, 1, 0; 4310 T-3, 3, 2, 22; (74), 2, 1, 0; (83), 2, 1, 0; (166), 2, 1, 0;
(177), 2, 1, 0; (235), 2, 1, 0; (282), 2, 1, 0; (302), 2, 1, 0; (373), 2, 1, 0; (394), 2, 1, 0; (413), 2, 1, 0;
(428), 2, 1, 0; (484), 2, 1, 0; (546), 2, 1, 0; (567), 3, 2, 22; (650), 2, 1, 0; (653), 2, 1, 0; (708), 2, 1,
0; (724), 1, 1, 0; (765), 1, 1, 0; (909), 2, 1, 0; (961), 2, 1, 0; (1023), 2, 1, 0; (1054), 2, 1, 0; (1105),
1, 1, 0; (1119), 2, 1, 0; (1123), 1, 1, 0; (1190), 2, 1, 0; (1385), 4, 2, 22; (1413), 2, 1, 0; (1489), 2,
1, 0; (1493), 2, 1, 0; (1521), 1, 1, 0; (1540), 2, 1, 0; (1623), 2, 1, 0; (1645), 2, 1, 0; (1746), 2, 1,
0; (2032), 2, 1, 0; (2076), 2, 1, 0; (2133), 2, 1, 0; (2149), 3, 2, 22; (2159), 2, 1, 0; (2258), 2, 1, 0;
(2296), 2, 1, 0; (2320), 2, 1, 0; (2500), 2, 1, 0; (2505), 2, 1, 0; (2526), 2, 1, 0; (2587), 1, 1, 0; (2756),
2, 1, 0; (2758), 2, 1, 0; (2796), 2, 1, 0; (2848), 2, 1, 0; (2881), 2, 1, 0; (3192), 1, 1, 0; (3242), 2,
1, 0; (3380), 2, 1, 0; (3411), 2, 1, 0; (3417), 2, 1, 0; (3631), 2, 1, 0; (3710), 1, 1, 0; (3718), 2, 1,
0; (3943), 2, 1, 0; (3958), 1, 1, 0; (3996), 1, 1, 0; (4046), 2, 1, 0; (4143), 2, 1, 0; (4365), 2, 1, 0;
(4507), 2, 1, 0; (4517), 2, 1, 0; (4520), 2, 1, 0; (4629), 2, 1, 0; (4685), 1, 1, 0; (4849), 2, 1, 0; (4889),
2, 1, 0; (4945), 2, 1, 0; (5039), 2, 1, 0; (5076), 2, 1, 0; (5080), 1, 1, 0; (5117), 1, 1, 0; (5209), 2,
1, 0; (5213), 1, 1, 0; (5372), 2, 1, 0; (5563), 2, 1, 0; (5580), 1, 1, 0; (5608), 2, 1, 0; (5698), 2, 1,
0; (5706), 1, 1, 0; (5733), 1, 1, 0; (5794), 1, 1, 0; (6014), 2, 1, 0; (6031), 2, 1, 0; (6070), 2, 1, 0;
(6111), 2, 1, 0; (6288), 1, 1, 0; (6416), 1, 1, 0; (6531), 2, 1, 0; (6673), 2, 1, 0; (6700), 2, 1, 0; (6706),
2, 1, 0; (6775), 1, 1, 0; (6885), 2, 1, 0; (6900), 2, 1, 0; (6960), 1, 1, 0; (7024), 1, 1, 0; (7077), 2,
1, 0; (7185), 1, 1, 0; (7247), 2, 1, 0; (7286), 2, 1, 0; (7318), 2, 2, 22; (7354), 2, 1, 0; (7469), 2,
1, 0; (7532), 1, 1, 0; (7577), 2, 1, 0; (7578), 2, 1, 0; (7581), 1, 1, 0; (7591), 2, 1, 0; (7691), 1, 1,
0; (7701), 1, 1, 0; (7743), 2, 1, 0; (7889), 1, 1, 0; (7924), 2, 1, 0; (7981), 2, 1, 0; (8182), 2, 1, 0;
(8317), 1, 1, 0; [289, 162, 0*, 1989/07/29–1994/07/09]

676 San Clemente

J. E. Root, 1303 S. Ola Vista, San Clemente, CA 92672, U.S.A. [jhoot@exo.com]

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

GSC

1998 FX₂, 4, 1, 0; (1168), 1, 1, 0; (1521), 2, 2, 1; (2285), 1, 1, 0; (3800), 2, 2, 1; [10, 5, 0*,
1998/03/01–1998/03/24]

683 Goodricke-Pigott Observatory, Tucson

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

[tucker@noao.edu]

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

GSC

1998 FG₂ *, 18, 3, 2; [18, 1, 1*, 1998/03/21–1998/03/23]

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

1992 ER₉, 2, 1, 0; 1993 VB₂, 3, 1, 0; 1996 OF, 4, 2, 1; 1996 RE₁, 4, 2, 1; 1996 SO, 6, 2, 1; 1996 TF₅, 1, 1, 0; 1996 TH₅, 6, 3, 2; 1996 TU₁₁, 2, 1, 0; 1996 VM₂, 3, 2, 1; 1996 VQ₆, 5, 2, 1; 1996 XC, 5, 2, 1; 1996 XE₂, 2, 1, 0; 1996 XD₂₀, 4, 2, 1; 1996 XZ₂₅, 5, 2, 1; 1996 YT₂, 4, 2, 2; 1997 AA, 5, 2, 1; 1997 AK₆, 5, 2, 1; 1997 EO₇, 5, 2, 1; 1998 BW₃, 2, 1, 0; 1998 BZ₃, 2, 1, 0; 1998 BG₃₀, 6, 2, 1; 1998 DV₁₂, 4, 2, 1; 1998 ED₃, 5, 2, 1; 1998 FE_{*}, 4, 2, 1; 1998 FF_{*}, 5, 2, 1; 1998 FK_{*}, 4, 2, 1; 1998 FX₄ *, 6, 3, 2; 1998 FY₄ *, 7, 3, 2; 1998 FZ₄ *, 8, 4, 13; 1998 FA₅ *, 6, 3, 12; 1998 FR₅ *, 4, 2, 1; 1998 FQ₅₇, 2, 1, 0; (6030), 3, 2, 1; [139, 33, 8*, 1998/03/19–1998/04/04]

688 Lowell Observatory, Anderson Mesa Station

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

U.S.A. [elgb@lowell.edu]

Observers M. W. Buie, B. A. Skiff

Measurer B. A. Skiff

1.07-m Hall reflector + CCD

USNO-A1.0

1997 WZ₅₆, 2, 1, 0; 1998 FP₂₅, 2, 1, 0; [4, 2, 0*, 1997/11/29–1998/01/08]**689 U.S. Naval Observatory, Flagstaff Station**

A. Monet, U. S. Naval Observatory, Flagstaff Station, P.O. Box 1149, Flagstaff AZ

86002-1149 [alice@nobs.navy.mil]

Observers C. Luginbuhl, H. Guetter

Measurer A. Monet

1.55-m astrometric reflector + CCD

USNO-A1.0

1998 FW₂ *, 4, 2, 2; [4, 1, 1*, 1998/03/20–1998/03/22]**691 Kitt Peak, Steward Observatory**

T. Gehrels, Space Sciences Building, University of Arizona, Tucson, AZ 85721,

U.S.A. [tgehrrels@lpl.arizona.edu]

Observers T. Gehrels, J. Larsen, J. Montani, J. V. Scotti

0.91-m Spacewatch telescope + CCD

GSC

1975 XF, 6, 2, 4; 1977 EU₁, 3, 1, 0; 1981 EM₁, 6, 2, 10; 1981 EU₁₈, 3, 1, 0; 1981 ES₁₉, 3, 1, 0; 1981 EM₂₇, 3, 1, 0; 1981 EQ₃₁, 3, 1, 0; 1981 ET₄₇, 3, 1, 0; 1983 RX₄, 3, 1, 0; 1985 QM₅, 3, 1, 0; 1985 UH₂, 3, 1, 0; 1986 CS₁, 3, 1, 0; 1986 QX₁, 3, 1, 0; 1986 RF₇, 3, 1, 0; 1988 RK, 3, 1, 0; 1988 TB₁, 3, 1, 0; 1989 EF₆, 3, 1, 0; 1989 SM₄, 3, 1, 0; 1989 TA₃, 6, 2, 1; 1989 WR, 3, 1, 0; 1990 SB₆, 3, 1, 0; 1991 PK₃, 6, 2, 7; 1992 BD₂, 6, 2, 1; 1992 CQ₂, 3, 1, 0; 1992 DO₆, 3, 1, 0; 1992 EJ₉, 9, 3, 17; 1992 EY₁₁, 3, 1, 0; 1992 ML, 3, 1, 0; 1992 OJ₈, 3, 1, 0; 1993 BX₃, 6, 2, 1; 1993 FM₇, 3, 1, 0; 1993 FY₂₂, 3, 1, 0; 1993 FT₃₂, 6, 2, 10; 1993 FU₃₂, 3, 1, 0; 1993 FS₃₄, 9, 3, 2236; 1993 FZ₃₅, 6, 2, 5; 1993 FM₄₀, 12, 4, 14; 1993 TZ₃₂, 3, 1, 0; 1993 UF₇, 3, 1, 0; 1994 PV₂₄, 9, 3, 14; 1995 PC, 3, 1, 0; 1995 SD₂₄, 3, 1, 0; 1995 SM₅₄, 3, 1, 0; 1995 YP₂, 3, 1, 0; 1996 PX₈, 3, 1, 0; 1996 RK₁₁, 3, 1, 0; 1996 TN₁₉, 3, 1, 0; 1996 UD, 3, 1, 0; 1996 VN₈, 6, 2, 3; 1996 VF₉, 6, 2, 10; 1996 XQ₃₂, 3, 1, 0; 1997 CH₂₆, 3, 1, 0; 1997 ET₁, 3, 1, 0; 1997 SH₃₅ *, 6, 2, 7; 1997 SJ₃₅ *, 6, 2, 7; 1997 TN₂₇ *, 6, 2, 7; 1997 TO₂₇ *, 6, 2, 6; 1997 TP₂₇ *, 6, 2, 6; 1997 TQ₂₇ *, 6, 2, 6; 1997 TR₂₇ *, 2, 1, 0; 1997 TS₂₇ *, 2, 1, 0; 1997 TT₂₇ *, 3, 1, 0; 1997 TU₂₇ *, 5, 2, 1; 1997 TV₂₇ *, 6, 2, 1; 1997 WH₅₆ *, 5, 2, 8; 1997 WJ₅₆ *, 5, 2, 8; 1997 WK₅₆ *, 6, 2, 4; 1997 WL₅₆ *, 6, 2, 4; 1997 WM₅₆ *, 3, 1, 0; 1997 WN₅₆ *, 3, 1, 0; 1997 WO₅₆ *, 6, 2, 7; 1997 WP₅₆ *, 6, 2, 6; 1997 WQ₅₆ *, 6, 2, 7; 1997 WR₅₆ *, 6, 2, 7; 1997 WS₅₆ *, 3, 1, 0; 1997 WT₅₆ *, 5, 2, 2; 1997 WU₅₆ *, 3, 1, 0; 1997 WV₅₆ *, 6, 1, 0; 1997 WW₅₆ *, 3, 1, 0; 1997 WX₅₆ *, 3, 1, 0; 1997 WY₅₆ *, 3, 1, 0; 1997 WZ₅₆ *, 3, 1, 0; 1997 XP₂, 3, 1, 0; 1997 XG₅, 3, 1, 0; 1997 XC₉, 3, 1, 0; 1998 BC₁, 3, 1, 0; 1998 BH₄, 6, 2, 9; 1998 BE₈, 3, 1, 0; 1998 BT₈, 3, 1, 0; 1998 BY₈, 6, 2, 5; 1998 BX₂₄, 3, 1, 0; 1998 BE₂₆, 6, 2, 7; 1998 BL₂₆, 3, 1, 0; 1998 BG₄₇ *, 6, 2, 11; 1998 BH₄₇ *, 6, 2, 11; 1998 BJ₄₇, 3, 1, 0; 1998 BK₄₇, 3, 1, 0; 1998 BL₄₇, 3, 1, 0; 1998 BP₄₇ *, 5, 2, 5; 1998 BQ₄₇, 3, 1, 0; 1998 BR₄₇, 3, 1, 0; 1998 BS₄₇, 3, 1, 0; 1998 BT₄₇ *, 6, 2, 5; 1998 BV₄₇, 3, 1, 0; 1998 BA₄₈ *, 6, 2, 8; 1998 BB₄₈, 3, 1, 0; 1998 BC₄₈, 3, 1, 0; 1998 BD₄₈ *, 5, 2, 5; 1998 BE₄₈ *, 5, 2, 5; 1998 BF₄₈ *, 5, 2, 5; 1998 BJ₄₈, 3, 1, 0; 1998 BK₄₈ *, 5, 2, 5;

1998 CR₁, 6, 2, 1; 1998 DQ₃, 3, 1, 0; 1998 DT₁₂, 3, 1, 0; 1998 DQ₁₃, 3, 1, 0; 1998 DZ₁₃, 3, 1, 0; 1998 DK₂₀, 3, 1, 0; 1998 DY₂₁, 3, 1, 0; 1998 DZ₂₂, 3, 1, 0; 1998 DD₂₇, 3, 1, 0; 1998 DK₃₃ *, 6, 2, 5; 1998 DM₃₃ *, 3, 1, 0; 1998 EM₇, 6, 2, 5; 1998 EL₈, 3, 1, 0; 1998 EF₁₀ *, 6, 2, 1; 1998 FL *, 6, 2, 3; 1998 FM *, 9, 3, 7; 1998 FN *, 6, 2, 3; 1998 FO *, 9, 3, 7; 1998 FP *, 9, 3, 7; 1998 FQ *, 9, 3, 7; 1998 FR *, 9, 3, 7; 1998 FS *, 6, 2, 3; 1998 FT *, 9, 3, 7; 1998 FU *, 5, 2, 3; 1998 FV *, 6, 2, 3; 1998 FW *, 8, 3, 7; 1998 FX *, 6, 2, 3; 1998 FY *, 9, 3, 7; 1998 FZ *, 6, 2, 3; 1998 FA₁ *, 9, 3, 7; 1998 FB₁ *, 6, 2, 1; 1998 FC₁ *, 6, 2, 1; 1998 FD₁ *, 6, 2, 1; 1998 FE₁ *, 6, 2, 1; 1998 FF₁ *, 6, 2, 1; 1998 FG₁ *, 6, 2, 1; 1998 FH₁ *, 5, 2, 1; 1998 FI₁ *, 6, 2, 1; 1998 FJ₁ *, 6, 2, 1; 1998 FK₁ *, 6, 2, 1; 1998 FL₁ *, 6, 2, 1; 1998 FM₁ *, 6, 2, 1; 1998 FN₁ *, 6, 2, 1; 1998 FO₁ *, 6, 2, 1; 1998 FP₁ *, 6, 2, 1; 1998 FQ₁ *, 6, 2, 1; 1998 FR₁ *, 6, 2, 1; 1998 FS₁ *, 6, 2, 1; 1998 FT₁ *, 6, 2, 1; 1998 FU₁ *, 6, 2, 1; 1998 FV₁ *, 6, 2, 1; 1998 FW₁ *, 6, 2, 1; 1998 FX₁ *, 6, 2, 1; 1998 FY₁ *, 6, 2, 1; 1998 FZ₁ *, 6, 2, 1; 1998 FA₂ *, 6, 2, 1; 1998 FB₂ *, 6, 2, 1; 1998 FR₂ *, 6, 2, 1; 1998 FS₂ *, 6, 2, 1; 1998 FT₂ *, 6, 2, 1; 1998 FU₂ *, 6, 2, 1; 1998 FV₂ *, 6, 2, 1; 1998 FL₃ *, 12, 3, 2; 1998 FM₃ *, 6, 2, 4; 1998 FN₃ *, 6, 2, 4; 1998 FO₃ *, 9, 3, 5; 1998 FP₃ *, 6, 2, 4; 1998 FQ₃ *, 9, 3, 14; 1998 FR₃ *, 6, 2, 4; 1998 FS₃ *, 12, 4, 14; 1998 FT₃ *, 6, 2, 4; 1998 FU₃ *, 6, 2, 4; 1998 FV₃ *, 6, 2, 4; 1998 FW₃ *, 5, 2, 4; 1998 FX₃ *, 6, 2, 4; 1998 FY₃ *, 6, 2, 4; 1998 FZ₃ *, 6, 2, 4; 1998 FA₄ *, 6, 2, 4; 1998 FB₄ *, 5, 2, 4; 1998 FC₄ *, 5, 2, 4; 1998 FD₄ *, 6, 2, 3; 1998 FE₄ *, 6, 2, 3; 1998 FF₄ *, 6, 2, 3; 1998 FG₄ *, 6, 2, 3; 1998 FH₄ *, 6, 2, 3; 1998 FI₄ *, 6, 2, 1; 1998 FJ₄ *, 6, 2, 1; 1998 FK₄ *, 6, 2, 1; 1998 FL₄ *, 6, 2, 1; 1998 FM₄ *, 6, 2, 1; 1998 FN₄ *, 6, 2, 1; 1998 FO₄ *, 6, 2, 1; 1998 FP₄ *, 6, 2, 1; 1998 FQ₄ *, 6, 2, 1; 1998 FR₄ *, 6, 2, 1; 1998 FS₄ *, 6, 2, 1; 1998 FT₄ *, 6, 2, 1; 1998 FU₄ *, 6, 2, 1; 1998 FV₄ *, 6, 2, 1; 1998 FW₄ *, 6, 2, 7; 1998 FX₄ *, 6, 2, 7; 1998 FY₄ *, 6, 2, 7; 1998 FZ₄ *, 6, 2, 7; 1998 FA₅ *, 6, 2, 7; 1998 FB₅ *, 6, 2, 7; 1998 FC₅ *, 6, 2, 7; 1998 FD₅ *, 6, 2, 7; 1998 FE₅ *, 6, 2, 7; 1998 FF₅ *, 6, 2, 7; 1998 FG₅ *, 6, 2, 7; 1998 FH₅ *, 6, 2, 7; 1998 FI₅ *, 6, 2, 7; 1998 FJ₅ *, 6, 2, 7; 1998 FK₅ *, 6, 2, 7; 1998 FL₅ *, 6, 2, 7; 1998 FM₅ *, 6, 2, 7; 1998 FN₅ *, 6, 2, 7; 1998 FO₅ *, 6, 2, 7; 1998 FP₅ *, 6, 2, 7; 1998 FQ₅ *, 6, 2, 7; 1998 FR₅ *, 6, 2, 5; 1998 FS₅ *, 6, 2, 5; 1998 FT₅ *, 6, 2, 5; 1998 FU₅ *, 6, 2, 5; 1998 FV₅ *, 6, 2, 5; 1998 FW₅ *, 6, 2, 5; 1998 FX₅ *, 6, 2, 5; 1998 FY₅ *, 6, 2, 5; 1998 FZ₅ *, 6, 2, 5; 1998 FA₆ *, 6, 2, 5; 1998 FB₆ *, 6, 2, 5; 1998 FC₆ *, 6, 2, 5; 1998 FD₆ *, 6, 2, 5; 1998 FE₆ *, 6, 2, 5; 1998 FF₆ *, 6, 2, 5; 1998 FG₆ *, 6, 2, 5; 1998 FH₆ *, 6, 2, 5; 1998 FI₆ *, 6, 2, 5; 1998 FJ₆ *, 6, 2, 5; 1998 FK₆ *, 6, 2, 5; 1998 FL₆ *, 6, 2, 5; 1998 FM₆ *, 6, 2, 5; 1998 FN₆ *, 6, 2, 5; 1998 FO₆ *, 6, 2, 5; 1998 FP₆ *, 6, 2, 5; 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Observer C. W. Hergenrother

1.2-m $f/8$ reflector + CCD

USNO-A1.0

1973 SB₆, 3, 1, 0; 1990 OT₄, 3, 1, 0; 1990 TR₁₂, 3, 1, 0; 1992 SC₂₄, 3, 1, 0; 1993 UB, 3, 1, 0; 1994 LL, 3, 1, 0; 1995 BC₂, 3, 1, 0; 1995 HL, 3, 1, 0; 1996 GT, 2, 1, 0; 1997 NC₁, 3, 1, 0; 1997 SE₅, 3, 1, 0; 1998 BL₁₀, 2, 1, 0; (2576), 3, 1, 0; [37, 13, 0*, 1998/03/08]

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Observers B. A. Skiff, B. W. Koehn, P. J. Houlihan

Measurers B. W. Koehn, E. Bowell

0.37-m LONEOS Schmidt + CCD

USNO-A1.0

1971 SB, 3, 1, 0; 1977 RY₆, 3, 1, 0; 1977 UD, 3, 1, 0; 1977 UM₄, 3, 1, 0; 1978 EU₉, 3, 1, 0; 1978 RQ₉, 3, 1, 0; 1981 EG₁, 3, 1, 0; 1981 EF₁₄, 3, 1, 0; 1981 EP₁₉, 3, 1, 0; 1981 EX₂₁, 3, 1, 0; 1981 ES₃₅, 3, 1, 0; 1981 UE₂₆, 3, 1, 0; 1982 SA₄, 3, 1, 0; 1984 SC₆, 3, 1, 0; 1985 UT, 6, 2, 2; 1986 QZ, 2, 1, 0; 1987 RD₁, 3, 1, 0; 1987 SH₄, 3, 1, 0; 1988 RK, 3, 1, 0; 1988 TN, 3, 1, 0; 1988 VK₂, 3, 1, 0; 1988 XX₁, 3, 1, 0; 1989 FL, 3, 1, 0; 1989 NH₁, 3, 1, 0; 1989 TU₁₀, 3, 1, 0; 1989 UE, 3, 1, 0; 1990 EA₅, 3, 1, 0; 1990 EA₇, 6, 2, 2; 1990 FG, 3, 1, 0; 1990 HW₁, 3, 1, 0; 1990 KE, 3, 1, 0; 1990 QK₇, 3, 1, 0; 1990 RG₃, 6, 2, 2; 1990 SE₁₁, 3, 1, 0; 1990 SX₁₆, 6, 2, 2; 1990 WX₃, 3, 1, 0; 1990 YC, 3, 1, 0; 1991 CN, 3, 1, 0; 1991 FV₂, 3, 1, 0; 1991 GR₁, 3, 1, 0; 1991 GR₂, 3, 1, 0; 1991 GN₉, 3, 1, 0; 1991 PW₁₆, 3, 1, 0; 1991 RD₇, 3, 1, 0; 1991 RT₂₆, 6, 2, 2; 1991 SR₁, 3, 1, 0; 1991 TQ₆, 3, 1, 0; 1992 BB₅, 3, 1, 0; 1992 EJ₉, 3, 1, 0; 1992 EN₉, 3, 1, 0; 1992 GF₄, 3, 1, 0; 1992 OJ₈, 3, 1, 0; 1992 RZ₅, 3, 1, 0; 1992 SC₂₄, 3, 1, 0; 1992 WH, 3, 1, 0; 1993 CO, 3, 1, 0; 1993 FJ₁₀, 3, 1, 0; 1993 FS₁₄, 6, 2, 2; 1993 FW₃₁, 3, 1, 0; 1993 FT₄₁, 2, 1, 0; 1993 FK₈₀, 6, 2, 2; 1993 FK₈₁, 3, 1, 0; 1993 JL₁, 3, 1, 0; 1993 LG₂, 6, 2, 2; 1994 CE₂, 3, 1, 0; 1994 CS₂, 6, 2, 2; 1994 CT₁₂, 6, 2, 2; 1994 CO₁₇, 3, 1, 0; 1994 CO₁₈, 3, 1, 0; 1994 HA, 3, 1, 0; 1995 HG, 3, 1, 0; 1995 KZ, 3, 1, 0; 1995 KL₁, 3, 1, 0; 1995 OJ, 3, 1, 0; 1995 OT, 3, 1, 0; 1995 QM₂, 3, 1, 0; 1995 SM₅₄, 3, 1, 0; 1995 WB₆, 3, 1, 0; 1996 PK, 3, 1, 0; 1996 TG₅, 3, 1, 0; 1996 UX, 3, 1, 0; 1996 VS₄, 3, 1, 0; 1996 VU₅, 3, 1, 0; 1996 VA₇, 3, 1, 0; 1996 VH₈, 3, 1, 0; 1996 VD₉, 3, 1, 0; 1996 VX₁₅, 3, 1, 0; 1996 VY₂₉, 3, 1, 0; 1996 XF₃, 3, 1, 0; 1996 XF₆, 3, 1, 0; 1996 YD₂, 3, 1, 0; 1997 AY, 3, 1, 0; 1997 AS₁₃, 3, 1, 0; 1997 AS₁₆, 3, 1, 0; 1997 FV₅, 3, 1, 0; 1997 YS₁₁, 3, 1, 0; 1998 BV, 3, 1, 0; 1998 BL₁, 3, 1, 0; 1998 BG₄, 3, 1, 0; 1998 BA₇, 3, 1, 0; 1998 BB₈, 6, 2, 2; 1998 BE₈, 3, 1, 0; 1998 BJ₈, 6, 2, 2; 1998 BX₈, 3, 1, 0; 1998 BH₂₅, 6, 2, 2; 1998 BJ₂₆, 3, 1, 0; 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3, 12; 1994 CT₁₂, 10, 2, 1; 1994 CM₁₃, 5, 1, 0; 1994 CC₁₈, 4, 1, 0; 1994 EB₁₄, 3, 5; 1994 EQ₁₂, 12, 3, 2; 1994 ER₃, 10, 2, 1; 1994 FS₂₀, 4, 19; 1994 HA₂₅, 5, 29; 1994 JN₁₀, 2, 7; 1994 PV₅, 1, 0; 1994 PL₉, 4, 1, 0; 1994 PW₁₇, 9, 2, 12; 1994 PV₂₄, 8, 2, 17; 1994 PC₃₄, 5, 1, 0; 1994 SH₃, 5, 1, 0; 1994 VC₇, 9, 2, 1; 1995 FA₁, 15, 3, 12; 1995 FM₁₁, 4, 1, 0; 1995 HG₁₅, 3, 21; 1995 HP₄, 4, 1, 0; 1995 KH₂₅, 25, 3, 4; 1995 LD₁₀, 2, 1; 1995 MG₁, 5, 1, 0; 1995 NB₄, 4, 1, 0; 1995 OJ₁₅, 3, 5; 1995 OT₄, 4, 1, 0; 1995 OD₁, 10, 2, 1; 1995 OE₁, 9, 2, 2; 1995 OX₁, 10, 2, 1; 1995 OH₁₀, 7, 2, 6; 1995 QC₂, 10, 2, 2; 1995 QM₂, 12, 3, 2; 1995 QC₃, 4, 1, 0; 1995 QJ₃, 9, 2, 2; 1995 QS₃, 9, 2, 1; 1995 SB₂, 4, 1, 0; 1995 SZ₄, 18, 4, 12; 1995 SD₅, 14, 3, 12; 1995 SG₅, 10, 2, 1; 1995 SH₅, 5, 1, 0; 1995 SR₉, 13, 3, 12; 1995 SX₁₉, 9, 2, 2; 1995 SO₂₆, 5, 1, 0; 1995 SM₂₉, 5, 1, 0; 1995 SN₂₉, 5, 1, 0; 1995 SO₂₉, 8, 2, 2; 1995 SX₂₉, 4, 1, 0; 1995 ST₄₈, 9, 2, 2; 1995 SV₅₂, 5, 1, 0; 1995 SK₅₃, 14, 3, 5; 1995 SM₅₄, 10, 2, 2; 1995 TC₁₅, 3, 12; 1995 TG₉, 9, 2, 1; 1995 TN₁₈, 4, 12; 1995 TQ₉, 9, 2, 1; 1995 UL₁₀, 2, 7; 1995 US₁₀, 2, 1; 1995 UJ₁₅, 3, 12; 1995 UL₃, 10, 2, 2; 1995 UU₄, 5, 1, 0; 1995 UF₆, 5, 1, 0; 1995 UJ₆, 9, 2, 1; 1995 VR₁₄, 3, 7; 1995 WV₅, 4, 1, 0; 1996 AO₃, 15, 3, 29; 1996 HW₁, 4, 1, 0; 1996 OJ₂, 8, 2, 1; 1996 PK₁₀, 10, 2, 1; 1996 PB₅, 9, 2, 2; 1996 PX₈, 4, 1, 0; 1996 QU₁, 12, 3, 6; 1996 RE₁, 9, 2, 1; 1996 RG₁, 5, 1, 0; 1996 SS₄, 5, 1, 0; 1996 SK₈, 9, 2, 2; 1996 TG₂₃, 23, 5, 23; 1996 TR₈, 8, 2, 2; 1996 TP₁, 4, 1, 0; 1996 TG₅, 4, 1, 0; 1996 TB₆, 4, 1, 0; 1996 TL₉, 5, 1, 0; 1996 TM₁₀, 10, 2, 12; 1996 TR₉, 4, 1, 0; 1996 TK₁₀, 9, 2, 1; 1996 TL₁₀, 19, 4, 19; 1996 TU₁₁, 5, 1, 0; 1996 TC₁₅, 4, 1, 0; 1996 TD₂₁, 13, 3, 6; 1996 TR₄₁, 10, 2, 1; 1996 TH₄₂, 9, 2, 1; 1996 TC₅₄, 5, 1, 0; 1996 UD₅, 5, 1, 0; 1996 UU₉, 9, 2, 1; 1996 UX₁₀, 10, 2, 2; 1996 UG₁, 14, 3, 17; 1996 UK₁, 5, 1, 0; 1996 UD₃, 10, 2, 1; 1996 VN₁₅, 3, 12; 1996 VQ₉, 9, 2, 1; 1996 VO₁, 9, 2, 1; 1996 VC₂, 19, 4, 28; 1996 VG₂, 13, 3, 12; 1996 VU₂, 9, 2, 1; 1996 VK₃, 15, 3, 29; 1996 VN₃, 10, 2, 2; 1996 VS₄, 12, 3, 2; 1996 VU₅, 12, 3, 6; 1996 VV₅, 22, 4, 12; 1996 VX₅, 10, 2, 1; 1996 VB₆, 25, 3, 4; 1996 VD₆, 23, 5, 23; 1996 VP₆, 15, 3, 12; 1996 VA₇, 15, 3, 17; 1996 VR₇, 5, 1, 0; 1996 VU₇, 10, 2, 2; 1996 VZ₇, 4, 1, 0; 1996 VE₈, 15, 3, 7; 1996 VH₈, 10, 2, 3; 1996 VJ₈, 13, 3, 12; 1996 VL₈, 18, 4, 19; 1996 VN₈, 9, 2, 2; 1996 VX₈, 10, 2, 1; 1996 VD₉, 13, 3, 6; 1996 VX₁₅, 20, 4, 12; 1996 VJ₃₀, 3, 1, 0; 1996 VK₃₀, 4, 1, 0; 1996 VO₃₀, 13, 3, 12; 1996 VT₃₀, 15, 3, 12; 1996 WY₁₀, 2, 1; 1996 WZ₉, 9, 2, 1; 1996 WC₂, 5, 1, 0; 1996 XC₉, 9, 2, 1; 1996 XR₉, 9, 2, 1; 1996 XR₁, 9, 2, 1; 1996 XT₁, 20, 3, 4; 1996 XV₁, 8, 2, 1; 1996 XE₂, 5, 1, 0; 1996 XB₃, 10, 2, 2; 1996 XF₃, 10, 2, 2; 1996 XT₅, 10, 2, 1; 1996 XW₅, 10, 2, 1; 1996 XG₉, 9, 2, 1; 1996 XE₁₂, 5, 1, 0; 1996 XW₁₂, 9, 2, 1; 1996 XA₁₈, 10, 2, 1; 1996 XS₁₈, 13, 3, 11; 1996 XJ₁₉, 5, 1, 0; 1996 XV₁₉, 20, 4, 12; 1996 XR₂₅, 5, 1, 0; 1996 XU₂₅, 10, 2, 1; 1996 XN₂₆, 10, 2, 1; 1996 YK₅, 5, 1, 0; 1996 YB₁, 5, 1, 0; 1996 YD₂, 15, 3, 10; 1996 YF₂, 13, 3, 7; 1996 YO₂, 13, 3, 6; 1997 AA₁₀, 10, 2, 2; 1997 AU₁₉, 4, 12; 1997 AY₁₀, 10, 2, 2; 1997 AA₁, 5, 1, 0; 1997 AO₁, 10, 2, 3; 1997 AY₂, 4, 1, 0; 1997 AU₃, 10, 2, 1; 1997 AK₆, 5, 1, 0; 1997 AD₇, 25, 4, 5; 1997 AQ₁₂, 5, 1, 0; 1997 AL₁₃, 15, 3, 7; 1997 AX₁₄, 4, 1, 0; 1997 AP₁₇, 10, 2, 1; 1997 AQ₁₇, 5, 1, 0; 1997 AT₁₈, 15, 3, 12; 1997 AF₂₂, 10, 2, 1; 1997 AN₂₂, 10, 2, 1; 1997 BE₃, 10, 2, 2; 1997 ET₁, 10, 2, 2; 1997 WM₅₆, 4, 1, 0; 1997 WN₅₆, 5, 1, 0; 1997 WS₅₆, 4, 1, 0; 1997 WU₅₆, 4, 1, 0; 1997 WX₅₆, 5, 1, 0; 1997 WY₅₆, 5, 1, 0; 1997 XX₃, 10, 2, 2; 1997 XD₅, 9, 2, 1; 1997 XH₅, 9, 2, 2; 1997 XX₈, 10, 2, 2; 1997 XY₈, 10, 2, 2; 1997 XZ₈, 19, 4, 12; 1997 XA₉, 10, 2, 2; 1997 XB₉, 14, 3, 18; 1997 XC₉, 5, 1, 0; 1997 XH₉, 9, 2, 2; 1997 XE₁₁, 19, 4, 19; 1997 YP₇, 5, 1, 0; 1997 YM₁₀, 5, 1, 0; 1997 YT₁₀, 10, 2, 1; 1997 YR₁₁, 5, 1, 0; 1997 YS₁₁, 10, 2, 21; 1997 YT₁₁, 5, 1, 0

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1998 DE₁₅, 17, 4, 19; 1998 DG₁₅, 14, 3, 19; 1998 DH₁₅, 15, 3, 18; 1998 DJ₁₅, 9, 2, 2; 1998 DK₁₅, 9, 2, 2; 1998 DL₁₅, 10, 2, 2; 1998 DR₁₅, 10, 2, 2; 1998 DC₁₆, 10, 2, 1; 1998 DE₁₆, 15, 3, 19; 1998 DR₁₇, 4, 1, 0; 1998 DC₁₈, 10, 2, 2; 1998 DE₁₈, 9, 2, 2; 1998 DV₁₉, 10, 2, 2; 1998 DF₂₀, 10, 2, 2; 1998 DJ₂₀, 13, 3, 17; 1998 DK₂₀, 10, 2, 17; 1998 DO₂₀, 10, 2, 1; 1998 DS₂₀, 9, 2, 2; 1998 DC₂₁, 9, 2, 1; 1998 DX₂₁, 9, 2, 1; 1998 DB₂₂, 8, 2, 1; 1998 DF₂₂, 8, 2, 1; 1998 DL₂₃, 5, 1, 0; 1998 DO₂₃, 10, 2, 1; 1998 DQ₂₃, 5, 1, 0; 1998 DS₂₃, 9, 2, 1; 1998 DV₂₃, 5, 1, 0; 1998 DZ₂₃, 10, 2, 1; 1998 DA₂₄, 10, 2, 1; 1998 DH₂₄, 8, 2, 2; 1998 DH₂₄, 4, 1, 0; 1998 DJ₂₄, 10, 2, 1; 1998 DM₂₄, 10, 2, 1; 1998 DY₂₆, 10, 2, 1; 1998 DL₂₇, 10, 2, 2; 1998 DM₂₇, 9, 2, 1; 1998 DN₂₇, 5, 1, 0; 1998 DO₂₇, 10, 2, 1; 1998 DQ₂₇, 9, 2, 2; 1998 DV₂₇, 10, 2, 2; 1998 DN₂₈, 9, 2, 2; 1998 DQ₂₈, 8, 2, 2; 1998 DR₂₈, 8, 2, 2; 1998 DX₂₉, 10, 2, 2; 1998 DH₃₁, 4, 1, 0; 1998 DJ₃₁, 4, 1, 0; 1998 DT₃₁, 10, 2, 1; 1998 DV₃₁, 10, 2, 1; 1998 DW₃₁, 19, 4, 19; 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1998 FM₈, 5, 1, 0; 1998 FN₈, 4, 1, 0; 1998 FO₈, 10, 2, 2; 1998 FP₈, 4, 1, 0; 1998 FT₈, 10, 2, 2; 1998 FM₉ *, 15, 4, 10; 1998 FN₉ *, 10, 2, 1; 1998 FW₉, 15, 3, 12; 1998 FY₉, 4, 1, 0; 1998 FA₁₀, 15, 3, 12; 1998 FB₁₀, 14, 3, 12; 1998 FC₁₀, 5, 1, 0; 1998 FD₁₀, 14, 3, 12; 1998 FF₁₀, 14, 3, 12; 1998 FG₁₀, 14, 3, 12; 1998 FH₁₀, 10, 2, 10; 1998 FJ₁₀, 14, 3, 12; 1998 FM₁₀, 4, 1, 0; 1998 FN₁₀, 5, 1, 0; 1998 FP₁₀, 10, 2, 10; 1998 FQ₁₀, 5, 1, 0; 1998 FR₁₀, 15, 3, 12; 1998 FS₁₀, 9, 2, 12; 1998 FU₁₀, 15, 3, 12; 1998 FV₁₀, 14, 3, 12; 1998 FW₁₀, 5, 1, 0; 1998 FX₁₀, 9, 2, 12; 1998 FF₁₁, 10, 2, 2; 1998 FO₁₁, 10, 2, 2; 1998 FP₁₁, 10, 2, 2; 1998 FQ₁₁, 15, 3, 29; 1998 FR₁₁ *, 8, 2, 2; 1998 FT₁₁, 9, 2, 1; 1998 FU₁₁, 9, 2, 2; 1998 FV₁₁, 10, 2, 2; 1998 FW₁₁, 4, 1, 0; 1998 FY₁₁, 5, 1, 0; 1998 FB₁₂, 15, 3, 12; 1998 FC₁₂, 10, 2, 2; 1998 FD₁₂, 10, 2, 2; 1998 FG₁₂ *, 9, 2, 1; 1998 FH₁₂ *, 7, 2, 1; 1998 FL₁₂, 5, 1, 0; 1998 FM₁₂, 10, 2, 2; 1998 FP₁₂, 4, 1, 0; 1998 FQ₁₂, 9, 2, 2; 1998 FR₁₂, 9, 2, 2; 1998 FS₁₂, 10, 2, 10; 1998 FU₁₂, 9, 2, 2; 1998 FE₁₃, 19, 4, 19; 1998 FF₁₃, 10, 2, 2; 1998 FG₁₃, 10, 2, 2; 1998 FY₁₃, 14, 3, 12; 1998 FZ₁₃, 8, 2, 2; 1998 FB₁₄, 9, 2, 2; 1998 FC₁₄, 10, 2, 2; 1998 FD₁₄, 9, 2, 2; 1998 FE₁₄, 10, 2, 2; 1998 FF₁₄ *, 4, 1, 0; 1998 FG₁₄ *, 9, 2, 8; 1998 FH₁₄ *, 19, 4, 12; 1998 FJ₁₄ *, 13, 3, 7; 1998 FK₁₄ *, 13, 3, 8; 1998 FL₁₄, 10, 2, 2; 1998 FM₁₄, 9, 2, 12; 1998 FN₁₄, 15, 3, 12; 1998 FO₁₄, 15, 3, 12; 1998 FP₁₄, 14, 3, 12; 1998 FQ₁₄, 4, 1, 0; 1998 FR₁₄, 9, 2, 12; 1998 FS₁₄,

14, 3, 12; 1998 FT₁₄, 15, 3, 12; 1998 FU₁₄, 9, 2, 2; 1998 FV₁₄, 9, 2, 10; 1998 FW₁₄, 15, 3, 12; 1998 FX₁₄, 14, 3, 12; 1998 FY₁₄, 10, 2, 10; 1998 FZ₁₄, 4, 1, 0; 1998 FC₁₅, 15, 3, 12; 1998 FD₁₅, 15, 3, 12; 1998 FG₁₅ *, 20, 3, 9; 1998 FH₁₅, 14, 3, 12; 1998 FJ₁₅, 10, 2, 2; 1998 FK₁₅, 10, 2, 2; 1998 FM₁₅, 10, 2, 2; 1998 FN₁₅, 8, 2, 1; 1998 FO₁₅, 20, 3, 12; 1998 FR₁₅, 5, 1, 0; 1998 FS₁₅, 5, 1, 0; 1998 FU₁₅, 14, 3, 12; 1998 FV₁₅, 20, 3, 12; 1998 FX₁₅ *, 9, 2, 7; 1998 FY₁₅, 5, 1, 0; 1998 FZ₁₅, 10, 2, 2; 1998 FH₁₆, 9, 2, 2; 1998 FK₁₆ *, 10, 2, 2; 1998 FL₁₆ *, 10, 2, 2; 1998 FM₁₆ *, 8, 2, 2; 1998 FN₁₆ *, 10, 2, 2; 1998 FO₁₆ *, 9, 2, 2; 1998 FP₁₆ *, 9, 2, 2; 1998 FQ₁₆ *, 9, 2, 2; 1998 FR₁₆ *, 10, 2, 2; 1998 FS₁₆ *, 10, 2, 2; 1998 FT₁₆ *, 10, 2, 2; 1998 FU₁₆ *, 9, 2, 2; 1998 FV₁₆ *, 9, 2, 2; 1998 FW₁₆ *, 10, 2, 2; 1998 FX₁₆ *, 10, 2, 2; 1998 FY₁₆ *, 10, 2, 2; 1998 FZ₁₆ *, 10, 2, 2; 1998 FA₁₇ *, 10, 2, 2; 1998 FB₁₇ *, 10, 2, 2; 1998 FC₁₇ *, 9, 2, 2; 1998 FD₁₇ *, 10, 2, 2; 1998 FE₁₇ *, 8, 2, 2; 1998 FF₁₇ *, 9, 2, 2; 1998 FG₁₇ *, 10, 2, 2; 1998 FH₁₇ *, 10, 2, 2; 1998 FJ₁₇ *, 8, 2, 2; 1998 FK₁₇ *, 10, 2, 2; 1998 FL₁₇ *, 10, 2, 2; 1998 FM₁₇ *, 10, 2, 2; 1998 FN₁₇ *, 9, 2, 2; 1998 FO₁₇ *, 9, 2, 2; 1998 FP₁₇ *, 9, 2, 2; 1998 FQ₁₇ *, 9, 2, 2; 1998 FR₁₇ *, 10, 2, 2; 1998 FS₁₇ *, 10, 2, 2; 1998 FT₁₇ *, 10, 2, 2; 1998 FU₁₇ *, 8, 2, 2; 1998 FV₁₇ *, 10, 2, 2; 1998 FW₁₇ *, 10, 2, 2; 1998 FX₁₇ *, 9, 2, 2; 1998 FY₁₇ *, 9, 2, 2; 1998 FZ₁₇ *, 10, 2, 2; 1998 FA₁₈ *, 10, 2, 2; 1998 FB₁₈ *, 10, 2, 2; 1998 FC₁₈ *, 20, 4, 19; 1998 FD₁₈ *, 9, 2, 2; 1998 FE₁₈ *, 9, 2, 2; 1998 FF₁₈ *, 10, 2, 2; 1998 FG₁₈ *, 10, 2, 2; 1998 FH₁₈ *, 10, 2, 2; 1998 FJ₁₈ *, 9, 2, 2; 1998 FK₁₈ *, 10, 2, 2; 1998 FL₁₈ *, 10, 2, 2; 1998 FM₁₈ *, 10, 2, 2; 1998 FN₁₈ *, 10, 2, 2; 1998 FO₁₈ *, 10, 2, 2; 1998 FP₁₈ *, 10, 2, 2; 1998 FQ₁₈ *, 10, 2, 2; 1998 FR₁₈ *, 9, 2, 2; 1998 FS₁₈ *, 10, 2, 2; 1998 FT₁₈ *, 10, 2, 2; 1998 FU₁₈ *, 9, 2, 2; 1998 FV₁₈ *, 10, 2, 2; 1998 FW₁₈ *, 9, 2, 2; 1998 FX₁₈ *, 10, 2, 2; 1998 FY₁₈ *, 18, 4, 19; 1998 FZ₁₈ *, 10, 2, 2; 1998 FA₁₉ *, 9, 2, 2; 1998 FB₁₉ *, 10, 2, 2; 1998 FC₁₉ *, 9, 2, 2; 1998 FD₁₉ *, 10, 2, 2; 1998 FE₁₉ *, 10, 2, 2; 1998 FF₁₉ *, 9, 2, 2; 1998 FG₁₉ *, 10, 2, 2; 1998 FH₁₉ *, 9, 2, 2; 1998 FJ₁₉ *, 9, 2, 2; 1998 FK₁₉ *, 9, 2, 2; 1998 FL₁₉ *, 10, 2, 2; 1998 FM₁₉ *, 10, 2, 2; 1998 FN₁₉ *, 10, 2, 2; 1998 FO₁₉ *, 20, 4, 19; 1998 FP₁₉ *, 10, 2, 2; 1998 FQ₁₉ *, 9, 2, 2; 1998 FR₁₉ *, 9, 2, 2; 1998 FS₁₉ *, 9, 2, 2; 1998 FT₁₉ *, 8, 2, 2; 1998 FU₁₉ *, 10, 2, 2; 1998 FV₁₉ *, 10, 2, 2; 1998 FW₁₉ *, 10, 2, 2; 1998 FX₁₉ *, 10, 2, 2; 1998 FY₁₉ *, 9, 2, 2; 1998 FZ₁₉ *, 9, 2, 2; 1998 FA₂₀ *, 8, 2, 2; 1998 FB₂₀ *, 8, 2, 2; 1998 FC₂₀ *, 10, 2, 2; 1998 FD₂₀ *, 9, 2, 2; 1998 FE₂₀ *, 10, 2, 2; 1998 FF₂₀ *, 10, 2, 2; 1998 FG₂₀ *, 9, 2, 2; 1998 FH₂₀ *, 10, 2, 2; 1998 FJ₂₀ *, 10, 2, 2; 1998 FK₂₀ *, 10, 2, 2; 1998 FL₂₀ *, 9, 2, 2; 1998 FM₂₀ *, 9, 2, 2; 1998 FN₂₀ *, 9, 2, 2; 1998 FO₂₀ *, 10, 2, 2; 1998 FP₂₀ *, 9, 2, 2; 1998 FQ₂₀ *, 10, 2, 2; 1998 FR₂₀ *, 10, 2, 2; 1998 FS₂₀ *, 10, 2, 2; 1998 FT₂₀ *, 10, 2, 2; 1998 FU₂₀ *, 10, 2, 2; 1998 FV₂₀ *, 10, 2, 2; 1998 FW₂₀ *, 10, 2, 2; 1998 FX₂₀ *, 9, 2, 2; 1998 FY₂₀ *, 10, 2, 2; 1998 FZ₂₀ *, 8, 2, 2; 1998 FA₂₁ *, 10, 2, 2; 1998 FB₂₁ *, 10, 2, 2; 1998 FC₂₁ *, 9, 2, 2; 1998 FD₂₁ *, 9, 2, 2; 1998 FE₂₁ *, 9, 2, 2; 1998 FF₂₁ *, 10, 2, 2; 1998 FG₂₁ *, 10, 2, 2; 1998 FH₂₁ *, 9, 2, 2; 1998 FJ₂₁ *, 10, 2, 2; 1998 FK₂₁ *, 9, 2, 2; 1998 FL₂₁ *, 15, 3, 19; 1998 FM₂₁ *, 10, 2, 2; 1998 FN₂₁ *, 10, 2, 2; 1998 FO₂₁ *, 15, 3, 19; 1998 FP₂₁ *, 10, 2, 2; 1998 FQ₂₁ *, 8, 2, 2; 1998 FR₂₁ *, 9, 2, 2; 1998 FS₂₁ *, 9, 2, 2; 1998 FT₂₁ *, 8, 2, 2; 1998 FU₂₁ *, 10, 2, 2; 1998 FV₂₁ *, 10, 2, 2; 1998 FW₂₁ *, 9, 2, 2; 1998 FX₂₁ *, 9, 2, 2; 1998 FY₂₁ *, 9, 2, 2; 1998 FZ₂₁ *, 10, 2, 2; 1998 FA₂₂ *, 10, 2, 2; 1998 FB₂₂ *, 9, 2, 2; 1998 FC₂₂ *, 10, 2, 2; 1998 FD₂₂ *, 9, 2, 2; 1998 FE₂₂ *, 8, 2, 2; 1998 FF₂₂ *, 9, 2, 2; 1998 FG₂₂ *, 10, 2, 2; 1998 FH₂₂ *, 10, 2, 2; 1998 FJ₂₂ *, 10, 2, 2; 1998 FK₂₂ *, 10, 2, 2; 1998 FL₂₂ *, 10, 2, 2; 1998 FM₂₂ *, 10, 2, 2; 1998 FN₂₂ *, 18, 4, 19; 1998 FO₂₂ *, 15, 3, 18; 1998 FP₂₂ *, 9, 2, 2; 1998 FQ₂₂ *, 10, 2, 2; 1998 FR₂₂ *, 10, 2, 2; 1998 FS₂₂ *, 10, 2, 2; 1998 FT₂₂ *, 9, 2, 2; 1998 FU₂₂ *, 10, 2, 2; 1998 FV₂₂ *, 10, 2, 2; 1998 FW₂₂ *, 10, 2, 2; 1998 FX₂₂ *, 10, 2, 2; 1998 FY₂₂ *, 9, 2, 2; 1998 FZ₂₂ *, 10, 2, 2; 1998 FA₂₃ *, 9, 2, 2; 1998 FB₂₃ *,

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1998 FS₄₉ *, 15, 3, 12; 1998 FT₄₉ *, 19, 4, 28; 1998 FU₄₉ *, 13, 3, 12; 1998 FV₄₉ *, 12, 3, 12; 1998 FW₄₉ *, 14, 3, 12; 1998 FX₄₉ *, 10, 2, 2; 1998 FY₄₉ *, 15, 3, 12; 1998 FZ₄₉ *, 10, 2, 2; 1998 FA₅₀ *, 8, 2, 2; 1998 FB₅₀ *, 9, 2, 2; 1998 FC₅₀ *, 8, 2, 2; 1998 FD₅₀ *, 10, 2, 2; 1998 FE₅₀ *, 14, 3, 12; 1998 FF₅₀ *, 15, 3, 18; 1998 FG₅₀ *, 10, 2, 2; 1998 FH₅₀ *, 10, 2, 2; 1998 FJ₅₀ *, 9, 2, 2; 1998 FK₅₀ *, 9, 2, 2; 1998 FL₅₀ *, 10, 2, 2; 1998 FM₅₀ *, 10, 2, 2; 1998 FN₅₀ *, 9, 2, 2; 1998 FO₅₀ *, 10, 2, 2; 1998 FP₅₀ *, 10, 2, 2; 1998 FQ₅₀ *, 10, 2, 2; 1998 FR₅₀ *, 10, 2, 2; 1998 FS₅₀ *, 10, 2, 2; 1998 FT₅₀ *, 10, 2, 2; 1998 FU₅₀ *, 10, 2, 2; 1998 FV₅₀ *, 9, 2, 2; 1998 FW₅₀ *, 10, 2, 2; 1998 FX₅₀ *, 10, 2, 2; 1998 FY₅₀ *, 10, 2, 2; 1998 FZ₅₀ *, 10, 2, 2; 1998 FA₅₁ *, 9, 2, 2; 1998 FB₅₁ *, 10, 2, 2; 1998 FC₅₁ *, 10, 2, 2; 1998 FD₅₁ *, 9, 2, 2; 1998 FE₅₁ *, 10, 2, 2; 1998 FF₅₁ *, 9, 2, 2; 1998 FG₅₁ *, 9, 2, 2; 1998 FH₅₁ *, 9, 2, 2; 1998 FJ₅₁ *, 9, 2, 2; 1998 FK₅₁ *, 10, 2, 2; 1998 FL₅₁ *, 10, 2, 2; 1998 FM₅₁ *, 10, 2, 2; 1998 FN₅₁ *, 10, 2, 2; 1998 FO₅₁ *, 8, 2, 2; 1998 FP₅₁ *, 9, 2, 2; 1998 FQ₅₁ *, 9, 2, 2; 1998 FR₅₁ *, 10, 2, 2; 1998 FS₅₁ *, 8, 2, 2; 1998 FT₅₁ *, 9, 2, 2; 1998 FU₅₁ *, 10, 2, 2; 1998 FV₅₁ *, 10, 2, 2; 1998 FW₅₁ *, 10, 2, 2; 1998 FX₅₁ *, 10, 2, 2; 1998 FY₅₁ *, 9, 2, 2; 1998 FZ₅₁ *, 10, 2, 2; 1998 FA₅₂ *, 9, 2, 2; 1998 FB₅₂ *, 8, 2, 2; 1998 FC₅₂ *, 10, 2, 2; 1998 FD₅₂ *, 10, 2, 2; 1998 FE₅₂ *, 10, 2, 2; 1998 FF₅₂ *, 10, 2, 2; 1998 FG₅₂ *, 9, 2, 2; 1998 FH₅₂ *, 10, 2, 2; 1998 FI₅₂ *, 10, 2, 2; 1998 FJ₅₂ *, 10, 2, 2; 1998 FK₅₂ *, 10, 2, 2; 1998 FL₅₂ *, 9, 2, 2; 1998 FM₅₂ *, 9, 2, 2; 1998 FN₅₂ *, 9, 2, 2; 1998 FO₅₂ *, 10, 2, 2; 1998 FP₅₂ *, 9, 2, 2; 1998 FQ₅₂ *, 10, 2, 2; 1998 FR₅₂ *, 8, 2, 2; 1998 FS₅₂ *, 8, 2, 2; 1998 FT₅₂ *, 15, 3, 12; 1998 FU₅₂ *, 8, 2, 2; 1998 FV₅₂ *, 8, 2, 2; 1998 FW₅₂ *, 8, 2, 2; 1998 FX₅₂ *, 8, 2, 2; 1998 FY₅₂ *, 10, 2, 2; 1998 FZ₅₂ *, 15, 3, 12; 1998 FA₅₃ *, 15, 3, 12; 1998 FB₅₃ *, 13, 3, 12; 1998 FC₅₃ *, 9, 2, 2; 1998 FD₅₃ *, 14, 3, 12; 1998 FE₅₃ *, 9, 2, 2; 1998 FF₅₃ *, 10, 2, 2; 1998 FG₅₃ *, 15, 3, 12; 1998 FH₅₃ *, 15, 3, 12; 1998 FJ₅₃ *, 14, 3, 12; 1998 FK₅₃ *, 13, 3, 12; 1998 FL₅₃ *, 13, 3, 12; 1998 FM₅₃ *, 14, 3, 12; 1998 FN₅₃ *, 14, 3, 12; 1998 FO₅₃ *, 14, 3, 12; 1998 FP₅₃ *, 10, 2, 2; 1998 FQ₅₃ *, 15, 3, 12; 1998 FR₅₃ *, 15, 3, 12; 1998 FS₅₃ *, 20, 4, 12; 1998 FT₅₃ *, 10, 2, 2; 1998 FU₅₃ *, 14, 3, 12; 1998 FV₅₃ *, 14, 3, 12; 1998 FW₅₃ *, 15, 3, 12; 1998 FX₅₃ *, 15, 3, 12; 1998 FY₅₃ *, 19, 4, 12; 1998 FZ₅₃ *, 14, 3, 12; 1998 FA₅₄ *, 10, 2, 2; 1998 FB₅₄ *, 15, 3, 12; 1998 FC₅₄ *, 14, 3, 12; 1998 FD₅₄ *, 15, 3, 12; 1998 FE₅₄ *, 15, 3, 12; 1998 FF₅₄ *, 15, 3, 12; 1998 FG₅₄ *, 10, 2, 2; 1998 FH₅₄ *, 13, 3, 12; 1998 FJ₅₄ *, 8, 2, 2; 1998 FK₅₄ *, 15, 3, 12; 1998 FL₅₄ *, 14, 3, 12; 1998 FM₅₄ *, 13, 3, 12; 1998 FN₅₄ *, 10, 2, 2; 1998 FO₅₄ *, 10, 2, 2; 1998 FP₅₄ *, 8, 2, 2; 1998 FQ₅₄ *, 8, 2, 2; 1998 FR₅₄ *, 9, 2, 2; 1998 FS₅₄ *, 8, 2, 2; 1998 FT₅₄ *, 10, 2, 2; 1998 FU₅₄ *, 10, 2, 2; 1998 FV₅₄ *, 9, 2, 2; 1998 FW₅₄ *, 8, 2, 2; 1998 FX₅₄ *, 9, 2, 2; 1998 FY₅₄ *, 9, 2, 2; 1998 FZ₅₄ *, 9, 2, 2; 1998 FA₅₅ *, 10, 2, 2; 1998 FB₅₅ *, 9, 2, 2; 1998 FC₅₅ *, 8, 2, 2; 1998 FD₅₅ *, 10, 2, 2; 1998 FE₅₅ *, 10, 2, 2; 1998 FF₅₅ *, 10, 2, 2; 1998 FG₅₅ *, 10, 2, 2; 1998 FH₅₅ *, 10, 2, 2; 1998 FI₅₅ *, 10, 2, 2; 1998 FJ₅₅ *, 10, 2, 2; 1998 FK₅₅ *, 10, 2, 2; 1998 FL₅₅ *, 9, 2, 2; 1998 FM₅₅ *, 10, 2, 2; 1998 FN₅₅ *, 10, 2, 2; 1998 FO₅₅ *, 10, 2, 2; 1998 FP₅₅ *, 10, 2, 2; 1998 FQ₅₅ *, 9, 2, 2; 1998 FR₅₅ *, 10, 2, 2; 1998 FS₅₅ *, 10, 2, 2; 1998 FT₅₅ *, 10, 2, 2; 1998 FU₅₅ *, 9, 2, 2; 1998 FV₅₅ *, 8, 2, 2; 1998 FW₅₅ *, 10, 2, 2; 1998 FX₅₅ *, 10, 2, 2; 1998 FY₅₅ *, 8, 2, 2; 1998 FZ₅₅ *, 10, 2, 2; 1998 FA₅₆ *, 10, 2, 2; 1998 FB₅₆ *, 10, 2, 2; 1998 FC₅₆ *, 10, 2, 2; 1998 FD₅₆ *, 10, 2, 2; 1998 FE₅₆ *, 10, 2, 2; 1998 FF₅₆ *, 10, 2, 2; 1998 FG₅₆ *, 9, 2, 2; 1998 FH₅₆ *, 10, 2, 2; 1998 FJ₅₆ *, 10, 2, 2; 1998 FK₅₆ *, 9, 2, 2; 1998 FL₅₆ *, 9, 2, 2; 1998 FM₅₆ *, 9, 2, 2; 1998 FN₅₆ *, 8, 2, 2; 1998 FO₅₆ *, 8, 2, 2; 1998 FP₅₆ *, 9, 2, 2; 1998 FQ₅₆ *, 10, 2, 2; 1998 FR₅₆ *, 9, 2, 2; 1998 FS₅₆ *, 8, 2, 2; 1998 FT₅₆ *, 9, 2, 2; 1998 FU₅₆ *, 10, 2, 2; 1998 FV₅₆ *, 9, 2, 2; 1998 FW₅₆ *, 10, 2, 2; 1998 FX₅₆ *, 9, 2, 2; 1998 FY₅₆ *, 15, 3, 12; 1998 FZ₅₆ *, 10, 2, 2; 1998 FA₅₇ *, 15, 3, 12; 1998 FB₅₇ *, 14, 3, 12; 1998 FC₅₇ *, 10, 2, 2; 1998 FD₅₇ *, 10, 2, 2; 1998 FE₅₇ *, 9, 2, 2; 1998 FF₅₇ *, 10, 2, 2; 1998 FG₅₇ *, 10, 2, 2; 1998 FH₅₇ *, 10, 2, 2; 1998 FJ₅₇ *, 15, 3, 12; 1998 FK₅₇ *, 10, 2, 2; 1998 FL₅₇ *, 8, 2, 2; 1998 FM₅₇ *, 9, 2, 2; 1998 FN₅₇ *, 15, 3, 12; 1998 FO₅₇ *, 10, 2, 2; 1998 FP₅₇ *, 15, 3, 12; 1998 FQ₅₇ *, 15, 3, 12; 1998 FR₅₇ *, 14, 3, 12; 1998 FS₅₇ *, 13, 3, 12; 1998 FT₅₇ *, 9, 2, 2; 1998 FU₅₇ *, 14, 3, 12; 1998 FV₅₇ *, 8, 2, 2; 1998 FW₅₇ *, 14, 3, 12; 1998 FX₅₇ *, 15, 3, 12; 1998 FY₅₇ *, 9, 2, 2; 1998 FZ₅₇ *, 10, 2, 2; 1998 FA₅₈ *, 15, 3, 12; 1998 FB₅₈ *, 8, 2, 2; 1998 FC₅₈ *, 9, 2, 2; 1998 FD₅₈ *, 14, 3, 12; 1998 FE₅₈ *, 8, 2, 2; 1998 FF₅₈ *, 10, 2, 2; 1998 FG₅₈ *, 10, 2, 2; 1998 FH₅₈ *, 15, 3, 12; 1998 FJ₅₈ *, 15, 3, 12; 1998 FK₅₈ *, 15, 3, 12; 1998 FL₅₈ *, 10, 2, 2; 1998 FM₅₈ *, 14, 3, 12; 1998 FN₅₈ *, 10, 2, 2; 1998 FO₅₈ *, 10, 2, 2; 1998 FP₅₈ *, 10, 2, 2; 1998 FQ₅₈ *, 10, 2, 2; 1998 FR₅₈ *, 10, 2, 2; 1998 FS₅₈ *, 10, 2, 2; 1998 FT₅₈ *, 9, 2, 2; 1998 FU₅₈ *, 9, 2, 2; 1998 FV₅₈ *, 10, 2, 2; 1998 FW₅₈ *, 10, 2, 2; 1998 FX₅₈ *, 10, 2, 2; 1998 FY₅₈ *, 9, 2, 2; 1998 FZ₅₈ *, 9, 2, 2; 1998 FA₅₉ *, 10, 2, 2; 1998 FB₅₉ *, 10, 2, 2; 1998 FC₅₉ *, 10, 2, 2; 1998 FD₅₉ *, 9, 2, 2; 1998 FE₅₉ *, 10, 2, 2; 1998 FF₅₉ *, 9, 2, 2; 1998 FG₅₉ *, 10, 2, 2; 1998 FH₅₉ *, 10, 2, 2; 1998 FJ₅₉ *, 10, 2, 2; 1998 FK₅₉ *, 10, 2, 2; 1998 FL₅₉ *, 10, 2, 2; 1998 FM₅₉ *, 10, 2, 2; 1998 FN₅₉ *, 9, 2, 2; 1998 FO₅₉ *, 9, 2, 2; 1998 FP₅₉ *, 9, 2, 2; 1998 FQ₅₉ *, 10, 2, 2; 1998 FR₅₉ *, 10, 2, 2; 1998 FS₅₉ *, 8, 2, 2; 1998 FT₅₉ *, 10, 2, 2; 1998 FU₅₉ *, 10, 2, 2; 1998 FV₅₉ *, 10, 2, 2; 1998 FW₅₉ *, 10, 2, 2; 1998 FX₅₉ *, 10, 2, 2; 1998 FY₅₉ *, 9, 2, 2; 1998 FZ₅₉ *, 10, 2, 2; 1998 FA₆₀ *, 10, 2, 2; 1998 FB₆₀ *, 9, 2, 2; 1998 FC₆₀ *, 8, 2, 2; 1998 FD₆₀ *, 10, 2, 2; 1998 FE₆₀ *, 10, 2, 2; 1998 FF₆₀ *, 10, 2, 2; 1998 FG₆₀ *, 10, 2, 2; 1998 FH₆₀ *, 9, 2, 2; 1998 FJ₆₀ *, 8, 2, 2; 1998 FK₆₀ *, 9, 2, 2; 1998 FL₆₀ *, 10, 2, 2; 1998 FM₆₀ *, 10, 2, 2; 1998 FN₆₀ *, 10, 2, 2; 1998 FO₆₀ *, 9, 2, 2; 1998 FP₆₀ *, 10, 2, 2; 1998 FQ₆₀ *, 15, 3, 12; 1998 FR₆₀ *, 15, 3, 12; 1998 FS₆₀ *, 15, 3, 12; 1998 FT₆₀ *, 10, 2, 2; 1998 FU₆₀ *, 10, 2, 2; 1998 FV₆₀ *, 10, 2, 2; 1998 FW₆₀ *, 9, 2, 2; 1998 FX₆₀ *, 15, 3, 12; 1998 FY₆₀ *, 10,

2, 2; 1998 FZ₆₀ *, 13, 3, 12; 1998 FA₆₁ *, 10, 2, 2; 1998 FB₆₁ *, 9, 2, 2; 1998 FC₆₁ *, 10, 2, 2; 1998 FD₆₁ *, 10, 2, 2; 1998 FE₆₁ *, 14, 3, 12; 1998 FF₆₁ *, 14, 3, 12; 1998 FG₆₁ *, 8, 2, 2; 1998 FH₆₁ *, 10, 2, 2; 1998 FJ₆₁ *, 10, 2, 2; 1998 FK₆₁ *, 13, 3, 12; 1998 FL₆₁ *, 15, 3, 12; 1998 FM₆₁ *, 10, 2, 2; 1998 FN₆₁ *, 10, 2, 2; 1998 FO₆₁ *, 14, 3, 12; 1998 FP₆₁ *, 10, 2, 2; 1998 FQ₆₁ *, 9, 2, 2; 1998 FR₆₁ *, 15, 3, 12; 1998 FS₆₁ *, 15, 3, 12; 1998 FT₆₁ *, 15, 3, 12; 1998 FU₆₁ *, 15, 3, 12; 1998 FV₆₁ *, 9, 2, 2; 1998 FW₆₁ *, 10, 2, 2; 1998 FX₆₁ *, 10, 2, 2; 1998 FY₆₁ *, 10, 2, 2; 1998 FZ₆₁ *, 10, 2, 2; 1998 FA₆₂ *, 9, 2, 2; 1998 FB₆₂ *, 9, 2, 2; 1998 FC₆₂ *, 15, 3, 12; 1998 FD₆₂ *, 10, 2, 2; 1998 FE₆₂ *, 10, 2, 2; 1998 FF₆₂ *, 15, 3, 12; 1998 FG₆₂ *, 14, 3, 12; 1998 FH₆₂ *, 9, 2, 2; 1998 FJ₆₂ *, 9, 2, 2; 1998 FK₆₂ *, 10, 2, 2; 1998 FL₆₂ *, 10, 2, 2; 1998 FM₆₂ *, 9, 2, 2; 1998 FN₆₂ *, 10, 2, 2; 1998 FO₆₂ *, 10, 2, 2; 1998 FP₆₂ *, 10, 2, 2; 1998 FQ₆₂ *, 14, 3, 12; 1998 FR₆₂ *, 14, 3, 12; 1998 FS₆₂ *, 15, 3, 12; 1998 FT₆₂ *, 10, 2, 2; 1998 FU₆₂ *, 10, 2, 2; 1998 FV₆₂ *, 15, 3, 12; 1998 FW₆₂ *, 15, 3, 12; 1998 FX₆₂ *, 15, 3, 12; 1998 FY₆₂ *, 10, 2, 2; 1998 FZ₆₂ *, 10, 2, 2; 1998 FA₆₃ *, 15, 3, 12; 1998 FB₆₃ *, 10, 2, 2; 1998 FC₆₃ *, 10, 2, 2; 1998 FD₆₃ *, 15, 3, 12; 1998 FE₆₃ *, 14, 3, 12; 1998 FF₆₃ *, 9, 2, 2; 1998 FG₆₃ *, 10, 2, 2; 1998 FH₆₃ *, 10, 2, 2; 1998 FJ₆₃ *, 8, 2, 2; 1998 FK₆₃ *, 15, 3, 11; 1998 FL₆₃ *, 10, 2, 2; 1998 FM₆₃ *, 9, 2, 2; 1998 FN₆₃ *, 8, 2, 2; 1998 FO₆₃ *, 9, 2, 2; 1998 FP₆₃ *, 10, 2, 2; 1998 FQ₆₃ *, 10, 2, 2; 1998 FR₆₃ *, 9, 2, 2; 1998 FS₆₃ *, 10, 2, 2; 1998 FT₆₃ *, 10, 2, 2; 1998 FU₆₃ *, 10, 2, 2; 1998 FV₆₃ *, 10, 2, 2; 1998 FW₆₃ *, 10, 2, 2; 1998 FX₆₃ *, 10, 2, 2; 1998 FY₆₃ *, 10, 2, 2; 1998 FZ₆₃ *, 9, 2, 2; 1998 FA₆₄ *, 10, 2, 2; 1998 FB₆₄ *, 10, 2, 2; 1998 FC₆₄ *, 10, 2, 2; 1998 FD₆₄ *, 8, 2, 2; 1998 FE₆₄ *, 10, 2, 2; 1998 FF₆₄ *, 9, 2, 2; 1998 FG₆₄ *, 15, 3, 11; 1998 FH₆₄ *, 15, 3, 11; 1998 FJ₆₄ *, 10, 2, 2; 1998 FK₆₄ *, 9, 2, 2; 1998 FL₆₄ *, 10, 2, 2; 1998 FM₆₄ *, 8, 2, 2; 1998 FN₆₄ *, 8, 2, 2; 1998 FO₆₄ *, 8, 2, 2; 1998 FP₆₄ *, 9, 2, 2; 1998 FQ₆₄ *, 10, 2, 2; 1998 FR₆₄ *, 10, 2, 2; 1998 FS₆₄ *, 9, 2, 2; 1998 FT₆₄ *, 10, 2, 2; 1998 FU₆₄ *, 10, 2, 2; 1998 FV₆₄ *, 9, 2, 2; 1998 FW₆₄ *, 15, 3, 12; 1998 FX₆₄ *, 14, 3, 12; 1998 FY₆₄ *, 15, 3, 12; 1998 FZ₆₄ *, 10, 2, 2; 1998 FA₆₅ *, 14, 3, 12; 1998 FB₆₅ *, 14, 3, 12; 1998 FC₆₅ *, 10, 2, 2; 1998 FD₆₅ *, 9, 2, 2; 1998 FE₆₅ *, 10, 2, 2; 1998 FG₆₅ *, 14, 3, 12; 1998 FH₆₅ *, 9, 2, 2; 1998 FJ₆₅ *, 10, 2, 2; 1998 FK₆₅ *, 9, 2, 2; 1998 FL₆₅ *, 8, 2, 2; 1998 FM₆₅ *, 9, 2, 2; 1998 FN₆₅ *, 14, 3, 12; 1998 FO₆₅ *, 10, 2, 2; 1998 FP₆₅ *, 10, 2, 2; 1998 FQ₆₅ *, 15, 3, 12; 1998 FR₆₅ *, 15, 3, 12; 1998 FS₆₅ *, 15, 3, 12; 1998 FT₆₅ *, 9, 2, 2; 1998 FU₆₅ *, 15, 3, 12; 1998 FV₆₅ *, 14, 3, 12; 1998 FW₆₅ *, 13, 3, 12; 1998 FX₆₅ *, 10, 2, 2; 1998 FY₆₅ *, 15, 3, 12; 1998 FZ₆₅ *, 10, 2, 2; 1998 FA₆₆ *, 19, 4, 29; 1998 FB₆₆ *, 8, 2, 2; 1998 FC₆₆ *, 15, 3, 12; 1998 FD₆₆ *, 15, 3, 12; 1998 FE₆₆ *, 15, 3, 12; 1998 FF₆₆ *, 15, 3, 12; 1998 FG₆₆ *, 15, 3, 12; 1998 FH₆₆ *, 13, 3, 12; 1998 FJ₆₆ *, 10, 2, 2; 1998 FK₆₆ *, 10, 2, 2; 1998 FL₆₆ *, 10, 2, 2; 1998 FM₆₆ *, 9, 2, 2; 1998 FN₆₆ *, 9, 2, 2; 1998 FO₆₆ *, 9, 2, 2; 1998 FP₆₆ *, 9, 2, 2; 1998 FQ₆₆ *, 9, 2, 2; 1998 FR₆₆ *, 9, 2, 2; 1998 FS₆₆ *, 10, 2, 2; 1998 FT₆₆ *, 10, 2, 2; 1998 FU₆₆ *, 8, 2, 2; 1998 FV₆₆ *, 8, 2, 2; 1998 FW₆₆ *, 8, 2, 2; 1998 FX₆₆ *, 10, 2, 2; 1998 FY₆₆ *, 10, 2, 2; 1998 FZ₆₆ *, 9, 2, 2; 1998 FA₆₇ *, 9, 2, 2; 1998 FB₆₇ *, 10, 2, 2; 1998 FC₆₇ *, 10, 2, 2; 1998 FD₆₇ *, 10, 2, 2; 1998 FE₆₇ *, 9, 2, 2; 1998 FF₆₇ *, 10, 2, 2; 1998 FG₆₇ *, 9, 2, 2; 1998 FH₆₇ *, 10, 2, 2; 1998 FJ₆₇ *, 10, 2, 2; 1998 FK₆₇ *, 10, 2, 2; 1998 FL₆₇ *, 9, 2, 2; 1998 FM₆₇ *, 10, 2, 2; 1998 FN₆₇ *, 10, 2, 2; 1998 FO₆₇ *, 8, 2, 2; 1998 FP₆₇ *, 10, 2, 2; 1998 FQ₆₇ *, 10, 2, 2; 1998 FR₆₇ *, 10, 2, 2; 1998 FS₆₇ *, 10, 2, 2; 1998 FT₆₇ *, 10, 2, 2; 1998 FU₆₇ *, 9, 2, 2; 1998 FV₆₇ *, 9, 2, 2; 1998 FW₆₇ *, 10, 2, 2; 1998 FX₆₇ *, 10, 2, 2; 1998 FY₆₇ *, 9, 2, 2; 1998 FZ₆₇ *, 10, 2, 2; 1998 FA₆₈ *, 8, 2, 2; 1998 FB₆₈ *, 8, 2, 2; 1998 FC₆₈ *, 8, 2, 2; 1998 FD₆₈ *, 10, 2, 2; 1998 FE₆₈ *, 13, 3, 12; 1998 FG₆₈ *, 14, 3, 12; 1998 FH₆₈ *, 8, 2, 2; 1998 FJ₆₈ *, 9, 2, 2; 1998 FK₆₈ *, 15, 3, 12; 1998 FL₆₈ *, 19, 4, 29; 1998 FM₆₈ *, 14, 3, 12; 1998 FN₆₈ *, 14, 3, 12; 1998 FO₆₈ *, 15, 3, 12; 1998 FP₆₈ *, 10, 2, 2; 1998 FQ₆₈ *, 9, 2, 2; 1998 FR₆₈ *, 9, 2, 2; 1998 FS₆₈ *, 15, 3, 12; 1998 FT₆₈ *, 9, 2, 2; 1998 FU₆₈ *, 15, 3, 12; 1998 FV₆₈ *, 15, 3, 12; 1998 FW₆₈ *, 8, 2, 2; 1998 FX₆₈ *, 15, 3, 12; 1998 FY₆₈ *, 8, 2, 2; 1998 FZ₆₈ *, 14, 3, 12; 1998 FA₆₉ *, 14, 3, 12; 1998 FB₆₉ *, 13, 3, 12; 1998 FC₆₉ *, 9, 2, 2; 1998 FD₆₉ *, 9, 2, 2; 1998 FE₆₉ *, 15, 3, 12;

1998 FF₇₂ *, 9, 2, 2; 1998 FG₇₂ *, 9, 2, 2; 1998 FH₇₂ *, 9, 2, 2; 1998 FJ₇₂ *, 8, 2, 2; 1998 FK₇₂ *, 13, 3, 12; 1998 FL₇₂ *, 8, 2, 2; 1998 FM₇₂ *, 12, 3, 12; 1998 FN₇₂ *, 8, 2, 2; 1998 FO₇₂ *, 14, 3, 12; 1998 FP₇₂ *, 14, 3, 12; 1998 FQ₇₂ *, 9, 2, 2; 1998 FR₇₂ *, 8, 2, 2; 1998 FA₇₃, 4, 1, 0; 1998 FB₇₃, 4, 1, 0; 1998 FF₇₃ *, 10, 2, 4; 1998 FG₇₃ *, 10, 2, 3; 1998 FH₇₃ *, 9, 2, 3; 1998 FJ₇₃ *, 9, 2, 3; 1998 FK₇₃ *, 9, 2, 1; 1998 FL₇₃ *, 9, 2, 1; 1998 FM₇₃ *, 8, 2, 1; 1998 FN₇₃ *, 8, 2, 1; 1998 FZ₇₃, 5, 1, 0; 1998 FH₇₄ *, 15, 3, 3; 1998 FJ₇₄ *, 22, 4, 4; 1998 GB *, 10, 2, 1; 1998 GC *, 10, 2, 1; 1998 GD *, 10, 2, 1; 1998 GE *, 8, 2, 1; 1998 GF *, 8, 2, 1; 1998 GG *, 8, 2, 1; 1998 GH *, 8, 2, 1; 1998 GJ *, 8, 2, 1; 1998 GK *, 8, 2, 1; 1998 GC₁ *, 38, 3, 6; 2025 P-L, 15, 3, 12; 2043 P-L, 9, 2, 7; 2197 P-L, 15, 3, 12; 2563 P-L, 10, 2, 2; 2583 P-L, 4, 1, 0; 2604 P-L, 9, 2, 1; 2636 P-L, 10, 2, 2; 2727 P-L, 10, 2, 2; 4014 P-L, 13, 3, 6; 4017 P-L, 5, 1, 0; 4025 P-L, 10, 2, 1; 4049 P-L, 7, 2, 6; 4068 P-L, 14, 3, 12; 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(5623), 10, 2, 2; (5624), 5, 1, 0; (5628), 15, 3, 12; (5661), 10, 2, 1; (5689), 10, 2, 1; (5696), 14, 2, 2; (5711), 13, 3, 6; (5744), 10, 2, 2; (5745), 10, 2, 2; (5774), 9, 2, 1; (5781), 10, 2, 2; (5783), 10, 2, 1; (5817), 8, 2, 6; (5822), 9, 2, 1; (5830), 5, 1, 0; (5850), 13, 3, 6; (5859), 14, 3, 5; (5861), 5, 1, 0; (5862), 10, 2, 3; (5872), 10, 2, 1; (5873), 5, 1, 0; (5875), 10, 2, 1; (5878), 9, 2, 1; (5895), 10, 2, 7; (5906), 4, 1, 0; (5912), 10, 2, 2; (5915), 5, 1, 0; (5916), 5, 1, 0; (5935), 15, 3, 12; (5937), 10, 2, 2; (5938), 15, 3, 12; (5951), 10, 2, 1; (5954), 10, 2, 1; (5962), 9, 2, 1; (5964), 13, 3, 6; (5966), 10, 2, 2; (5969), 10, 2, 2; (5972), 10, 2, 2; (5973), 5, 1, 0; (5988), 10, 2, 1; (5994), 10, 2, 1; (5997), 9, 2, 1; (5998), 10, 2, 2; (6000), 5, 1, 0; (6011), 10, 2, 7; (6026), 10, 2, 2; (6028), 3, 1, 0; (6030), 10, 2, 2; (6052), 13, 3, 6; (6056), 10, 2, 7; (6068), 10, 2, 1; (6075), 9, 2, 2; (6079), 10, 2, 1; (6080), 15, 3, 12; (6086), 9, 2, 1; (6103), 10, 2, 2; (6106), 5, 1, 0; 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6; (6654), 9, 2, 2; (6671), 10, 2, 2; (6678), 5, 1, 0; (6684), 10, 2, 2; (6688), 10, 2, 7; (6696), 15, 3, 12; (6697), 9, 2, 1; (6717), 10, 2, 1; (6720), 5, 1, 0; (6747), 19, 4, 12; (6749), 13, 3, 12; (6760), 10, 2, 7; (6761), 8, 2, 12; (6766), 9, 2, 7; (6781), 10, 2, 1; (6794), 10, 2, 1; (6797), 15, 3, 12; (6799), 9, 2, 2; (6802), 14, 3, 10; (6803), 5, 1, 0; (6835), 8, 2, 3; (7129), 10, 2, 1; (7142), 10, 2, 2; (7143), 15, 3, 7; (7184), 5, 1, 0; (7196), 4, 1, 0; (7219), 9, 2, 2; (7227), 8, 2, 2; (7230), 8, 2, 6; (7232), 4, 1, 0; (7235), 20, 4, 12; (7240), 20, 4, 12; (7242), 12, 3, 2; (7245), 10, 2, 2; (7247), 15, 3, 8; (7254), 5, 1, 0; (7257), 19, 3, 8; (7261), 15, 3, 4; (7268), 10, 2, 2; (7281), 17, 4, 6; (7283), 20, 4, 12; (7288), 10, 2, 7; (7295), 13, 3, 6; (7296), 15, 3, 4; (7297), 10, 2, 1; (7302), 9, 2, 1; (7309), 13, 2, 1; (7311), 20, 4, 12; (7321), 13, 3, 6; (7325), 10, 2, 2; (7329), 5, 1, 0; (7333), 10, 2, 1; (7334), 10, 2, 2; (7339), 5, 1, 0; (7340), 10, 2, 2; (7355), 9, 2, 1; (7370), 10, 2, 2; (7371), 5, 1, 0; (7372), 10, 2, 3; (7376), 20, 4, 12; (7378), 9, 2, 7; (7381), 10, 2, 2; (7384), 19, 4, 12; (7390), 4, 1, 0; (7392), 10, 2, 1; (7397), 15, 3, 12; (7399), 9, 2, 7; (7402), 10, 2, 1; (7404), 10, 2, 2; (7406), 13, 3, 12; (7408), 13, 3, 6; (7409), 10, 2, 3; (7411), 10, 2, 2; (7419), 10, 2, 1; (7422), 5, 1, 0; (7423), 5, 1, 0; (7424), 14, 3, 7; (7432), 10, 2, 2; (7434), 5, 1, 0; (7445), 10, 2, 2; (7446), 14, 3, 12; (7447), 10, 2, 1; (7449), 5, 1, 0; (7452), 10, 2, 3; (7454), 15, 3, 12; (7466), 10, 2, 2; (7468), 15, 3, 5; (7491), 9, 2, 1; (7500), 9, 2, 1; (7502), 10, 2, 2; (7503), 10, 2, 7; (7508), 9, 2, 2; (7511), 5, 1, 0; (7519), 5, 1, 0; (7521), 9, 2, 2; (7528), 10, 2, 2; (7530), 10, 2, 1; (7538), 18, 4, 12; (7545), 5, 1, 0; (7582), 12, 3, 2; (7593), 10, 2, 1; (7597), 5, 1, 0; (7607), 20, 3, 4; (7617), 13, 3, 6; (7618), 4, 1, 0; (7624), 13, 3, 7; (7638), 10, 2, 2; (7650), 5, 1, 0; (7662), 25, 5, 12; (7692), 18, 4, 12; (7737), 14, 3, 12; (7751), 4, 1, 0; (7802), 15, 3, 12; (8050), 5, 1, 0; (8228), 13, 3, 6; (8275), 10, 2, 1; (8325), 25, 5, 28; (8327), 10, 2, 1; (8333), 12, 3, 2; (8337), 10, 2, 1; (8340), 10, 2, 1; (8342), 13, 3, 6; (8343), 22, 5, 23; (8346), 10, 2, 1; (8351), 15, 3, 17; (8357), 10, 2, 1; (8358), 4, 1, 0; (8367), 10, 2, 1; (8371), 9, 2, 1; (8375), 10, 2, 1; (8376), 5, 1, 0; (8378), 5, 1, 0; (8381), 10, 2, 1; (8387), 10, 2, 1; (8388), 10, 2, 2; (8389), 20, 4, 19; (8390), 10, 2, 1; (8391), 10, 2, 1; (8394), 5, 1, 0; (8395), 10, 2, 1; (8403), 10, 2, 1; (8404), 5, 1, 0; (8407), 5, 1, 0; (8409), 10, 2, 1; (8412), 4, 1, 0; (8413), 5, 1, 0; (8416), 10, 2, 1; (8417), 10, 2, 1; (8418), 10, 2, 1; (8419), 5, 1, 0; (8420), 10, 2, 1; (8421), 29, 3, 4; (8422), 4, 1, 0; (8434), 20, 4, 19; (8435), 10, 2, 1; (8436), 9, 2, 1; (8438), 9, 2, 1; (8439), 9, 2, 1; [35417, 3424, 1463*, 1997/11/29–1998/04/04]

706 Salinas

J. E. Hall, 10180 County Rd. 190, Salida, CO 81201, U.S.A. [teila@rmi.net]

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

GSC

(5425), 2, 1, 0; (6037), 3, 1, 0; [5, 2, 0*, 1998/03/25–1998/03/26]

709 W & B Observatory, Cloudcroft

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

[loffutt@galileo.apo.nmsu.edu]

0.60-m $f/7$ Ritchey-Chrétien + CCD

USNO-SA1.0

1998 DB₁₃, 5, 1, 0; [5, 1, 0*, 1998/03/25]

710 Florissant

B. D. Warner, Box 818, Florissant, CO 80816, U.S.A.

[71511.515@compuserve.com]

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

GSC, USNO SA-1.0

(30), 4, 2, 1; (36), 4, 2, 1; (56), 3, 2, 1; (63), 4, 2, 1; (88), 4, 2, 1; (99), 4, 2, 1; (164), 4, 2, 1; (172), 4, 2, 1; (192), 4, 2, 1; (214), 4, 2, 1; (260), 4, 2, 1; (279), 4, 2, 1; (292), 4, 2, 1; (388), 4, 2, 1; (401), 4, 2, 1; (6031), 4, 2, 1; (6037), 17, 1, 0; (6057), 4, 2, 1; (6333), 4, 2, 1; (6381), 4, 2, 1; (6406), 4, 2, 1; (6590), 4, 2, 1; (6603), 4, 2, 1; (6668), 4, 2, 1; (6770), 4, 2, 1; (7116), 4, 2, 1; (7303), 4, 2, 1; (7307), 4, 2, 1; (7309), 4, 2, 1; (7348), 4, 2, 1; (7366), 3, 2, 1; (7418), 4, 2, 1; (7551), 4, 2, 1; (7592), 2, 1, 0; (7605), 4, 2, 1; (7775), 4, 2, 1; [153, 36, 0*, 1998/02/20–1998/03/02]

711 McDonald Observatory

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

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

Observers J. G. Reis, P. J. Shelus, T. Montemayor

Measurer P. J. Shelus

0.76-m $f/3.0$ reflector + CCD

GSC

1997 XF₁₁, 11, 5, 4; [11, 1, 0*, 1998/03/19–1998/03/23]

713 Thornton

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

[Bob.Koff@worldnet.att.net]

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

GSC, USNO-SA1.0

1992 YW₃, 2, 1, 0; (3800), 6, 2, 7; [8, 2, 0*, 1998/03/04–1998/04/01]

721 Lime Creek

R. Linderholm, R2 Box 79, Cambridge, NE 69022, U.S.A.

[lindh@csb.cambridge.ne.us]

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

GSC

1989 SZ₁, 4, 2, 2; 1998 FL₁ *, 6, 3, 12; 1998 FG₁₁ *, 6, 3, 8; [16, 3, 2*, 1998/03/21–1998/04/02]

727 Zeno Observatory, Edmond

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

[tstaffor@aig.vialink.com]

0.15m $f/6$ refractor + CCD

GSC

1998 BV₂₅, 2, 1, 0; 1998 DZ₁₂, 17, 6, 23; 1998 FQ₂ *, 14, 5, 11; (2586), 5, 2, 4; (3717), 3, 1, 0; (3780), 5, 2, 4; (3933), 2, 1, 0; (5167), 5, 2, 2; (5745), 2, 1, 0; (6414), 3, 1, 0; (7283), 3, 1, 0; (7597), 3, 1, 0; [64, 12, 1*, 1998/03/09–1998/04/01]

728 Corpus Christi

B. Holliday, 4538 Hogan, Corpus Christi, TX 78413, U.S.A.

0.40-m $f/4.5$ reflector + CCD

GSC

1997 YX₃, 4, 2, 1; 1997 YL₁₁, 3, 2, 1; (2185), 2, 1, 0; [9, 3, 0*, 1998/02/17–1998/02/28]

732 Oaxaca

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

0.20-m $f/3.3$ reflector + CCD

GSC

1981 EQ, 12, 4, 3; 1986 AT₂, 4, 2, 1; 1988 VP, 5, 2, 1; 1989 YL₅, 6, 2, 1; 1990 HP, 6, 2, 1; 1991 PC₁₁, 5, 2, 1; 1991 TR₁, 7, 3, 2; 1993 GL, 5, 2, 1; 1995 UJ₄, 6, 2, 1; 1996 VS₅, 4, 2, 2; 1997 AL₁, 6, 2, 1; 1997 AL₁₃, 6, 2, 1; 1998 DU, 5, 2, 1; 1998 DU₇, 7, 4, 10; 1998 EP₁₁, 13, 4, 3; 1998 FY₂ *, 6, 2, 1; 1998 GA *, 12, 4, 3; 2080 T-2, 4, 2, 1; 3060 T-2, 6, 2, 1; (3153), 5, 2, 1; (6684), 3, 1, 0; [133, 21, 2*, 1998/03/19–1998/04/06]

757 High Point

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

[Dkchesney@aol.com]

0.25-m Schmidt-Cassegrain + CCD

USNO-A1.0

(2601), 4, 2, 3; (3754), 4, 2, 2; [8, 2, 0*, 1998/03/11–1998/03/16]

758 BCC Observatory, Cocoa

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

[GRIFFIN.I@a1.brevard.cc.fl.us]

0.30-m $f/5$ Maksutov + CCD

GSC

1991 CU₁, 7, 3, 3; 1993 BM, 5, 2, 3; 1994 AP₂, 3, 1, 0; 1994 AH₃, 2, 1, 0; 1994 ER₃, 6, 3, 7; 1994 JK₉, 3, 1, 0; 1996 VQ, 4, 2, 1; 1998 DT₁₀, 33, 13, 25; 1998 ES₈, 3, 1, 0; 1998 FA *, 37, 12, 20; 1998 FX₂, 21, 7, 11; 1998 FM₅, 25, 8, 11; 1998 FY₁₅ *, 18, 6, 7; 2186 T-1, 4, 2, 1; (1727), 3, 1, 0; [174, 15, 2*, 1998/02/28–1998/04/05]

761 Zephyrhills

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

[bitnik@bitnik.com]

0.178-m $f/9.45$ reflector + CCD

GSC

(962), 4, 2, 4; (1521), 2, 1, 0; (2091), 4, 2, 4; (2770), 4, 2, 4; [14, 4, 0*, 1998/03/11–1998/03/30]

809 European Southern Observatory

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

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

Observers G. Pizarro, O. Pizarro

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

1.0-m Schmidt

(4) 1977 EO₁ *, 6, 2, 1; 1981 ET₂₀ *, 6, 2, 1; 1981 EF₂₈ *, 6, 2, 1; 1984 SS₅ *, 6, 2, 1; 1986 QZ₁₂ *, 4, 3; 1987 RD₁ *, 6, 2, 1; 1987 SN₁₂ *, 6, 2, 1; 1988 RC₅ *, 6, 2, 1; 1988 RA₁₁ *, 3, 1, 0; 1990 QK₇ *, 6, 2, 1; 1990 RE₇ *, 6, 2, 1; 1990 SH₇ *, 6, 2, 1; 1990 YC₆ *, 6, 2, 1; 1991 CN₆ *, 6, 2, 1; 1991 FV₂ *, 6, 2, 1; 1992 RZ₅ *, 6, 2, 1; 1993 FL₁₅ *, 6, 2, 1; 1993 FK₂₃ *, 3, 1, 0; 1993 TK₄₈ *, 8, 2, 9; 1993 XP₁ *, 6, 2, 1; 1994 CM₁₃ *, 6, 2, 1; 1995 QM₂ *, 6, 2, 1; 1995 UL₃ *, 6, 2, 1; 1996 VN₃ *, 6, 2, 1; 1996 VS₄ *, 6, 2, 1; 1996 VB₆ *, 6, 2, 1; 1996 VD₉ *, 6, 2, 1; 1997 AY₉ *, 3, 3; 1997 AO₁ *, 6, 2, 1; 1998 AG₆ *, 6, 2, 1; 1998 DJ₇ *, 3, 1, 0; 1998 DR₇ *, 6, 2, 1; 1998 DD₉ *, 6, 2, 1; 1998 DZ₁₁ *, 6, 2, 1; 1998 DD₁₂ *, 6, 2, 1; 1998 DZ₁₂ *, 6, 2, 1; 1998 DR₁₅ *, 6, 2, 1; 1998 DS₁₉ *, 6, 2, 1; 1998 DQ₂₈ *, 6, 2, 1; 1998 DX₂₉ *, 6, 2, 1; 1998 DP₃₃ *, 6, 2, 1; 1998 DQ₃₃ *, 6, 2, 1; 1998 DR₃₃ *, 6, 2, 1; 1998 DS₃₃ *, 6, 2, 1; 1998 DT₃₃ *, 6, 2, 1; 1998 DU₃₃ *, 6, 2, 1; 1998 DV₃₃ *, 6, 2, 1; 1998 DW₃₃ *, 6, 2, 1; 1998 DX₃₃ *, 6, 2, 1; 1998 DY₃₃ *, 6, 2, 1; 1998 DZ₃₃ *, 6, 2, 1; 1998 DA₃₄ *, 6, 2, 1; 1998 DB₃₄ *, 6, 2, 1; 1998 DC₃₄ *, 6, 2, 1; 1998 DD₃₄ *, 6, 2, 1; 1998 DE₃₄ *, 6, 2, 1; 1998 DF₃₄ *, 6, 2, 1; 1998 DG₃₄ *, 6, 2, 1; 1998 DH₃₄ *, 6, 2, 1; 1998 DJ₃₄ *, 6, 2, 1; 1998 DK₃₄ *, 6, 2, 1; 1998 DL₃₄ *, 6, 2, 1; 1998 DM₃₄ *, 6, 2, 1; 1998 DN₃₄ *, 6, 2, 1; 1998 DO₃₄ *, 6, 2, 1; 1998 DP₃₄ *, 6, 2, 1; 1998 DQ₃₄ *, 6, 2, 1; 1998 DR₃₄ *, 6, 2, 1; 1998 DS₃₄ *, 6, 2, 1; 1998 DT₃₄ *, 6, 2, 1; 1998 DU₃₄ *, 6, 2, 1; 1998 DV₃₄ *, 6, 2, 1; 1998 DW₃₄ *, 6, 2, 1; 1998 DX₃₄ *, 6, 2, 1; 1998 DY₃₄ *, 6, 2, 1; 1998 DZ₃₄ *, 6, 2, 1; 1998 DA₃₅ *, 6, 2, 1; 1998 DB₃₅ *, 6, 2, 1; 1998 DC₃₅ *, 6, 2, 1; 1998 DD₃₅ *, 6, 2, 1; 1998 DE₃₅ *, 6, 2, 1; 1998 DF₃₅ *, 6, 2, 1; 1998 DG₃₅ *, 6, 2, 1; 1998 DH₃₅ *, 6, 2, 1; 1998 DJ₃₅ *, 6, 2, 1; 1998 EX₆ *, 12, 4, 3; 1998 EH₁₀ *, 6, 2, 1; 1998 EJ₁₀ *, 6, 2, 1; 1998 EK₁₀ *, 6, 2, 1; 1998 EL₁₀ *, 6, 2, 1; 1998 EM₁₀ *, 6, 2, 1; 1998 EN₁₀ *, 6, 2, 1; 1998 EO₁₀ *, 6, 2, 1; 1998 EP₁₀ *, 6, 2, 1; 1998 EQ₁₀ *, 6, 2, 1; 1998 ER₁₀ *, 6, 2, 1; 1998 ES₁₀ *, 6, 2, 1; 1998 ET₁₀ *, 6, 2, 1; 1998 EU₁₀ *, 6, 2, 1; 1998 EV₁₀ *, 6, 2, 1; 1998 EW₁₀ *, 6, 2, 1; 1998 EX₁₀ *, 6, 2, 1; 1998 EY₁₀ *, 6, 2, 1; 1998 EZ₁₀ *, 6, 2, 1; 1998 EA₁₁ *, 6, 2, 1; 1998 EB₁₁ *, 6, 2, 1; 1998 EC₁₁ *, 6, 2, 1; 1998 ED₁₁ *, 6, 2, 1; 1998 EE₁₁ *, 6, 2, 1; 1998 EF₁₁ *, 6, 2, 1; 1998 EG₁₁ *, 6, 2, 1; 1998 EH₁₁ *, 6, 2, 1; 1998 EJ₁₁ *, 6, 2, 1; 1998 EK₁₁ *, 6, 2, 1; 1998 EL₁₁ *, 6, 2, 1; 1998 EM₁₁ *, 6, 2, 1; 1998 EN₁₁ *, 6, 2, 1; 1998 EO₁₁ *, 6, 2, 1; 1998 EP₁₁ *, 6, 2, 1; 1998 EQ₁₁ *, 6, 2, 1; 1998 ER₁₁ *, 6, 2, 1; 1998 ES₁₁ *, 6, 2, 1; 1998 ET₁₁ *, 6, 2, 1; 1998 EU₁₁ *, 6, 2, 1; 1998 EV₁₁ *, 6, 2, 1; 1998 EW₁₁ *, 6, 2, 1; 1998 EX₁₁ *, 6, 2, 1; 1998 EY₁₁ *, 6, 2, 1; 1998 EZ₁₁ *, 6, 2, 1; 1998 EA₁₂ *, 6, 2, 1; 1998 EB₁₂ *, 6, 2, 1; 1998 EC₁₂ *, 6, 2, 1; 1998 ED₁₂ *, 6, 2, 1; 1998 EE₁₂ *, 6, 2, 1; 1998 EF₁₂ *, 6, 2, 1; 1998 EG₁₂ *, 6, 2, 1; 1998 EH₁₂ *, 6, 2, 1; 1998 EJ₁₂ *, 6, 2, 1; 1998 EK₁₂ *, 6, 2, 1; 1998 EL₁₂ *, 6, 2, 1; 1998 EM₁₂ *, 6, 2, 1; 1998 EN₁₂ *, 6, 2, 1; 1998 EO₁₂ *, 6, 2, 1; 1998 EP₁₂ *, 6, 2, 1; 1998 EQ₁₂ *, 6, 2, 1; 1998 ER₁₂ *, 6, 2, 1; 1998 ES₁₂ *, 6, 2, 1; 1998 ET₁₂ *, 6, 2, 1; 1998 EU₁₂ *, 6, 2, 1; 1998 EV₁₂ *, 6, 2, 1; 1998 EW₁₂ *, 6, 2, 1; 1998 EX₁₂ *, 6, 2, 1; 1998 EY₁₂ *, 6, 2, 1; 1998 EZ₁₂ *, 6, 2, 1; 1998 EA₁₃ *, 6, 2, 1; 1998 EB₁₃ *, 6, 2, 1; 1998 EC₁₃ *, 6, 2, 1; 1998 ED₁₃ *, 6, 2, 1; 1998 EE₁₃ *, 6, 2, 1; 1998 EF₁₃ *, 6, 2, 1; 1998 EG₁₃ *, 6, 2, 1; 1998 EH₁₃ *, 6, 2, 1; 1998 EJ₁₃ *, 6, 2, 1; 1998 EK₁₃ *, 6, 2, 1; 1998 EL₁₃ *, 6, 2, 1; 1998 EM₁₃ *, 6, 2, 1; 1998 EN₁₃ *, 6, 2, 1; 1998 EO₁₃ *, 6, 2, 1; 1998 EP₁₃ *, 6, 2, 1; 1998 EQ₁₃ *, 6, 2, 1; 1998 ER₁₃ *, 6, 2, 1; 1998 ES₁₃ *, 6, 2, 1; 1998 ET₁₃ *, 6, 2, 1; 1998 EU₁₃ *, 6, 2, 1; 1998 EV₁₃ *, 6, 2, 1; 1998 EW₁₃ *, 6, 2, 1; 1998 EX₁₃ *, 6, 2, 1; 1998 EY₁₃ *, 6, 2, 1; 1998 EZ₁₃ *, 6, 2, 1; 1998 EA₁₄ *, 6, 2, 1; 1998 EB₁₄ *, 6, 2, 1; 1998 EC₁₄ *, 6, 2, 1; 1998 ED₁₄ *, 6, 2, 1; 1998 EE₁₄ *, 6, 2, 1; 1998 EF₁₄ *, 6, 2, 1; 1998 EG₁₄ *, 6, 2, 1; 1998 EH₁₄ *, 6, 2, 1; 1998 EJ₁₄ *, 6, 2, 1; 1998 EK₁₄ *, 6, 2, 1; 1998 EL₁₄ *, 6, 2, 1; 1998 EM₁₄ *, 6, 2, 1; 1998 EN₁₄ *, 6, 2, 1; 1998 EO₁₄ *, 6, 2, 1; 1998 EP₁₄ *, 6, 2, 1; 1998 EQ₁₄ *, 6, 2, 1; 1998 ER₁₄ *, 6, 2, 1; 1998 ES₁₄ *, 6, 2, 1; 1998 ET₁₄ *, 6, 2, 1; 1998 FD₂ *, 3, 1, 0; 5016 P-L, 6, 2, 1; 6584 P-L, 3, 1, 0; 3286 T-1, 6, 2, 1; 2045 T-2, 6, 2, 1; 2277 T-2, 6, 2, 1; 3060 T-2, 12, 4, 3; (90), 6, 2, 1; (671), 6, 2, 1; (940), 6, 2, 1; (959), 6, 2, 1; (1361), 6, 2, 1; (1789), 3, 1, 0; (1809), 6, 2, 1; (2361), 6, 2, 1; (2461), 6, 2, 1; (2857), 6, 2, 1; (3053), 6, 2, 1; (3168), 6, 2, 1; (3213), 6, 2, 1; (3340), 6, 2, 1; (3497), 6, 2, 1; (3514), 6, 2, 1; (3623), 6, 2, 1; (3844), 6, 2, 1; (4194), 6, 2, 1; (4428), 6, 2, 1; (4547), 6, 2, 1; (4624), 6, 2, 1; (4720), 6, 2, 1; (4824), 6, 2, 1; (4859), 6, 2, 1; (5878), 6, 2, 1; (6508), 6, 2, 1; (6588), 6, 2,

1; (6644), 6, 2, 1; (6653), 6, 2, 1; (7219), 6, 2, 1; (7227), 6, 2, 1; (7230), 6, 2, 1; (7281), 6, 2, 1; (7370), 6, 2, 1; (7692), 6, 2, 1; [1451, 241, 158*, 1993/10/11–1998/03/02]

(8) 1995 QP₁₀ *, 14, 13, 41; 1995 QQ₁₀ *, 14, 12, 34; 1995 QR₁₀ *, 15, 12, 35; 1995 QS₁₀ *, 4, 3, 2; [47, 4, 4*, 1995/08/19–1995/09/29]

817 Sudbury

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

[dicicco@skypub.com]

0.41-m Schmidt-Cassegrain + CCD

GSC

1998 FX₂, 4, 1, 0; [4, 1, 0*, 1998/03/30]**830 Hudson**

S. Brady, 5 Melba Drive, Hudson, NH 03051, U.S.A. [sbrady@tiac.net]

0.25-m $f/5.6$ Newtonian reflector + CCD

GSC

1998 FX₂, 2, 1, 0; [2, 1, 0*, 1998/03/24]**831 Rosemary Hill Observatory, University of Florida**

J. L. Levine, University of Florida, Astronomy Department, P.O. Box 112055, Gainesville, FL 32611 [levine@astro.ufl.edu]

Observers J. L. Levine, T. B. Spahr

Measurer T. B. Spahr

0.45m $f/10.5$ reflector + CCD

USNO-A1.0

1998 FX₂, 3, 1, 0; [3, 1, 0*, 1998/03/26]**834 Buenos Aires-AAAA**

R. Mackintosh, Seccion Sistema Solar, Asociacion Argentina Amigos de la Astronomia, Av. Patricias Argentinas 550, AR-1405 Capital Federal, Argentina [robertom@aaaa.org.ar]

Observers R. Mackintosh, H. Ruggiu

Measurer R. Mackintosh, J. Carozza

0.25-m $f/6.3$ reflector + CCD

USNO A1.0

(72), 1, 1, 0; (258), 2, 1, 0; (386), 1, 1, 0; (737), 4, 2, 14; (1133), 6, 3, 14; (1278), 3, 1, 0; (1723), 3, 2, 13; (2612), 2, 1, 0; [22, 8, 0*, 1997/02/11–1997/12/29]

844 Los Molinos

N. Sosa, Departamento de Astronomia, Facultad de Ciencias, Montevideo, Uruguay [nsosa@fisica.edu.uy]

Observers O. Mendez, N. Sosa

0.35-m reflector + CCD

GSC

(433), 3, 1, 0; [3, 1, 0*, 1998/03/31]

860 Valinhos

P. R. Holvorcem, Departamento de Matematica/IMECC, Universidade Estadual de Campiñas, Campiñas, SP, BR-13081-970, Brazil [holvorce@ime.unicamp.br]

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

GSC

1987 DO₆, 3, 1, 0; 1998 BP₂₆, 6, 2, 16; 1998 EC₃, 3, 1, 0; 1998 FX₂, 3, 1, 0; (433), 5, 2, 16; (538), 3, 1, 0; (699), 6, 2, 16; (1521), 6, 2, 16; (3581), 3, 1, 0; (5128), 3, 1, 0; (5751), 5, 2, 16; [46, 11, 0*, 1998/02/20–1998/03/24]

867 Saji Observatory

M. Yamanishi, 1071-1 Takayama, Saji, Yazu-Gun, Tottori-Ken, 689-13 Japan

[KYI030400@niftyserve.or.jp]

Observers M. Yamanishi, A. Miyamoto, M. Aimoto, T. Oribe

1.03-m $f/4.2$ reflector + CCD

GSC

1996 XS₂₅, 6, 2, 1; 1997 AQ₁₆, 6, 2, 5; 1998 CL, 3, 1, 0; 1998 EH₁₀, 6, 2, 7; 1998 EM₁₁, 8, 3, 6; 1998 EW₁₄ *, 6, 2, 22; [35, 6, 1*, 1998/03/03–1998/04/04]

886 Susono

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

0.25-m $f/6.3$ reflector + CCD

GSC

1993 BM, 4, 2, 6; 1995 QM₂, 4, 2, 11; 1996 VO₁, 4, 2, 6; 1996 XT₃₀, 2, 1, 0; 1998 DA₂₄, 2, 1, 0; 1998 DB₂₄, 2, 1, 0; 1998 DC₂₄, 4, 2, 9; 1998 EK₈, 6, 3, 16; 1998 FP₁₁, 2, 1, 0; 1998 FQ₁₁, 2, 1, 0; [32, 10, 0*, 1998/03/06–1998/03/30]

888 Gekko Observatory

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

0.50-m $f/4.0$ reflector

GSC 1.1

1988 TN, 3, 1, 0; 1992 OV₂, 3, 1, 0; 1996 UU, 2, 1, 0; 1996 VW, 3, 1, 0; 1998 AK, 3, 1, 0; 1998 BJ, 3, 1, 0; 1998 BD₃₀, 3, 1, 0; 1998 BU₄₁, 2, 1, 0; 1998 CQ₂, 5, 2, 17; 1998 ED, 3, 1, 0; 1998 EJ₆, 6, 2, 1; 1998 EX₈ *, 11, 4, 23; 1998 EN₉ *, 11, 5, 17; 1998 EO₉ *, 11, 4, 10; 1998 EP₉ *, 14, 5, 17; 1998 EG₁₀ *, 15, 5, 29; 1998 FJ₃, 5, 2, 6; 1998 FN₁₁, 5, 2, 9; 1998 FO₁₁, 6, 2, 4; 1998 FP₁₁, 8, 3, 5; 1998 FQ₁₁ *, 8, 3, 5; 1998 FF₁₆ *, 4, 2, 4; 1998 GZ, 3, 1, 0; 1998 GA₁, 3, 1, 0; 1998 GB₁, 3, 1, 0; 2636 P-L, 3, 1, 0; [146, 26, 7*, 1998/03/06–1998/04/04]

894 Otomo

S. Otomo, Kiyosato 3545-3902, Takane, Kitakoma-Gun, Yamanashi-Ken, 407-03 Japan

0.25-m $f/3.4$ reflector

PPM

1984 BQ, 4, 2, 2; 1994 TH₁₅, 4, 2, 5; 1997 SP₁₇, 8, 4, 7; 1997 UD₂₅ *, 10, 5, 10; 1997 UE₂₅ *, 9, 5, 10; 1998 BD₄₁, 10, 5, 20; (595), 2, 1, 0; (3726), 6, 3, 10; [53, 8, 2*, 1994/11/03–1997/11/06]

897 YGCO Chiyoda Station

T. Kojima, 45 Shimonakamori, Chiyoda, Ohra-Gun, Gunma-Ken, 370-07 Japan

[kojitaku@scorpius.bekkoame.or.jp]

0.25-m $f/6.0$ reflector + CCD

GSC

1998 FX₂, 3, 1, 0; (7249), 3, 1, 0; (7413), 5, 1, 0; [11, 3, 0*, 1998/01/26–1998/03/24]

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

1991 FV₂, 2, 1, 0; 1995 TG, 2, 1, 0; 1996 VB₅, 4, 2, 5; 1996 VB₆, 2, 1, 0; 1998 FE₂, 2, 1, 0; 1998 FF₂, 2, 1, 0; 1998 FX₂, 2, 1, 0; 1998 FM₅, 2, 1, 0; (3800), 2, 1, 0; (5751), 2, 1, 0; [22, 10, 0*, 1998/02/22–1998/03/25]

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

1998 FJ₃ *, 2, 1, 0; 1998 FN₁₁ *, 2, 1, 0; 1998 FO₁₁ *, 2, 1, 0; 1998 FP₁₁ *, 2, 1, 0; 2636 P-L, 2, 1, 0; [10, 5, 4*, 1998/03/18–1998/03/22]

910 Caussols-ODAS

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

[maury@obs-azur.fr]

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

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

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

Measurers A. Maury, G. Hahn

0.90-m Schmidt + CCD

GSC

1973 QG₂, 3, 1, 0; 1978 VD₉, 3, 1, 0; 1981 EQ₉, 3, 1, 0; 1981 EO₄₄, 3, 1, 0; 1987 DP₆, 6, 2, 1; 1988 CP₁, 6, 2, 1; 1988 TB₁, 6, 2, 1; 1989 SX₂, 9, 3, 3; 1990 RK₂, 3, 1, 0; 1990 RW₇, 3, 1, 0; 1991 FY, 3, 1, 0; 1991 GO₁, 6, 2, 1; 1991 PK₃, 3, 1, 0; 1991 RB₉, 3, 1, 0; 1991 RB₁₂, 3, 1, 0; 1995 HK, 3, 1, 0; 1995 QC₃, 3, 1, 0; 1995 SL₅, 6, 2, 2; 1995 SM₂₉, 3, 1, 0; 1995 ST₄₈, 3, 1, 0; 1995 UC₈, 3, 1, 0; 1996 PQ, 3, 1, 0; 1996 QX₁, 3, 1, 0; 1996 RU₂, 6, 2, 1; 1996 SL₇, 3, 1, 0; 1996 TF₁₁, 3, 1, 0; 1996 UB, 3, 1, 0; 1996 XF₆, 3, 1, 0; 1997 WR₃₁, 3, 1, 0; 1997 YC₁₄, 3, 1, 0; 1997 YJ₁₄, 3, 1, 0; 1997 YP₁₄, 3, 1, 0; 1997 YB₁₇, 6, 2, 1; 1998 AR, 3, 1, 0; 1998 AM₁₀, 6, 2, 1; 1998 BH₇, 6, 2, 37; 1998 BB₁₅, 3, 1, 0; 1998 BH₂₆, 3, 1, 0; 1998 BJ₃₀, 3, 1, 0; 1998 BK₃₀, 3, 1, 0; 1998 BG₄₁, 9, 3, 23; 1998 BU₄₅, 3, 1, 0; 1998 BN₄₇, 3, 1, 0; 1998 BO₄₇, 3, 1, 0; 1998 BX₄₇ *, 3, 1, 0; 1998 BC₄₈ *, 3, 1, 0; 1998 CC₃, 3, 1, 0; 1998 DZ₅, 3, 1, 0; 1998 DW₁₂, 3, 1, 0; 1998 DV₂₃, 3, 1, 0; 1998 DL₃₃ *, 3, 1, 0; 1998 EG, 6, 2, 1; 1998 EP₉, 3, 1, 0; 1998 FP₄, 6, 2, 1; 1998 FT₄, 9, 3, 2; 1998 FU₄, 3, 1, 0; 1998 FO₉ *, 6, 2, 1; 1998 FP₉ *, 6, 2, 1; 1998 FQ₉ *, 6, 2, 1; 1998 FR₉ *, 6, 2, 1; 1998 FS₉ *, 6, 2, 1; 1998 FT₉ *, 6, 2, 1; 1998 FU₉ *, 6, 2, 1; 1998 FV₉ *, 6, 2, 1; 1998 FW₉ *, 6, 2, 1; 1998 FX₉ *, 6, 2, 1; 1998 FY₉ *, 6, 2, 1; 1998 FZ₉ *, 6, 2, 1; 1998 FA₁₀ *, 6, 2, 1; 1998 FB₁₀ *, 6, 2, 1; 1998 FC₁₀ *, 6, 2, 1; 1998 FD₁₀ *, 6, 2, 1; 1998 FE₁₀ *, 6, 2, 1; 1998 FF₁₀ *, 6, 2, 1; 1998 FG₁₀ *, 6, 2, 1; 1998 FH₁₀ *, 6, 2, 1; 1998 FJ₁₀ *, 6, 2, 1; 1998 FK₁₀ *, 6, 2, 1; 1998 FL₁₀ *, 6, 2, 1; 1998 FM₁₀ *, 6, 2, 1; 1998 FN₁₀ *, 6, 2, 1; 1998 FO₁₀ *, 6, 2, 1; 1998 FP₁₀ *, 6, 2, 1; 1998 FQ₁₀ *, 6, 2, 1; 1998 FR₁₀ *, 6, 2, 1; 1998 FS₁₀ *, 6, 2, 1; 1998 FT₁₀ *, 6, 2, 1; 1998 FU₁₀ *, 6, 2, 1; 1998 FV₁₀ *, 6, 2, 1; 1998 FW₁₀ *, 6, 2, 1; 1998 FX₁₀ *, 6, 2, 1; 1998 FY₁₀ *, 6, 2, 1; 1998 FZ₁₀ *, 6, 2, 1; 1998 FA₁₁ *, 6, 2, 1; 1998 FB₁₁ *, 6, 2, 1; 1998 FC₁₁ *, 6, 2, 1; 1998 FK₁₂ *, 6, 2, 1; 1998 FL₁₂ *, 6, 2, 1; 1998 FL₁₄ *, 9, 3, 2; 1998 FM₁₄ *, 9, 3, 2; 1998 FN₁₄ *, 9, 3, 2; 1998 FO₁₄ *, 6, 2, 1; 1998 FP₁₄ *, 9, 3, 2; 1998 FQ₁₄ *, 6, 2, 1; 1998 FR₁₄ *, 9, 3, 2; 1998 FS₁₄ *, 9, 3, 2; 1998 FT₁₄ *, 9, 3, 2; 1998 FU₁₄ *, 9, 3, 2; 1998 FV₁₄ *, 9, 3, 2; 1998 FW₁₄ *, 6, 2, 1; 1998 FX₁₄ *, 9, 3, 2; 1998 FY₁₄ *, 9, 3, 2; 1998 FP₁₅ *, 6, 2, 1; 1998 FQ₁₅ *, 6, 2, 1; 1998 FR₁₅ *, 6, 2, 1; 1998 FS₁₅ *, 6, 2, 1; 1998 FT₁₅ *, 6, 2, 1; 1998 FU₁₅ *, 6, 2, 1; 1998 FZ₁₅ *, 9, 3, 3; 1998 FA₁₆ *, 9, 3, 3; 1998 FB₁₆ *, 4, 2, 1; 1998 FC₁₆ *, 9, 3, 2; 1998 FS₅₃, 3, 1, 0; 1998 FX₅₃, 3, 1, 0; 1998 FZ₅₃, 3, 1, 0; 1998 FW₇₂ *, 6, 2, 5; 1998 FX₇₂ *, 6, 2, 5; 1998 FY₇₂ *, 6, 2, 5; 1998 FZ₇₂ *, 6, 2, 5; 1998 FA₇₃ *, 6, 2, 4; 1998 FB₇₃ *, 6, 2, 2; 1998 FC₇₃ *, 6, 2, 2; 3182 T-1, 6, 2, 2; 3155 T-2, 6, 2, 1; 3198 T-2, 3, 1, 0; 3502 T-3, 3, 1, 0; (58), 9, 3, 3; (168), 15, 5, 5; (172), 3, 1, 0; (219), 3, 1, 0; (299), 3, 1, 0; (419), 3, 1, 0; (548), 3, 1, 0; (569), 3, 1, 0; (650), 3, 1, 0; (757), 9, 3, 2; (1056), 9, 3, 3; (1142), 3, 1, 0; (1350), 6, 2, 1; (1561), 3, 1, 0; (1590), 3, 1, 0; (1632), 6, 2, 1; (1638), 3, 1, 0; (1649), 3, 1, 0; (1706), 3, 1, 0; (1878), 3, 1, 0; (1891), 3, 1, 0; (1962), 3, 1, 0; (2021), 3, 1, 0; (2285), 3, 1, 0; (2619), 3, 1, 0; (2741), 3, 1, 0; (2746), 6, 2, 1; (2766), 3, 1, 0; (2795), 3, 1, 0; (3341), 3, 1, 0; (3500), 6, 2, 1; (3531), 3, 1, 0; (4397), 3, 1, 0; (4687), 3, 1, 0; (4752), 6, 2, 1; (5134), 3, 1, 0; (5504), 3, 1, 0; (5576), 6, 2, 2; (5628), 3, 1, 0; (5629), 3, 1, 0; (5897), 6, 2, 1; (6165), 6, 2, 1; (6368), 3, 1, 0; (6438), 3, 1, 0; (6468), 3, 1, 0; (6513), 3, 1, 0; (6628), 3, 1, 0; (7160), 3, 1, 0; (7392), 3, 1, 0; (7420), 3, 1, 0; (7539), 6, 2, 1; (7544), 3, 1, 0; (7650), 15, 5, 5; (7870), 3, 1, 0; (8239), 3, 1, 0; (8262), 6, 2, 1; (8344), 3, 1, 0; [964, 193, 76*, 1997/11/08–1998/03/31]

950 La Palma

A. Fitzsimmons, Physics Department, Queen’s University, Belfast BT7 1NN,

Northern Ireland [a.fitzsimmons@queens-belfast.ac.uk]

Observers M. E. Fletcher, A. Fitzsimmons, M. J. Irwin

Measurers M. E. Fletcher, A. Fitzsimmons, B. Gladman

2.5-m Isaac Newton Telescope + CCD

GSC

1997 GA₄₅, 2, 1, 0; 1997 UF₂₅ *, 4, 2, 1; 1997 UG₂₅ *, 4, 2, 1; [10, 3, 2*, 1997/04/07–1997/10/27]

954 Teide Observatory

R. Casas, Instituto de Astrofísica de Canarias, Via Lactea, E-38200 La Laguna,
Tenerife, Canary Islands, Spain [rcr@11.iac.es]
Observers J. Licandro, P. Santos, R. Casas, M. R. Zapatero-Osorio, S. Madrugá,
A. Oscoz

Measurers R. Casas, J. Licandro
0.8-m $f/11.3$ Cassegrain + CCD
GSC 1.2, APM

1997 XF₁₁, 23, 2, 1; 1998 EO₄, 17, 4, 30; 1998 EW₈ *, 37, 7, 30; 1998 EQ₉ *, 15, 3, 28;
1998 FH₃ *, 25, 2, 1; 1998 GX *, 11, 3, 2; 1998 GD₁ *, 15, 2, 1; 1998 GE₁ *, 12, 2, 1; [155, 8,
6*, 1998/03/06–1998/04/05]

958 Observatoire de Dax

P. Dupouy, Observatoire de Dax, F-40100 Dax, France
[DUPOUY.Philippe@compuserve.com]

Observer P. Dupouy
Measurer J.-F. Lahitte
0.254-m $f/6.7$ reflector + CCD
GSC, USNO-SA1.0

1998 BP₆, 3, 1, 0; 1998 BH₃₀, 2, 1, 0; 1998 BJ₃₀, 8, 3, 7; 1998 CP₂, 9, 4, 32; 1998 DY₉, 4, 2, 1;
(2576), 2, 1, 0; (6037), 13, 2, 1; (8341), 3, 1, 0; [44, 8, 0*, 1998/02/23–1998/03/27]

964 Southend Bradfield

G. C. R. Sallit, Jacinth, Stanford Road, Southend Bradfield, Reading, Berkshire
RG7 6HL, England [100573.2667@compuserve.com]

0.30-m Schmidt-Cassegrain + CCD
GSC

1998 BG₄₈, 2, 1, 0; [2, 1, 0*, 1998/02/04–1998/02/05]

965 Observação Astronômica no Algarve

B. Ewen-Smith, sitio do Poio, P-8500 Portimão, Portugal [coaa@mail.telepac.pt]
0.5-m reflector + CCD
USNO-SA1.0

1996 VP₆, 5, 2, 1; [5, 1, 0*, 1998/03/17–1998/03/18]

970 Chelmsford

N. D. James, 11 Tavistock Road, Chelmsford, Essex CM1 6JL, England
[ndj@astro1.demon.co.uk]

0.30-m $f/5.25$ reflector + CCD
GSC

1998 FX₂, 3, 1, 0; [3, 1, 0*, 1998/03/28]

ORBITAL ELEMENTS

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

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

C/1997 J1 (Mueller)

Epoch 1997 Apr. 22.0 TT = JDT 2450560.5

<i>T</i>	1997 May 3.8021 TT		Nakano	
<i>q</i>	2.302149	(2000.0)	P	Q
<i>z</i>	+0.003956	ω 98.9542	−0.5526263	−0.0376123
	±0.000001	Ω 277.0749	−0.2486866	+0.9609135
<i>e</i>	0.990894	<i>i</i> 122.9687	+0.7954616	+0.2742819

From 470 observations 1997 May 3–1998 Mar. 21, mean residual 0".6.

C/1997 J2 (Meunier-Dupouy)

Epoch 1998 Mar. 8.0 TT = JDT 2450880.5

<i>T</i>	1998 Mar. 10.4520 TT		Marsden	
<i>q</i>	3.051075	(2000.0)	P	Q
<i>z</i>	−0.000190	ω 122.6768	+0.4717059	+0.7141179
	±0.000002	Ω 148.8447	−0.5763246	−0.1942563
<i>e</i>	1.000579	<i>i</i> 91.2734	+0.6673406	−0.6725326

From 788 observations 1997 May 5–1998 Apr. 3, mean residual 0".6.

C/1997 T1 (Utsunomiya)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>T</i>	1997 Dec. 10.1462 TT		Nakano	
<i>q</i>	1.359098	(2000.0)	P	Q
<i>z</i>	+0.001122	ω 95.9659	+0.4318973	−0.6403347
	±0.000007	Ω 53.7026	−0.7211589	−0.6681131
<i>e</i>	0.998475	<i>i</i> 127.9925	+0.5416591	−0.3789410

From 506 observations 1997 Oct. 5–1998 Apr. 4, mean residual 0".7.

C/1997 W2 (SOHO)

T 1997 Nov. 20.04 TT

<i>q</i>	0.0050	(2000.0)	Marsden	
		ω 84.90	P	Q
		Ω 4.16	+0.14776	−0.98814
<i>e</i>	1.0	<i>i</i> 144.83	−0.96734	−0.15319
			+0.20597	−0.01061

From 6 observations 1997 Nov. 19.

C/1998 E1 (SOHO)

T 1998 Mar. 3.70 TT

<i>q</i>	0.0053	(2000.0)	Marsden	
		ω 90.50	P	Q
		Ω 13.64	+0.18139	−0.97343
<i>e</i>	1.0	<i>i</i> 143.65	−0.95576	−0.20796
			+0.23156	−0.09584

From 9 observations 1998 Mar. 2–3.

C/1998 F1 (SOHO)*T* 1998 Mar. 22.40 TT

<i>q</i>	0.0052	(2000.0)	P	Marsden	Q
	ω	67.06	−0.00031		−0.94996
	Ω	331.01	−0.97448		+0.07042
<i>e</i>	1.0	<i>i</i> 139.87	+0.22448		+0.30434

From 21 observations 1998 Mar. 21–22.

C/1998 G1 (LINEAR)*T* 1998 Oct. 14.919 TT

<i>q</i>	2.56936	(2000.0)	P	Marsden	Q
	ω	217.701	−0.651278		+0.686807
	Ω	339.278	+0.693959		+0.367007
<i>e</i>	1.0	<i>i</i> 114.216	−0.307015		−0.627377

From 57 observations 1998 Apr. 2–6.

(8444)* 1969 TR₁ = 1928 SK = 1986 TA

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

Id. B. G. Marsden (*MPC* 11341, *MPC* 21925)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	117.47047	(2000.0)	P	Marsden	Q
<i>n</i>	0.28865899	ω 346.58906	+0.93892029		+0.34411174
<i>a</i>	2.2674932	Ω 353.27934	−0.31252047		+0.84777179
<i>e</i>	0.2691703	<i>i</i> 1.94682	−0.14408208		+0.40357169
<i>P</i>	3.41	<i>H</i> 13.7	<i>G</i> 0.15		<i>U</i> 2

Residuals in seconds of arc

1928 09 22	024	0.2+	0.4−	1986 10 11	552	0.2+	0.2+	1993 11 22	596	0.2−	0.6−
1928 10 07	024	1.4−	2.7+	1986 10 11	095	0.4+	0.1+	1993 11 22	596	0.1+	1.1−
1969 10 08	095	(0.8+	4.2+)	1986 10 23	026	1.0+	1.0−	1993 11 23	596	0.0	0.6−
1969 10 13	095	(2.4+	6.4+)	1986 10 24	552	2.0+	1.6−	1993 11 23	596	0.5+	1.0−
1969 10 16	095	(3.9+	3.8+)	1986 10 24	552	0.7+	1.6−	1993 11 24	596	0.2−	0.5−
1969 11 04	095	2.4−	1.7+	1986 10 29	552	0.2+	1.0−	1993 11 24	596	0.1+	1.0−
1969 11 11	095	0.3+	1.9+	1986 10 29	552	1.6+	1.8−	1993 11 24	596	0.1+	0.7−
1969 11 13	095	(4.5+	6.7+)	1986 11 07	552	1.5−	0.5+	1993 12 03	596	(4.0+	2.6−)
1986 09 03	026	0.2−	0.2+	1986 11 07	552	(1.7−	2.9+)	1993 12 03	596	(2.4+	2.6−)
1986 09 07	026	1.3−	0.5−	1986 11 08	026	0.5+	0.1+	1993 12 03	596	(0.7−	2.7−)
1986 09 11	026	0.5−	1.3−	1986 12 01	801	0.3−	1.3−	1995 03 10	691	0.6−	0.1−
1986 09 14	095	0.5−	0.3−	1991 01 19	675	0.5+	1.3+	1995 03 10	691	1.1−	0.2+
1986 09 30	552	0.9−	0.5−	1991 01 19	675	1.3+	0.1+	1995 03 10	691	0.6−	0.1−
1986 10 01	552	0.6+	0.5−	1991 02 07	675	1.1+	0.2+	1995 03 10	691	0.6−	0.0
1986 10 01	552	0.7−	0.5−	1991 02 07	675	1.9+	0.0	1995 03 10	691	0.9−	0.0
1986 10 02	026	0.3−	0.7+	1993 11 16	596	0.3−	0.7−	1995 03 10	691	0.7−	0.2−
1986 10 02	552	0.5+	0.8+	1993 11 16	596	0.4−	0.9−	1995 03 10	691	1.0−	0.0
1986 10 02	552	1.0+	2.1+	1993 11 16	596	0.1+	0.8−	1995 03 10	691	0.9−	0.0
1986 10 03	552	0.2+	0.9+	1993 11 17	596	0.2−	0.4+	1995 03 10	691	0.9−	0.1−
1986 10 03	552	0.7+	1.9+	1993 11 17	596	1.0−	0.3+	1995 03 11	385	1.5+	0.7+
1986 10 04	026	0.5−	0.4−	1993 11 17	596	0.8−	0.2−	1995 03 11	385	1.6+	0.3+
1986 10 04	552	0.0	0.4+	1993 11 19	595	0.2−	0.4+	1996 10 12	801	0.5−	0.5−
1986 10 04	552	0.4−	0.2−	1993 11 19	595	0.5−	0.4+	1996 10 12	801	0.8+	0.7−
1986 10 06	026	0.6+	0.1−	1993 11 20	596	0.4+	0.1−	1998 01 17	046	0.7+	0.1+
1986 10 06	026	0.2−	0.2−	1993 11 20	596	0.1−	0.8+	1998 01 17	046	0.2+	0.0
1986 10 10	095	0.9+	1.2−	1993 11 20	596	0.0	0.5+	1998 01 17	046	0.5+	0.5−
1986 10 10	552	0.7−	1.1+	1993 11 20	596	0.1+	0.3+	1998 03 30	557	0.8+	0.5+
1986 10 10	552	1.0−	0.4+	1993 11 22	596	0.3−	0.3−	1998 03 30	557	1.0+	0.3+
1986 10 11	552	1.1+	2.1+	1993 11 22	596	0.3+	0.1+				

(8445)* 1973 QG₂ = 1973 SF₅ = 1977 KE₁ = 1989 RK₅

Discovered 1973 Aug. 31 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Id. C. M. Bardwell (d, *MPC* 8665), E. Bowell (*MPC* 10829), S. Nakano (*MPC* 24099)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	180.40179	(2000.0)	P	Nakano	Q
<i>n</i>	0.18507487	ω 329.20719	+0.95722820		−0.28701969
<i>a</i>	3.0495639	Ω 47.51892	+0.27452219		+0.86109005
<i>e</i>	0.2016858	<i>i</i> 2.83855	+0.09138788		+0.41969467
<i>P</i>	5.33	<i>H</i> 13.2	<i>G</i> 0.15		<i>U</i> 1

Residuals in seconds of arc

1973 08 31	095	(0.4+	3.4−)	1994 07 12	675	0.6−	0.6+	1995 11 23	801	0.1+	0.1−
1973 09 05	095	2.1+	2.2−	1994 07 12	675	0.7−	0.9+	1995 11 23	801	0.1+	0.2−
1973 09 27	095	1.1−	1.1+	1994 10 02	360	0.5+	0.1+	1995 11 24	411	0.1+	0.0
1977 05 18	675	0.5−	0.1+	1994 10 02	360	0.4+	0.2+	1995 11 24	411	0.5−	0.2+
1977 05 19	675	0.4−	0.5+	1994 10 04	360	0.0	0.1−	1998 03 02	561	0.6+	0.2−
1989 09 09	095	0.9+	0.5−	1994 10 04	360	0.3−	0.6−	1998 03 02	561	0.1+	0.7−
1991 01 19	675	0.4−	0.5+	1994 10 25	360	0.5−	0.0	1998 03 26	910	0.1−	0.8−
1991 02 07	675	0.7+	0.3+	1994 10 25	360	0.4−	0.0	1998 03 26	910	0.3+	0.7−
1991 02 07	675	0.9−	0.2−	1995 11 18	801	0.0	0.4−	1998 03 26	910	0.1−	0.8−

(8446)* 1973 SB₆ = 1988 RU₅

Discovered 1973 Sept. 28 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. T. Kobayashi (*MPC* 15873)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	146.05226	(2000.0)	P	Williams	Q
<i>n</i>	0.26061678	ω 219.64034	+0.99905399		−0.03913531
<i>a</i>	2.4273615	Ω 142.58946	+0.04339082		+0.92607449
<i>e</i>	0.1961093	<i>i</i> 1.78858	−0.00289056		+0.37530584
<i>P</i>	3.78	<i>H</i> 14.7	<i>G</i> 0.15		<i>U</i> 2

Residuals in seconds of arc

1954 08 27	675	0.3+	0.6+	1988 09 12	809	1.1+	0.5−	1998 03 22	704	(0.3−	2.0−)
1954 08 27	675	0.7−	0.3−	1988 09 12	809	1.1+	0.5−	1998 03 22	704	1.8+	0.4−
1973 09 19	675	0.8+	0.0	1988 09 12	809	1.1+	0.7−	1998 03 24	704	1.1+	1.2−
1973 09 19	675	0.5+	0.1−	1988 09 16	809	0.3−	0.8−	1998 03 24	704	0.1+	0.4−
1973 09 20	675	1.5+	0.4−	1988 09 16	809	0.3−	0.9−	1998 03 24	704	0.8+	1.2+
1973 09 24	675	1.2−	0.7−	1988 09 16	809	0.3−	1.0−	1998 03 24	704	0.6−	1.1+
1973 09 24	675	1.4−	0.6−	1992 09 25	801	0.7−	0.6+	1998 03 24	704	0.5+	1.5+
1973 09 25	675	0.4+	1.7−	1992 09 25	801	0.6−	0.6+	1998 03 24	704	0.2+	0.9+
1973 09 25	675	(1.1+	2.9−)	1992 10 01	801	0.3−	0.4+	1998 03 24	704	0.9+	1.1+
1973 09 28	095	1.2+	0.4−	1992 10 01	801	0.5−	0.8+	1998 03 24	704	0.6+	1.1+
1988 09 03	809	0.5−	1.9+	1994 02 15	675	(2.3−	0.7−)	1998 03 24	704	0.4+	0.9−
1988 09 03	809	0.1+	1.9+	1995 05 27	104	0.8−	0.6−	1998 03 24	704	0.7−	0.3+
1988 09 03	809	0.5+	2.0+	1995 05 27	104	1.0−	0.9−	1998 03 24	704	0.3+	0.4+
1988 09 06	809	0.9−	0.2+	1998 03 08	696	0.0	0.7−	1998 03 24	704	0.8+	0.3+
1988 09 06	809	0.7−	0.3+	1998 03 08	696	0.1−	1.0−	1998 03 24	704	(2.4−	1.6+)
1988 09 06	809	0.5−	0.4+	1998 03 08	696	0.5−	0.9−	1998 03 24	704	1.8−	0.4+
1988 09 08	809	0.6−	0.0	1998 03 20	704	(2.3+	1.8−)	1998 03 24	704	(6.3−	0.2+)
1988 09 08	809	0.5−	0.0	1998 03 20	704	(1.7+	2.8+)	1998 03 25	704	0.7−	0.3−
1988 09 08	809	0.4−	0.1−	1998 03 20	704	0.3+	0.1+	1998 03 25	704	0.8+	0.2+
1988 09 09	809	0.4+	0.7+	1998 03 20	704	(5.4−	0.4−)	1998 03 25	704	1.2−	1.0+
1988 09 09	809	0.2+	0.7+	1998 03 22	704	0.5−	0.2+	1998 03 25	704	0.9+	0.3+
1988 09 09	809	0.6+	0.7+	1998 03 22	704	1.1+	1.0−	1998 03 25	704	1.7−	0.4+

(8447)* 1974 OE = 1978 TR₆ = 1978 TN₉Discovered 1974 July 16 at El Leoncito.
Id. E. Bowell (*MPC* 10612), B. G. Marsden (d, *ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	236.65009		(2000.0)	P	Q
<i>n</i>	0.28037131	ω	277.68924	+0.39990338	+0.91591602
<i>a</i>	2.3119601	Ω	16.01541	-0.78432214	+0.36132078
<i>e</i>	0.1171822	<i>i</i>	7.13748	-0.47425317	+0.17477168
<i>P</i>	3.52	<i>H</i>	14.1	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1974 07 16	808	0.2+	0.6-	1991 03 09	675	0.2+	0.9-	1998 03 19	104	0.6-	0.6+
1974 07 16	808	0.0	0.9-	1991 03 19	808	1.4-	1.9-	1998 03 20	704	0.5+	0.2-
1974 07 17	808	0.0	0.3-	1991 03 19	808	1.0+	0.2+	1998 03 20	704	0.0	0.2-
1974 07 17	808	0.6-	1.0-	1991 03 21	808	(4.0-	1.2+)	1998 03 20	704	0.6+	0.5+
1974 07 20	808	0.0	0.2-	1991 03 21	808	(7.2-	1.7+)	1998 03 20	704	0.2-	0.1+
1974 07 20	808	0.6+	0.1-	1991 04 17	675	1.3+	1.5+	1998 03 20	704	0.5-	0.6+
1974 08 18	809	(2.7+	7.4-)	1991 04 20	675	0.4-	1.2+	1998 03 22	704	0.0	0.2+
1978 10 02	095	0.3+	1.1+	1992 11 21	801	0.4+	0.3-	1998 03 22	704	0.2-	0.4-
1978 10 04	675	0.6+	1.1+	1992 11 21	801	0.4+	0.3-	1998 03 22	704	0.4+	0.6-
1978 10 05	675	0.1+	0.8+	1992 11 28	801	0.3-	0.6-	1998 03 22	704	0.4+	0.9-
1978 10 27	675	0.1-	1.3-	1994 04 04	675	0.8+	1.3-	1998 03 22	704	0.6-	0.5-
1978 10 28	675	1.1+	1.0-	1994 04 04	675	1.6-	1.0-	1998 03 28	596	(0.1-	2.3-)
1978 10 29	675	0.4+	0.7-	1998 02 24	566	0.5-	0.2+	1998 03 28	596	0.3-	1.6-
1978 11 28	675	0.6-	1.8-	1998 02 24	566	0.3-	0.0	1998 03 28	596	0.4-	2.0-
1978 11 29	675	0.5-	1.0-	1998 02 24	566	0.4-	0.1+				
1991 03 09	675	0.3+	0.7+	1998 03 19	104	0.2-	0.9+				

(8448)* 1976 UT₁ = 1993 TZ₂₀

Discovered 1976 Oct. 26 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Id. E. Bowell (*MPC* 22947)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	38.86326		(2000.0)	P	Q
<i>n</i>	0.28882643	ω	205.06071	+0.39727804	-0.91648577
<i>a</i>	2.2666167	Ω	221.57553	+0.85349237	+0.38787833
<i>e</i>	0.0603239	<i>i</i>	4.07516	+0.33722535	+0.09800115
<i>P</i>	3.41	<i>H</i>	14.6	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1976 10 22	381	0.7-	0.2-	1993 10 22	809	0.6+	1.3+	1998 01 28	566	0.7+	0.7-
1976 10 22	381	0.8-	0.9+	1993 10 22	809	0.5+	0.8+	1998 02 28	691	1.2-	0.0
1976 10 26	095	0.7+	0.3-	1993 10 22	809	0.2+	0.1-	1998 02 28	691	0.9-	0.2+
1976 11 18	381	0.1-	0.0	1996 07 18	684	0.1-	0.5-	1998 02 28	691	0.9-	0.4+
1976 11 18	381	0.5+	1.3+	1996 07 18	684	0.1+	0.5-	1998 03 24	566	0.0	0.5-
1993 10 10	675	1.0-	0.8-	1996 07 19	684	0.3+	0.3-	1998 03 24	566	0.2+	0.3-
1993 10 10	675	0.4+	1.4-	1996 07 19	684	0.2+	0.2-	1998 03 24	566	0.1-	0.3-
1993 10 13	675	0.1-	0.9-	1998 01 28	566	0.6+	0.6-				
1993 10 13	675	0.2-	0.4-	1998 01 28	566	0.7+	0.5-				

(8449)* 1977 EO₁ = 1972 HF = 1982 DG₄

Discovered 1977 Mar. 13 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. K. Hurukawa (*JAM* 1234, *MPC* 9476)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	297.37414		(2000.0)	P	Q
<i>n</i>	0.18620930	ω	182.40168	-0.58121816	+0.81277171
<i>a</i>	3.0371656	Ω	52.06503	-0.74575438	-0.51242142
<i>e</i>	0.1541114	<i>i</i>	2.89574	-0.32563147	-0.27717580
<i>P</i>	5.29	<i>H</i>	12.9	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1972 04 18	095	1.7-	0.0	1993 04 16	675	0.2-	0.3-	1998 03 20	704	0.1-	1.0-
1972 05 09	095	(2.2-	4.7-)	1993 04 16	399	0.1-	1.1+	1998 03 20	704	0.5-	1.0-
1977 03 13	095	0.9+	0.4-	1993 04 16	399	1.1-	0.1+	1998 03 20	704	0.0	0.0
1977 03 15	381	0.3-	0.1+	1993 04 19	675	0.6+	0.0	1998 03 22	704	0.2+	0.2+
1977 03 15	381	0.3+	0.1+	1993 04 19	675	1.0+	0.6+	1998 03 22	704	0.5-	0.2-

1977 03 22	095	0.2+	1.8-	1993 04 25	809	0.4-	0.8-	1998 03 22	704	0.7+	0.5+
1977 03 25	095	1.8+	0.3+	1993 04 25	809	0.0	0.5-	1998 03 22	704	1.1-	1.1+
1977 04 10	381	1.0-	0.1-	1993 04 25	809	0.1+	0.3-	1998 03 22	704	0.7-	0.7+
1977 04 10	381	0.3-	0.6+	1993 04 26	809	(2.3+	0.4+)	1998 03 26	704	0.5-	0.1-
1982 02 20	033	0.3-	0.1-	1993 04 26	809	(3.2+	0.7+)	1998 03 26	704	0.0	0.2-
1982 02 20	033	0.0	0.2-	1993 04 26	809	(4.0+	0.7+)	1998 03 26	704	0.2-	0.4-
1982 02 20	033	0.1+	0.1+	1995 10 25	033	0.9+	1.3-	1998 03 26	610	1.0-	0.6+
1982 02 21	033	0.1+	0.4+	1995 10 25	033	0.0	0.6-	1998 03 26	610	1.0-	0.6+
1982 02 21	033	0.0	0.1+	1998 03 01	809	0.8+	0.3-	1998 03 26	610	0.9-	0.4+
1993 04 14	896	(2.1-	0.6-)	1998 03 01	809	0.8+	0.5-	1998 03 26	610	0.9-	0.4+
1993 04 14	896	1.4+	1.1-	1998 03 01	809	0.9+	0.4-	1998 03 31	104	0.7-	0.8-
1993 04 15	675	0.3+	0.5-	1998 03 02	809	1.5+	0.5+	1998 03 31	104	0.6-	0.8-
1993 04 15	675	(2.7-	0.4+)	1998 03 02	809	1.5+	0.4+	1998 03 31	104	0.6-	0.5-
1993 04 15	399	(2.5-	0.4+)	1998 03 02	809	1.2+	0.5+	1998 03 31	104	0.3-	0.5-
1993 04 15	399	0.5-	1.1+	1998 03 20	704	0.4+	0.0				
1993 04 16	675	0.1-	0.2-	1998 03 20	704	0.2-	0.7+				

(8450)* 1977 QL₁ = 1959 UC = 1975 ED₄ = 1986 RL₉ = 1991 RN₇

Discovered 1977 Aug. 19 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. H. Kaneda (*MPC* 19290)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	139.02111		(2000.0)	P	Q
<i>n</i>	0.21604557	ω	34.30989	+0.95302647	-0.30188951
<i>a</i>	2.7506741	Ω	343.20932	+0.25532884	+0.84436235
<i>e</i>	0.0870411	<i>i</i>	4.87744	+0.16293473	+0.44262281
<i>P</i>	4.56	<i>H</i>	12.8	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1959 10 28	760	0.3-	0.8-	1991 10 05	033	0.3-	0.3-	1998 03 04	704	1.4-	0.2+
1959 10 28	760	0.3+	0.9+	1991 10 06	033	0.5+	0.7+	1998 03 20	704	0.9+	0.5-
1975 03 15	095	(2.2-	4.1+)	1991 10 06	033	0.5+	0.4+	1998 03 20	704	1.0+	0.8+
1977 08 19	095	0.7-	0.9+	1991 10 09	033	(2.1-	1.1-)	1998 03 20	704	1.2+	0.4+
1977 08 20	095	(3.1-	1.0+)	1991 10 09	033	0.2+	0.7+	1998 03 20	704	0.2+	0.0
1977 08 23	095	1.4+	0.7-	1991 10 10	033	1.1-	0.5-	1998 03 20	704	0.5+	0.1-
1977 09 09	675	0.2-	0.5-	1996 12 07	886	0.6-	0.3-	1998 03 22	704	0.7-	1.0-
1977 09 09	095	0.6-	0.1-	1996 12 07	886	0.2-	0.6+	1998 03 22	704	0.3-	0.5+
1977 09 10	675	0.5+	0.2-	1996 12 08	886	0.8+	0.3-	1998 03 22	704	0.6-	0.2-
1986 09 08	095	(3.6+	1.8+)	1996 12 08	886	0.0	0.1-	1998 03 22	704	1.4-	0.8+
1991 09 10	033	0.1+	0.9-	1998 02 26	566	1.0+	0.2-	1998 03 22	704	0.8-	0.7+
1991 09 11	033	0.3+	0.3-	1998 02 26	566	0.8+	0.1-	1998 04 01	704	0.3+	0.8-
1991 09 11	033	1.3+	0.2+	1998 02 26	566	0.8+	0.0	1998 04 01	704	0.3+	0.2+
1991 09 13	033	1.0-	0.2-	1998 03 04	704	1.4-	0.1-	1998 04 01	704	0.4+	1.0-
1991 09 13	033	0.4-	0.5-	1998 03 04	704	1.3-	0.7+	1998 04 01	704	0.7+	1.4-
1991 09 14	033	0.2+	0.2-	1998 03 04	704	0.3-	1.0+	1998 04 01	704	0.9+	1.6-
1991 09 15	033	0.1+	0.2-	1998 03 04	704	1.4-	0.4+				

(8451)* 1977 RY₆ = 1986 RH₅

Discovered 1977 Sept. 11 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. C. M. Bardwell (*MPC* 12568)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Bardwell

<i>M</i>	144.09541		(2000.0)	P	Q
<i>n</i>	0.21321262	ω	356.61030	+0.99906429	-0.04015941
<i>a</i>	2.7749859	Ω	5.76520	+0.04248105	+0.84151540
<i>e</i>	0.1645418	<i>i</i>	9.19684	+0.00811780	+0.53873839
<i>P</i>	4.62	<i>H</i>	13.6	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1977 09 11	095	(3.6-	1.6-)	1986 09 07	809	0.2+	0.2-	1991 11 03	801	0.3-	0.4+
1977 10 07	675	1.2+	0.3-	1986 09 07	809	0.2-	0.7+	1991 11 08	801	0.1+	0.6+
1977 10 11	675	0.3-	0.5+	1986 09 07	809	0.1-	0.6+	1991 11 08	801	0.1-	0.1-
1977 10 11	675	0.1+	0.1+	1986 09 07	809	0.1+	0.5+	1998 03 03	699	(2.6+	0.4+)
1977 10 12	675	0.4-	0.5+	1986 09 09	809	0.4-	0.1+	1998 03 03	699	0.7+	0.4+
1977 10 12	675	0.6-	0.3+	1986 09 09	809	0.3-	0.4-	1998 03 03	699	1.4+	1.6-

1977 10 16	675	1.1+	1.6-	1986 09 09	809	0.2-	0.3-	1998 03 20	704	0.0	0.6-
1977 10 16	675	0.5-	1.9-	1986 09 10	809	0.5-	1.2+	1998 03 20	704	(1.5-	2.1-)
1977 10 21	675	1.2+	1.6-	1986 09 10	809	0.4-	1.2+	1998 03 20	704	1.0-	0.4-
1977 10 21	675	1.4+	1.2-	1986 09 10	809	0.7-	0.9+	1998 03 20	704	1.1-	0.1+
1986 09 04	809	1.1+	1.0-	1986 09 11	809	1.4-	0.7+	1998 03 22	704	0.4-	0.1+
1986 09 04	809	1.1+	1.0-	1986 09 11	809	1.4-	0.5+	1998 03 22	704	0.8+	0.9+
1986 09 04	809	1.1+	1.2-	1986 09 11	809	1.0-	0.4+	1998 03 22	704	(2.2-	2.3+)
1986 09 06	809	0.4+	0.3-	1991 10 04	801	0.3-	0.7+	1998 03 22	704	0.5-	0.2-
1986 09 06	809	0.5+	0.2-	1991 10 04	801	0.4-	1.0+	1998 03 26	704	0.1-	0.9+
1986 09 06	809	0.5+	0.2-	1991 10 08	801	0.3-	0.8+	1998 03 26	704	0.2+	0.5+
1986 09 07	809	0.2+	0.0	1991 10 08	801	0.4-	0.9+	1998 03 26	704	(2.7-	0.2+)
1986 09 07	809	0.3+	0.1+	1991 11 03	801	0.3-	0.2+				

(8452)* 1978 WB = 1989 VK₆

Discovered 1978 Nov. 27 at the Agassiz Station of the Harvard College Observatory.

Id. G. V. Williams (*MPC* 18620)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M	59.32245		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.26368533	ω	345.36020	+0.74795775	-0.66297152
a	2.4084931	Ω	56.21252	+0.61278803	+0.67116678
e	0.1681947	i	2.21087	+0.25504908	+0.33166838
P	3.74	H	14.7	G 0.15	U 2

Residuals in seconds of arc

1978 11 27	801	2.4-	1.5+	1989 11 03	675	0.4+	1.3-	1998 01 29	566	0.1+	0.3+
1978 11 29	801	0.1-	0.0	1989 11 04	675	1.1+	1.1-	1998 02 18	560	0.1-	0.2-
1978 12 03	801	1.8+	0.3+	1989 11 04	675	0.6+	1.0-	1998 02 18	560	0.9-	0.2+
1978 12 06	801	0.4+	1.1+	1996 08 12	566	0.5-	1.9+	1998 02 20	560	0.1-	0.6-
1978 12 07	801	0.4-	0.6+	1996 08 12	566	0.5-	1.6+	1998 02 20	560	0.7+	0.3+
1978 12 28	801	0.2-	1.1+	1996 08 12	566	0.3-	1.8+	1998 02 20	560	0.7+	1.0+
1978 12 29	801	0.1+	1.0+	1998 01 29	566	0.1+	0.2+				
1989 11 03	675	0.4-	0.4-	1998 01 29	566	0.2-	0.3+				

(8453)* 1981 EQ = 1989 UA₄

Discovered 1981 Mar. 1 by H. Debehogne and G. DeSanctis at the European Southern Observatory.

Id. S. J. Bus (*MPC* 15553)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M	298.41711		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.17305989	ω	226.53556	-0.51845626	+0.85415760
a	3.1891266	Ω	12.42005	-0.72060224	-0.41109872
e	0.1506634	i	10.77874	-0.46036455	-0.31845350
P	5.70	H	12.5	G 0.15	U 1

Residuals in seconds of arc

1954 08 08	675	0.8-	0.2+	1981 03 12	809	0.8-	0.7+	1998 03 20	704	0.9+	0.9-
1954 08 08	675	0.1-	0.1+	1981 03 12	809	0.6-	0.4+	1998 03 20	704	0.1+	0.1-
1981 02 12	413	1.1+	0.8-	1989 10 29	807	0.7+	0.3-	1998 03 20	704	0.5+	0.1-
1981 02 13	413	0.5-	0.6-	1989 10 31	807	0.0	0.7-	1998 03 20	704	1.0+	0.1+
1981 03 01	809	0.4+	0.8-	1992 02 27	033	0.7+	1.4+	1998 03 26	566	0.8+	0.3+
1981 03 01	809	0.5+	0.7-	1992 02 27	033	1.0+	1.6+	1998 03 26	566	0.6+	0.2+
1981 03 01	809	0.1+	0.5-	1992 02 28	033	(1.1+	2.2+)	1998 03 26	566	0.5+	0.3+
1981 03 05	809	0.6-	0.3-	1992 04 04	809	0.6-	0.2-	1998 04 01	732	(1.4+	2.1-)
1981 03 05	809	0.5-	0.3-	1994 09 07	689	(14.2-	12.2-)	1998 04 01	732	(0.1+	2.2-)
1981 03 05	809	0.5-	0.6-	1994 09 09	689	(13.0-	12.3-)	1998 04 01	732	(2.3-	1.8-)
1981 03 06	809	0.2+	0.7+	1994 09 12	675	0.5+	0.7+	1998 04 02	732	0.4-	1.0-
1981 03 06	809	0.2+	0.5+	1994 09 12	675	0.0	0.5+	1998 04 02	732	0.2-	0.1-
1981 03 06	809	0.2+	0.2+	1994 10 01	675	1.1-	0.2+	1998 04 02	732	(2.3-	1.3-)
1981 03 07	809	0.5+	0.3-	1994 10 01	675	0.7+	0.6-	1998 04 03	732	0.7-	1.7+
1981 03 07	809	0.8+	0.2-	1998 02 23	691	1.2-	0.4-	1998 04 03	732	0.4+	0.3-
1981 03 07	809	1.1+	0.1-	1998 02 23	691	1.2-	0.5-	1998 04 03	732	0.4+	0.3-
1981 03 08	809	0.2+	0.9+	1998 03 04	691	0.3-	0.3-	1998 04 04	732	1.4-	0.2-
1981 03 08	809	0.3+	0.8+	1998 03 04	691	0.4-	0.2-	1998 04 04	732	0.9-	0.1-

1981 03 08	809	0.4+	0.8+	1998 03 04	691	0.4-	0.3-	1998 04 04	732	0.8-	0.2+
1981 03 12	809	1.0-	0.8-	1998 03 20	704	0.3+	0.3+				

(8454)* 1981 EG₁ = 1981 EU₁ = 1981 GC₁ = 1987 UZ₉ = 1989 CT₁

Discovered 1981 Mar. 5 by H. Debehogne and G. DeSanctis at the European Southern Observatory.

Id. L. D. Schmadel (d, *MPC* 7767), T. Kobayashi (*MPC* 14614), G. V. Williams (*MPC* 30075)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M	291.40200		(2000.0)	P	Q		
n	0.23312529	ω	226.17708	-0.36929540	+0.92900431		
a	2.6146273	Ω	22.18447	-0.83341957	-0.31969473		
e	0.0692180	i	3.63121	-0.41113591	-0.18640350		
P	4.23	H	13.6	G	0.15	U	1

Residuals in seconds of arc

1981 03 01	809	0.5+	0.2-	1989 02 02	675	0.0	0.4+	1998 03 20	704	1.1-	0.4-
1981 03 01	809	0.5+	0.1-	1989 02 02	675	1.2+	0.5+	1998 03 20	704	0.2-	0.8+
1981 03 01	809	0.6+	0.4-	1989 02 10	888	(5.4+	3.6+)	1998 03 20	704	0.1-	1.7+
1981 03 05	809	0.0	0.2+	1989 02 10	888	(3.9+	3.4+)	1998 03 20	704	1.0-	1.7+
1981 03 05	809	0.2-	0.4+	1989 02 14	888	0.5-	0.2-	1998 03 22	704	0.2+	0.1-
1981 03 05	809	0.5-	0.6+	1989 02 14	888	1.4-	0.9+	1998 03 22	704	0.5+	0.6-
1981 03 07	809	1.6-	0.2+	1989 02 27	888	1.5+	1.0-	1998 03 22	704	0.8+	0.1+
1981 03 07	809	1.6-	0.1-	1989 02 27	888	0.3+	1.2-	1998 03 22	704	0.2+	0.9-
1981 03 07	809	1.5-	0.4-	1991 09 11	675	0.8+	0.9-	1998 03 22	704	0.4+	0.5-
1981 03 08	809	0.2+	0.3+	1991 09 11	675	0.1-	0.3-	1998 03 24	704	0.6+	0.5-
1981 03 08	809	0.4+	0.3-	1991 09 13	675	0.1-	0.3+	1998 03 24	704	0.1-	0.7-
1981 03 08	809	0.2+	0.7-	1991 09 13	675	0.4-	0.4-	1998 03 24	704	0.1-	0.3+
1981 03 09	809	0.1+	0.5-	1991 09 16	675	0.2-	1.5-	1998 03 24	704	0.5+	0.7+
1981 03 09	809	0.5+	0.8-	1991 09 16	675	0.6-	0.9-	1998 03 24	704	0.7-	0.0
1981 03 09	809	0.6+	1.2-	1991 10 08	675	1.1+	1.6+	1998 03 24	704	0.1-	0.5+
1981 03 10	809	1.7-	0.5-	1991 10 08	675	0.8-	0.4-	1998 03 24	704	0.7+	0.2+
1981 03 10	809	0.7-	0.5-	1994 05 10	675	0.8-	1.8-	1998 03 24	704	0.4-	0.6+
1981 03 11	809	1.0-	1.4+	1994 05 10	675	0.8+	0.4+	1998 03 24	704	0.5-	0.2+
1981 03 11	809	1.1-	1.3+	1994 06 08	675	1.1+	0.6+	1998 03 24	704	1.8-	0.1+
1981 03 11	809	1.4-	1.0+	1994 06 08	675	0.1-	0.4+	1998 03 24	566	0.3+	0.7-
1981 03 14	809	0.5+	1.5+	1995 09 19	809	0.0	1.0+	1998 03 24	566	0.1+	0.8-
1981 03 14	809	0.9+	1.2+	1995 09 20	809	0.1-	0.9+	1998 03 24	566	0.2-	0.7-
1981 03 14	809	1.5+	1.0+	1995 09 23	809	(4.2+	1.3-)	1998 03 25	699	0.7-	0.4+
1981 03 15	809	0.3+	0.5-	1995 09 26	098	(4.0-	1.5-)	1998 03 25	699	0.1-	0.0
1981 03 15	809	0.5+	0.8-	1995 09 26	098	(3.0-	2.7-)	1998 03 25	699	0.6+	0.3-
1981 03 15	809	0.6+	0.8-	1998 03 02	910	0.1+	0.5+	1998 03 25	704	0.6+	0.1-
1981 03 16	809	0.0	0.6-	1998 03 02	910	0.3+	0.5+	1998 03 25	704	0.6+	0.8-
1981 03 16	809	0.8+	0.8-	1998 03 02	910	0.3+	0.5+	1998 03 25	704	0.6-	0.1-
1981 03 16	809	1.3+	0.9-	1998 03 03	910	0.3+	0.5+	1998 03 25	704	0.5-	0.2+
1981 04 02	046	(3.5+	0.3-)	1998 03 03	910	0.2+	0.6+	1998 03 25	704	0.1+	0.1-
1981 04 03	046	(6.2+	1.3+)	1998 03 03	910	0.3+	0.6+				
1987 10 27	095	0.3-	1.2+	1998 03 20	704	0.5+	0.0				

(8455)* 1981 ER₆ = 1985 CT₁

Discovered 1981 Mar. 6 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey.

Id. B. G. Marsden (*MPC* 10158)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M	349.78359		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$		
n	0.22948742	ω	233.09309	-0.81519736	-0.57219811		
a	2.6421865	Ω	271.83394	+0.55583647	-0.72938234		
e	0.1886677	i	5.14787	+0.16278540	-0.37495431		
P	4.29	H	14.2	G	0.15	U	1

Residuals in seconds of arc

1979 10 18	675	0.7-	0.5-	1985 02 11	809	0.1-	0.0	1985 02 22	809	0.5+	0.0
1979 10 18	675	0.9+	1.4+	1985 02 12	809	0.1-	0.2+	1985 02 24	809	1.0+	0.1+
1981 02 09	413	0.0	0.9+	1985 02 12	809	0.3-	0.1+	1985 02 24	809	0.9+	0.1+

1981 02 12	413	1.1+	0.7+	1985 02 12	809	0.6-	0.0	1985 02 24	809	0.8+	0.2+
1981 02 14	413	1.2+	0.1-	1985 02 14	809	0.9-	0.0	1985 02 25	809	0.7+	0.2+
1981 03 01	413	0.6+	0.1+	1985 02 14	809	1.1-	0.0	1985 02 25	809	1.4+	0.3+
1981 03 01	413	1.5+	0.5-	1985 02 14	809	1.0-	0.0	1985 02 25	809	1.9+	0.3+
1981 03 06	413	0.7-	1.5+	1985 02 16	809	0.6-	0.6-	1992 11 23	033	0.0	0.4+
1981 03 06	413	1.5+	0.3-	1985 02 16	809	0.5-	0.1-	1992 11 23	033	0.3-	0.1-
1981 03 06	413	1.4-	0.7+	1985 02 16	809	0.3-	0.3+	1998 01 31	691	0.4-	0.4-
1981 03 08	413	1.1-	0.2+	1985 02 17	809	0.2-	0.1+	1998 01 31	691	0.5-	0.8-
1981 03 08	413	0.1+	0.3-	1985 02 17	809	0.7-	0.3+	1998 01 31	691	0.5-	0.2-
1981 03 08	413	0.9+	0.4+	1985 02 17	809	0.4-	0.1-	1998 03 03	704	0.7+	0.1+
1981 03 12	413	0.6-	0.3+	1985 02 18	809	1.3-	0.0	1998 03 03	704	0.7-	1.1-
1981 03 12	413	0.0	0.1-	1985 02 18	809	1.1-	0.2+	1998 03 03	704	0.5-	1.5-
1981 03 12	413	0.5-	0.1+	1985 02 18	809	1.0-	0.5+	1998 03 03	704	1.0-	1.0-
1981 03 12	413	1.1+	0.4-	1985 02 19	809	0.0	0.4-	1998 03 03	704	0.9-	1.2-
1981 04 07	413	0.4-	0.8+	1985 02 19	809	0.3+	0.3-	1998 03 04	704	0.1-	0.1-
1981 04 07	413	0.7+	0.1-	1985 02 19	809	0.6+	0.3-	1998 03 04	704	0.2-	0.0
1981 04 08	413	0.5-	1.0+	1985 02 20	809	0.7+	1.0+	1998 03 04	704	0.3-	1.1-
1981 04 08	413	1.0+	0.0	1985 02 20	809	0.6+	0.7+	1998 03 04	704	0.8-	0.6-
1981 04 09	413	0.7-	1.4+	1985 02 20	809	0.7+	0.7+	1998 03 04	704	0.7-	0.0
1981 04 09	413	0.4+	1.0+	1985 02 21	809	0.1-	0.3+	1998 03 29	540	0.2+	0.5-
1981 05 01	413	0.8-	1.2-	1985 02 21	809	0.5+	0.1+	1998 03 29	540	0.4+	0.8-
1981 05 03	413	1.3-	1.0-	1985 02 21	809	0.7+	0.5+	1998 03 29	540	0.7+	0.0
1985 02 11	809	0.5-	0.0	1985 02 22	809	0.8+	0.1+	1998 03 31	540	0.8+	0.2+
1985 02 11	809	0.3-	0.0	1985 02 22	809	0.7+	0.1+	1998 03 31	540	0.8+	0.8+

(8456)* 1981 EJ₇ = 1992 GP₁

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

Id. G. V. Williams (*MPC* 20328)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	216.44322	(2000.0)	Williams		<i>Q</i>	
<i>n</i>	0.17493284	ω	6.53419	+0.69554043	+0.71038968	
<i>a</i>	3.1663226	Ω	307.60272	-0.66519210	+0.58010697	
<i>e</i>	0.0280687	<i>i</i>	7.80306	-0.27155660	+0.39852528	
<i>P</i>	5.63	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1981 02 02	413	0.1+	0.9+	1984 11 21	010	0.2-	1.0+	1998 03 03	704	0.5+	0.8+
1981 02 09	413	1.1+	0.3+	1992 02 26	675	1.1+	1.1-	1998 03 04	704	1.8-	0.7+
1981 03 01	413	0.1+	0.6-	1992 02 29	809	0.8+	0.0	1998 03 04	704	(2.4-	1.0+)
1981 03 01	413	(1.4+	2.6-)	1992 04 01	691	0.7-	0.5-	1998 03 04	704	(2.5-	0.2+)
1981 03 07	413	0.6-	0.3-	1992 04 01	691	0.2-	0.5-	1998 03 04	704	1.3-	1.1+
1981 03 07	413	1.0+	0.9-	1992 04 04	691	1.0-	0.1-	1998 03 04	704	0.6-	1.0+
1981 03 11	413	0.2+	0.1-	1992 04 04	691	0.7-	0.1-	1998 03 24	566	0.8+	0.5-
1981 03 15	413	1.5-	0.5-	1992 04 04	691	0.8-	0.0	1998 03 24	566	0.3+	0.5-
1981 03 15	413	1.2+	1.3-	1992 04 05	675	(0.7+	2.8-)	1998 03 24	566	0.8+	0.4-
1981 04 05	413	1.9-	1.9+	1992 04 05	675	(0.2+	2.4-)	1998 04 01	704	0.8+	0.1+
1981 04 05	413	0.5+	0.1+	1992 04 07	809	0.0	0.2+	1998 04 01	704	1.0+	0.7-
1981 04 06	413	0.6-	0.2+	1998 03 03	704	0.4+	0.6+	1998 04 01	704	0.5+	0.7+
1981 04 06	413	1.1+	1.1-	1998 03 03	704	0.2+	1.0+	1998 04 01	704	0.5+	0.0
1981 04 12	413	1.3-	0.8+	1998 03 03	704	0.4-	0.4-	1998 04 01	704	0.2-	0.0
1981 04 29	413	0.4+	0.0	1998 03 03	704	(0.2+	2.1+)				

(8457)* 1981 EO₈ = 1975 XX₂ = 1979 WR₄

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

Id. B. G. Marsden (*MPC* 10614), L. D. Schmadel (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	44.06865	(2000.0)	Marsden		<i>Q</i>	
<i>n</i>	0.23030261	ω	157.85556	+0.12523310	-0.98998604	
<i>a</i>	2.6359478	Ω	284.90237	+0.89985213	+0.14099505	
<i>e</i>	0.1659280	<i>i</i>	3.86557	+0.41783109	-0.00693026	
<i>P</i>	4.28	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1975 12 02	095	(3.9+	3.7-)	1981 04 30	413	0.4-	1.3-	1998 03 03	704	0.5-	0.3-
1979 10 18	675	0.2+	1.8-	1981 05 02	413	1.3+	1.1-	1998 03 03	704	0.5-	0.1-
1979 10 18	675	2.2+	0.1-	1991 07 12	809	0.1+	0.1+	1998 03 03	704	0.2+	0.3-
1979 11 17	095	(2.6+	17.3-)	1991 07 12	809	0.5+	0.1+	1998 03 03	704	0.2+	0.4-
1981 02 09	413	0.2+	0.3+	1991 07 12	809	0.6+	0.1+	1998 03 04	704	(2.1-	0.0)
1981 02 13	413	1.0+	0.1-	1991 07 13	809	0.2-	0.6-	1998 03 04	704	(3.2-	0.5-)
1981 03 01	413	1.5-	0.7+	1991 07 13	809	0.0	0.6-	1998 03 04	704	(2.6-	0.4-)
1981 03 01	413	0.4+	0.7-	1991 07 13	809	0.2+	0.8-	1998 03 04	704	(2.5-	0.3-)
1981 03 07	413	0.8-	0.5+	1996 10 01	825	0.5+	0.4-	1998 03 04	704	(2.9-	0.1+)
1981 03 11	413	0.3-	0.2-	1996 10 01	825	0.2+	1.3-	1998 03 20	704	0.3-	0.2-
1981 03 11	413	0.8+	1.3-	1996 10 04	825	0.3+	0.6-	1998 03 20	704	1.2+	0.5-
1981 03 15	413	0.6+	0.6-	1996 10 04	825	0.4+	0.1-	1998 03 20	704	0.1-	1.1+
1981 04 05	413	2.0-	0.6+	1996 10 04	825	0.2-	0.4-	1998 03 20	704	0.9-	0.7+
1981 04 05	413	0.5+	1.8-	1996 10 05	825	0.6-	1.6-	1998 03 22	704	0.0	0.3-
1981 04 06	413	1.5-	0.1-	1996 10 05	825	(4.5-	0.8-)	1998 03 22	704	0.0	0.2-
1981 04 06	413	0.1+	0.6-	1996 10 05	825	0.3-	0.8-	1998 03 22	704	0.2+	0.2+
1981 04 07	413	1.4-	0.1+	1998 02 26	699	0.7+	0.2+	1998 03 22	704	0.9+	0.8-
1981 04 07	413	1.3+	2.1-	1998 02 26	699	0.3+	0.5+	1998 03 22	704	0.2+	0.8-
1981 04 12	413	1.1-	0.9+	1998 02 26	699	0.1+	0.6+				
1981 04 12	413	2.2-	0.3+	1998 03 03	704	0.4-	0.7-				

(8458)* 1981 EY₉ = 1991 CV

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

Id. R. H. McNaught (*MPC* 17817)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	15.68301	(2000.0)	Williams		<i>Q</i>	
<i>n</i>	0.28887643	ω	177.02278	-0.43708551	-0.89764653	
<i>a</i>	2.2663552	Ω	298.88926	+0.82386385	-0.37439732	
<i>e</i>	0.1431849	<i>i</i>	3.69683	+0.36083875	-0.23250239	
<i>P</i>	3.41	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1981 02 09	413	1.3+	0.2-	1991 01 22	675	1.1-	1.2+	1998 03 03	704	0.3-	0.7+
1981 02 13	413	(2.7+	0.1-)	1991 01 22	675	0.3+	0.5+	1998 03 03	704	0.6+	0.3+
1981 03 01	413	1.0-	0.7+	1991 02 09	413	0.4+	0.2-	1998 03 03	704	1.5+	0.7+
1981 03 07	413	0.6+	0.6+	1991 02 10	413	0.1+	1.1-	1998 03 20	704	0.9+	0.3-
1981 03 07	413	0.6+	1.0+	1991 02 11	675	0.2+	0.6-	1998 03 20	704	0.7+	0.0
1981 03 11	413	1.6+	0.7-	1991 02 11	675	0.1-	0.3-	1998 03 20	704	0.0	0.5-
1981 03 15	413	0.9-	0.5-	1993 10 08	691	0.4+	0.2+	1998 03 20	704	0.4+	0.4-
1981 03 15	413	1.7+	0.4-	1993 10 08	691	0.5+	0.3-	1998 03 20	704	0.5+	0.0
1981 04 05	413	0.7-	1.2+	1993 10 08	691	0.5+	0.1-	1998 03 22	704	0.1-	0.0
1981 04 05	413	0.6-	0.6+	1993 10 12	691	0.5-	0.0	1998 03 22	704	0.6-	0.2+
1981 04 06	413	0.6-	0.0	1993 10 12	691	0.6-	0.2+	1998 03 22	704	0.4-	0.3-
1981 04 06	413	1.2+	1.0-	1993 10 12	691	0.4-	0.2+	1998 03 22	704	0.2+	0.1+
1981 04 07	413	0.6-	0.6+	1993 12 08	691	0.3+	0.2-	1998 03 22	704	0.3-	0.2+
1981 04 07	413	1.6+	0.9-	1993 12 08	691	0.1+	0.0	1998 03 24	566	1.5-	0.8-
1981 04 10	413	0.2-	1.0+	1993 12 08	691	0.1-	0.3-	1998 03 24	566	1.0-	0.8-
1981 04 10	413	2.2-	0.3+	1998 02 24	566	0.1+	0.0	1998 03 24	566	1.3-	0.7-
1981 04 12	413	1.1-	0.3+	1998 02 24	566	0.2+	0.1-	1998 03 26	704	0.4+	0.1+
1981 04 12	413	0.7-	0.6+	1998 02 24	566	0.3-	0.1-	1998 03 26	704	0.1+	0.5+
1981 04 29	413	0.5+	1.8-	1998 03 03	704	0.1+	0.1+	1998 03 26	704	0.6-	0.0

(8459)* 1981 EQ₁₈ = 1978 RB₉

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

Id. D. W. E. Green (*MPC* 11042)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M	122.26985		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.17790651	ω	255.30148	+0.73168798	-0.68141588
a	3.1309406	Ω	147.64724	+0.63727981	+0.67475326
e	0.1805996	i	1.87051	+0.24188250	+0.28351444
P	5.54	H	13.3	G 0.15	U 1

1998 APR. 11

M.P.C. 31487

Residuals in seconds of arc

1978 09 02	809	0.6+	0.9-	1981 03 02	413	(3.0+	2.7-)	1995 10 26	691	0.2+	0.2-
1978 09 02	809	0.1+	0.9-	1981 03 07	413	(3.4-	0.6+)	1995 10 26	691	0.0	0.3-
1978 09 02	809	0.2+	0.4-	1981 03 07	413	(4.0-	0.7+)	1998 03 03	910	1.1+	0.3-
1978 09 02	809	0.2-	0.4-	1981 03 11	413	1.5-	0.4+	1998 03 03	910	1.2+	0.1-
1978 09 02	809	0.2+	1.0-	1981 03 11	413	0.8+	1.1-	1998 03 03	910	1.1+	0.1-
1978 09 06	809	0.4+	0.9-	1981 04 07	413	(3.2-	0.6+)	1998 03 25	704	0.0	0.7-
1979 12 20	675	1.9-	1.1-	1981 04 11	413	0.5-	0.6-	1998 03 25	704	1.0-	0.8-
1979 12 20	675	2.2+	0.5-	1981 05 02	413	0.8+	0.3-	1998 03 25	704	0.1-	1.7-
1981 02 02	413	0.5+	1.0-	1981 05 03	413	0.0	0.2+	1998 03 25	704	1.7-	1.0+
1981 02 13	413	0.5-	1.0-	1992 03 06	809	1.6-	0.7+	1998 03 25	704	(3.3-	0.7-)
1981 03 02	413	0.5-	0.0	1995 10 26	691	0.1+	0.1-				

(8460)* 1981 EP₁₉ = 1989 RF₁

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

Id. S. Nakano (*MPC* 15242)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Nakano			
<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.29265212	ω	220.41843	+0.89641934		-0.44301987	
<i>a</i>	2.2468199	Ω	165.86177	+0.41901783		+0.83767168	
<i>e</i>	0.1088650	<i>i</i>	3.02145	+0.14441755		+0.31943631	
<i>P</i>	3.37	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1971 03 26	675	1.2-	1.4-	1981 04 11	413	(5.3+	2.8-)	1996 11 12	801	0.3+	0.5-
1971 03 26	675	0.9-	0.7-	1981 05 02	413	0.4+	0.5+	1998 03 03	910	1.5+	0.3-
1971 03 27	675	1.6+	1.6-	1981 05 03	413	0.3-	0.0	1998 03 03	910	1.3+	0.1-
1971 04 02	675	(8.6+	3.0-)	1989 09 03	511	0.0	0.6-	1998 03 03	910	1.4+	0.2-
1971 04 02	675	0.8+	0.9-	1989 09 03	511	0.1+	1.2+	1998 03 20	704	(2.5-	1.9-)
1971 04 16	675	0.5+	1.5-	1989 09 07	511	0.9-	2.1-	1998 03 20	704	0.1+	1.7+
1971 04 16	675	1.1+	0.5-	1989 09 07	511	(3.4+	0.2+)	1998 03 20	704	1.6-	0.4+
1971 05 13	675	0.1+	1.5-	1989 09 24	809	0.6+	0.5-	1998 03 20	704	1.7-	1.9+
1981 02 02	413	0.6-	1.0-	1989 09 24	809	0.5+	0.1-	1998 03 22	704	0.5-	1.1-
1981 02 13	413	1.0-	1.1+	1989 09 24	809	0.3+	0.4+	1998 03 22	704	0.5-	1.3+
1981 03 02	413	1.4-	0.1+	1989 09 25	809	0.9-	0.2-	1998 03 22	704	0.4-	0.1+
1981 03 03	413	1.9-	1.2+	1989 09 25	809	0.4-	0.3-	1998 03 22	704	(2.1-	2.6-)
1981 03 03	413	0.6+	0.9-	1989 09 25	809	0.1-	0.2-	1998 03 22	704	(4.8-	0.5-)
1981 03 07	413	1.4-	1.1+	1991 03 12	809	1.4-	0.4-	1998 03 24	699	0.6+	0.4-
1981 03 07	413	1.1+	0.6-	1991 03 12	809	0.5-	0.5-	1998 03 24	699	0.4+	0.3+
1981 03 11	413	0.8-	1.4+	1991 03 12	809	0.1-	0.6-	1998 03 24	699	0.5-	0.6+
1981 03 11	413	0.3-	0.2+	1995 06 01	691	(2.8+	0.5-)	1998 03 25	704	1.6+	0.1+
1981 03 16	413	(2.7+	1.0-)	1995 06 01	691	(2.9+	0.7+)	1998 03 25	704	1.2+	0.1+
1981 03 29	413	1.0-	0.5+	1995 06 01	691	(4.8+	0.7-)	1998 03 25	704	(3.1+	2.6-)
1981 04 08	413	1.1+	0.2-	1996 11 11	689	0.5+	1.0+	1998 03 25	704	0.5+	0.2+
1981 04 08	413	0.7+	0.9-	1996 11 12	801	0.8+	0.2+	1998 03 25	704	0.9+	0.1+

(8461)* 1981 EC₂₁

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

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams			
<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.22845078	ω	75.66853	+0.04354142		-0.99889639	
<i>a</i>	2.6501734	Ω	11.87788	+0.88047584		+0.03003800	
<i>e</i>	0.1716587	<i>i</i>	4.90829	+0.47208732		+0.03610696	
<i>P</i>	4.31	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1977 04 24	675	0.4-	0.7+	1981 04 07	413	(3.0+	0.5-)	1998 01 30	910	0.9+	0.7-
1977 04 25	675	0.9-	2.3-	1981 04 08	413	1.5-	0.2+	1998 01 30	910	0.8+	0.8-
1981 02 02	413	0.6-	0.9-	1981 04 11	413	1.1+	0.3-	1998 03 03	704	0.2+	1.1+
1981 02 13	413	2.1-	0.3+	1981 05 02	413	0.4-	0.5-	1998 03 03	704	0.3+	1.4+
1981 03 02	413	0.5+	0.1-	1981 05 03	413	0.9-	0.1-	1998 03 03	704	(3.2-	0.4-)
1981 03 03	413	1.5+	0.3+	1985 02 20	675	1.2-	0.4-	1998 03 03	704	0.6-	0.6+
1981 03 07	413	1.5-	1.5+	1985 02 23	675	0.8+	0.5+	1998 03 03	704	(1.6-	2.8+)

1981 03 07	413	1.5+	0.2-	1996 10 11	566	0.7-	0.2+	1998 03 04	704	0.1+	0.4+
1981 03 11	413	0.6-	1.0+	1996 10 11	566	0.3+	0.1-	1998 03 04	704	0.1-	0.8+
1981 03 11	413	1.7+	0.1+	1996 10 11	566	0.4+	0.1-	1998 03 04	704	1.1-	0.3+
1981 03 16	413	1.0+	0.5+	1998 01 29	566	0.3-	1.0-	1998 03 04	704	0.6-	0.1+
1981 03 16	413	0.6+	0.4-	1998 01 29	566	0.6-	1.1-	1998 03 04	704	0.6+	0.3-
1981 03 29	413	(4.1+	0.4-)	1998 01 29	566	0.9-	1.0-				
1981 04 07	413	0.8+	0.2-	1998 01 29	910	0.7+	0.4-				

(8462)* 1981 ED₂₂

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

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams			
<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.23351611	ω	41.58779	-0.80483469		+0.59348767	
<i>a</i>	2.6117092	Ω	174.81313	-0.55469383		-0.74999507	
<i>e</i>	0.0683496	<i>i</i>	2.32953	-0.21108264		-0.29202702	
<i>P</i>	4.22	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1981 02 09	413	1.8-	1.0-	1981 04 08	413	0.6+	0.4+	1998 03 03	910	0.5+	0.1+
1981 02 09	413	(0.4+	3.0-)	1981 04 11	413	0.4+	1.6-	1998 03 03	910	0.4+	0.1+
1981 02 13	413	0.2-	0.1+	1981 04 26	413	0.6+	2.1-	1998 03 20	704	(2.6+	0.5-)
1981 03 02	413	(3.2-	1.2+)	1981 05 02	413	(3.0-	2.2+)	1998 03 20	704	0.2+	0.4-
1981 03 02	413	0.5-	0.4-	1981 05 02	413	2.0+	0.9+	1998 03 20	704	(2.4+	0.3+)
1981 03 03	413	0.4-	0.9+	1985 02 20	675	1.3-	1.0+	1998 03 20	704	0.5+	0.1-
1981 03 07	413	0.9-	0.8+	1985 02 22	675	0.2+	0.1-	1998 03 20	704	1.3-	1.9-
1981 03 07	413	1.0+	0.2-	1994 04 15	691	0.7-	0.3+	1998 03 22	704	(2.7+	0.6+)
1981 03 11	413	0.5-	0.5-	1994 04 15	691	0.5-	0.2+	1998 03 22	704	0.4+	0.7+
1981 03 16	413	(6.0+	3.4-)	1994 04 15	691	0.4-	0.0	1998 03 22	704	(4.2+	0.0)
1981 03 16	413	0.5+	0.1+	1995 10 02	691	0.4+	0.2-	1998 03 22	704	0.5+	1.5+
1981 03 29	413	0.3-	0.6+	1995 10 02	691	0.1-	0.1+	1998 03 22	704	(3.7-	0.5-)
1981 04 07	413	1.4-	1.4+	1995 10 02	691	0.2+	0.1-				
1981 04 07	413	2.0+	1.6-	1998 03 02	910	0.5+	0.1+				

(8463)* 1981 EM₂₇

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

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams			
<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.17192427	ω	355.25380	-0.68624066		-0.72671077	
<i>a</i>	3.2031548	Ω	138.07475	+0.66887415		-0.64725511	
<i>e</i>	0.1708651	<i>i</i>	2.66508	+0.28579910		-0.23011362	
<i>P</i>	5.73	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1981 02 09	413	0.2+	1.0-	1981 04 06	413	0.2+	0.2-	1998 03 20	704	0.5+	0.3-
1981 02 12	413	0.5-	1.4-	1981 05 01	413	0.7+	1.5+	1998 03 20	704	0.1-	0.6-
1981 02 13	413	0.4+	0.7-	1993 06 20	691	0.1-	0.0	1998 03 20	704	0.5+	0.1-
1981 03 02	413	0.6-	1.0-	1993 06 20	691	0.1+	0.3-	1998 03 20	704	0.5-	0.1+
1981 03 02	413	0.4+	1.4-	1993 06 20	691	0.1-	0.1+	1998 03 22	704	0.2+	0.1+
1981 03 06	413	2.0-	0.1+	1996 12 12	046	0.1+	0.2-	1998 03 22	704	0.3-	0.1+
1981 03 11	413	1.3-	0.2+	1996 12 12	046	0.1+	0.2-	1998 03 22	704	0.4-	1.1+
1981 03 11	413	1.5+	1.1-	1996 12 12	046	0.0	0.2-	1998 03 22	704	1.3+	1.4+
1981 03 15	413	1.1-	0.3+	1996 12 12	046	0.2+	0.6-	1998 03 22	704	0.0	0.2-
1981 03 15	413	2.0+	0.7-	1998 02 26	566	0.4+	0.5+	1998 04 03	691	0.6-	0.5+
1981 04 05	413	1.8-	0.6+	1998 02 26	566	0.4+	0.7+	1998 04 03	691	0.6-	0.6+
1981 04 05	413	2.0+	1.0-	1998 02 26	566	0.3+	0.8+	1998 04 03	691	0.5-	0.6+
1981 04 06	413	2.2-	0.4+	1998 03 20	704	1.2+	0.1+				

(8464)* 1981 EF₂₈ = 1987 WB₅ = 1991 RC₁₃

Discovered 1981 Mar. 2 by S.

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	187.14936		(2000.0)	P	Q
<i>n</i>	0.22924066	ω	318.29180	+0.84880095	+0.52777393
<i>a</i>	2.6440822	Ω	9.99793	-0.42427535	+0.71546623
<i>e</i>	0.1545264	<i>i</i>	10.45024	-0.31547959	+0.45778025
<i>P</i>	4.30	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1981 02 12	413	0.5-	1.0+	1987 11 17	399	0.4-	0.7+	1998 03 02	809	0.8-	1.7-
1981 02 13	413	0.2-	0.3-	1987 11 17	399	(0.8+	3.0+)	1998 03 20	704	0.2+	0.0
1981 03 02	413	(3.1-	1.5-)	1991 09 10	675	1.3+	0.2+	1998 03 20	704	0.8+	0.1+
1981 03 02	413	1.7+	1.8-	1991 09 10	675	1.7-	0.9-	1998 03 20	704	0.6+	0.3-
1981 03 06	413	(3.8-	0.9-)	1991 09 15	675	1.6+	0.6-	1998 03 20	704	0.7+	0.0
1981 03 11	413	2.4-	0.8-	1991 09 15	675	0.7-	0.1-	1998 03 20	704	1.0+	0.1+
1981 03 11	413	1.1-	0.0	1991 09 17	675	0.0	0.6-	1998 03 24	557	0.3-	0.9+
1981 03 15	413	0.5-	0.4-	1991 09 17	675	0.4+	1.4-	1998 03 24	557	0.2-	0.5+
1981 04 05	413	(2.8+	0.2-)	1991 09 17	675	0.3+	0.5+	1998 03 25	704	0.7+	0.0
1981 04 05	413	(3.4+	0.6-)	1991 09 17	675	0.2-	0.2+	1998 03 25	704	0.6+	1.2+
1981 04 06	413	2.1-	0.8+	1991 10 04	033	0.1-	0.3+	1998 03 25	704	0.6-	0.2+
1981 04 06	413	1.6+	0.4+	1991 10 04	033	0.1+	0.8+	1998 03 25	704	0.5+	0.2+
1981 04 07	413	2.2-	0.4-	1991 10 05	033	0.3+	0.1-	1998 03 25	704	0.4+	0.4-
1981 04 07	413	(3.7+	0.5-)	1998 02 25	566	0.2+	0.9+	1998 03 25	566	0.3-	0.5+
1981 04 10	413	0.5-	0.0	1998 02 25	566	0.5+	0.6+	1998 03 25	566	0.1-	0.6+
1981 04 10	413	0.6+	1.5-	1998 02 25	566	0.4+	0.2+	1998 03 25	566	0.5-	0.7+
1981 04 26	413	2.4+	0.3-	1998 03 01	809	0.2-	0.1+	1998 03 26	704	0.3+	1.0-
1981 05 01	413	1.0+	0.3-	1998 03 01	809	1.5-	0.4-	1998 03 26	704	1.2+	1.5+
1981 05 03	413	0.8-	1.6-	1998 03 01	809	1.7-	0.1+	1998 03 26	704	0.0	0.3-
1987 11 17	399	(0.4+	2.9-)	1998 03 02	809	0.1+	1.3-	1998 03 26	557	0.3-	0.7+
1987 11 17	399	0.6+	1.4-	1998 03 02	809	0.0	1.8-	1998 03 27	557	0.2-	0.7+

(8465)* 1981 EQ₃₁ = 1990 WR

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

Id. B. G. Marsden (*MPC* 17431)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden

<i>M</i>	74.20172		(2000.0)	P	Q
<i>n</i>	0.17445906	ω	269.33504	+0.20850876	-0.97777272
<i>a</i>	3.1720525	Ω	168.55821	+0.93566092	+0.19287492
<i>e</i>	0.1488365	<i>i</i>	6.37129	+0.28471519	+0.08221780
<i>P</i>	5.65	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1981 02 09	413	0.1+	1.0+	1992 03 02	809	(3.7-	2.8+)	1995 09 22	809	0.4+	0.3-
1981 02 13	413	1.3+	0.9+	1992 03 04	809	1.0-	1.3+	1995 09 22	809	0.7+	0.6-
1981 03 02	413	0.6-	1.4-	1992 03 07	809	0.6-	1.0+	1995 09 24	809	0.6+	0.3-
1981 03 06	413	1.3+	1.8-	1993 05 20	691	1.0-	0.5-	1998 01 28	910	0.2+	0.7-
1981 03 15	413	0.6-	0.2-	1993 05 20	691	1.2-	0.5-	1998 01 28	910	0.3-	0.7-
1981 03 15	413	0.8-	0.4+	1993 05 20	691	0.6-	0.3-	1998 01 28	910	0.1-	0.5+
1981 05 01	413	0.9+	0.2+	1995 08 19	809	1.3-	0.7+	1998 01 30	910	0.4+	0.1+
1990 11 18	809	1.3+	0.2+	1995 08 20	809	1.8-	0.4-	1998 01 30	910	0.2+	0.4-
1990 11 18	809	0.2-	1.1-	1995 08 22	809	0.3-	0.4+	1998 01 30	910	0.1+	0.1+
1990 11 18	809	0.3-	1.3-	1995 09 18	809	0.7+	0.1+	1998 03 25	691	0.2+	0.6-
1990 11 20	809	0.4-	0.6-	1995 09 18	809	0.6+	0.6-	1998 03 25	691	0.7+	0.4-
1990 11 20	809	0.3-	0.2+	1995 09 19	809	1.2+	0.3-	1998 03 25	691	0.3+	1.5-
1990 11 20	809	(2.6-	0.2-)	1995 09 20	809	0.3+	0.5+				

(8466)* 1981 EV₃₄ = 1995 ST₂₉

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

Id. K. Kinoshita (*MPC* 26166)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	218.74478		(2000.0)	P	Q
<i>n</i>	0.23710720	ω	179.68035	+0.91910593	+0.39365830
<i>a</i>	2.5852719	Ω	157.11508	-0.36159257	+0.85952281
<i>e</i>	0.2200378	<i>i</i>	2.45481	-0.15650912	+0.32596575
<i>P</i>	4.16	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1981 03 02	413	1.5-	1.1+	1995 10 16	114	(7.8-	3.2-)	1998 03 02	910	0.9+	0.4+
1981 03 03	413	1.5-	1.5-	1995 10 16	114	(2.9-	2.4-)	1998 03 02	910	0.7+	0.9+
1981 03 03	413	0.7-	0.1-	1995 10 17	114	0.1-	0.2+	1998 03 03	910	0.8+	0.3+
1981 03 07	413	(4.2+	0.1+)	1995 10 18	114	1.9-	0.6+	1998 03 03	910	0.8+	0.6+
1981 03 11	413	0.3+	0.0	1995 10 19	114	0.3+	0.6+	1998 03 03	910	0.5+	0.6+
1981 05 02	413	1.8+	0.1-	1995 10 19	114	0.8-	0.1-	1998 03 25	704	0.1+	0.6-
1981 05 03	413	1.8+	0.1-	1997 01 02	691	0.0	0.2-	1998 03 25	704	1.7+	1.9+
1995 09 26	114	0.5+	1.4+	1997 01 02	691	0.1+	0.0	1998 03 25	704	0.9-	0.5+
1995 09 26	114	1.2+	0.1-	1997 01 02	691	0.0	0.0	1998 03 25	704	1.4-	0.7-
1995 09 28	114	0.1-	0.2+	1998 03 02	910	0.6+	0.5+	1998 03 25	704	1.9-	0.1+

(8467)* 1981 ES₃₅

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

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	15.95632		(2000.0)	P	Q
<i>n</i>	0.17134787	ω	123.99224	-0.58879741	-0.80825278
<i>a</i>	3.2103342	Ω	2.11565	+0.66860517	-0.49169945
<i>e</i>	0.0520763	<i>i</i>	10.47593	+0.45418580	-0.32397392
<i>P</i>	5.75	<i>H</i>	13.3	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1978 10 04	675	0.8+	1.2-	1981 03 29	413	0.9+	0.3+	1998 02 24	566	0.9+	0.3+
1981 02 09	413	0.6-	0.1-	1981 04 07	413	(2.8-	0.1+)	1998 03 03	699	0.7+	0.7+
1981 02 13	413	0.7+	0.2+	1981 04 07	413	2.0+	0.9+	1998 03 03	699	0.4+	0.5+
1981 03 02	413	(2.7-	0.0)	1981 04 08	413	1.2-	1.0+	1998 03 03	699	0.7+	0.1-
1981 03 02	413	0.4+	0.8-	1981 04 11	413	1.4-	0.7-	1998 03 04	704	2.1-	0.6-
1981 03 03	413	0.7+	0.1-	1981 04 11	413	0.1+	0.2+	1998 03 04	704	0.4-	0.7-
1981 03 07	413	1.9-	0.3-	1981 04 26	413	1.1+	0.5-	1998 03 04	704	2.0-	0.9+
1981 03 07	413	0.1+	0.7-	1981 05 02	413	0.7-	0.0	1998 03 04	704	2.4-	0.6+
1981 03 11	413	1.1-	0.6-	1989 08 09	413	0.7-	0.6+	1998 03 25	566	1.2+	0.3+
1981 03 11	413	1.4+	0.9-	1989 08 09	413	0.1+	0.2+	1998 03 25	566	1.1+	0.4+
1981 03 16	413	0.9-	0.4-	1995 09 20	809	0.2-	0.4+	1998 03 25	566	1.1+	0.3+
1981 03 16	413	0.2-	0.5+	1998 02 24	566	1.4+	0.0				
1981 03 29	413	0.9-	0.3-	1998 02 24	566	1.1+	0.1-				

(8468)* 1981 EA₄₀

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

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	229.28859		(2000.0)	P	Q
<i>n</i>	0.17334923	ω	174.92841	+0.61772313	+0.78559176
<i>a</i>	3.1855770	Ω	133.21605	-0.72320830	+0.58526172
<i>e</i>	0.1773771	<i>i</i>	2.79593	-0.30884929	+0.20078424
<i>P</i>	5.69	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1977 09 08	675	0.1+	0.3-	1981 05 02	413	0.7+	0.2+	1998 03 22	704	0.3-	0.1-
1977 09 09	675	0.0	0.1-	1992 02 29	691	0.1+	0.4+	1998 03 22	704	0.8-	1.4-
1981 02 13	413	1.3+	0.8+	1992 02 29	691	0.5+	0.2+	1998 03 24	704	0.3-	1.5+
1981 03 02	413	1.5-	0.7+	1992 02 29	691	0.8-	1.5-	1998 03 24	704	0.0	0.3+
1981 03 02	413	1.9-	0.9+	1992 03 08	809	(3.0+	1.0+)	1998 03 24	704	0.2-	1.0-
1981 03 07	413	2.1-	0.6+	1997 02 07	691	0.1+	0.1-	1998 03 24	704	0.1-	0.8+
1981 03 07	413	0.8+	1.3-	1997 02 07	691	0.0	0.2+	1998 03 24	704	0.0	1.2+
1981 03 11	413	0.4+	1.0-	1997 02 07	691	0.0	0.0	1998 03 24	704	1.6+	0.2-
1981 03 11	413	1.5+	1.7-	1998 02 21	691	0.5+	0.2+	1998 03 24	704	0.8+	0.0

1981 03 16	413	1.6−	0.5−	1998 02 21	691	0.7+	0.1+	1998 03 24	704	0.3+	1.7+
1981 03 29	413	0.2−	0.3−	1998 02 21	691	0.6+	0.1+	1998 03 24	704	1.1−	0.0
1981 03 29	413(12.3−	3.4+)		1998 03 22	704	0.3−	1.3−	1998 03 24	704	(1.0−	2.1−)
1981 04 26	413	1.8+	1.2−	1998 03 22	704	0.1−	1.3+				

(8469)* 1981 TZ = 1990 JD₁ = 1995 YD₂₄

Discovered 1981 Oct. 5 by N. G. Thomas at the Anderson Mesa Station of the Lowell Observatory.

Id. T. Kobayashi (*MPC* 27553)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams			
<i>M</i>	175.12226		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.20996159	ω	350.11688	+0.97741605	+0.21122351		
<i>a</i>	2.8035576	Ω	357.65883	−0.18135536	+0.82257032		
<i>e</i>	0.1598006	<i>i</i>	9.18255	−0.10848087	+0.52797982		
<i>P</i>	4.69	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1981 09 25	095	0.6−	0.3+	1995 12 19	704	(4.0−	5.7−)	1997 01 30	369	0.3−	0.4−
1981 10 05	688	(0.7+	4.3−)	1995 12 20	704	(5.3−	10.8−)	1997 01 30	369	0.4−	0.3−
1981 10 05	688	(0.5+	3.2−)	1995 12 20	704	(6.5−	12.7−)	1997 02 01	369	0.5−	0.0
1981 10 22	095	0.5+	0.6+	1995 12 20	704	(5.0−	13.0−)	1997 02 01	369	0.8−	0.6+
1990 05 03	413	0.7−	1.2−	1995 12 20	704	(4.3−	12.7−)	1997 02 06	369	0.4−	1.1−
1990 05 04	413	0.0	0.9−	1995 12 22	704	(7.0−	9.1−)	1997 02 06	369	0.3−	0.6+
1995 08 26	809	0.1−	0.4−	1995 12 22	704	(9.2−	10.9−)	1997 02 06	385	0.5+	0.0
1995 08 27	809	0.3+	0.6−	1995 12 22	704	(9.2−	9.7−)	1997 02 06	385	0.5+	0.1−
1995 08 27	809	0.9−	0.6−	1995 12 22	704	(8.1−	11.3−)	1998 02 25	566	0.2−	0.6−
1995 08 28	809	0.5−	0.4−	1996 01 22	704	0.3−	0.1+	1998 02 25	566	0.1+	0.5−
1995 08 29	809	0.0	0.5−	1996 01 22	704	0.2+	0.3+	1998 02 25	566	0.2+	0.7−
1995 08 30	809	0.5+	0.1+	1996 01 22	704	0.4+	0.5−	1998 03 19	104	0.2−	0.1+
1995 08 30	809	0.8+	0.9−	1996 01 22	704	0.4+	0.4−	1998 03 19	104	0.2+	0.1+
1995 08 31	809	0.6+	1.0−	1996 01 22	704	1.2+	0.2−	1998 03 19	104	0.5+	0.0
1995 09 17	809	0.6−	0.5+	1996 01 23	704	0.6+	0.1−	1998 03 20	704	0.6−	0.1−
1995 09 18	809	0.8+	0.4+	1996 01 23	704	0.3+	1.0+	1998 03 20	704	0.2−	0.0
1995 09 18	809	0.1−	1.3+	1996 01 23	704	(2.6+	1.1+)	1998 03 20	704	0.1+	0.3−
1995 09 19	809	1.1+	1.8+	1996 01 23	704	0.2+	0.0	1998 03 20	704	0.7+	1.0−
1995 09 20	809	0.4−	0.5−	1996 01 24	704	0.7−	0.7−	1998 03 20	704	0.2−	0.2−
1995 09 22	809	0.6−	0.5−	1996 01 24	704	0.7+	0.0	1998 03 22	704	0.0	0.0
1995 09 29	809	0.3+	0.8−	1996 01 26	704	(0.1+	4.2−)	1998 03 22	704	0.1−	0.5+
1995 12 19	704	(5.5−	5.7−)	1996 01 26	704	0.2+	0.3+	1998 03 22	704	0.2−	0.5−
1995 12 19	704	(5.1−	4.8−)	1996 01 26	704	0.4−	0.4−	1998 03 22	704	0.2−	0.1−
1995 12 19	704	(5.9−	6.4−)	1996 01 26	704	0.3−	0.7−	1998 03 22	704	0.7−	0.7−
1995 12 19	704	(5.4−	6.8−)	1996 01 27	704	0.9+	1.2−				

(8470)* 1982 SA₄ = 1982 UR = 1941 UR

Discovered 1982 Sept. 17 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. M. Kretlow (d, *MPC* 9019), S. Nakano (*MPC* 9067)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Nakano			
<i>M</i>	189.66487		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.28790166	ω	300.17889	+0.89823690	+0.43684708		
<i>a</i>	2.2714679	Ω	33.98521	−0.36764571	+0.80705770		
<i>e</i>	0.1922796	<i>i</i>	4.95933	−0.24084665	+0.39726879		
<i>P</i>	3.42	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1941 10 15	062	1.1−	0.2+	1989 11 05	675	1.1−	1.2+	1998 03 03	691	1.0−	0.0
1941 10 15	062	0.0	1.0−	1989 11 22	675	0.3+	0.4+	1998 03 03	691	1.0−	0.1−
1941 10 27	062	0.6+	1.1+	1989 11 22	675	0.2+	0.6+	1998 03 03	699	0.5+	0.4+
1941 10 27	062	(3.6+	0.7+)	1989 11 25	801	0.6−	0.5+	1998 03 03	699	0.6+	0.1+
1957 04 28	675	0.8+	0.7−	1989 11 25	801	0.2+	0.4+	1998 03 03	699	0.4+	0.8+
1957 04 28	675	0.6−	1.0−	1991 03 06	372	(1.3−	2.3−)	1998 03 20	704	0.4+	0.1+
1977 02 11	675	0.2−	0.5+	1991 03 06	372	(2.7+	0.1+)	1998 03 20	704	0.1−	0.1+
1977 02 12	675	0.4−	0.6−	1994 02 12	675	0.3−	1.7−	1998 03 20	704	0.6+	0.6−
1982 09 17	095	1.6+	1.5+	1994 02 12	675	0.1−	0.9−	1998 03 20	704	0.4−	0.1−
1982 09 20	095	1.9+	1.0−	1994 02 14	675	1.2+	0.4−	1998 03 20	704	0.7−	0.0

1982 09 22	095	1.1−	0.2−	1994 02 14	675	1.4−	0.3+	1998 03 22	704	0.1+	0.0
1982 09 26	095	1.1+	1.6−	1996 10 12	689	0.1+	0.5+	1998 03 22	704	0.1−	0.0
1982 10 17	688	1.2−	2.1−	1996 11 11	801	0.9+	0.0	1998 03 22	704	0.1+	0.2−
1982 10 17	688	0.0	1.2−	1996 11 11	689	1.2−	1.7−	1998 03 22	704	0.6−	0.4+
1982 10 24	688	0.9+	0.8−	1996 11 12	801	1.1+	0.3+	1998 03 22	704	0.1+	0.2−
1982 10 24	688	0.3+	0.2−	1996 11 12	801	1.6+	0.3−	1998 03 26	566	0.3+	0.3−
1989 11 04	675	0.4+	0.6−	1996 12 01	886	1.3−	1.7+	1998 03 26	566	0.7+	0.6−
1989 11 04	675	0.4+	0.2+	1996 12 01	886	(4.1−	0.6+)	1998 03 26	566	0.1+	0.3−
1989 11 05	675	2.1−	1.1+	1998 03 03	691	1.1−	0.2+				

(8471)* 1983 RX₄ = 1957 WG₁ = 1993 VA₁

Discovered 1983 Sept. 5 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Id. G. V. Williams (*MPC* 25423)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams			
<i>M</i>	122.94162		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.30053485	ω	107.51027	+0.99534365	−0.03742520		
<i>a</i>	2.2073583	Ω	254.70524	+0.00151546	+0.92750825		
<i>e</i>	0.2037348	<i>i</i>	5.28382	+0.09637800	+0.37192447		
<i>P</i>	3.28	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1957 11 26	760	2.1+	0.4+	1993 11 16	399	0.8−	0.6−	1998 03 03	704	1.0+	1.2+
1957 11 26	760	1.4−	0.1−	1993 11 16	399	0.2−	0.4+	1998 03 03	704	(4.3−	0.7+)
1983 09 05	095	1.8−	1.8−	1996 09 15	801	1.2−	0.6+	1998 03 04	704	(3.2−	0.0)
1983 09 07	095	1.7+	0.3+	1996 09 15	801	0.2−	0.7−	1998 03 04	704	(2.1−	2.9−)
1983 09 09	095	0.0	0.4−	1996 10 10	801	0.6+	0.3+	1998 03 04	704	1.4−	1.2−
1983 09 12	095	0.4−	1.5−	1996 10 10	801	0.5+	0.5+	1998 03 04	704	(4.3−	2.6−)
1993 11 09	675	1.6+	0.4+	1996 10 12	801	0.6+	0.2−	1998 03 24	691	1.3−	1.2−
1993 11 09	675	0.2+	0.4−	1996 10 12	801	0.7+	1.7+	1998 03 24	691	1.3−	0.3−
1993 11 10	675	(0.3−	2.3−)	1998 03 03	704	(3.5+	1.7+)	1998 03 24	691	0.7−	0.6−
1993 11 11	399	0.5−	0.4+	1998 03 03	704	1.4+	0.8+				
1993 11 11	399	(2.7−	1.0−)	1998 03 03	704	0.9+	0.4−				

(8472)* 1983 TC = 1979 YR₄ = 1992 UL₁₀

Discovered 1983 Oct. 12 at the Osservatorio S. Vittore, Bologna.

Id. C. M. Bardwell (*MPC* 27910), E. Bowell (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Bardwell			
<i>M</i>	85.28481		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.22278794	ω	125.05201	+0.98174718	+0.10839564		
<i>a</i>	2.6948934	Ω	229.26413	−0.14748957	+0.95269558		
<i>e</i>	0.1947942	<i>i</i>	11.90246	+0.12008040	+0.28393930		
<i>P</i>	4.42	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1979 12 18	095	(2.1+	3.1−)	1983 11 05	552	0.9−	0.4+	1996 10 30	552	0.4−	0.5+
1983 10 05	491	(3.9+	0.6+)	1983 11 05	552	0.4−	0.4−	1996 10 30	552	0.3+	0.2−
1983 10 12	552	1.2+	1.4+	1983 11 10	552	1.7−	1.0+	1996 10 30	552	0.2−	0.0
1983 10 12	552	0.9+	2.2+	1983 11 10	552	0.5−	0.7+	1996 10 31	552	0.5−	0.1+
1983 10 13	552	0.2−	1.5−	1983 11 28	552	(3.0+	0.4−)	1996 10 31	552	0.4−	0.2+
1983 10 13	552	0.8+	1.3−	1983 11 28	552	1.0−	1.0−	1996 11 12	552	0.3−	0.4+
1983 10 14	552	2.2+	0.2+	1992 10 20	675	0.1+	0.9+	1996 11 12	552	0.1+	0.2+
1983 10 14	552	0.6+	0.6−	1992 10 20	675	0.3−	0.6+	1998 01 06	758	0.2+	0.4+
1983 10 14	552	1.9+	0.0	1992 10 22	675	0.4+	0.1+	1998 01 06	758	0.9+	0.1+
1983 10 26	552	0.1−	2.2−	1992 10 22	675	0.2+	0.0	1998 01 24	552	0.5−	0.3−
1983 10 26	552	0.6−	0.7−	1996 10 18	552	0.4+	0.3−	1998 01 24	552	0.0	1.6−
1983 10 27	552	0.8−	0.5−	1996 10 18	552	0.1−	0.0	1998 03 16	552	0.6−	0.0
1983 10 27	552	2.2−	0.1+	1996 10 18	552	0.3+	0.2−	1998 03 16	552	0.5−	1.1+

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Nakano

<i>M</i>	148.76114	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.17880742	ω 277.84431	+0.99382107	-0.02918977
<i>a</i>	3.1204150	Ω 83.87362	+0.07051009	+0.91114487
<i>e</i>	0.1630638	<i>i</i> 6.18287	-0.08572049	+0.41105108
<i>P</i>	5.51	<i>H</i> 12.9	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1984 09 21	809	0.4-	0.4+	1984 09 29	809	0.5+	0.8-	1995 12 21	327	1.3-	0.6+
1984 09 21	809	0.2-	0.3+	1984 09 29	809	0.3+	0.8-	1997 02 04	385	0.5-	0.5-
1984 09 21	809	0.0	0.3+	1984 09 30	809	0.2-	1.1-	1997 02 04	385	0.3+	0.3-
1984 09 22	809	0.3-	0.5+	1984 09 30	809	0.2+	0.5-	1997 02 06	385	0.1+	0.3+
1984 09 22	809	0.2-	0.5+	1984 09 30	809	0.7+	0.7-	1997 02 06	385	0.8-	0.1-
1984 09 22	809	0.0	0.5+	1984 10 01	809	0.3-	0.0	1998 03 01	809	(3.2+	2.7+)
1984 09 23	809	0.1-	0.5+	1984 10 01	809	0.1-	0.1-	1998 03 01	809	(2.9+	2.5+)
1984 09 23	809	0.1-	0.5+	1984 10 01	809	0.4+	0.1-	1998 03 01	809	(1.8+	2.9+)
1984 09 23	809	0.0	0.5+	1993 04 21	691	0.9-	0.8-	1998 03 02	809	(1.6+	2.3+)
1984 09 24	809	0.3-	0.1-	1993 04 21	691	1.1-	0.6-	1998 03 02	809	1.0+	1.8+
1984 09 24	809	0.2-	0.1+	1993 04 21	691	0.9-	1.1-	1998 03 02	809	0.4+	1.6+
1984 09 24	809	0.2+	0.2+	1995 09 20	400	1.4+	1.2+	1998 03 24	704	0.6+	1.2-
1984 09 26	809	0.6-	0.9-	1995 09 20	400	1.1-	1.7+	1998 03 24	704	0.2+	1.3+
1984 09 26	809	0.3-	0.7-	1995 09 21	400	1.9+	0.3-	1998 03 24	704	0.3-	0.8-
1984 09 26	809	0.6-	0.7-	1995 09 21	400	0.5+	0.6+	1998 03 24	704	1.3-	0.5-
1984 09 27	809	0.5+	0.1-	1995 09 30	400	1.5-	0.6-	1998 03 25	704	0.9+	1.7-
1984 09 27	809	0.8+	0.2-	1995 09 30	400	0.7+	1.1-	1998 03 25	704	0.1-	0.8-
1984 09 27	809	1.0+	0.3-	1995 12 19	327	1.2-	0.6+	1998 03 25	704	0.5+	0.3-
1984 09 28	809	0.7+	0.5-	1995 12 19	327	0.9-	0.3-	1998 03 25	704	0.3-	0.6-
1984 09 28	809	0.8+	0.7-	1995 12 19	327	1.7-	0.4+	1998 03 25	704	0.3-	1.1-
1984 09 28	809	1.0+	1.1-	1995 12 21	327	0.8+	0.5-				
1984 09 29	809	0.5+	1.0-	1995 12 21	327	0.0	0.6+				

(8474)* 1985 GA₁ = 1992 NQ

Discovered 1985 Apr. 15 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. S. Nakano (*MPC* 20632)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Nakano

<i>M</i>	246.47507	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.29699221	ω 141.30077	+0.07467225	+0.99435065
<i>a</i>	2.2248770	Ω 132.84186	-0.93860253	+0.09563395
<i>e</i>	0.1712787	<i>i</i> 5.90524	-0.33682243	-0.04605354
<i>P</i>	3.32	<i>H</i> 13.9	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1955 04 14	675	1.0-	0.2-	1992 07 26	010	0.6+	0.2+	1998 02 22	566	0.1+	0.0
1955 04 14	675	0.3+	0.1-	1992 07 27	010	1.2-	0.8-	1998 03 24	704	0.1+	0.2+
1985 04 15	688	0.1+	1.3-	1992 08 27	675	0.0	0.0	1998 03 24	704	0.3+	0.6-
1985 04 15	688	1.6+	1.0-	1992 08 27	675	0.7+	0.1+	1998 03 24	704	0.4+	0.2+
1985 04 24	688	1.8+	0.5-	1995 03 05	801	0.1-	0.3+	1998 03 24	704	0.0	0.2-
1985 04 24	688	1.3-	0.7-	1995 03 05	801	0.1+	0.6+	1998 03 25	704	0.1-	0.3-
1985 05 15	688	0.8-	1.1+	1995 03 28	801	0.4-	0.2+	1998 03 25	704	0.4-	0.1+
1985 05 15	688	0.2+	0.5+	1995 03 28	801	0.2-	0.2+	1998 03 25	704	0.1-	1.1+
1989 09 30	675	0.3-	0.2-	1995 04 01	801	0.1-	0.3+	1998 03 25	704	0.3-	0.4-
1989 09 30	675	0.9-	0.2-	1995 04 01	801	0.1-	0.4+	1998 03 25	704	0.5+	0.1+
1992 06 28	675	0.9+	0.5+	1995 05 04	801	0.4+	0.4+	1998 03 26	704	0.0	0.3-
1992 06 28	675	0.6+	0.3+	1995 05 04	801	0.4+	0.6+	1998 03 26	704	0.4-	1.1-
1992 07 08	894	0.7+	0.7-	1995 05 17	596	0.8-	0.2-	1998 03 26	704	0.5+	0.6-
1992 07 08	894	0.3-	0.7+	1995 05 17	596	0.6-	0.2-	1998 03 29	540	0.4-	0.4+
1992 07 23	894	0.3-	0.5-	1996 11 14	372	(5.7+	0.9-)	1998 03 29	540	0.7-	0.1-
1992 07 23	894	0.4+	0.4+	1996 11 15	372	1.1+	0.7-	1998 03 29	540	0.2-	0.0
1992 07 26	010	0.6-	0.3-	1996 11 15	372	0.1+	0.3+	1998 03 31	540	0.1+	0.3+
1992 07 26	010	0.9-	1.4-	1998 02 22	566	0.0	0.3-	1998 03 31	540	0.2-	0.4+
1992 07 26	010	0.5+	0.3+	1998 02 22	566	0.1-	0.3-				

(8475)* 1985 PC₂ = 1980 VO₂ = 1980 WJ

Discovered 1985 Aug. 13 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. B. G. Marsden (*MPC* 14019), T. A. Vinogradova (*MPC* 19499)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden

<i>M</i>	73.44654	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.18178972	ω 263.74237	+0.91881357	-0.38772875
<i>a</i>	3.0861937	Ω 119.04973	+0.38722591	+0.84932929
<i>e</i>	0.2424095	<i>i</i> 4.84340	+0.07640491	+0.35819851
<i>P</i>	5.42	<i>H</i> 12.9	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1980 11 11	330	1.4+	0.1-	1985 09 20	095	0.6+	1.2+	1998 01 25	691	0.6-	0.3+
1980 11 30	330	1.1-	1.0-	1991 11 08	801	0.6+	0.1-	1998 01 25	691	0.4-	0.0
1985 08 13	095	1.5-	0.1-	1991 11 08	801	0.5+	0.9-	1998 01 29	566	0.4+	0.5+
1985 08 15	095	0.4+	1.1-	1991 12 05	801	0.8+	0.8-	1998 01 29	566	0.5+	0.3+
1985 08 17	095	1.1-	0.7-	1991 12 05	801	0.4+	0.6+	1998 01 29	566	0.5+	0.5+
1985 08 19	095	1.1+	0.3-	1991 12 28	691	0.8-	0.4+	1998 03 30	557	0.6+	0.6+
1985 08 24	095	0.0	0.4+	1991 12 28	691	0.6-	0.3+	1998 03 30	557	0.0	0.4-
1985 09 11	095	0.2-	2.0+	1991 12 28	691	0.9-	0.4+				
1985 09 19	095	0.2-	0.3+	1998 01 25	691	0.5-	0.1+				

(8476)* 1986 QT₂ = 1954 OO = 1995 JH

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

Id. G. V. Williams (*MPC* 25212)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	213.16908	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.30880081	ω 193.84190	+0.63126558	+0.77477422
<i>a</i>	2.1677894	Ω 115.31367	-0.70782756	+0.59401374
<i>e</i>	0.1531359	<i>i</i> 2.22224	-0.31699197	+0.21650075
<i>P</i>	3.19	<i>H</i> 14.6	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1954 07 29	675	0.9+	0.1-	1986 09 08	809	0.6-	0.5-	1998 03 22	704	0.1+	0.1+
1954 07 29	675	0.7-	0.4-	1986 09 10	809	0.1+	0.1+	1998 03 22	704	1.1+	1.2+
1986 08 08	095	(2.1-	3.0-)	1986 09 10	809	0.2+	0.0	1998 03 22	704	0.6-	0.6+
1986 08 28	809	0.5+	0.5+	1986 09 10	809	0.1+	0.1+	1998 03 22	704	0.4+	0.0
1986 08 28	809	0.4+	0.6+	1986 09 12	809	0.6+	0.8+	1998 03 22	704	1.0+	0.5-
1986 08 28	809	0.6+	0.7+	1986 09 12	809	0.6+	0.6+	1998 03 22	704	0.3+	1.0+
1986 09 01	809	0.4+	0.1+	1986 09 12	809	0.2-	0.5+	1998 03 22	704	0.4-	0.2-
1986 09 01	809	0.3+	0.1+	1992 05 02	809	0.7+	0.9+	1998 03 22	704	0.1-	1.1+
1986 09 01	809	0.3+	0.0	1992 05 02	809	0.2+	0.4+	1998 03 24	704	0.1+	0.1+
1986 09 02	809	0.3-	0.0	1992 05 02	809	0.3-	1.3-	1998 03 24	704	0.2+	0.0
1986 09 02	809	0.1-	0.0	1995 05 05	595	0.4+	0.2+	1998 03 24	704	0.5-	0.7+
1986 09 02	809	0.1-	0.2-	1995 05 05	595	0.1+	0.2+	1998 03 24	704	0.7-	1.0+
1986 09 03	809	0.4-	0.1-	1995 05 06	595	1.0-	0.4-	1998 03 24	704	0.3-	0.4+
1986 09 03	809	0.0	0.1-	1995 05 06	595	0.8-	0.0	1998 03 24	704	0.6+	0.0
1986 09 03	809	0.3+	0.1-	1995 05 10	595	0.7-	1.1-	1998 03 24	704	0.3-	0.6-
1986 09 04	809	0.1-	0.2-	1995 05 10	595	0.8-	1.0-	1998 03 24	704	0.2-	0.1+
1986 09 04	809	0.0	0.2-	1998 02 21	691	0.2-	0.1+	1998 03 24	704	0.0	0.1+
1986 09 04	809	0.2-	0.1-	1998 02 21	691	0.5-	0.1+	1998 03 24	704	0.2-	0.4+
1986 09 05	809	0.2-	0.6+	1998 02 21	691	0.7-	0.1-	1998 03 24	566	0.9+	0.6+
1986 09 05	809	0.3-	0.5+	1998 03 20	704	0.1+	0.9+	1998 03 24	566	0.9+	0.6+
1986 09 05	809	0.1-	0.3+	1998 03 20	704	0.3+	0.6-	1998 03 24	566	0.5+	0.5+
1986 09 06	809	0.6-	0.4+	1998 03 20	704	0.3+	0.9+	1998 03 24	566	0.1-	1.1-
1986 09 06	809	0.6-	0.4+	1998 03 20	704	0.9+	0.1+	1998 03 24	566	0.0	0.8-
1986 09 06	809	0.6-	0.5+	1998 03 20	704	0.7+	0.3-	1998 03 24	566	0.2+	1.3-
1986 09 08	809	0.8-	0.5-	1998 03 22	704	0.6-	0.2+				
1986 09 08	809	0.9-	0.6-	1998 03 22	704	0.3+	0.6+				

(8477)* 1986 RF₇ = 1986 SG₃ = 1976 OL

Discovered 1986 Sept. 6 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Id. H. Oishi (*MPC* 15413)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	183.24551		(2000.0)	P		Q		Williams	
<i>n</i>	0.30125892	ω	170.66202	+0.77453925		+0.63224571			
<i>a</i>	2.2038199	Ω	150.09604	−0.58274079		+0.72483296			
<i>e</i>	0.1608153	<i>i</i>	2.16379	−0.24597179		+0.27364675			
<i>P</i>	3.27	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	2		

Residuals in seconds of arc

1976 07 27	095	1.5+	2.1+	1992 06 03	372	0.3+	1.8+	1998 03 04	704	1.1−	0.3+
1976 08 01	095	1.6−	1.3+	1996 10 11	104	0.5+	0.7+	1998 03 04	704	2.0−	0.2−
1986 09 06	095	(0.2+	4.5+)	1996 10 12	104	0.5+	0.6+	1998 03 04	704	1.7−	1.1+
1986 09 09	095	(3.1−	0.8−)	1996 10 12	104	0.6+	0.5+	1998 03 04	704	(2.9−	4.2−)
1986 09 29	095	0.0	0.4+	1996 10 18	566	0.3−	0.2+	1998 03 20	704	0.0	0.7+
1986 10 02	095	1.4−	1.5−	1996 10 18	566	0.3−	0.1+	1998 03 20	704	0.6+	0.7+
1991 02 07	675	0.8+	0.2+	1996 10 18	566	0.3−	0.3+	1998 03 20	704	(2.1+	1.4+)
1991 02 07	675	0.3−	1.0+	1998 02 25	566	0.3+	0.0	1998 03 20	704	0.9+	0.4−
1992 04 08	675	1.4+	1.3+	1998 02 25	566	0.4+	0.3+	1998 03 20	704	0.7+	1.0+
1992 04 08	675	0.5+	1.7−	1998 02 25	566	0.5+	0.3+	1998 03 24	691	0.5−	0.4−
1992 04 25	691	0.5−	0.4−	1998 03 03	704	0.1+	1.7+	1998 03 24	691	0.3−	0.1+
1992 04 25	691	1.2−	0.7−	1998 03 03	704	0.9+	0.5+	1998 03 24	691	0.4−	0.2−
1992 04 25	691	0.0	0.6−	1998 03 03	704	1.5+	0.3−				
1992 06 03	372	(0.4−	2.2−)	1998 03 03	704	0.5+	0.6−				

(8478)* 1987 DO₆ = 1950 HJ₁ = 1981 AA₃ = 1995 SV₃

Discovered 1987 Feb. 23 by H. Debehogne at the European Southern Observatory.

Id. T. Kobayashi (*MPC* 25954)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	138.91516		(2000.0)	P		Q		Williams	
<i>n</i>	0.18330538	ω	50.43417	+0.94306883		−0.32466969			
<i>a</i>	3.0691580	Ω	328.31917	+0.24710574		+0.82922909			
<i>e</i>	0.0911285	<i>i</i>	7.90017	+0.22262059		+0.45493813			
<i>P</i>	5.38	<i>H</i>	12.2	<i>G</i>	0.15	<i>U</i>	1		

Residuals in seconds of arc

1950 04 26	839	1.0−	1.5+	1987 03 02	809	0.1+	0.7+	1998 03 03	704	0.4+	0.1−
1950 04 26	839	1.7+	1.3+	1987 03 03	809	0.0	0.3+	1998 03 03	704	0.7+	0.2+
1981 01 08	381	0.7−	0.2+	1987 03 03	809	0.1+	0.3+	1998 03 04	704	0.9−	0.7+
1981 01 08	381	1.2+	0.7−	1987 03 03	809	0.3+	0.3+	1998 03 04	704	1.3−	0.7+
1981 01 08	381	1.4−	1.1−	1987 03 04	809	0.6+	0.8−	1998 03 04	704	1.7−	0.9+
1981 01 08	381	0.6−	0.0	1987 03 04	809	0.5+	0.6−	1998 03 04	704	1.3−	1.1+
1987 02 23	809	0.2−	0.4−	1987 03 04	809	0.5+	0.6−	1998 03 04	704	1.9−	0.4+
1987 02 23	809	0.1+	0.1−	1987 03 05	809	0.8+	0.3−	1998 03 24	860	0.6−	0.6−
1987 02 23	809	0.7+	0.2−	1987 03 05	809	0.8+	0.5−	1998 03 24	860	0.2−	1.6−
1987 02 24	809	0.7+	0.8+	1987 03 05	809	0.8+	0.6−	1998 03 24	860	0.7−	0.7−
1987 02 24	809	0.8+	0.5+	1987 03 06	809	0.0	0.7−	1998 03 24	704	0.2+	0.1−
1987 02 24	809	0.8+	0.6+	1987 03 06	809	0.6+	0.6−	1998 03 24	704	0.9+	0.8+
1987 02 25	809	0.4−	0.4+	1987 03 06	809	1.0+	0.6−	1998 03 24	704	0.6−	0.1+
1987 02 25	809	0.5−	0.3+	1987 03 07	809	0.6+	0.8−	1998 03 24	704	0.8−	0.9−
1987 02 25	809	0.2−	0.7+	1987 03 07	809	0.5+	0.8−	1998 03 24	704	0.6−	0.4−
1987 02 26	809	0.3−	1.0+	1987 03 07	809	0.7+	0.9−	1998 03 24	566	0.2−	0.2−
1987 02 26	809	0.3−	0.5+	1988 05 15	675	0.4+	0.6−	1998 03 24	566	0.5+	0.1−
1987 02 26	809	0.1−	0.5+	1988 05 15	675	0.1+	0.8−	1998 03 24	566	0.0	0.1−
1987 02 27	809	0.1−	0.6+	1995 09 20	400	0.2+	0.5−	1998 03 26	470	0.2−	1.0+
1987 02 27	809	0.5−	0.6+	1995 09 20	400	1.0−	0.3−	1998 03 26	470	1.1−	1.4−
1987 02 27	809	0.6−	0.6+	1995 09 21	400	0.9+	1.4+	1998 04 01	704	0.3−	0.3−
1987 03 01	809	0.7−	0.1−	1995 09 21	400	0.5−	0.2+	1998 04 01	704	0.2+	0.1−
1987 03 01	809	0.0	0.3+	1998 01 17	689	0.7+	0.5+	1998 04 01	704	0.0	1.1−
1987 03 01	809	1.0−	0.3+	1998 03 03	704	1.5+	0.5+	1998 04 01	704	0.2+	1.2−
1987 03 02	809	0.2−	1.1+	1998 03 03	704	0.9+	0.8+	1998 04 01	704	0.9+	0.7−
1987 03 02	809	0.2−	0.7+	1998 03 03	704	0.5+	0.4−				

(8479)* 1987 HD₂ = 1934 GP = 1969 TC₆ = 1983 EJ₃ = 1998 CF₅

Discovered 1987 Apr. 29 by A. Mrkos at Kleť.

Id. S. Nakano (*MPC* 31377)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	277.79677		(2000.0)	P		Q		Nakano	
<i>n</i>	0.26003787	ω	76.95519	−0.42921090		+0.90319071			
<i>a</i>	2.4309628	Ω	167.62378	−0.83737366		−0.39586583			
<i>e</i>	0.2246568	<i>i</i>	1.32454	−0.33850163		−0.16594212			
<i>P</i>	3.79	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	2		

Residuals in seconds of arc

1934 04 15	024	0.2+	1.9+	1998 01 26	566	1.6−	1.1−	1998 02 22	399	0.9+	1.4+
1969 10 15	095	0.8+	1.2−	1998 01 26	566	1.8−	0.5−	1998 02 22	399	0.1+	0.1+
1983 03 14	095	1.8+	1.9−	1998 02 06	809	(2.8+	1.4+)	1998 02 27	566	0.1+	0.6−
1987 04 21	675	0.2−	0.8−	1998 02 06	809	(3.1+	1.0+)	1998 02 27	566	0.3+	0.7−
1987 04 21	675	0.2−	0.8−	1998 02 06	809	(3.0+	1.0+)	1998 02 27	566	0.2+	0.7−
1987 04 29	046	0.8−	0.6+	1998 02 07	809	(2.9+	0.5+)	1998 03 23	046	0.1−	0.0
1987 04 29	046	0.6+	0.2−	1998 02 07	809	(2.8+	0.4+)	1998 03 23	046	0.1−	0.1−
1987 04 29	046	(1.2−	2.6+)	1998 02 07	809	(3.3+	0.3+)	1998 03 23	046	0.1−	0.0
1987 04 29	046	(2.1−	3.4+)	1998 02 18	399	0.7+	0.6+	1998 03 24	046	0.2−	0.2+
1987 05 04	688	0.0	0.2−	1998 02 18	399	1.5+	0.6+	1998 03 24	046	0.2−	0.1+
1987 05 04	688	0.3−	0.7−	1998 02 19	399	0.4+	1.9+	1998 03 24	046	0.3−	0.1+
1998 01 26	566	1.8−	0.7−	1998 02 19	399	(1.2−	2.4+)				

(8480)* 1987 RD₁ = 1979 YL₃ = 1989 BS

Discovered 1987 Sept. 13 by H. Debehogne at the European Southern Observatory.

Id. S. Nakano (*MPC* 14352), K. Ichikawa (*ibid.*), T. Furuta (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	44.96092		(2000.0)	P		Q	
<i>n</i>	0.22583581	ω	75.46606	+0.06242643		−0.99802973	
<i>a</i>	2.6705918	Ω	10.96063	+0.90247570		+0.05375463	
<i>e</i>	0.1808795	<i>i</i>	1.89681	+0.42619309		+0.03235900	
<i>P</i>	4.36	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1979 12 24	095	1.2+	0.1−	1989 02 05	220	(7.1+	12.2−)	1998 02 28	809	(1.5+	3.3+)
1987 09 13	809	0.7−	0.8−	1989 02 10	872	(0.2−	2.5−)	1998 02 28	809	(0.8+	2.2+)
1987 09 13	809	0.4−	0.6−	1989 02 10	872	0.1+	0.1+	1998 02 28	809	1.1+	1.5+
1987 09 13	809	1.5+	0.9−	1990 05 26	675	0.6−	1.2+	1998 03 03	704	0.3−	0.1−
1987 09 16	809	1.1−	0.4−	1991 07 14	675	(1.2+	2.4−)	1998 03 03	704	0.4+	0.2−
1987 09 16	809	0.9−	0.5−	1991 07 14	675	(2.5+	2.2+)	1998 03 03	704	0.1+	0.5−
1987 09 16	809	1.1+	0.7−	1991 07 19	675	1.7+	0.4+	1998 03 03	704	0.7+	0.8−
1987 09 18	809	0.2+	0.3+	1991 08 02	809	0.1−	0.3−	1998 03 03	704	0.5+	0.2−
1987 09 18	809	0.4+	0.3+	1991 08 02	809	0.8−	1.4+	1998 03 03	699	0.5−	0.2+
1987 09 18	809	0.7+	0.3+	1991 08 02	809	1.8−	0.1+	1998 03 03	699	0.3+	0.1+
1987 09 19	809	0.5+	0.2−	1991 08 14	809	1.1−	0.6−	1998 03 03	699	0.2+	0.3+
1987 09 19	809	0.5+	0.2−	1991 08 14	809	1.9−	0.0	1998 03 20	704	0.1+	0.8−
1987 09 19	809	0.4+	0.1−	1991 08 14	809	2.1−	0.9+	1998 03 20	704	0.2+	1.0−
1987 09 23	809	0.8+	1.1+	1992 12 17	596	0.6−	1.0−	1998 03 20	704	1.0+	1.0−
1987 09 23	809	0.6+	1.1+	1992 12 17	596	(2.8+	1.1−)	1998 03 20	704	0.4+	0.5−
1987 09 23	809	0.7+	1.1+	1992 12 23	801	0.7−	0.5+	1998 03 22	704	0.2+	0.2+
1987 09 24	809	0.4+	0.5+	1992 12 27	801	0.3−	0.2+	1998 03 22	704	0.3−	0.2+
1987 09 24	809	0.5+	0.6+	1992 12 27	801	0.4−	0.3+	1998 03 22	704	0.2−	0.4−
1987 09 24	809	0.6+	0.7+	1998 02 26	699	0.1+	0.3+	1998 03 22	704	0.0	0.2−
1989 01 29	872	0.3+	2.1+	1998 02 26	699	0.2+	0.7−	1998 03 22	704	0.2−	0.8−
1989 01 29	872	0.2−	1.6+	1998 02 26	699	0.3−	0.6+	1998 03 24	557	0.2−	0.3−
1989 02 04	872	0.0	0.7−	1998 02 26	566	0.2+	0.8−	1998 03 24	557	0.3−	0.2−
1989 02 04	872	0.0	1.5+	1998 02 26	566	0.1+	0.8−	1998 03 26	704	0.6−	0.3+
1989 02 04	220	(0.5+	5.0−)	1998 02 26	566	0.2−	0.6−	1998 03 26	704	0.0	0.4−
1989 02 04	220	(1.9+	5.0−)	1998 02 27	809	1.0+	1.3+	1998 03 26	704	0.6−	0.2−
1989 02 05	872	1.5−	0.6−	1998 02 27	809	0.4+	1.1+	1998 03 26	557	0.3−	0.2−
1989 02 05	872	1.1−	0.2+	1998 02 27	809	0.2+	0.8+	1998 03 27	557	0.1+	0.3+

Id. C. M. Bardwell (*MPC* 15889), K. Ichikawa (*ibid.*), H. Kaneda (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Bardwell

<i>M</i>	336.15907		(2000.0)		P		Q
<i>n</i>	0.18751025	ω	321.58395	−0.94080018	+0.32780513		
<i>a</i>	3.0231013	Ω	237.76129	−0.28030665	−0.89546212		
<i>e</i>	0.2154691	<i>i</i>	5.85256	−0.19058648	−0.30115010		
<i>P</i>	5.26	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1956 05 08	675	0.2+	1.0−	1993 04 24	474	(3.8−	3.3−)	1998 03 24	566	0.0	0.9−
1956 05 08	675	0.2+	0.5+	1993 04 24	474	(6.5−	1.4−)	1998 03 24	566	0.5−	1.4−
1983 07 16	808	0.2+	0.2+	1993 07 31	413	0.3−	0.5−	1998 03 25	367	0.4+	0.3+
1983 07 16	808	0.5−	0.1−	1993 07 31	413	0.0	0.2−	1998 03 25	367	0.1−	0.4+
1987 02 28	010	0.3−	2.0+	1994 09 07	675	1.1+	0.3−	1998 03 31	704	0.0	0.0
1987 02 28	010	0.4+	0.1+	1994 09 07	675	1.1+	1.2−	1998 03 31	704	0.3+	0.0
1987 02 28	010	0.4+	1.5+	1998 03 03	704	1.0+	0.1−	1998 03 31	704	0.6−	0.2+
1988 06 14	474	0.8+	0.4+	1998 03 03	704	(1.2+	3.2+)	1998 03 31	704	0.2−	0.3+
1988 06 14	474	0.3+	0.8+	1998 03 03	704	1.3−	0.9−	1998 03 31	704	0.9−	0.0
1988 06 15	474	0.7−	0.9+	1998 03 03	704	0.3−	1.5+	1998 04 01	704	0.8+	0.5+
1988 06 15	474	0.5−	0.4+	1998 03 03	704	(2.8−	0.4+)	1998 04 01	704	0.2+	1.0+
1988 06 19	474	0.5−	0.4+	1998 03 24	566	0.1−	0.5−	1998 04 01	704	0.0	0.3+
1988 06 19	474	0.6−	1.0+	1998 03 24	566	0.5+	1.8−	1998 04 01	704	0.7+	0.8−
1988 07 13	474	1.5−	0.3+	1998 03 24	566	0.0	0.4−	1998 04 01	704	0.0	0.3+
1988 07 13	474	0.5+	0.0	1998 03 24	566	0.0	1.8−				

(8482)* 1988 RA₁₁ = 1977 XG₁

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

Id. S. J. Bus (*MPC* 20815)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	195.19886		(2000.0)		P		Q
<i>n</i>	0.16185751	ω	209.87310	+0.87697352	+0.47830645		
<i>a</i>	3.3346287	Ω	121.48097	−0.42944000	+0.82328142		
<i>e</i>	0.0815326	<i>i</i>	3.10977	−0.21563566	+0.30566427		
<i>P</i>	6.09	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1977 12 07	675	1.2−	0.6−	1994 09 09	675	0.8+	1.9−	1998 02 23	691	0.2−	0.0
1977 12 08	675	0.0	0.4−	1995 10 19	691	1.2−	0.5−	1998 02 23	691	0.2−	0.1+
1988 09 11	675	1.2+	0.2+	1995 10 19	691	1.7−	0.6−	1998 03 01	809	0.3+	0.7−
1988 09 11	675	1.2+	0.2+	1995 10 19	691	1.2−	0.4−	1998 03 01	809	0.6+	1.9−
1988 09 14	807	0.3+	1.5−	1997 01 09	691	0.1−	0.6−	1998 03 01	809	1.2+	1.7−
1988 09 15	807	0.6+	1.0−	1997 01 09	691	0.4−	0.1−	1998 03 04	691	0.8−	0.3−
1988 09 16	807	1.4+	1.0−	1997 01 09	691	0.4−	0.1−	1998 03 04	691	0.7−	0.3−
1988 10 04	807	0.4+	0.0	1997 01 14	566	0.4+	0.1+	1998 03 04	691	1.0−	0.3−
1988 10 05	807	0.0	0.4+	1997 01 14	566	0.5+	0.0	1998 03 20	704	0.1−	1.2−
1988 10 07	807	0.1−	0.7−	1997 01 14	566	0.4+	0.4+	1998 03 20	704	0.2+	0.9+
1988 10 08	807	0.3+	0.7−	1997 01 14	599	0.3−	1.3−	1998 03 20	704	0.5−	0.1−
1988 11 03	807	0.0	0.8−	1997 01 14	599	0.2+	1.4−	1998 03 20	704	0.2−	0.4−
1988 11 05	807	0.8+	0.3−	1997 01 15	599	0.4−	0.6−	1998 03 20	704	0.4−	0.2+
1993 05 23	809	1.1−	0.0	1997 01 15	599	0.9+	0.4+	1998 03 25	566	0.2+	0.4−
1993 05 23	809	1.7−	0.9−	1997 01 16	599	0.1+	0.2−	1998 03 25	566	0.3+	0.6−
1993 05 23	809	0.9−	0.4−	1997 01 16	599	1.5+	0.5−	1998 03 25	566	0.3+	0.5−

(8483)* 1988 SY₁ = 1981 UR₂₅

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

Id. S. J. Bus (*MPC* 20502)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	247.44533		(2000.0)		P		Q
<i>n</i>	0.26670504	ω	225.97511	+0.09903865	+0.99016652		
<i>a</i>	2.3902788	Ω	49.97376	−0.87209149	+0.13418453		
<i>e</i>	0.0788755	<i>i</i>	7.41325	−0.47921580	−0.03955720		
<i>P</i>	3.70	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1981 10 25	675	0.7+	0.7−	1988 10 07	807	0.1+	0.5+	1998 02 26	566	0.4−	0.2−
1981 10 26	675	0.1−	0.5−	1992 09 23	033	0.0	1.0+	1998 03 24	704	0.0	0.3+
1988 09 15	675	0.5−	2.1−	1992 09 25	033	0.1−	0.1−	1998 03 24	704	0.8+	0.1−
1988 09 15	675	(1.4−	3.3−)	1992 09 25	033	0.1−	0.2+	1998 03 24	704	0.2−	0.5−
1988 09 16	807	0.4−	0.2+	1992 09 27	033	0.4−	0.1+	1998 03 24	704	0.2+	0.5−
1988 09 18	807	1.0+	0.5−	1992 09 28	033	0.2−	0.1+	1998 03 26	566	0.2−	0.3+
1988 10 05	807	0.0	0.9+	1998 02 26	566	0.1−	0.0	1998 03 26	566	0.0	0.4+
1988 10 06	807	0.3+	0.6+	1998 02 26	566	0.2−	0.0	1998 03 26	566	0.0	0.2+

(8484)* 1988 VM₂ = 1963 TA₁

Discovered 1988 Nov. 10 by M. Arai and H. Mori at Yorii.

Id. T. Kobayashi (*MPC* 14027)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Nakano

<i>M</i>	72.61387		(2000.0)		P		Q
<i>n</i>	0.23746265	ω	353.82664	+0.67133561	−0.71960867		
<i>a</i>	2.5826914	Ω	53.83888	+0.68904857	+0.51783346		
<i>e</i>	0.2985904	<i>i</i>	12.69330	+0.27298456	+0.46261417		
<i>P</i>	4.15	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1963 10 14	760	0.1+	0.5+	1988 11 13	675	0.8+	0.6+	1998 02 23	566	0.2−	0.1−
1963 10 14	760	0.2+	1.0−	1988 11 27	897	1.4−	1.8+	1998 02 23	566	0.5+	0.1+
1963 10 18	760	(5.0−	2.1+)	1988 11 27	897	1.4+	1.1−	1998 02 24	566	0.5−	0.0
1963 10 18	760	(0.2+	4.2+)	1988 11 30	875	0.5+	1.0+	1998 02 24	566	0.3−	0.0
1988 11 10	875	1.2−	0.2+	1988 11 30	875	0.1−	0.6+	1998 02 24	566	0.2−	0.0
1988 11 10	875	0.6−	0.2−	1992 11 26	675	0.3+	0.7−	1998 03 24	704	0.2+	0.3−
1988 11 11	897	0.8+	0.8+	1992 11 26	675	0.3+	0.8−	1998 03 24	704	0.4−	0.2+
1988 11 11	897	1.6−	0.1+	1992 11 28	675	0.6+	0.4−	1998 03 24	704	0.8−	0.0
1988 11 12	071	(4.3−	7.8−)	1992 11 28	675	0.6+	0.2−	1998 03 24	704	0.2−	1.1−
1988 11 12	071	0.4+	0.1+	1998 02 22	566	0.3+	0.6−	1998 03 25	704	0.2−	0.3+
1988 11 12	675	0.2−	2.0−	1998 02 22	566	0.6+	0.5−	1998 03 25	704	0.4+	0.4+
1988 11 12	875	(0.5+	6.5−)	1998 02 22	566	0.0	0.5−	1998 03 25	704	0.1−	0.5+
1988 11 12	875	(1.5+	5.0−)	1998 02 23	566	0.0	0.2−	1998 03 25	704	(2.1+	0.2+)

(8485)* 1989 FL = 1990 QC₉

Discovered 1989 Mar. 29 by T. Seki at Geisei.

Id. B. G. Marsden (*MPC* 17443)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden

<i>M</i>	325.15076		(2000.0)		P		Q
<i>n</i>	0.21578300	ω	227.96307	−0.82984454	+0.55666221		
<i>a</i>	2.7529051	Ω	345.72240	−0.45458654	−0.71449502		
<i>e</i>	0.1639852	<i>i</i>	8.99031	−0.32358789	−0.42382079		
<i>P</i>	4.57	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1954 11 23	675	0.8+	1.1+	1990 09 11	809	0.1−	0.6+	1998 03 03	704	1.4−	1.9−
1954 11 23	675	0.0	2.2+	1990 09 12	809	0.7−	0.9+	1998 03 03	704	(2.0−	1.7−)
1989 03 29	372	0.5−	1.4−	1990 09 12	809	0.5−	0.8+	1998 03 18	470	1.0−	0.3−
1989 03 29	372	0.1−	0.3+	1990 09 12	809	0.2−	0.9+	1998 03 18	470	0.9−	0.6−
1989 04 04	372	0.5+	0.2+	1990 09 12	809	1.5−	0.5+	1998 03 18	470	1.4−	0.7−
1989 04 04	372	1.2+	0.7+	1990 09 13	809	1.7−	0.4+	1998 03 22	699	0.5+	0.5−
1989 04 05	474	0.5−	2.2+	1990 09 13	809	1.5−	0.5+	1998 03 22	699	0.2−	0.3+
1989 04 05	474	1.0−	2.2+	1990 09 13	809	0.4−	0.2−	1998 03 22	699	0.1+	0.1−
1989 04 06	474	0.7−	1.9+	1990 09 14	809	0.1−	0.4−	1998 03 25	704	0.8+	1.9−
1989 04 06	474	1.1−	2.1+	1990 09 14	809	0.0	0.3−	1998 03 25	704	0.7+	0.3−
1989 04 11	372	0.8+	0.7−	1993 01 16	372	0.4+	0.2−	1998 03 25	704	0.4+	0.3−
1989 04 11	372	0.2+	0.5−	1993 01 16	372	1.1−	0.5+	1998 03 25	704	0.3+	0.1−
1989 04 12	474	1.0+	0.4−	1993 01 19	372	0.6+	0.2−	1998 03 25	704	0.5−	0.4+
1990 08 16	809	1.2+	1.2−	1993 01 19	372	0.4+	0.4+	1998 03 26	470	1.6+	1.1+
1990 08 16	809	0.7+	1.4−	1993 01 26	372	0.0	0.0	1998 03 26	470	1.6+	0.8+
1990 08 16	809	1.4+	1.6−	1993 01 26	372	0.0	1.1+	1998 03 26	470	1.6+	0.8+</

1990 08 24	809	(2.2+ 0.7-)	1993 02 12	372	0.9- 1.3+	1998 03 31	704	1.0+ 0.7-
1990 08 24	809	(2.1+ 0.4-)	1993 02 21	801	0.1+ 0.4-	1998 04 01	704	0.3+ 0.7-
1990 08 24	809	1.8+ 0.1+	1993 02 21	801	0.5+ 0.4-	1998 04 01	704	0.3- 0.1+
1990 08 26	809	1.6+ 0.7+	1995 10 02	372	(3.1+ 0.3+)	1998 04 01	704	0.1- 0.2-
1990 08 26	809	(2.5+ 0.3+)	1995 10 02	372	0.1- 1.3+	1998 04 01	704	0.5- 0.3-
1990 08 26	809	1.4+ 0.6+	1998 03 03	704	0.1+ 0.3+	1998 04 01	704	0.2- 0.1+
1990 09 11	809	0.9- 0.5+	1998 03 03	704	0.4- 0.4+			
1990 09 11	809	0.3- 0.6+	1998 03 03	704	0.6- 0.8-			

(8486)* 1989 QV = 1996 XP₁₈

Discovered 1989 Aug. 26 by R. H. McNaught at Siding Spring.

Id. B. G. Marsden (*MPC* 28583)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17494794	ω	37.05508	+0.49351783	-0.85347891		
<i>a</i>	3.1661404	Ω	24.74953	+0.67091757	+0.25112617		
<i>e</i>	0.1330971	<i>i</i>	23.56512	+0.55345259	+0.45662829		
<i>P</i>	5.63	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1989 08 26	413	(3.0+ 0.6-)	1996 12 08	693	0.1+ 0.9+	1998 03 24	704	0.2- 0.2-
1989 08 26	413	0.8+ 0.0	1996 12 09	693	0.0 0.7+	1998 03 24	704	1.5+ 1.4-
1989 09 03	413	1.9- 0.2-	1996 12 09	693	0.1+ 0.3-	1998 03 24	704	0.5+ 0.4-
1989 09 03	413	0.1- 0.8+	1996 12 16	696	0.8- 0.3-	1998 03 24	566	0.3- 0.2-
1989 09 03	413	0.3+ 0.2-	1996 12 16	696	0.5- 0.4-	1998 03 24	566	0.8- 0.8-
1989 09 03	413	2.1+ 0.6+	1996 12 16	696	0.5- 0.3-	1998 03 24	566	0.8- 0.5-
1989 09 24	413	0.1- 0.2+	1996 12 21	046	0.2+ 0.1-	1998 03 25	704	0.5- 0.7+
1989 09 24	413	0.7- 0.4-	1996 12 21	046	0.5- 0.3+	1998 03 25	704	0.9- 1.2+
1989 09 24	413	0.0 0.6+	1996 12 21	046	0.9+ 0.0	1998 03 25	704	0.9- 0.8+
1989 09 24	413	0.7- 0.8-	1998 02 20	910	0.5+ 0.5+	1998 03 25	704	1.1+ 0.3+
1990 10 22	675	(0.2+ 4.0-)	1998 02 20	910	0.6+ 0.4+	1998 03 25	704	0.4- 1.6-
1990 10 22	675	0.5+ 0.5-	1998 02 20	910	0.6+ 0.6+			
1996 12 08	693	0.9+ 0.2+	1998 03 24	704	0.2+ 0.6+			

(8487)* 1989 SQ = 1978 RF₄ = 1994 AL

Discovered 1989 Sept. 29 by Y. Mizuno and T. Furuta at Kani.

Id. S. Nakano (*MPC* 22952)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27074551	ω	107.11903	+0.64996673	-0.75736427		
<i>a</i>	2.3664384	Ω	302.17363	+0.66601110	+0.60745979		
<i>e</i>	0.2300694	<i>i</i>	4.25420	+0.36602250	+0.23956619		
<i>P</i>	3.64	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1955 05 23	675	0.5+ 1.3+	1994 01 09	675	0.0 0.2+	1998 03 04	704	(2.4- 0.2-)
1978 09 05	095	(19.0+ 8.3+)	1994 01 09	675	0.9+ 0.1-	1998 03 04	704	(2.7- 0.8-)
1989 09 29	403	1.3+ 2.0-	1994 01 14	033	0.7+ 0.8+	1998 03 04	704	(2.4- 1.7-)
1989 09 29	403	0.7- 0.9+	1994 01 15	033	0.9- 1.8+	1998 03 20	704	0.3- 0.2-
1989 10 07	403	0.8- 0.2+	1994 01 18	033	0.7- 1.8+	1998 03 20	704	0.3- 1.4-
1989 10 07	403	0.1- 0.0	1998 02 26	699	0.7+ 0.2-	1998 03 20	704	0.1- 0.8-
1989 10 08	403	1.3- 0.5+	1998 02 26	699	0.8+ 1.1-	1998 03 20	704	0.4- 1.3-
1989 10 08	403	1.4+ 0.3+	1998 02 26	699	0.2+ 0.1+	1998 03 20	704	(2.2- 2.2-)
1989 10 17	403	0.4- 0.6+	1998 02 26	699	1.5+ 0.3-	1998 03 22	704	0.1+ 0.5-
1989 10 17	403	0.1+ 0.2+	1998 02 26	699	0.1+ 0.3+	1998 03 22	704	(3.2+ 0.1-)
1991 04 14	675	(5.9+ 1.6-)	1998 02 26	699	0.9- 0.0	1998 03 22	704	0.2+ 0.7+
1991 04 14	675	(6.7+ 1.7-)	1998 03 03	704	0.0 0.5+	1998 03 22	704	1.0- 0.5+
1994 01 02	896	0.1- 0.4-	1998 03 03	704	0.7+ 1.7+	1998 03 22	704	1.0- 0.1-
1994 01 02	896	1.4- 0.1+	1998 03 03	704	0.1- 1.0+	1998 03 22	327	0.4- 1.0-
1994 01 03	896	0.4- 1.2-	1998 03 03	704	0.6+ 0.2+	1998 03 22	327	0.5- 0.2-
1994 01 03	896	1.0- 0.3-	1998 03 03	704	0.8+ 1.2+	1998 03 22	327	0.5- 0.6+
1994 01 07	675	1.1+ 0.6-	1998 03 04	704	(2.7- 0.2-)	1998 03 22	327	0.4- 0.2-
1994 01 07	675	1.7+ 1.5-	1998 03 04	704	(2.7- 0.1-)			

(8488)* 1989 SR₁ = 1988 GY₂ = 1992 OH₉

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

Observatory.

Id. G. V. Williams (*MPC* 21572, unpublished)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29028206	ω	212.96983	+0.39438494	+0.91551844		
<i>a</i>	2.2590331	Ω	80.36619	-0.82475033	+0.39069092		
<i>e</i>	0.0824004	<i>i</i>	4.61280	-0.40527448	+0.09584670		
<i>P</i>	3.40	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1988 04 12	808	0.4- 1.8-	1989 11 02	675	0.7+ 0.7+	1998 02 27	566	0.3+ 1.2-
1988 04 12	808	1.3+ 0.2+	1989 11 05	675	1.7+ 0.9+	1998 02 27	566	0.1+ 1.2-
1989 09 26	809	0.7+ 1.7-	1989 11 05	675	1.7+ 0.5+	1998 02 27	566	0.0 1.3-
1989 09 26	809	0.2+ 1.9-	1992 07 27	809	0.1- 0.9-	1998 03 24	704	0.8- 0.4-
1989 09 26	809	0.7+ 2.0-	1992 07 27	809	0.4+ 0.7-	1998 03 24	704	0.1+ 0.7-
1989 09 28	809	2.0+ 0.9-	1992 07 27	809	0.8+ 0.7-	1998 03 24	704	0.1+ 0.4-
1989 09 28	809	0.0 1.9-	1992 07 28	809	0.3+ 0.2-	1998 03 24	704	0.9- 1.4-
1989 09 28	809	0.4- 2.2-	1992 07 28	809	0.6+ 0.2-	1998 03 25	704	0.3- 0.5-
1989 10 07	809	1.1- 0.2+	1992 07 28	809	1.1+ 0.2-	1998 03 25	704	0.3- 0.2-
1989 10 07	809	2.0- 0.7-	1995 05 27	046	0.2- 0.1-	1998 03 25	704	0.6- 0.6-
1989 10 07	809	2.2- 0.1+	1995 05 27	046	0.9- 0.1-	1998 03 25	704	0.5- 1.0-
1989 10 08	809	0.1+ 0.6-	1995 05 27	046	1.1- 0.1-	1998 03 25	704	0.1+ 0.6-
1989 10 08	809	0.1- 0.5-	1997 01 15	566	0.8+ 0.2-	1998 03 26	704	0.3- 0.2-
1989 10 08	809	0.3- 0.2-	1997 01 15	566	1.4+ 0.4-	1998 03 26	704	1.0- 0.2-
1989 11 02	675	0.3+ 0.1+	1997 01 15	566	0.6+ 0.0	1998 03 26	704	1.1- 0.4-

(8489)* 1989 TA₃ = 1976 GY₈ = 1993 LH₂

Discovered 1989 Oct. 7 by E. W. Elst at the European Southern Observatory.

Id. K. Ichikawa (*MPC* 24228)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17729424	ω	90.04294	-0.53130973	+0.84544057		
<i>a</i>	3.1381447	Ω	147.67645	-0.81201995	-0.48996895		
<i>e</i>	0.1237090	<i>i</i>	5.82035	-0.24152345	-0.21251038		
<i>P</i>	5.56	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1976 04 04	095	0.1+ 2.1-	1993 05 28	010	1.0- 0.9+	1997 12 06	910	0.9- 0.4-
1989 10 03	809	2.2- 0.4-	1993 05 29	010	(3.3+ 0.9+)	1997 12 06	910	1.1- 0.0
1989 10 03	809	1.5- 0.1-	1993 05 29	010	0.0 0.3+	1997 12 06	910	1.1- 0.2-
1989 10 03	809	1.5- 0.5-	1993 05 29	010	0.5+ 0.7+	1998 03 20	704	1.2+ 0.6+
1989 10 07	809	0.3- 1.3-	1993 06 15	675	(0.7+ 4.3-)	1998 03 20	704	0.9+ 0.2+
1989 10 07	809	0.2- 0.9-	1993 06 15	675	(0.7- 2.8-)	1998 03 20	704	1.7+ 0.5+
1989 10 07	809	0.4- 0.7-	1993 06 16	675	0.6- 1.8-	1998 03 20	704	1.9+ 0.3-
1989 10 07	809	0.3+ 1.0-	1994 08 12	809	0.7+ 0.0	1998 03 20	704	0.8+ 0.1+
1989 10 07	809	0.5- 0.1-	1994 08 12	809	0.2- 0.2-	1998 03 21	691	1.1- 0.3+
1989 10 07	809	1.3- 0.2+	1994 08 12	809	0.4+ 0.2-	1998 03 21	691	1.1- 0.2+
1989 10 08	809	1.4+ 0.7+	1994 08 13	809	(2.6+ 1.5+)	1998 03 21	691	1.2- 0.3+
1989 10 08	809	1.2+ 2.2+	1994 08 13	809	1.9+ 0.7+	1998 03 22	704	0.7+ 0.2+
1989 10 08	809	0.1+ 1.0+	1994 08 13	809	1.7+ 1.0+	1998 03 22	704	0.0 0.0
1989 10 08	809	0.6+ 1.6+	1994 09 05	809	0.6- 0.1-	1998 03 22	704	0.5+ 0.0
1989 10 08	809	0.0 1.5+	1994 09 05	809	(2.4- 0.2-)	1998 03 22	704	0.2+ 0.2+
1989 10 08	809	0.2+ 0.9+	1994 09 05	809	1.5- 0.9-	1998 03 22	691	0.2+ 0.2+
1989 11 05	675	2.0+ 0.3-	1994 09 30	675	0.5+ 0.5-	1998 03 22	704	0.7+ 0.3-
1989 11 05	675	0.4- 0.5-	1997 12 04	910	0.8- 0.1+	1998 03 22	691	0.1+ 0.1+
1993 05 27	010	0.3+ 0.5+	1997 12 04	910	1.3- 0.5+	1998 03 22	691	0.2+ 0.2+
1993 05 27	010	1.8- 1.1+	1997 12 04	910	0.7- 0.1+			

(8490)* 1989 TU₁₀ = 1978 TO₃ = 1993 XP₂

Discovered 1989 Oct. 4 by Y. Mizuno and T. Furuta at Kani.

Id. G. V. Williams (*MPC* 22953)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	60.46064		(2000.0)	P	Q
<i>n</i>	0.26852374	ω	230.66559	+0.63570310	-0.77193362
<i>a</i>	2.3794738	Ω	179.86146	+0.73699759	+0.60683311
<i>e</i>	0.2477261	<i>i</i>	6.12354	+0.22959994	+0.18939923
<i>P</i>	3.67	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1978 10 04	095	0.1+	0.5+	1994 01 16	675	0.3-	0.8+	1998 03 03	699	0.1+	0.3+
1989 10 01	807	0.6+	0.8-	1994 01 16	675	0.5+	1.1+	1998 03 03	699	0.8+	0.9-
1989 10 03	807	0.3+	0.8-	1995 04 26	691	0.2-	0.0	1998 03 04	704	(2.1-	0.1-)
1989 10 04	809	0.3-	1.7-	1995 04 26	691	0.3-	0.2-	1998 03 04	704	(2.3-	0.2+)
1989 10 04	809	0.0	1.6-	1995 04 26	691	0.1+	0.7-	1998 03 04	704	(2.7-	0.6-)
1989 10 04	809	0.2+	1.6-	1995 05 04	691	0.7-	0.0	1998 03 04	704	1.9-	0.2+
1989 10 04	403	(3.7-	0.8-)	Y 1995 05 04	691	0.2-	0.3-	1998 03 04	704	(2.3-	0.0)
1989 10 04	403	(3.6-	1.9-)	Y 1995 05 04	691	0.6-	0.5-	1998 03 20	704	0.8-	0.9-
1989 10 07	809	0.3-	0.1-	1998 01 24	566	0.2+	0.1-	1998 03 20	704	(3.4-	0.1+)
1989 10 07	809	0.4+	0.3-	1998 01 24	566	0.3+	0.0	1998 03 20	704	1.0+	0.8+
1989 10 07	809	0.8+	0.2-	1998 01 24	566	0.1-	0.1+	1998 03 20	704	0.2-	0.0
1989 10 08	809	0.2-	0.1+	1998 02 25	566	0.9-	1.0-	1998 03 22	327	0.3-	1.2-
1989 10 08	809	0.1+	0.3+	1998 02 25	566	0.8-	1.8-	1998 03 22	327	0.2+	1.1-
1989 10 08	809	0.6+	0.3+	1998 02 25	566	1.4+	1.8-	1998 03 22	327	0.1-	0.7-
1993 12 14	675	0.2+	0.4+	1998 03 03	704	0.2-	0.1-	1998 03 25	566	(0.8-	2.1-)
1993 12 14	675	0.1+	0.3+	1998 03 03	704	0.1+	0.1+	1998 03 25	566	(0.7-	2.5-)
1993 12 16	675	0.5+	0.5+	1998 03 03	704	0.2-	0.2+	1998 03 25	566	1.2-	1.7-
1993 12 16	675	0.0	0.4+	1998 03 03	704	0.3+	0.3+	1998 03 26	327	0.4+	0.1+
1994 01 11	675	0.8-	0.1-	1998 03 03	704	0.6+	0.1-	1998 03 26	327	0.8+	1.3+
1994 01 11	675	1.6-	1.0-	1998 03 03	699	0.5+	0.2+	1998 03 26	327	0.4+	0.3-

(8491)* 1989 YL₅ = 1994 BL

Discovered 1989 Dec. 28 by E. W. Elst at Haute Provence.

Id. K. Ichikawa (*MPC* 23237)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	43.19660		(2000.0)	P	Q
<i>n</i>	0.26263266	ω	143.04662	-0.09324895	-0.99535178
<i>a</i>	2.4149245	Ω	312.29037	-0.90552652	-0.07473288
<i>e</i>	0.1542272	<i>i</i>	1.86480	+0.41391587	-0.06074398
<i>P</i>	3.75	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1989 12 28	511	0.1-	1.4-	1994 03 05	108	(0.7+	2.5+)	1998 03 04	704	(2.6-	0.7-)
1989 12 28	511	0.4-	1.4-	1994 03 05	108	1.0+	0.4+	1998 03 20	704	0.7+	0.3+
1989 12 29	511	0.7+	0.1-	1994 03 05	108	(0.8-	2.6+)	1998 03 20	704	1.0+	0.6+
1989 12 29	511	0.5-	0.6-	1994 03 06	108	1.2+	1.1+	1998 03 20	704	0.1-	0.7+
1989 12 29	511	1.2+	0.5+	1994 03 06	108	(1.5+	2.2+)	1998 03 20	704	0.6+	0.5+
1990 01 03	511	1.5-	0.5+	1994 03 06	108	1.5+	1.1+	1998 03 20	704	0.4-	0.3+
1990 01 03	511	(3.5-	0.3-)	1994 03 06	108	0.6-	0.8+	1998 03 22	704	0.6-	0.5+
1990 01 04	511	(2.9-	0.5+)	1996 09 21	292	1.4-	1.2-	1998 03 22	704	0.0	0.4+
1990 01 04	511	0.3+	1.3+	1996 09 21	292	1.6-	0.4-	1998 03 22	704	0.0	0.4+
1994 01 16	098	0.5+	0.5-	1996 10 04	809	(2.5+	1.8+)	1998 03 22	704	0.2+	0.2-
1994 01 16	098	0.1-	0.4-	1996 10 04	809	0.7+	1.6+	1998 03 22	704	0.3-	0.6+
1994 01 18	098	1.2-	0.3+	1996 10 04	809	0.9+	1.4+	1998 03 30	732	0.8+	1.4-
1994 01 18	098	0.1-	0.2-	1996 10 04	292	1.3+	1.3-	1998 03 30	732	1.9-	0.1-
1994 01 23	108	0.8+	0.0	1996 10 04	292	0.1+	1.1-	1998 03 30	732	(2.3-	0.1-)
1994 01 23	108	0.2-	0.6+	1996 10 05	809	(1.0+	4.3+)	1998 03 31	732	1.0-	0.8-
1994 01 23	108	0.1-	0.4-	1996 10 05	809	(0.6+	4.7+)	1998 03 31	732	0.2-	0.5-
1994 01 23	108	1.4-	0.1-	1996 10 05	809	(0.2-	4.6+)	1998 03 31	732	0.8-	0.0
1994 02 12	675	0.6+	0.5+	1996 10 06	292	0.4+	1.4-	1998 04 01	704	0.2+	1.3-
1994 02 12	675	0.1+	0.8+	1996 10 06	292	0.2+	1.2+	1998 04 01	704	0.3+	0.6-
1994 02 15	675	0.3-	0.7-	1998 03 04	704	1.3-	0.1-	1998 04 01	704	0.3+	0.8-
1994 02 15	675	0.3-	0.9-	1998 03 04	704	(2.9-	1.0+)	1998 04 01	704	(0.8+	2.3-)
1994 03 04	108	(0.1+	2.7+)	1998 03 04	704	(2.4-	0.3+)	1998 04 01	704	0.5+	1.8-

(8492)* 1990 BZ = 1982 BS₁₃

Discovered 1990 Jan. 21 by T. Seki at Geisei.

Id. E. Bowell (*MPC* 20018)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	42.69838		(2000.0)	P	Q
<i>n</i>	0.24418530	ω	106.93672	+0.51555346	-0.83593423
<i>a</i>	2.5350686	Ω	310.50307	+0.66135838	+0.52785787
<i>e</i>	0.0831599	<i>i</i>	14.33012	+0.54480246	+0.15026651
<i>P</i>	4.04	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1982 01 30	675	0.3+	0.6-	1994 01 21	372	0.8-	0.1-	1998 01 19	560	0.3+	0.4-
1982 01 31	675	0.5+	0.3+	1994 01 21	372	0.5-	0.0	1998 01 25	566	0.2+	0.1+
1990 01 21	372	(1.2-	3.2-)	1994 02 07	372	0.5-	1.3-	1998 01 25	566	0.4-	0.1+
1990 01 21	372	(2.7+	2.7-)	1994 02 07	372	0.3-	0.8-	1998 01 25	566	0.2-	0.3+
1990 01 24	372	(0.0	2.6-)	1994 02 08	801	0.1+	1.5-	1998 02 01	118	0.4+	0.3+
1990 01 24	372	(2.0-	2.3-)	1996 08 19	801	0.7-	0.1+	1998 02 01	118	0.5+	0.2+
1990 01 29	372	(3.4+	1.5+)	1996 08 19	801	0.6-	0.5+	1998 02 01	118	0.3+	0.3+
1990 01 29	372	(2.2-	2.6+)	1996 09 15	801	0.5+	0.3+	1998 02 03	118	0.5+	0.3+
1992 08 05	675	0.3+	0.1-	1996 09 15	801	0.5-	1.0-	1998 02 03	118	0.5+	0.3+
1992 08 05	675	0.3+	0.5-	1997 12 25	566	0.4-	0.4+	1998 03 22	360	0.2-	0.1+
1992 08 07	675	1.5+	0.3-	1997 12 25	566	0.4-	0.4+	1998 03 22	360	0.2+	0.1+
1992 08 07	675	0.0	0.2-	1997 12 25	566	0.4-	0.4+	1998 03 22	360	0.2+	0.0
1994 01 08	675	(2.6-	0.6+)	1998 01 17	560	1.0+	0.6+	1998 03 26	566	0.3-	0.6-
1994 01 08	675	1.2-	1.2-	1998 01 17	560	1.1+	0.4+	1998 03 26	566	0.1-	0.2-
1994 01 19	691	1.6-	1.2+	1998 01 17	560	1.7+	0.8+	1998 03 26	566	0.2-	0.6-
1994 01 19	691	1.0-	0.0	1998 01 19	560	0.2+	0.6-				
1994 01 19	691	0.8-	0.0	1998 01 19	560	0.4+	0.0				

(8493)* 1990 BY₁ = 1986 AY₂ = 1996 TE₅₀

Discovered 1990 Jan. 30 by M. Matsuyama and K. Watanabe at Kushiro.

Id. G. V. Williams (*MPC* 28297)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	32.88687		(2000.0)	P	Q
<i>n</i>	0.25280539	ω	217.43229	-0.20764068	-0.97697907
<i>a</i>	2.4771093	Ω	244.59911	+0.91008127	-0.17458624
<i>e</i>	0.1652270	<i>i</i>	3.10703	+0.35866061	-0.12260317
<i>P</i>	3.90	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1986 01 11	386	1.1-	0.2+	1998 03 03	704	0.2-	0.7+	1998 03 22	704	0.1-	0.1+
1988 09 10	675	0.2+	0.4-	1998 03 03	704	0.6+	0.6+	1998 03 22	704	0.1+	0.2-
1988 09 10	675	0.2+	0.1-	1998 03 03	704	0.2+	0.4+	1998 03 22	557	0.4+	0.4+
1990 01 30	399	(1.5+	2.5+)	1998 03 03	704	0.3+	0.3+	1998 03 22	557	1.0+	0.3+
1990 01 30	399	1.1-	1.0+	1998 03 03	704	0.4-	0.0	1998 03 22	557	0.3+	0.0
1990 02 01	399	0.2+	1.1-	1998 03 04	704	1.5-	1.2+	1998 03 26	704	0.0	0.0
1990 02 01	399	0.5-	1.6-	1998 03 04	704	1.6-	0.4+	1998 03 26	704	0.3-	0.2-
1990 02 01	399	1.3+	0.8-	1998 03 04	704	(2.4-	0.8+)	1998 03 26	704	0.5+	0.3-
1990 02 18	399	(4.2-	4.9+)	1998 03 04	704	(2.1-	0.8+)	1998 03 26	610	0.4+	1.0-
1990 02 18	399	0.4+	1.1+	1998 03 04	704	(3.5-	0.3+)	1998 03 26	610	0.4+	0.7-
1990 02 28	399	(0.5+	2.3+)	1998 03 20	704	0.1+	0.1-	1998 03 26	610	0.0	0.3-
1990 02 28	399	1.0+	0.1+	1998 03 20	704	0.4+	0.2+	1998 03 26	610	0.0	0.0
1996 10 04	809	0.3+	0.4+	1998 03 20	704	0.3-	0.4-	1998 04 01	704	0.7+	0.3+
1996 10 04	809	0.4-	0.4+	1998 03 20	704	0.3-	0.7-	1998 04 01	704	0.4+	0.7+
1996 10 04	809	0.9-	0.3+	1998 03 20	704	0.8-	0.1-	1998 04 01	704	0.0	0.9+
1996 10 05	809	(1.5+	2.4+)	1998 03 22	704	0.3+	0.2-	1998 04 01	704	0.1-	0.8+
1996 10 05	809	0.2-	1.7+	1998 03 22	704	0.5+	0.1-	1998 04 01	704	0.1+	1.3+
1996 10 05	809	0.6-	1.2+	1998 03 22	704	0.2+	0.0				

(8494)* 1990 OT₄ = 1993 BN₇

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

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5					Marsden						
<i>M</i>	270.63962		(2000.0)		P		Q				
<i>n</i>	0.22670190	ω	126.28627		+0.18384693		+0.97874060				
<i>a</i>	2.6637856	Ω	153.86229		−0.95501012		+0.19975394				
<i>e</i>	0.1689711	<i>i</i>	11.91125		−0.23271438		−0.04653164				
<i>P</i>	4.35	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1				
Residuals in seconds of arc											
1951 08 08	675	0.1−	0.4−	1994 05 09	801	0.1−	0.1−	1998 03 08	696	0.8+	0.6−
1951 08 08	675	0.1+	0.4−	1994 05 11	801	0.1−	1.2−	1998 03 08	696	0.9+	0.5−
1990 07 25	675	0.2+	0.3−	1994 05 11	801	0.2−	0.4−	1998 03 24	704	0.3−	0.4+
1990 07 25	675	0.2+	0.1−	1994 06 09	801	0.1+	0.5−	1998 03 24	704	0.1−	0.9+
1990 07 28	675	0.3−	0.0	1994 06 09	801	0.1+	0.5−	1998 03 24	704	0.1−	0.2+
1990 07 28	675	0.7+	0.2−	1994 06 11	801	0.5−	0.5−	1998 03 24	704	0.6−	0.8+
1990 07 30	675	0.1−	0.6−	1994 06 11	801	0.7+	0.8−	1998 03 24	704	1.0−	0.9+
1990 07 30	675	0.3−	0.9−	1994 07 06	689	0.2−	0.7−	1998 03 25	566	0.5+	0.2+
1993 01 23	809	0.5+	1.6−	1994 07 12	689	0.1−	0.0	1998 03 25	566	0.7+	0.1+
1993 01 23	809	0.2−	1.7−	1994 07 13	689	0.9−	0.3+	1998 03 25	566	0.7+	0.1−
1993 01 23	809	(0.9−	2.2−)	1994 07 14	689	0.4+	0.1+	1998 03 25	046	0.0	0.9+
1993 01 28	809	0.4+	1.6−	1998 01 24	684	0.6−	0.8−	1998 03 25	046	0.1+	1.0+
1993 01 28	809	0.5−	1.2−	1998 01 24	684	0.3−	0.5−	1998 03 25	046	0.0	1.0+
1993 01 28	809	0.3−	1.6−	1998 01 24	684	1.2−	0.5−	1998 03 26	557	0.1−	0.8+
1993 02 17	809	(0.1−	3.6+)	1998 01 24	684	0.8−	0.3−	1998 03 26	557	0.1+	0.4+
1993 02 17	809	(0.9−	3.9+)	1998 01 25	684	0.2−	0.1−	1998 03 26	557	0.2+	0.4+
1993 02 17	809	(1.0−	2.1+)	1998 01 25	684	0.1+	0.0				
1994 05 09	801	0.0	0.1−	1998 03 08	696	1.0+	0.4−				

(8495)* 1990 QV₁ = 1990 QO₁₉

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

Id. G. V. Williams (d, *MPC* 21905)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5									
Williams									
<i>M</i>	137.60123		(2000.0)	P	Q				
<i>n</i>	0.19903282	ω	264.11932	+0.91668223	−0.39695746				
<i>a</i>	2.9052683	Ω	119.26102	+0.38434158	+0.84423457				
<i>e</i>	0.0853881	<i>i</i>	3.02425	+0.10943139	+0.36012882				
<i>P</i>	4.95	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	1		

Residuals in seconds of arc											
1990 08 16	809	0.5+	1.1−	1995 08 25	809	0.2−	1.0+	1997 01 09	689	0.6−	1.4−
1990 08 16	809	0.2+	0.4−	1995 08 25	809	0.1+	0.7+	1997 12 07	910	1.3−	0.9−
1990 08 16	809	0.5−	1.4−	1995 08 26	809	0.0	0.8+	1997 12 07	910	1.7−	1.0−
1990 08 20	809	(2.2+	0.8−)	1995 08 27	809	0.5+	0.5+	1997 12 07	910	1.6−	0.9−
1990 08 20	809	1.6+	0.7−	1995 08 28	809	0.2−	0.6+	1998 03 20	704	0.2+	1.4−
1990 08 20	809	1.1+	0.5−	1995 08 28	809	0.2−	0.3+	1998 03 20	704	0.6+	0.6−
1990 08 22	675	0.2+	0.0	1995 08 29	809	0.1−	0.0	1998 03 20	704	0.6+	1.2−
1990 08 22	675	0.2−	0.2+	1995 08 30	809	0.1+	0.2+	1998 03 20	704	0.9−	0.3−
1990 08 25	675	0.8−	1.8−	1995 08 31	809	0.4+	0.4+	1998 03 20	704	0.3+	1.7−
1990 08 25	675	0.1−	0.2−	1995 08 31	809	0.1+	1.7−	1998 03 22	704	0.1+	1.4−
1990 08 26	809	0.9+	0.4+	1995 09 01	809	0.7−	1.9−	1998 03 22	704	0.2+	1.3−
1990 08 26	809	1.6+	0.4−	1995 09 22	809	0.3+	0.7−	1998 03 22	704	0.5−	0.7−
1990 08 26	809	2.0+	0.7−	1995 09 23	809	0.1+	0.1−	1998 03 22	704	0.1+	0.4−
1990 08 28	675	1.6+	0.9−	1995 09 23	809	(5.3+	1.3−)	1998 03 22	704	1.5−	0.3+
1990 08 28	675	1.7−	0.3−	1995 09 24	809	0.5−	0.4−	1998 03 27	557	0.6−	0.1+
1990 09 14	675	0.7−	0.4−	1995 09 29	809	0.3−	0.1+	1998 03 27	557	0.1+	0.3+
1990 09 14	675	1.2−	0.3−	1996 12 08	411	0.2−	0.8−	1998 03 30	557	0.0	0.1−
1990 09 19	675	0.5+	1.4−	1996 12 08	411	0.4+	0.2+	1998 03 31	557	0.0	0.1−
1990 09 19	675	0.3−	1.6−	1996 12 11	411	0.5+	0.5−				
1995 08 24	809	0.1+	1.6+	1996 12 11	411	0.0	0.2−				

(8496)* 1990 QO₃ = 1990 SL₂₆

Discovered 1990 Aug. 16 at the Oak Ridge Observatory.

Id. G. V. Williams (d, *MPC* 19866)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5						Williams					
<i>M</i>	57.92279		(2000.0)		P		Q				
<i>n</i>	0.17804607		ω	52.64057		+0.67768344		−0.73514920			
<i>a</i>	3.1293042		Ω	354.59669		+0.60293397		+0.56899644			
<i>e</i>	0.0761522		<i>i</i>	10.61367		+0.42097006		+0.36850876			
<i>P</i>	5.54		<i>H</i>	12.2		<i>G</i>	0.15		<i>U</i>	1	
Residuals in seconds of arc											
1990 08 16	801	0.6+	0.8+	1990 09 14	809	1.1−	0.2+	1991 11 07	801	0.1+	0.6−
1990 08 16	801	0.1+	0.4+	1990 09 14	809	0.7−	0.1−	1996 09 15	801	0.8+	0.1+
1990 08 17	801	1.1+	0.8+	1990 09 14	675	0.5+	0.8−	1996 09 15	801	1.0+	0.3−
1990 08 17	801	0.6+	0.1−	1990 09 14	675	0.3+	0.8−	1996 10 12	801	1.4+	1.2+
1990 08 18	801	0.1+	0.5+	1990 09 16	801	0.4+	0.1−	1996 10 12	801	1.1+	1.1+
1990 08 18	801	0.3+	0.6+	1990 09 16	801	0.5+	0.1−	1996 11 05	691	0.8−	0.2+
1990 08 19	801	0.9+	0.5+	1990 09 19	801	0.3+	0.1+	1996 11 05	691	0.8−	0.1+
1990 08 19	801	0.0	0.4+	1990 09 19	801	0.2+	0.0	1996 11 05	691	0.3−	0.4+
1990 08 20	809	(2.1+	0.4+)	1990 09 19	675	0.3+	1.4−	1996 11 11	801	0.8+	0.7−
1990 08 20	809	0.6+	0.6+	1990 09 19	675	0.9+	0.4−	1996 11 11	801	0.1+	1.1+
1990 08 20	809	0.1+	0.1+	1990 09 21	095	(2.3+	0.2−)	1996 11 11	691	1.3−	0.4+
1990 08 20	801	0.9+	0.7+	1990 10 15	801	0.1−	0.4−	1996 11 11	691	1.5−	0.2+
1990 08 20	801	0.7+	0.8+	1990 10 15	801	0.3+	0.1−	1996 11 11	691	1.4−	0.3+
1990 08 23	675	0.3−	0.1+	1990 10 16	801	0.1+	0.1−	1996 11 12	801	0.0	0.8+
1990 08 23	675	0.0	0.2+	1990 10 16	801	0.1+	0.2−	1996 11 12	801	0.5−	1.1+
1990 08 25	675	1.7+	0.7−	1990 10 18	801	0.3+	0.3−	1996 11 13	691	0.2−	0.3+
1990 08 25	675	0.4+	0.1−	1990 10 18	801	0.3+	0.2−	1996 11 13	691	0.4−	0.3+
1990 08 26	809	0.9−	1.3−	1990 10 21	801	0.2−	0.0	1996 11 13	691	0.4−	0.3+
1990 08 26	809	0.5−	1.9−	1990 10 21	801	0.0	0.0	1996 11 18	691	0.5−	0.1−
1990 08 26	809	0.2−	1.4−	1990 11 14	801	0.1−	0.3−	1996 11 18	691	1.0−	0.2+
1990 08 27	675	(0.4+	2.4−)	1990 11 15	801	0.1+	0.4−	1996 11 18	691	1.1−	0.5+
1990 08 27	675	0.3−	0.7−	1990 11 16	801	0.7−	0.2−	1998 01 18	758	0.9+	0.9+
1990 08 28	095	(2.8−	2.7−)	1990 11 16	801	0.4+	0.0	1998 01 18	758	0.5−	0.1+
1990 08 28	095	(2.2+	1.3−)	1991 10 08	801	0.2−	1.1−	1998 02 22	566	0.6−	1.0−
1990 09 13	809	1.2−	0.6−	1991 10 08	801	0.5−	0.8−	1998 02 22	566	0.8−	1.2−
1990 09 13	809	0.8−	0.6−	1991 11 03	801	0.4+	0.7−	1998 02 22	566	0.5−	1.1−
1990 09 13	809	0.5−	0.5−	1991 11 03	801	0.1+	1.0−	1998 03 26	470	0.3−	0.6−
1990 09 14	809	1.2−	0.3+	1991 11 07	801	0.1+	1.0−	1998 03 26	470	0.9+	0.7−

(8497)* 1990 RE₇ = 1982 BF₅

Discovered 1990 Sept. 13 by H. Debehogne at the European Southern

Observatory.

Id. H. Kaneda (*MPC* 19305)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5					Williams						
<i>M</i>	78.27501		(2000.0)		P		Q				
<i>n</i>	0.19106546	ω	66.91329		+0.41180468		−0.91126342				
<i>a</i>	2.9854829	Ω	358.74727		+0.75510524		+0.34367739				
<i>e</i>	0.1079474	<i>i</i>	10.50197		+0.51013036		+0.22690268				
<i>P</i>	5.16	<i>H</i>	13.0		<i>G</i>	0.15	<i>U</i>	1			
Residuals in seconds of arc											
1982 01 26	381	0.9−	0.6−	1993 03 20	809	0.7+	0.2−	1998 02 28	809	1.0+	0.6−
1982 01 26	381	1.2−	0.4−	1993 03 24	809	0.8+	0.4−	1998 02 28	809	1.5+	1.0−
1982 01 26	381	1.0−	2.2+	1993 04 15	691	0.8−	1.2−	1998 03 20	704	1.0+	0.5+
1982 01 26	381	1.7+	0.9−	1993 04 15	691	0.7−	0.6−	1998 03 20	704	1.2+	0.8+
1982 01 28	381	1.4+	0.2−	1993 04 15	691	0.8−	0.8−	1998 03 20	704	0.9+	0.3+
1990 08 26	809	0.9+	0.1−	1993 04 17	413	(5.8+	2.5−)	1998 03 20	704	1.1+	0.2−
1990 08 26	809	0.4+	0.9+	1998 01 29	691	1.7−	0.3+	1998 03 20	704	0.9+	0.1+
1990 08 26	809	0.4−	0.1+	1998 01 29	691	(2.2−	0.2+)	1998 03 22	704	0.1+	0.6+
1990 09 13	809	1.1−	0.1+	1998 01 29	691	1.7−	0.4−	1998 03 22	704	0.1+	0.8+
1990 09 13	809	0.7−	0.1+	1998 02 27	809	(2.5+	0.9+)	1998 03 22	704	0.5−	1.2+
1990 09 13	809	0.3−	0.2+	1998 02 27	809	1.6+	0.2−	1998 03 22	704	0.1+	0.3+
1990 09 14	809	0.4−	0.3+	1998 02 27	809	1.3+	0.6−	1998 03 22	704	0.4+	1.2+
1990 09 14	809	0.1−	0.3+	1998 02 27	566	1.8−	0.3+	1998 03 26	327	0.0	0.1+
1990 09 14	809	0.2+	0.3+	1998 02 27	566	1.7−	0.3+	1998 03 26	327	0.3+	0.5+
1993 03 16	372	1.0−	0.0	1998 02 27	566	1.5−	0.3−	1998 03 26	327	0.0	0.3+
1993 03 16	372	0.0	0.7+	1998 02 28	809	(2.0+	2.1−)				

(8498)* 1990 RM₁₇ = 1990 SW₁₉ = 1990 UA₁₂ = 1977 DL₅ = 1982 DE₂

Discovered 1990 Sept. 15 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Id. S. Nakano (*MPC* 20926)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				P		Q	
<i>M</i>	127.68281		(2000.0)				
<i>n</i>	0.18971351	ω	47.39956	+0.85932586	-0.50877161		
<i>a</i>	2.9996497	Ω	342.97255	+0.40154624	+0.73423644		
<i>e</i>	0.1117768	<i>i</i>	10.24114	+0.31673283	+0.44949783		
<i>P</i>	5.20	<i>H</i>	12.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1977 02 18	381	0.8+	0.7+	1997 01 17	732	0.5+	1.0+	1998 03 22	704	0.2+	0.3+
1977 02 19	381	0.3+	0.4+	1997 01 27	732	0.3+	1.0-	1998 03 22	704	0.1-	0.3-
1977 02 19	381	1.0+	0.4-	1997 01 27	732	1.4-	0.1+	1998 03 22	704	0.0	0.7-
1982 02 20	046	1.1-	0.0	1997 01 27	732	1.4+	0.2+	1998 03 22	704	0.7-	0.5-
1982 02 20	046	1.8-	0.8+	1998 02 27	566	0.2-	0.9-	1998 03 31	704	0.5+	0.3-
1982 02 21	046	0.0	1.2+	1998 02 27	566	0.1-	1.0-	1998 03 31	704	1.0-	0.5-
1982 02 21	046	1.7+	0.9-	1998 02 27	566	0.2+	1.0-	1998 03 31	704	0.4+	0.2+
1990 09 15	095	0.1-	0.5+	1998 03 20	704	0.0	0.6+	1998 03 31	704	0.9+	0.6+
1990 09 18	675	0.9+	1.3-	1998 03 20	704	0.3-	0.2-	1998 04 01	704	0.5+	0.2+
1990 09 18	675	0.0	1.1-	1998 03 20	704	0.0	0.2+	1998 04 01	704	1.5-	0.5+
1990 09 23	095	0.6-	1.1-	1998 03 20	704	0.4+	0.4-	1998 04 01	704	1.9-	1.6-
1990 10 23	095	1.1+	0.3+	1998 03 20	704	0.1+	0.6-	1998 04 01	704	0.3-	0.5+
1997 01 17	732	0.3-	0.5-	1998 03 22	704	0.2+	0.0	1998 04 01	704	0.2-	0.9+

(8499)* 1990 SC₁₃ = 1985 RR₅ = 1995 SB₃ = 1996 XR₁₈

Discovered 1990 Sept. 22 by H. Debehogne at the European Southern Observatory.

Id. S. Nakano (*MPC* 25729), K. Ichikawa (*MPC* 29097)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				P		Q	
<i>M</i>	297.87373		(2000.0)				
<i>n</i>	0.19876695	ω	316.63666	-0.72167515	+0.69205204		
<i>a</i>	2.9078585	Ω	267.16329	-0.63071757	-0.66676701		
<i>e</i>	0.0077604	<i>i</i>	0.90520	-0.28527238	-0.27656054		
<i>P</i>	4.96	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1985 09 15	095	1.1-	0.5-	1995 09 21	399	0.0	0.4-	1996 12 22	046	0.5+	0.1+
1985 09 20	095	0.5-	1.0+	1996 10 14	327	0.0	0.6-	1996 12 27	046	0.2+	0.2-
1990 09 22	809	0.6+	0.1-	1996 10 14	327	0.4+	0.1-	1996 12 27	046	0.2+	0.0
1990 09 22	809	1.1+	0.1+	1996 10 14	327	0.1-	0.1-	1996 12 27	046	0.2-	0.0
1990 09 22	809	1.5+	0.2+	1996 12 11	046	0.0	0.4+	1996 12 29	046	0.2-	0.3-
1990 09 23	809	0.6-	0.3+	1996 12 11	046	0.5+	0.4+	1996 12 29	046	0.2+	0.3-
1990 09 23	809	0.4-	0.2+	1996 12 11	046	0.1-	0.3+	1997 01 12	046	0.5+	0.5-
1990 09 23	809	0.0	0.1+	1996 12 11	046	0.3-	0.2-	1997 01 12	046	0.2+	0.3-
1990 09 23	809	(4.0+	0.1+)	1996 12 12	046	0.3-	0.4+	1997 01 12	046	0.2+	0.6-
1990 09 23	809	(4.1+	0.1+)	1996 12 12	046	0.3-	0.4+	1998 02 26	566	0.6+	0.6-
1990 09 23	809	(4.4+	0.1-)	1996 12 12	046	0.5-	0.8+	1998 02 26	566	0.3+	0.3-
1990 09 24	809	0.4-	0.2+	1996 12 12	046	0.4-	0.9+	1998 02 26	566	0.3+	0.8-
1990 09 24	809	0.2-	0.4+	1996 12 16	046	0.5-	0.3-	1998 03 26	566	0.5-	0.0
1990 09 24	809	0.5+	0.6+	1996 12 16	046	0.3-	0.4-	1998 03 26	566	0.4-	0.3-
1990 09 29	809	0.6+	1.3-	1996 12 16	046	0.3-	0.2-	1998 03 26	566	0.4-	0.0
1990 09 29	809	0.5+	1.2-	1996 12 20	327	0.1+	0.1+	1998 04 01	704	0.5-	0.3+
1990 09 29	809	0.5+	1.4-	1996 12 20	327	0.9+	0.0	1998 04 01	704	0.1+	0.6-
1995 09 20	399	1.4+	0.1-	1996 12 20	327	0.6-	0.2+	1998 04 01	704	0.3-	0.4-
1995 09 20	399	1.9-	1.3-	1996 12 22	046	0.2+	0.0	1998 04 01	704	0.5-	0.9-
1995 09 21	399	0.4+	1.8-	1996 12 22	046	0.3+	0.1-	1998 04 01	704	0.7-	1.4-

(8500)* 1990 TU = 1985 VW₂Discovered 1990 Oct. 10 by K. Endate and K. Watanabe at Kitami.
Id. S. Nakano (*MPC* 17218)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				P		Q	
<i>M</i>	136.29403		(2000.0)				
<i>n</i>	0.18944503	ω	175.04505	+0.90910815	-0.40313639		
<i>a</i>	3.0024831	Ω	209.43767	+0.37447913	+0.90122668		
<i>e</i>	0.1372614	<i>i</i>	12.32360	+0.18244930	+0.15897017		
<i>P</i>	5.20	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1985 11 09	095	(1.5+	3.9+)	1995 10 13	118	0.1-	0.5+	1998 03 03	704	0.4+	0.8+
1985 11 11	095	1.7-	1.2+	1995 10 13	118	0.5-	0.2+	1998 03 03	704	0.2-	0.2+
1990 10 10	400	0.9+	1.9+	1995 10 13	118	0.6-	1.0+	1998 03 03	704	0.9+	1.9-
1990 10 10	400	(1.7+	2.7+)	1995 10 14	118	0.3-	0.9+	1998 03 03	704	(4.1-	1.0-)
1990 10 11	400	1.6+	0.1-	1995 10 14	118	0.1-	0.9+	1998 03 04	704	1.3-	0.5-
1990 10 11	400	0.3+	0.1+	1995 10 24	801	0.2+	0.5+	1998 03 04	704	1.8-	0.2+
1990 10 16	372	1.3+	1.6+	1995 10 24	801	0.1+	0.4+	1998 03 04	704	(3.2-	0.4+)
1990 10 17	372	1.2+	0.5-	1995 10 24	118	1.5+	1.2+	1998 03 04	704	(2.4-	1.0+)
1990 10 19	372	1.1-	0.2-	1995 10 26	801	0.1+	0.2+	1998 03 04	704	(3.3-	1.5+)
1990 10 22	400	(0.2+	3.0+)	1995 10 26	801	0.3+	0.2+	1998 03 29	540	1.2+	0.2-
1990 10 22	400	1.2-	1.4-	1995 11 10	327	0.6-	1.0-	1998 03 29	540	1.7+	0.2-
1993 04 16	413	0.2-	0.4+	1995 11 10	327	1.0-	0.8-	1998 03 31	704	0.2+	0.8+
1994 06 06	595	0.3-	0.3+	1995 11 10	327	1.1-	0.8-	1998 03 31	704	0.1+	0.4-
1994 06 07	595	0.6+	0.1-	1995 11 16	327	0.7-	0.9-	1998 03 31	704	0.3-	0.3+
1995 08 22	801	0.2+	0.1+	1995 11 16	327	0.9-	1.1-	1998 03 31	704	0.4-	0.4+
1995 08 22	801	1.2+	0.4+	1995 11 16	327	0.8-	0.9-	1998 03 31	540	0.4-	1.9+
1995 08 25	801	0.1+	0.3+	1995 11 23	327	0.8-	1.4-	1998 03 31	540	0.2+	0.9+
1995 08 25	801	0.3-	0.3+	1995 11 23	327	0.3+	1.2-	1998 04 01	704	0.0	0.1-
1995 09 21	801	0.7+	0.3+	1995 11 23	327	0.0	0.7-	1998 04 01	704	0.3-	0.1-
1995 09 21	801	0.6+	0.1+	1998 02 24	566	0.1+	0.5+	1998 04 01	704	0.9+	0.5-
1995 09 28	801	0.1+	0.3-	1998 02 24	566	0.3-	0.5+	1998 04 01	704	0.1-	0.7-
1995 09 28	801	0.1-	0.5-	1998 02 24	566	0.4-	0.4+	1998 04 01	704	0.3+	1.0-
1995 10 13	118	0.2-	0.3+	1998 03 03	704	0.2-	0.1+				

(8501)* 1990 TK₈ = 1993 HN

Discovered 1990 Oct. 13 by F. Börngen and L. D. Schmadel at Tautenburg.

Id. S. Nakano (*MPC* 22230)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				P		Q	
<i>M</i>	314.26504		(2000.0)				
<i>n</i>	0.18738451	ω	171.95567	-0.81813861	+0.56055882		
<i>a</i>	3.0244536	Ω	42.97560	-0.53748365	-0.66629375		
<i>e</i>	0.0670211	<i>i</i>	10.83568	-0.20435398	-0.49175853		
<i>P</i>	5.26	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1988 05 14	675	0.5+	0.5+	1993 04 20	400	1.2-	0.5+	1995 11 28	589	0.4+	0.4+
1988 05 14	675	0.4+	0.1+	1993 04 20	400	0.2+	0.3+	1996 12 28	113	0.2-	0.2-
1989 08 01	675	0.3+	0.2+	1993 05 16	400	(2.9+	0.6+)	1996 12 28	113	0.9-	0.5+
1989 08 01	675	0.3+	0.8+	1993 05 16	400	0.7-	0.0	1996 12 28	113	0.6-	0.6+
1989 08 29	675	0.3+	0.2+	1994 07 12	675	0.1-	0.1-	1997 01 09	689	1.3+	1.0+
1989 08 29	675	0.3+	0.8+	1994 07 12	675	0.2-	1.0-	1997 01 14	611	(2.6+	1.1+)
1989 09 01	675	0.3-	0.5+	1995 10 17	113	(3.7-	0.1+)	1997 01 14	611	0.6+	0.1-
1989 09 01	675	1.0+	0.4+	1995 10 17	113	(3.4-	0.1+)	1998 02 23	566	0.0	0.0
1989 09 04	675	0.6-	1.1-	1995 10 17	113	(4.2-	0.1+)	1998 02 23	566	0.3+	0.1-
1989 09 04	675	0.6+	0.4+	1995 10 17	113	(3.4-	0.5-)	1998 02 23	566	0.2+	0.0
1990 10 13	033	1.4+	1.0-	1995 10 23	113	1.5-	0.4-	1998 03 24	566	0.3+	1.1-
1990 10 13	033	0.1-	0.9-	1995 10 23	113	1.0-	0.1+	1998 03 24	566	0.4+	1.2-
1990 10 14	033	0.2-	0.3-	1995 10 23	113	1.1-	0.2-	1998 03 24	566	0.5+	0.9-
1990 10 18	033	0.3-	0.5+	1995 10 23	113	1.3-	1.2-	1998 03 24	611	0.7-	0.3+
1993 04 16	400	(3.2-	0.0)	1995 10 24	113	0.6+	0.7-	1998 03 24	611	0.1-	0.3+
1993 04 16	400	1.0-	1.0-	1995 10 24	113	0.6+	0.6-	1998 03 24	134	1.2+	0.0
1993 04 19	675	0.2-	0.3+	1995 11 28	589	1.1+	0.7+	1998 03 24	134	0.5+	0.0
1993 04 19	675	0.7-	1.1+	1995 11 28	589	1.5+	0.4+	1998 03 24	134	0.9+	0.2-

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	216.54900		(2000.0)	P	Q
<i>n</i>	0.19067216	ω	84.22106	+0.80389979	+0.57726847
<i>a</i>	2.9895870	Ω	240.43639	-0.58973923	+0.74242565
<i>e</i>	0.0989626	<i>i</i>	9.47597	-0.07715415	+0.33994893
<i>P</i>	5.17	<i>H</i>	12.6	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1985 12 17	010	1.5+	1.4-	1994 07 31	104	1.6+	0.6-	1995 10 27	801	0.3+	0.7+
1985 12 17	010	(3.6+	0.3+)	1994 07 31	104	1.3+	0.8-	1995 10 27	801	0.0	0.6+
1985 12 19	010	(3.6+	3.1-)	1994 07 31	104	1.1+	1.0-	1995 11 25	801	0.3+	0.2-
1990 10 14	033	0.9-	1.2-	1994 08 04	104	0.0	0.1+	1995 11 25	801	0.4+	0.3-
1990 10 15	033	0.4-	0.0	1994 08 04	104	0.2-	0.3+	1997 02 01	611	0.7+	1.0-
1990 10 15	033	0.4-	0.1-	1994 08 04	104	0.8-	0.5+	1997 02 01	611	0.1-	0.5-
1990 10 18	033	0.3+	0.7-	1994 08 04	033	0.3-	0.1-	1997 02 07	611	0.6-	0.1-
1990 10 18	033	1.0-	0.3-	1994 08 04	033	0.4-	0.1-	1997 02 07	611	1.0+	0.1+
1990 11 13	675	0.6-	0.9-	1994 08 06	033	0.0	0.5-	1998 03 08	696	0.0	0.3-
1990 11 13	675	0.6-	1.0-	1994 08 08	560	0.2+	1.7+	1998 03 08	696	0.1+	0.5-
1994 06 10	801	0.1+	0.4-	1994 08 08	560	1.6+	0.9+	1998 03 08	696	0.1+	0.3-
1994 06 10	801	0.7-	0.7+	1994 08 08	560	0.7+	0.5+	1998 03 29	611	1.0-	1.6+
1994 07 05	801	0.6-	0.6-	1994 08 09	560	0.6+	0.4-	1998 03 30	611	1.2-	1.1+
1994 07 05	801	0.1-	0.0	1994 08 09	560	1.0-	0.7-	1998 03 31	704	0.4-	0.3-
1994 07 07	801	0.0	0.2-	1994 09 01	033	0.0	0.3-	1998 03 31	704	0.5+	0.2+
1994 07 07	801	0.2+	0.2-	1994 09 09	033	1.5-	1.1-	1998 03 31	704	0.1+	0.8-
1994 07 10	033	0.7-	0.5-	1994 09 10	033	0.1-	0.1+	1998 03 31	704	0.2+	0.7+
1994 07 10	596	0.2-	0.3-	1995 09 24	033	0.3-	0.2+	1998 03 31	704	(0.4+	4.2+)
1994 07 10	596	0.2-	0.4-	1995 09 25	033	0.1-	0.4+	1998 04 01	704	0.4+	0.1-
1994 07 10	596	(0.7-	2.1-)	1995 10 24	801	0.4+	0.9+	1998 04 01	704	0.5+	0.4-
1994 07 11	033	0.1+	0.6-	1995 10 24	801	0.4+	0.6+	1998 04 01	704	0.2+	0.1-
1994 07 12	033	0.2+	0.5+	1995 10 25	033	0.3-	0.0	1998 04 01	704	0.8+	1.4-
1994 07 13	033	0.2+	0.1-	1995 10 25	033	0.2-	0.2-	1998 04 01	704	2.0-	1.2-

(8503)* 1990 WX₃ = 1980 TR₁₃ = 1993 SV₁₄ = 1995 DY₁₃

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

Id. E. Bowell (*MPC* 28844), G. V. Williams (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	72.03644		(2000.0)	P	Q
<i>n</i>	0.30029283	ω	307.00803	+0.72826330	-0.67541320
<i>a</i>	2.2085441	Ω	95.79622	+0.65994811	+0.64560769
<i>e</i>	0.1688146	<i>i</i>	6.69409	+0.18466472	+0.35638142
<i>P</i>	3.28	<i>H</i>	14.1	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1980 10 12	095	0.3-	0.0	1990 11 22	809	0.1-	0.3+	1998 01 26	566	0.7-	0.3-
1990 11 14	675	0.8-	0.7+	1990 11 22	809	0.1+	0.5-	1998 01 26	566	0.8-	0.2-
1990 11 14	675	0.8-	0.7+	1990 11 22	809	0.3+	0.6-	1998 01 26	566	1.0-	0.1-
1990 11 15	809	0.3+	1.8-	1990 11 24	400	0.1+	1.7+	1998 02 27	566	0.5+	0.5-
1990 11 15	809	0.4+	1.4-	1990 11 24	400	(3.2+	1.2-)	1998 02 27	566	0.3+	0.2-
1990 11 15	809	0.1+	0.9-	1990 12 13	400	0.9+	0.5+	1998 02 27	566	0.6+	0.6-
1990 11 16	809	(3.1-	0.6+)	1990 12 13	400	(0.1+	2.4+)	1998 03 03	699	1.3+	0.7+
1990 11 17	809	1.2-	0.5-	1993 09 18	675	0.2-	0.0	1998 03 03	699	0.5+	0.7+
1990 11 19	809	0.8+	0.3-	1993 09 18	675	0.1-	0.1+	1998 03 03	699	0.3+	0.9+
1990 11 19	809	1.4+	0.0	1993 09 19	675	0.3+	0.1-	1998 03 04	704	(3.4-	0.8+)
1990 11 19	809	1.9+	0.1-	1993 09 19	675	0.2+	0.6+	1998 03 04	704	1.9-	0.3+
1990 11 21	809	1.0-	0.5+	1993 10 10	675	0.6-	0.5+	1998 03 04	704	(2.7-	0.2+)
1990 11 21	809	0.6-	0.7+	1993 10 10	675	0.3-	0.4+	1998 03 04	704	(2.2-	0.4+)
1990 11 21	809	0.9-	0.8+	1995 02 24	557	0.7+	0.6+	1998 03 04	704	(3.0-	0.9+)
1990 11 21	400	(3.2+	4.6-)	1995 02 24	557	0.2+	0.4+				
1990 11 21	400	(5.1+	3.1-)	1995 02 24	557	0.1+	0.1+				

(8504)* 1990 YC = 1988 FU₁ = 1993 TU₁

Discovered 1990 Dec. 17 by S. Ueda and H. Kaneda at Kushiro.

Id. K. Watanabe (*MPC* 22687), S. Nakano (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Nakano

<i>M</i>	71.90963		(2000.0)	P	Q
<i>n</i>	0.29825598	ω	336.41196	+0.52094959	-0.85224792
<i>a</i>	2.2185877	Ω	82.16107	+0.79063133	+0.46066189
<i>e</i>	0.1594054	<i>i</i>	2.76575	+0.32173535	+0.24791955
<i>P</i>	3.30	<i>H</i>	14.0	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1988 03 18	033	0.9+	0.6-	1993 10 16	400	0.6+	0.7+	1998 03 02	809	(1.4+	3.2+)
1988 03 18	033	2.0+	0.5-	1993 10 16	367	0.3-	0.7+	1998 03 03	699	0.0	0.3-
1990 12 17	399	0.1-	0.1-	1993 10 16	367	1.0-	0.5-	1998 03 03	699	1.3+	1.0+
1990 12 17	399	(3.3+	0.3-)	1993 10 17	367	1.3+	1.5+	1998 03 03	699	(2.5+	1.5-)
1990 12 17	399	0.9+	0.5-	1993 10 17	367	1.9+	1.0+	1998 03 20	704	0.3+	0.1-
1990 12 19	399	1.9+	1.4-	1993 10 19	403	1.3-	0.7+	1998 03 20	704	0.6+	0.3+
1990 12 19	399	(2.7+	2.7-)	1993 10 19	403	0.7-	0.6-	1998 03 20	704	0.2+	0.3-
1991 01 05	399	1.3-	0.1-	1993 10 20	399	0.8+	0.5+	1998 03 20	704	1.2+	0.5-
1991 01 05	399	2.1-	0.6-	1993 10 20	399	0.2-	0.3+	1998 03 20	704	0.6+	0.6-
1991 01 05	399	1.3-	0.1+	1993 12 13	801	0.3+	1.0+	1998 03 22	704	0.3+	0.2-
1991 01 14	399	0.6-	0.0	1993 12 13	801	0.0	0.2+	1998 03 22	704	0.2-	0.0
1991 01 14	399	(2.3+	0.4+)	1993 12 17	801	0.9-	0.2+	1998 03 22	704	0.4-	0.3+
1991 01 14	399	(3.5+	0.0)	1993 12 17	801	0.6-	0.4-	1998 03 22	704	0.3-	1.1+
1991 01 17	046	0.2-	0.3+	1998 02 23	566	0.1+	0.2-	1998 03 22	704	0.1+	0.6+
1991 01 17	046	0.3-	0.9-	1998 02 23	566	0.6+	0.2+	1998 03 26	704	0.5-	0.4+
1992 05 03	809	0.3-	0.1+	1998 02 23	566	0.6+	0.0	1998 03 26	704	0.2+	0.2+
1992 05 03	809	0.8-	0.4-	1998 03 01	809	(0.5+	3.4+)	1998 03 26	704	0.5-	0.4+
1992 05 03	809	1.3-	0.1-	1998 03 01	809	(0.2-	2.5+)	1998 03 31	104	0.6-	0.9+
1993 10 15	400	0.8+	0.6+	1998 03 01	809	(0.7+	2.7+)	1998 03 31	104	0.6-	0.6+
1993 10 15	400	0.6-	1.9-	1998 03 02	809	(0.2+	3.8+)	1998 03 31	104	0.4-	0.7+
1993 10 16	400	0.5-	0.1+	1998 03 02	809	(1.3+	3.6+)				

(8505)* 1990 YK = 1971 DP₁ = 1981 CE₁ = 1988 GP

Discovered 1990 Dec. 19 by S. Ueda and H. Kaneda at Kushiro.

Id. H. Kaneda (*MPC* 17829)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Nakano

<i>M</i>	6.18298		(2000.0)	P	Q
<i>n</i>	0.29299735	ω	322.32723	-0.70332151	-0.71085203
<i>a</i>	2.2450547	Ω	172.36163	+0.66154613	-0.65723748
<i>e</i>	0.1573793	<i>i</i>	2.29132	+0.26018372	-0.25045614
<i>P</i>	3.36	<i>H</i>	14.6	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1971 02 18	095	(1.3+ 4.2+)	1991 02 07	675	0.6+ 1.3+	1998 03 01	360	0.8+ 0.4-
1971 02 23	095	(4.4+ 4.3+)	1991 02 07	675	0.4+ 1.9+	1998 03 04	704	1.7- 0.6-
1981 02 09	049	1.6- 1.2-	1993 11 11	801	1.1+ 0.0	1998 03 04	704	1.6- 0.4-
1981 02 09	049	0.0 0.9-	1993 11 11	801	1.1+ 0.0	1998 03 04	704	1.7- 0.3-
1981 02 09	049	1.3- 0.3+	1993 11 16	801	1.0+ 0.1+	1998 03 04	704	1.7- 0.2-
1981 02 09	049	0.2- 1.5-	1993 11 16	801	0.7+ 0.3-	1998 03 04	704	1.3- 0.2+
1988 04 10	046	1.9+ 1.8-	1996 09 12	691	1.6- 1.1-	1998 03 20	704	0.3- 0.7+
1988 04 10	046	1.8- 1.1-	1996 09 12	691	1.2- 0.7-	1998 03 20	704	0.4- 1.6+
1988 04 11	046	2.0+ 1.9-	1996 09 12	691	1.5- 0.8-	1998 03 20	704	0.2+ 0.8+
1988 04 11	046	0.0 2.0-	1996 09 18	566	0.2- 0.2-	1998 03 20	704	0.3- 0.7+
1988 04 15	046	0.4- 1.8+	1996 09 18	566	0.5- 0.1-	1998 03 20	704	0.3- 1.6+
1988 04 15	046	(5.1- 7.4+)	1996 09 18	566	0.3+ 0.2+	1998 03 21	399	0.3+ 0.1+
1990 12 19	399	0.6+ 0.7-	1996 09 30	104	0.5+ 0.8+	1998 03 21	399	0.2- 0.5+
1990 12 19	399	0.9- 1.2-	1996 09 30	104	0.4+ 0.5+	1998 03 22	704	0.5+ 0.2+
1990 12 23	399	2.1- 0.2+	1996 09 30	104	0.5+ 0.1+	1998 03 22	704	1.8+ 0.2-
1990 12 23	399	1.3- 1.0+	1998 02 26	566	1.3+ 0.1-	1998 03 22	704	0.0 0.7+
1990 12 24	399	0.8+ 0.2+	1998 02 26	566	1.1+ 0.1-	1998 03 22	704	0.4+ 0.7+
1990 12 24	399	1.1+ 0.1-	1998 02 26	566	1.0+ 0.0	1998 03 22	704	0.8+ 1.0+
1991 02 03	399	0.2- 0.5+	1998 03 01	360	0.9+ 0.6-	1998 03 22	399	0.6- 0.1-
1991 02 03	399	1.3+ 0.2+	1998 03 01	360	0.6+ 0.5-	1998 03 22	399	0.3+ 0.8-

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i> 341.49813		(2000.0)		P		Q	
<i>n</i>	0.28749284	ω	162.67599	-0.96137482	-0.27523765		
<i>a</i>	2.2736208	Ω	1.35108	+0.24358570	-0.85355930		
<i>e</i>	0.0736529	<i>i</i>	3.98419	+0.12815793	-0.44235817		
<i>P</i>	3.43	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc							
1989 09 04	675	0.2+	0.9+	1991 03 13	809	(2.4+	1.8-)
1989 09 04	675	0.4-	0.5-	1991 03 15	809	0.5-	1.2+
1989 09 27	675	0.5+	1.4+	1991 03 15	809	0.3-	1.3+
1989 09 27	675	0.7+	1.4+	1991 03 15	809	0.0	1.5+
1989 09 29	675	0.9-	1.3+	1992 07 24	809	0.9-	0.2-
1989 09 29	675	0.6-	0.3+	1992 07 24	809	0.7-	0.1-
1991 01 17	033	0.2+	0.5-	1992 07 24	809	0.4-	0.1+
1991 01 17	033	0.4-	0.6-	1992 07 26	809	0.1+	0.4+
1991 01 18	033	0.2-	1.6-	1992 07 26	809	0.3+	0.2+
1991 02 05	875	1.0-	0.7+	1992 07 26	809	0.4+	0.4+
1991 02 05	875	0.7-	0.5-	1993 11 11	801	0.3+	0.3+
1991 02 07	875	0.9-	0.5-	1993 11 11	801	0.3+	0.3+
1991 02 07	875	0.0	0.8-	1993 11 17	801	0.5-	0.4+
1991 02 08	220	1.3-	1.4-	1993 11 17	801	0.2-	0.0
1991 02 09	220	1.9+	1.4-	1996 09 02	689	1.1-	0.9+
1991 02 09	220	0.9-	0.5-	1996 09 14	566	0.3-	0.2+
1991 02 12	875	0.2+	0.4-	1996 09 14	566	0.5-	0.5+
1991 02 12	875	1.3+	0.2-	1996 09 14	566	0.0	0.6+
1991 02 17	875	0.0	0.1-	1996 09 14	566	0.5-	0.2+
1991 02 17	875	1.8-	1.1+	1996 09 14	566	0.5-	0.9+
1991 02 20	875	0.7+	1.0+	1996 09 14	566	0.3-	0.6+
1991 02 20	875	0.0	0.3-	1998 02 26	699	0.1+	0.1-
1991 03 12	875	0.6-	1.1+	1998 02 26	699	0.3+	0.5+
1991 03 13	809	0.5+	1.1-	1998 02 26	699	0.3+	0.0
1991 03 13	809	1.4+	1.4-	1998 02 26	566	0.2-	0.4+

(8507)* 1991 CB₁ = 1993 BV₃

Discovered 1991 Feb. 15 by Spacewatch at Kitt Peak.

Id. J. V. Scotti (*MPC* 21792)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i> 281.48671		(2000.0)		P		Q	
<i>n</i>	0.44972225	ω	345.55332	+0.55173957	+0.81654603		
<i>a</i>	1.6872255	Ω	317.56172	-0.73805119	+0.38320415		
<i>e</i>	0.5947598	<i>i</i>	14.57512	-0.38841202	+0.43174894		
<i>P</i>	2.19	<i>H</i>	17.8	<i>G</i>	0.15	<i>U</i>	2
Residuals in seconds of arc							
1991 02 15	691	0.2+	0.5+	1993 01 29	691	0.7-	0.3+
1991 02 15	691	0.3+	0.3-	1993 01 29	691	0.5-	0.2-
1991 02 15	691	0.1-	0.1+	1993 02 26	691	1.1+	0.0
1991 02 16	691	0.4+	0.1-	1993 02 26	691	0.3-	0.4+
1991 02 16	691	0.3+	0.0	1993 02 26	691	1.1-	0.5+
1991 02 17	691	0.5+	0.2+	1996 11 18	691	(2.5-	2.9+)
1991 02 17	691	0.1-	0.4-	1996 11 18	691	0.3-	0.8+
1991 02 17	691	0.1-	0.3+	1996 12 02	691	0.8-	0.1+
1991 02 20	691	0.3+	0.3-	1996 12 02	691	0.9-	0.1-
1991 02 20	691	0.2-	0.5-	1996 12 02	691	0.2+	0.2-
1991 02 20	691	0.4+	0.3-	1996 12 06	711	1.1+	0.7-
1991 02 22	691	0.6-	0.0	1996 12 06	711	0.9+	0.2-
1991 02 22	691	0.7-	0.1-	1997 01 01	691	0.1+	0.4+
1991 02 22	691	0.7+	0.4-	1997 01 01	691	0.9+	0.5-
1993 01 26	691	0.6-	0.1-	1997 01 01	691	0.1+	0.3+
1993 01 26	691	1.1-	0.4+	1998 01 28	691	(2.2-	0.8+)
1993 01 26	691	(0.9+	3.6+)	1998 01 28	691	1.6-	0.9+

(8508)* 1991 CU₁ = 1967 GD = 1981 JN₂ = 1986 VT₅

Discovered 1991 Feb. 14 by S. Ueda and H. Kaneda at Kushiro.

Id. H. Kaneda (*MPC* 17971)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i> 356.41597		(2000.0)		P		Q	
<i>n</i>	0.28513345	ω	227.97080	-0.81589761	-0.57428774		
<i>a</i>	2.2861459	Ω	276.87294	+0.54845501	-0.73194748		
<i>e</i>	0.1335487	<i>i</i>	3.87631	+0.18305242	-0.36666946		
<i>P</i>	3.46	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc							
1955 10 25	675	0.6+	0.7-	1993 12 18	801	0.8-	0.5-
1955 10 25	675	0.6-	2.1+	1993 12 18	801	0.7-	0.6-
1967 04 06	095	0.3-	0.6+	1996 10 04	809	1.7+	1.1+
1981 05 05	675	0.7-	0.7-	1996 10 04	809	1.8+	1.3+
1981 05 06	675	0.4-	1.5+	1996 10 04	809	0.5+	0.1-
1986 11 05	688	0.1+	0.7+	1996 10 05	809	1.4+	0.1-
1986 11 05	688	0.8-	1.9+	1996 10 05	809	1.2+	0.8+
1991 01 17	675	0.1-	0.4-	1996 10 05	809	0.8+	1.1+
1991 01 17	675	0.1-	0.8-	1996 10 21	691	1.4-	0.6-
1991 02 08	675	1.0+	0.7-	1996 10 21	691	1.3-	0.7-
1991 02 08	675	1.1+	0.7-	1996 10 21	691	1.2-	0.7+
1991 02 08	400	1.0-	0.3+	1998 02 26	423	0.6-	0.4+
1991 02 08	400	0.6+	0.2+	1998 02 26	423	0.1+	0.6+
1991 02 14	399	1.1+	1.4+	1998 02 26	423	0.2-	0.7+
1991 02 14	399	1.2+	1.3-	1998 02 26	423	0.1-	0.8+
1991 02 14	399	(4.6+	1.3+)	1998 03 01	732	1.7-	0.6-
1991 02 14	399	(4.1+	1.2-)	1998 03 01	732	2.0-	0.4-
1991 02 18	399	(1.5+	2.3-)	1998 03 01	732	2.1-	0.2-
1991 02 18	399	(0.9-	2.3-)	1998 03 02	732	1.2-	0.3-
1991 03 05	399	0.2+	0.4-	1998 03 02	732	0.8-	0.4-
1991 03 05	399	1.1+	0.7-	1998 03 02	423	0.8-	1.0+
1992 06 28	675	0.5-	0.9-	1998 03 02	423	0.6-	1.1+
1992 06 28	675	0.5-	1.1+	1998 03 02	423	0.1+	1.1+
1993 12 09	675	0.8-	0.3-	1998 03 03	704	0.2+	0.3+
1993 12 09	675	0.3-	0.1-	1998 03 03	704	0.5+	0.5-
1993 12 13	801	1.0-	1.3-	1998 03 03	704	0.2-	0.5-
1993 12 13	801	0.7-	0.3-	1998 03 03	704	0.1-	0.0

(8509)* 1991 FV₂ = 1959 LG = 1978 VQ₁ = 1987 AU

Discovered 1991 Mar. 20 by H. Debehogne at the European Southern

Observatory.

Id. K. Kinoshita (*MPC* 23782)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i> 266.31322		(2000.0)		P		Q	
<i>n</i>	0.27556496	ω	240.32129	-0.16481493	+0.98588042		
<i>a</i>	2.3387657	Ω	20.25617	-0.87282499	-0.13180935		
<i>e</i>	0.1796753	<i>i</i>	4.90358	-0.45936104	-0.10327676		
<i>P</i>	3.58	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	2
Residuals in seconds of arc							
1955 03 23	675	1.4-	0.1+	1991 03 21	809	0.8-	0.4+
1955 03 23	675	1.8+	0.9-	1991 03 21	809	0.1-	0.2+
1959 06 04	760	0.7-	0.6-	1991 03 21	809	0.2+	0.2+
1978 11 01	010	0.3+	0.7-	1991 04 20	675	0.8+	0.3-
1978 11 01	010	1.4-	1.0-	1991 04 20	675	1.0+	1.3-
1978 11 02	010	1.0+	0.9-	1998 03 01	809	1.3+	0.6+
1978 11 02	010	1.4+	0.6-	1998 03 01	809	0.5+	0.2+
1987 01 08	010	0.5+	0.0	1998 03 01	809	0.0	0.1+
1987 01 08	010	0.5-	0.4-	1998 03 02	809	(0.8+	4.1+)
1987 01 08	010	1.5-	0.4-	1998 03 02	809	0.1+	2.7+
1991 03 09	675	0.7-	1.6-	1998 03 02	809	0.3-	2.8+
1991 03 09	675	0.1-	1.2-	1998 03 03	699	0.1+	0.4+
1991 03 20	809	1.4-	0.7-	1998 03 03	699	1.0+	0.2+
1991 03 20	809	0.9-	0.6-	1998 03 03	699	0.6+	0.2-
1991 03 20	809	0.4-	0.6-	1998 03 18	900	0.2-	0.5-

(8510)* 1991 PT₈ = 1992 WV₈ = 1994 EA₉ = 1995 OD₁₀

Discovered 1991 Aug. 5 by H. E. Holt at Palomar.

Id. A. Lowe (*MPC* 26901), G. V. Williams (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams				Q	
<i>M</i>	336.19308		(2000.0)		P				
<i>n</i>	0.19135985	ω	280.90083		+0.23690244			-0.96764156	
<i>a</i>	2.9824203	Ω	154.87463		+0.95201398			+0.21337839	
<i>e</i>	0.1152446	<i>i</i>	11.80615		+0.19376951			+0.13468286	
<i>P</i>	5.15	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>		1	

Residuals in seconds of arc

1991 08 05	675	0.8-	1.0-	1994 03 05	691	0.4+	0.3+	1997 10 28	563	0.2-	0.1-
1991 08 05	675	0.4+	0.5-	1994 03 05	691	0.0	0.2+	1997 10 28	563	1.2-	0.4-
1991 08 08	675	0.1+	0.6-	1995 07 25	691	0.6-	0.0	1997 10 29	566	0.1-	0.2+
1991 08 08	675	1.6+	1.0+	1995 07 25	691	0.7-	0.1-	1997 10 29	566	0.5-	0.2+
1992 10 22	675	0.5+	1.0-	1995 07 25	691	0.8-	0.2+	1997 10 29	566	0.0	0.3+
1992 11 26	675	0.1+	1.5-	1997 09 25	557	0.4+	0.2+	1997 10 30	563	0.6-	0.1+
1992 11 26	675	0.6+	1.6-	1997 09 25	557	0.5+	0.3+	1997 10 30	563	0.4-	2.0+
1992 11 28	675	(0.4+	3.3-)	1997 09 26	557	0.5+	0.2+	1997 10 30	563	0.5-	0.2+
1992 11 28	675	1.5-	0.6-	1997 09 27	557	0.6+	0.2+				
1994 03 05	691	0.8+	0.4-	1997 10 28	563	1.0+	1.4+				

(8511)* 1991 PY₁₀ = 1977 RL₂₀ = 1982 SA₅ = 1982 VS

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

Id. T. B. Spahr (*MPC* 30655)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams				Q	
<i>M</i>	80.63799		(2000.0)		P				
<i>n</i>	0.21360938	ω	226.40426		+0.57984337			-0.81440836	
<i>a</i>	2.7715486	Ω	188.24917		+0.78580659			+0.56643672	
<i>e</i>	0.1517887	<i>i</i>	9.15109		+0.21515033			+0.12604945	
<i>P</i>	4.61	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>		2	

Residuals in seconds of arc

1977 09 09	095	0.5-	0.4+	1991 09 15	675	(0.9-	2.5-)	1998 03 20	704	(2.2+	1.2-)
1982 09 26	095	1.4+	0.9-	1991 09 16	675	1.1-	1.8-	1998 03 22	704	0.3-	0.2-
1982 11 15	688	1.1-	1.3+	1991 09 16	675	(0.0	2.2-)	1998 03 22	704	0.8-	0.1+
1982 11 15	688	(2.6+	5.8+)	1991 09 17	675	0.1-	1.1-	1998 03 22	704	0.8-	0.4-
1991 08 07	675	(1.5+	3.8-)	1991 09 17	675	0.1+	1.7-	1998 03 22	704	0.2-	0.0
1991 08 08	675	0.8+	1.6-	1991 09 17	675	1.5+	0.8+	1998 03 22	704	0.9-	0.7-
1991 08 09	675	(2.8+	2.1-)	1991 09 17	675	1.6+	0.9+	1998 03 26	704	0.4-	0.1+
1991 08 10	675	(1.2+	2.5-)	1998 02 26	566	0.2+	1.4-	1998 03 26	704	0.6-	1.7+
1991 09 14	691	0.8-	0.2+	1998 02 26	566	0.2-	1.9-	1998 03 26	704	0.1-	1.9+
1991 09 14	691	0.5-	0.0	1998 02 26	566	0.1+	1.6-	1998 03 26	566	0.2+	0.4-
1991 09 14	675	0.1+	0.3-	1998 03 20	704	0.1+	0.5-	1998 03 26	566	0.1-	0.4-
1991 09 14	691	0.4-	0.0	1998 03 20	704	0.1+	0.1+	1998 03 26	566	0.5+	0.4-
1991 09 14	675	0.9+	0.0	1998 03 20	704	0.3+	1.0-				
1991 09 15	675	0.6-	1.8-	1998 03 20	704	1.1+	1.0-				

(8512)* 1991 PC₁₁ = 1989 ES₁₀ = 1996 XT₃₂

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

Id. G. V. Williams (*MPC* 28846)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams				Q	
<i>M</i>	118.22161		(2000.0)		P				
<i>n</i>	0.22649018	ω	248.38397		+0.81814992			-0.57080893	
<i>a</i>	2.6654454	Ω	146.31091		+0.56289688			+0.77046083	
<i>e</i>	0.1622651	<i>i</i>	7.18108		+0.11737894			+0.28384375	
<i>P</i>	4.35	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>		2	

Residuals in seconds of arc

1989 03 05	033	0.5+	0.3+	1991 09 14	675	0.2-	0.3-	1997 12 04	910	1.9-	1.5-
1989 03 05	033	0.1-	0.1+	1991 09 16	095	1.1-	2.0+	1997 12 04	910	1.8-	1.1-
1991 08 05	675	0.0	1.5-	1991 09 16	095	0.4+	0.4+	1997 12 04	910	1.7-	1.0-
1991 08 07	675	0.8+	0.1+	1996 12 06	399	0.0	0.1+	1998 03 24	732	0.9+	0.6-

1991 08 07	675	0.1+	0.5+	1996 12 06	399	1.4-	1.1+	1998 03 24	732	0.7+	0.0
1991 08 08	675	0.4+	1.0-	1996 12 15	399	1.4+	1.2-	1998 03 24	732	0.6+	1.2+
1991 08 08	675	0.4-	1.2-	1996 12 15	399	0.1+	0.5+	1998 03 25	732	0.1+	0.4+
1991 09 14	675	0.1+	0.2-	1997 02 11	689	0.5+	0.9-	1998 03 25	732	0.2+	0.1+

(8513)* 1991 PK₁₁ = 1973 UY₂

Discovered 1991 Aug. 9 by H. E. Holt at Palomar.

Id. S. Nakano (*MPC* 21795)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Nakano				Q	
<i>M</i>	66.83838		(2000.0)		P				
<i>n</i>	0.21668919	ω	131.26956		+0.08661020			-0.99250664	
<i>a</i>	2.7452246	Ω	313.53948		+0.87480008			+0.11716424	
<i>e</i>	0.1784848	<i>i</i>	6.82882		+0.47667965			-0.03468594	
<i>P</i>	4.55	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>		1	

Residuals in seconds of arc

1973 10 27	095	0.9+	0.4-	1996 10 13	689	(24.2-	4.7-)	1998 03 24	426	0.1+	0.2-
1991 08 09	675	0.9+	0.3-	1996 12 07	127	0.4+	0.3+	1998 03 24	426	0.1-	0.2-
1991 08 10	675	0.5+	0.4-	1996 12 07	127	0.5+	0.2+	1998 03 24	426	0.2-	0.2-
1991 09 06	511	0.3+	1.9-	1996 12 09	801	0.2-	0.1+	1998 03 27	426	0.2+	0.2-
1991 09 07	511	0.4+	0.3-	1996 12 09	801	0.3-	0.4-	1998 03 27	426	0.4+	0.0
1991 09 08	511	0.3-	0.6+	1996 12 10	801	0.1+	0.3+	1998 03 27	426	0.2+	0.1+
1991 09 14	675	0.0	0.8-	1996 12 10	801	0.0	0.4+	1998 03 31	704	0.9+	0.4-
1991 09 14	675	0.1+	1.1-	1996 12 12	127	0.6+	0.6-	1998 03 31	704	0.6+	0.1-
1991 09 17	675	0.4-	0.7-	1996 12 12	127	0.5+	0.9-	1998 03 31	704	0.1+	0.7-
1991 09 17	675	0.2-	0.7-	1998 03 03	704	0.0	0.1-	1998 03 31	704	1.7-	2.1-
1993 01 21	877	1.4-	0.7+	1998 03 03	704	0.4-	0.6-	1998 04 01	704	0.4+	0.4-
1993 01 21	877	1.7-	1.3+	1998 03 03	704	0.0	1.5-	1998 04 01	704	0.1-	0.3+
1993 01 28	877	1.7+	0.3-	1998 03 03	704	0.9-	0.5-	1998 04 01	704	0.2+	0.1-
1993 01 28	877	0.3-	0.9-	1998 03 03	704	(2.5-	0.2-)	1998 04 01	704	0.1-	0.0
1993 03 20	801	0.2-	0.4-	1998 03 21	426	0.6-	0.3-	1998 04 01	704	0.5+	1.0+
1993 03 20	801	0.1-	0.6-	1998 03 21	426	0.9-	0.0				

(8514)* 1991 PK₁₅ = 1987 UE₂

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

Id. G. V. Williams (*MPC* 20025)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams				Q	
<i>M</i>	186.01322		(2000.0)		P				
<i>n</i>	0.23733176	ω	19.67949		+0.94419542			+0.32661595	
<i>a</i>	2.5836409	Ω	321.17418		-0.31058217			+0.83970800	
<i>e</i>	0.2313708	<i>i</i>	3.89855		-0.10969837			+0.43383465	
<i>P</i>	4.15	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>		2	

Residuals in seconds of arc

1954 11 23	675	0.6-	0.1-	1991 09 16	675	0.4+	0.0	1998 03 04	704	1.1-	1.6+
1954 11 23	675	1.2+	0.2-	1991 09 17	675	0.5+	0.7-	1998 03 04	704	(2.9-	0.2+)
1987 09 26	095	0.2-	1.0-	1991 09 17	675	1.1+	0.2-	1998 03 20	704	0.3-	0.7-
1987 10 25	054	0.6+	0.4-	1995 08 26	801	0.6+	0.3-	1998 03 20	704	1.5+	0.4-
1987 10 25	054	0.0	0.3-	1995 08 26	801	0.5+	0.3+	1998 03 20	704	0.0	0.3-
1991 08 07	675	0.4+	1.7-	1995 08 28	801	0.5+	0.0	1998 03 20	704	0.8+	1.6-
1991 08 07	675	0.5-	0.4-	1995 08 28	801	0.4+	0.1-	1998 03 20	704	1.2-	1.8-
1991 08 10	675	0.4+	1.6-	1995 09 28	801	0.2+	0.6+	1998 03 22	704	1.0+	0.1+
1991 08 13	071	0.6-	0.2-	1995 09 28	801	0.1-	0.1+	1998 03 22	704	0.3-	1.1-
1991 08 13	071	1.3-	0.3+	1995 09 29	801	0.7+	0.7-	1998 03 22	704	0.1-	0.2+
1991 09 09	691	0.4-	0.9+	1995 09 29	801	0.4+	0.0	1998 03 22	704	0.2-	0.8-
1991 09 09	691	0.7-	0.4+	1997 01 10	566	0.3+	0.7-	1998 03 22	704	0.8-	0.1-
1991 09 09	691	0.9-	0.7+	1997 01 10	566	0.6+	0.4-	1998 04 01	704	0.2-	0.0
1991 09 10	675	(1.7-	2.1-)	1997 01 10	566	0.6+	0.4-	1998 04 01	704	0.1-	0.1-
1991 09 16	675	0.2+	1.3-	1998 03 04	704	1.0-	0.3-	1998 04 01	704	0.9-	0.7-
1991 09 16	675	0.5+	0.0	1998 03 04	704	(3.5-	0.4-)	1998 04 01	704	(0.5+	2.4-)
1991 09 16	675	0.2+	0.3-	1998 03 04	704	1.8-	0.7+	1998 04 01	704	(2.4-	1.0+)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	200.67247		(2000.0)	P		Q	
<i>n</i>	0.23204136	ω	331.31348	+0.63946642	+0.76408553		
<i>a</i>	2.6227634	Ω	338.08705	-0.65459632	+0.48300051		
<i>e</i>	0.1609931	<i>i</i>	13.19403	-0.40321999	+0.42764917		
<i>P</i>	4.25	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1951 02 04	675	0.8+	0.4+	1991 09 05	511	0.5-	0.5-	1998 02 24	566	0.4+	0.6-
1951 02 04	675	0.1+	0.9+	1991 09 06	511	0.7-	0.9-	1998 02 24	566	0.3+	0.7-
1955 02 13	675	2.0+	2.0+	1991 09 07	413	1.4+	0.6-	1998 03 03	704	0.2+	0.4+
1955 02 13	675	(0.5+	2.7+)	1991 09 14	691	1.4-	0.7+	1998 03 03	704	0.5+	0.1+
1974 08 24	095	1.4-	2.1-	1991 09 14	691	1.3-	0.8+	1998 03 03	704	1.0+	0.0
1974 09 11	095	0.2-	1.9+	1991 09 14	691	1.0-	0.6+	1998 03 03	704	0.8+	0.6+
1987 09 22	095	0.2+	1.1-	1991 09 14	095	(3.2+	0.5-)	1998 03 03	704	1.1+	0.3-
1987 09 25	095	0.6+	0.1-	1991 09 15	675	0.7+	0.4-	1998 03 04	704	1.4-	0.6-
1987 09 26	095	0.3+	1.9-	1991 09 15	675	1.0+	0.4-	1998 03 04	704	1.4-	0.4-
1991 08 07	675	0.1+	0.4+	1991 09 17	675	1.1+	0.5-	1998 03 04	704	1.5-	0.5+
1991 08 08	675	0.5+	0.3-	1991 09 17	675	0.6+	0.1-	1998 03 04	704	(2.1-	0.5-)
1991 08 08	675	0.1+	0.1-	1992 12 24	801	1.0-	1.0-	1998 03 04	704	1.7-	0.1+
1991 08 08	675	0.4+	0.5-	1992 12 24	801	0.4-	1.3+	1998 03 24	566	0.9-	0.6-
1991 09 04	413	0.6+	1.4+	1992 12 28	801	0.4+	0.4-	1998 03 24	566	0.9-	0.6-
1991 09 04	095	(1.2-	2.3+)	1992 12 28	801	0.5+	0.5-	1998 03 24	566	0.8-	0.5-
1991 09 04	095	(1.1+	3.7-)	1994 04 05	675	0.3-	0.6-				
1991 09 05	413	0.2+	1.1+	1998 02 24	566	0.4+	0.8-				

(8516)* 1991 TW₁ = 1973 YL₁ = 1977 RD₁ = 1988 BF₁

Discovered 1991 Oct. 13 by T. Hioki and S. Hayakawa at Okutama.

Id. R. Nagata (*MPC* 19509)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	115.73602		(2000.0)	P		Q	
<i>n</i>	0.21533028	ω	347.11648	+0.77721566	-0.62409005		
<i>a</i>	2.7567623	Ω	51.79359	+0.58599565	+0.67140356		
<i>e</i>	0.1612983	<i>i</i>	5.86502	+0.22922679	+0.39966094		
<i>P</i>	4.58	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1973 12 20	095	0.8+	0.1+	1991 10 15	877	(2.9+	1.7+)	1998 02 25	566	0.3+	0.9-
1973 12 21	095	(1.0-	2.7+)	1991 11 03	877	1.1-	1.2+	1998 02 25	566	0.1-	0.8-
1977 09 07	095	1.3-	1.6+	1991 11 03	877	1.0+	0.5-	1998 03 20	704	0.9+	0.4+
1988 01 21	511	(3.8-	0.6-)	1991 11 05	877	0.4-	0.7-	1998 03 20	704	0.5+	0.7+
1988 01 21	511	2.2-	0.1+	1991 11 05	877	0.5-	1.4+	1998 03 20	704	1.2+	0.4+
1988 01 21	511	0.7+	0.1-	1994 05 03	691	0.5-	0.2-	1998 03 20	704	0.8+	0.2-
1991 09 12	675	0.4+	0.2-	1994 05 03	691	0.4-	0.2-	1998 03 20	704	0.5-	1.0-
1991 09 12	675	0.8+	1.0-	1994 05 03	691	0.3-	0.3-	1998 03 22	704	0.2+	0.7+
1991 09 14	675	0.5+	0.6-	1994 05 10	691	0.5-	0.2-	1998 03 22	704	0.8-	0.4+
1991 09 14	675	0.3+	0.7-	1994 05 10	691	0.5-	0.5-	1998 03 22	704	0.2+	0.6+
1991 10 13	877	0.2+	0.0	1994 05 10	691	0.6-	0.2-	1998 03 22	704	0.6-	0.2-
1991 10 13	877	0.4-	0.6-	1994 06 08	675	1.7+	0.1-	1998 03 22	704	0.3+	0.9+
1991 10 15	877	0.7+	0.4-	1998 02 25	566	0.3+	0.7-				

(8517)* 1992 BB₅ = 1979 WJ₄ = 1996 VV₇

Discovered 1992 Jan. 28 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 28585), G. V. Williams (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	69.01199		(2000.0)	P		Q	
<i>n</i>	0.17278335	ω	316.69841	+0.52112599	-0.84534799		
<i>a</i>	3.1925286	Ω	101.56742	+0.81213452	+0.44881344		
<i>e</i>	0.2016249	<i>i</i>	6.89047	+0.26242184	+0.28974692		
<i>P</i>	5.70	<i>H</i>	12.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1979 11 17	095	0.7+	0.1+	1996 11 07	400	0.1+	0.2+	1998 02 27	566	0.6-	0.6-
1988 05 10	675	1.1+	0.4+	1996 11 08	400	1.2+	0.1-	1998 02 27	566	0.5-	0.6-

1991 10 20	372	(0.3+	12.0+)	1996 11 08	400	0.7+	0.1+	1998 02 27	566	0.7-	0.6-
1992 01 28	399	0.5+	0.1+	1996 11 12	399	0.1-	0.0	1998 03 03	699	0.6+	0.3-
1992 01 28	399	(2.6-	1.6+)	1996 11 12	399	0.8-	0.3+	1998 03 03	699	0.8+	0.2-
1992 01 29	399	1.4+	1.2+	1996 12 06	399	0.8-	1.1-	1998 03 03	699	0.7+	0.3+
1992 02 05	399	1.3+	2.0+	1996 12 06	399	0.6+	0.1+	1998 03 24	704	1.0+	0.2+
1992 02 05	399	0.6-	1.7+	1997 01 10	691	0.3-	0.8-	1998 03 24	704	1.3+	0.7+
1992 02 08	399	(3.9-	0.4+)	1997 01 10	691	0.3-	1.0-	1998 03 24	704	0.0	0.8+
1992 02 08	399	(4.0-	1.4-)	1997 01 10	691	0.2-	0.7-	1998 03 24	704	1.4-	0.2+
1992 02 21	399	(2.3-	1.9-)	1998 02 20	138	0.2+	0.1-	1998 03 25	704	1.3+	0.3-
1992 02 21	399	2.1-	1.4-	1998 02 20	138	0.6-	0.2-	1998 03 25	704	0.4+	0.3+
1992 02 22	399	1.8-	0.1-	1998 02 20	138	0.8+	2.1+	1998 03 25	704	0.8+	1.3-
1993 01 25	691	1.0-	0.3-	1998 02 20	138	0.6-	0.2-	1998 03 25	704	(1.8+	2.5-)
1993 01 25	691	1.6-	0.0	1998 02 26	699	0.1-	0.7-	1998 03 25	704	0.8+	2.0-
1993 01 25	691	1.5-	0.5-	1998 02 26	699	0.3-	1.1+				
1996 11 07	400	0.1-	1.0+	1998 02 26	699	0.6-	1.2-				

(8518)* 1992 DM₆ = 1962 WJ₂ = 1989 TJ₁₇

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

Id. S. Nakano (*MPC* 26171)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	189.69836		(2000.0)	P		Q	
<i>n</i>	0.17894785	ω	234.99658	+0.98712098	+0.15602213		
<i>a</i>	3.1187823	Ω	116.00421	-0.13095478	+0.91498306		
<i>e</i>	0.1638533	<i>i</i>	2.25381	-0.09188586	+0.37210629		
<i>P</i>	5.51	<i>H</i>	12.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1962 11 30	760	1.5+	0.3+	1993 04 24	691	0.9-	0.5+	1998 03 20	704	1.0+	0.4-
1962 11 30	760	1.7-	0.1+	1993 04 24	691	1.6-	0.1+	1998 03 20	704	0.7+	0.6+
1989 09 30	675	1.2-	0.2-	1995 11 16	411	0.5+	0.4+	1998 03 20	704	1.2+	0.1-
1989 09 30	675	0.9-	0.3+	1995 11 16	411	0.4+	0.2+	1998 03 20	704	0.6-	1.2-
1989 10 09	809	0.3+	0.4+	1995 11 17	411	0.6+	0.4-	1998 03 22	704	0.1-	0.1+
1989 10 09	809	0.3+	0.4+	1995 11 17	411	1.2-	0.3+	1998 03 22	704	0.1-	0.5+
1989 10 09	809	0.5+	0.3+	1995 11 18	399	2.0-	1.4-	1998 03 22	704	1.4+	0.3-
1989 10 10	809	0.0	0.5+	1995 11 18	399	0.4+	0.7-	1998 03 22	704	0.4+	0.7-
1989 10 10	809	0.3+	0.5+	1995 11 25	399	0.6-	0.4-	1998 03 22	704	0.8+	0.2+
1989 10 10	809	0.6+	0.4+	1995 11 25	399	(2.5-	1.1+)	1998 03 31	704	(0.4+	4.1+)
1989 10 10	809	0.9+	0.3+	1998 02 24	557	1.1-	0.2-	1998 03 31	704	0.2+	0.8+
1992 02 29	809	0.3+	0.8+	1998 02 24	557	0.7-	0.3+	1998 03 31	704	0.1-	0.0
1992 03 03	809	0.3-	0.6+	1998 02 27	557	0.3-	0.9-	1998 03 31	704	0.3+	0.5-
1992 03 07	809	0.5+	0.3+	1998 02 27	557	0.0	0.4+				
1993 04 24	691	1.0-	0.4+	1998 03 20	704	0.8+	0.0				

(8519)* 1992 DB₁₀ = 1977 RN₁₃ = 1993 KT₂

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 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	215.94104		(2000.0)	P		Q	
<i>n</i>	0.16854430	ω	111.92941	+0.54544606	+0.83790508		
<i>a</i>	3.2458368	Ω	191.19188	-0.80211655	+0.51489620		
<i>e</i>	0.0735961	<i>i</i>	5.94153	-0.24310004	+0.18109934		
<i>P</i>	5.85	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1977 09 09	675	0.8+	0.2+	1993 06 13	691	0.2+	0.1+	1998 03 20	704	1.0+	0.9+
1977 09 10	675	0.6-	0.8-	1993 06 13	691	0.3+	0.2-	1998 03 20	704	1.3+	1.1-
1992 02 29	809	1.2-	0.4+	1998 03 02	910	0.7+	0.8-	1998 03 22	704	1.1-	0.8+
1992 03 03	809	0.3+	0.4+	1998 03 02	910	0.3+	0.7-	1998 03 22	704	0.8-	1.2+
1992 03 05	809	0.0	1.5+	1998 03 02	910	0.7+	0.5-	1998 03 22	704	0.4-	1.4+
1992 03 08	809	0.6+	0.8-	1998 03 02	910	0.3+	1.0-	1998 03 22	704	1.9-	0.8-
1992 04 07	809	0.8+	0.2-	1998 03 02	910	0.5+	0.6-	1998 03 26	704	1.0-	0.8+
1993 05 24	691	0.2-	0.4+	1998 03 02	910	0.6+	0.6-	1998 03 26	704	1.1-	0.3+
1993 05 24	691	0.3-	0.0	1998 03 20	704	0.6-	0.2+	1998 03 26	704	(4.9-	1.6+)

1998 APR. 11

M.P.C. 31501

1993 05 24 691 0.2- 0.1- 1998 03 20 704 (2.4+ 0.4+)
 1993 06 13 691 0.2+ 0.2- 1998 03 20 704 0.8+ 1.5-

(8520)* 1992 EC₁₂ = 1995 WC₄₂

Discovered 1992 Mar. 6 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. T. Kobayashi (*MPC* 26563)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M		(2000.0)		P		Q	
<i>n</i>	0.17224699	ω	146.51299	+0.63770176	+0.76774991		
<i>a</i>	3.1991525	Ω	162.83419	-0.74498289	+0.63532657		
<i>e</i>	0.0530668	<i>i</i>	12.21039	-0.19579826	+0.08318790		
<i>P</i>	5.72	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1989 11 06	675	1.0+	1.0-	1995 11 26	327	0.1-	0.1+	1998 03 24	704	0.0	0.2+
1989 11 06	675	0.8+	1.4+	1995 11 26	327	0.0	0.1+	1998 03 24	704	0.1+	0.6+
1992 03 02	809	(3.7-	2.5-)	1995 11 29	327	0.3-	0.5-	1998 03 24	704	0.0	0.3-
1992 03 06	809	0.4-	1.7+	1995 11 29	327	0.3-	0.3-	1998 03 24	704	0.3-	0.8+
1992 03 08	809	0.4-	0.0	1995 11 29	327	0.0	0.0	1998 03 24	704	0.3+	0.8+
1992 03 09	809	0.3-	0.4-	1998 02 24	557	0.3+	1.2-	1998 03 24	704	0.9+	0.2+
1992 04 06	809	0.6-	0.1+	1998 02 24	557	0.6+	0.5-	1998 03 24	704	0.6-	0.1-
1994 09 02	691	0.6-	0.7+	1998 02 27	557	0.0	0.8-	1998 03 24	704	0.1-	1.4+
1994 09 02	691	0.3-	0.6+	1998 02 27	557	0.3+	0.6-	1998 03 25	566	0.5+	0.2-
1994 09 02	691	0.3-	0.9+	1998 03 02	691	0.7-	0.2+	1998 03 25	566	0.1+	0.1+
1995 11 25	327	0.5-	1.1+	1998 03 02	691	0.8-	0.0	1998 03 25	566	0.8+	0.1+
1995 11 25	327	0.1+	0.4+	1998 03 02	691	0.8-	0.2+	1998 03 25	566	0.5+	0.3+
1995 11 25	327	0.3-	0.5+	1998 03 24	704	0.3+	0.3-	1998 03 25	566	0.7+	0.5+
1995 11 26	327	0.0	0.2+	1998 03 24	704	0.2-	0.2+	1998 03 25	566	0.5+	0.1-

(8521)* 1992 GF₄ = 1960 WE₁ = 1993 UM

Discovered 1992 Apr. 4 by E. W. Elst at the European Southern Observatory.

Id. S. Nakano (*MPC* 22815)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M		(2000.0)		P		Q	
<i>n</i>	0.29742899	ω	338.87461	+0.95593210	-0.28508263		
<i>a</i>	2.2226983	Ω	37.91334	+0.28307075	+0.83160137		
<i>e</i>	0.1812346	<i>i</i>	6.55585	+0.07787665	+0.47662046		
<i>P</i>	3.31	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1960 11 24	033	0.2+	0.5-	1993 10 13	675	1.9+	0.6-	1998 01 28	566	0.3+	0.0
1992 04 04	809	0.2+	1.8+	1993 10 13	675	0.3+	0.3-	1998 01 28	566	0.5+	0.2-
1992 04 04	809	0.4+	2.1+	1993 10 14	675	0.4-	0.8-	1998 01 28	566	0.2+	0.1+
1992 04 04	809	0.9+	1.1+	1993 10 14	675	0.9-	1.1-	1998 01 31	411	0.4-	1.5-
1992 04 06	809	0.8-	1.8+	1993 10 15	675	0.0	0.7-	1998 01 31	411	0.2-	0.2-
1992 04 06	809	1.3-	0.3+	1993 10 15	675	0.6+	0.1-	1998 03 03	699	0.4+	0.4-
1992 04 06	809	0.0	0.9-	1993 10 18	894	0.9-	0.3+	1998 03 03	699	0.2-	0.1+
1992 04 25	809	1.0+	1.7-	1993 10 18	894	0.9-	0.8-	1998 03 03	699	0.3+	0.0
1992 04 25	809	0.9+	0.4-	1993 10 19	364	0.6+	0.2+	1998 03 04	704	(2.4-	0.5-)
1992 04 25	809	0.6-	1.5-	1993 10 19	364	1.3+	0.7+	1998 03 04	704	1.9-	0.6+
1993 10 09	809	(2.9+	3.1+)	1993 10 23	894	1.3-	0.1+	1998 03 04	704	(3.1-	0.2-)
1993 10 09	809	(2.7+	2.5+)	1993 10 23	894	(0.8+	3.0-)	1998 03 04	704	(2.4-	2.0-)
1993 10 09	809	1.8+	2.0+	1993 10 24	894	(2.3-	0.3+)	1998 03 26	566	0.3+	0.4+
1993 10 10	364	1.0-	0.7-	1993 10 24	894	1.4-	1.5+	1998 03 26	566	0.3+	0.5+
1993 10 10	364	0.2-	0.0	1993 11 15	565	0.0	0.2-	1998 03 26	566	0.1-	0.3+
1993 10 11	809	(1.9+	2.7+)	1993 11 15	565	1.1-	0.4-	1998 03 27	566	0.2+	0.5+
1993 10 11	809	(1.5+	2.4+)	1998 01 25	566	0.2+	0.1-	1998 03 27	566	0.2+	0.3+
1993 10 11	809	1.1+	1.4+	1998 01 25	566	0.2+	0.1-	1998 03 27	566	0.4+	0.6+
1993 10 12	095	0.8-	1.8+	1998 01 25	566	0.2-	0.2-				

(8522)* 1992 ML = 1972 RC₁ = 1979 SB₈ = 1996 RK

Discovered 1992 June 25 by G. J. Leonard at Palomar.

Id. P. Sicoli (*MPC* 27913), G. V. Williams (*ibid.*, *MPC* 31382)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M		(2000.0)		P		Q	
<i>n</i>	0.28934777	ω	345.37307	+0.75652343	+0.65381595		
<i>a</i>	2.2638933	Ω	333.78066	-0.59676634	+0.68141565		
<i>e</i>	0.1527240	<i>i</i>	1.82053	-0.26747381	+0.32893375		
<i>P</i>	3.41	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1972 09 10	095	0.8+	1.9-	1996 09 08	587	0.4-	0.3-	1998 02 24	691	0.1-	0.1-
1979 09 23	095	0.2+	0.4-	1996 09 10	587	0.6-	0.3-	1998 03 01	691	0.6-	0.3-
1992 06 06	675	0.1+	0.2+	1996 09 10	587	0.2-	0.0	1998 03 01	691	0.7-	0.3-
1992 06 06	675	0.4-	0.1-	1996 09 12	587	0.1-	0.5-	1998 03 01	691	0.4-	0.3-
1992 06 25	675	0.2-	0.4-	1996 09 12	587	0.2-	0.3-	1998 03 01	691	0.2-	0.4-
1992 06 25	675	(4.2-	2.5+)	1996 09 15	587	0.1-	0.9-	1998 03 01	691	0.1+	1.0-
1992 06 27	675	0.2+	1.6-	1996 09 15	587	0.2-	0.7-	1998 03 01	691	0.2-	0.6-
1992 06 27	675	0.4-	0.2-	1998 01 29	566	0.7+	0.4-	1998 03 21	691	1.2-	0.6-
1996 09 07	587	1.6+	1.2+	1998 01 29	566	0.6+	0.4-	1998 03 21	691	0.9-	0.2-
1996 09 07	587	(2.5+	1.5+)	1998 01 29	566	1.3+	0.4-	1998 03 21	691	1.0-	0.1-
1996 09 07	587	1.0+	0.5+	1998 02 24	691	0.2+	0.0				
1996 09 08	587	0.1-	0.2-	1998 02 24	691	0.2+	0.0				

(8523)* 1992 PX = 1980 FU₃

Discovered 1992 Aug. 8 by E. W. Elst at Caussols.

Id. T. Kobayashi (*MPC* 24107)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M		(2000.0)		P		Q	
<i>n</i>	0.27343627	ω	210.37112	+0.97788072	-0.20765942		
<i>a</i>	2.3508882	Ω	161.56395	+0.20427909	+0.92246178		
<i>e</i>	0.1278006	<i>i</i>	4.54088	+0.04493725	+0.32548707		
<i>P</i>	3.60	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1980 03 16	809	0.3-	0.4+	1992 07 30	809	0.3-	1.1-	1998 01 08	910	1.0-	0.1-
1980 03 16	809	0.1+	0.3-	1992 07 30	809	0.4-	0.9-	1998 01 08	910	1.4-	0.2-
1980 03 16	809	0.3+	0.1+	1992 08 08	010	0.1-	0.0	1998 03 20	704	0.0	1.4+
1980 03 16	809	0.9+	0.2-	1992 08 08	010	1.8-	0.2+	1998 03 20	704	0.6+	0.6+
1980 03 17	809	0.2-	0.2-	1992 08 08	010	1.7-	0.5-	1998 03 20	704	0.9+	1.7-
1980 03 17	809	0.1-	0.2-	1992 08 09	010	1.5-	1.4-	1998 03 20	704	0.3-	0.9+
1980 03 17	809	0.6-	0.5+	1992 08 09	010	(2.5-	1.5-)	1998 03 20	704	1.0-	0.3+
1980 03 17	809	0.1-	0.2-	1992 08 09	010	(2.3-	1.4-)	1998 03 22	704	(0.4+	3.3-)
1992 06 28	675	1.2+	0.5-	1996 11 06	399	0.4-	0.1+	1998 03 22	704	0.5+	0.2-
1992 07 24	809	0.8+	0.9+	1996 11 06	399	2.0-	0.6+	1998 03 22	704	0.3+	0.5+
1992 07 24	809	0.9+	1.0+	1996 11 15	399	(1.3-	2.4-)	1998 03 22	704	1.7-	1.6+
1992 07 24	809	1.2+	0.6-	1996 11 15	399	0.1+	0.8+	1998 03 22	704	0.6-	0.2-
1992 07 26	809	1.6+	1.2+	1996 12 25	327	0.8+	1.3-	1998 03 26	704	2.4+	0.9-
1992 07 26	809	0.6+	1.2+	1996 12 25	327	1.1+	1.3-	1998 03 26	704	0.3+	0.2+
1992 07 26	809	0.1+	1.2+	1996 12 25	327	1.4+	0.7+	1998 03 26	704	0.6+	0.8+
1992 07 30	809	0.2+	1.7-	1998 01 08	910	1.3-	0.3-				

(8524)* 1992 RJ₃ = 1991 EK₈ = 1991 GS₁₁

Discovered 1992 Sept. 2 by E. W. Elst at the European Southern Observatory.

Id. C. S. Shoemaker (*MPC* 25427), G. V. Williams (d, *ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M		(2000.0)		P		Q	
<i>n</i>	0.27028493	ω	270.66986	-0.25572465	+0.96615980		
<i>a</i>	2.3691260	Ω	344.38755	-0.82957188	-0.23723887		
<i>e</i>	0.1076245	<i>i</i>	7.20756	-0.49640246	-0.10125692		
<i>P</i>	3.65	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1991 03 09	675	(0.3-	2.3-)	1992 09 22	809	1.8+	1.0-	1996 11 05	691	0.3-	0.6+
1991 03 09	675	0.3-	1.4-	1992 09 22	809	1.4+	1.2-	1996 11 05	691	0.7-	0.6+
1991 04 11	033	0.7+	0.4-	1992 09 22	809	0.7+	1.8-	1998 01 26	566	0.9-	0.8-
1991 04 11	033	0.8-	0.1-	1992 09 23	809	(2.4+	1.7-)	1998 01 26	566	0.8-	0.6-

1991 04 15	675	0.4-	0.5-	1992 09 23	809	(2.3+	1.1-)	1998 01 26	566	1.2-	1.0-
1991 04 15	675	0.6-	0.1+	1992 09 23	809	1.0+	1.8-	1998 03 24	557	0.7+	0.7-
1992 09 02	809	0.1-	0.4+	1996 10 12	566	0.2+	0.2+	1998 03 24	557	0.6-	0.7-
1992 09 02	809	0.0	0.3+	1996 10 12	566	0.2+	0.2+	1998 03 31	557	1.0+	0.4-
1992 09 02	809	0.7-	0.9-	1996 10 12	566	0.2+	0.2+	1998 03 31	557	0.4+	0.1+
1992 09 03	809	0.1-	1.0-	1996 11 05	691	0.9-	0.7+				

(8525)* 1992 RZ₅ = 1994 AC₂

Discovered 1992 Sept. 2 by E. W. Elst at the European Southern Observatory.

Id. S. Nakano (*MPC* 22957)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26440668	ω	77.30601	-0.94118993	-0.33369014		
<i>a</i>	2.4041105	Ω	83.18216	+0.28556286	-0.86949605		
<i>e</i>	0.1659534	<i>i</i>	3.06161	+0.18059726	-0.36418061		
<i>P</i>	3.73	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1992 09 02	809	0.1+	0.0	1996 10 05	816	0.1-	0.6+	1998 03 03	699	0.2-	0.6+
1992 09 02	809	1.6-	0.8-	1996 10 05	816	0.3-	0.8+	1998 03 03	699	0.2+	0.0
1992 09 02	809	1.3-	1.4-	1996 10 05	816	0.4-	0.8+	1998 03 24	704	0.7-	0.0
1992 09 03	809	1.1-	0.8-	1998 01 26	691	1.4-	0.4-	1998 03 24	704	0.3-	0.5+
1992 09 22	809	0.7+	0.1-	1998 01 26	691	1.1-	0.1-	1998 03 24	704	0.0	0.0
1992 09 22	809	0.6+	0.7-	1998 01 26	691	1.3-	0.3-	1998 03 24	704	0.1-	1.3-
1992 09 22	809	0.7+	0.5-	1998 02 24	566	1.1+	1.3-	1998 03 24	566	0.3-	0.4-
1992 09 23	809	1.8+	0.9+	1998 02 24	566	0.8+	1.2-	1998 03 24	566	0.1-	0.2-
1992 09 23	809	0.1+	0.0	1998 02 24	566	1.0+	1.0-	1998 03 24	566	0.0	0.3-
1992 09 23	809	1.0+	0.4+	1998 03 01	809	1.3+	1.0+	1998 03 25	704	0.0	0.4+
1994 01 08	675	0.2-	0.3+	1998 03 01	809	0.5+	1.7+	1998 03 25	704	0.1+	0.5+
1994 01 08	675	0.6-	1.0-	1998 03 01	809	0.3+	1.0+	1998 03 25	704	0.5-	1.1-
1994 01 09	896	0.0	0.8+	1998 03 02	809	(2.1+	2.5+)	1998 03 25	704	0.7-	0.4-
1994 01 09	896	1.5+	0.8-	1998 03 02	809	(2.3+	1.8+)	1998 03 25	704	0.2+	0.8+
1994 01 11	896	0.4-	0.1+	1998 03 02	809	(1.4+	2.3+)				
1994 01 11	896	0.3-	0.0	1998 03 03	699	0.2+	0.8+				

(8526)* 1992 SM₁₂ = 1987 GT = 1988 QN₁

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

Id. E. Bowell (*MPC* 28848), S. Nakano (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26749797	ω	151.02282	+0.51461646	+0.85569246		
<i>a</i>	2.3855529	Ω	149.85336	-0.80607022	+0.50445177		
<i>e</i>	0.1383961	<i>i</i>	6.21951	-0.29226821	+0.11540727		
<i>P</i>	3.68	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1987 04 01	675	0.9-	0.1+	1992 10 26	400	0.1-	0.1+	1998 03 03	704	0.4+	1.3+
1987 04 01	675	0.1-	1.2-	1992 10 26	400	0.3-	0.4-	1998 03 03	704	0.4+	0.9+
1987 04 03	675(10.5-	0.1-)		1996 12 12	691	0.0	0.1-	1998 03 03	704	0.3+	0.1+
1987 04 03	675(11.6-	0.1+)		1996 12 12	691	0.2-	0.2+	1998 03 03	704	0.0	0.1-
1988 08 16	675	0.8-	0.8+	1996 12 12	691	0.2-	0.6+	1998 03 04	704	1.6-	0.1+
1988 08 16	675	1.5-	0.9+	1998 01 28	566	0.3-	0.5-	1998 03 04	704	1.8-	0.2+
1988 09 10	675	0.6+	1.0-	1998 01 28	566	0.3+	0.7-	1998 03 04	704	(1.3-	2.3+)
1991 04 19	675	1.1+	1.7-	1998 01 28	566	0.1-	0.2-	1998 03 04	704	0.8-	0.4+
1991 04 19	675	0.6+	1.1-	1998 02 06	809	(2.5+	1.3+)	1998 03 04	704	1.9-	0.0
1992 09 23	400	0.9+	0.2+	1998 02 06	809	2.1+	1.8+	1998 03 20	704	0.7+	0.5-
1992 09 23	400	1.9+	0.7-	1998 02 06	809	0.2+	0.1+	1998 03 20	704	0.7+	0.4-
1992 10 01	400	0.5+	0.5-	1998 02 07	809	(2.9+	1.3-)	1998 03 20	704	0.3+	0.6+
1992 10 01	400	1.6+	1.0+	1998 02 07	809	(2.6+	0.1+)	1998 03 20	704	0.4-	0.8-
1992 10 19	400	1.9-	1.1-	1998 02 07	809	(2.7+	0.9-)	1998 03 20	704	0.1+	0.5-
1992 10 19	400	0.1+	1.2-	1998 03 03	704	0.1+	0.1+				

(8527)* 1992 SV₁₂ = 1975 TV₁ = 1991 FC₂

Discovered 1992 Sept. 28 by K. Endate and K. Watanabe at Kitami.

Id. S. Nakano (*MPC* 21118)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29008437	ω	285.36907	+0.37147646	+0.92832735		
<i>a</i>	2.2600593	Ω	6.49406	-0.79456495	+0.32601419		
<i>e</i>	0.1825588	<i>i</i>	7.42406	-0.48028302	+0.17867030		
<i>P</i>	3.40	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1955 10 23	675	0.0	0.3+	1992 09 30	400	0.3-	1.0+	1998 03 25	704	0.1-	0.1+
1975 10 03	095	0.6+	0.9-	1992 09 30	400	0.8-	0.7-	1998 03 25	704	0.9+	0.3-
1988 05 15	675	0.9+	0.1+	1992 10 20	372	0.3+	0.8-	1998 03 25	704	0.4+	0.0
1988 05 15	675	0.3-	0.3-	1992 10 21	372	1.9-	1.6+	1998 03 25	704	0.6+	0.1-
1991 03 20	809	0.7-	0.2+	1996 12 30	689	1.9+	0.3-	1998 03 25	704	0.9-	0.0
1991 03 20	809	0.1-	0.3+	1997 12 04	910	1.7-	0.6-	1998 03 25	566	0.0	0.1+
1991 03 20	809	0.4+	0.3+	1997 12 04	910	1.8-	0.7-	1998 03 25	566	0.1+	0.1+
1991 03 21	809	0.0	0.9+	1997 12 04	910	1.8-	0.5-	1998 03 25	566	0.0	0.1+
1991 03 21	809	0.5+	1.1+	1998 03 20	704	0.7-	0.0	1998 04 01	704	0.6+	0.9+
1991 03 21	809	0.7+	1.1+	1998 03 20	704	0.3-	0.8-	1998 04 01	704	0.8+	0.6+
1991 03 24	809	(8.3-	20.2+)	1998 03 20	704	0.2+	0.8-	1998 04 01	704	0.3-	0.1+
1991 03 24	809	(7.7-	20.4+)	1998 03 20	704	0.6-	0.1-	1998 04 01	704	0.3+	0.2+
1991 03 24	809	(7.2-	20.8+)	1998 03 20	704	0.4-	0.2+	1998 04 01	704	0.0	0.3+
1991 03 24	809	(7.9-	21.6+)	1998 03 22	704	0.1+	0.9-	1998 04 02	423	0.7+	0.1-
1991 03 24	809	(7.8-	21.9+)	1998 03 22	704	0.0	0.3+	1998 04 02	423	0.5+	0.1-
1991 03 24	809	(7.6-	22.5+)	1998 03 22	704	0.5-	0.9+	1998 04 03	423	0.7+	0.3+
1992 09 28	400	0.1-	1.9+	1998 03 22	704	0.3+	1.0+	1998 04 03	423	1.3+	0.1-
1992 09 28	400	1.0-	1.5+	1998 03 22	704	0.5-	0.5+				

(8528)* 1992 SC₂₄ = 1981 UJ₁₃ = 1985 XQ

Discovered 1992 Sept. 29 by H. E. Holt at Palomar.

Id. T. Kobayashi (*MPC* 24108)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26771340	ω	168.19428	+0.70105219	-0.70747823		
<i>a</i>	2.3842730	Ω	237.21575	+0.64530232	+0.68276334		
<i>e</i>	0.1212990	<i>i</i>	6.10733	+0.30349753	+0.18250690		
<i>P</i>	3.68	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1981 10 23	095	1.8-	0.8-	1992 10 04	675	0.5+	0.2-	1998 03 25	704	0.0	0.1+
1985 12 13	010	0.4+	0.6+	1994 02 15	675	0.6-	0.2+	1998 03 25	704	0.3-	0.3+
1985 12 17	010	(5.8-	2.6-)	1994 02 15	675	1.7-	0.0	1998 03 25	704	0.0	0.2-
1985 12 17	010	2.3+	0.0	1996 12 01	689	0.2+	0.7+	1998 03 31	704	1.9+	0.7+
1988 08 13	675	0.1-	0.1+	1997 01 09	689	0.5-	0.1+	1998 03 31	704	0.6+	0.4-
1988 08 13	675	0.5+	0.4+	1997 01 10	689	0.9-	1.3-	1998 03 31	704	0.8+	0.2-
1992 09 04	095	1.3-	0.5-	1998 03 08	696	0.9-	0.2+	1998 03 31	704	0.6+	0.5-
1992 09 28	095	0.9-	0.1-	1998 03 08	696	0.8-	0.3+	1998 03 31	704	1.4-	0.7-
1992 09 29	675	0.1-	0.4-	1998 03 08	696	0.5-	0.5+	1998 04 01	704	0.5+	0.2-
1992 09 30	675	1.1+	0.2+	1998 03 25	704	0.0	0.1+	1998 04 01	704	0.5-	0.4-
1992 09 30	675	(4.8-	1.5-)	1998 03 25	699	0.9+	0.6+	1998 04 01	704	0.1-	1.0-
1992 10 03	675	0.7+	0.1-	1998 03 25	699	0.7-	0.4+	1998 04 01	704	0.3+	1.3-
1992 10 03	675	0.6+	0.0	1998 03 25	704	0.6-	0.8+	1998 04 01	704	1.0+	1.3-
1992 10 04	675	0.3+	0.5-	1998 03 25	699	0.1-	0.8+				

(8529)* 1992 UH₂ = 1991 LN₂

Discovered 1992 Oct. 19 by K. Endate and K. Watanabe at Kitami.

Id. S. Nakano (*MPC* 21273)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Nakano

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25838294	ω	168.19880	+0.85110480	-0.52070051		
<i>a</i>	2.4413319	Ω	223.39596	+0.47339057	+0.81635835		
<i>e</i>	0.1449190	<i>i</i>	5.59802	+0.22698454	+0.24986000		

Residuals in seconds of arc

1991 06 06	809	0.1−	0.7−	1995 06 20	104	0.5−	0.7−	1998 03 20	704	1.1−	0.1−
1991 06 06	809	1.7−	0.2+	1995 06 20	104	0.1+	0.3−	1998 03 20	704	0.2+	0.8+
1991 06 06	809	1.2−	0.9+	1995 06 20	104	0.8+	0.1+	1998 03 20	704	(2.9−	0.1−)
1991 06 08	809	0.3+	1.6−	1996 12 29	732	0.9−	0.2−	1998 03 22	704	0.6+	1.1−
1991 06 08	809	0.3+	0.4−	1996 12 29	732	0.4−	0.2−	1998 03 22	704	0.8+	1.8−
1991 06 08	809	1.2+	1.3−	1996 12 29	732	0.5−	0.3−	1998 03 22	704	0.2−	1.6−
1992 10 19	400	1.0+	1.1+	1996 12 30	732	0.3−	0.6−	1998 03 22	704	(3.9+	0.8−)
1992 10 19	400	1.1+	0.3+	1996 12 30	732	0.9+	0.6−	1998 04 01	704	0.2+	0.2−
1992 10 26	400	0.2+	0.1+	1998 03 03	704	0.2+	0.1−	1998 04 01	704	0.6−	1.1+
1992 10 26	400	1.7−	1.8−	1998 03 03	704	0.8+	1.6+	1998 04 01	704	0.5+	0.5+
1992 11 15	400	1.6+	1.1−	1998 03 03	704	0.9−	0.6−	1998 04 01	704	1.0+	1.0+
1992 11 15	400	0.5−	1.1−	1998 03 03	704	0.2−	1.2−	1998 04 01	704	0.2−	0.0
1994 04 05	675	0.6+	0.2−	1998 03 20	704	0.2−	0.6−				
1994 04 05	675	0.4−	1.1+	1998 03 20	704	0.6−	0.8−				

(8530)* 1992 UK₅ = 1974 QC₂ = 1978 VC₁₀

Discovered 1992 Oct. 25 by M. Hirasawa and S. Suzuki at Nyukasa.

Id. G. V. Williams (*MPC* 21592)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams			
<i>M</i>	234.73625		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.27800424	<i>ω</i>	250.47749	+0.55446013	+0.82907432		
<i>a</i>	2.3250650	<i>Ω</i>	53.40726	−0.72586676	+0.52420844		
<i>e</i>	0.2604121	<i>i</i>	5.15774	−0.40705209	+0.19452836		
<i>P</i>	3.55	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1974 08 26	095	1.2+	1.5−	1992 10 27	408	1.3+	0.2+	1998 02 25	566	0.3−	0.6−
1978 11 05	675	0.1−	0.4−	1992 10 27	408	0.0	0.4+	1998 02 25	566	0.4−	0.5−
1978 11 06	675	0.1+	0.8+	1992 11 18	408	0.7−	0.0	1998 02 25	566	0.3−	0.8−
1978 11 07	675	1.1−	0.3+	1992 11 18	408	0.4+	0.0	1998 03 24	704	0.9−	0.5−
1978 11 08	675	(3.1+	0.5−)	1992 11 26	691	1.4−	0.3+	1998 03 24	704	0.1−	0.0
1992 10 25	675	0.0	0.3+	1992 11 26	691	1.2−	0.2+	1998 03 24	704	0.0	0.5−
1992 10 25	675	0.8+	0.2+	1992 11 26	691	1.2−	0.0	1998 03 24	704	0.1+	0.4−
1992 10 25	408	0.4−	1.3−	1992 11 27	675	0.9−	1.2−	1998 03 25	566	0.0	0.1−
1992 10 25	408	1.4+	0.6+	1992 11 27	675	0.2+	0.8−	1998 03 25	566	0.1−	0.1−
1992 10 26	408	1.5+	1.3−	1994 01 19	411	1.1+	1.5+	1998 03 25	566	0.3−	0.2−
1992 10 26	408	1.0+	0.0	1994 01 19	411	0.2+	0.7−				

(8531)* 1992 WX₂ = 1958 XD₁ = 1979 TN₂ = 1979 WX = 1991 PZ₉

Discovered 1992 Nov. 16 by K. Endate and K. Watanabe at Kitami.

Id. K. Ichikawa (*MPC* 21594), S. Nakano (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Nakano			
<i>M</i>	7.87229		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.23113925	<i>ω</i>	283.71441	−0.63301509	−0.77374842		
<i>a</i>	2.6295832	<i>Ω</i>	205.60892	+0.73044087	−0.58645452		
<i>e</i>	0.1197559	<i>i</i>	3.26307	+0.25641380	−0.23955059		
<i>P</i>	4.26	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1958 12 05	330	0.9+	1.2−	1996 10 06	816	0.5−	0.3+	1998 03 03	758	0.2+	0.2+
1979 10 14	095	1.2−	1.6−	1996 10 06	816	0.5−	0.2+	1998 03 03	758	0.7−	0.8+
1979 11 16	095	1.1+	0.1+	1996 10 07	816	0.3+	0.0	1998 03 03	704	0.2+	0.4−
1991 08 06	809	0.9+	2.0−	1996 10 07	816	0.3+	0.0	1998 03 03	704	0.1−	0.5−
1991 08 06	809	0.4−	0.2+	1996 10 07	816	0.2+	0.0	1998 03 03	704	0.1−	0.2+
1991 08 06	809	(1.3−	2.4−)	1996 10 07	816	0.1+	0.1−	1998 03 03	704	0.5+	0.8−
1991 08 11	809	1.3+	0.4−	1996 10 07	684	0.0	0.0	1998 03 03	704	1.4−	0.4−
1991 08 11	809	1.5+	1.2−	1996 10 07	684	0.1+	0.0	1998 03 04	704	(2.6−	0.4−)
1991 08 11	809	0.8+	2.1−	1998 02 22	399	0.2−	0.4+	1998 03 04	704	(2.5−	0.2+)
1991 09 08	691	0.2+	0.7+	1998 02 22	399	1.7−	1.5+	1998 03 04	704	2.1−	0.1−
1991 09 08	691	0.9+	0.1+	1998 02 25	758	0.9+	0.1−	1998 03 04	704	(2.9−	0.1−)
1991 09 08	691	(2.2−	3.2+)	1998 02 25	758	0.1+	0.1−	1998 03 04	704	(3.1−	0.1−)
1992 10 25	675	1.2−	0.1+	1998 02 26	758	0.6+	0.1+	1998 03 05	327	0.2−	0.3−
1992 10 25	675	0.9−	0.3+	1998 02 26	758	1.0+	0.3+	1998 03 05	327	0.1−	0.3+
1992 11 16	400	1.2−	1.8−	1998 02 26	758	0.4+	0.2+	1998 03 05	327	0.3−	0.2+

1992 11 16	400	0.1+	1.4+	1998 02 26	699	1.0+	0.2+	1998 03 08	327	0.1−	0.1+
1992 11 17	400	0.1+	0.6+	1998 02 26	699	0.5+	0.3−	1998 03 08	327	0.2−	0.1−
1992 11 17	400	0.5+	0.1−	1998 02 26	699	0.6+	0.2+	1998 03 08	327	0.3−	0.1+
1992 11 19	675	0.6−	0.6+	1998 02 26	566	1.2+	0.0	1998 03 20	704	0.7+	0.5−
1992 11 19	675	0.1−	0.3+	1998 02 26	566	0.6−	2.2−	1998 03 20	704	0.3−	0.5−
1992 11 21	675	0.3−	0.0	1998 02 26	566	0.8+	0.2+	1998 03 20	704	0.3+	0.7−
1992 11 21	675	0.9+	1.3−	1998 02 26	566	0.2−	2.2−	1998 03 20	704	0.3−	0.7+
1992 11 27	400	0.4+	1.8−	1998 02 26	566	1.0+	0.0	1998 03 20	704	0.5−	0.6+
1992 11 27	400	0.0	0.4+	1998 02 26	566	(0.3−	2.5−)	1998 03 22	704	0.2−	0.2+
1994 04 06	691	1.5−	0.3+	1998 02 27	758	0.0	0.0	1998 03 22	704	0.4−	0.1−
1994 04 06	691	1.8−	0.2+	1998 02 27	758	0.2+	0.2+	1998 03 22	704	0.1−	0.2−
1994 04 06	691	1.8−	0.1+	1998 02 27	758	0.1+	0.0	1998 03 22	704	0.1+	0.2−
1994 04 07	691	1.2−	0.4+	1998 02 28	758	0.1+	0.1+	1998 03 22	704	0.9−	0.8+
1996 09 18	327	0.2+	0.3−	1998 02 28	758	0.6+	0.0	1998 03 22	327	0.0	0.2−
1996 09 18	327	0.4−	0.0	1998 02 28	758	0.7+	0.2+	1998 03 22	327	0.2+	0.3−
1996 09 18	327	0.2−	1.3−	1998 03 01	758	0.8+	1.0−	1998 03 22	327	0.0	0.2−
1996 10 05	816	0.0	0.2+	1998 03 01	758	0.7+	0.8−	1998 03 27	566	0.3+	0.6−
1996 10 05	816	0.2−	0.3+	1998 03 02	758	0.3+	0.6−	1998 03 27	566	0.1+	0.7−
1996 10 05	816	0.1−	0.2+	1998 03 02	758	0.2−	0.5−	1998 03 27	566	0.3+	0.6−
1996 10 06	816	0.5−	0.2+	1998 03 02	758	0.4+	0.1+				

(8532)* 1992 YW₃ = 1956 ES₁

Discovered 1992 Dec. 29 by Y. Kushida and O. Muramatsu at Yatsugatake

South Base Observatory.

Id. E. Bowell (*MPC* 23675)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams			
<i>M</i>	18.43905		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.21043544	<i>ω</i>	26.41081	−0.40178721	−0.89174900		
<i>a</i>	2.7993474	<i>Ω</i>	87.89093	+0.79899116	−0.45247282		
<i>e</i>	0.2118341	<i>i</i>	12.02565	+0.44741498	+0.00721578		
<i>P</i>	4.68	<i>H</i>	12.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1956 03 15	675	0.2+	0.1+	1993 03 27	801	0.4+	0.3−	1996 12 22	327	0.1−	0.2−
1956 03 15	675	0.2−	0.3+	1993 03 27	801	0.4+	0.4−	1996 12 22	327	0.3−	0.2−
1992 12 29	896	1.2−	0.6−	Y 1993 04 18	801	0.2−	0.7−	1997 12 21	327	0.3+	0.5+
1992 12 29	896	0.2−	0.1−	1993 04 26	801	0.8−	0.2−	1997 12 21	327	0.3+	0.6+
1992 12 30	896	1.0+	0.1−	Y 1993 04 26	801	0.3−	0.1+	1997 12 21	327	0.1+	0.5+
1992 12 30	896	1.4+	0.7−	1994 05 13	801	0.3−	0.5−	1998 02 24	566	0.1+	0.3+
1993 01 12	896	0.2−	0.3−	1994 05 13	801	0.5−	1.0−	1998 02 24	566	0.4−	0.2+
1993 01 12	896	0.2−	0.3−	1994 05 14	801	0.4−	0.5−	1998 02 24	566	0.1+	0.4+
1993 01 17	896	0.2+	0.8+	1994 05 14	801	0.1−	0.9−	1998 03 04	713	0.7+	0.6+
1993 01 17	896	0.6−	1.4−	1994 06 08	801	0.5+	1.2−	1998 03 04	713	0.7+	0.9+
1993 02 14	896	0.6+	2.1−	1994 06 08	801	0.2−	1.3−	1998 03 23	631	0.2−	0.8+
1993 02 14	896	0.2−	1.0−	1994 06 10	801	0.5−	0.2−	1998 03 23	631	0.1−	0.9+
1993 03 21	801	0.8+	0.2−	1994 06 10	801	0.1−	0.1−	1998 03 24	631	0.2+	0.2+
1993 03 21	801	0.4+	0.1−	1996 12 22	327	0.1−	0.3−	1998 03 24	631	0.1−	0.4+

(8533)* 1993 BM = 1979 BC₁ = 1982 VU₁

Discovered 1993 Jan. 20 by T. Urata at the Nihondaira Observatory.

Id. T. Kobayashi (*MPC* 22238)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M	6.56262		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.21458747	ω	187.27333	-0.89489660	-0.43868128
a	2.7631204	Ω	326.32101	+0.41653167	-0.75511621
e	0.0883568	i	8.50023	+0.16019189	-0.48719425
P	4.59	H	12.9	G	0.15
				U	2

1993 01 28	385	(4.2+ 3.2+)	1997 01 12	385	0.3+ 0.2-	1998 03 27	758	0.1+ 0.1-
1993 01 28	385	(3.9+ 0.3+)	1997 01 12	385	0.2+ 0.1-	1998 03 27	758	0.5- 0.6+
1993 02 14	385	0.6+ 0.0	1998 03 03	704	0.7+ 0.7+	1998 03 30	758	0.7+ 0.3+
1993 02 14	385	0.3+ 0.2-	1998 03 03	704	0.3+ 0.6+	1998 03 30	758	2.0+ 0.2+
1993 02 20	010	0.7+ 0.6+	1998 03 03	704	0.0 0.6+	1998 03 31	704	0.1- 0.2+
1993 02 20	010	0.3+ 0.9+	1998 03 03	704	0.5+ 1.6+	1998 03 31	704	0.2+ 0.1-
1993 02 20	010	0.7+ 0.3+	1998 03 03	704	0.1+ 1.6+	1998 03 31	704	0.1+ 1.1-
1993 02 24	411	0.6- 0.5+	1998 03 04	704	1.4- 1.1+	1998 03 31	704	1.0- 1.9-
1993 02 24	411	0.3- 0.7+	1998 03 04	704	1.6- 0.7+	1998 04 01	704	0.4+ 0.0
1993 02 24	411	0.5+ 0.4-	1998 03 04	704	1.7- 1.0+	1998 04 01	704	0.4+ 0.0
1996 11 14	385	0.4- 0.5+	1998 03 04	704	1.9- 0.8+	1998 04 01	704	0.5+ 0.8-
1996 11 14	385	1.0- 0.1+	1998 03 04	704	2.0- 0.7+	1998 04 01	704	0.8+ 0.9-
1996 11 14	385	0.7- 0.2+	1998 03 18	886	0.4+ 0.7+	1998 04 01	704	1.5+ 2.0-
1996 12 01	689	1.4+ 0.7-	1998 03 18	886	1.2+ 0.2-			

(8534)* 1993 FJ₁₀ = 1981 WT₈ = 1985 QS₅ = 1985 SG₁ = 1988 EQ

Discovered 1993 Mar. 17 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. G. V. Williams (*MPC* 23522), D. W. E. Green (d, *ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

		Williams	
<i>M</i>	85.74205	(2000.0)	
<i>n</i>	0.20135737	ω 16.27605	+0.10323764
<i>a</i>	2.8828654	Ω 67.81856	+0.90668152
<i>e</i>	0.0432840	<i>i</i> 2.98226	+0.40898729
<i>P</i>	4.89	<i>H</i> 12.7	<i>G</i> 0.15

Residuals in seconds of arc

1981 11 25	095	1.5+ 1.9+	1993 03 23	809	0.3+ 0.7+	1998 03 22	704	0.3+ 1.2+
1985 08 24	095	0.5+ 1.4+	1993 03 23	691	1.2- 0.7-	1998 03 22	704	0.1- 1.2-
1985 09 16	809	(5.6- 20.7+)	1993 03 23	691	0.9- 0.8-	1998 03 22	699	0.0 0.1-
1985 09 16	809	(5.9- 19.2+)	1993 03 23	691	0.9- 0.9-	1998 03 22	699	1.4+ 0.2-
1985 09 16	809	(6.0- 17.6+)	1993 04 16	413	(1.1+ 3.1-)	1998 03 22	699	1.2+ 0.7+
1985 09 21	809	0.4- 0.1-	1996 12 30	689	(3.6- 0.2+)	1998 03 25	704	0.4+ 0.3+
1985 09 21	809	0.4- 0.1+	1997 01 10	689	1.1- 0.7+	1998 03 25	704	0.5+ 0.2+
1985 09 21	809	0.3- 0.6+	1998 03 20	704	1.0+ 0.6+	1998 03 25	704	0.3- 0.5-
1985 09 22	809	0.9- 0.3+	1998 03 20	704	0.3+ 0.7+	1998 03 25	704	0.3+ 0.2+
1985 09 22	809	0.6- 0.5+	1998 03 20	704	0.6+ 0.6+	1998 03 25	704	0.0 0.2+
1985 09 22	809	0.3- 0.5+	1998 03 20	704	0.8- 0.3+	1998 03 27	423	0.3- 0.2-
1988 03 13	054	0.0 0.7+	1998 03 20	704	0.1+ 1.4+	1998 04 04	423	0.1+ 0.3+
1988 03 13	054	0.7- 0.3+	1998 03 22	704	0.3+ 0.5+	1998 04 04	423	0.5- 0.4-
1993 03 17	809	0.4- 0.6+	1998 03 22	704	0.0 0.3+	1998 04 04	423	0.3+ 0.6-
1993 03 18	809	0.0 0.3-	1998 03 22	704	0.9+ 0.1+			

(8535)* 1993 FH₂₂ = 1977 LD₁ = 1989 SD₉

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* 23524)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

		Williams	
<i>M</i>	212.07884	(2000.0)	
<i>n</i>	0.17604270	ω 107.47434	+0.56256743
<i>a</i>	3.1530005	Ω 196.76016	-0.76229845
<i>e</i>	0.1554527	<i>i</i> 0.57687	-0.32002963
<i>P</i>	5.60	<i>H</i> 12.8	<i>G</i> 0.15

Residuals in seconds of arc

1977 06 12	675	0.2- 1.2-	1993 03 27	809	0.3+ 0.5+	1998 03 03	704	1.1+ 0.1-
1977 06 13	675	0.1+ 0.6-	1993 04 16	413	0.4- 0.9+	1998 03 03	704	1.0- 0.4+
1989 09 24	809	0.2+ 0.3+	1995 12 07	327	1.0- 0.3+	1998 03 03	704	0.1- 0.4-
1989 09 24	809	0.5+ 0.1+	1995 12 07	327	(2.2+ 0.8+)	1998 03 20	704	0.2- 0.3+
1989 09 24	809	0.9+ 0.2+	1995 12 07	327	0.8+ 0.4+	1998 03 20	704	1.3+ 0.4+
1989 09 25	809	0.1- 0.7-	1998 02 06	809	0.8+ 1.2-	1998 03 20	704	0.1- 0.5+
1989 09 25	809	0.4+ 0.7-	1998 02 06	809	1.5- 1.3-	1998 03 20	704	0.1- 0.2+
1989 09 25	809	0.8+ 0.7-	1998 02 06	809	(1.1- 2.7-)	1998 03 20	704	0.4+ 0.9+
1989 09 27	675	0.7- 0.2-	1998 02 07	809	0.1- 1.8-	1998 03 24	557	0.3- 0.9-
1989 09 27	675	1.1- 0.1-	1998 02 07	809	(0.8+ 2.2-)	1998 03 24	557	0.1- 0.9-

1993 03 21	809	0.0 0.1-	1998 02 07	809	0.7- 0.6-	1998 03 31	557	0.3+ 0.2+
1993 03 22	809	0.9+ 0.6+	1998 03 03	704	0.4+ 1.1-	1998 03 31	557	0.3- 0.3+
1993 03 26	809	0.0 0.2+	1998 03 03	704	1.5- 1.1+			

(8536)* 1993 FK₂₃ = 1972 GM₁

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* 23524)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

		Williams	
<i>M</i>	253.74979	(2000.0)	
<i>n</i>	0.18846320	ω 270.26754	+0.08671394
<i>a</i>	3.0129020	Ω 4.75959	+0.84502796
<i>e</i>	0.0827963	<i>i</i> 8.50947	-0.52764424
<i>P</i>	5.23	<i>H</i> 12.8	<i>G</i> 0.15

Residuals in seconds of arc

1972 04 09	805	0.7- 0.6+	1998 03 02	809	0.3+ 0.8-	1998 03 24	704	0.0 0.3+
1972 04 09	805	0.5- 0.4-	1998 03 20	704	0.0 0.2+	1998 03 24	704	1.0+ 0.4+
1972 04 10	805	0.2- 0.2-	1998 03 20	704	0.6+ 0.2+	1998 03 24	704	0.7+ 0.7+
1972 04 10	805	1.3+ 0.3-	1998 03 20	704	0.1+ 0.1-	1998 03 24	704	0.5- 0.0
1993 03 21	809	0.2- 0.3-	1998 03 20	704	0.9+ 0.6-	1998 03 24	704	0.8+ 1.0+
1993 03 22	809	1.3+ 0.2-	1998 03 20	704	0.2+ 0.2-	1998 03 24	704	0.8+ 0.4+
1993 03 26	809	0.5- 0.2-	1998 03 22	704	0.2+ 0.3-	1998 03 24	704	0.1+ 0.3+
1993 03 27	809	0.0 0.2-	1998 03 22	704	0.1+ 0.1+	1998 03 24	704	1.2- 0.5-
1993 04 16	413	1.0- 0.1-	1998 03 22	704	0.2+ 0.4+	1998 03 24	704	0.1- 0.5+
1994 07 13	675	0.8- 0.5-	1998 03 22	704	0.8- 0.3+	1998 03 24	704	0.7+ 0.3-
1994 07 13	675	0.7+ 0.6+	1998 03 22	704	0.1- 0.4+	1998 03 24	704	0.4+ 0.7+
1998 02 21	691	0.6- 0.0	1998 03 24	704	0.0 0.1-	1998 03 24	704	0.2- 0.2+
1998 02 21	691	0.7- 0.0	1998 03 24	704	0.3+ 0.3-	1998 03 24	704	0.1- 0.2+
1998 02 21	691	0.6- 0.1-	1998 03 24	704	0.4+ 0.4-	1998 03 24	704	0.5- 1.4-
1998 03 02	809	1.2- 0.3-	1998 03 24	704	0.6+ 0.3+	1998 03 24	704	0.5- 0.7+
1998 03 02	809	0.3- 0.9-	1998 03 24	704	0.3- 0.0			

(8537)* 1993 FG₂₄ = 1977 FX₁ = 1988 HB₁ = 1995 SS₂₉

Discovered 1993 Mar. 21 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. S. Nakano (*MPC* 25960)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

		Nakano	
<i>M</i>	234.03225	(2000.0)	
<i>n</i>	0.18585755	ω 92.40127	+0.29178197
<i>a</i>	3.0409964	Ω 194.79260	-0.93174957
<i>e</i>	0.0978291	<i>i</i> 9.93308	-0.21611578
<i>P</i>	5.30	<i>H</i> 12.3	<i>G</i> 0.15

Residuals in seconds of arc

1953 10 10	675	0.4+ 0.3+	1995 09 29	114	0.6- 1.2-	1998 02 24	566	0.4+ 1.6-
1953 10 10	675	0.8- 0.5+	1995 10 01	114	0.7- 1.2-	1998 02 24	566	0.9+ 0.6-
1977 03 26	095	(2.7+ 0.1-)	1995 10 16	114	1.5- 0.4-	1998 02 24	566	0.3- 1.7-
1988 04 23	808	0.3+ 0.5-	1995 10 16	114	0.5+ 0.4+	1998 03 03	704	0.6+ 0.9+
1988 04 23	808	0.4+ 0.7-	1995 10 17	114	0.6+ 0.5-	1998 03 03	704	1.0+ 0.7+
1993 03 21	809	0.7+ 1.1+	1995 10 18	114	0.8+ 0.1+	1998 03 03	704	0.5+ 0.3-
1993 03 22	809	1.3+ 0.1-	1995 10 19	114	0.5+ 1.3-	1998 03 03	704	1.4- 1.2-
1993 03 26	809	1.2+ 1.9-	1995 10 19	114	0.5- 1.5-	1998 03 03	704	0.0 0.6-
1993 04 17	691	1.0- 0.2+	1995 10 21	399	0.6+ 1.5+	1998 03 04	704	1.5- 0.8+
1993 04 17	691	1.0- 0.2+	1995 10 21	399	0.1- 0.6+	1998 03 04	704	1.7- 1.2+
1993 04 17	691	0.9- 0.1+	1995 10 27	399	0.5- 1.9+	1998 03 04	704	1.4- 1.4+
1993 04 21	413	0.2- 0.3-	1995 10 27	399	1.1+ 0.8+	1998 03 04	704	1.8- 0.9+
1995 09 26	114	(0.7- 2.4-)	1996 12 01	689	2.0+ 0.1+	1998 03 04	704	1.9- 0.6+
1995 09 26	114	0.7- 0.3-	1998 02 24	566	1.0+ 0.4-	1998 03 26	704	0.7+ 0.2+
1995 09 26	114	0.5+ 1.3-	1998 02 24	566	0.1+ 2.0-	1998 03 26	704	0.6+ 0.7+
1995 09 28	114	0.1- 1.0-	1998 02 24	566	1.2+ 0.3-	1998 03 26	704	0.5+ 0.5+

(8538)* 1993 FR₂₆ = 1953 TW = 1977 DX₁₀ = 1979 QX₈ = 1979 SV₅
 = 1982 DL₂ = 1984 RM = 1998 DL₁₁

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* 31383)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

		Williams		P		Q	
<i>M</i>	217.21614	(2000.0)					
<i>n</i>	0.18810326	ω	316.70362	+0.60929555	+0.79251150		
<i>a</i>	3.0167444	Ω	350.72908	−0.67600177	+0.50190971		
<i>e</i>	0.0815312	<i>i</i>	9.34588	−0.41446415	+0.34642772		
<i>P</i>	5.24	<i>H</i>	11.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1953 10 07	760	1.4−	0.5+	1998 02 23	327	0.2+	0.2+	1998 03 22	704	0.4−	0.3+
1953 10 07	760	1.6−	1.0+	1998 02 25	566	0.2+	0.3−	1998 03 22	704	0.3+	1.1+
1977 02 19	381	0.7+	0.1−	1998 02 25	566	0.2−	0.2−	1998 03 22	704	0.3−	1.2+
1977 02 19	381	0.0	1.5−	1998 02 25	566	0.0	0.1−	1998 03 22	704	0.5−	1.6+
1979 08 20	095	0.3+	0.1−	1998 03 02	327	0.1−	0.1−	1998 03 22	704	0.3−	1.3+
1979 09 23	095	0.6−	0.1+	1998 03 02	327	0.1−	0.1−	1998 03 22	327	0.2+	0.3+
1982 02 21	046	(2.0+	5.6−)	1998 03 02	327	0.2−	0.0	1998 03 22	327	0.1+	0.4+
1982 02 21	046	1.5+	2.3−	1998 03 05	327	0.1−	0.0	1998 03 22	327	0.4+	0.5+
1984 09 01	808	1.1+	2.1+	1998 03 05	327	0.3−	0.0	1998 03 26	704	0.2−	0.5+
1984 09 01	808	(1.0+	3.4+)	1998 03 05	327	0.3−	0.0	1998 03 26	704	0.8+	0.7+
1993 03 21	809	0.3+	0.2−	1998 03 08	327	0.0	0.1+	1998 03 26	704	1.0+	0.0
1993 03 22	809	0.3+	0.1−	1998 03 08	327	0.2−	0.3+	1998 04 01	704	0.4+	0.0
1993 03 26	809	0.5−	0.1+	1998 03 08	327	0.3−	0.2+	1998 04 01	704	0.6+	1.4−
1998 02 22	566	0.4−	0.3+	1998 03 20	704	0.3−	0.1−	1998 04 01	704	0.5+	0.6−
1998 02 22	566	0.1−	0.2+	1998 03 20	704	0.1−	0.4+	1998 04 01	704	0.8+	0.8−
1998 02 22	566	0.0	0.2+	1998 03 20	704	0.2+	0.3+	1998 04 01	704	0.1−	0.6−
1998 02 23	327	0.2−	0.2+	1998 03 20	704	0.1−	0.7+				
1998 02 23	327	0.0	0.3+	1998 03 20	704	0.9−	0.5+				

(8539)* 1993 FT₃₂ = 1975 VL₁₀ = 1982 BX₁₀ = 1997 BZ₄

Discovered 1993 Mar. 19 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. T. Urata (*MPC* 29103)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

		Williams		P		Q	
<i>M</i>	144.02543	(2000.0)					
<i>n</i>	0.19549809	ω	292.53826	+0.92392210	−0.37863139		
<i>a</i>	2.9401831	Ω	89.74637	+0.36806632	+0.84059458		
<i>e</i>	0.0867024	<i>i</i>	3.14308	+0.10437974	+0.38734871		
<i>P</i>	5.04	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1975 11 06	095	1.8−	0.1+	1993 04 21	413	(2.6+ 0.0)	1997 12 04	910	0.6−	0.3−
1982 01 19	095	2.3+	1.0+	1997 01 30	369	(3.4− 0.4+)	1998 03 25	691	0.2−	0.3−
1990 09 28	675	1.7+	0.1−	1997 01 30	369	0.0 0.4+	1998 03 25	691	0.4−	0.1−
1993 03 19	809	0.2+	0.2+	1997 02 01	369	0.4− 0.2+	1998 03 25	691	0.3−	0.9+
1993 03 20	809	0.9+	0.4+	1997 02 01	369	0.6− 0.5−	1998 04 04	691	0.2+	0.1−
1993 03 24	809	0.1+	0.9+	1997 03 09	369	0.5− 0.9−	1998 04 04	691	0.3+	0.2−
1993 04 20	691	0.0 0.0		1997 03 09	369	0.2− 0.9−	1998 04 04	691	0.6+	0.3−
1993 04 20	691	0.2−	0.5−	1997 12 04	910	0.7− 0.4−				
1993 04 20	691	0.6−	0.0	1997 12 04	910	0.4− 0.3−				

(8540)* 1993 FK₈₀ = 1979 SG₁₄ = 1990 QS₁₀

Discovered 1993 Mar. 17 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. K. Kinoshita (*MPC* 25428)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

		(2000.0)		P		Q	
<i>M</i>	58.59902						
<i>n</i>	0.17783694	ω	16.96412	+0.56692274	−0.82218474		
<i>a</i>	3.1317570	Ω	38.54254	+0.74595874	+0.48606776		
<i>e</i>	0.2050086	<i>i</i>	4.70379	+0.34949130	+0.29622691		
<i>P</i>	5.54	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1979 09 20	675	0.5−	0.9+	1996 09 21	816	0.1+	0.0	1998 03 01	699	0.4+	1.5+
1979 09 21	675	0.2−	0.5+	1996 09 21	816	0.1−	0.1+	1998 03 01	699	0.4+	0.4−
1990 08 26	675	0.7+	0.4−	1996 09 21	816	0.1+	0.3+	1998 03 01	699	0.2−	0.8−
1990 08 26	675	0.1+	0.3−	1996 10 06	816	0.1−	0.0	1998 03 03	699	0.9+	0.2−
1990 09 16	675	0.4+	0.5−	1996 10 06	816	0.0	0.1−	1998 03 03	699	0.9+	0.4−
1990 09 16	675	0.2+	0.3−	1996 10 06	816	0.1−	0.1+	1998 03 03	699	1.4−	0.2−
1993 03 17	809	0.3+	0.8+	1996 10 06	816	0.1+	0.1−	1998 03 04	704	0.2−	1.1−
1993 03 18	809	0.6+	1.1+	1997 01 15	566	0.5−	0.6−	1998 03 04	704	0.4+	0.2+
1993 03 23	809	0.6−	0.9+	1997 01 15	566	0.2−	0.5−	1998 03 04	704	0.3−	0.0
1993 03 23	691	0.6−	0.7−	1997 01 15	566	0.3−	0.6−	1998 03 04	704	0.5+	0.5+
1993 03 23	691	0.3−	0.8−	1998 01 28	566	0.1−	0.1−	1998 03 04	704	0.0	0.0
1993 03 23	691	0.6−	0.9−	1998 01 28	566	0.1−	0.1+				
1996 09 21	816	0.2+	0.4+	1998 01 28	566	0.1+	0.3+				

(8541)* 1993 TZ₃₂ = 1954 PQ = 1990 WC₈ = 1995 GT₅

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

Id. T. Kobayashi (*MPC* 25332)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

		(2000.0)		P		Q	
<i>M</i>	96.47992						
<i>n</i>	0.30617600	ω	272.68769	+0.79944396	−0.59940148		
<i>a</i>	2.1801613	Ω	124.14261	+0.56862488	+0.73349071		
<i>e</i>	0.0488425	<i>i</i>	2.77644	+0.19379142	+0.32048284		
<i>P</i>	3.22	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1954 08 04	675	0.6−	0.4+	1995 04 08	691	0.8+	0.4−	1998 03 04	704	(3.3−	0.1+)
1954 08 04	675	0.3−	0.5+	1995 04 08	691	0.8+	0.4−	1998 03 04	704	1.3−	0.9+
1990 11 14	675	(4.0−	1.9−)	1995 04 08	691	0.8+	0.5−	1998 03 04	704	(2.7−	0.8+)
1990 11 14	675	(5.3−	2.1−)	1996 09 13	566	0.2−	0.3−	1998 03 04	704	(2.7−	0.7+)
1990 11 16	809	(4.2−	4.2−)	1996 09 13	566	0.4−	0.3−	1998 03 20	704	0.4−	0.9−
1993 10 09	809	0.2−	0.6+	1996 09 13	566	0.5−	0.3−	1998 03 20	704	0.1+	0.0
1993 10 09	809	0.7−	0.0	1996 09 17	691	0.9−	0.1+	1998 03 20	704	0.8−	0.2+
1993 10 09	809	0.8−	0.6+	1996 09 17	691	1.1−	0.0	1998 03 20	704	0.1−	1.4+
1993 10 11	809	1.7+	0.0	1998 02 26	566	0.2−	0.3−	1998 03 20	704	0.3−	0.4+
1993 10 11	809	0.9+	0.1−	1998 02 26	566	0.5+	0.0	1998 03 21	691	1.6−	0.4+
1993 10 11	809	1.0+	0.2+	1998 02 26	566	0.0	0.2−	1998 03 21	691	1.3−	0.4+
1993 10 21	809	0.8+	0.4+	1998 03 03	704	0.7+	0.3−	1998 03 21	691	1.4−	0.5+
1993 10 21	809	0.5+	0.0	1998 03 03	704	0.8+	0.5+	1998 03 22	704	0.4+	0.2+
1993 10 21	809	0.3+	0.4+	1998 03 03	704	0.6+	0.4+	1998 03 22	704	0.3−	0.5+
1995 04 06	691	1.1+	0.2−	1998 03 03	704	0.2−	0.4+	1998 03 22	704	0.1+	0.4+
1995 04 06	691	0.8−	0.3−	1998 03 03	704	0.2−	0.6−	1998 03 22	704	0.3+	0.4−
1995 04 06	691	1.1+	0.2−	1998 03 04	704	1.2−	0.7+	1998 03 22	704	0.6+	0.8−

(8542)* 1993 VB₂ = 1991 BB₂ = 1996 NJ₃

Discovered 1993 Nov. 11 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 27716), G. V. Williams (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

		(2000.0)		P		Q	
<i>M</i>	55.21551						
<i>n</i>	0.28052575	ω	167.89048	+0.57858232	−0.81495204		
<i>a</i>	2.3111115	Ω	246.74983	+0.74528198	+0.54473550		
<i>e</i>	0.0874371	<i>i</i>	2.06462	+0.33135671	+0.19777867		
<i>P</i>	3.51	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1991 01 21	511	(1.9+	3.4−)	1996 07 14	809	0.5+	0.1−	1997 10 08	691	1.4−	0.1+
1991 01 21	511	0.9−	1.3−	1996 07 14	809	0.4−	0.2−	1998 01 25	566	0.0	1.6−

M.P.C. 31506

1991 01 23	511	(5.4− 0.5−)	1996 07 14	809	0.4− 0.2+	1998 01 25	566	0.4− 1.2−
1991 02 07	675	0.3+ 0.7+	1996 07 16	809	(5.3+ 2.8+)	1998 01 25	566	0.4− 1.3−
1991 02 07	675	0.4+ 1.5+	1996 07 16	809	(4.2+ 4.2+)	1998 01 29	566	0.5+ 0.6+
1993 11 11	399	0.9− 0.2−	1996 07 16	809	(3.6+ 4.5+)	1998 01 29	566	0.7+ 0.6+
1993 11 11	399	1.4− 1.0−	1996 08 09	809	(5.9+ 1.4−)	1998 01 29	566	0.4+ 0.7+
1993 11 16	399	1.3+ 0.7+	1996 08 09	809	(6.3+ 0.3−)	1998 03 24	684	0.3+ 0.4+
1993 11 16	399	0.2− 0.4+	1996 08 09	809	(5.7+ 0.6−)	1998 03 24	684	0.4+ 0.5+
1993 11 22	399	0.2+ 0.2+	1997 10 08	691	1.4− 0.0	1998 03 24	684	0.4+ 0.6+
1993 11 22	399	1.4+ 1.2+	1997 10 08	691	1.3− 0.3−			

(8543)* 1993 XO₁ = 1979 WU₆

Discovered 1993 Dec. 15 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 25217)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Nakano

<i>M</i>	181.61696		(2000.0)		<i>P</i>		<i>Q</i>
<i>n</i>	0.29087846	ω	115.95747	+0.85214197			+0.52176162
<i>a</i>	2.2559442	Ω	212.63622	−0.50285006			+0.79511187
<i>e</i>	0.1651654	<i>i</i>	4.27858	−0.14489952			+0.30913092
<i>P</i>	3.39	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1979 11 17	095	(1.1+ 4.0−)	1995 04 10	411	0.4+ 0.1−	1998 03 02	411	0.6− 0.7−
1993 12 15	411	0.1− 0.7+	1995 04 10	411	0.5+ 0.5−	1998 03 02	411	0.7+ 0.5−
1993 12 15	411	0.4− 0.1+	1995 04 12	411	0.1− 0.2−	1998 03 02	367	0.6− 0.8−
1993 12 17	411	0.7− 0.7+	1995 04 12	411	0.5+ 0.8−	1998 03 02	367	0.8− 0.3−
1993 12 17	411	0.1+ 0.5+	1995 04 12	411	1.0+ 0.7−	1998 03 20	704	0.3− 0.2−
1993 12 17	411	0.1− 0.5+	1995 04 19	411	0.7+ 0.1−	1998 03 20	704	0.1− 0.2−
1993 12 23	411	1.0− 1.4−	1995 04 19	411	0.8− 1.1+	1998 03 20	704	0.0 1.1−
1994 01 04	411	1.2+ 0.3+	1995 04 26	411	0.7− 0.7+	1998 03 20	704	0.1+ 0.6+
1994 01 04	411	1.3+ 0.0	1995 04 26	411	0.7− 0.2+	1998 03 20	704	0.5− 0.4+
1994 01 04	411	0.5+ 0.5+	1996 10 20	411	0.0 1.0−	1998 03 26	704	0.8+ 0.2+
1994 01 19	411	0.6− 0.2−	1996 11 06	411	0.6− 0.1−	1998 03 26	704	0.1+ 0.8+
1994 01 19	411	(1.0+ 2.3−)	1996 11 06	411	0.2+ 0.4−	1998 03 26	704	1.7+ 1.0+
1994 01 19	411	0.2− 1.0−	1996 12 01	689	0.5+ 1.2+			
1995 04 10	411	0.7− 0.9+	1998 03 02	411	0.6− 0.1−			

(8544)* 1993 YE = 1991 ES₄

Discovered 1993 Dec. 17 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 22965)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Nakano

<i>M</i>	38.48203		(2000.0)		<i>P</i>		<i>Q</i>
<i>n</i>	0.28107532	ω	317.43574	−0.29924218			−0.95414096
<i>a</i>	2.3080980	Ω	149.97354	+0.87985105			−0.27929429
<i>e</i>	0.0860643	<i>i</i>	0.95220	+0.36921031			−0.10774846
<i>P</i>	3.51	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1991 03 12	809	0.2+ 1.4+	1993 12 18	411	0.1− 0.4−	1996 11 09	327	0.1− 0.0
1991 03 12	809	0.7+ 1.4+	1993 12 18	411	0.1− 0.8−	1998 01 31	910	0.4+ 0.1−
1991 03 12	809	0.9+ 1.4+	1993 12 18	411	0.4+ 0.2−	1998 01 31	910	0.5+ 0.0
1991 03 14	809	0.3− 1.2−	1993 12 21	411	0.3+ 0.9+	1998 01 31	910	0.4+ 0.1+
1991 03 14	809	0.4+ 1.0−	1993 12 21	411	0.2+ 0.1−	1998 03 04	704	1.1− 0.4−
1991 03 14	809	1.1+ 1.0−	1993 12 21	411	0.2− 0.2+	1998 03 04	704	1.0− 0.3−
1991 03 16	809	1.4− 0.3−	1994 01 01	411	0.1+ 0.9+	1998 03 04	704	1.1− 0.7−
1991 03 16	809	0.6− 0.3−	1994 01 01	411	0.2− 0.8+	1998 03 04	704	1.2− 0.4−
1991 03 16	809	0.0 0.3−	1994 01 01	411	0.3− 0.9+	1998 03 04	704	1.9− 1.2−
1991 04 15	675	0.4+ 0.5+	1996 11 07	327	0.3+ 0.3−	1998 03 18	411	0.5+ 0.9−
1991 04 15	675	0.7+ 1.6+	1996 11 07	327	0.3+ 0.9−	1998 03 18	411	1.0+ 1.0−
1991 04 17	675	0.4− 1.2+	1996 11 07	327	0.0 0.3−	1998 03 25	367	0.2+ 0.4−
1991 04 17	675	0.1− 0.4+	1996 11 07	327	0.6+ 0.4−	1998 03 25	367	1.0+ 0.6−
1993 12 17	411	0.1+ 0.1−	1996 11 09	327	0.0 0.1+			
1993 12 17	411	0.2− 0.4−	1996 11 09	327	0.1− 0.5−			

(8545)* 1994 AM₁

Discovered 1994 Jan. 2 by B. G. W. Manning at Stakenbridge.

1998 APR. 11

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	87.77089		(2000.0)		<i>P</i>		<i>Q</i>
<i>n</i>	0.27297524	ω	119.63727	+0.83213691			−0.54518972
<i>a</i>	2.3535344	Ω	273.57566	+0.46710970			+0.78776777
<i>e</i>	0.1245921	<i>i</i>	5.84096	+0.29892591			+0.28668817
<i>P</i>	3.61	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1994 01 02	494	1.6+ 0.6+	1994 03 05	494	0.7− 0.4+	1997 12 05	691	0.2+ 0.3−
1994 01 02	494	0.9+ 0.6+	1994 03 05	494	0.4− 0.6+	1997 12 06	691	0.5− 0.3−
1994 01 06	494	0.3+ 0.4+	1994 05 02	413	1.3− 0.4+	1997 12 06	691	0.6− 0.3−
1994 01 11	494	0.4+ 0.5+	1994 05 02	413	0.1− 0.7+	1997 12 06	691	0.8− 0.0
1994 01 16	494	0.2+ 0.1−	1994 05 04	413	0.9− 0.9+	1998 03 03	704	1.3+ 0.1−
1994 01 19	494	0.1− 0.7+	1994 05 04	413	0.3+ 0.4+	1998 03 03	704	0.1− 1.1−
1994 01 22	413	0.1+ 0.1+	1995 05 23	817	1.0− 1.7+	1998 03 03	704	(2.5+ 3.1−)
1994 01 22	413	0.0 0.1−	1995 05 23	817	1.8+ 0.2+	1998 03 03	704	(7.3− 0.4−)
1994 01 23	413	0.3− 0.1+	1996 09 17	494	1.1+ 0.1+	1998 03 04	704	1.1+ 0.7−
1994 01 23	413	0.3− 0.2+	1996 09 17	494	0.3+ 1.6−	1998 03 04	704	1.0+ 1.6+
1994 02 05	494	0.2+ 0.4−	1996 09 27	494	0.1+ 0.3+	1998 03 04	704	0.3+ 0.2+
1994 02 05	494	0.4+ 0.9−	1996 09 27	494	0.6− 0.5−	1998 03 04	704	1.1− 0.3−
1994 02 12	494	0.4− 0.3−	1996 10 15	494	0.2− 0.5+	1998 03 04	704	0.3+ 0.7+
1994 02 12	494	0.3− 0.2−	1996 10 15	494	0.3− 0.2−	1998 03 22	494	0.9+ 0.3−
1994 03 03	494	0.3− 0.0	1997 12 05	691	0.1+ 0.5−	1998 03 22	494	0.7+ 0.0
1994 03 03	494	0.8− 0.2+	1997 12 05	691	0.1− 0.4−			

(8546)* 1994 AH₃ = 1972 GZ = 1981 UX₁₃ = 1985 UD₁ = 1987 HL₂ = 1988 QP₁

Discovered 1994 Jan. 13 by K. Endate and K. Watanabe at Kitami.

Id. E. Bowell (*MPC* 28851), G. V. Williams (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	8.56841		(2000.0)		<i>P</i>		<i>Q</i>
<i>n</i>	0.26461995	ω	231.38297	−0.74771439			−0.65958195
<i>a</i>	2.4028187	Ω	267.20876	+0.63058830			−0.66915717
<i>e</i>	0.0496876	<i>i</i>	4.40112	+0.20804229			−0.34231612
<i>P</i>	3.72	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1972 04 12	095	2.5+ 0.4−	1994 01 21	894	1.7− 0.4+	1998 03 04	704	(3.9− 0.5+)
1981 10 23	095	(3.3+ 0.4+)	1994 01 22	894	0.2+ 0.8−	1998 03 04	704	(3.4− 0.7+)
1985 10 22	033	0.3+ 0.2+	1994 01 22	894	0.8− 0.7−	1998 03 16	758	0.3+ 0.8+
1987 04 23	010	1.1− 1.2+	1994 02 03	400	0.4+ 0.1+	1998 03 16	758	0.1+ 0.3+
1987 04 23	010	0.6− 1.1+	1994 02 03	400	0.5− 0.5+	1998 03 26	704	0.5+ 0.7−
1987 04 23	010	1.4− 1.0+	1997 02 08	566	0.4+ 0.3−	1998 03 26	704	0.5+ 0.1+
1988 08 16	675	0.1− 1.7−	1997 02 08	566	0.7+ 0.6+	1998 03 26	704	0.1− 0.4−
1988 08 16	675	0.1+ 0.8−	1997 02 08	566	1.1+ 0.1−	1998 03 31	704	0.4+ 0.2−
1992 09 26	033	0.7+ 0.4−	1998 02 22	566	0.6− 0.7−	1998 03 31	704	0.0 0.2−
1994 01 06	675	0.5− 0.1−	1998 02 22	566	0.7− 0.4−	1998 03 31	704	0.4+ 0.4−
1994 01 06	675	0.2− 0.6+	1998 02 22	566	0.7− 0.4−	1998 03 31	704	0.4− 0.7−
1994 01 08	675	0.3+ 0.1+	1998 02 22	566	0.5− 0.2−	1998 03 31	704	1.2+ 0.1+
1994 01 13	400	0.7− 0.9+	1998 02 22	566	0.6− 0.4−	1998 04 01	704	0.3+ 0.7−
1994 01 13	400	1.2− 0.2+	1998 02 22	566	0.7− 0.8−	1998 04 01	704	1.6+ 0.9−
1994 01 15	400	(2.6+ 0.9+)	1998 03 04	704	(2.9− 0.0)	1998 04 01	704	0.4+ 0.4−
1994 01 15	400	0.9+ 0.8+	1998 03 04	704	(3.5− 1.0+)	1998 04 01	704	0.3+ 0.5−
1994 01 21	894	0.0 0.2−	1998 03 04	704	(3.4− 0.8+)	1998 04 01	704	0.5+ 0.1−

(8547)* 1994 CQ = 1978 VU

Discovered 1994 Feb. 4 by S. Ueda and H. Kaneda at Kushiro.

Id. K. Ichikawa (*MPC* 23676)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Nakano

<i>M</i>	31.66000		(2000.0)	P	Q
<i>n</i>	0.26957435	ω	154.84547	-0.44291891	-0.89635456
<i>a</i>	2.3732874	Ω	321.43671	+0.81726423	-0.39481347
<i>e</i>	0.1631887	<i>i</i>	1.77144	+0.36864890	-0.20167009
<i>P</i>	3.66	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1978 10 30	010	(3.9+ 0.1+)	1994 02 11	675	0.9+ 1.1-	1998 03 20	704	0.8+ 0.2+
1978 11 01	010	0.4- 0.3-	1994 02 11	399	0.9+ 0.1-	1998 03 20	704	0.5- 0.3+
1978 11 01	010	0.6+ 0.5-	1994 02 11	399	1.0+ 1.5+	1998 03 20	704	0.4- 0.1+
1989 11 02	675	0.1- 0.1+	1994 02 14	675	0.8+ 0.5-	1998 03 22	704	0.3+ 0.4+
1989 11 02	675	1.1+ 0.2+	1994 02 14	675	0.4+ 1.4-	1998 03 22	704	0.2- 0.2-
1989 11 22	675	0.4- 0.0	1996 10 09	566	0.0 0.3-	1998 03 22	704	0.0 0.4-
1989 11 22	675	1.2- 0.6+	1996 10 09	566	0.5+ 0.3-	1998 03 22	704	0.4+ 0.3+
1994 01 12	691	1.1- 0.1+	1996 10 09	566	0.2+ 0.6-	1998 03 22	704	0.2- 0.2-
1994 01 12	691	0.0 1.0+	1998 03 03	704	0.0 0.8-	1998 03 25	704	0.6+ 0.5+
1994 01 12	691	0.4- 0.5+	1998 03 03	704	1.5- 0.0	1998 03 25	704	0.6+ 0.6+
1994 02 04	399	(2.5- 2.4-)	1998 03 03	704	1.7- 0.6+	1998 03 25	704	0.7+ 0.3-
1994 02 04	399	1.2- 0.2+	1998 03 03	704	(2.3- 0.0)	1998 03 25	704	0.5- 0.8-
1994 02 05	399	0.9- 0.1-	1998 03 03	704	(2.8- 1.4-)	1998 03 25	704	0.1+ 1.4-
1994 02 05	399	0.8- 1.2+	1998 03 20	704	0.6+ 0.5+			
1994 02 11	675	0.8+ 1.4-	1998 03 20	704	0.1- 0.2-			

(8548)* 1994 ER₃ = 1952 BJ₁

Discovered 1994 Mar. 14 by K. Endate and K. Watanabe at Kitami.

Id. B. A. Skiff (*MPC* 29104), G. V. Williams (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	356.41458		(2000.0)	P	Q
<i>n</i>	0.23609312	ω	351.77337	-0.68831423	-0.72075339
<i>a</i>	2.5926695	Ω	141.66182	+0.67285833	-0.67663298
<i>e</i>	0.2544630	<i>i</i>	7.60437	+0.27108151	-0.15060663
<i>P</i>	4.17	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1951 12 27	675	0.4+ 0.3-	1994 04 03	896	0.2+ 0.6+	1998 03 04	704	(2.6- 0.1-)
1951 12 27	675	0.4- 0.1-	1998 01 26	566	0.2+ 0.0	1998 03 04	704	1.8- 0.9+
1952 01 28	711	(0.3- 3.3-)Y	1998 01 26	566	0.3+ 0.1+	1998 03 04	704	(2.6- 0.4-)
1988 10 07	675	0.2- 0.8+	1998 01 26	566	0.3+ 0.1+	1998 03 04	704	1.7- 0.8+
1988 10 07	675	0.3+ 0.9-	1998 02 19	699	0.1+ 0.1-	1998 03 04	704	2.0- 0.8+
1994 03 14	675	0.3+ 0.6-	1998 02 19	699	0.0 0.0	1998 03 23	631	0.6+ 0.4-
1994 03 14	675	0.3- 0.7-	1998 02 19	699	0.6+ 0.7-	1998 03 23	631	0.5+ 0.5-
1994 03 14	400	1.3- 1.1+	1998 02 25	758	0.5+ 0.1-	1998 03 24	631	0.4+ 0.2-
1994 03 14	400	0.6+ 0.9-	1998 02 25	758	0.4+ 0.0	1998 03 24	631	0.2+ 0.1+
1994 03 18	400	1.1+ 0.7-	1998 02 26	758	0.7- 0.3-	1998 03 29	758	0.2+ 0.6+
1994 03 18	400	0.5- 1.3-	1998 02 26	758	0.8- 0.3-	1998 03 29	758	0.1- 0.0
1994 03 31	400	0.4- 1.1+	1998 03 03	704	0.9+ 0.0	1998 03 30	758	0.3+ 0.1-
1994 03 31	400	0.8+ 1.1-	1998 03 03	704	0.2+ 0.3+	1998 03 30	758	0.5+ 0.1-
1994 03 31	896	0.4+ 0.5+	1998 03 03	704	0.7+ 0.2-	1998 04 05	758	0.7+ 0.5-
1994 03 31	896	1.5- 1.5+	1998 03 03	704	0.1+ 0.1+	1998 04 05	758	0.6+ 0.4-
1994 04 03	896	0.1+ 0.2-	1998 03 03	704	0.1- 0.7+			

(8549)* 1994 FS

Discovered 1994 Mar. 30 at Farra d'Isonzo.

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	254.70171		(2000.0)	P	Q
<i>n</i>	0.25877736	ω	64.16420	-0.00178761	+0.99989774
<i>a</i>	2.4388506	Ω	205.74533	-0.92877820	-0.00691873
<i>e</i>	0.1821547	<i>i</i>	1.87182	-0.37063172	+0.01251522
<i>P</i>	3.81	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1994 02 12	675	0.5- 1.0-	1995 08 29	801	0.4+ 0.5-	1998 03 03	704	0.5+ 0.2+
1994 02 12	675	1.0- 0.5-	1995 11 18	595	1.7- 1.6-	1998 03 03	704	0.9+ 0.6-
1994 02 15	675	0.0 0.4-	1995 11 18	595	0.3+ 1.1+	1998 03 03	704	0.7+ 0.3-

1994 02 15	675	0.6- 0.4+	1995 11 19	595	0.6+ 0.9-	1998 03 04	704	(2.6- 0.2+)
1994 03 06	691	0.3- 0.1+	1995 11 19	595	0.3- 0.8-	1998 03 04	704	(2.8- 0.2+)
1994 03 06	691	0.0 0.3+	1996 11 09	595	1.2- 0.5-	1998 03 04	704	(2.8- 0.3+)
1994 03 06	691	0.6- 0.2-	1996 11 09	595	1.1- 0.2+	1998 03 04	704	(2.6- 0.5-)
1994 03 30	595	0.4+ 0.3+	1996 11 09	595	(2.6- 0.1-)	1998 03 04	704	(2.7- 0.3+)
1994 03 30	595	0.7- 0.6+	1996 11 10	595	(2.3- 0.2-)	1998 03 09	595	0.2+ 0.4-
1994 03 30	595	0.3+ 0.2+	1996 12 03	595	0.6+ 1.3-	1998 03 09	595	0.5+ 0.2+
1994 03 31	595	1.7+ 0.2-	1996 12 03	595	0.4- 0.7-	1998 03 20	704	1.1- 0.3+
1994 04 01	595	1.2+ 0.5+	1997 01 12	595	1.2+ 0.7-	1998 03 20	704	0.9- 0.3-
1994 04 04	595	0.6+ 0.4+	1997 01 12	595	1.2+ 1.4+	1998 03 20	704	0.4- 0.6+
1994 04 06	595	0.5+ 0.6+	1997 01 13	595	0.5+ 0.7-	1998 03 20	704	0.8- 0.2-
1994 04 06	595	0.1- 0.6+	1997 01 13	595	0.1+ 0.8+	1998 03 20	704	1.2- 1.0+
1995 07 21	595	0.1- 0.1+	1998 02 22	566	0.6- 0.3+	1998 03 22	704	0.2- 0.1+
1995 07 21	595	0.4- 0.1-	1998 02 22	566	0.0 0.2+	1998 03 22	704	0.7- 0.4-
1995 07 21	595	0.6- 0.1-	1998 02 22	566	0.8- 0.2+	1998 03 22	704	0.0 0.9-
1995 07 21	595	0.0 0.1-	1998 02 26	699	0.2- 0.4+	1998 03 22	704	0.6+ 0.1+
1995 08 19	595	0.5+ 0.5-	1998 02 26	699	0.4+ 0.6+	1998 03 22	704	0.7- 0.8-
1995 08 19	595	0.5+ 0.5-	1998 02 26	699	0.9+ 0.1+	1998 03 27	595	0.7- 0.2-
1995 08 22	595	0.4+ 0.4-	1998 02 27	566	0.1+ 1.4-	1998 03 27	595	0.6- 0.5-
1995 08 22	595	0.0 0.1-	1998 02 27	566	0.3+ 1.3-	1998 03 28	595	0.0 0.3+
1995 08 28	801	0.3+ 0.5-	1998 02 27	566	0.9+ 1.7-	1998 03 28	595	0.0 0.7-
1995 08 28	801	0.0 0.4-	1998 03 03	704	0.0 0.1-			
1995 08 29	801	0.7+ 0.5-	1998 03 03	704	0.3+ 0.7-			

(8550)* 1994 PV₂₄ = 1979 WB₆ = 1987 YB₄

Discovered 1994 Aug. 12 by E. W. Elst at the European Southern

Observatory.

Id. S. Nakano (*MPC* 26175)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Nakano

<i>M</i>	134.91228		(2000.0)	P	Q
<i>n</i>	0.12567088	ω	337.73921	+0.99948598	-0.02487172
<i>a</i>	3.9474164	Ω	23.71298	+0.03123391	+0.89768651
<i>e</i>	0.2613567	<i>i</i>	2.88317	-0.00722684	+0.43993219
<i>P</i>	7.84	<i>H</i>	12.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1979 11 17	095	(1.4+ 2.7-)	1995 11 02	411	0.1- 0.3-	1997 01 15	369	0.7+ 1.4+
1987 12 23	010	0.1- 1.4-	1995 11 21	358	0.5- 0.6-	1997 01 15	369	0.7+ 0.6-
1987 12 23	010	0.4+ 0.2+	1995 11 21	358	0.2- 1.5+	1998 03 03	704	0.7+ 2.1+
1994 08 12	809	(1.6- 2.8-)	1995 11 22	358	0.4- 0.8+	1998 03 03	704	1.8+ 1.4+
1994 08 12	809	(1.1- 2.9-)	1995 11 22	358	0.5+ 0.0	1998 03 03	704	0.3+ 0.8-
1994 08 12	809	(1.8- 2.7-)	1995 12 18	801	0.1+ 0.3-	1998 03 03	704	1.8+ 0.3-
1994 08 13	809	(0.4- 3.8+)	1995 12 18	801	0.2+ 0.3-	1998 03 20	704	0.9+ 1.3+
1994 08 13	809	(1.2- 3.1+)	1995 12 23	801	0.3+ 0.5-	1998 03 20	704	0.6- 0.5+
1994 08 13	809	(1.2- 3.7+)	1995 12 23	801	0.1- 0.3-	1998 03 20	704	0.2- 2.1+
1994 09 05	809	0.4+ 1.5+	1997 01 02	369	0.5+ 0.7+	1998 03 20	691	1.2- 0.1+
1994 09 05	809	0.1- 1.7+	1997 01 02	369	1.1+ 0.2+	1998 03 20	704	0.1- 0.9-
1994 09 05	809	0.1- 1.5+	1997 01 03	369	0.7+ 1.0+	1998 03 20	691	1.3- 0.4+
1994 09 06	809	0.2- 1.4+	1997 01 03	369	1.2+ 0.2-	1998 03 20	691	1.2- 0.3+
1994 09 06	809	1.5- 1.6+	1997 01 03	369	0.2+ 0.4+	1998 03 25	691	0.3- 0.0
1994 09 06	809	0.6- 2.2+	1997 01 03	369	0.6+ 0.4+	1998 03 25	691	0.3- 0.4-
1994 10 01	675	0.1- 0.4-	1997 01 06	369	0.4- 0.2+	1998 03 25	691	0.1- 0.1-
1994 10 01	675	0.4- 1.3-	1997 01 06	369	0.8+ 0.2+	1998 04 03	691	0.8- 0.1+
1995 11 01	411	1.0- 0.8-	1997 01 06	369	0.8+ 0.6+	1998 04 03	691	0.9- 0.0
1995 11 01	411	0.5- 0.3-	1997 01 09	369	0.6+ 0.3-	1998 04 03	691	0.8- 0.1-
1995 11 02	411	0.3- 1.1-	1997 01 09	369	0.2+ 1.2+			

(8551)* 1994 VC₇ = 1986 WM₇ = 1993 SP₁₅

Discovered 1994 Nov. 11 by M. Hirasawa and S. Suzuki at Nyukasa.

Id. H. E. Holt (*MPC* 30873), T. B. Spahr (*ibid.*), G. V. Williams (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	222.20362		(2000.0)	P	Q
<i>n</i>	0.12355482	ω	263.18694	+0.69326145	+0.69375208
<i>a</i>	3.9923590	Ω	52.65512	-0.52526891	+0.67182822
<i>e</i>	0.1595862	<i>i</i>	14.21223	-0.49343808	+0.25952820
<i>P</i>	7.98	<i>H</i>	10.8	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1986 11 28	046	0.6+	1.3+	1994 11 11	408	0.0	0.2-	1998 03 24	704	0.1-	0.2+
1986 11 28	046	1.6-	0.5+	1994 11 12	408	1.1+	0.1+	1998 03 24	704	0.1-	0.7+
1993 09 19	675	0.1-	0.1-	1994 11 12	408	1.5-	0.5-	1998 03 24	704	0.5-	0.0
1993 09 19	675	0.1+	0.3-	1994 11 27	408	0.0	1.1+	1998 03 24	704	0.0	0.0
1993 09 20	675	0.1-	0.9-	1994 11 27	408	0.7+	0.3+	1998 03 25	704	1.1+	0.2+
1993 09 20	675	0.1-	0.5-	1994 11 27	408	0.5+	0.0	1998 03 25	704	1.3+	1.1+
1993 09 23	675	0.0	0.5-	1994 11 28	675	0.5-	0.4-	1998 03 25	704	0.7-	0.4+
1993 09 23	675	0.0	0.1+	1994 11 28	675	0.4-	0.3+	1998 03 25	704	0.4+	0.1-
1993 10 10	675	0.4+	1.2+	1994 11 30	400	0.2+	0.1+	1998 03 25	704	0.2-	0.3+
1993 10 10	675	0.1-	0.9+	1994 11 30	400	1.9+	0.5-	1998 03 25	566	0.4-	0.4-
1994 11 05	675	0.2-	0.8-	1998 02 24	566	0.2+	0.7-	1998 03 25	566	0.7-	0.0
1994 11 05	675	0.3-	0.8-	1998 02 24	566	0.0	0.8-	1998 03 25	566	0.4-	0.2-
1994 11 11	408	0.4-	0.4-	1998 02 24	566	0.1+	0.9-				

(8552)* 1995 HE = 1960 WB₁

Discovered 1995 Apr. 20 by A. Nakamura at Kuma.

Id. S. Nakano (*MPC* 30665)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Nakano

<i>M</i>	311.00809		(2000.0)	P	Q
<i>n</i>	0.21049647	ω	58.54991	+0.05914503	-0.99760393
<i>a</i>	2.7988063	Ω	28.12635	+0.88809853	+0.03616632
<i>e</i>	0.1777494	<i>i</i>	4.36658	+0.45583206	+0.05897799
<i>P</i>	4.68	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1960 11 24	033	0.1+	0.1-	1995 05 18	360	0.5-	0.8+	1997 09 04	360	0.1+	0.2+
1990 04 22	675	0.1+	0.8+	1995 05 18	360	0.8-	0.6+	1997 09 04	360	0.1+	0.1+
1990 04 22	675	0.3-	0.6-	1995 05 18	360	0.5-	0.1+	1997 09 28	360	0.3+	1.0-
1995 04 20	360	0.6+	0.5-	1995 05 23	360	0.4-	0.6+	1997 09 28	360	0.2+	1.0-
1995 04 20	360	0.3+	0.6-	1995 05 23	360	0.1-	0.3+	1997 10 21	360	0.1+	0.2-
1995 04 20	360	0.3+	0.8-	1995 05 23	360	0.3-	0.9+	1997 10 21	360	0.2-	0.3-
1995 04 23	360	0.6+	0.0	1995 05 27	360	0.3-	0.5-	1997 10 24	360	0.1+	0.2-
1995 04 23	360	0.5+	0.0	1995 05 27	360	0.0	0.6+	1997 10 24	360	0.2+	0.0
1995 04 23	360	0.7+	0.1-	1995 05 27	360	0.4+	0.5+	1997 10 30	704	0.5+	1.8+
1995 04 26	360	0.2+	0.3-	1995 05 31	360	0.6-	0.4+	1997 10 30	704	(2.7-	1.6+)
1995 04 26	360	0.6+	0.3-	1995 05 31	360	0.4-	0.3-	1997 10 30	704	1.8-	1.6+
1995 04 26	360	0.5+	0.2+	1995 05 31	360	1.0-	0.6-	1997 10 30	704	0.7-	1.5+
1995 05 05	360	0.1+	0.3-	1997 08 31	360	0.3+	0.5-	1997 12 04	360	0.3+	0.1-
1995 05 05	360	0.2+	0.3+	1997 08 31	360	0.1-	0.5-	1997 12 04	360	0.1+	0.0
1995 05 05	360	0.2+	0.0	1997 08 31	360	0.1+	0.2-				

(8553)* 1995 HG = 1991 CP₆ = 1996 TK₆₄

Discovered 1995 Apr. 20 by K. Endate and K. Watanabe at Kitami.

Id. E. Bowell (*MPC* 28591), G. V. Williams (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	222.11441		(2000.0)	P	Q
<i>n</i>	0.29231082	ω	234.13034	+0.31479611	+0.94601038
<i>a</i>	2.2485685	Ω	54.39818	-0.83734131	+0.31511474
<i>e</i>	0.1258234	<i>i</i>	5.45192	-0.44694847	+0.07594119
<i>P</i>	3.37	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1989 09 30	675	0.1+	0.2-	1996 10 12	566	0.2+	0.0	1998 03 24	704	0.4+	0.4-
1989 09 30	675	0.3+	0.8+	1996 10 12	566	0.9-	0.6-	1998 03 24	704	0.5+	0.8-
1991 02 10	675	0.3+	1.2+	1998 02 04	327	(2.2+	0.0)	1998 03 24	704	0.0	0.0
1991 02 10	675	0.6-	0.6+	1998 02 04	327	0.3+	0.2-	1998 03 25	704	0.4+	0.5-

1995 04 20	400	0.5+	0.0	1998 02 04	327	0.4+	0.1+	1998 03 25	704	0.7+	0.7+
1995 04 20	400	0.6+	1.0-	1998 03 03	699	0.7+	0.2+	1998 03 25	704	0.5-	0.0
1995 04 24	400	0.3+	0.4-	1998 03 03	699	0.5+	0.1+	1998 03 25	704	0.0	0.6+
1995 04 24	400	0.0	0.5+	1998 03 03	699	0.1+	0.0	1998 03 25	704	0.4-	0.7+
1995 05 07	397	(0.1-	2.5+)	1998 03 04	704	(2.1-	0.2-)	1998 03 27	426	0.0	0.2-
1995 05 07	397	0.8+	0.1+	1998 03 04	704	(2.4-	0.9-)	1998 03 27	426	0.1+	0.2-
1995 05 08	397	1.3-	0.8+	1998 03 04	704	2.0-	0.0	1998 03 28	426	0.0	0.2-
1995 05 08	397	1.1-	0.7+	1998 03 04	704	(3.1-	0.5-)	1998 03 28	426	0.1+	0.0
1995 05 28	400	0.0	0.3+	1998 03 04	704	1.5-	0.9-	1998 03 28	426	0.1+	0.7-
1995 05 28	400	(3.9+	0.0)	1998 03 24	704	0.2+	0.3-				
1996 10 12	566	0.1+	0.1-	1998 03 24	704	0.6+	0.5-				

(8554)* 1995 KH = 1988 CV₅

Discovered 1995 May 25 by M. Tichý at Kleť.

Id. G. V. Williams (*MPC* 28075)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	345.92326		(2000.0)	P	Q
<i>n</i>	0.29925229	ω	13.28983	-0.94427288	-0.32866758
<i>a</i>	2.2136607	Ω	147.50431	+0.29884369	-0.87900926
<i>e</i>	0.0925358	<i>i</i>	1.92702	+0.13798979	-0.34542778
<i>P</i>	3.29	<i>H</i>	15.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1988 02 14	809	0.9+	0.2+	1995 06 20	046	0.9+	0.4-	1998 03 20	704	0.1+	0.1+
1988 02 14	809	0.7-	0.2-	1995 07 16	046	0.3+	0.8-	1998 03 20	704	0.0	0.5+
1988 02 14	809	0.3-	0.2-	1995 07 16	046	0.4+	1.0+	1998 03 22	704	0.6+	0.7+
1995 05 25	046	0.1+	0.0	1995 07 16	046	0.9+	1.3-	1998 03 22	704	0.4-	0.8+
1995 05 25	046	0.6+	0.5+	1996 09 20	046	1.0-	0.5+	1998 03 22	704	0.1+	0.4-
1995 05 25	046	0.2+	0.4+	1996 09 20	046	0.5-	0.4+	1998 03 22	704	0.5+	0.7-
1995 05 25	046	0.2-	0.1+	1996 09 20	046	0.7-	0.3-	1998 03 22	704	1.5-	1.7+
1995 05 25	046	0.3+	0.0	1996 10 03	046	0.1-	0.1+	1998 03 24	046	0.4+	0.0
1995 05 25	046	0.4-	0.4-	1996 10 03	046	0.1-	0.0	1998 03 24	046	0.5+	0.1+
1995 05 26	046	0.8+	0.1-	1996 10 03	046	0.2-	0.1+	1998 03 24	046	0.5+	0.0
1995 05 26	046	0.4-	0.8+	1996 10 18	566	0.9+	0.2-	1998 03 24	704	0.5+	0.2-
1995 05 26	046	0.0	0.2+	1996 10 18	566	0.9+	0.1-	1998 03 24	704	0.0	0.0
1995 05 27	046	0.7-	0.2-	1996 10 18	566	0.5+	0.1-	1998 03 24	704	0.4+	0.2+
1995 05 27	046	0.2-	0.0	1998 02 19	046	0.0	0.4-	1998 03 24	704	0.2+	0.3+
1995 05 27	046	1.4-	0.3-	1998 02 19	046	0.1-	0.9-	1998 03 24	704	0.6-	0.8+
1995 05 27	046	0.0	0.4+	1998 02 19	046	0.2-	0.7-	1998 03 24	704	0.5+	0.5+
1995 05 28	046	0.2-	0.3-	1998 02 21	046	0.3-	0.8-	1998 03 24	704	0.3-	0.6+
1995 05 28	046	0.3+	0.3+	1998 02 21	046	0.3-	0.6-	1998 03 24	704	0.1-	0.5+
1995 05 28	046	1.0-	0.2-	1998 02 21	046	0.3-	0.8-	1998 03 24	704	0.7+	0.5+
1995 05 28	046	0.3+	0.2+	1998 03 02	727	1.0+	0.9-	1998 03 24	704	0.8-	0.4-
1995 06 02	046	0.2+	0.4-	1998 03 02	727	0.2-	0.9-	1998 03 24	704	0.2+	0.1+
1995 06 02	046	0.3+	0.0	1998 03 02	727	0.0	0.1-	1998 03 24	704	0.8+	0.1-
1995 06 02	046	0.4-	0.9-	1998 03 10	046	0.7-	0.5+	1998 03 24	704	0.6-	0.6-
1995 06 03	046	0.2-	0.0	1998 03 10	046	0.9-	0.7+	1998 03 24	704	0.4-	0.1+
1995 06 03	046	0.1-	0.4+	1998 03 10	046	0.4+	0.1+	1998 03 24	704	0.1+	0.7-
1995 06 03	046	0.4-	0.3-	1998 03 20	704	0.6-	0.4-	1998 03 24	566	0.4+	0.2+
1995 06 20	046	0.2-	0.0	1998 03 20	704	0.6+	0.1-	1998 03 24	566	0.4+	0.3+
1995 06 20	046	0.6+	0.2+	1998 03 20	704	0.3-	0.3+	1998 03 24	566	0.1+	0.5+

(8555)* 1995 LD = 1996 TO₁₂

Discovered 1995 June 3 by A. Vagnozzi at Stroncone.

Id. A. Vagnozzi (*MPC* 28076)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	268.24825		(2000.0)	P	Q
<i>n</i>	0.27244720	ω	16.90472	-0.59330585	+0.80253766
<i>a</i>	2.3565744	Ω	216.77128	-0.75012436	-0.57942645
<i>e</i>	0.0705563	<i>i</i>	6.00468	-0.29206440	-0.14212072
<i>P</i>	3.62	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1991 04 14	675	0.1+	0.6+	1995 07 31	589	0.3-	0.1-	1996 10 30	589	0.6+	0.1+
1991 04 14	675	0.1+	0.1+	1995 07 31	589	0.4-	0.2+	1996 10 30	589	0.5-	0.1+

1998 APR. 11

M.P.C. 31509

1995 06 03	589	0.1+	0.2-	1996 10 12	589	0.3+	0.7+	1996 10 31	589	0.0	0.1+
1995 06 03	589	0.2-	0.1-	1996 10 12	589	0.5-	0.7-	1996 10 31	589	1.1-	0.4-
1995 06 03	589	0.2+	0.8-	1996 10 12	589	0.6+	0.1-	1996 12 04	589	0.3-	0.2-
1995 06 03	589	0.4+	0.7-	1996 10 12	589	1.1-	0.1+	1996 12 04	589	1.0-	0.4+
1995 06 04	589	0.4+	0.2+	1996 10 17	589	0.1+	0.6+	1996 12 04	589	0.3-	0.4+
1995 06 04	589	0.3+	0.5-	1996 10 17	589	0.8+	1.2+	1998 01 25	566	0.1-	0.1-
1995 06 06	589	0.9+	0.4+	1996 10 18	589	0.2+	0.0	1998 01 25	566	0.2+	0.3-
1995 06 06	589	0.5+	1.3+	1996 10 18	589	0.9+	0.3-	1998 01 25	566	0.1-	0.4-
1995 06 19	589	0.2-	0.5+	1996 10 18	589	0.5+	0.7-	1998 03 03	704	0.3+	0.0
1995 06 19	589	0.5+	0.4+	1996 10 20	589	0.1+	0.3-	1998 03 03	704	0.4+	0.2+
1995 06 19	589	0.2-	0.0	1996 10 20	589	0.3-	0.1-	1998 03 03	704	1.0-	0.8-
1995 06 25	589	0.0	0.3-	1996 10 21	589	0.0	0.2-	1998 03 03	704	0.1-	0.2+
1995 06 25	589	0.1+	0.5-	1996 10 21	589	0.1+	0.5-	1998 03 03	704	0.2-	0.5-
1995 06 25	589	0.1+	0.6-	1996 10 22	589	(0.9- 2.6-)		1998 03 04	704	0.3+	0.0
1995 06 30	589	0.6-	0.8+	1996 10 22	589	0.6-	0.2-	1998 03 04	704	0.3-	0.6+
1995 06 30	589	0.9-	0.4+	1996 10 22	589	0.8+	0.2+	1998 03 04	704	0.7+	0.3+
1995 06 30	589	0.8-	0.1-	1996 10 29	327	0.4+	0.7+	1998 03 04	704	0.6-	0.1-
1995 07 15	589	1.1-	0.6+	1996 10 29	327	0.0	0.0	1998 03 04	704	0.5+	1.0+
1995 07 16	589	0.5+	0.2-	1996 10 29	327	0.4-	0.3+				

(8556)* 1995 NB = 1992 BD₆ = 1996 WF₃

Discovered 1995 July 7 by Z. Moravec at Klet.

Id. G. V. Williams (*MPC* 28592)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M	148.26128		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$		
n	0.19830555	ω	257.13719	+0.99276353	-0.08045816		
a	2.9123673	Ω	107.42430	+0.10802790	+0.92258218		
e	0.3592747	i	5.36117	-0.05244570	+0.37731764		
P	4.97	H	13.4	G	0.15	U	1

Residuals in seconds of arc

1992 01 26	691	0.0	0.2-	1995 08 12	046	0.0	0.6+	1997 01 14	046	0.0	0.3-
1992 01 26	691	0.1-	0.4-	1995 08 12	046	0.3+	0.5+	1997 01 14	046	0.1-	0.3-
1992 01 26	691	0.2+	0.1-	1995 08 17	046	0.3-	0.6+	1997 01 14	046	0.0	0.4-
1995 07 07	046	0.3-	0.3-	1995 08 17	046	0.4-	0.4+	1997 01 15	046	0.0	0.1-
1995 07 07	046	0.5-	0.5-	1995 08 17	046	0.4-	0.2+	1997 01 15	046	0.1-	0.1-
1995 07 07	046	0.3-	0.4-	1995 08 30	046	0.8+	0.1+	1997 01 15	046	0.0	0.0
1995 07 09	046	1.1-	0.8-	1995 08 30	046	0.7+	0.0	1997 01 16	046	0.0	0.4-
1995 07 09	046	0.9-	0.7-	1995 09 28	801	1.8+	0.1-	1997 01 16	046	0.0	0.5-
1995 07 09	046	0.9-	0.8-	1995 09 28	801	1.3+	0.4-	1997 01 16	046	0.0	0.4-
1995 07 09	046	1.0-	0.9-	1995 09 28	046	1.8+	0.8+	1997 01 17	046	0.2-	0.3-
1995 07 09	046	1.2-	0.7-	1995 09 28	046	2.0+	0.9+	1997 01 17	046	0.1-	0.2-
1995 07 09	046	0.5-	0.3-	1995 09 28	046	(2.1+ 0.9+)		1997 01 17	046	0.2-	0.3-
1995 07 09	046	0.2-	0.5-	1995 09 29	801	0.7+	0.9+	1997 01 18	046	0.1+	0.5-
1995 07 09	046	0.2-	0.6-	1995 09 29	801	0.3+	0.2+	1997 01 18	046	0.0	0.6-
1995 07 11	046	0.6-	0.8-	1995 09 29	046	0.6+	0.4+	1997 01 18	046	0.2-	0.6-
1995 07 11	046	0.5-	0.6-	1995 09 29	046	0.4+	0.3+	1997 01 19	046	0.3-	0.3-
1995 07 11	046	0.6-	0.8-	1995 09 29	046	0.8+	0.1+	1997 01 19	046	0.2-	0.4-
1995 07 21	046	0.1-	0.6-	1995 10 23	801	0.2+	0.0	1997 01 19	046	0.1-	0.5-
1995 07 21	046	0.2-	0.8-	1995 10 23	801	0.2-	0.1+	1998 02 28	561	0.6+	1.1+
1995 07 21	046	0.2-	0.9-	1995 10 27	801	0.3-	0.3+	1998 02 28	561	0.2+	0.5+
1995 07 24	046	0.7+	0.0	1995 10 27	801	0.0	0.7+	1998 03 24	704	1.3+	0.0
1995 07 24	046	1.3+	0.0	1995 11 10	046	0.1+	0.2-	1998 03 24	704	1.7+	0.3-
1995 07 24	046	1.1+	0.5+	1995 11 10	046	0.1+	0.2-	1998 03 24	704	1.2-	1.4-
1995 07 29	046	0.2-	0.3-	1995 11 10	046	0.1+	0.4-	1998 03 24	704	(1.3- 2.6-)	
1995 07 29	046	0.2-	0.3-	1995 11 11	046	0.1+	0.2-	1998 03 25	566	0.5-	0.5-
1995 07 29	046	0.3-	0.3-	1995 11 11	046	0.1+	0.2-	1998 03 25	566	0.0	0.6-
1995 08 01	046	0.1+	0.1-	1995 11 11	046	0.3+	0.2-	1998 03 25	566	0.6-	0.6-
1995 08 01	046	0.2-	0.2+	1995 12 17	046	0.6-	0.5-	1998 03 26	046	0.3-	0.3-
1995 08 01	046	0.1-	0.0	1995 12 17	046	0.5-	0.6-	1998 03 26	046	0.1-	0.1-
1995 08 03	046	0.1-	0.1+	1995 12 17	046	0.5-	0.5-	1998 03 26	046	0.3-	0.1-
1995 08 03	046	0.3-	0.1+	1996 11 20	327	0.2-	0.2-	1998 03 26	046	0.5+	0.6+
1995 08 03	046	0.3-	0.1+	1996 11 20	327	0.5-	0.1+	1998 03 26	046	0.5+	0.0
1995 08 12	046	0.1+	0.4+	1996 11 20	327	0.7-	0.2+	1998 03 26	046	0.0	1.4+

(8557)* 1995 OK = 1994 CQ₁₈

Discovered 1995 July 23 by L. Šarounová at Ondřejov.

Id. G. V. Williams (*MPC* 25535)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	228.05528		(2000.0)	P	Q
n	0.28135128	ω	204.26331	+0.85791428	+0.50412620
a	2.3065885	Ω	125.09759	-0.44935638	+0.82981554
e	0.1403411	i	6.96372	-0.24912232	+0.23929676
P	3.50	H	15.3	G 0.15	U 1

Residuals in seconds of arc

1992 10 26	675	0.1-	1.0-	1995 07 24	557	0.2-	0.4+	1997 02 01	557	0.1+	1.1+
1992 10 26	675	0.9-	0.3+	1995 07 26	557	0.0	0.2+	1997 02 01	557	0.1+	1.0+
1994 02 08	809	(2.3+ 0.7-)		1995 07 26	557	0.1-	0.0	1997 02 01	557	0.1-	1.4+
1994 02 08	809	1.1+	0.9-	1995 07 29	557	0.2+	0.2-	1997 02 07	557	0.2-	0.3+
1994 02 08	809	0.2-	1.0-	1995 07 29	557	0.2-	0.3-	1997 02 07	557	0.2-	0.3+
1994 02 10	809	0.4-	1.3-	1995 08 05	557	0.4+	0.0	1997 02 07	557	0.0	0.7+
1994 02 10	809	0.0	1.5-	1995 08 05	557	0.5+	0.2-	1998 02 27	557	0.3-	1.0+
1994 02 10	809	1.4-	1.2-	1995 08 05	557	0.6+	0.2-	1998 02 27	557	0.8+	0.0
1995 07 23	557	0.2-	0.1-	1995 08 22	557	0.9+	0.1-	1998 03 23	557	0.0	0.5+
1995 07 24	557	0.2-	0.0	1995 08 22	557	0.2+	0.6+	1998 03 23	557	0.5-	0.0
1995 07 24	557	0.4-	0.3+	1997 01 13	557	0.3+	0.1-	1998 03 23	557	0.1-	0.7+
1995 07 24	557	0.3-	0.3+	1997 01 13	557	0.4+	0.3-	1998 03 26	557	0.1+	0.7+
1995 07 24	557	0.3-	0.2+	1997 01 13	557	0.7+	0.0	1998 03 26	557	0.5-	1.1+
1995 07 24	557	0.2-	0.2+	1997 01 31	557	0.1-	1.3+				

(8558)* 1995 PC = 1991 XS₆

Discovered 1995 Aug. 1 by L. Tesi and A. Boattini at San Marcello Pistoiese.

Id. G. V. Williams (*MPC* 25731)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	135.35823		(2000.0)	P	Q
n	0.17816238	ω	306.50171	+0.95739509	+0.28876407
a	3.1279422	Ω	36.71461	-0.26323631	+0.87714464
e	0.2098189	i	0.30226	-0.11874882	+0.38370899
P	5.53	H	14.9	G 0.15	U 1

Residuals in seconds of arc

1991 12 14	691	0.4+	0.2-	1995 08 06	104	(3.2+ 0.3-)	1996 12 05	104	0.5-	0.3+
1991 12 14	691	0.0	0.4+	1995 08 06	104	(3.7+ 0.0)	1996 12 05	104	0.6-	0.2+
1991 12 14	691	0.2+	0.1-	1995 08 20	104	0.3+ 0.3-	1996 12 05	104	0.1-	0.3+
1991 12 31	691	0.3-	0.0	1995 08 20	104	0.6+ 0.2-	1996 12 15	104	0.8+ 0.7+	
1991 12 31	691	0.3-	0.3-	1995 08 20	104	1.1+ 0.1-	1996 12 16	104	0.5+ 0.8+	
1991 12 31	691	0.1-	0.4-	1995 09 26	104	1.3- 0.8-	1996 12 16	104	0.7+ 0.8+	
1995 08 01	104	1.0-	1.5+	1995 09 26	104	0.7- 0.6-	1998 02 17	104	0.2+ 0.1-	
1995 08 01	104	0.9-	1.6+	1995 09 26	104	0.2- 0.4+	1998 02 17	104	0.4+ 0.1-	
1995 08 01	104	0.8-	1.5+	1996 11 13	599	0.0 1.8-	1998 02 17	104	0.7+ 0.2-	
1995 08 01	104	0.3-	1.1+	1996 11 13	599	0.5+ 1.9-	1998 02 18	104	1.2+ 1.4+	
1995 08 02	104	0.4+	0.9-	1996 12 02	104	0.1- 0.5+	1998 02 18	104	(1.0+ 2.4+)	
1995 08 02	104	0.5-	0.9-	1996 12 02	104	0.2- 0.3+	1998 02 18	104	(0.1+ 3.3+)	
1995 08 02	104	0.1-	0.5-	1996 12 02	104	0.5- 0.1+	1998 03 22	691	0.9- 0.3+	
1995 08 03	104	1.6+	0.1-	1996 12 02	104	0.4- 0.1-	1998 03 22	691	0.7- 0.3+	
1995 08 03	104	0.9+	0.1-	1996 12 03	104	0.0 0.4+	1998 03 22	691	0.8- 0.1+	
1995 08 03	104	0.1+	0.4-	1996 12 03	104	0.1- 0.3+				
1995 08 06	104	(2.7+ 0.7-)		1996 12 03	104	0.0 0.0				

(8559)* 199

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5						Nakano					
M	191.87434			(2000.0)		P		Q			
n	0.21360369		ω	215.72844		+0.81735220		+0.57121486			
a	2.7715978		Ω	109.26658		−0.50837882		+0.77644130			
e	0.0971777		i	4.56665		−0.27108367		+0.26618132			
P	4.61		H	13.1		G	0.15		U	1	
Residuals in seconds of arc											
1989 03 07	675	1.0+	0.8−	1995 08 25	905	0.9−	1.3−	1998 03 06	886	1.9+	0.3+
1989 03 07	675	1.2+	0.0	1995 08 26	905	(0.8+	2.5−)	1998 03 06	886	1.0−	1.3+
1989 03 29	675	0.7+	0.1+	1995 09 18	905	0.3+	0.0	1998 03 17	886	0.1−	0.2−
1989 03 29	675	0.2−	0.0	1995 09 18	905	0.2+	0.4−	1998 03 17	886	0.5−	1.1−
1989 04 06	033	0.1+	0.9+	1995 09 18	905	0.3+	0.4−	1998 03 24	704	0.7+	0.3+
1989 04 07	033	1.0+	0.0	1997 01 09	385	1.3+	1.3+	1998 03 24	704	1.6+	0.4−
1989 04 09	033	0.9−	0.1−	1997 01 09	385	0.3+	1.6+	1998 03 24	704	1.5+	0.7−
1989 04 09	033	0.4−	0.3−	1997 01 13	385	0.7+	0.4+	1998 03 24	704	0.7+	0.8−
1993 01 27	010	0.9+	0.9+	1997 01 13	385	1.0+	0.6+	1998 03 25	704	0.2−	0.5−
1993 01 27	010	0.0	0.0	1997 01 28	385	0.5−	0.8+	1998 03 25	704	0.6−	0.5+
1993 01 27	010	0.2−	0.1+	1997 01 28	385	0.8−	0.5+	1998 03 25	704	0.4−	0.2−
1993 01 28	010	0.3−	1.8−	1998 03 01	809	0.0	0.1+	1998 03 25	704	0.3+	0.3+
1993 01 28	010	1.0−	1.8−	1998 03 01	809	0.2−	0.4−	1998 03 25	704	0.4−	0.2+
1993 01 28	010	1.7−	1.7−	1998 03 01	809	0.6−	0.6−	1998 03 26	704	1.7+	1.8+
1993 02 20	010	(2.4−	1.2−)	1998 03 02	809	1.4−	0.2+	1998 03 26	704	0.5+	0.4+
1993 02 20	010	2.0−	1.1−	1998 03 02	809	1.6−	0.8−	1998 03 26	704	0.1−	1.1+
1993 02 20	010	(1.9−	2.4−)	1998 03 02	809	1.7−	0.6−	1998 03 26	566	0.7+	0.4+
1993 02 22	010	0.3−	0.8−	1998 03 03	699	0.7+	0.6+	1998 03 26	566	0.7−	0.6−
1993 02 23	010	1.7−	1.7−	1998 03 03	699	1.2+	1.1+	1998 03 26	566	0.1+	0.2+
1995 08 25	905	0.0	0.1+	1998 03 03	699	0.4−	1.6+				

(8560)* 1995 SD₅ = 1990 UK₁₂ = 1996 XW₃₁

Discovered 1995 Sept. 20 by K. Endate and K. Watanabe at Kitami.

Id. G. V. Williams (<i>MPC</i> 28858)											
Epoch 1997 Dec. 18.0 TT = JDT 2450800.5							Williams				
<i>M</i>	203.42305		(2000.0)		P		Q				
<i>n</i>	0.19359761		ω	329.47662		+0.77147220		+0.63518903			
<i>a</i>	2.9593936		Ω	350.81182		−0.52695894		+0.60531360			
<i>e</i>	0.0679517		<i>i</i>	13.38092		−0.35657387		+0.47971902			
<i>P</i>	5.09		<i>H</i>	12.3		<i>G</i>	0.15		<i>U</i>	1	
Residuals in seconds of arc											
1990 10 23	095	(2.5− 0.2+)	1996 12 18	327	0.2−	0.2+	1998 03 20	704	0.6+	0.6−	
1993 04 18	413	1.0− 0.4+	1996 12 18	327	0.4+	0.2+	1998 03 20	704	0.8+	0.7−	
1993 04 18	413	1.2+ 0.2−	1996 12 18	327	0.5−	0.1−	1998 03 20	704	1.1+	1.3−	
1995 09 20	400	0.6− 0.2+	1997 02 26	689	0.9−	1.8−	1998 03 20	704	(4.1+ 0.8−)		
1995 09 20	400	0.4− 0.3+	1997 03 10	689	1.7+	1.3+	1998 03 22	704	0.8−	0.0	
1995 09 30	400	0.8− 0.4+	1998 02 18	358	1.4−	1.7+	1998 03 22	704	0.0	0.8+	
1995 09 30	400	0.1+ 0.7+	1998 02 18	358	(3.0− 4.7+)		1998 03 22	704	0.9−	0.8+	
1995 10 10	400	(0.8− 2.7−)	1998 02 21	358	0.3+	0.9+	1998 03 22	704	1.1+	1.9−	
1995 10 10	400	0.9+ 0.4−	1998 02 21	358	(0.8− 2.2+)		1998 03 26	470	0.1−	0.6+	
1996 12 12	327	0.5− 0.0	1998 02 22	358	0.1−	0.3−	1998 03 26	470	0.2−	0.2+	
1996 12 12	327	0.4− 0.1+	1998 02 22	358	0.1−	0.6−	1998 04 01	704	0.5+	0.2+	
1996 12 12	327	0.3− 0.1−	1998 03 18	470	0.6+	0.5+	1998 04 01	704	0.0	0.4+	
1996 12 16	327	0.0 0.2−	1998 03 18	470	0.2+	0.1+	1998 04 01	704	0.1−	0.4−	
1996 12 16	327	0.6+ 0.3+	1998 03 18	470	0.4+	0.0	1998 04 01	704	0.2−	0.5+	
1996 12 16	327	0.4+ 0.2−	1998 03 20	704	0.5−	0.4−	1998 04 01	704	0.7−	0.5+	

(8561)* 1995 SO₂₉ = 1973 UQ₁ = 1992 EL₁₁

Discovered 1995 Sept. 26 by T. V. Kryachko at the Zelenchukskaya Station of the Engelhardt Observatory.

Id. S. Nakano (*MPC* 25967), G. V. Williams (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5						Nakano					
<i>M</i>	144.82245	(2000.0)		P		Q					
<i>n</i>	0.17900628	ω	239.26773	+0.94535584		−0.32522689					
<i>a</i>	3.1181036	Ω	139.69891	+0.30998440		+0.87467750					
<i>e</i>	0.2071560	<i>i</i>	2.03939	+0.10105452		+0.35939775					
<i>P</i>	5.51	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	2				
Residuals in seconds of arc											
1973 10 26	095	0.2+	0.6+	1995 10 16	114	0.9+	0.9+	1997 01 31	098	(3.2+ 1.9−)	
1992 03 06	809	0.0	1.0+	1995 10 17	114	0.3−	1.4−	1997 02 07	098	0.4−	0.5−
1992 03 06	691	1.4−	0.5+	1995 10 17	114	2.0+	1.0+	1997 02 07	098	0.7+	1.6−
1992 03 06	691	1.3−	0.5+	1995 10 18	114	1.2−	0.5+	1997 02 07	098	0.6−	0.4−
1992 03 06	691	1.2−	0.8+	1995 10 19	114	1.3−	0.4−	1997 02 07	098	0.2−	0.9−
1992 03 08	809	0.2+	0.4+	1995 10 19	114	1.7+	0.7+	1998 02 27	910	0.4+	0.3+
1992 03 09	809	0.4−	0.8+	1995 10 21	399	0.5+	1.5+	1998 02 27	910	0.7+	0.1−
1992 04 06	809	2.1+	0.7−	1995 10 21	399	(2.3+ 3.1+)		1998 02 27	910	0.6+	0.5+
1995 09 26	114	0.9−	1.2−	1995 10 27	399	1.1−	0.8+	1998 03 20	704	1.2+	2.0+
1995 09 26	114	0.0	0.4−	1995 10 27	399	(1.0+ 3.0+)		1998 03 20	704	0.4−	0.0
1995 09 26	114	0.6+	1.0−	1997 01 27	327	0.3−	0.4+	1998 03 20	704	0.8+	0.2−
1995 09 28	114	0.6−	0.3−	1997 01 27	327	0.0	0.4+	1998 03 20	704	0.4−	0.5−
1995 09 29	114	0.2+	0.1+	1997 01 27	327	0.6+	0.0	1998 03 22	704	0.5−	0.2−
1995 10 01	114	2.0−	0.4−	1997 01 30	098	0.7+	1.4−	1998 03 22	704	0.4−	1.2−
1995 10 01	114	0.2+	1.4+	1997 01 30	098	0.2+	0.0	1998 03 22	704	0.9+	0.5+
1995 10 16	114	0.3−	0.6+	1997 01 31	098	0.1+	0.6+	1998 03 22	704	0.2+	1.6+

(8562)* 1995 SK₅₃ = 1995 TW₇ = 1993 FC₃₄

Discovered 1995 Sept. 28 by the Beijing Schmidt CCD Asteroid Program at Xinglong.

Id. G. V. Williams (*MPC* 26405)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5						Williams					
<i>M</i>	194.88763		(2000.0)		P		Q				
<i>n</i>	0.19727941		ω	316.19847		+0.96549945		+0.24346408			
<i>a</i>	2.9224575		Ω	30.07640		−0.15750831		+0.82853439			
<i>e</i>	0.1327059		<i>i</i>	10.62358		−0.20736908		+0.50423804			
<i>P</i>	5.00 <th><i>H</i></th> <td colspan="2">13.1</td> <th><i>G</i></th> <td colspan="2">0.15</td> <th><i>U</i></th> <td colspan="2">1</td>		<i>H</i>	13.1		<i>G</i>	0.15		<i>U</i>	1	
Residuals in seconds of arc											
1990 11 13	675	0.6+	0.6−	1995 10 15	691	0.9−	0.1−	1998 02 01	327	0.4+	0.0
1990 11 13	675	0.4−	0.2+	1995 10 23	691	0.9−	0.1−	1998 03 20	704	0.6−	0.4+
1993 03 19	809	0.6+	0.7+	1995 10 23	691	1.0−	0.2−	1998 03 20	704	0.5−	1.2−
1993 03 20	809	0.1+	0.1−	1995 10 23	691	0.9−	0.1−	1998 03 20	704	0.3−	0.3+
1993 03 24	809	0.3+	0.9+	1995 12 07	327	0.6+	0.2−	1998 03 20	704	0.2−	0.4−
1993 04 18	413(12.6+ 0.3+)			1995 12 07	327	0.6+	0.2−	1998 03 22	704	0.2−	0.8−
1995 09 28	327	0.5+	0.1+	1995 12 07	327	0.1+	0.2+	1998 03 22	704	0.5+	0.8−
1995 09 28	327	0.9+	0.3−	1997 01 28	327	0.1+	0.5+	1998 03 22	704	0.6−	0.1+
1995 09 28	327	0.5+	0.1−	1997 01 28	327	0.3−	0.9+	1998 03 22	704	(2.4− 0.5−)	
1995 09 28	327	0.7+	0.4+	1997 01 28	327	0.6−	0.6+	1998 03 22	704	(6.0− 0.7+)	
1995 09 29	327	1.2+	0.2+	1997 02 06	566	0.2−	0.5−	1998 03 25	704	0.7+	0.1+
1995 09 29	327	0.4+	0.1+	1997 02 06	566	0.4+	0.7−	1998 03 25	704	1.0−	0.5−
1995 09 29	327	0.6+	0.8+	1997 02 06	566	0.7+	0.6−	1998 03 25	704	0.1−	0.1−
1995 10 15	691	0.9−	0.0	1998 02 01	327	0.5+	0.3+	1998 03 25	704	0.4−	1.2+
1995 10 15	691	1.0−	0.1−	1998 02 01	327	0.3−	0.1−	1998 03 25	704	1.0+	0.3−

1998 APR. 11

M.P.C. 31511

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	210.10355		(2000.0)	P	Q
<i>n</i>	0.19207506	ω	354.05846	+0.79284168	+0.57780859
<i>a</i>	2.9750121	Ω	328.03738	-0.54298701	+0.52540331
<i>e</i>	0.1174835	<i>i</i>	21.46946	-0.27670774	+0.62457073
<i>P</i>	5.13	<i>H</i>	11.9	<i>G</i>	0.15

Residuals in seconds of arc

1974 08 21	095	(2.9+ 4.8+)	1995 10 19	693	0.2+ 1.3+	1998 03 26	566	0.5- 1.4-
1974 09 22	095	0.4- 0.4-	1995 10 19	693	0.1+ 1.5+	1998 03 26	566	0.4- 0.8-
1977 02 13	675	0.3+ 0.7-	1995 10 20	693	0.5+ 1.3-	1998 03 26	566	0.7- 0.7-
1977 02 14	675	0.1+ 0.5-	1995 10 28	658	0.0 0.6-	1998 03 31	704	0.0 0.3+
1977 02 18	381	1.7+ 0.7+	1995 10 28	658	0.1+ 0.6-	1998 03 31	704	0.5- 0.8+
1977 02 18	381	0.6+ 0.9+	1995 10 28	658	0.1+ 0.6-	1998 03 31	704	0.1+ 0.6-
1977 02 19	381	0.0 0.4+	1998 02 20	426	0.9+ 0.2+	1998 03 31	704	0.8- 0.1-
1977 02 19	381	1.0+ 0.4+	1998 02 20	426	0.8+ 0.2+	1998 03 31	704	0.5- 0.5+
1979 09 14	095	(1.3+ 9.1+)	1998 02 20	426	0.9+ 0.2+	1998 04 01	704	0.3- 0.1+
1987 01 08	010	0.1+ 1.2+	1998 02 24	426	0.6+ 0.4+	1998 04 01	704	0.4- 0.7+
1987 01 08	010	0.3- 0.2+	1998 02 24	426	0.4+ 0.5+	1998 04 01	704	0.2- 0.0
1987 01 08	010	1.5- 0.1-	1998 02 24	426	0.5+ 0.2+	1998 04 01	704	0.0 0.3-
1992 01 09	675	(1.5- 2.5-)	1998 03 26	566	0.2- 0.6-	1998 04 01	704	0.6- 0.6+
1992 01 09	675	(3.2- 1.2-)	1998 03 26	566	0.5- 1.0-			
1992 01 10	675	1.1- 1.6-	1998 03 26	566	0.3- 0.7-			

(8564)* 1995 UL₃

Discovered 1995 Oct. 17 by Y. Shimizu and T. Urata at Nachi-Katsuura Observatory.

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	187.52436		(2000.0)	P	Q
<i>n</i>	0.16781953	ω	326.67780	+0.90127218	+0.43229241
<i>a</i>	3.2551753	Ω	7.87200	-0.33705951	+0.74143320
<i>e</i>	0.1123223	<i>i</i>	12.15566	-0.27221193	+0.51322518
<i>P</i>	5.87	<i>H</i>	12.2	<i>G</i>	0.15

Residuals in seconds of arc

1992 04 06	809	0.2+ 0.3+	1995 12 12	905	1.1- 0.3+	1998 02 28	809	0.5+ 0.4-
1995 10 17	905	0.1- 0.7-	1995 12 12	905	0.8- 1.7+	1998 02 28	809	0.1- 1.8-
1995 10 17	905	0.1+ 0.7-	1996 01 13	385	0.4+ 0.4+	1998 02 28	809	0.8- 0.6-
1995 10 20	905	1.1- 0.6+	1996 01 13	385	0.4+ 0.4-	1998 03 20	704	0.4- 0.1-
1995 10 20	905	1.0- 1.2-	1997 01 09	385	1.1+ 0.3-	1998 03 20	704	0.3+ 0.2+
1995 11 01	905	0.7- 1.4-	1997 01 13	385	0.8- 0.2-	1998 03 20	704	0.5+ 0.4+
1995 11 01	905	0.6+ 0.4-	1997 01 13	385	0.5- 0.5+	1998 03 20	704	0.1- 1.2-
1995 11 03	385	0.4+ 0.3-	1997 01 28	385	0.6+ 0.1+	1998 03 20	704	0.2- 0.6-
1995 11 03	385	0.7+ 0.1-	1997 01 28	385	0.4- 0.4-	1998 03 22	704	0.9- 0.7+
1995 11 03	385	0.6+ 0.3-	1997 02 06	385	0.1+ 0.4-	1998 03 22	704	0.1- 0.6+
1995 11 13	905	0.2- 0.1-	1997 02 06	385	0.2- 0.7+	1998 03 22	704	1.6+ 1.4+
1995 11 13	905	0.2+ 0.6+	1998 02 27	809	(2.7- 1.9-)	1998 03 22	704	(2.2- 1.1+)
1995 11 21	905	0.6+ 1.4+	1998 02 27	809	(3.1- 2.2-)	1998 03 22	704	0.7- 0.7+
1995 11 21	905	0.8+ 0.8+	1998 02 27	809	(3.8- 1.9-)			

(8565)* 1995 WB₆ = 1990 TH

Discovered 1995 Nov. 24 by T. Nijima and T. Urata at Ojima.

Id. T. Urata (MPC 29112)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	244.73629		(2000.0)	P	Q
<i>n</i>	0.21137621	ω	127.42852	+0.72743926	+0.68574464
<i>a</i>	2.7910352	Ω	189.36392	-0.66715485	+0.69858663
<i>e</i>	0.1460598	<i>i</i>	8.55936	-0.16042611	+0.20428169
<i>P</i>	4.66	<i>H</i>	13.2	<i>G</i>	0.15

Residuals in seconds of arc

1953 10 10	675	0.2- 0.9-	1995 11 27	887	0.4- 0.7-	1997 03 04	385	0.3+ 0.7-
1953 10 10	675	0.3+ 0.8+	1995 11 27	887	0.1- 1.2+	1997 03 04	385	0.1+ 1.0+
1990 10 12	413	1.6- 0.2-	1995 11 27	887	0.7- 0.4-	1998 02 27	910	0.4- 0.4-

1990 10 12	413	1.1+ 0.6+	1995 12 01	887	0.3- 1.0+	1998 02 27	910	0.4- 0.4-
1990 10 13	413	0.3+ 0.6-	1995 12 01	887	0.3+ 0.3+	1998 02 27	910	0.2- 0.6-
1990 10 16	413	(12.2+ 18.1+)	1995 12 01	887	0.0 1.6+	1998 02 28	910	0.4- 0.4-
1993 04 17	413	0.1- 0.9+	1995 12 17	887	0.4- 0.5-	1998 02 28	910	0.2- 0.4-
1995 11 24	887	0.8+ 0.8+	1995 12 17	887	0.5- 0.6-	1998 02 28	910	0.1- 0.6-
1995 11 24	887	0.3+ 0.2-	1995 12 17	887	0.8- 0.7-	1998 03 25	699	0.1+ 0.0
1995 11 24	887	0.4+ 0.2-	1997 02 06	385	0.3- 0.0	1998 03 25	699	0.9+ 0.4+
1995 11 26	887	0.7+ 1.2-	1997 02 06	385	0.3- 0.1-	1998 03 25	699	0.4+ 0.1+
1995 11 26	887	0.3- 0.9-	1997 02 11	385	0.5+ 0.1+			
1995 11 26	887	1.1+ 0.6-	1997 02 11	385	0.2- 0.4+			

(8566)* 1996 EN

Discovered 1996 Mar. 15 at Haleakala by the JPL Near-Earth Asteroid

Tracking program.

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	266.20679		(2000.0)	P	Q
<i>n</i>	0.53293028	ω	125.08321	+0.37795644	+0.91063657
<i>a</i>	1.5066850	Ω	164.24399	-0.91315299	+0.33692824
<i>e</i>	0.4309287	<i>i</i>	37.95325	+0.15264518	-0.23920785
<i>P</i>	1.85	<i>H</i>	16.5	<i>G</i>	0.15

Residuals in seconds of arc

1983 04 06	413	(2.2+ 5.0-)	1996 04 13	367	0.0 0.3+	1996 07 15	360	0.5- 0.4+
1983 04 06	413	(4.6- 10.0+)	1996 04 13	367	0.1- 0.8-	1996 07 15	587	1.0+ 1.1+
1983 04 08	413	(0.5- 3.2+)	1996 04 16	118	0.2+ 0.8-	1996 07 15	587	1.9+ 1.3+
1983 04 08	413	(0.7+ 22.3-)	1996 04 16	118	0.2- 1.0-	1996 07 21	566	0.0 0.3+
1996 03 15	566	0.2- 0.2+	1996 04 16	118	0.1- 1.1-	1996 07 21	566	0.4- 0.0
1996 03 15	566	0.1- 0.0	1996 04 17	566	0.6+ 0.1-	1996 07 21	566	0.3- 0.2-
1996 03 15	566	0.0 0.1-	1996 04 17	566	0.2+ 0.1-	1996 07 21	557	0.1+ 0.6+
1996 03 16	557	0.2+ 0.2-	1996 04 17	566	0.1+ 0.2-	1996 07 21	557	0.3+ 0.6+
1996 03 16	557	0.2- 0.2+	1996 04 17	118	0.1+ 0.6-	1996 07 21	557	0.1+ 0.9+
1996 03 16	557	0.2+ 0.3+	1996 04 17	118	0.1+ 0.5-	1996 08 04	587	1.2+ 1.6+
1996 03 16	566	0.2- 0.3+	1996 04 17	118	0.1+ 0.6-	1996 08 04	587	0.4- 0.6-
1996 03 16	566	0.5+ 0.3+	1996 04 18	566	0.0 0.7-	1996 08 04	587	0.1- 0.8+
1996 03 16	566	0.0 0.1+	1996 04 18	566	0.4- 0.8-	1996 08 05	360	0.2- 0.2+
1996 03 16	557	0.3+ 0.6-	1996 04 18	566	0.2- 0.9-	1996 08 05	360	0.0 0.0
1996 03 16	557	0.7+ 0.6-	1996 04 18	118	0.2- 0.4-	1996 08 09	566	0.2+ 0.6-
1996 03 17	566	0.1+ 0.2+	1996 04 18	118	0.0 0.6-	1996 08 09	566	0.1+ 0.6-
1996 03 17	566	0.3- 0.2+	1996 04 19	801	0.3+ 0.4-	1996 08 09	566	0.3+ 0.4-
1996 03 17	566	0.2+ 0.1+	1996 04 19	801	0.0 0.6-	1996 08 09	118	2.0+ 0.2-
1996 03 17	424	0.8- 0.6-	1996 04 19	566	0.2- 0.7-	1996 08 09	118	1.3+ 0.6-
1996 03 17	422	0.3- 0.5-	1996 04 19	566	0.5- 0.7-	1996 08 09	118	1.6+ 0.5-
1996 03 17	424	0.5- 1.3-	1996 04 19	566	0.4- 1.0-	1996 08 16	587	1.1+ 0.2-
1996 03 17	422	0.5- 0.2-	1996 04 19	557	0.3- 0.4-	1996 08 16	587	0.9- 0.1+
1996 03 17	424	0.7- 0.5-	1996 04 19	557	0.1- 0.5-	1996 08 16	587	0.0 0.8+
1996 03 17	422	0.4- 0.5-	1996 04 19	557	0.3+ 0.5-	1996 08 19	360	0.3- 0.4+
1996 03 17	424	0.2- 0.2-	1996 04 20	566	0.4- 0.4-	1996 08 19	360	0.4- 0.6+
1996 03 18	566	0.5+ 0.7+	1996 04 20	566	0.6- 0.8-	1996 08 19	360	0.1- 0.5+
1996 03 18	566	0.2- 0.6+	1996 04 20	566	0.5- 0.9-	1996 08 20	118	0.2+ 0.5-
1996 03 18	566	0.5+ 0.5+	1996 04 20	540	0.3- 0.3+	1996 09 05	587	0.8+ 1.1-
1996 03 19	817	0.2+ 0.2+	1996 04 20	540	1.2- 1.6+	1996 09 05	587	0.3+ 0.8-
1996 03 19	817	0.4+ 0.1-	1996 04 20	540	1.3- 0.2-	1996 09 05	587	1.1- 1.1-
1996 03 19	817	0.2+ 0.5+	1996 04 20	540	(0.5- 2.6-)	1996 09 06	587	0.9- 0.6-
1996 03 19	608	0.5+ 0.0	1996 04 20	587	0.1- 0.9-	1996 09 06	587	0.3+ 1.5-
1996 03 19	608	0.7+ 0.1-	1996 04 20	587	0.0 0.5-	1996 09 11	540	1.2+ 0.7+
1996 03 19	120	0.5+ 1.2-	1996 04 21	118	0.1+ 0.7-	1996 09 11	540	0.6+ 0.7+
1996 03 19	120	0.9+ 0.7-	1996 04 21	118	0.3- 0.8-	1996 09 13	566	0.4- 0.2-
1996 03 19	120	0.5+ 0.6-	1996 04 22	801	0.4- 0.5+	1996 09 13	566	0.4- 0.6-
1996 03 20	557	0.3+ 0.4-	1996 04 22	801	0.3+ 1.1-	1996 09 13	566	0.7- 0.2-
1996 03 20	557	0.2+ 0.4-	1996 04 22	360	0.1- 0.6-	1996 09 14	900	0.8- 0.1-
1996 03 20	566	0.0 0.3+	1996 04 22	360	0.1- 0.6-	1996 09 14	900	1.2+ 1.1-
1996 03 20	566	0.2- 0.1-	1996 04 22	360	0.3- 0.8-	1996 09 17	424	1.1- 0.3+
1996 03 20	566	0.3- 0.1-	1996 04 23	381	0.1+ 0.2-	1996 09 17	424	0.4- 0.5-
1996 03 20	608	0.0 0.5-	1996 04 23	381	0.1+ 0.2-	1996 09 17	424	0.6- 0.5+
1996 03 20	608	0.2- 0.8-	1996 04 23	381	0.0 0.3-	1996 10 01	413	0.1- 0.6+
1996 03 20	046	0.2- 0.8-	1996 04 23	381	0.1- 0.3-	1996 10 01	413	0.1- 0.7+
1996 03 20	046	0.2- 0.5-	1996 04 24	587	1.3+ 0.2+	1996 10 01	413	0.0 0.7+

1996 03 20	046	0.1-	0.7-	1996 04 24	587	1.1+	0.3+	1996 11 01	413	1.1+	0.0
1996 03 20	587	0.7-	0.6-	1996 04 25	381	0.2-	0.4-	1996 11 01	413	0.8+	0.0
1996 03 20	587	0.7+	0.6-	1996 04 25	381	0.1-	0.3-	1996 11 02	413	0.7+	0.0
1996 03 21	566	0.3+	0.4+	1996 05 02	118	0.1+	0.5-	1996 11 02	413	0.7+	0.0
1996 03 21	566	0.5+	0.1+	1996 05 02	118	0.4+	0.7-	1998 01 02	711	(3.0-	0.1-)
1996 03 21	566	0.1+	0.4+	1996 05 04	658	0.1-	1.0+	1998 01 02	711	(2.3-	0.3-)
1996 03 23	658	0.3-	0.2+	1996 05 04	658	0.1-	1.2+	1998 01 26	557	0.9-	0.0
1996 03 23	658	0.4-	0.1-	1996 05 04	658	0.3-	0.9+	1998 01 26	557	0.3-	0.4-
1996 03 23	658	0.4-	0.1+	1996 05 04	118	0.0	0.6+	1998 02 02	360	0.5+	0.3-
1996 03 24	566	0.0	0.8+	1996 05 04	118	0.2+	0.5+	1998 02 02	360	0.5+	0.4-
1996 03 24	566	0.1-	0.4+	1996 05 05	118	0.7+	0.7+	1998 02 02	360	0.5+	0.4-
1996 03 24	566	0.3+	0.4+	1996 05 05	118	0.5+	0.8+	1998 02 05	711	0.4-	0.7-
1996 03 25	658	0.6+	0.2-	1996 05 07	557	0.4+	0.5+	1998 02 05	711	0.2-	0.3-
1996 03 25	658	0.6+	0.2-	1996 05 07	557	0.4+	0.7+	1998 02 05	360	0.3+	0.6+
1996 03 26	566	0.1-	0.9+	1996 05 07	557	0.1+	0.5+	1998 02 05	360	0.3-	0.1+
1996 03 26	566	0.5-	0.6+	1996 05 13	566	0.3+	0.8-	1998 02 05	360	0.1+	0.4+
1996 03 26	566	0.1-	0.5+	1996 05 13	566	0.1-	1.0-	1998 02 06	711	0.0	0.5-
1996 03 26	413	0.3+	0.1+	1996 05 13	566	0.0	1.1-	1998 02 06	711	0.4+	0.4-
1996 03 26	413	0.3+	0.5+	1996 05 16	557	0.2-	0.3+	1998 02 06	711	0.2-	0.1-
1996 03 26	413	0.2+	0.0	1996 05 16	557	0.0	0.6+	1998 02 06	711	0.3-	0.3-
1996 03 27	413	0.2+	0.4-	1996 05 16	557	0.3-	0.4+	1998 02 07	118	0.1-	0.6-
1996 03 27	413	0.2+	0.1-	1996 05 20	587	0.8-	0.2-	1998 02 07	118	0.1-	0.7-
1996 03 27	413	0.1+	0.1+	1996 05 20	587	0.7-	0.1-	1998 02 23	566	0.3+	0.2-
1996 03 27	046	0.7+	0.1+	1996 05 22	360	0.2-	0.1+	1998 02 23	566	0.3+	0.1-
1996 03 27	046	0.2+	0.7+	1996 05 22	360	0.1-	0.2+	1998 02 23	566	0.3+	0.0
1996 03 27	046	0.6+	0.4+	1996 05 22	360	0.0	0.5-	1998 02 24	566	0.5+	0.4+
1996 03 27	046	0.7+	0.3+	1996 06 08	587	0.8+	1.0+	1998 02 24	566	0.4+	0.0
1996 03 28	413	0.4+	0.2-	1996 06 08	587	0.1-	0.2+	1998 02 24	566	0.1+	0.2+
1996 03 28	413	0.6+	0.4-	1996 06 08	587	1.0+	0.3-	1998 02 24	426	0.4-	0.0
1996 04 03	658	0.2-	0.8-	1996 06 10	557	0.1+	0.7+	1998 02 24	426	0.0	0.1-
1996 04 03	658	0.0	0.4-	1996 06 11	587	1.0+	0.3-	1998 02 24	426	0.0	0.8-
1996 04 03	658	0.2-	0.4-	1996 06 11	587	0.8+	0.7-	1998 02 24	426	0.1-	0.0
1996 04 05	360	0.2+	0.3-	1996 06 11	587	1.2+	0.6+	1998 03 02	402	(2.6+	2.6+)
1996 04 05	360	0.2+	0.1+	1996 06 12	104	1.3+	1.0+	1998 03 02	402	(2.7+	2.8+)
1996 04 05	360	0.2+	0.1+	1996 06 12	104	0.4+	0.3+	1998 03 02	402	(2.5+	2.5+)
1996 04 07	104	0.1-	2.0+	1996 06 12	104	0.1-	0.4+	1998 03 03	711	0.2+	0.7+
1996 04 07	104	0.0	0.8+	1996 06 13	566	0.1+	0.6-	1998 03 03	711	0.3+	0.6+
1996 04 07	104	0.4+	0.3-	1996 06 13	566	0.4+	0.6-	1998 03 04	711	0.1+	0.3+
1996 04 07	557	0.1+	0.3+	1996 06 13	566	0.0	0.5-	1998 03 04	711	0.1-	0.4+
1996 04 07	557	0.1+	0.0	1996 06 27	104	(2.8+	4.4+)	1998 03 11	118	0.2-	0.2+
1996 04 08	557	0.3-	0.4-	1996 06 27	104	(0.9+	2.0+)	1998 03 11	118	0.2-	0.4+
1996 04 08	360	0.1-	0.3+	1996 06 27	104	(0.5+	2.5+)	1998 03 17	658	0.9-	0.6+
1996 04 08	360	0.1-	0.5+	1996 07 09	118	0.7+	0.5+	1998 03 17	658	1.2-	0.7+
1996 04 08	360	0.1+	0.4+	1996 07 09	118	0.8+	0.6+	1998 03 17	658	0.9-	0.5+
1996 04 09	587	0.3+	0.0	1996 07 09	118	0.8+	0.4+	1998 03 19	104	1.5+	0.6+
1996 04 09	587	0.7-	0.5+	1996 07 10	587	0.5+	0.3+	1998 03 19	104	1.4+	1.2+
1996 04 11	587	0.5+	0.7+	1996 07 10	587	(2.1+	0.2-)	1998 03 19	104	1.3+	0.0
1996 04 11	587	0.5-	0.9+	1996 07 12	118	0.2+	0.8+	1998 03 24	118	0.2-	0.0
1996 04 11	587	0.3-	0.2-	1996 07 12	118	0.4-	0.8+	1998 03 24	118	0.2-	0.0
1996 04 11	587	0.3+	0.5+	1996 07 14	566	0.3-	0.8-	1998 03 30	360	0.4-	0.2+
1996 04 12	897	0.8-	0.0	1996 07 14	566	0.3-	0.0	1998 03 30	360	0.0	0.2+
1996 04 12	897	0.4-	1.8-	1996 07 14	566	0.6-	0.1+	1998 03 30	360	0.2-	0.3+
1996 04 12	897	(2.4-	1.9-)	1996 07 15	360	0.2-	0.1+				
1996 04 13	367	0.3+	0.2-	1996 07 15	360	0.4-	0.4+				

(8567)* 1996 HW₁

Discovered 1996 Apr. 23 by Spacewatch at Kitt Peak.

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5				Williams			
<i>M</i>	119.55100		(2000.0)	<i>P</i>		<i>Q</i>	
<i>n</i>	0.33663792	<i>ω</i>	176.78507		+0.99466498		+0.10292306
<i>a</i>	2.0465736	<i>Ω</i>	177.27793		-0.09761360		+0.96087825
<i>e</i>	0.4487411	<i>i</i>	8.42570		-0.03336413		+0.25713776
<i>P</i>	2.93	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1980 01 20	413	0.8-	2.3-	1996 05 22	566	0.8+	0.6-	1996 06 09	587	0.0	0.4-
1980 01 20	413	0.4+	0.6-	1996 05 22	566	1.1+	0.1-	1996 06 10	557	0.2-	0.4-

1993 04 17	675	(2.4+	0.0)	1996 05 22	566	1.1+	0.3+	1996 06 10	557	0.0	0.6-
1993 04 17	675	1.0+	1.6-	1996 05 22	557	0.6+	0.6+	1996 06 10	557	0.3+	0.5-
1996 04 23	691	0.1-	0.4+	1996 05 22	557	0.7+	0.1+	1996 06 10	557	0.3-	0.4-
1996 04 23	691	0.3-	0.1+	1996 05 22	557	0.8+	0.4+	1996 06 12	658	0.7-	0.5-
1996 04 23	691	0.2-	0.4+	1996 05 22	599	0.5+	0.8+	1996 06 12	658	0.5-	0.3-
1996 04 24	691	1.2-	0.5+	1996 05 22	599	0.9+	0.7+	1996 06 12	658	0.4-	0.4-
1996 04 24	691	1.2-	0.3+	1996 05 22	118	0.1-	0.7+	1996 06 13	566	0.5-	0.9-
1996 04 24	691	1.2-	0.3+	1996 05 22	118	0.3+	0.6+	1996 06 13	566	0.3-	0.7-
1996 04 25	691	1.6-	1.2+	1996 05 22	118	0.1+	0.4+	1996 06 13	566	0.2-	0.7-
1996 04 25	691	1.8-	1.3+	1996 05 23	599	0.4+	0.5+	1996 06 21	711	0.4+	0.9-
1996 04 25	381	1.1-	1.1-	1996 05 23	599	1.6+	0.2+	1996 06 21	711	0.4+	0.9-
1996 04 25	381	1.1-	1.2-	1996 05 24	691	0.5-	0.7+	1996 06 21	413	0.8+	0.6-
1996 04 26	360	0.0	0.7+	1996 05 24	691	0.6-	0.6+	1996 06 21	413	0.8+	0.6-
1996 04 26	360	0.2-	0.8+	1996 05 24	691	0.9-	1.2+	1996 06 21	413	0.4+	0.8-
1996 04 26	360	0.1+	0.9+	1996 05 26	696	0.7+	0.8+	1996 06 21	413	0.3+	0.8-
1996 04 26	046	1.7-	0.2+	1996 05 26	696	0.0	0.7+	1996 06 26	711	0.5+	0.8-
1996 04 26	046	1.3-	0.6-	1996 05 26	696	0.6-	0.7+	1996 06 26	711	0.5+	0.9-
1996 04 26	046	0.6-	0.7+	1996 05 27	696	0.3-	0.0	1996 07 18	413	0.0	0.1-
1996 04 26	046	0.3+	0.5+	1996 05 27	696	0.1-	0.2+	1996 07 18	413	0.1-	0.1-
1996 04 26	046	0.7+	0.0	1996 05 27	658	0.2-	0.1+	1996 11 01	413	1.8+	0.2-
1996 04 26	046	0.3+	1.0+	1996 05 27	658	0.1-	0.1-	1996 11 02	413	0.0	0.2+
1996 04 26	046	0.7-	0.4+	1996 05 27	658	0.4-	0.2+	1996 11 02	413	0.9-	0.2+
1996 04 27	557	0.2-	0.6+	1996 05 27	696	0.0	0.0	1996 12 05	711	0.6+	0.4+
1996 04 27	557	0.6-	1.1+	1996 05 27	413	0.2-	0.2-	1996 12 05	711	0.5+	0.1+
1996 04 27	557	0.2-	0.6+	1996 05 27	413	0.2-	0.3-	1998 01 01	711	0.3+	1.1-
1996 04 27	422	0.0	1.0+	1996 05 28	413	0.4-	0.7-	1998 01 01	711	0.1+	1.2-
1996 04 27	422	0.3+	0.8+	1996 05 28	413	0.2-	0.6-	1998 01 02	711	0.7+	1.0-
1996 04 27	422	0.3+	0.6+	1996 06 06	360	0.3-	0.4-	1998 01 02	711	0.7+	0.8-
1996 05 05	658	0.2+	0.3-	1996 06 06	360	0.7-	0.5-	1998 02 20	046	0.0	0.0
1996 05 05	658	0.3+	0.0	1996 06 06	557	0.5-	1.2-	1998 02 20	046	0.6+	0.1+
1996 05 05	658	0.8-	0.2-	1996 06 06	557	0.4-	0.5-	1998 02 20	046	1.0+	0.1-
1996 05 06	046	1.0+	0.4+	1996 06 06	557	0.4-	0.2-	1998 02 21	557	0.3+	0.2-
1996 05 06	046	0.5+	0.4+	1996 06 06	557	0.7-	0.7-	1998 02 21	557	0.1+	0.5-
1996 05 06	046	0.6+	0.4+	1996 06 07	658	0.1+	0.8-	1998 02 21	557	1.0-	0.5+
1996 05 09	360	0.6+	0.1+	1996 06 07	658	0.0	0.9-	1998 02 21	046	0.5+	0.2-
1996 05 09	360	0.3+	0.1+	1996 06 07	658	0.3-	0.9-	1998 02 21	046	0.3+	0.2+
1996 05 09	360	0.3+	0.1+	1996 06 07	413	0.0	0.6-	1998 02 21	046	0.3+	0.1+
1996 05 13	867	1.0+	0.4+	1996 06 07	413	0.1+	0.7-	1998 03 01	360	0.3+	0.2-
1996 05 13	867	0.9+	0.4+	1996 06 07	595	0.2+	0.3-	1998 03 01	360	0.4+	0.3-
1996 05 13	867	0.7+	0.5+	1996 06 07	595	0.1-	0.8-	1998 03 01	360	0.2+	0.1+
1996 05 14	104	0.8+	0.5+	1996 06 07	557	0.4-	0.7-	1998 03 02	402	0.5-	0.4-
1996 05 14	104	1.3+	0.5+	1996 06 07	557	0.1-	0.7-	1998 03 02	402	0.7-	0.2+
1996 05 14	104	1.3+	0.2-	1996 06 07	557	0.9-	0.6-	1998 03 02	402	0.5-	0.3+
1996 05 14	360	1.0+	0.3+	1996 06 08	413	0.0	0.5-	1998 03 03	704	(2.8-	1.7-)
1996 05 14	360	0.6+	0.3+	1996 06 08	413	0.2+	0.5-	1998 03 03	704	1.1-	1.0+
1996 05 14	360	0.8+	0.1+	1996 06 08	413	0.2+	0.3-	1998 03 03	704	(2.9-	1.1-)
1996 05 16	691	0.2-	0.1-	1996 06 08	595	0.1+	1.0-	1998 03 03	704	(5.3-	1.7-)
1996 05 16	691	0.3-	0.4+	1996 06 08	595	0.3-	1.4-	1998 03 03	402	1.7-	1.7+
1996 05 16	691	0.2-	0.4+	1996 06 09	413	0.0	0.6-	1998 03 03	402	0.4+	0.3+
1996 05 21	599	0.9-	1.2+	1996 06 09	413	0.0	0.6-	1998 03 03	402	(2.6-	0.1+)
1996 05 21	599	0.1+	0.2+	1996 06 09	587	0.3-	0.8-				
1996 05 21	599	0.2-	1.4+	1996 06 09	587	0.0	0.7-				

1998 APR. 11

M.P.C. 31513

Residuals in seconds of arc

1993 09 19	691	0.4−	0.8+	1996 09 10	566	0.2−	0.7+	1998 01 25	566	0.3+	0.2+
1993 09 19	691	0.0	0.5+	1996 09 10	566	0.1−	0.6+	1998 01 25	566	0.4+	0.0
1993 09 19	691	0.1+	0.4+	1996 09 11	691	0.7−	0.3+	1998 01 25	691	0.1−	0.1+
1993 10 12	809	1.0+	1.5−	1996 09 11	691	0.7−	0.0	1998 01 25	566	0.8+	0.0
1993 10 12	809	(0.9+	2.3−)	1996 09 11	691	0.6−	0.0	1998 01 30	691	0.8−	0.1−
1993 10 12	809	0.5+	1.6−	1996 09 15	566	0.4+	0.5+	1998 01 30	691	0.9−	0.2−
1993 10 22	809	(4.1+	5.0−)	1996 09 15	566	0.1+	0.6+	1998 01 30	691	0.8−	0.1−
1993 10 22	809	(2.6+	3.9−)	1996 09 15	566	0.1+	0.3+	1998 03 24	910	1.1+	0.4+
1993 10 22	809	(9.2−	2.4−)	1997 11 08	910	0.8−	0.0	1998 03 24	910	1.1+	0.3+
1995 02 22	033	0.1−	0.2+	1997 11 08	910	1.5−	0.3+	1998 03 24	910	1.6+	0.4+
1995 02 23	033	0.2+	0.0	1997 11 08	910	1.1−	0.8+	1998 03 25	910	1.4+	0.3+
1995 02 24	033	0.8−	0.2+	1998 01 25	691	0.3−	0.1+	1998 03 25	910	1.2+	0.5+
1996 09 10	566	0.2−	0.3+	1998 01 25	691	0.3−	0.4+	1998 03 25	910	(2.5+	0.7−)

(8569)* 1996 TG = 1986 RD₁₁ = 1992 QQ₂

Discovered 1996 Oct. 1 by V. S. Casulli at Colleverde di Guidonia.

Id. G. V. Williams (*MPC* 28597)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29634978	ω	25.83776	+0.98081123	+0.19166523		
<i>a</i>	2.2280912	Ω	323.05653	−0.18758362	+0.87787683		
<i>e</i>	0.1276235	<i>i</i>	3.40432	−0.05311985	+0.43885843		
<i>P</i>	3.33	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1986 09 09	095	0.3+	2.4−	1996 11 01	596	0.0	0.4−	1998 03 04	704	1.5−	0.5−
1991 01 22	675	1.4+	0.7+	1996 11 01	596	0.2+	0.3−	1998 03 04	704	2.7−	1.7−
1992 08 21	413	0.4+	0.6−	1996 11 12	596	0.3−	1.4+	1998 03 18	596	0.4−	0.8+
1992 08 21	413	0.2+	0.5−	1996 11 12	596	0.6−	1.3+	1998 03 18	596	0.1+	0.6+
1996 10 01	596	0.8−	1.4−	1996 11 24	596	0.2+	0.3+	1998 03 18	596	0.3−	0.7+
1996 10 01	596	0.6−	0.7−	1996 11 24	596	0.1+	0.1+	1998 03 20	704	0.7+	1.4−
1996 10 01	596	0.6−	0.4−	1996 11 29	589	0.1−	0.6+	1998 03 20	704	1.0+	0.4−
1996 10 02	596	0.3−	0.6−	1996 11 29	589	0.1+	0.6+	1998 03 20	704	0.7+	0.9−
1996 10 02	596	0.0	0.8−	1998 02 24	566	0.7+	0.6−	1998 03 20	704	0.1−	0.1−
1996 10 12	596	0.6+	0.7+	1998 02 24	566	0.4+	0.5−	1998 03 20	704	0.3+	0.6+
1996 10 12	596	0.2+	0.8+	1998 02 24	566	0.3+	1.2−	1998 03 22	704	1.1+	0.0
1996 10 12	596	0.2+	0.6+	1998 02 24	596	0.1+	0.9−	1998 03 22	704	0.0	0.6+
1996 10 17	596	0.3+	0.8−	1998 02 24	596	0.2+	0.6−	1998 03 22	704	0.4+	0.1−
1996 10 17	596	0.6+	0.6−	1998 02 24	596	0.3+	0.8−	1998 03 22	704	0.4+	1.8−
1996 10 17	596	1.0+	0.6−	1998 03 03	704	0.5−	0.3+	1998 03 22	704	2.4−	1.9+
1996 10 19	596	0.0	0.5+	1998 03 03	704	0.0	0.5+	1998 03 24	566	0.0	0.1+
1996 10 19	596	0.1+	0.1−	1998 03 03	704	2.5+	0.0	1998 03 24	566	0.2−	0.2+
1996 10 20	596	0.3−	0.3−	1998 03 03	704	0.9+	1.5+	1998 03 24	566	0.1−	0.2+
1996 10 20	596	0.2+	0.3−	1998 03 03	704	1.3+	1.2+	1998 03 26	704	0.3−	0.2+
1996 10 20	596	0.0	0.3−	1998 03 04	704	1.2−	0.5−	1998 03 26	704	0.3−	0.5−
1996 10 20	596	0.3+	0.1+	1998 03 04	704	2.1−	0.2−	1998 03 26	704	0.9−	0.1−
1996 11 01	596	0.2+	0.3−	1998 03 04	704	2.2−	0.9−				

(8570)* 1996 TN₁₀ = 1980 RN₃ = 1983 EG₄ = 1986 XM₃ = 1988 FQ

Discovered 1996 Oct. 9 by S. Ueda and H. Kaneda at Kushiro.

Id. G. V. Williams (*MPC* 28308)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19075976	ω	68.13438	+0.37939776	−0.92523280		
<i>a</i>	2.9886716	Ω	359.56310	+0.77538666	+0.31870141		
<i>e</i>	0.0928804	<i>i</i>	9.59696	+0.50480973	+0.20584869		
<i>P</i>	5.17	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1980 09 04	095	1.8+	1.4−	1996 10 09	399	0.8−	0.5−	1998 01 29	566	0.0	0.2−
1983 03 15	095	2.1+	2.1+	1996 10 09	399	0.1−	0.4+	1998 02 02	098	0.3−	0.5−
1986 12 04	010	0.3+	0.2−	1996 10 10	399	1.2−	0.2+	1998 02 02	098	0.4+	0.3−
1986 12 04	010	(2.5+	3.4−)	1996 10 10	399	0.3+	0.2+	1998 03 21	426	0.1−	0.3−
1986 12 04	010	(2.2+	2.6−)	1996 10 16	399	0.0	1.2+	1998 03 21	426	0.1−	0.6−

1988 03 17	033	0.3−	0.5+	1996 10 16	399	0.8−	0.6+	1998 03 21	426	0.0	0.4−
1988 03 18	033	0.7−	0.1−	1996 11 03	399	0.5−	0.3−	1998 03 23	426	0.3+	0.6−
1988 03 18	033	0.4−	0.4+	1996 11 03	399	0.6+	0.1−	1998 03 23	426	0.7+	0.9−
1993 01 23	675	(1.0+	2.8+)	1998 01 29	566	0.0	0.3−	1998 03 23	426	0.6+	0.7−
1993 01 23	675	1.2−	1.8+	1998 01 29	566	0.2+	0.4−				

(8571)* 1996 UX

Discovered 1996 Oct. 20 by T. Kobayashi at Oizumi.

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20444799	ω	172.60535	+0.25697349	−0.96626797		
<i>a</i>	2.8537384	Ω	262.50297	+0.88578866	+0.24255357		
<i>e</i>	0.0703645	<i>i</i>	0.98559	+0.38644931	+0.08656774		
<i>P</i>	4.82	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1991 10 07	675	0.4−	1.1+	1996 11 13	411	0.1+	0.1−	1998 03 20	704	0.0	0.2−
1994 05 10	675	0.0	0.5−	1996 11 13	411	0.6+	0.0	1998 03 20	704	0.6+	0.1+
1994 05 10	675	0.2−	0.5−	1996 11 30	411	0.5+	0.3+	1998 03 20	704	0.5+	0.0
1994 06 08	675	(0.7−	2.2+)	1996 11 30	411	0.8−	0.2+	1998 03 20	704	0.0	0.4−
1996 10 20	411	0.6+	1.3−	1998 02 26	699	1.1+	0.1+	1998 03 22	704	0.3+	0.1+
1996 10 20	411	0.4+	0.1−	1998 02 26	699	0.3+	0.1−	1998 03 22	704	0.8+	0.9−
1996 10 21	411	0.9+	0.6−	1998 02 26	699	0.5+	0.4+	1998 03 22	704	0.3+	1.4+
1996 10 21	411	0.1+	0.8−	1998 03 02	691	1.0−	0.9−	1998 03 22	704	0.1+	1.0−
1996 10 22	411	(2.2+	0.3+)	1998 03 02	691	0.7−	0.3−	1998 03 22	704	0.2+	0.6−
1996 10 22	411	1.1+	0.5−	1998 03 02	691	0.7−	0.4−	1998 03 26	566	0.5−	0.4+
1996 11 06	411	0.3+	0.7−	1998 03 02	367	0.4+	0.1−	1998 03 26	566	0.3−	0.3+
1996 11 06	411	0.0	0.5+	1998 03 02	367	0.1+	0.2+	1998 03 26	566	0.3−	0.3+
1996 11 06	411	0.3+	1.0+	1998 03 03	699	0.1−	0.1+	1998 03 27	566	0.2−	0.3+
1996 11 09	691	1.2−	0.1−	1998 03 03	699	0.2−	0.3+	1998 03 27	566	0.2+	0.2+
1996 11 09	691	1.2−	0.0	1998 03 03	699	0.6−	0.7+	1998 03 27	566	0.3−	0.2+
1996 11 09	691	1.1−	0.1−	1998 03 20	704	0.1−	0.1−				

(8572)* 1996 UG₁ = 1986 UA₂ = 1992 LW

Discovered 1996 Oct. 19 at Kleť.

Id. B. G. Marsden (*MPC* 28599)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29933295	ω	153.53341	+0.96141746	+0.27458202		
<i>a</i>	2.2132631	Ω	190.57045	−0.26581544	+0.91156682		
<i>e</i>	0.1871533	<i>i</i>	5.24468	−0.07084219	+0.30602394		
<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 10 27	010	(12.3−	0.1+)	1996 10 25	046	0.4−	0.5+	1998 03 04	704	(2.6−	2.5−)
1986 10 27	010	1.4−	1.6+	1996 10 25	046	0.3−	0.0	1998 03 04	704	(3.6−	2.3−)
1986 10 27	010	0.4+	1.8+	1996 10 25	046	0.4+	0.4−	1998 03 04	704	(3.6−	0.7−)
1992 06 01	809	0.1+	1.5−	1996 11 05	046	0.1−	0.2−	1998 03 04	704	(3.9−	1.5−)
1992 06 01	809	0.2−	0.3+	1996 11 05	046	0.1+	0.2−	1998 03 04	704	(2.8−	1.4−)
1992 06 01	809	1.3−	1.5+	1996 11 05	046	0.0	0.2−	1998 03 20	704	(2.3−	0.2−)
1992 06 03	809	1.0+	0.3−	1996 11 17	046	0.5−	0.4−	1998 03 20	704	0.6−	0.2−
1992 06 03	809	0.6+	0.1+	1996 11 17	046	0.6−	0.5−	1998 03 20	704	1.3+	0.0
1992 06 03	809	0.4−	1.4−	1996 11 17	046	0.6−	0.5−	1998 03 20	704	(1.3+	2.4+)
1996 10 19	046	0.3+	0.6−	1996 12 03	046	0.6+	0.1−	1998 03 24	046	0.4−	0.1−
1996 10 19	046	0.2+	0.6−	1996 12 03	046	0.1−	0.3+	1998 03 24	046	0.0	0.2+
1996 10 19	046	0.3+	0.5−	1996 12 03	046	0.3+	0.8+	1998 03 24	046	0.1−	0.0
1996 10 19	046	0.5+	0.7−	1996 12 04	046	0.4+	0.1−	1998 03 24	566	0.1−	0.1+
1996 10 19	046	0.4+	0.5−	1996 12 04	046	0.3+	0.1−	1998 03 24	566	0.5+	0.5+
1996 10 19	046	0.0	0.6−	1996 12 04	046	0.0	0.2−	1998 03 24	566	0.4+	0.1−
1996 10 24	046	0.1+	0.1+	1998 03 03	704	0.6−	0.7+	1998 03 24	046	0.8+	0.2−
1996 10 24	046	0.2−	0.1+	1998 03 03	704	1.8−	1.3−	1998 03 24	046	0.2+	0.4+
1996 10 24	046	0.0	0.2+	1998 03 03	704	0.9+	1.6+	1998 03 24	046	0.0	0.0
1996 10 24	046	0.0	0.1+	1998 03 03	704	0.1−	0.3−				
1996 10 24	046	0.0	0.2+	1998 03 03	704	(6.2−	0.2+)				

(8573)* 1996 VQ = 1980 TQ₂ = 1988 FL₂

Discovered 1996 Nov. 4 at Kleť.

Id. A. Gnädig (*MPC* 31111)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i> 17.86988		(2000.0)		P		Q	
<i>n</i>	0.19156417	ω	83.57321	−0.44737277	−0.88471159		
<i>a</i>	2.9802992	Ω	33.99609	+0.69972636	−0.43742354		
<i>e</i>	0.1327824	<i>i</i>	13.54253	+0.55699248	−0.16107775		
<i>P</i>	5.15	<i>H</i>	12.4	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1980 10 05	809	0.2+	0.4−	1996 12 03	046	0.0	0.2−	1998 02 05	046	0.2−	0.2+
1988 03 16	400	1.6+	0.0	1996 12 04	046	0.2+	0.0	1998 02 05	046	0.1−	0.1+
1988 03 16	400	(3.5+ 2.1−)		1996 12 04	046	0.0	0.1−	1998 02 05	046	0.2−	0.1+
1993 04 15	675	0.8−	0.0	1996 12 04	046	0.2−	0.1−	1998 03 16	758	0.2+	0.1+
1993 04 15	675	1.4−	1.0+	1996 12 12	046	0.3+	0.1−	1998 03 16	758	0.9+	0.4+
1996 11 04	046	0.0	0.3+	1996 12 12	046	0.1+	0.0	1998 03 17	758	0.3+	0.4+
1996 11 04	046	0.5+	0.8+	1996 12 12	046	0.1+	0.0	1998 03 17	758	0.9−	0.0
1996 11 06	046	0.0	0.1+	1997 01 08	046	0.3+	0.2−	1998 03 24	046	0.0	0.5−
1996 11 06	046	0.1−	0.0	1997 01 08	046	0.2+	0.0	1998 03 24	046	0.0	0.5−
1996 11 06	046	0.2+	0.2+	1997 01 08	046	0.1+	0.1+	1998 03 24	046	0.0	0.6−
1996 11 06	046	0.0	0.3+	1997 01 12	046	0.1+	0.1+	1998 03 24	704	0.3+	0.1−
1996 11 08	046	0.2−	0.1+	1997 01 12	046	0.1+	0.1+	1998 03 24	704	0.0	0.6+
1996 11 08	046	0.1+	0.5+	1997 01 12	046	0.2+	0.1+	1998 03 24	704	0.8+	0.8−
1996 11 09	046	0.2−	0.3+	1997 01 28	046	0.0	0.1+	1998 03 24	704	0.2+	0.3−
1996 11 16	046	0.3−	0.3−	1997 01 28	046	0.0	0.2+	1998 03 24	046	0.3+	0.3−
1996 11 16	046	0.1−	0.3−	1997 01 28	046	0.3+	0.1+	1998 03 24	046	0.3+	0.4−
1996 11 16	046	0.2−	0.2−	1997 01 29	046	0.2−	0.2−	1998 03 24	046	0.1−	0.1−
1996 11 19	046	0.5−	0.3−	1997 01 29	046	0.2+	0.2+	1998 03 25	704	0.3−	0.1+
1996 11 19	046	0.5−	0.3−	1997 01 29	046	0.0	0.1−	1998 03 25	704	0.7+	0.1+
1996 11 19	046	0.5−	0.4−	1998 02 04	046	0.2−	0.3+	1998 03 25	704	0.1−	0.3−
1996 12 03	046	0.1+	0.2−	1998 02 04	046	0.3−	0.3+	1998 03 25	704	0.0	0.3+
1996 12 03	046	0.3+	0.1−	1998 02 04	046	0.3−	0.2+	1998 03 25	704	0.8−	0.4−

(8574)* 1996 VC₂ = 1955 UM = 1977 SK₁ = 1980 QC

Discovered 1996 Nov. 6 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 28599)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i> 180.64125		(2000.0)		P		Q	
<i>n</i>	0.31368573	ω	88.18493	+0.95227372	+0.30454168		
<i>a</i>	2.1452251	Ω	254.08405	−0.28792388	+0.87362914		
<i>e</i>	0.1819267	<i>i</i>	1.23430	−0.10136368	+0.37950823		
<i>P</i>	3.14	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1955 10 20	760	(2.4+ 4.2+)		1996 11 15	399	0.2+	0.6−	1998 03 04	704	1.1−	0.3−
1955 10 20	760	0.6−	0.7+	1996 11 15	399	1.9+	0.2−	1998 03 04	704	(4.1− 1.2−)	
1977 09 19	095	0.1+	1.3+	1996 11 15	411	0.1−	0.2−	1998 03 20	704	1.3+	1.6+
1980 08 17	046	0.6+	1.6−	1996 11 16	411	0.2+	0.3−	1998 03 20	704	0.4+	0.7−
1980 08 17	046	0.0	1.4−	1996 11 16	411	0.3+	0.3−	1998 03 20	704	0.2−	0.7−
1980 08 18	046	0.0	0.5−	1996 11 30	411	0.8+	0.4−	1998 03 20	704	0.0	0.2−
1980 08 18	046	0.4+	1.0+	1996 11 30	411	0.5+	0.5−	1998 03 20	704	0.2−	1.3−
1994 01 17	010	0.5+	0.8+	1996 12 08	411	0.1+	0.4−	1998 03 22	704	0.1+	0.5−
1994 01 17	010	0.8+	0.6+	1996 12 08	411	1.0+	0.8+	1998 03 22	704	0.6−	0.6−
1994 01 17	010	0.5+	0.2+	1996 12 13	691	1.0−	0.1+	1998 03 22	704	0.3+	0.0
1996 11 06	411	0.1+	0.6−	1996 12 13	691	0.8−	0.0	1998 03 22	704	0.8−	1.4−
1996 11 06	411	1.0−	0.1−	1996 12 13	691	0.8−	0.1−	1998 03 24	566	0.1−	0.6−
1996 11 07	399	(1.3− 2.5+)		1996 12 17	691	1.1−	0.1−	1998 03 24	566	0.3+	1.0−
1996 11 07	399	0.4+	1.6+	1996 12 17	691	1.2−	0.1−	1998 03 24	566	0.2−	0.2−
1996 11 10	411	1.1+	0.4−	1997 01 12	691	1.0−	0.2+	1998 04 01	704	0.4+	0.3−
1996 11 10	411	0.7+	0.2+	1997 01 12	691	1.4−	0.2+	1998 04 01	704	1.0+	0.6+
1996 11 12	399	1.4−	0.9−	1997 01 12	691	1.1−	0.3+	1998 04 01	704	0.0	0.1+
1996 11 12	399	0.6+	1.5−	1998 03 04	704	(2.8− 1.5+)		1998 04 01	704	0.2+	0.0
1996 11 15	411	0.5+	0.8−	1998 03 04	704	1.3−	1.4+	1998 04 01	704	0.3+	1.1−
1996 11 15	411	0.4+	0.4−	1998 03 04	704	1.9−	1.6+				

(8575)* 1996 VL₈ = 1989 NZ = 1991 AR₂

Discovered 1996 Nov. 7 by K. Endate and K. Watanabe at Kitami.

Id. K. Ichikawa (*MPC* 29117)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i> 173.39326		(2000.0)		P		Q	
<i>n</i>	0.29763192	ω	36.89057	+0.88750624	+0.45647995		
<i>a</i>	2.2216879	Ω	295.83577	−0.43770720	+0.79246195		
<i>e</i>	0.2164100	<i>i</i>	4.00857	−0.14403151	+0.40451219		
<i>P</i>	3.31	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1989 07 01	675	0.3+	0.6−	1996 11 13	400	1.4−	0.5−	1998 03 04	704	(2.1− 0.2−)	
1989 07 01	675	1.1+	0.9−	1996 11 16	400	0.1+	0.3−	1998 03 04	704	(2.4− 0.1−)	
1989 07 03	675	0.5−	0.6−	1996 11 16	400	0.0	0.2−	1998 03 04	704	1.3−	0.6−
1989 07 03	675	0.1−	0.6−	1998 02 22	691	1.2−	0.4−	1998 03 04	704	(2.5− 0.4+)	
1991 01 15	033	0.7−	0.4+	1998 02 22	691	1.3−	0.4−	1998 03 20	704	0.1−	0.3−
1991 01 15	033	1.7+	0.1−	1998 02 22	691	1.2−	0.3−	1998 03 20	704	0.4−	1.2−
1991 01 15	033	0.1−	0.1−	1998 02 22	566	0.9+	1.2−	1998 03 20	704	1.9−	1.7−
1991 01 15	033	0.6−	0.4+	1998 02 22	566	0.5+	0.4−	1998 03 20	704	(0.5− 2.1−)	
1991 01 16	033	0.6+	1.5+	1998 02 22	566	0.6+	0.7−	1998 03 20	704	(5.2− 0.2+)	
1996 11 06	400	(0.5− 2.6−)		1998 02 27	566	0.2+	0.0	1998 03 22	704	(4.6− 4.0−)	
1996 11 06	400	1.5−	1.7−	1998 02 27	566	0.2+	0.3−	1998 03 22	704	1.3−	0.8+
1996 11 07	400	1.7+	0.9−	1998 02 27	566	0.2+	0.3+	1998 03 22	704	(2.5− 1.5+)	
1996 11 07	400	1.0+	0.9+	1998 03 03	704	0.5−	0.3−	1998 03 22	704	0.4+	1.8−
1996 11 08	400	0.2+	0.3−	1998 03 03	704	1.6+	1.0+	1998 03 22	704	0.3+	1.5+
1996 11 08	400	1.3+	0.6−	1998 03 03	704	0.2+	0.9+				
1996 11 13	400	0.5−	0.2−	1998 03 03	704	1.4+	0.4−				

(8576)* 1996 VN₈ = 1974 VF = 1992 PN₃

Discovered 1996 Nov. 7 by S. Ueda and H. Kaneda at Kushiro.

Id. K. Ichikawa (*MPC* 29117)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i> 117.70052		(2000.0)		P		Q	
<i>n</i>	0.26845258	ω	345.64234	+0.87408332	−0.48440693		
<i>a</i>	2.3798943	Ω	43.39268	+0.45076017	+0.78082309		
<i>e</i>	0.2069468	<i>i</i>	3.04101	+0.18109008	+0.39454433		
<i>P</i>	3.67	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1974 11 12	095	2.1−	0.2−	1996 11 15	399	0.9−	0.7−	1998 03 20	704	2.0+	0.1−
1974 11 17	095	2.4+	0.4−	1997 01 15	566	0.4+	1.1+	1998 03 20	704	(2.9+ 0.2+)	
1992 08 05	675	0.5+	1.3−	1997 01 15	566	0.8+	0.8+	1998 03 20	704	(4.0− 0.2−)	
1992 08 05	675	(1.9+ 2.6−)		1997 01 15	566	0.4+	0.8+	1998 03 21	691	0.1−	0.1+
1992 08 06	675	0.8+	1.5−	1997 12 07	910	1.4−	0.5−	1998 03 21	691	0.1−	0.0
1992 08 06	675	0.1+	1.2−	1997 12 07	910	1.2−	0.2−	1998 03 21	691	0.3−	0.1+
1996 10 05	327	1.3+	0.2+	1997 12 07	910	1.2−	1.1−	1998 03 22	704	1.0−	0.1+
1996 10 05	327	1.2+	0.2−	1997 12 08	910	1.0−	0.1+	1998 03 22	704	1.8+	1.5−
1996 10 05	327	1.7+	0.4−	1997 12 08	910	1.0−	0.6−	1998 03 22	704	0.4−	0.6−
1996 11 06	399	1.1−	0.9−	1997 12 08	910	1.4−	0.2−	1998 03 22	704	(0.9+ 4.4−)	
1996 11 07	399	0.3−	0.1−	1998 03 18	691	1.6−	0.3+	1998 03 24	566	0.1+	1.0−
1996 11 07	399	1.2+	0.6−	1998 03 18	691	0.9−	0.2−	1998 03 24	566	0.5+	0.8−
1996 11 12	399	0.8−	0.2−	1998 03 18	691	0.7−	0.3−	1998 03 24	566	0.4+	1.2−
1996 11 12	399	1.1−	0.7−	1998 03 20	704	0.8+	0.3+				
1996 11 15	399	0.6−	1.1−	1998 03 20	704	0.0	1.5−				

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

<i>M</i>	182.26171		(2000.0)	P	Q
<i>n</i>	0.27743243	ω	112.52436	+0.71003705	+0.70283382
<i>a</i>	2.3282587	Ω	202.89525	-0.68000913	+0.66842946
<i>e</i>	0.1980049	<i>i</i>	6.38519	-0.18285233	+0.24336531
<i>P</i>	3.55	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1978 10 09	095	0.2+	2.2-	1996 11 08	400	0.8-	1.0-	1998 01 31	691	1.3-	0.6-
1981 05 08	675	0.3+	0.2+	1996 11 13	400	0.1-	0.1-	1998 03 03	704	0.4+	0.0
1981 05 09	675	0.1-	0.5-	1996 11 13	400	0.0	0.5-	1998 03 03	704	0.1-	0.1-
1982 12 18	801	0.7+	1.1+	1996 11 16	400	0.2-	0.1+	1998 03 03	704	0.0	0.0
1986 12 01	010	1.2-	1.1+	1996 11 16	400	0.0	0.2-	1998 03 03	704	0.2+	0.3+
1986 12 01	010	0.2-	1.8+	1996 12 02	399	1.0-	1.0-	1998 03 03	704	0.7-	0.6-
1986 12 01	010	1.2+	0.5-	1996 12 02	399	0.7-	0.0	1998 03 04	704	0.0	0.3+
1991 03 13	675	0.3-	0.1-	1998 01 24	566	0.4+	0.4-	1998 03 04	704	0.2+	0.1+
1991 03 13	675	0.6+	1.1-	1998 01 24	566	0.4+	0.4-	1998 03 04	704	0.9+	0.4+
1996 11 07	400	0.9+	0.3+	1998 01 24	566	0.1+	0.4-	1998 03 04	704	0.1-	0.0
1996 11 07	400	1.9+	0.4+	1998 01 31	691	1.2-	0.4-	1998 03 04	704	0.5+	0.2-
1996 11 08	400	0.4+	1.3+	1998 01 31	691	1.3-	0.6-				

(8578)* 1996 WZ = 1970 XJ = 1980 TH₁₃ = 1985 UO

Discovered 1996 Nov. 19 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 28604)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

<i>M</i>	121.82519		(2000.0)	P	Q
<i>n</i>	0.18927263	ω	325.24483	+0.91797508	-0.36291307
<i>a</i>	3.0043060	Ω	56.81679	+0.39325743	+0.78019222
<i>e</i>	0.0922728	<i>i</i>	11.02488	+0.05167531	+0.50950387
<i>P</i>	5.21	<i>H</i>	12.2	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1970 12 04	095	0.3+	1.4-	1996 11 21	411	0.1+	0.0	1998 03 24	704	0.3+	0.1+
1980 10 11	095	(7.7+	0.5-)	1996 11 30	411	0.2-	0.7+	1998 03 24	704	0.3+	0.2-
1980 10 13	095	(6.9+	2.4+)	1996 11 30	411	0.0	0.3+	1998 03 24	704	0.4+	0.5-
1985 10 20	046	0.0	0.3+	1996 12 06	411	0.2+	0.3+	1998 03 24	704	0.2+	0.9-
1985 10 20	046	0.3+	0.2-	1996 12 06	411	0.0	0.3+	1998 03 24	566	0.2-	0.7+
1985 10 21	046	(0.9-	16.5-)	1996 12 19	411	0.0	0.1+	1998 03 24	566	0.3-	0.7+
1985 10 21	046	(1.0-	12.9-)	1996 12 19	411	0.2-	0.2+	1998 03 24	566	0.4-	0.9+
1985 10 24	046	(4.4-	1.8+)	1996 12 28	411	0.1+	0.2+	1998 03 25	704	0.3+	0.5+
1985 10 24	046	1.2-	1.2+	1996 12 28	411	0.2+	0.2+	1998 03 25	704	0.1+	0.7+
1993 03 23	675	0.0	0.1-	1997 02 11	689	0.0	1.3-	1998 03 25	704	0.3+	0.4+
1993 03 23	675	0.1+	0.2-	1998 03 02	367	0.5-	0.6-	1998 03 25	704	0.2+	0.1-
1996 11 19	411	0.5-	0.5-	1998 03 02	367	0.4-	0.4-	1998 03 25	704	0.8+	0.9+
1996 11 19	411	0.1+	0.1+	1998 03 08	411	0.4-	0.4-				
1996 11 21	411	0.3+	0.3-	1998 03 08	411	0.3-	0.0				

(8579)* 1996 XV₁₉ = 1929 UF = 1956 PA = 1972 TA₈ = 1976 UN₅

Discovered 1996 Dec. 11 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 28873)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

<i>M</i>	194.28420		(2000.0)	P	Q
<i>n</i>	0.25217563	ω	151.27850	+0.92649518	+0.37628656
<i>a</i>	2.4812316	Ω	186.62120	-0.35137812	+0.86137634
<i>e</i>	0.1913911	<i>i</i>	1.93175	-0.13468517	+0.34123192
<i>P</i>	3.91	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1929 10 26	690	0.3+	1.0-	1996 12 29	411	0.4-	0.5-	1998 03 22	704	0.6-	0.1-
1929 10 27	690	(4.4+	0.8-)	1996 12 29	411	0.3-	0.5-	1998 03 22	704	(1.4+	5.8-)
1956 08 08	024	(10.3-	0.1-)	1997 01 13	411	0.0	0.3-	1998 03 24	704	0.5+	0.4-
1972 10 06	095	0.3+	0.9-	1997 01 13	411	0.4-	0.2-	1998 03 24	704	0.5+	0.1-
1976 10 30	095	(5.1+	1.6-)	1998 02 24	566	0.7-	0.0	1998 03 24	704	0.4+	0.1+
1992 12 29	033	1.0+	0.0	1998 02 24	566	0.3-	0.1+	1998 03 24	704	0.3-	0.3-

1992 12 30	033	0.8-	0.1-	1998 02 24	566	0.5-	0.4+	1998 03 24	704	0.6-	0.5-
1993 01 01	033	0.0	0.2+	1998 03 20	704	0.2+	0.5+	1998 03 25	367	0.2-	0.2+
1996 12 11	411	1.0+	0.9+	1998 03 20	704	0.2+	0.1+	1998 03 25	367	0.2+	0.7-
1996 12 11	411	0.6-	0.5+	1998 03 20	704	0.3+	0.3+	1998 04 01	704	0.3-	1.1-
1996 12 12	411	0.3+	0.8+	1998 03 20	704	0.3+	0.2-	1998 04 01	704	0.0	0.5-
1996 12 12	411	0.3-	0.2+	1998 03 20	704	0.1+	0.0	1998 04 01	704	0.0	0.8+
1996 12 21	411	0.2+	0.1-	1998 03 22	704	0.1-	0.4+	1998 04 01	704	0.2-	0.8-
1996 12 21	411	0.9+	0.2-	1998 03 22	704	0.4+	0.1+	1998 04 01	704	0.3-	0.0
1996 12 28	411	0.5-	0.2+	1998 03 22	704	(3.3+	0.7-)				

(8580)* 1996 XZ₂₅ = 1979 YC₄ = 1986 AY₁ = 1990 WO₅

Discovered 1996 Dec. 14 by P. G. Comba at Prescott.

Id. B. G. Marsden (*MPC* 28874)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

<i>M</i>	117.33099		(2000.0)	P	Q
<i>n</i>	0.17897233	ω	293.05147	+0.72443548	-0.66006308
<i>a</i>	3.1184979	Ω	108.88688	+0.68397635	+0.65235638
<i>e</i>	0.1321382	<i>i</i>	12.12716	+0.08584628	+0.37248878
<i>P</i>	5.51	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1979 12 18	095	0.9-	0.0	1996 12 15	684	0.0	0.2+	1998 03 01	684	0.1-	0.1+
1986 01 12	688	1.0+	1.0+	1996 12 15	684	0.0	0.1+	1998 03 01	684	0.1-	0.2-
1986 01 12	688	0.0	1.1-	1996 12 17	684	0.1+	0.2+	1998 03 02	684	0.8-	0.2+
1990 11 17	809	0.5+	0.6+	1996 12 17	684	0.1+	0.0	1998 03 02	684	0.4-	0.3+
1990 11 17	809	0.7+	0.2-	1996 12 18	684	0.1-	0.2+	1998 03 22	684	0.0	0.2-
1990 11 17	809	0.5-	0.6+	1996 12 18	684	0.1-	0.2+	1998 03 22	684	0.1+	0.1+
1990 11 23	809	0.7+	1.5-	1997 01 01	684	0.2-	0.9+	1998 03 22	684	0.0	0.2-
1990 11 23	809	0.4+	0.7-	1997 01 01	684	0.2+	0.8+	1998 03 23	684	0.1+	0.4-
1990 11 23	809	0.3-	0.8-	1997 01 04	684	0.4-	0.1-	1998 03 23	684	0.1+	0.3-
1996 12 14	684	0.2+	0.2+	1997 01 04	684	0.3-	0.3-	1998 03 25	566	0.4+	0.3-
1996 12 14	684	0.2+	0.1+	1997 01 04	684	0.3-	0.2-	1998 03 25	566	0.3+	0.5-
1996 12 15	684	0.1-	0.0	1997 01 04	684	0.4-	0.2-	1998 03 25	566	0.3-	0.2-

(8581)* 1996 YO₂ = 1977 XS

Discovered 1996 Dec. 28 by N. Sato at Chichibu.

Id. T. Urata (*MPC* 29119)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

<i>M</i>	37.44434		(2000.0)	P	Q
<i>n</i>	0.20628911	ω	30.54432	-0.27124872	-0.96099276
<i>a</i>	2.8367334	Ω	75.23994	+0.87141015	-0.26901797
<i>e</i>	0.0428433	<i>i</i>	3.20180	+0.40874011	-0.06420477
<i>P</i>	4.78	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1977 12 07	675	0.6+	0.6-	1997 01 02	369	0.1+	0.3+	1998 02 27	566	0.2+	0.3+
1977 12 08	675	0.4-	0.4-	1997 01 28	369	0.2-	0.1-	1998 03 20	704	0.0	0.3-
1989 05 07	675	1.0-	1.9-	1997 01 28	369	0.4+	0.1+	1998 03 20	704	0.9+	0.5-
1989 05 07	675	0.2-	1.5+	1997 01 28	369	0.0	0.0	1998 03 20	704	1.1+	0.1-
1991 11 02	691	1.0+	0.5+	1997 02 01	369	0.2+	0.5-	1998 03 20	704	0.6+	0.2-
1991 11 02	691	0.0	0.3+	1997 02 01	369	0.3+	1.4-	1998 03 20	704	0.0	0.5+
1991 11 02	691	0.0	0.4+	1997 02 01	369	0.1-	0.5+	1998 03 22	704	0.2-	0.2-
1996 12 28	369	0.1-	0.6-	1997 02 06	691	2.0-	0.4-	1998 03 22	704	0.6-	0.2-
1996 12 28	369	0.8+	0.3+	1997 02 06	691	1.8-	0.4-	1998 03 22	704	0.1+	0.2+
1996 12 28	369	0.4+	0.0	1997 02 06	691	1.5-	0.5-	1998 03 22	704	0.6+	0.4+
1996 12 29	369	0.3+	0.0	1998 02 19	699	1.1-	0.2+	1998 03 22	704	0.7-	0.0
1996 12 29	369	0.3+	0.3+	1998 02 19	699	0.2+	0.1-	1998 03 26	704	0.8+	0.2-
1996 12 29	369	0.0	0.4-	1998 02 19	699	0.2+	0.4+	1998 03 26	704	0.2-	0.4-
1997 01 02	369	0.3+	1.4+	1998 02 27	566	0.3+	0.2+	1998 03 26	704	0.4-	0.1-
1997 01 02	369	0.1-	0.1+	1998 02 27	566	0.0	0.3+				

(8582)* 1997 AY = 1951 XB = 1962 XF = 1979 YB₇ = 1984 UV₄ = 1988 JC₂

Discovered 1997 Jan. 2 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 28878)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17754790	ω	290.47693	+0.99291506	+0.09980555		
<i>a</i>	3.1351550	Ω	63.84182	-0.06307358	+0.90261219		
<i>e</i>	0.2087216	<i>i</i>	4.11997	-0.10070454	+0.41872435		
<i>P</i>	5.55	<i>H</i>	12.0	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc							
1951 12 03	760	(0.5+ 4.2+)	1997 01 07	411	0.6+ 0.4-	1998 03 02	809 0.5+ 1.1-
1951 12 03	760	1.2+ 0.3-	1997 01 07	411	0.1+ 0.1-	1998 03 02	809 0.5+ 0.5-
1962 12 01	760	(16.2+ 16.1+)	1997 01 14	411	0.2+ 0.3+	1998 03 02	809 1.2- 1.0-
1979 12 18	095	1.5- 2.2-	1997 01 14	411	0.1- 0.1+	1998 03 03	699 0.6- 0.7+
1984 10 20	095	1.2- 1.1-	1997 01 26	411	0.6+ 0.7-	1998 03 03	699 0.4- 0.2-
1988 05 12	033	1.1- 0.5-	1997 01 26	411	1.2+ 0.5-	1998 03 03	699 1.4- 0.9+
1988 05 12	033	1.2- 0.4-	1998 02 24	627	(1.5+ 3.6+)	1998 03 03	367 0.8- 0.0
1995 10 17	114	1.4+ 0.1-	1998 02 24	627	1.2+ 0.5+	1998 03 03	367 0.1- 0.3+
1996 12 03	691	0.5- 1.1+	1998 02 24	627	0.7+ 1.1+	1998 03 20	704 0.2+ 0.4-
1996 12 03	691	0.5- 1.5+	1998 02 26	566	0.2- 0.1-	1998 03 20	704 0.5- 0.4-
1996 12 03	691	0.5- 1.4+	1998 02 26	566	0.4- 0.2-	1998 03 20	704 0.1+ 0.1-
1996 12 08	691	0.3- 0.0	1998 02 26	566	0.1- 0.2-	1998 03 20	704 0.8- 0.7-
1996 12 08	691	0.3- 0.0	1998 02 27	809	0.8+ 1.1+	1998 03 20	704 0.3- 0.0
1996 12 08	691	0.1- 0.0	1998 02 27	809	0.7+ 0.9+	1998 03 22	704 0.0- 0.1-
1997 01 02	411	1.2+ 0.6-	1998 02 27	809	1.1+ 0.2+	1998 03 22	704 0.2+ 0.1-
1997 01 02	411	0.1+ 0.2-	1998 03 01	809	1.4+ 1.7-	1998 03 22	704 0.4- 0.8+
1997 01 03	411	0.6+ 0.7+	1998 03 01	809	0.7+ 1.6-	1998 03 22	704 0.4+ 0.1-
1997 01 03	411	0.9- 0.3+	1998 03 01	809	(0.1+ 2.7-)	1998 03 22	704 0.2- 0.2-

(8583)* 1997 AK₆ = 1992 ED₃₀ = 1994 PD₄₀

Discovered 1997 Jan. 8 by P. G. Comba at Prescott.

Id. T. Urata (*MPC* 29634), S. Nakano (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17377477	ω	129.04558	-0.96997925	+0.24194910		
<i>a</i>	3.1803743	Ω	64.96837	-0.23064392	-0.88330624		
<i>e</i>	0.1519889	<i>i</i>	1.55028	-0.07709503	-0.40153545		
<i>P</i>	5.67	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc							
1992 03 03	809	1.0- 0.4+	1997 01 08	684	0.2+ 0.1+	1998 03 22	684 0.2- 1.0+
1992 03 07	809	1.0+ 0.5-	1997 01 08	684	0.4+ 0.1+	1998 03 23	684 0.5- 0.6+
1994 08 12	809	0.2+ 1.4+	1997 01 09	684	0.0 0.2+	1998 03 23	684 0.2- 0.6+
1994 08 12	809	0.2+ 0.9+	1997 01 09	684	0.1+ 0.1+	1998 03 25	704 0.6+ 0.9+
1994 08 12	809	1.1+ 1.9+	1997 01 09	684	0.5+ 0.0	1998 03 25	704 0.5- 1.0+
1994 09 06	809	1.2- 1.1-	1998 03 03	910	0.9+ 0.3-	1998 03 25	704 0.5+ 1.7-
1994 09 06	809	1.6- 1.3-	1998 03 03	910	0.9+ 0.4-	1998 03 25	704 0.2- 0.9-
1994 09 06	809	0.6+ 0.3+	1998 03 03	910	0.5+ 0.2-	1998 03 25	704 0.5- 0.1-
1996 12 08	369	1.0- 0.1-	1998 03 22	684	0.2- 0.7+		
1996 12 08	369	0.2- 1.0+	1998 03 22	684	0.4- 0.4+		

(8584)* 1997 AN₂₂ = 1971 BY₂ = 1971 BU₃ = 1978 ND₈ = 1984 UY₃

Discovered 1997 Jan. 11 by the Beijing Schmidt CCD Asteroid Program at

Xinglong.

Id. S. Nakano (*MPC* 31113), C. M. Bardwell (d, *MPC* 6840)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18724354	ω	1.59376	+0.43378387	+0.88915967		
<i>a</i>	3.0259714	Ω	294.13488	-0.82842310	+0.32999749		
<i>e</i>	0.0726255	<i>i</i>	9.18654	-0.35432573	+0.31701220		
<i>P</i>	5.26	<i>H</i>	12.2	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc							
1971 01 27	805	1.0- 0.2+	1997 01 26	327	0.4+ 0.1+	1998 03 24	426 0.1+ 0.2-
1971 01 29	805	1.1+ 0.4+	1997 01 26	327	1.0+ 0.1+	1998 03 31	704 0.1+ 0.4+

1978 07 07	675	0.3- 0.9+	1998 02 01	327	0.1- 0.2+	1998 03 31	704 0.3+ 0.2+
1978 07 08	675	0.2- 0.5+	1998 02 01	327	0.2- 0.1+	1998 03 31	704 0.7- 0.1+
1978 07 09	675	0.2+ 0.6+	1998 02 01	327	0.0 0.3+	1998 03 31	704 1.1+ 0.1+
1984 10 20	095	0.1- 0.8-	1998 02 06	327	0.2+ 0.0	1998 03 31	704 0.5- 1.2+
1997 01 11	327	0.3- 0.0	1998 02 06	327	0.2+ 0.2+	1998 04 01	704 0.2- 0.8-
1997 01 11	327	1.0- 0.1+	1998 02 06	327	0.3- 0.2-	1998 04 01	704 0.5- 0.9-
1997 01 11	327	0.6+ 0.1+	1998 03 21	426	0.0 0.3+	1998 04 01	704 0.3- 0.5-
1997 01 18	327	0.6+ 0.4+	1998 03 21	426	0.0 0.2+	1998 04 01	704 0.0 1.2-
1997 01 18	327	0.3+ 0.4+	1998 03 21	426	0.0 0.2+	1998 04 01	704 0.8- 0.4-
1997 01 18	327	0.2- 0.2+	1998 03 24	426	0.2+ 0.1+		
1997 01 26	327	0.1- 0.2-	1998 03 24	426	0.4+ 0.1-		

(8585)* 2025 P-L = 1992 EQ₂₁

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* 23866)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17224217	ω	229.98534	-0.65078384	+0.75926111		
<i>a</i>	3.1992122	Ω	359.40565	-0.63631720	-0.54663768		
<i>e</i>	0.1836608	<i>i</i>	9.53969	-0.41422314	-0.35314276		
<i>P</i>	5.72	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	2
Residuals in seconds of arc							
1960 09 24	675	0.9+ 0.2+	1998 01 24	910	0.6- 0.1+	1998 03 20	704 0.2- 0.3-
1960 09 26	675	0.4+ 1.2-	1998 01 24	910	0.5- 0.1-	1998 03 20	704 1.0- 0.2+
1960 09 28	675	0.3+ 0.9-	1998 01 24	910	0.7- 0.1+	1998 03 22	704 0.5+ 0.1-
1960 10 17	675	1.6- 1.4+	1998 01 28	910	0.4- 0.1-	1998 03 22	704 0.3- 0.5+
1960 10 22	675	0.1+ 0.1-	1998 01 28	910	0.3- 0.2-	1998 03 22	704 1.4+ 0.3+
1960 10 25	675	0.1+ 0.7-	1998 01 28	910	0.3- 0.2-	1998 03 22	704 0.3- 1.1+
1960 10 26	675	0.8+ 0.5-	1998 01 30	910	0.5- 0.5-	1998 03 22	704 1.0- 0.3+
1988 09 11	675	0.3- 0.1-	1998 01 30	910	0.1- 0.0	1998 04 01	704 0.5+ 0.2-
1988 09 11	675	0.5+ 0.3-	1998 01 30	910	0.0 0.6+	1998 04 01	704 1.2+ 0.8-
1992 03 05	809	0.2- 0.1-	1998 03 20	704	0.3- 0.2-	1998 04 01	704 0.0 0.4-
1992 03 07	809	0.5+ 0.1-	1998 03 20	704	0.3+ 0.4-	1998 04 01	704 0.0 1.0-
1992 04 06	809	0.3+ 0.6+	1998 03 20	704	0.2+ 0.4+	1998 04 01	704 0.2- 1.3-

(8586)* 2563 P-L = 1978 WA₆

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. C. M. Bardwell (*MPC* 6207)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17184816	ω	112.65970	-0.11983200	+0.99268336		
<i>a</i>	3.2041005	Ω	150.44601	-0.92155406	-0.10566302		
<i>e</i>	0.1402961	<i>i</i>	1.72334	-0.36929447	-0.05843860		
<i>P</i>	5.74	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc							
1954 07 28	675	1.6- 0.5+	1992 03 06	691	0.9- 0.6+	1997 01 12	566 1.7+ 0.7-
1954 07 28	675	0.7+ 0.0	1992 03 08	809	0.2- 0.6+	1997 01 12	566 0.8+ 0.6-
1960 09 24	675	0.8+ 1.4-	1992 03 09	809	0.3- 0.9+	1998 02 26	566 0.5- 1.5-
1960 09 26	675	0.6+ 0.7-	1992 04 06	809	0.7- 0.6-	1998 02 26	566 0.0 1.8-
1960 09 28	675	0.3- 1.5-	1994 09 12	292	0.8+ 1.2+	1998 02 26	566 0.2+ 1.7-
1960 09 29	675	0.9+ 1.7-	1994 09 12	292	1.2- 1.4-	1998 03 20	704 0.2+ 0.0
1960 10 22	675	0.1+ 0.2+	1995 12 16	691	0.1- 0.1+	1998 03 20	704 0.7- 1.0+
1960 10 25	675	1.6+ 0.4+	1995 12 16	691	0.3- 0.2+	1998 03 20	704 0.7- 0.2-
1960 10 26	675	0.4+ 0.2+	1995 12 16	691	0.2- 0.1-	1998 03 20	704 0.6- 1.2+
1978 11 29	675	0.8- 0.5-	1995 12 22	691	0.1+ 0.5+	1998 03 20	704 0.3- 1.4+
1978 11 30	675	0.3- 0.0	1995 12 22	691	0.1- 0.7+	1998 03 22	704 0.4- 0.3-
1992 02 25	675	0.1+ 0.2+	1995 12 22	691	0.6- 0.8+	1998 03 22	704 1.1+ 0.4+
1992 02 25	675	0.2- 0.8-	1995 12 28	691	0.4- 0.3+	1998 03 22	704 0.3+ 0.9-
1992 03 06	809	0.0 1.4+	1995 12 28	691	0.2- 0.1+	1998 03 22	704 1.1+ 1.3-
1992 03 06	691	1.1- 0.1+	1995 12 28	691	0.2- 0.4+	1998 03 22	704 1.1+ 1.1-
1992 03 06	691	0.9- 0.4+	1997 01 12	566	0.9+ 0.7-		

(8587)* 3078 P-L = 1992 OS₅

Discovered 1960 Sept. 25 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. T. Kobayashi (*MPC* 23985)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	308.54263	ω	245.86945	−0.99636930	+0.02185616		
<i>a</i>	2.3496633	Ω	295.29501	+0.01587738	−0.90182775		
<i>e</i>	0.0935556	<i>i</i>	5.22167	−0.08364289	−0.43154261		
<i>P</i>	3.60	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1950 12 09	675	0.3+	0.2−	1992 07 26	809	0.4+	0.4−	1998 02 22	292	0.2−	0.8−
1950 12 09	675	0.2−	0.6+	1992 07 30	809	0.2−	1.2+	1998 02 22	292	0.7+	0.8−
1960 09 25	675	0.8−	0.1+	1992 07 30	809	0.6−	0.9+	1998 03 31	557	0.6+	0.3+
1960 09 27	675	0.5+	0.3−	1992 07 30	809	0.8+	0.1+	1998 03 31	557	0.2−	0.2−
1960 09 28	675	0.5+	0.8−	1992 07 31	809	0.2−	0.2−	1998 03 31	557	0.1−	0.0−
1960 09 29	675	0.6+	0.1−	1992 07 31	809	0.6−	0.3−	1998 04 01	557	0.3+	0.1−
1991 02 10	675	0.0	0.4+	1992 07 31	809	1.4−	1.0−	1998 04 01	557	0.2+	0.0
1991 02 10	675	0.6−	0.7−	1997 11 08	910	0.7−	0.7+	1998 04 01	557	0.1+	0.0
1991 04 16	675	0.3−	0.2−	1997 11 08	910	0.7−	0.5+	1998 04 01	557	0.2−	0.1+
1991 04 16	675	0.2−	0.1−	1997 11 08	910	1.0−	0.5+				
1992 07 26	809	1.5+	0.1−	1998 02 22	292	0.9+	0.3+				

(8588)* 4025 P-L = 1993 TU₁₈

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* 22965)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	48.21248	ω	237.87124	+0.26192807	−0.96431994		
<i>a</i>	2.2129523	Ω	197.07157	+0.92372903	+0.26205127		
<i>e</i>	0.0656756	<i>i</i>	7.53196	+0.27949664	+0.03763227		
<i>P</i>	3.29	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1960 09 24	675	0.5+	0.1−	1993 10 10	675	0.0	0.7−	1998 01 24	566	0.4−	0.2+
1960 09 25	675	0.0	0.3+	1993 10 10	675	1.2+	0.2+	1998 01 24	566	0.3−	0.3+
1960 09 26	675	0.0	0.2+	1993 10 11	809	1.6+	0.7+	1998 03 03	704	0.1+	0.3+
1960 09 28	675	0.1+	0.3+	1993 10 11	809	1.3+	0.7+	1998 03 03	704	0.4−	0.3+
1960 09 28	675	0.3+	1.0+	1993 10 11	809	1.0+	0.3−	1998 03 03	704	0.8+	0.4+
1960 10 17	675	0.6−	0.9+	1993 10 12	809	0.5+	0.4+	1998 03 03	704	0.3−	1.1+
1960 10 22	675	0.5−	0.9+	1993 10 12	809	0.7−	0.1−	1998 03 03	704	0.2+	0.2−
1960 10 24	675	0.4−	0.8+	1993 10 12	809	1.2−	0.1−	1998 03 04	704	0.0	0.3+
1960 10 26	675	0.7−	0.2−	1996 09 13	560	0.3+	0.9+	1998 03 04	704	1.0+	0.3−
1993 10 09	809	0.9−	1.6−	1996 09 13	560	1.5−	0.8+	1998 03 04	704	0.3−	0.4−
1993 10 09	809	1.3−	1.6−	1996 09 13	560	0.9+	0.5−	1998 03 04	704	0.0	0.5−
1993 10 09	809	0.6−	1.4−	1998 01 24	566	0.5−	0.4+	1998 03 04	704	0.6+	0.0

(8589)* 4068 P-L = 1986 QM₂

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. S. Nakano (*MPC* 12797)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	109.02452	ω	51.73414	+0.84576133	−0.53323698		
<i>a</i>	2.2057958	Ω	340.46856	+0.47051056	+0.76180630		
<i>e</i>	0.0714777	<i>i</i>	3.18986	+0.25160998	+0.36784438		
<i>P</i>	3.28	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1960 09 24	675	0.1−	1.2−	1986 09 04	809	1.1+	0.3−	1998 02 27	566	2.0−	0.8−
1960 09 25	675	0.5+	1.0−	1986 09 04	809	1.1+	0.4−	1998 02 27	566	(2.2−	1.0−)
1960 09 26	675	0.2−	0.3−	1986 09 04	809	1.1+	0.3−	1998 03 20	704	0.1+	0.1+
1960 09 28	675	0.1+	0.1−	1993 11 13	801	0.6−	0.6−	1998 03 20	704	0.8+	0.9−
1960 10 17	675	0.4−	0.8−	1993 11 13	801	0.5+	0.3−	1998 03 20	704	0.9+	1.7−
1960 10 22	675	0.3−	0.2−	1993 11 16	801	0.1+	0.2−	1998 03 20	704	0.8+	1.1−
1960 10 24	675	1.1+	1.7+	1993 11 16	801	0.5+	0.1+	1998 03 20	704	0.8+	0.8−
1960 10 26	675	0.1+	0.2+	1993 12 13	801	0.7+	0.1+	1998 03 22	704	0.2+	0.4+
1986 07 27	413	(7.1−	1.9−)	1993 12 13	801	0.4+	0.8−	1998 03 22	704	0.2−	0.1+
1986 07 27	413	1.5+	1.8+	1993 12 13	691	0.8−	0.4+	1998 03 22	704	1.1+	0.1+
1986 08 01	413	0.1−	0.5−	1993 12 13	691	0.7−	0.7+	1998 03 22	704	0.3+	0.3−
1986 08 01	413	1.9+	0.6+	1993 12 13	691	0.6−	0.4+	1998 03 22	704	0.7−	0.8−
1986 08 28	809	0.7−	0.2+	1993 12 18	801	0.2+	0.3+	1998 04 01	704	0.6−	0.4+
1986 08 28	809	0.4−	0.3+	1993 12 18	801	0.3+	0.4+	1998 04 01	704	1.2−	1.2+
1986 08 28	809	0.1−	0.4+	1998 02 24	566	0.6−	0.8−	1998 04 01	704	0.8−	1.1+
1986 08 30	809	1.5−	1.0−	1998 02 24	566	0.9−	0.6−	1998 04 01	704	2.1+	1.8+
1986 08 30	809	1.4−	1.2−	1998 02 24	566	0.4−	0.5−				
1986 08 30	809	1.4−	1.1−	1998 02 27	566	1.9−	0.8−				

(8590)* 6533 P-L = 1954 QE₁ = 1989 TU₁₂

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. S. Nakano (*MPC* 29649), G. V. Williams (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	245.39005	ω	150.61388	+0.04437701	+0.99863021		
<i>a</i>	3.2159142	Ω	121.91683	−0.92283445	+0.05160458		
<i>e</i>	0.1362951	<i>i</i>	1.87143	−0.38263202	−0.00864084		
<i>P</i>	5.77	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1954 08 27	675	0.7−	0.1+	1989 10 03	809	(3.0+	3.6−)	1998 03 03	704	0.4+	0.3+
1954 08 27	675	0.6+	0.3+	1989 10 03	809	(1.8+	2.3−)	1998 03 03	704	0.4+	0.0
1960 09 24	675	0.2+	0.2−	1993 05 21	675	0.3−	0.3+	1998 03 04	704	(2.6−	0.2+)
1960 09 26	675	0.3+	0.3+	1993 05 21	675	1.2−	1.6−	1998 03 04	704	(2.7−	0.4+)
1960 09 27	675	0.3+	0.7+	1993 05 24	675	0.2+	1.3+	1998 03 04	704	(2.4−	0.8−)
1960 09 28	675	0.7+	0.3+	1993 05 24	675	1.4+	0.1+	1998 03 04	704	(2.8−	0.4−)
1960 10 17	675	0.2+	0.7−	1998 01 26	566	0.9+	0.5+	1998 03 24	566	0.5−	1.1−
1960 10 22	675	0.4−	0.5−	1998 01 26	566	0.9+	0.4+	1998 03 24	566	1.0−	0.5−
1960 10 25	675	0.3−	0.3−	1998 01 26	566	0.5+	0.3+	1998 03 24	566	1.0−	1.0−
1960 10 26	675	0.9−	0.2−	1998 03 03	704	0.4−	0.2+				
1989 10 03	809	(3.3+	2.8−)	1998 03 03	704	0.1−	0.7+				

(8591)* 6543 P-L = 1974 CD

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 (*MPC* 9302)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	227.86172	ω	250.34441	+0.88742750	+0.45952850		
<i>a</i>	3.1724044	Ω	82.28460	−0.40807434	+0.81967535		
<i>e</i>	0.1745604	<i>i</i>	2.08996	−0.21435429	+0.34200274		
<i>P</i>	5.65	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1954 07 31	675	0.4+	0.9+	1989 10 25	888	0.0	0.2−	1997 02 17	327	0.5+	0.1−
1954 07 31	675	0.7+	0.3+	1989 11 02	888	0.8−	0.3+	1997 02 17	327	1.0+	0.1+
1954 09 22	675	0.7+	0.7+	1989 11 02	888	1.3+	0.2+	1997 02 18	327	(3.0−	0.8−)
1954 09 22	675	0.5−	0.5+	1989 11 20	888	0.5+	0.9+	1997 02 18	327	0.9+	1.2−
1960 09 24	675	0.3+	0.0	1989 11 20	888	1.4+	1.0+	1997 02 18	327	0.2+	0.0
1960 09 26	675	0.6−	0.0	1989 11 27	888	1.3−	0.5+	1997 02 18	327	0.6−	0.0
1960 09 27	675	0.1+	0.2+	1989 11 27	888	0.4−	0.3+	1998 03 02	910	0.4−	0.4+
1960 09 28	675	0.1−	0.3−	1989 11 29	888	1.5+	0.5−	1998 03 02	910	0.4−	0.5+

1960 10 17	675	0.2−	0.3+	1989 11 29	888	0.7−	0.9−	1998 03 02	910	0.4−	0.2+
1960 10 22	675	1.0−	0.1+	1989 12 01	888	0.9−	0.4−	1998 03 25	704	0.9+	0.7−
1960 10 25	675	0.6−	0.4−	1989 12 01	888	(6.8−	0.8−)	1998 03 25	704	0.4−	0.5+
1960 10 26	675	0.6−	0.3−	1991 01 22	675	0.7+	0.5+	1998 03 25	704	0.3+	0.5+
1974 02 14	801	0.3+	1.6+	1991 01 22	675	0.2−	1.2−	1998 03 25	704	0.7−	1.2+
1974 02 18	801	0.5−	0.9+	1991 02 10	675	0.9−	0.4−	1998 03 25	704	0.0	0.5+
1974 02 18	801	0.1+	0.4+	1991 02 10	675	0.8−	0.4+				
1989 10 25	888	1.0+	0.3+	1997 02 17	327	0.2−	0.2−				

(8592)* 1188 T-1 = 1992 PR₃

Discovered 1971 Mar. 25 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. E. Bowell (*MPC* 20830)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams			
<i>M</i>	284.25323	(2000.0)		P	Q		
<i>n</i>	0.29091247	ω	240.77356	−0.62010625	+0.78432972		
<i>a</i>	2.2557683	Ω	350.84325	−0.67709682	−0.54612941		
<i>e</i>	0.1314471	<i>i</i>	6.19743	−0.39624252	−0.29422706		
<i>P</i>	3.39	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1971 03 24	675	0.5−	0.1+	1992 07 29	809	0.4+	0.4+	1992 08 06	675	(0.2+	2.1−)
1971 03 25	675	0.2+	0.4+	1992 07 29	809	0.8+	0.3+	1998 02 24	566	0.2−	0.4+
1971 03 25	675	0.5−	0.2+	1992 07 29	809	1.0+	0.0	1998 02 24	566	0.1−	0.4+
1971 03 26	675	0.3+	0.7−	1992 07 30	809	0.4−	0.7+	1998 02 24	566	0.0	0.4+
1971 03 27	675	0.9−	0.3−	1992 07 30	809	0.1+	0.9+	1998 03 22	704	0.2+	0.5+
1971 04 02	675	1.3+	0.2−	1992 07 30	809	0.4+	0.8+	1998 03 22	704	1.1+	1.0−
1971 04 16	675	0.9−	1.2−	1992 07 31	809	1.5−	0.7+	1998 03 22	704	1.5−	0.1−
1971 04 16	675	0.6−	0.7−	1992 07 31	809	1.1−	0.3+	1998 03 22	704	0.1+	1.2+
1971 05 13	675	(3.3+	1.7−)	1992 07 31	809	0.5−	0.2+	1998 03 22	704	0.5−	0.9+
1971 05 14	675	(3.1+	0.5−)	1992 08 05	675	0.5−	0.8−	1998 03 26	704	0.9+	0.1+
1991 02 10	675	0.0	0.2+	1992 08 05	675	1.1−	0.7−	1998 03 26	704	0.6+	0.8+
1991 02 10	675	0.5+	0.5+	1992 08 06	675	1.1+	0.2−	1998 03 26	704	1.5+	0.6+

(8593)* 2186 T-1

Discovered 1971 Mar. 25 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams			
<i>M</i>	351.89976	(2000.0)		P	Q		
<i>n</i>	0.18083843	ω	143.15603	−0.85854481	−0.51220020		
<i>a</i>	3.0970073	Ω	6.17204	+0.40270085	−0.70194422		
<i>e</i>	0.1174140	<i>i</i>	12.61981	+0.31738436	−0.49489926		
<i>P</i>	5.45	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1955 03 24	675	0.1−	0.5+	1995 08 29	809	0.3−	0.4−	1998 03 16	758	0.8+	0.2−
1955 03 24	675	0.3+	0.4+	1995 08 30	809	0.4+	0.3+	1998 03 17	758	0.5+	0.2+
1971 03 24	675	0.7−	0.1−	1997 12 27	688	0.2−	0.5+	1998 03 17	758	0.6+	0.4−
1971 03 25	675	0.3+	0.1+	1997 12 27	688	0.1−	0.5+	1998 03 24	566	0.3+	0.1−
1971 03 25	675	0.8−	0.7−	1997 12 29	688	0.1−	0.3+	1998 03 24	566	0.2+	0.1−
1971 03 26	675	1.7−	0.2+	1997 12 29	688	0.2−	0.3−	1998 03 24	566	0.5+	0.2+
1971 03 27	675	1.8−	0.6+	1998 03 04	704	(2.4−	0.4−)	1998 03 25	704	0.6−	0.2−
1971 04 02	675	0.9+	0.2−	1998 03 04	704	1.5−	0.4+	1998 03 25	704	0.8+	0.3+
1971 04 16	675	0.1+	0.9−	1998 03 04	704	(2.6−	0.3+)	1998 03 25	704	0.6+	0.6+
1971 04 16	675	1.4+	0.2+	1998 03 04	704	1.7−	0.3−	1998 03 25	704	0.2−	1.1+
1971 05 13	675	0.3+	0.7−	1998 03 04	704	(2.7−	0.5−)	1998 03 25	704	0.3−	0.1−
1971 05 14	675	1.5+	0.4−	1998 03 16	758	1.0+	1.1−				

(8594)* 2245 T-1 = 1992 RA₆

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* 21123)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams			
<i>M</i>	64.31622	(2000.0)		P	Q		
<i>n</i>	0.25560707	ω	9.02773	+0.22230644	−0.97346359		
<i>a</i>	2.4589751	Ω	68.14239	+0.89083240	+0.18017144		
<i>e</i>	0.1483096	<i>i</i>	3.35405	+0.39622908	+0.14109177		
<i>P</i>	3.86	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1950 12 11	675	1.0+	0.0	1992 09 23	809	0.8+	1.5−	1998 02 23	566	0.0	0.7−
1950 12 11	675	0.0	0.6−	1992 09 23	809	1.3+	1.1−	1998 02 23	566	0.3−	1.1−
1971 03 24	675	(1.7−	3.7−)	1992 09 23	809	1.3+	1.3−	1998 03 20	704	0.3−	0.5+
1971 03 25	675	1.5−	1.4−	1994 02 08	809	(0.6+	2.6+)	1998 03 20	704	0.6+	0.1−
1971 03 25	675	0.4−	0.6−	1994 02 08	809	0.3+	1.7+	1998 03 20	704	0.9+	0.8+
1971 03 26	675	1.2−	1.0−	1994 02 08	809	1.2−	1.5+	1998 03 20	704	0.9+	0.2+
1971 03 27	675	(0.9−	2.6−)	1994 02 10	809	(2.8+	2.4+)	1998 03 20	704	0.4+	0.2+
1971 04 02	675	(3.9+	1.9−)	1994 02 10	809	(1.1+	2.8+)	1998 03 22	704	0.6+	0.8−
1988 08 16	675	0.6+	0.8+	1994 02 10	809	0.7+	0.7+	1998 03 22	704	0.7+	0.5−
1988 08 16	675	1.7−	0.3−	1994 02 13	809	1.2+	0.2+	1998 03 22	704	1.3+	0.1+
1988 09 11	675	0.4−	1.4+	1994 02 13	809	1.3+	0.3−	1998 03 22	704	0.3+	1.2−
1988 09 11	675	0.1−	0.8+	1994 02 13	809	0.6+	0.1−	1998 03 22	704	0.6+	0.6−
1992 09 02	809	0.1−	1.7−	1994 03 09	010	1.1−	0.4+	1998 03 24	704	(2.4+	1.4+)
1992 09 02	809	(1.8−	3.1−)	1994 03 09	010	1.0−	0.2−	1998 03 24	704	1.6−	0.6−
1992 09 02	809	(1.6−	3.0−)	1994 03 09	010	0.6−	0.1+	1998 03 24	704	0.9−	0.5−
1992 09 03	809	(1.4−	2.6−)	1994 03 10	010	1.0−	0.6+	1998 03 24	704	1.0−	1.6−
1992 09 22	809	0.5+	1.4−	1994 03 10	010	0.9−	0.2−	1998 03 24	704	(2.3−	0.0)
1992 09 22	809	0.2−	0.9−	1994 03 10	010	0.5−	0.4−				
1992 09 22	809	(0.1+	2.6−)	1998 02 23	566	0.1−	0.7−				

(8595)* 3233 T-1 = 1980 FX₂

Discovered 1971 Mar. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. D. W. E. Green (*MPC* 19324)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Green			
<i>M</i>	24.15899	(2000.0)		P	Q		
<i>n</i>	0.21577446	ω	91.44059	−0.09174937	−0.99574527		
<i>a</i>	2.7529777	Ω	3.85519	+0.85543392	−0.08321920		
<i>e</i>	0.1343504	<i>i</i>	7.32096	+0.50972037	−0.03957164		
<i>P</i>	4.57	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1971 03 24	675	1.0+	1.8−	1980 03 16	809	0.0	1.1+	1998 01 25	566	0.1+	0.9−
1971 03 25	675	0.0	2.3−	1980 03 17	809	0.6+	0.6+	1998 02 26	699	0.0	0.5+
1971 03 26	675	0.3−	0.7−	1980 03 17	809	0.7+	0.4+	1998 02 26	699	0.6+	1.5+
1971 03 26	675	1.2−	1.1−	1980 03 17	809	0.9+	0.8+	1998 02 26	699	1.1−	0.7+
1971 03 27	675	1.3−	1.3−	1980 03 17	809	0.5+	0.5+	1998 03 03	704	0.7−	0.9+
1971 04 02	675	1.5−	0.4+	1992 12 24	801	0.6−	0.1−	1998 03 03	704	0.2+	0.4−
1971 04 16	675	0.1−	0.5−	1992 12 28	801	0.5−	0.6−	1998 03 03	704	0.4+	0.7−
1971 04 16	675	0.8+	0.2+	1992 12 28	801	1.0+	0.8+	1998 03 03	704	0.5+	0.1−
1971 05 13	675	0.1−	1.2+	1996 09 15	566	0.3+	0.5−	1998 03 04	704	0.0	0.2−
1971 05 14	675	0.3−	1.4+	1996 09 15	566	0.6+	0.9+	1998 03 04	704	0.1−	0.0
1980 03 16	809	0.1+	0.7+	1996 09 15	566	0.6−	0.7−	1998 03 04	704	0.1−	0.6−
1980 03 16	809	0.4+	0.7+	1998 01 25	566	0.1−	0.8−	1998 03 04	704	0.2+	0.3−
1980 03 16	809	0.1+	0.5+	1998 01 25	566	0.1−	0.8−	1998 03 04	704	0.5−	0.2−

(8596)* 1298 T-2 = 1980 WK₃

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. E. Bowell (*MPC* 18832)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	349.52242	(2000.0)	P	Q
<i>n</i>	0.29750166	ω	322.17686	-0.69195262
<i>a</i>	2.2223363	Ω	171.57633	+0.68322209
<i>e</i>	0.0717138	<i>i</i>	5.40476	+0.23325770
<i>P</i>	3.31	<i>H</i>	14.5	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1973 09 19	675	0.3-	0.3+	1973 09 30	675	1.6+	0.1-	1993 10 11	809	0.1+	0.7+
1973 09 19	675	0.9-	0.8+	1973 10 04	675	1.1-	0.9+	1993 10 20	809	(1.4-	2.7-)
1973 09 20	675	1.0-	0.5-	1973 10 04	675	0.8+	0.0	1993 10 20	809	(1.9-	3.2-)
1973 09 20	675	1.3-	0.1-	1973 10 04	675	0.2-	0.3-	1993 10 20	809	(2.1-	2.9-)
1973 09 24	675	0.4-	1.5-	1973 10 04	675	0.3+	1.1-	1998 01 24	566	0.1-	0.6-
1973 09 24	675	1.5-	1.0-	1973 10 05	675	0.2+	1.2-	1998 01 24	566	0.3-	0.5-
1973 09 24	675	0.4+	0.9-	1973 10 05	675	0.8+	1.1-	1998 01 24	566	0.1-	0.4-
1973 09 25	675	(2.8-	2.1-)	1973 10 05	675	0.8+	0.9-	1998 02 19	699	0.6+	0.1+
1973 09 25	675	0.2-	0.6+	1973 10 05	675	1.5+	0.3-	1998 02 19	699	0.6-	0.5-
1973 09 25	675	0.9-	0.4+	1980 11 29	675	0.3-	0.4+	1998 02 19	699	0.6-	0.4+
1973 09 25	675	0.6-	1.0-	1980 12 01	675	1.5+	1.1+	1998 03 04	012	0.5+	0.7-
1973 09 29	675	0.6-	0.1+	1990 11 14	675	0.7-	0.0	1998 03 04	012	0.6+	0.0
1973 09 29	675	0.9+	2.0+	1990 11 14	675	1.1-	0.6+	1998 03 04	012	0.3-	0.1+
1973 09 29	675	0.8-	0.1+	1993 10 09	809	0.1+	0.1-	1998 03 23	012	0.3-	0.1+
1973 09 29	675	0.9+	1.3+	1993 10 09	809	0.2-	0.3+	1998 03 23	012	0.1+	0.3-
1973 09 30	675	0.2+	0.1-	1993 10 09	809	0.8-	0.4-	1998 03 23	012	0.1+	0.1-
1973 09 30	675	1.5+	0.6+	1993 10 11	809	0.9+	0.3+				
1973 09 30	675	0.2+	0.3-	1993 10 11	809	0.3+	0.2+				

(8597)* 2045 T-2 = 1976 GN₁ = 1980 BF₂ = 1986 RJ₅

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. S. Nakano (*MPC* 15081)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Nakano

<i>M</i>	264.74640	(2000.0)	P	Q
<i>n</i>	0.22377794	ω	260.34305	-0.10372564
<i>a</i>	2.6869394	Ω	3.79443	-0.80488576
<i>e</i>	0.1526844	<i>i</i>	12.65136	-0.58429436
<i>P</i>	4.40	<i>H</i>	13.1	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1973 09 19	675	1.0+	0.8-	1986 09 04	809	0.4+	0.4+	1998 02 26	566	0.2-	0.2-
1973 09 19	675	0.8+	0.7-	1986 09 07	809	0.5-	0.5-	1998 03 01	809	(0.5+	2.9-)
1973 09 20	675	1.1-	0.1-	1986 09 07	809	0.3-	0.8-	1998 03 01	809	(0.0	2.6-)
1973 09 24	675	0.7-	0.7+	1986 09 07	809	0.0	1.1-	1998 03 01	809	(0.3+	3.3-)
1973 09 24	675	0.3-	1.1+	1986 09 08	809	0.8-	0.2-	1998 03 02	809	2.0+	1.3-
1973 09 25	675	0.9+	1.5-	1986 09 08	809	0.8-	0.2-	1998 03 02	809	0.6+	1.7-
1973 09 25	675	0.9+	0.6-	1986 09 08	809	0.5-	0.4-	1998 03 02	809	0.3-	2.0-
1973 09 29	675	0.1-	1.8+	1986 09 09	809	1.5+	0.2-	1998 03 03	699	0.5-	0.6+
1973 09 29	675	0.8-	1.9+	1986 09 09	809	1.5+	0.2-	1998 03 03	699	0.2+	0.8+
1973 09 30	675	0.3+	0.4+	1986 09 09	809	1.5+	0.2-	1998 03 03	699	0.4-	1.5+
1973 09 30	675	0.2+	0.3-	1990 06 29	413	(3.1+	3.8-)	1998 03 20	704	0.1+	0.3+
1973 10 04	675	0.5-	0.3-	1990 06 29	413	(5.3+	3.5-)	1998 03 20	704	0.4-	1.0+
1973 10 04	675	0.9-	1.1+	1995 08 14	689	0.5+	1.3-	1998 03 20	704	0.2-	0.2-
1973 10 05	675	1.5+	1.8-	1998 02 24	627	(2.6+	1.1-)	1998 03 20	704	0.4-	1.0+
1973 10 05	675	0.2+	1.4-	1998 02 24	627	1.1+	0.0	1998 03 20	704	0.4-	0.9+
1973 10 05	675	(1.0+	2.4-)	1998 02 24	627	1.1+	1.3+	1998 03 26	704	0.4-	1.1-
1973 10 05	675	0.5-	1.0-	1998 02 26	566	1.0-	0.5-	1998 03 26	704	0.2+	1.5-
1976 04 01	095	(8.1+	0.8-)	1998 02 26	566	0.1-	0.2-	1998 03 26	704	0.7-	1.6-
1980 01 23	095	(4.5+	2.0+)	1998 02 26	566	0.7-	0.8-	1998 03 26	566	0.8-	0.1-
1986 09 04	809	0.1+	0.4+	1998 02 26	566	0.4-	0.2-	1998 03 26	566	0.5-	0.2-
1986 09 04	809	0.2+	0.4+	1998 02 26	566	0.9-	0.8-	1998 03 26	566	0.7-	0.2-

(8598)* 2202 T-2 = 1970 EB₃ = 1976 GW₁ = 1995 SS₅₄ = 1998 CF₃

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. B. G. Marsden (*MPC* 31410)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden

<i>M</i>	10.54518	(2000.0)	P	Q
<i>n</i>	0.17590221	ω	190.83974	-0.59824913
<i>a</i>	3.1546790	Ω	295.90542	+0.73590670
<i>e</i>	0.1410009	<i>i</i>	0.55214	+0.31707935
<i>P</i>	5.60	<i>H</i>	13.5	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1970 03 10	805	0.8+	0.4-	1973 09 30	675	1.0-	0.3+	1998 02 06	809	0.8+	1.0+
1970 03 10	805	0.2+	0.5+	1973 10 04	675	1.6+	2.1-	1998 02 06	809	0.6-	1.0+
1970 03 10	805	0.8-	0.3+	1973 10 04	675	1.0+	1.6-	1998 02 07	809	0.5+	0.1-
1973 09 19	675	0.4+	2.3+	1973 10 05	675	0.6+	2.1-	1998 02 07	809	1.0+	0.7-
1973 09 19	675	0.5+	0.7+	1973 10 05	675	1.6+	1.3-	1998 02 07	809	0.3+	0.9-
1973 09 20	675	1.1-	0.6-	1976 04 01	095	(4.8-	5.7-)	1998 02 24	566	0.5-	0.1-
1973 09 24	675	2.1-	1.7+	1995 09 17	327	0.4+	0.1+	1998 02 24	566	0.1-	0.3-
1973 09 24	675	(2.8-	0.0)	1995 09 17	327	0.1-	0.2-	1998 02 24	566	0.1+	0.0
1973 09 25	675	1.7-	0.1-	1995 09 17	327	0.6-	0.9-	1998 03 20	704	0.0	0.9-
1973 09 25	675	1.2-	0.4-	1995 09 28	327	0.0	0.4+	1998 03 20	704	0.2-	0.5-
1973 09 29	675	1.7+	1.8+	1995 09 28	327	0.1+	0.4+	1998 03 20	704	0.3-	0.1+
1973 09 29	675	(0.0	3.1+)	1995 09 28	327	0.2+	0.3+	1998 03 20	704	0.5-	0.3-
1973 09 30	675	0.0	0.9+	1998 02 06	809	0.8+	0.9+	1998 03 20	704	1.5-	0.0

(8599)* 2277 T-2 = 1978 VA₁₀

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. D. W. E. Green (*MPC* 14966)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Green

<i>M</i>	165.14100	(2000.0)	P	Q
<i>n</i>	0.22020540	ω	318.30947	+0.97920628
<i>a</i>	2.7159227	Ω	30.15998	-0.16642534
<i>e</i>	0.0947846	<i>i</i>	3.46811	-0.11600721
<i>P</i>	4.48	<i>H</i>	14.0	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1973 09 20	675	(4.4+	3.4-)	1973 10 04	675	1.6-	1.8+	1998 02 28	809	1.7+	1.7+
1973 09 24	675	0.3-	0.9-	1973 10 05	675	0.2+	0.7-	1998 02 28	809	0.5+	1.5+
1973 09 24	675	0.1-	0.0	1973 10 05	675	1.4-	1.8+	1998 02 28	809	0.7+	1.2+
1973 09 25	675	(1.9+	4.9-)	1973 10 05	675	0.1+	0.4+	1998 03 03	704	0.2+	0.1+
1973 09 25	675	(2.9+	3.3-)	1973 10 05	675	(2.3-	2.6-)	1998 03 03	704	0.2-	0.8+
1973 09 29	675	0.3-	0.3-	1978 11 05	675	0.6+	0.2-	1998 03 03	704	1.3-	1.4-
1973 09 29	675	(1.0+	2.6-)	1978 11 06	675	1.4+	0.1-	1998 03 03	704	0.3-	0.5+
1973 09 29	675	0.6-	0.3-	1978 11 07	675	1.4-	0.0	1998 03 20	704	0.2-	0.8-
1973 09 29	675	1.7+	1.9-	1978 11 08	675	0.5-	0.1-	1998 03 20	704	(2.0-	0.4-)
1973 09 30	675	0.4+	2.1-	1991 09 11	675	0.7+	0.4-	1998 03 20	704	1.4-	0.3+
1973 09 30	675	2.1+	0.1+	1991 09 11	675	0.0	1.3+	1998 03 20	704	(2.3-	0.6-)
1973 09 30	675	0.7-	0.1-	1991 10 08	675	1.0+	0.6-	1998 03 22	704	0.9-	0.7-
1973 09 30	675	0.7+	1.1+	1991 10 08	675	1.7-	0.3-	1998 03 22	704	0.5-	0.7-
1973 10 04	675	0.1+	0.0	1998 02 27	809	(2.7+	0.3+)	1998 03 22	704	0.6-	1.0-
1973 10 04	675	(0.7-	4.1+)	1998 02 27	809	1.5+	0.9+	1998 03 22	704	0.4-	1.4-
1973 10 04	675	0.1-	0.7+	1998 02 27	809	(2.2+	0.3+)	1998 03 22	704	1.1+	1.6-

(8600)* 3060 T-2 = 3317 T-3

Discovered 1973 Sept. 30 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. D. W. E. Green (*MPC* 14967)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Green

<i>M</i>	3.11061	(2000.0)	P	Q
<i>n</i>	0.25840139	ω	65.17989	-0.73091880
<i>a</i>	2.4412157	Ω	71.88027	+0.60602957
<i>e</i>	0.1576126	<i>i</i>	2.95967	+0.31382457
<i>P</i>	3.81	<i>H</i>	14.3	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1973 09 19	675	(2.6+ 0.4-)	1977 10 17	675	1.0- 0.1-	1998 02 27	809	0.1- 1.4-
1973 09 19	675	1.0+ 1.5-	1981 10 25	675	(3.2- 1.3+)	1998 02 28	809	0.6+ 0.1-
1973 09 20	675	1.4+ 1.3-	1981 10 26	675	0.5- 2.1+	1998 02 28	809	0.9+ 0.4+
1973 09 24	675	0.5+ 1.4-	1988 09 11	675	0.7+ 1.2-	1998 02 28	809	1.0+ 0.1-
1973 09 24	675	(1.8+ 2.9-)	1988 09 11	675	0.2- 0.0	1998 03 01	809	0.4+ 0.8-
1973 09 25	675	(1.9+ 3.5-)	1992 09 02	809	(2.0+ 2.4-)	1998 03 01	809	0.0 1.2-
1973 09 25	675	(2.2+ 4.2-)	1992 09 02	809	0.9+ 1.5-	1998 03 01	809	0.0 1.7-
1973 09 29	675	1.2+ 0.7-	1992 09 02	809	1.2+ 1.7-	1998 03 02	809	0.5+ 1.7-
1973 09 29	675	0.7+ 1.8-	1992 09 03	809	1.7+ 0.3-	1998 03 02	809	0.3+ 1.5-
1973 09 30	675	(0.5- 3.1-)	1992 09 22	809	0.4+ 0.1+	1998 03 02	809	0.3- 1.3-
1973 09 30	675	0.2+ 1.0-	1992 09 22	809	1.4- 1.5-	1998 03 20	704	0.5- 0.6+
1973 10 04	675	0.6+ 0.5+	1992 09 22	809	(2.1- 2.3-)	1998 03 20	704	0.4- 0.2-
1973 10 04	675	0.5+ 0.2+	1992 09 23	809	0.4- 1.1-	1998 03 20	704	0.8- 0.4-
1973 10 05	675	(2.6+ 3.3-)	1992 09 23	809	0.0 0.8-	1998 03 20	704	0.4- 0.2+
1973 10 05	675	2.2+ 1.1-	1992 09 23	809	0.9- 1.1-	1998 03 22	704	0.1+ 0.2-
1977 10 07	675	0.6- 2.2-	1996 10 05	327	0.1+ 0.4+	1998 03 22	704	0.1- 0.2+
1977 10 07	675	(0.6+ 3.5-)	1996 10 05	327	0.1+ 0.2+	1998 03 22	704	0.7- 0.6+
1977 10 11	675	2.1- 1.0+	1996 10 05	327	0.0 0.6+	1998 03 22	704	0.6- 0.8+
1977 10 11	675	1.5+ 0.0	1996 10 14	327	0.1- 0.7+	1998 03 22	704	0.7- 0.1+
1977 10 11	675	1.9- 1.3+	1996 10 14	327	0.6- 0.7+	1998 03 24	732	(2.1- 0.0)
1977 10 11	675	1.3+ 1.1+	1996 10 14	327	0.6+ 1.1+	1998 03 24	732	0.3+ 0.5-
1977 10 12	675	1.5+ 1.2-	1996 10 14	327	0.6- 0.5+	1998 03 24	732	0.4- 0.2-
1977 10 12	675	0.2+ 2.0-	1996 10 14	327	0.0 0.6+	1998 03 25	732	1.7- 0.6-
1977 10 12	675	1.3+ 2.2-	1996 10 14	327	0.5- 0.6+	1998 03 25	732	1.0- 0.8-
1977 10 12	675	0.2+ 1.7-	1996 10 14	327	0.5- 0.9+	1998 03 25	732	0.3- 0.6+
1977 10 16	675	0.1- 0.4-	1996 11 02	327	0.1- 0.6+	1998 03 26	704	0.4- 0.1+
1977 10 16	675	0.3- 0.1-	1996 11 02	327	0.4- 0.8+	1998 03 26	704	0.8- 0.1-
1977 10 16	675	1.0- 0.6-	1996 11 02	327	0.1- 1.1+	1998 03 26	704	0.2- 0.0
1977 10 16	675	0.1+ 0.6+	1998 02 27	809	0.1+ 1.7-			
1977 10 17	675	0.9- 0.9-	1998 02 27	809	0.3- 1.5-			

(8601)* 3155 T-2 = 1990 SP₂₄ = 1993 FR₈

Discovered 1973 Sept. 30 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 23534, *MPC* 25536)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

		Williams			
<i>M</i>	353.49562	(2000.0)	P	Q	
<i>n</i>	0.17496316	ω 344.43504	-0.55827645	-0.82646968	
<i>a</i>	3.1659567	Ω 139.42629	+0.77261585	-0.54979802	
<i>e</i>	0.1055260	<i>i</i> 6.41142	+0.30231136	-0.12111982	
<i>P</i>	5.63	<i>H</i> 13.0	<i>G</i> 0.15	<i>U</i> 1	

Residuals in seconds of arc

1973 09 19	675	0.8- 0.0	1973 10 05	675	0.8+ 0.9-	1996 11 14	691	1.4- 1.2+
1973 09 19	675	0.9+ 0.1+	1973 10 05	675	0.7+ 1.0+	1996 11 14	691	1.5- 1.4+
1973 09 20	675	1.1+ 0.5-	1990 09 25	809	(0.2- 2.5-)	1998 01 25	566	0.6+ 0.2+
1973 09 24	675	1.0- 1.6-	1990 09 25	809	(0.4- 3.2-)	1998 01 25	566	0.3+ 0.1+
1973 09 24	675	1.3- 1.1-	1990 09 25	809	(2.3- 5.0-)	1998 01 25	566	0.3+ 0.3+
1973 09 25	675	1.7+ 1.8-	1993 03 17	809	1.8- 0.9-	1998 03 24	910	0.0 0.4-
1973 09 25	675	1.5+ 1.9-	1993 03 18	809	0.7- 0.5-	1998 03 24	910	0.0 0.3-
1973 09 29	675	0.4- 0.0	1993 03 23	809	0.1- 0.4+	1998 03 24	910	0.2+ 0.3-
1973 09 29	675	1.1+ 0.3+	1993 04 16	413	0.8+ 1.0+	1998 03 25	910	0.2+ 1.0-
1973 09 30	675	0.5+ 1.2-	1995 07 02	691	0.6+ 0.9+	1998 03 25	910	0.2+ 0.7-
1973 09 30	675	0.9+ 1.7-	1995 07 02	691	0.2+ 1.0+	1998 03 25	910	0.4+ 0.8-
1973 10 04	675	1.6- 0.7+	1995 07 02	691	0.4+ 0.6+			
1973 10 04	675	1.3- 1.4+	1996 11 14	691	0.9- 1.2+			

(8602)* 2480 T-3 = 1983 DG

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. C. M. Bardwell (*MPC* 12574)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Bardwell

		(2000.0)		P	Q		
<i>M</i>	297.22417	ω 236.48467	-0.63314994	+0.77389678			
<i>n</i>	0.26485213	Ω 354.16983	-0.65519209	-0.54569751			
<i>a</i>	2.4014142	<i>i</i> 8.10134	-0.41212191	-0.32140007			
<i>e</i>	0.1300805	<i>H</i> 13.4	<i>G</i> 0.15	<i>U</i> 2			
<i>P</i>	3.72						

Residuals in seconds of arc

1955 10 24	675	0.8+ 0.3-	1983 03 13	046	(7.8- 0.5-)	1998 02 23	566	0.1+ 0.1-
1955 10 24	675	0.1+ 0.4+	1983 03 13	046	(6.1- 0.1-)	1998 03 04	704	1.8- 0.0
1977 10 16	675	0.3+ 2.0-	1983 03 16	688	1.6- 0.1-	1998 03 04	704	1.1- 0.3-
1977 10 16	675	0.3+ 2.1-	1983 03 16	688	0.7- 0.4-	1998 03 04	704	(3.1- 0.0)
1977 10 17	675	0.7- 1.5-	1983 04 01	688	1.6+ 1.7-	1998 03 04	704	(2.7- 0.5-)
1977 10 17	675	0.4- 1.1-	1983 04 10	688	0.0 1.2-	1998 03 04	704	(3.1- 0.1+)
1977 10 21	675	0.7+ 2.0-	1983 04 10	688	0.2+ 1.1-	1998 03 20	704	0.1- 0.5-
1977 10 21	675	(1.3+ 3.5-)	1992 10 20	675	0.4+ 0.5+	1998 03 20	704	0.1- 0.2+
1977 10 22	675	0.1- 0.3-	1992 10 20	675	0.8+ 0.8+	1998 03 20	704	0.3- 0.2-
1977 10 22	675	0.6+ 1.1-	1992 10 22	675	0.5+ 1.5+	1998 03 20	704	0.1+ 0.5-
1983 02 19	688	0.3- 0.9-	1992 10 22	675	0.9+ 2.0+	1998 03 20	704	0.6- 0.2-
1983 02 19	688	2.2+ 0.5-	1994 03 11	098	0.3- 1.1+	1998 03 22	704	0.3+ 0.0
1983 03 08	046	(7.6- 0.1-)	1994 03 12	098	(1.8- 3.2+)	1998 03 22	704	0.6+ 0.7-
1983 03 08	046	(6.2- 1.2-)	1994 03 12	098	1.9- 1.6+	1998 03 22	704	0.8+ 0.5+
1983 03 09	688	0.5- 1.2-	1996 12 07	327	0.5- 0.9+	1998 03 22	704	0.4+ 0.1+
1983 03 09	688	0.6+ 0.8+	1996 12 07	327	0.3- 1.1+	1998 03 22	704	0.0 0.2-
1983 03 09	046	(3.2- 0.0)	1996 12 07	327	0.2- 0.6+	1998 04 01	704	0.1+ 0.2+
1983 03 09	046	1.5- 1.4+	1998 02 01	327	0.4+ 0.2-	1998 04 01	704	0.1- 0.5+
1983 03 10	046	(6.0- 2.2+)	1998 02 01	327	0.2+ 0.3-	1998 04 01	704	0.4- 0.2+
1983 03 10	046	(8.0- 1.1+)	1998 02 01	327	0.1+ 0.3-	1998 04 01	704	0.4+ 0.4+
1983 03 12	046	(8.9- 0.6+)	1998 02 23	566	0.3+ 0.3-	1998 04 01	704	0.1- 0.4+
1983 03 12	046	(11.7- 0.5+)	1998 02 23	566	0.2+ 0.2-			

(8603)* 3134 T-3 = 1980 PP₂

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. C. M. Bardwell (*MPC* 12574)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Bardwell

		(2000.0)		P	Q		
<i>M</i>	190.91500	ω 130.46371	+0.75485703	+0.65582010			
<i>n</i>	0.31296304	Ω 188.56946	-0.61946733	+0.70808839			
<i>a</i>	2.1485263	<i>i</i> 3.66772	-0.21552516	+0.26174573			
<i>e</i>	0.1961698	<i>H</i> 14.8	<i>G</i> 0.15	<i>U</i> 2			
<i>P</i>	3.15						

Residuals in seconds of arc

1977 10 07	675	(2.9+ 2.1-)	1980 09 08	323	1.2+ 0.5-	1998 02 22	566	0.5+ 0.3+
1977 10 11	675	0.7- 0.1+	1980 09 09	323	0.9+ 0.0	1998 02 27	566	0.9+ 0.2+
1977 10 11	675	0.3- 0.9+	1980 09 10	323	1.5- 1.3-	1998 02 27	566	0.8+ 0.0
1977 10 12	675	1.5+ 1.3-	1989 05 07	675	0.5- 2.1-	1998 02 27	566	0.4+ 0.5+
1977 10 12	675	0.5+ 1.5-	1989 05 07	675	0.2- 0.6-	1998 03 03	704	0.3+ 0.6+
1977 10 16	675	0.0 1.4-	1992 04 05	675	1.1+ 1.2-	1998 03 03	704	0.9+ 0.8-
1977 10 16	675	1.1+ 2.1-	1992 04 05	675	0.5- 0.8-	1998 03 03	704	0.1+ 0.1+
1977 10 17	675	0.3- 1.0-	1992 04 07	691	1.2- 0.2-	1998 03 03	704	0.9+ 0.4+
1977 10 17	675	0.8- 0.2+	1992 04 07	691	1.5- 0.0	1998 03 03	704	0.2+ 0.7+
1977 10 21	675	0.2+ 0.0	1993 11 11	033	0.7- 0.2-	1998 03 04	704	1.8- 0.1+
1977 10 21	675	0.1+ 0.8+	1993 11 12	033	0.1- 1.4+	1998 03 04	704	1.9- 0.3+
1977 10 22	675	(0.9+ 4.3-)	1993 11 12	033	0.2- 0.0	1998 03 04	704	2.0- 0.8-
1977 10 22	675	(0.4+ 3.9-)	1993 11 13	033	0.2+ 0.3+	1998 03 04	704	1.3- 0.3+
1980 08 12	323	0.7- 1.6+	1996 10 18	566	0.1- 0.1-	1998 03 04	704	1.4- 0.7+
1980 08 13	323	0.9- 1.2+	1996 10 18	566	0.1+ 0.1-	1998 03 22	704	2.4+ 0.8+
1980 08 14	323	0.7+ 0.0	1996 10 18	566	0.1+ 0.1-	1998 03 22	704	0.7+ 0.7-
1980 08 15	323	1.0- 0.4+	1998 02 22	566	0.2+ 0.4+	1998 03 22	704	0.7+ 0.1+
1980 08 18	323	0.8+ 2.1+	1998 02 22	566	0.7+ 0.5+	1998 03 22	704	1.8+ 1.2-

1979 TT₂ = 1979 WQ₁ = 1978 JO₃Id. S. Nakano (d, *MPC* 10610), C. M. Bardwell (d, *MPC* 13164), S. J. Bus (*MPC* 13164)

1998 APR. 11

M.P.C. 31521

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	163.67691	(2000.0)	P		Q	
<i>n</i>	0.23872662	ω	315.08223	+0.99796125	+0.04646297	
<i>a</i>	2.5735671	Ω	42.31249	-0.02243508	+0.89720934	
<i>e</i>	0.2644253	<i>i</i>	3.72678	-0.05974956	+0.43915441	
<i>P</i>	4.13	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1978 05 09	675	0.5+	1.1+	1998 03 20	704	0.1-	0.0	1998 03 22	704	0.3-	0.3+
1978 05 10	675	0.2+	0.8+	1998 03 20	704	0.7+	0.3+	1998 03 22	704	1.1+	0.6-
1979 10 14	095	0.4-	1.1+	1998 03 20	704	0.0	0.5+	1998 03 22	704	0.4-	0.2-
1979 11 16	095	0.8-	0.7-	1998 03 20	704	0.4+	0.9-	1998 03 22	704	0.3-	0.3+
1979 11 22	095	0.5+	1.4+	1998 03 20	704	0.7-	0.8+				

1981 DJ

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	313.92287	(2000.0)	P		Q	
<i>n</i>	0.17220958	ω	334.47322	-0.89634028	+0.42667933	
<i>a</i>	3.1996159	Ω	231.31980	-0.37571905	-0.87527832	
<i>e</i>	0.0652363	<i>i</i>	8.87921	-0.23539180	-0.22766777	
<i>P</i>	5.72	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1981 02 09	413	0.9-	0.5+	1981 03 12	413	2.1+	1.2-	1998 03 04	704	0.1-	1.8+
1981 02 14	413	0.2-	0.3-	1981 04 08	413	1.7-	1.0+	1998 03 16	426	0.8+	0.3-
1981 02 28	413	1.0-	1.6+	1981 04 08	413	0.0	0.5-	1998 03 16	426	0.9+	0.3+
1981 02 28	413	1.5+	0.5+	1981 04 09	413	1.9-	1.3+	1998 03 16	426	0.8+	0.4-
1981 03 02	413	(3.1-	0.0)	1981 04 09	413	0.0	0.1+	1998 03 17	426	0.4+	0.1-
1981 03 02	413	1.7+	0.9-	1981 05 01	413	0.0	1.5-	1998 03 17	426	0.7+	0.3-
1981 03 06	413	0.7-	1.4+	1998 03 04	704	1.1-	0.5-	1998 03 17	426	0.0	0.1-
1981 03 06	413	0.2+	1.0-	1998 03 04	704	1.6-	1.8-	1998 03 26	566	0.5+	0.4+
1981 03 08	413	0.7+	1.2-	1998 03 04	704	1.3-	0.4+	1998 03 26	566	0.0	0.4+
1981 03 12	413	0.3+	0.6+	1998 03 04	704	0.4-	0.7-	1998 03 26	566	0.3+	0.5+

1981 EU₉ = 1998 FW₆₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	242.17558	(2000.0)	P		Q	
<i>n</i>	0.29212835	ω	87.79891	+0.52801901	+0.84809263	
<i>a</i>	2.2495047	Ω	214.18912	-0.80695786	+0.48492232	
<i>e</i>	0.1833723	<i>i</i>	4.48961	-0.26460336	+0.21351638	
<i>P</i>	3.37	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1981 02 09	413	1.0-	0.3-	1981 04 06	413	0.2-	0.2+	1998 03 22	704	0.6-	0.7-
1981 02 13	413	1.6+	0.2-	1981 04 12	413	1.5-	1.5+	1998 03 22	704	(3.7+	2.4-)
1981 03 01	413	0.9-	0.6+	1981 04 12	413	1.6+	1.3-	1998 03 22	704	0.5+	0.0
1981 03 01	413	0.9+	0.2-	1981 04 30	413	0.2+	0.4-	1998 04 01	704	0.2+	1.2+
1981 03 07	413	1.5+	0.3+	1981 05 02	413	0.3-	0.6-	1998 04 01	704	0.7+	0.9+
1981 03 11	413	2.3-	1.3+	1998 03 20	704	0.6-	0.3+	1998 04 01	704	0.4+	0.3+
1981 03 11	413	1.7+	0.9-	1998 03 20	704	0.5-	0.1-	1998 04 01	704	0.1+	0.3+
1981 03 15	413	1.3-	0.1-	1998 03 20	704	0.5-	1.8-	1998 04 01	704	0.1+	0.3+
1981 04 05	413	(2.9-	1.8+)	1998 03 20	704	1.5-	0.2-				
1981 04 06	413	0.0	0.1+	1998 03 22	704	1.6+	0.6-				

1981 EN₁₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	37.16416	(2000.0)	P		Q	
<i>n</i>	0.28874438	ω	175.06905	-0.16568047	-0.98536213	
<i>a</i>	2.2670461	Ω	284.46356	+0.90337864	-0.13531741	
<i>e</i>	0.1058825	<i>i</i>	2.37598	+0.39554649	-0.10368542	
<i>P</i>	3.41	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1979 09 18	675	0.5+	0.8-	1981 03 08	413	0.9+	0.5+	1998 03 04	704	(2.5-	0.1+)
1979 09 19	675	0.1+	0.5-	1981 04 08	413	(3.7-	1.4+)	1998 03 04	704	(4.7-	2.2+)
1981 02 12	413	0.5+	0.4+	1981 04 08	413	0.9+	1.1-	1998 03 04	704	(5.9-	0.2+)
1981 02 12	413	1.0+	0.6-	1981 04 09	413	0.9-	0.3+	1998 04 01	704	0.8+	1.5-
1981 03 01	413	(3.1+	0.4-)	1981 04 09	413	2.2-	1.5+	1998 04 01	704	0.4+	0.1-
1981 03 01	413	1.2+	0.2+	1981 05 01	413	0.7-	0.1+	1998 04 01	704	0.4+	0.8-
1981 03 06	413	1.2-	0.7+	1981 05 03	413	0.2-	0.9-	1998 04 01	704	0.5+	0.8+
1981 03 06	413	(6.2-	4.0+)	1998 03 04	704	1.8-	0.5-	1998 04 01	704	0.3+	0.2-
1981 03 08	413	1.3+	0.1+	1998 03 04	704	1.6-	0.3-				

1981 EL₁₇ = 1998 FT₄₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	292.38001	(2000.0)	P		Q	
<i>n</i>	0.23220511	ω	43.51586	-0.56448467	+0.82377779	
<i>a</i>	2.6215302	Ω	192.42680	-0.80824469	-0.56450225	
<i>e</i>	0.0775626	<i>i</i>	14.09721	-0.16762332	-0.05222412	
<i>P</i>	4.24	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1981 02 09	413	(8.0-	0.5+)	1981 04 05	413	1.6-	0.9-	1998 03 22	704	0.3+	0.5+
1981 02 14	413	0.1-	0.9-	1981 04 10	413	1.8+	0.5+	1998 03 22	704	0.4-	0.0
1981 03 01	413	0.5-	1.4+	1981 05 01	413	1.3+	0.0	1998 03 22	704	0.0	0.1+
1981 03 01	413	0.5+	0.7-	1981 05 01	413	1.4-	0.2-	1998 03 22	704	(3.4-	1.7-)
1981 03 06	413	(2.7-	2.7+)	1998 03 20	704	0.1+	0.1-	1998 04 01	704	0.6+	0.3+
1981 03 06	413	1.6+	1.2-	1998 03 20	704	0.1-	0.6-	1998 04 01	704	(2.3-	1.6-)
1981 03 08	413	1.3-	1.9+	1998 03 20	704	0.3-	0.8-	1998 04 01	704	0.4-	0.3+
1981 03 08	413	1.2+	0.9-	1998 03 20	704	0.3+	0.3-	1998 04 01	704	0.1-	0.7-
1981 03 12	413	0.1-	0.9+	1998 03 20	704	(4.7-	0.3-)	1998 04 01	704	0.5-	0.6-
1981 04 05	413	0.9-	1.6+	1998 03 22	704	0.4+	0.2+				

1981 ET₁₈ = 1998 FR₅₃

Id. G. V. Williams, S. J. Bus (1979 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	25.61055	(2000.0)	P		Q	
<i>n</i>	0.23287628	ω	138.36686	-0.50486250	-0.86292356	
<i>a</i>	2.6164908	Ω	341.92145	+0.77221325	-0.44019816	
<i>e</i>	0.1716217	<i>i</i>	4.03490	+0.38574675	-0.24817032	
<i>P</i>	4.23	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1979 10 18	675	(5.1-	1.3-)	1981 03 29	413	0.5+	0.5-	1998 03 22	704	1.0+	0.7-
1979 10 18	675	0.1-	0.1+	1981 04 08	413	1.0+	0.3+	1998 03 22	704	1.0+	1.1+
1981 02 02	413	0.1+	0.8-	1981 04 30	413	0.6+	0.4+	1998 03 22	704	0.3+	0.1+
1981 02 13	413	0.4-	1.2+	1981 05 02	413	1.6-	1.7-	1998 03 22	704	0.9-	0.9-
1981 03 02	413	0.9-	0.5+	1998 03 20	704	0.2+	0.4+	1998 04 01	704	0.4+	0.8+
1981 03 03	413	0.2-	0.3+	1998 03 20	704	0.3+	0.3-	1998 04 01	704	1.0-	1.2+
1981 03 07	413	1.1-	0.6+	1998 03 20	704	0.7+	1.6-	1998 04 01	704	0.2+	1.0+
1981 03 07	413	1.5+	1.0-	1998 03 20	704	0.3-	0.7-	1998 04 01	704	0.1-	0.8+
1981 03 11	413	0.3-	0.1+	1998 03 20	704	1.0-	0.5-	1998 04 01	704	1.8-	0.7-
1981 03 11	413	0.1+	0.7-	1998 03 22	704	1.6+	1.3+				

1981 EK₂₀ = 1998 EJ₁₀

Id. B. G. Marsden

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	267.74565	(2000.0)	P		Q	
<i>n</i>	0.23179940	ω	265.83388	-0.09228437	+0.99572490	
<i>a</i>	2.6245882	Ω	358.84871	-0.81802037	-0.07806865	
<i>e</i>	0.1659920	<i>i</i>	11.30417	-0.56773786	-0.04936803	
<i>P</i>	4.25	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1981 02 02	413	0.3-	1.0-	1981 04 08	413	0.5+	0.6-	1998 03 20	704	0.2-	0.1-
1981 02 13	413	1.7-	1.1-	1981 04 11	413	1.8-	0.2-	1998 03 22	704	1.0+	0.1+
1981 03 02	413	1.1-	0.8+	1981 04 11	413	(4.1+	0.1+)	1998 03 22	704	0.5+	0.4+

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1981 03 03	413	0.4+	1.1-	1981 04 30	413	0.7+	0.8-	1998 03 22	704	1.7-	0.1-
1981 03 07	413	0.5-	0.3-	1981 05 02	413	0.1-	0.6-	1998 03 22	704	0.2+	1.1+
1981 03 07	413	0.6-	0.4-	1998 03 01	809	(3.4+	4.2+)	1998 03 22	704	0.9+	0.8+
1981 03 11	413	0.1+	0.4+	1998 03 01	809	(2.6+	4.0+)	1998 03 22	327	0.2+	0.3+
1981 03 11	413	2.0+	0.4-	1998 03 01	809	(2.8+	3.4+)	1998 03 22	327	0.5+	0.3+
1981 03 16	413	1.8-	0.2-	1998 03 02	809	(4.4+	2.9+)	1998 03 22	327	0.3+	0.3+
1981 03 16	413	(3.9+	0.6-)	1998 03 02	809	(3.9+	3.4+)	1998 03 24	327	0.1+	0.4+
1981 03 29	413	1.8-	0.0	1998 03 02	809	(3.9+	2.5+)	1998 03 24	327	0.2+	1.1+
1981 03 29	413	0.7+	1.2-	1998 03 20	704	1.9+	0.4+	1998 03 24	327	0.6+	1.3+
1981 04 07	413	(4.2-	0.7-)	1998 03 20	704	0.6+	0.7+	1998 03 24	327	0.5+	0.6+
1981 04 07	413	0.9+	1.0-	1998 03 20	704	0.3+	0.6-				
1981 04 08	413	0.9-	0.2-	1998 03 20	704	0.9-	0.4+				

1981 EN₂₀ = 1976 UK₁₈ = 1998 FT₅₆

Id. G. V. Williams, S. J. Bus

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams				Williams			
<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.29120647	ω	300.20570	+0.00569508	-0.99971578		
<i>a</i>	2.2542498	Ω	149.44189	+0.93240980	-0.00305697		
<i>e</i>	0.1881253	<i>i</i>	2.60983	+0.36135789	+0.02364364		
<i>P</i>	3.38	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1976 10 22	381	0.2+	0.1-	1981 03 07	413	1.4+	0.6-	1998 03 20	704	0.2-	0.6-
1976 10 22	381	0.2-	0.1+	1981 03 11	413	0.2+	1.0+	1998 03 20	704	2.9+	0.7-
1981 02 02	413	0.2+	1.7-	1981 03 11	413	1.2+	0.3-	1998 03 20	704	1.0-	0.7-
1981 02 13	413	0.7+	0.9-	1981 03 29	413	0.8+	0.4+	1998 03 20	704	1.6-	0.8-
1981 03 02	413	2.5-	1.7+	1981 03 29	413	(5.8-	4.2+)	1998 03 22	704	0.6+	0.9-
1981 03 03	413	0.5+	0.2-	1981 05 02	413	1.1+	0.4-	1998 03 22	704	0.2-	0.2-
1981 03 03	413	(4.5+	2.8-)	1981 05 03	413	0.6-	0.4+	1998 03 22	704	0.1+	1.0-
1981 03 07	413	2.1-	2.1+	1998 03 20	704	1.5-	3.8+	1998 03 22	704	0.3+	0.8-

1981 ET₂₁ = 1998 FV₄₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams				Williams			
<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.23231907	ω	298.01922	-0.26311634	-0.96457258		
<i>a</i>	2.6206729	Ω	167.19207	+0.91281276	-0.25534865		
<i>e</i>	0.2128544	<i>i</i>	4.97456	+0.31231820	-0.06630834		
<i>P</i>	4.24	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 02 09	413	0.0	0.1-	1981 03 16	413	0.5-	0.4-	1998 03 20	704	0.6-	0.6-
1981 02 13	413	0.8-	0.3-	1981 03 29	413	0.5-	0.8-	1998 03 20	704	0.5-	0.4+
1981 02 13	413	0.3+	1.0+	1981 04 08	413	0.6-	1.3+	1998 03 20	704	0.7+	0.6+
1981 03 02	413	0.3+	1.1-	1981 04 08	413	1.0+	0.4-	1998 03 22	704	0.9-	0.3-
1981 03 03	413	0.6+	0.6-	1981 04 26	413	0.5-	0.8-	1998 03 22	704	1.0+	0.2+
1981 03 07	413	0.3-	0.7+	1981 05 02	413	0.1+	0.2-	1998 03 22	704	0.9-	0.2+
1981 03 11	413	0.1+	0.5+	1998 03 20	704	0.3+	0.4-	1998 03 22	704	0.8+	0.2-
1981 03 11	413	0.3+	0.4-	1998 03 20	704	0.4-	0.5-	1998 03 22	704	0.9+	2.1+

1981 EH₂₂ = 1998 FW₆₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams				Williams			
<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.23350003	ω	44.84623	-0.30115392	+0.95343821		
<i>a</i>	2.6118291	Ω	207.63881	-0.88438322	-0.28560850		
<i>e</i>	0.0876456	<i>i</i>	1.99921	-0.35661272	-0.09686779		
<i>P</i>	4.22	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 02 13	413	0.5-	0.3-	1981 03 29	413	1.0-	1.7+	1998 03 22	704	0.2-	0.7-
1981 03 02	413	(2.5-	1.5+)	1981 03 29	413	1.8+	0.9+	1998 03 22	704	0.4+	0.3-
1981 03 02	413	0.9-	0.8+	1981 04 26	413	0.6+	1.5-	1998 03 22	704	(2.2-	0.2-)
1981 03 03	413	0.2-	0.0	1981 05 02	413	1.2-	0.4-	1998 03 22	704	(4.7-	1.2+)
1981 03 03	413	(5.3-	2.9+)	1998 03 20	704	0.7-	0.5+	1998 04 01	704	(2.9-	0.7+)
1981 03 07	413	0.4-	0.1-	1998 03 20	704	0.1+	1.2-	1998 04 01	704	0.6+	0.4+

1981 03 11	413	(3.1+	0.5-)	1998 03 20	704	0.0	1.2+	1998 04 01	704	0.7+	0.2+
1981 03 11	413	2.3+	0.5-	1998 03 20	704	0.6-	1.1+	1998 04 01	704	0.1-	0.7+
1981 03 16	413	(2.0+	4.4-)	1998 03 20	704	(6.0-	0.4+)	1998 04 01	704	0.5+	1.2-
1981 03 16	413	0.9-	1.3-	1998 03 22	704	0.4-	0.2-				

1981 EM₂₃ = 1998 FB₅₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams				Williams			
<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.17613104	ω	42.51569	+0.69653290	-0.71745229		
<i>a</i>	3.1519461	Ω	3.38277	+0.60303828	+0.57763000		
<i>e</i>	0.2091107	<i>i</i>	9.95844	+0.38882740	+0.38936588		
<i>P</i>	5.60	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 02 02	413	0.6+	0.0	1981 03 29	413	0.6+	0.2+	1998 03 22	704	1.2+	1.0-
1981 02 13	413	1.3-	0.7-	1981 05 02	413	0.2+	0.3-	1998 03 22	704	1.6+	0.1+
1981 03 03	413	0.8-	0.2+	1981 05 03	413	0.4+	0.3+	1998 03 22	704	1.2-	0.2-
1981 03 07	413	(2.9+	0.6+)	1998 03 20	704	1.5+	0.4-	1998 04 01	704	0.9+	0.8+
1981 03 07	413	1.4+	0.2-	1998 03 20	704	0.7+	0.7+	1998 04 01	704	0.1+	1.1-
1981 03 11	413	0.1-	0.4+	1998 03 20	704	0.8-	2.0+	1998 04 01	704	0.7-	0.0
1981 03 16	413	(4.7-	1.2+)	1998 03 20	704	0.3+	1.4-	1998 04 01	704	1.3-	0.4-
1981 03 29	413	0.9-	0.2+	1998 03 22	704	1.5-	1.3+	1998 04 01	704	1.0-	0.7-

1981 EN₂₄ = 1998 FA₆₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams				Williams			
<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.29170369	ω	197.66837	-0.04430756	-0.99856680		
<i>a</i>	2.2516874	Ω	254.87923	+0.92029434	-0.02910572		
<i>e</i>	0.1141797	<i>i</i>	1.78198	+0.38870961	-0.04491329		
<i>P</i>	3.38	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 02 12	413	0.7-	0.1+	1981 04 07	413	(3.3-	0.4+)	1998 03 20	704	0.4-	0.5-
1981 02 13	413	0.8+	0.5-	1981 04 07	413	0.7+	1.7-	1998 03 22	704	0.2-	0.3+
1981 03 02	413	1.2+	0.7-	1981 04 12	413	1.7-	0.1-	1998 03 22	704	0.4-	0.1-
1981 03 06	413	1.7-	1.3+	1981 04 12	413	0.6+	0.4-	1998 03 22	704	0.6+	0.5+
1981 03 06	413	2.4+	0.6-	1981 05 02	413	(1.9+	2.9-)	1998 03 22	704	0.1+	0.0
1981 03 11	413	0.8-	0.9+	1981 05 03	413	1.2+	0.1+	1998 03 22	704	1.2-	0.8-
1981 03 11	413	2.0+	1.0-	1998 03 03	704	0.9-	0.6-	1998 03 22	699	0.3+	0.7+
1981 03 15	413	0.2-	0.7+	1998 03 03	704	(0.0	2.4-)	1998 03 22	699	0.2-	0.8-
1981 03 15	413	1.1+	0.6+	1998 03 03	704	(0.7-	2.5+)	1998 03 22	699	0.7-	0.1-
1981 03 15	413	0.0	1.5+	1998 03 03	704	(4.2-	2.0-)	1998 04 01	704	1.5+	0.7+
1981 04 05	413	1.4-	0.7-	1998 03 20	704	0.4-	0.7-	1998 04 01	704	0.2-	0.9+
1981 04 05	413	1.5-	0.4+	1998 03 20	704	1.3-	0.2-	1998 04 01	704	1.6+	0.3+
1981 04 06	413	2.0-	0.1-	1998 03 20	704	0.1+	0.1+	1998 04 01	704	0.9+	0.2-
1981 04 06	413	0.1-	0.4-	1998 03 20	704	0.0	0.0	1998 04 01	704	0.8+	1.1+

1981 ES₂₄ = 1998 FN₂₂

Id. G. V. Williams, S. J. Bus (1979 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams				Williams			
<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.28840715	ω	166.13389	-0.80744502	-0.58831607		
<i>a</i>	2.2688130	Ω	337.65433	+0.52969199	-0.69030914		
<i>e</i>	0.0390555	<i>i</i>	6.61247	+0.25972859	-0.42113833		
<i>P</i>	3.42	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1979 10 18	675	0.4-	0.8-	1998 03 03	704	0.1-	0.8-	1998 03 20	704	0.3-	0.3+
1979 10 18	675	0.2+	1.2+	1998 03 03	704	0.9+	0.6-	1998 03 20	704	0.3+	1.6-
1981 02 12	413	0.7+	0.4+	1998 03 03	704	1.3-	0.2-	1998 03 20	704	0.7+	0.4-
1981 03 02	413	1.3+	0.8-	1998 03 03	704	0.4-	0.3-	1998 03 20	704	0.3+	0.4+
1981 03 06	413	0.2+	1.4+	1998 03 04	704	(2.6-	0.3+)	1998 03 20	704	0.7+	0.3-
1981 03 11	413	0.6-	2.0+	1998 03 04	704	(5.0-	0.8-)	1998 03 22	704	1.1-	1.2+
1981 04 12	413	0.1-	0.6-	1998 03 04	704	(2.5-	1.1-)	1998 03 22	704	0.9+	1.0-

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1981 04 12	413	0.3+	0.5+	1998 03 04	704	(3.1−	0.6+)	1998 03 22	704	0.3+	0.4−
1981 05 03	413	0.3−	0.5−	1998 03 04	704	2.0−	1.5+	1998 03 22	704	(4.0−	0.3−)

1981 EU₂₇ = 1998 FV₁₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	273.08699		(2000.0)		P		Q
<i>n</i>	0.28913733	ω	94.71901	−0.06560386			+0.99771876
<i>a</i>	2.2649917	Ω	171.47043	−0.95277843			−0.05789263
<i>e</i>	0.2561073	<i>i</i>	6.16133	−0.29649520			−0.03472350
<i>P</i>	3.41	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 02 09	413	0.4+	0.3−	1981 04 05	413	0.9+	0.3−	1998 03 22	704	0.3−	0.7−
1981 02 12	413	0.6−	1.5−	1981 04 26	413	1.5+	0.9−	1998 03 22	704	0.4−	0.4−
1981 02 12	413	0.3−	0.4−	1981 05 01	413	1.8−	0.8+	1998 03 22	704	0.4+	1.1+
1981 02 12	413	0.4−	1.9+	1998 03 20	704	0.4−	0.4+	1998 03 24	566	0.2+	0.8+
1981 02 13	413	0.3+	0.9+	1998 03 20	704	0.4−	0.2+	1998 03 24	566	0.3+	0.5+
1981 03 02	413	2.0+	1.3−	1998 03 20	704	0.1−	0.5−	1998 03 24	566	0.0	0.6+
1981 03 06	413	1.0−	0.0	1998 03 20	704	0.6+	1.1−	1998 03 25	566	0.3+	0.2−
1981 03 11	413	1.2+	1.3−	1998 03 20	704	0.6−	0.3+	1998 03 25	566	0.6+	0.4−
1981 03 15	413	0.7−	0.1+	1998 03 22	704	0.4+	1.0+	1998 03 25	566	0.2+	0.6−
1981 03 15	413	1.9−	1.7+	1998 03 22	704	0.7−	0.5−				

1981 EO₃₀ = 1998 FH₇₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	293.73690		(2000.0)		P		Q
<i>n</i>	0.23332544	ω	74.00356	−0.35657604			+0.93408107
<i>a</i>	2.6131319	Ω	174.98820	−0.91776994			−0.34648520
<i>e</i>	0.1690712	<i>i</i>	12.29505	−0.17479091			−0.08625866
<i>P</i>	4.22	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 02 09	413	0.5−	1.0+	1981 03 11	413	0.8−	0.9+	1998 03 20	704	0.4−	0.2+
1981 02 13	413	0.5−	0.6−	1981 03 11	413	1.0+	1.4−	1998 03 20	704	0.7−	0.8+
1981 03 02	413	1.3−	0.7−	1981 03 11	413	0.2−	1.4+	1998 03 22	704	0.1+	0.5+
1981 03 02	413	2.3+	1.9−	1981 03 11	413	1.9+	0.4−	1998 03 22	704	0.7−	0.9−
1981 03 02	413	0.6+	1.2−	1981 03 15	413	1.3−	2.2+	1998 03 22	704	0.5+	0.3+
1981 03 03	413	1.5−	0.2+	1981 03 15	413	3.1+	1.8−	1998 03 22	704	0.5+	0.3+
1981 03 03	413	0.2+	0.1+	1981 04 26	413	0.6−	0.8−	1998 03 22	704	1.2+	1.3−
1981 03 06	413	1.7−	1.3+	1998 03 20	704	0.8−	0.1−				
1981 03 07	413	0.9−	1.1+	1998 03 20	704	0.5+	0.7+				

1981 EF₃₁ = 1998 FB₃₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	80.80643		(2000.0)		P		Q
<i>n</i>	0.28915251	ω	261.40177	+0.45796126			−0.88865593
<i>a</i>	2.2649124	Ω	161.28668	+0.84192091			+0.42500650
<i>e</i>	0.0536730	<i>i</i>	4.23792	+0.28537811			+0.17222108
<i>P</i>	3.41	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 02 09	413	0.3+	0.6+	1981 03 15	413	0.9−	0.1−	1998 03 20	704	0.4−	0.9+
1981 02 12	413	0.6+	0.5+	1981 03 15	413	2.3+	1.3−	1998 03 22	704	1.0+	0.7−
1981 02 13	413	0.0	0.8−	1981 04 26	413	0.9+	0.5−	1998 03 22	704	0.9+	0.1−
1981 03 02	413	0.3+	1.2−	1981 05 01	413	0.8−	1.1+	1998 03 22	704	0.5+	0.7−
1981 03 06	413	2.0−	0.5−	1998 03 20	704	0.1−	1.4+	1998 03 22	704	0.3−	0.5+
1981 03 06	413	1.6−	0.8+	1998 03 20	704	0.2+	0.1+	1998 03 22	704	0.1−	0.2−
1981 03 11	413	0.4−	0.8−	1998 03 20	704	0.1−	0.6+				
1981 03 11	413	0.4+	0.4−	1998 03 20	704	0.5−	1.0+				

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1981 EB₃₅ = 1998 FO₁₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	43.78394		(2000.0)		P		Q
<i>n</i>	0.28845966	ω	268.16980	−0.03259773			−0.99944844
<i>a</i>	2.2685376	Ω	183.71605	+0.95148833			−0.02909037
<i>e</i>	0.0502431	<i>i</i>	5.61386	+0.30595317			−0.01601747
<i>P</i>	3.42	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 02 09	413	0.1−	0.8+	1981 04 08	413	1.4+	1.4−	1998 03 04	704	1.5−	0.3+
1981 02 13	413	0.1−	0.2−	1981 04 11	413	0.1−	0.8+	1998 03 04	704	1.6−	0.5+
1981 03 02	413	0.7+	0.6+	1981 05 02	413	0.1−	0.5−	1998 03 20	704	0.9+	0.9−
1981 03 03	413	0.4−	0.3−	1981 05 03	413	0.3−	0.5+	1998 03 20	704	(1.5+	4.4−)
1981 03 03	413	(3.6+	2.0−)	1998 03 03	704	0.8−	0.6−	1998 03 20	704	0.7−	0.1−
1981 03 07	413	1.3−	1.3+	1998 03 03	704	1.5+	0.0	1998 03 20	704	0.4−	0.6+
1981 03 07	413	1.8+	1.0−	1998 03 03	704	1.4+	0.6+	1998 03 20	704	1.1+	0.6−
1981 03 11	413	1.2−	1.0+	1998 03 03	704	1.6+	0.4+	1998 03 22	704	0.2+	0.3−
1981 03 11	413	(2.8−	0.8+)	1998 03 03	704	0.1−	0.8+	1998 03 22	704	0.6+	1.2−
1981 03 16	413	0.2−	0.3−	1998 03 04	704	1.4−	0.3−	1998 03 22	704	0.6+	0.4−
1981 03 29	413	0.4+	0.6−	1998 03 04	704	1.0−	0.3+	1998 03 22	704	0.3+	0.5−
1981 04 08	413	0.1+	0.8+	1998 03 04	704	1.1−	0.3−	1998 03 22	704	(1.0−	2.3−)

1981 EC₃₉ = 1998 FZ₁₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	275.40602		(2000.0)		P		Q
<i>n</i>	0.17366562	ω	77.37253	−0.23972068			+0.97078411
<i>a</i>	3.1817067	Ω	178.61641	−0.96974364			−0.23995409
<i>e</i>	0.1065983	<i>i</i>	26.02158	+0.04616575			+0.00049976
<i>P</i>	5.68	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 02 09	413	0.1−	0.2−	1981 05 03	413	0.4+	0.0	1998 03 22	704	0.3+	0.3−
1981 03 02	413	0.5−	2.3+	1998 03 20	704	0.0	0.1+	1998 03 24	566	0.2+	0.1−
1981 03 03	413	0.3−	0.5+	1998 03 20	704	0.6−	0.0	1998 03 24	566	0.1+	0.2+
1981 03 03	413	0.8+	1.4−	1998 03 20	704	1.1−	1.4+	1998 03 24	566	0.1−	0.0
1981 03 07	413	1.5+	1.8−	1998 03 20	704	0.7−	0.8+	1998 03 26	566	0.2−	0.4−
1981 03 11	413	1.7−	1.7+	1998 03 22	704	0.9+	1.2−	1998 03 26	566	0.6+	0.1−
1981 03 11	413	0.3+	1.4−	1998 03 22	704	0.2+	0.4−	1998 03 26	566	0.5+	0.0
1981 05 02	413	0.4−	0.1+	1998 03 22	704	(0.1+	2.6−)				

1981 ER₄₅ = 1998 FF₅₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	12.88053		(2000.0)		P		Q
<i>n</i>	0.29013316	ω	302.76221	−0.71368859			−0.70000663
<i>a</i>	2.2598059	Ω	192.87272	+0.67463267			−0.67721016
<i>e</i>	0.1050525	<i>i</i>	6.51675	+0.18846582			−0.22666520
<i>P</i>	3.40	<i>H</i>	16.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 02 12	413	0.9+	0.1+	1981 05 01	413	1.0+	1.7+	1998 03 22	704	0.4−	0.6+
1981 02 12	413	0.1+	0.1+	1981 05 01	413	0.2−	0.1−	1998 03 22	704	0.0	0.0
1981 03 01	413	0.8−	0.3−	1998 03 20	704	0.5+	0.6−	1998 03 22	704	(2.6−	1.9+)
1981 03 01	413	0.7+	0.2−	1998 03 20	704	0.4+	0.9+	1998 04 01	704	0.1−	0.5−
1981 03 08	413	0.4−	0.5+	1998 03 20	704	0.9−	0.6−	1998 04 01	704	0.9+	0.2+
1981 03 08	413	1.6+	0.2−	1998 03 20	704	(2.3−	0.7+)	1998 04 01	704	0.8−	1.2−
1981 03 12	413	1.8−	1.4+	1998 03 20	704	(4.8−	0.1+)	1998 04 01	704	1.6+	0.4−
1981 04 05	413	(4.9+	6.0−)	1998 03 22	704	0.5−	0.5−	1998 04 01	704	0.5−	1.1−
1981 04 05	413	(1.6+	3.2−)	1998 03 22	704	1.0−	0.3+				

1981 QS = 1989 WD₆ = 1998 DT₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden

<i>M</i>	72.92416		(2000.0)		P		Q				
<i>n</i>	0.26020022	ω	227.00955		+0.87944486		-0.47517766				
<i>a</i>	2.4299515	Ω	161.30704		+0.45817631		+0.82911347				
<i>e</i>	0.1948949	<i>i</i>	5.00857		+0.12903956		+0.29457943				
<i>P</i>	3.79	<i>H</i>	15.0		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1981 08 24	046	0.7-	0.8+	1998 02 22	292	1.2+	0.2+	1998 02 26	292	0.6+	0.6-
1981 08 24	046	1.8-	0.9+	1998 02 22	292	(0.6-	2.4-)	1998 02 26	292	1.6-	0.2-
1981 08 28	046	(4.8-	1.0-)	1998 02 22	566	0.3-	0.1+	1998 02 26	292	0.3-	0.2+
1981 08 28	046	(4.8-	2.2-)	1998 02 22	566	0.3+	0.3+	1998 03 06	292	0.2-	1.0+
1981 09 03	704	1.4+	1.1-	1998 02 22	566	0.1+	0.0	1998 03 06	292	(2.3+	0.3-)
1981 09 03	704	0.9+	0.3+	1998 02 23	566	0.1+	0.2-	1998 03 06	292	0.6-	0.0
1989 11 24	095	0.0	0.1-	1998 02 23	566	0.7+	0.2+				
1998 02 22	292	(0.1+	2.7-)	1998 02 23	566	0.2+	0.1+				

1982 US₁ = 1998 EJ₁₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden

<i>M</i>	293.97199		(2000.0)			P		Q			
<i>n</i>	0.28662317	ω	167.48220			-0.60937063		+0.79107235			
<i>a</i>	2.2782175	Ω	64.94894			-0.73246322		-0.53576663			
<i>e</i>	0.2066059	<i>i</i>	3.39134			-0.30358698		-0.29522646			
<i>P</i>	3.44	<i>H</i>	14.0		<i>G</i>	0.15		<i>U</i>	7		
Residuals in seconds of arc											
1982 10 16	046	2.9-	0.4+	1982 10 21	046	0.2-	1.7-	1998 03 01	809	0.1+	1.1-
1982 10 16	046	2.0+	0.0	1982 10 21	046	0.3+	1.9+	1998 03 02	809	0.3-	0.7+
1982 10 20	046	3.4-	0.1-	1998 03 01	809	0.6+	1.2-	1998 03 02	809	0.2-	1.1+
1982 10 20	046	4.3+	0.4-	1998 03 01	809	0.7+	1.0-	1998 03 02	809	0.8-	1.5+

1983 RL₃ = 1976 JM₅ = 1998 FO₁₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	152.70077	(2000.0)		P		Q					
n	0.30826217	ω	67.15847	+0.99798423	-0.04101281						
a	2.1703139	Ω	295.16319	+0.01703673	+0.90824990						
e	0.1423825	i	3.06721	+0.06113285	+0.41641334						
P	3.20 <th>H</th> <td>15.0<th>G</th><td>0.15<th>U</th><td>4</td></td></td>	H	15.0 <th>G</th> <td>0.15<th>U</th><td>4</td></td>	G	0.15 <th>U</th> <td>4</td>	U	4				
Residuals in seconds of arc											
1976 05 03	809	0.2-	0.8-	1983 09 08	809	1.0+	0.2-	1998 03 20	704	0.2-	0.2+
1983 09 01	809	0.0	0.9-	1983 09 08	809	1.3+	0.0	1998 03 20	704	1.2-	0.2-
1983 09 01	809	0.2+	0.9-	1983 09 08	809	1.4+	0.3+	1998 03 22	704	0.5-	0.1-
1983 09 01	809	0.4+	1.0-	1983 09 09	809	2.4-	1.0-	1998 03 22	704	0.1-	0.1+
1983 09 02	809	0.5-	0.6+	1983 09 09	809	0.9-	0.4+	1998 03 22	704	0.2-	0.1+
1983 09 02	809	0.2-	0.3+	1983 09 12	809	1.0+	0.8-	1998 03 22	704	0.1-	0.3+
1983 09 02	809	0.0	0.1-	1983 09 12	809	0.9+	1.1-	1998 03 22	704	0.1-	1.0+
1983 09 03	809	1.7-	0.1-	1983 09 12	809	1.1+	1.2-	1998 03 26	910	1.0+	0.7-
1983 09 03	809	0.6-	0.7+	1983 09 13	809	0.8+	0.4-	1998 03 27	910	0.9+	0.5-
1983 09 03	809	(2.7-	0.0)	1983 09 14	809	0.7+	0.6-	1998 03 27	910	1.3+	0.4-
1983 09 04	809	0.2-	0.7+	1983 09 14	809	0.9+	1.0-	1998 03 28	910	0.8+	0.8-
1983 09 04	809	0.1-	0.9+	1983 09 16	809	0.3-	0.2-	1998 03 28	910	0.7+	0.2-
1983 09 04	809	0.2+	1.0+	1983 09 16	809	0.4-	0.2-	1998 03 28	910	0.5+	0.2-
1983 09 06	809	0.8-	1.4+	1998 02 24	566	0.8-	0.1+	1998 04 01	704	0.6-	0.3+
1983 09 06	809	0.9-	1.2+	1998 02 24	566	0.1-	0.1+	1998 04 01	704	0.2+	0.3+
1983 09 06	809	0.4-	0.9+	1998 02 24	566	0.9-	0.2-	1998 04 01	704	0.6+	0.3-
1983 09 07	809	1.9-	0.2-	1998 03 20	704	0.4+	0.4+	1998 04 01	704	0.7-	0.5+
1983 09 07	809	(3.0-	1.4+)	1998 03 20	704	0.5-	0.2+	1998 04 01	704	0.5-	0.3-
1983 09 07	809	1.3+	1.5+	1998 03 20	704	0.3+	0.7+				

1984 SV₅ = 1992 CC₄Id. G. V. Williams (*MPC* 20331)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	190.36862		(2000.0)		P		Q				
<i>n</i>	0.18592034	ω	343.98418		+0.96792695		+0.25119899				
<i>a</i>	3.0403118	Ω	1.48554		-0.20988141		+0.81739097				
<i>e</i>	0.0827576	<i>i</i>	9.00902		-0.13808405		+0.51843136				
<i>P</i>	5.30	<i>H</i>	13.0		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1984 09 21	809	1.7+	0.2+	1984 09 28	809	0.6-	0.3-	1992 02 08	033	0.2-	0.1-
1984 09 21	809	1.9+	0.2+	1984 09 28	809	0.6-	0.2-	1992 02 09	033	0.2-	0.1+
1984 09 21	809	2.3+	0.2+	1984 09 28	809	0.6-	0.3-	1998 03 20	704	0.5+	0.6-
1984 09 22	809	1.0-	0.5-	1984 09 29	809	1.1-	0.7-	1998 03 20	704	0.0	0.5-
1984 09 22	809	0.1-	0.5-	1984 09 29	809	1.4-	0.7-	1998 03 20	704	0.4-	0.3-
1984 09 22	809	0.8+	0.6-	1984 09 29	809	1.2-	0.7-	1998 03 20	704	0.3-	1.0+
1984 09 23	809	0.5+	1.2+	1984 09 29	809	0.2+	1.1-	1998 03 20	704	1.1-	1.5+
1984 09 23	809	0.4+	0.9+	1984 09 29	809	0.2+	1.1-	1998 03 22	704	0.4+	0.1-
1984 09 23	809	0.6+	0.6+	1984 09 29	809	0.3+	1.2-	1998 03 22	704	0.2+	0.3+
1984 09 24	809	1.1+	2.0+	1984 09 30	809	0.4-	0.3-	1998 03 22	704	1.2+	0.3-
1984 09 24	809	1.7+	2.0+	1984 09 30	809	0.2-	0.2-	1998 03 22	704	0.9-	0.4-
1984 09 24	809	2.3+	2.1+	1984 09 30	809	0.6-	0.6-	1998 03 22	704	0.1+	0.5+
1984 09 26	809	0.1+	0.4+	1984 10 01	809	0.1-	0.8-	1998 04 01	704	0.5-	0.1-
1984 09 26	809	0.4-	0.4+	1984 10 01	809	0.1-	0.7-	1998 04 01	704	0.0	0.1+
1984 09 26	809	0.2-	0.6+	1984 10 01	809	0.0	0.8-	1998 04 01	704	0.1+	1.1-
1984 09 27	809	0.9-	0.2-	1984 10 18	071	0.6-	0.8+	1998 04 01	704	0.2+	0.9-
1984 09 27	809	0.7-	0.3+	1984 10 18	071	2.0-	1.5-	1998 04 01	704	0.0	0.2+
1984 09 27	809	0.7-	0.3+	1992 02 08	033	0.2+	0.3-				

1986 QF₁ = 1998 FQ₃₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	117.02660		(2000.0)			P		Q			
n	0.29874299	ω	15.24043			+0.90851167		-0.41758565			
a	2.2161759	Ω	9.48416			+0.37314076		+0.79446070			
e	0.1393828	i	5.26670			+0.18807582		+0.44096987			
P	3.30	H	14.0			G	0.15	U	5		
Residuals in seconds of arc											
1986 08 26	809	1.0-	1.1-	1986 09 02	809	0.0	0.3+	1986 09 07	809	0.3-	0.1+
1986 08 26	809	0.7-	1.1-	1986 09 02	809	0.1+	0.3+	1986 09 07	809	0.7-	0.1+
1986 08 26	809	0.2-	1.3-	1986 09 03	809	0.4+	0.1+	1986 09 07	809	0.4-	0.2+
1986 08 27	809	0.3-	0.1+	1986 09 03	809	0.6+	0.1+	1986 09 07	809	0.1+	0.1+
1986 08 27	809	0.1-	0.0	1986 09 03	809	0.7+	0.1+	1986 09 09	809	0.7-	0.4-
1986 08 27	809	0.3+	0.1-	1986 09 04	809	0.0	0.3-	1986 09 09	809	0.4-	0.3-
1986 08 29	809	0.2-	0.1+	1986 09 04	809	0.1-	0.2-	1986 09 09	809	0.3-	0.4-
1986 08 29	809	0.0	0.2-	1986 09 04	809	0.1-	0.2-	1986 09 09	809	0.6-	0.6+
1986 08 29	809	0.3+	0.3-	1986 09 05	809	0.0	0.0	1986 09 09	809	0.7-	0.5+
1986 08 31	809	0.9+	0.1-	1986 09 05	809	0.2+	0.0	1986 09 09	809	0.6-	0.5+
1986 08 31	809	0.9+	0.1-	1986 09 05	809	0.1+	0.0	1998 03 20	704	1.0+	0.7-
1986 08 31	809	0.9+	0.0	1986 09 05	809	0.1-	0.2+	1998 03 20	704	0.5-	0.4+
1986 09 01	809	0.2+	0.4+	1986 09 05	809	0.1-	0.3+	1998 03 20	704	0.5-	0.9+
1986 09 01	809	0.1+	0.5+	1986 09 05	809	0.2-	0.2+	1998 03 20	704	0.8-	1.7+
1986 09 01	809	0.0	0.7+	1986 09 06	809	0.2-	0.0	1998 03 20	704	0.5-	1.1+
1986 09 01	809	0.2+	0.0	1986 09 06	809	0.2-	0.1-	1998 03 22	704	0.7+	0.2-
1986 09 01	809	0.3+	0.3+	1986 09 06	809	0.3-	0.2-	1998 03 22	704	0.2+	0.2+
1986 09 01	809	0.4+	0.4+	1986 09 06	809	0.5+	0.2+	1998 03 22	704	0.5+	1.7-
1986 09 01	809	0.1-	0.1+	1986 09 06	809	0.3+	0.2+	1998 03 22	704	0.2+	0.8-
1986 09 01	809	0.4+	0.0	1986 09 06	809	0.6+	0.3+	1998 03 22	704	0.2+	0.0
1986 09 01	809	0.8+	0.0	1986 09 07	809	0.4-	0.1+				
1986 09 02	809	0.1-	0.1+	1986 09 07	809	0.5-	0.2+				

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M.P.C. 31525

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	234.95035		(2000.0)	P	Q
<i>n</i>	0.30757089	ω	265.81809	+0.24711756	+0.96882556
<i>a</i>	2.1735646	Ω	18.51772	-0.86558727	+0.22887829
<i>e</i>	0.0984864	<i>i</i>	3.17772	-0.43553597	+0.09482495
<i>P</i>	3.20	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1986 08 27	809	0.1-	1.1+	1986 09 07	809	0.1-	0.1-	1998 03 20	704	0.4-	0.1+
1986 08 27	809	0.0	1.1+	1986 09 07	809	0.0	0.0	1998 03 20	704	0.2-	0.2+
1986 08 27	809	0.3+	1.2+	1986 09 09	809	0.6-	0.4-	1998 03 20	704	0.4-	0.6+
1986 08 29	809	0.5-	1.0+	1986 09 09	809	0.4-	0.4-	1998 03 22	704	0.3-	0.1-
1986 08 29	809	0.2-	1.0+	1986 09 09	809	0.3-	0.3-	1998 03 22	704	0.2+	0.2-
1986 08 29	809	0.0	0.9+	1986 09 09	809	0.2+	0.5-	1998 03 22	704	0.1+	0.5-
1986 09 01	809	0.3-	1.2+	1986 09 09	809	0.1+	0.5-	1998 03 22	704	0.1+	0.3-
1986 09 01	809	0.3-	1.3+	1986 09 09	809	0.4+	0.2-	1998 03 22	704	0.4+	0.6-
1986 09 01	809	0.2-	0.9+	1986 09 09	809	0.2+	0.3-	1998 03 24	704	0.2+	0.1-
1986 09 02	809	0.7-	0.1+	1986 09 09	809	0.2+	0.5-	1998 03 24	704	0.6+	0.1-
1986 09 02	809	0.5-	0.3+	1986 09 09	809	0.3+	0.7-	1998 03 24	704	0.1+	0.1+
1986 09 02	809	0.3-	0.4+	1986 09 10	809	0.7+	0.5-	1998 03 24	704	0.3+	0.1+
1986 09 03	809	0.4-	0.2+	1986 09 10	809	0.8+	0.4-	1998 03 24	704	0.3-	0.4+
1986 09 03	809	0.3-	0.2+	1986 09 10	809	0.7+	0.4-	1998 03 24	704	0.8+	0.8+
1986 09 03	809	0.0	0.2+	1986 09 11	809	0.5+	0.1-	1998 03 24	704	0.6+	0.4+
1986 09 03	809	1.1-	0.3-	1986 09 11	809	0.7+	0.1-	1998 03 24	704	0.3+	0.4+
1986 09 03	809	1.1-	0.3-	1986 09 11	809	0.6+	0.4-	1998 03 24	704	0.6-	0.1-
1986 09 03	809	0.8-	0.4-	1986 09 14	809	1.6+	0.4-	1998 03 24	704	0.2+	0.4-
1986 09 04	809	0.9-	0.1+	1986 09 14	809	1.6+	0.4-	1998 03 24	704	0.0	0.3-
1986 09 04	809	1.0-	0.1-	1986 09 14	809	1.5+	0.4-	1998 03 24	704	0.9-	1.0-
1986 09 04	809	0.8-	0.3-	1988 01 22	511	1.7-	1.4-	1998 03 24	704	0.7-	0.3-
1986 09 04	809	0.2+	0.1-	1988 01 22	511	2.1+	0.1+	1998 03 24	704	0.8+	0.0
1986 09 04	809	0.2+	0.3-	1988 01 22	303	(4.7-	3.1+)	1998 03 24	704	0.1-	0.5-
1986 09 04	809	0.3+	0.4-	1988 01 23	511	1.8-	1.4+	1998 03 24	704	0.1-	0.1-
1986 09 06	809	0.2+	0.8-	1988 01 23	511	0.9+	1.0-	1998 03 24	704	1.0-	0.8+
1986 09 06	809	0.4+	1.0-	1988 01 23	303	0.6+	1.3+	1998 03 24	704	0.2+	0.4+
1986 09 06	809	0.5+	0.9-	1998 02 21	691	0.2-	0.2-	1998 03 24	704	0.6-	0.5-
1986 09 06	809	0.1-	0.3-	1998 02 21	691	0.2-	0.1-	1998 03 24	704	0.8-	0.3+
1986 09 06	809	0.1-	0.3-	1998 02 21	691	0.2-	0.2-	1998 03 24	566	0.4+	0.4-
1986 09 06	809	0.1-	0.4-	1998 03 20	704	0.1-	0.4-	1998 03 24	566	0.5+	0.3-
1986 09 07	809	0.0	0.1-	1998 03 20	704	0.1-	0.4+	1998 03 24	566	0.6+	0.3-

1986 QU₂ = 1998 FO₂₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	292.39885		(2000.0)	P	Q
<i>n</i>	0.21897611	ω	199.23518	-0.75664719	+0.65340787
<i>a</i>	2.7260776	Ω	21.61662	-0.59127578	-0.66861352
<i>e</i>	0.0356246	<i>i</i>	3.62722	-0.27906629	-0.35498466
<i>P</i>	4.50	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1986 08 28	809	0.2+	0.5+	1986 09 05	809	0.1+	0.1-	1986 09 08	809	0.1+	0.0
1986 08 28	809	0.2-	0.5+	1986 09 05	809	0.1+	0.1-	1986 09 12	809	0.3+	0.2+
1986 08 28	809	0.2-	0.6+	1986 09 06	809	0.3+	0.0	1986 09 12	809	0.2-	0.2+
1986 09 01	809	0.1-	0.5-	1986 09 06	809	0.1+	0.0	1986 09 12	809	0.1-	0.1+
1986 09 01	809	0.0	0.5-	1986 09 06	809	0.2+	0.1-	1998 03 20	704	0.6-	0.5+
1986 09 01	809	0.0	0.6-	1986 09 07	809	0.1-	0.2+	1998 03 20	704	0.1-	0.2-
1986 09 02	809	0.5+	0.0	1986 09 07	809	0.1-	0.2+	1998 03 20	704	0.1+	0.1-
1986 09 02	809	0.4+	0.1+	1986 09 07	809	0.0	0.3+	1998 03 20	704	0.3-	0.1+
1986 09 02	809	0.4+	0.1+	1986 09 08	809	0.1-	0.5+	1998 03 20	704	0.0	0.1-
1986 09 03	809	0.2-	0.3-	1986 09 08	809	0.2-	0.5+	1998 03 22	704	0.3+	0.2+
1986 09 03	809	0.2-	0.2-	1986 09 08	809	0.2-	0.4+	1998 03 22	704	0.1+	0.1-
1986 09 03	809	0.0	0.2-	1986 09 08	809	0.4-	0.1-	1998 03 22	704	0.5+	0.1-
1986 09 04	809	0.0	0.5-	1986 09 08	809	0.2-	0.1-	1998 03 22	704	0.2+	0.1-
1986 09 04	809	0.2+	0.4-	1986 09 08	809	0.3-	0.1-	1998 03 22	704	0.0	0.1-
1986 09 04	809	0.3+	0.5-	1986 09 08	809	0.1-	0.0				
1986 09 05	809	0.0	0.1-	1986 09 08	809	0.1-	0.0				

1986 QC₃ = 1998 EO₉

Id. T. Urata

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	69.72026		(2000.0)	P	Q
<i>n</i>	0.29437492	ω	57.74157	+0.58978546	-0.80750896
<i>a</i>	2.2380451	Ω	356.08031	+0.68905694	+0.50906893
<i>e</i>	0.0926956	<i>i</i>	7.63069	+0.42113376	+0.29795654
<i>P</i>	3.35	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1986 08 29	809	1.8-	1.2-	1986 09 06	809	1.1+	0.8+	1998 03 06	888	0.4+	0.7+
1986 08 29	809	1.8-	1.1-	1986 09 06	809	1.3+	0.5+	1998 03 06	888	0.8+	0.7+
1986 08 29	809	1.8-	1.1-	1986 09 06	809	1.0+	0.4+	1998 03 07	888	0.5+	0.9+
1986 08 31	809	1.0-	0.1-	1986 09 09	809	1.0+	0.4+	1998 03 07	888	0.6+	1.2+
1986 08 31	809	0.9-	0.2-	1986 09 09	809	1.1+	0.3+	1998 03 15	888	0.1+	1.2-
1986 08 31	809	0.9-	0.2-	1986 09 09	809	1.3+	0.1+	1998 03 15	888	0.9+	0.1+
1986 09 01	809	0.6-	0.1-	1998 03 04	704	1.6-	0.1+	1998 03 15	888	0.1-	0.5+
1986 09 01	809	0.4-	0.0	1998 03 04	704	0.4-	0.0	1998 03 16	888	0.1+	0.5-
1986 09 01	809	0.5-	0.0	1998 03 04	704	0.5-	0.5-	1998 03 16	888	0.1+	0.1-
1986 09 06	809	0.6+	0.8+	1998 03 04	704	(2.2-	0.4-)	1998 03 16	888	0.0	0.4-
1986 09 06	809	0.9+	0.8+	1998 03 04	704	1.3-	1.1-				
1986 09 06	809	1.0+	0.8+	1998 03 06	888	0.9+	0.6+				

1986 QG₃ = 1998 FT₃₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	159.63078		(2000.0)	P	Q
<i>n</i>	0.21641988	ω	344.39553	+0.99917995	+0.03455061
<i>a</i>	2.7475015	Ω	13.67661	-0.02035347	+0.87932584
<i>e</i>	0.1487013	<i>i</i>	5.12263	-0.03500241	+0.47496560
<i>P</i>	4.55	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1986 08 29	809	0.1-	1.0+	1986 09 04	809	0.1+	0.7-	1986 09 11	809	0.5+	1.1+
1986 08 29	809	0.4-	1.2+	1986 09 04	809	0.4+	0.7-	1998 03 20	704	1.3+	1.2+
1986 08 29	809	0.7-	1.4+	1986 09 07	809	0.1-	0.0	1998 03 20	704	0.6+	1.7+
1986 08 31	809	0.2+	0.3+	1986 09 07	809	0.2-	0.1-	1998 03 20	704	0.7+	0.2+
1986 08 31	809	0.1-	0.4+	1986 09 07	809	0.1-	0.1-	1998 03 20	704	0.3+	0.7+
1986 08 31	809	0.5-	0.3+	1986 09 07	809	0.0	1.0-	1998 03 20	704	0.8+	0.2+
1986 09 01	809	0.1-	0.4-	1986 09 07	809	0.0	1.1-	1998 03 22	704	0.8-	0.6-
1986 09 01	809	0.2-	0.4-	1986 09 07	809	0.3-	1.1-	1998 03 22	704	1.1-	0.3-
1986 09 01	809	0.4-	0.8-	1986 09 09	809	0.1-	0.0	1998 03 22	704	1.6-	1.2-
1986 09 02	809	0.2+	0.1+	1986 09 09	809	0.0	0.1-	1998 03 22	704	0.9+	1.5-
1986 09 02	809	0.2+	0.0	1986 09 09	809	0.1+	0.2-	1998 03 22	704	1.3-	0.6-
1986 09 02	809	0.1+	0.2-	1986 09 11	809	0.7+	1.0+				
1986 09 04	809	0.0	1.0-	1986 09 11	809	0.7+	1.0+				

1987 DO = 1998 FC₁₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	353.57729		(2000.0)	P	Q
<i>n</i>	0.27046642	ω	357.99102	-0.78807723	-0.61494145
<i>a</i>	2.3680661	Ω	144.01300	+0.56544154	-0.74109566
<i>e</i>	0.1733688	<i>i</i>	2.72653	+0.24333134	-0.26948885
<i>P</i>	3.64	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1987 02 25	887	2.4+	1.9-	Y	1998 03 03	704	1.0+	0.3-	1998 03 20	704	0.6+	0.3+
1987 02 25	887	1.8-	0.1-	Y	1998 03 03	704	0.6+	0.4+	1998 03 20	704	0.1+	0.1-
1987 02 25	887	0.5-	1.6+	Y	1998 03 03	704	1.3+	0.2-	1998 03 20	704	0.1+	0.3+
1987 02 28	887	(3.0+	2.0+)	Y	1998 03 03	704	1.1+	0.4+	1998 03 20	704	0.6+	0.7-
1987 02 28	887	0.2-	0.2-	Y	1998 03 03	704	0.2+	0.1+	1998 03 20	704	0.3+	0.5-
1987 03 01	887	0.2-	0.2+		1998 03 04	704	0.5-	1.0-	1998 03 22	704	0.0	0.0
1987 03 01	887	1.5+	0.6+		1998 03 04	704	1.0-	0.3-	1998 03 22	704	0.2-	0.6+
1987 03 03	887	1.2-	0.7+	Y	1998 03 04	704	1.0-	0.2-	1998 03 22	704	0.4-	1.2+
1987 03 03	887	(5.8-	4.9+)	Y	1998 03 04	704	0.7-	0.4-	1998 03 22	704	0.1+	0.2-
1987 03 20	887	0.0	0.8-	Y	1998 03 04	704	1.5-	0.4+	1998 03 22	704	0.7-	0.0

1987 QE₇ = 1998 FA₃₀

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23181717	ω	180.38409	+0.97902222	−0.19969118		
<i>a</i>	2.6244541	Ω	191.38036	+0.18748302	+0.96068481		
<i>e</i>	0.1861991	<i>i</i>	11.83923	+0.07978480	+0.19289411		
<i>P</i>	4.25	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1987 08 21	026	1.1+	1.3+	1987 09 23	095	(3.6−	0.4−)	1998 03 22	704	0.4−	0.1−
1987 08 27	095	(2.7+	2.7+)	1987 09 30	026	0.8+	2.2+	1998 03 22	704	0.6+	0.8−
1987 08 28	026	(3.8+	1.5+)	1998 03 03	704	1.0−	0.5+	1998 03 22	704	0.0	0.5−
1987 08 29	026	1.2−	1.8−	1998 03 03	704	0.8−	0.4+	1998 03 22	704	0.6+	0.5−
1987 08 30	026	1.5−	0.2+	1998 03 03	704	1.3−	0.7+	1998 03 22	704	0.7+	0.4+
1987 09 03	026	0.7+	0.3−	1998 03 03	704	(6.8−	1.5−)	1998 04 01	704	1.1+	1.9+
1987 09 13	026	2.3+	0.6+	1998 03 20	704	0.3+	0.2−	1998 04 01	704	0.5+	0.9+
1987 09 15	026	0.5−	0.1+	1998 03 20	704	0.2−	0.1−	1998 04 01	704	0.5−	0.7−
1987 09 17	095	(2.6−	1.9+)	1998 03 20	704	0.5+	0.8−	1998 04 01	704	0.2+	0.6+
1987 09 17	026	0.0	0.6−	1998 03 20	704	0.9−	0.5−	1998 04 01	704	0.4+	0.4+
1987 09 20	026	1.9−	0.6−	1998 03 20	704	0.4+	0.3−				

1988 GZ = 1990 US₁₀ = 1998 EL₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18061028	ω	258.70902	+0.31970643	+0.94622403		
<i>a</i>	3.0996149	Ω	30.08137	−0.82627673	+0.30397407		
<i>e</i>	0.1190630	<i>i</i>	5.66486	−0.46373976	+0.11072418		
<i>P</i>	5.46	<i>H</i>	11.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1988 03 23	809	0.6+	0.9+	1988 04 15	054	1.0+	2.1−	1998 03 12	327	0.1+	0.4−
1988 03 23	809	0.8−	0.1−	1990 10 22	400	0.4−	1.1+	1998 03 14	327	0.4−	0.2−
1988 03 24	809	0.1−	0.6+	1990 10 22	400	0.6+	1.5−	1998 03 14	327	0.3+	0.2−
1988 03 24	809	0.5−	0.0	1998 03 12	327	0.2+	1.1+	1998 03 14	327	0.1−	0.4−
1988 04 09	054	0.4−	0.3+	1998 03 12	327	0.0	0.2+				

1988 PN₁ = 1998 FQ₄₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26278933	ω	199.95210	+0.99707463	+0.07333623		
<i>a</i>	2.4139646	Ω	155.81167	−0.06103252	+0.93354391		
<i>e</i>	0.1992322	<i>i</i>	3.01347	−0.04601319	+0.35088112		
<i>P</i>	3.75	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1988 08 12	511	0.5+	0.3+	1988 10 05	807	0.6+	0.4−	1998 03 20	704	1.6−	0.2+
1988 08 13	511	2.4+	0.1+	1988 10 07	807	0.7+	0.0	1998 03 20	704	0.6−	0.4−
1988 08 13	511	1.1+	0.4+	1988 10 08	807	1.0+	0.6−	1998 03 22	704	3.2−	0.8−
1988 08 14	511	2.0+	0.2+	1988 10 08	807	1.1+	0.4−	1998 03 22	704	0.7−	0.8−
1988 08 14	511	(6.0+	2.9+)	1988 11 04	807	0.9+	0.5−	1998 03 22	704	1.1+	0.0
1988 08 18	511	2.4−	1.6−	1988 11 06	807	2.3−	1.2−	1998 03 22	704	1.1+	0.8−
1988 08 19	511	2.8−	0.2−	1998 03 20	704	0.3−	0.9−	1998 03 22	704	1.0+	1.6−
1988 08 19	511	2.5−	0.9+	1998 03 20	704	0.4+	0.5+				
1988 10 04	807	0.6+	0.3−	1998 03 20	704	1.4+	1.2+				

1988 RJ₃ = 1998 FL₂₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26506165	ω	292.59068	+0.33895338	+0.94080110		
<i>a</i>	2.4001485	Ω	357.22018	−0.84753465	+0.30443911		
<i>e</i>	0.1560693	<i>i</i>	2.33247	−0.40840620	+0.14903060		
<i>P</i>	3.72	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1988 09 08	033	0.5−	0.4+	1988 09 15	675	0.9−	1.2−	1998 03 03	704	0.6+	0.2−
1988 09 09	033	0.6−	0.4−	1988 09 15	675	0.9+	0.8+	1998 03 03	704	0.3+	0.3+
1988 09 09	033	0.1−	1.0+	1988 09 16	807	0.0	0.6+	1998 03 20	704	(1.2−	4.0+)
1988 09 10	033	0.4−	0.2+	1988 09 18	807	0.2+	0.6+	1998 03 20	704	0.6−	0.9−
1988 09 10	033	1.1−	1.0−	1988 10 04	807	0.2−	0.2+	1998 03 20	704	0.1+	1.9+
1988 09 11	033	0.7−	0.7+	1988 10 05	807	0.8+	0.9−	1998 03 20	704	0.7+	0.4−
1988 09 11	675	0.4+	0.3−	1988 10 08	807	0.0	0.8−	1998 03 20	704	0.3−	1.1+
1988 09 11	675	0.2+	0.4−	1988 11 04	807	0.0	0.0	1998 03 22	704	1.0+	0.7+
1988 09 11	071	0.1−	1.3+	1988 11 06	807	0.5+	0.1−	1998 03 22	704	0.1−	0.2−
1988 09 11	071	0.4−	1.1+	1998 03 03	704	0.4+	0.1−	1998 03 22	704	0.0	1.2+
1988 09 15	675	0.2+	1.4−	1998 03 03	704	0.6+	0.5−	1998 03 22	704	0.4+	0.7−
1988 09 15	675	1.3+	0.9+	1998 03 03	704	0.5−	0.5+	1998 03 22	704	1.9−	1.3−

1988 RL₆ = 1998 FC₅₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26621672	ω	180.13460	+0.94056843	+0.33679245		
<i>a</i>	2.3932009	Ω	160.01374	−0.31146144	+0.90666673		
<i>e</i>	0.1484300	<i>i</i>	7.33050	−0.13536176	+0.25402024		
<i>P</i>	3.70	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1988 09 06	809	1.0−	1.5+	1988 09 12	809	0.5−	0.4+	1998 03 20	704	0.2+	0.5+
1988 09 06	809	1.0−	1.4+	1988 09 12	675	0.5+	1.1−	1998 03 20	704	0.5+	0.4+
1988 09 06	809	1.0−	1.3+	1988 09 19	809	0.3−	0.2−	1998 03 20	704	0.1−	0.6+
1988 09 08	809	2.4+	0.1−	1988 09 19	809	0.4−	0.4−	1998 03 20	704	0.1+	0.4+
1988 09 08	809	2.5+	0.1−	1988 09 19	809	0.4−	0.7−	1998 03 22	704	0.1−	0.1−
1988 09 08	809	2.9+	0.2−	1988 09 20	809	1.0−	1.1−	1998 03 22	704	0.5+	0.1−
1988 09 10	675	0.0	0.1−	1988 09 20	809	0.8−	1.0−	1998 03 22	704	0.4−	0.6−
1988 09 10	675	0.4+	0.7−	1988 09 20	809	0.8−	1.0−	1998 03 22	704	0.9−	0.7−
1988 09 12	675	0.1−	0.1−	1988 10 07	675	0.1−	0.2+	1998 03 22	704	0.1+	1.0−
1988 09 12	809	0.4−	0.6+	1988 10 07	675	0.2−	0.0				
1988 09 12	809	0.6−	0.7+	1998 03 20	704	0.2−	0.5−				

1988 SE₂ = 1998 DO₃₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25542145	ω	256.39530	+0.51567443	+0.84990107		
<i>a</i>	2.4601664	Ω	45.19013	−0.71512205	+0.49662931		
<i>e</i>	0.1119944	<i>i</i>	8.78796	−0.47189017	+0.17614624		
<i>P</i>	3.86	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1988 09 15	675	1.1−	0.4−	1988 09 18	807	0.1+	0.4−	1998 02 27	098	1.1−	0.4−
1988 09 15	675	0.6+	0.6+	1988 10 05	807	0.5−	0.2−	1998 03 02	098	1.5+	0.1+
1988 09 15	675	1.0−	0.4−	1988 10 06	807	0.1+	0.1−	1998 03 02	098	1.4−	0.3+
1988 09 15	675	0.9+	0.6+	1988 10 07	807	0.3+	0.4+				
1988 09 16	807	0.5+	0.1+	1998 02 27	098	1.0+	0.1+				

1988 XE = 1962 WG = 1998 FX₇₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22850688	ω	169.46521	+0.46176279	−0.86161824		
<i>a</i>	2.6497396	Ω	252.75565	+0.79692422	+0.50729011		
<i>e</i>	0.2950496	<i>i</i>	12.74449	+0.38947004	−0.01645451		
<i>P</i>	4.31	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1962 11 24	760	1.4−	0.5+	1988 12 06	675	(1.1+	5.6−)	1989 01 04	399	0.8+	0.4−
1962 11 24	760	0.9+	3.4+	1988 12 06	675	(3.9+	6.9−)	1989 01 04	399	2.7−	1.7+
1988 11 05	888	(6.8−	1.8+)	1988 12 07	675	(1.9+	5.2−)	1989 01 04	399	1.2−	1.1+
1988 11 05	888	(5.8−	2.2+)	1988 12 10	400	1.5−	0.2−	1998 03 20	699	0.8+	0.1+
1988 12 02	399	3.4+	1.4+	1988 12 10	400	1.0−	0.7−	1998 03 20	699	0.7+	0.5+
1988 12 02	399	1.1+	0.0	1988 12 11	400	1.8−	1.0−	1998 03 20	699	0.2−	0.0

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1988 12 02	399	1.1+	1.5+	1988 12 11	400	0.3-	1.7-	1988 03 24	699	0.2+	0.2+
1988 12 02	399	0.3+	0.6-	1988 12 16	400	0.3-	0.8-	1988 03 24	699	0.6-	0.2+
1988 12 05	399	0.5+	3.1-	1988 12 16	400	0.6+	0.8-	1988 03 24	699	0.2+	0.6+

1988 XL = 1998 FA₄₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25109468	ω	120.03743	+0.94310696	+0.33066829		
<i>a</i>	2.4883476	Ω	220.68139	-0.32045861	+0.87614016		
<i>e</i>	0.1309614	<i>i</i>	3.05608	-0.08863143	+0.35076616		
<i>P</i>	3.93	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1988 12 03	888	0.5+	1.3+	1988 03 04	704	1.0-	0.4-	1988 03 22	704	0.1-	0.6+
1988 12 03	888	0.5+	0.7+	1988 03 04	704	0.6-	0.9+	1988 03 22	704	0.5+	0.0
1988 12 05	888	0.9-	0.0	1988 03 04	704	1.1-	0.3+	1988 03 22	704	0.4+	0.1+
1988 12 06	888	0.5-	0.2+	1988 03 20	704	0.7+	0.6-	1988 03 22	704	0.7+	0.2+
1988 12 06	888	1.1-	0.4-	1988 03 20	704	1.1+	0.1+	1988 04 01	704	0.3-	0.2-
1988 12 14	888	0.9+	0.9-	1988 03 20	704	1.0+	0.3+	1988 04 01	704	1.0-	0.2+
1988 12 14	888	0.7+	1.0-	1988 03 20	704	1.5+	0.7-	1988 04 01	704	0.7-	0.9-
1988 03 04	704	0.4+	0.7-	1988 03 20	704	1.2+	0.8-	1988 04 01	704	0.6-	0.3-
1988 03 04	704	1.4-	0.7+	1988 03 22	704	0.3+	0.8+	1988 04 01	704	1.3-	0.5+

1989 BZ = 1987 SU₁₆ = 1998 FJ₃

Id. T. Urata

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22895415	ω	232.39456	-0.91295668	+0.39448368		
<i>a</i>	2.6462875	Ω	330.41535	-0.27478220	-0.78341565		
<i>e</i>	0.1001704	<i>i</i>	12.20419	-0.30167009	-0.48025259		
<i>P</i>	4.30	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1987 09 25	095	0.0	0.1-	1988 03 03	704	0.5+	0.1+	1988 03 29	888	0.1-	0.3-
1989 01 30	400	(3.3+	1.2+)	1988 03 03	704	0.4+	0.5-	1988 03 29	888	0.4-	0.4-
1989 01 30	400	0.7+	0.6-	1988 03 04	704	1.1-	0.2-	1988 03 31	704	0.7+	0.3-
1989 01 30	400	0.5+	0.2-	1988 03 04	704	1.0-	0.4+	1988 03 31	704	0.0	0.2+
1989 02 03	872	(3.9-	0.6+)	1988 03 04	704	(3.2-	0.1+)	1988 03 31	704	(3.0+	1.4+)
1989 02 03	872	0.6+	0.8-	1988 03 04	704	1.2-	0.3+	1988 03 31	704	1.2+	0.5-
1989 02 07	400	(0.1-	3.3+)	1988 03 04	704	1.9-	0.6+	1988 03 31	704	0.2-	0.1+
1989 02 07	400	1.8-	1.7+	1988 03 18	905	0.5+	0.1-	1988 04 01	704	0.1+	0.0
1989 02 07	400	(2.7-	1.6+)	1988 03 18	905	0.2+	0.2-	1988 04 01	704	0.5-	0.4+
1988 03 03	704	1.0+	0.0	1988 03 23	888	0.4+	0.2-	1988 04 01	704	0.4+	0.6+
1988 03 03	704	1.0+	0.0	1988 03 23	888	0.3+	0.2-	1988 04 01	704	0.5-	0.5+
1988 03 03	704	0.8+	0.4-	1988 03 23	888	0.4+	0.3-	1988 04 01	704	1.2-	0.2+

1989 RL = 1998 FE₂₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29749232	ω	155.25590	+0.88464032	+0.46626523		
<i>a</i>	2.2223828	Ω	176.94741	-0.43627403	+0.82988012		
<i>e</i>	0.1813080	<i>i</i>	3.09085	-0.16454933	+0.30642410		
<i>P</i>	3.31	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1989 09 02	511	0.2+	0.3-	1989 10 02	071	0.7+	1.0+	1988 03 20	704	0.5+	0.1-
1989 09 02	511	0.8+	0.2+	1989 10 02	071	0.3-	1.4-	1988 03 20	704	0.9+	0.4-
1989 09 04	511	0.5-	0.8+	1988 03 03	704	0.0	0.8-	1988 03 22	704	0.2-	0.7+
1989 09 04	511	1.4+	1.9+	1988 03 03	704	0.5-	0.2-	1988 03 22	704	0.3-	0.6+
1989 09 06	511	2.1-	1.7-	1988 03 03	704	0.8+	1.7-	1988 03 22	704	0.3-	0.8+
1989 09 06	511	0.2+	0.7-	1988 03 03	704	1.5-	1.9+	1988 03 22	704	0.9-	1.4-
1989 09 07	511	0.8+	0.4+	1988 03 20	704	0.5+	0.9+				
1989 09 07	511	1.0-	0.7-	1988 03 20	704	0.5+	1.0-				

1989 SZ₁ = A920 HH = 1953 RY₁ = 1985 JUId. S. Nakano (*MPC* 16030), G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30308504	ω	101.84802	-0.15990151	+0.98678475		
<i>a</i>	2.1949588	Ω	158.89650	-0.93166094	-0.14208465		
<i>e</i>	0.1600190	<i>i</i>	4.17573	-0.32625052	-0.07789611		
<i>P</i>	3.25	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1920 04 17	029	(3.0+	6.0+)	Y	1989 09 28	809	0.8+	0.4+	1989 11 05	675	0.1-	0.6-
1953 09 06	675	0.3+	1.1+		1989 09 28	809	0.7-	0.6+	1989 11 05	675	1.0-	0.8-
1953 09 06	675	0.5-	0.8+		1989 09 28	809	1.3-	2.0-	1988 03 26	721	0.3-	1.4-
1985 05 11	675	0.7-	0.9-		1989 10 03	809	2.8+	0.0	1988 03 26	721	0.0	0.3-
1985 05 13	675	0.9-	0.5-		1989 10 03	809	2.0+	0.9-	1988 03 28	721	0.3+	0.6-
1989 09 26	809	0.6-	0.2-		1989 10 03	809	1.8+	0.9-	1988 03 28	721	0.2+	1.0-
1989 09 26	809	0.5-	1.0-		1989 11 02	675	0.1+	0.9-				
1989 09 26	809	0.2+	0.6-		1989 11 02	675	1.8-	0.1-				

1989 SX₂ = 1986 GO₁ = 1995 WN₂Id. G. V. Williams (*MPC* 28842, unpublished)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17357407	ω	8.28417	-0.39855057	-0.90982630		
<i>a</i>	3.1828254	Ω	105.26606	+0.83444579	-0.41204438		
<i>e</i>	0.1498699	<i>i</i>	6.88483	+0.38060171	-0.04935105		
<i>P</i>	5.68	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1986 04 10	054	0.6+	1.2+		1989 10 07	809	(5.1-	0.7+)	1988 03 28	910	0.0	0.4+
1989 09 26	809	0.1+	1.4+		1989 11 06	675	1.0-	2.0-	1988 03 30	910	0.2+	0.1+
1989 09 26	809	1.1-	0.2-		1989 11 06	675	0.5-	2.2-	1988 03 30	910	0.0	0.1+
1989 09 26	809	1.1-	0.0		1995 11 16	399	0.1-	0.7-	1988 03 30	910	0.1+	0.1+
1989 09 28	809	(2.6+	2.1+)		1995 11 16	399	0.4+	1.0+	1988 03 31	910	0.6+	0.3+
1989 09 28	809	1.6+	2.3+		1995 11 17	399	0.1-	0.4+	1988 03 31	910	0.0	0.2+
1989 09 28	809	1.4+	1.4+		1995 11 17	399	0.8-	1.3+	1988 03 31	910	0.0	0.1+
1989 10 07	809	(4.1-	0.7-)		1998 03 28	910	0.2-	0.3+				
1989 10 07	809	(4.7-	0.2-)		1998 03 28	910	0.1-	0.3+				

1989 SO₃ = 1989 TU₂ = 1998 DK₁₁Id. D. W. E. Green (d. *MPC* 15676), B. G. Marsden

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26529985	ω	230.82341	+0.73274006	-0.68034291		
<i>a</i>	2.3987117	Ω	172.00688	+0.65291315	+0.69663480		
<i>e</i>	0.1834364	<i>i</i>	6.19982	+0.19182391	+0.22766968		
<i>P</i>	3.72	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1989 09 26	809	0.2+	1.6+		1989 10 03	809	2.3+	0.9+	1988 02 26	046	0.3-	0.1+
1989 09 26	809	0.6-	1.0+		1989 10 07	809	0.4-	0.3-	1988 02 26	046	0.1-	0.1-
1989 09 26	809	1.3-	1.3+		1989 10 07	809	0.8-	0.2-	1988 02 26	046	0.1-	0.1-
1989 09 28	809	1.8-	0.1+		1989 10 07	809	0.5-	0.1-	1988 02 26	046	0.4-	0.0
1989 09 28	809	2.4-	0.1-		1989 10 08	809	1.3-	0.0	1988 02 27	046	0.6+	0.1+
1989 09 28	809	(2.7-	1.3-)		1989 10 08	809	1.2-	0.1+	1988 02 27	046	0.6-	0.2-
1989 09 29	675	1.5+	1.4-		1989 10 08	809	1.0-	0.5+	1988 03 05	046	0.2-	0.1+
1989 09 29	675	1.7+	2.0-		1988 01 26	566	0.7+	1.2-	1988 03 05	046	0.5-	0.2+
1989 10 03	071	1.0+	0.0		1988 01 26	566	0.3+	1.0-	1988 03 05	046	0.5-	0.1+
1989 10 03	071	1.2+	2.1-		1988 01 26	566	0.3+	1.0-	1988 03 19	046	0.1+	0.3-
1989 10 03	809	0.0	0.0		1988 02 24	046	0.1+	0.4+	1988 03 19	046	0.4+	0.9+
1989 10 03	809	0.1-	0.1+		1988 02 24	046	0.1+	0.1-	1988 03 19	046	0.3-	0.8+
1989 10 03	809	0.3-	0.7+		1988 02 24	046	0.1+	0.3+	1988 03 23	046	0.7-	0.3+
1989 10 03	809	2.1+	0.0		1988 02 24	046	0.6+	0.4+	1988 03 23	046	0.3-	0.2+
1989 10 03	809	1.4+	0.6+		1988 02 24	046	0.5+	0.5+	1988 03 23	046	0.0	0.6+

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1989 SA₁₀ = 1998 DU₃₄

Id. B. G. Marsden

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28306710	ω	75.89763	+0.16485354	−0.98625877		
<i>a</i>	2.2972580	Ω	4.65442	+0.84571266	+0.13570236		
<i>e</i>	0.0809209	<i>i</i>	7.65842	+0.50753661	+0.09422580		
<i>P</i>	3.48	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1989 09 04	675	0.1+	0.1−	1989 09 30	809	0.0	0.3−	1998 03 20	704	0.8−	0.8+
1989 09 04	675	0.2−	0.8+	1989 09 30	809	0.4+	0.3−	1998 03 20	704	0.2−	0.3+
1989 09 26	809	0.5−	0.1+	1989 09 30	809	1.0+	0.4−	1998 03 20	704	0.7−	0.2+
1989 09 26	809	0.2+	0.2+	1998 02 27	809	0.9+	0.7−	1998 03 20	704	0.5−	0.9+
1989 09 26	809	0.7+	0.3+	1998 02 27	809	0.6+	0.6−	1998 03 22	704	0.2−	0.1−
1989 09 28	809	0.5−	0.3−	1998 02 27	809	0.6+	0.5−	1998 03 22	704	0.3−	0.6+
1989 09 28	809	0.5−	0.2−	1998 02 28	809	0.8+	0.6+	1998 03 22	704	0.1−	0.3−
1989 09 28	809	0.1−	0.3−	1998 02 28	809	0.1+	0.4−	1998 03 22	704	0.4+	0.6+
1989 09 29	675	0.2+	1.0+	1998 02 28	809	0.6+	0.3−	1998 03 22	704	0.3−	0.6−
1989 09 29	675	1.4−	0.1+	1998 03 20	704	0.5−	0.3+				

1989 UV₁ = 1978 RU₂ = 1992 EW₂₃Id. G. V. Williams (*MPC* 23973, unpublished)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17930994	ω	318.97899	+0.93694391	+0.34945012		
<i>a</i>	3.1145823	Ω	20.56869	−0.31716278	+0.85570299		
<i>e</i>	0.2185124	<i>i</i>	0.74260	−0.14677838	+0.38165038		
<i>P</i>	5.50	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1978 09 12	095	0.1+	0.3−	1989 10 08	809	0.4−	0.7−	1989 11 01	888	0.5+	1.2+
1989 10 02	807	0.2−	1.0−	1989 10 08	809	0.2−	0.8−	1989 11 01	888	0.9−	0.6+
1989 10 04	807	0.3+	0.6−	1989 10 08	809	0.1−	0.9−	1989 11 04	888	0.4+	0.7+
1989 10 04	809	0.0	0.3+	1989 10 28	807	1.1+	0.8+	1989 11 04	888	0.2+	1.4+
1989 10 04	809	0.6+	0.3+	1989 10 29	807	0.8+	1.1−	1992 03 02	809	0.0	0.0
1989 10 04	809	0.7+	0.3+	1989 10 29	888	1.4−	1.1+	1992 03 04	809	0.1−	0.3−
1989 10 06	809	0.3−	1.0−	1989 10 29	888	1.5−	2.1+	1995 10 26	411	0.1−	0.1−
1989 10 06	809	0.3−	1.1−	1989 10 31	807	0.6+	1.0+	1995 10 26	411	0.1+	0.9−
1989 10 06	809	0.1−	1.1−	1989 11 01	807	0.1+	0.1−				

1989 WZ₁ = 1998 EB₁₃

Id. B. G. Marsden

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26732559	ω	353.60968	+0.62155302	−0.78187750		
<i>a</i>	2.3865783	Ω	57.94944	+0.72123268	+0.54705805		
<i>e</i>	0.1910043	<i>i</i>	3.27138	+0.30576996	+0.29899006		
<i>P</i>	3.69	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1989 11 25	403	0.2+	0.1−	Y	1989 12 18	400	(4.7−	1.0+)	1998 03 20	704	1.1+	0.0
1989 11 25	403	0.8+	0.9−	Y	1989 12 18	400	(6.0−	3.5+)	1998 03 20	704	0.8+	0.4−
1989 11 28	675	1.5−	1.8+		1989 12 28	400	0.7+	0.8+	1998 03 20	704	1.2+	0.7−
1989 11 28	675	1.6−	1.0+		1989 12 28	400	0.3−	0.4+	1998 03 20	704	1.3+	1.0−
1989 11 29	400	0.8+	1.4−		1998 03 01	809	1.0−	1.0+	1998 03 20	704	1.1+	1.2−
1989 11 29	400	0.1+	0.8−		1998 03 01	809	1.9−	1.0+	1998 03 22	704	0.2−	0.4−
1989 12 01	400	(1.8−	2.8+)		1998 03 01	809	0.9−	0.5+	1998 03 22	704	0.1+	0.7−
1989 12 01	400	1.0+	1.0−		1998 03 02	809	(3.0−	1.3+)	1998 03 22	704	0.0	0.3−
1989 12 05	400	(7.5−	1.5+)		1998 03 02	809	0.7−	1.0+	1998 03 22	704	0.2+	0.2−
1989 12 05	400	(6.8−	2.7+)		1998 03 02	809	1.3−	1.2+	1998 03 22	704	0.1+	0.0

1990 BC₂ = 1996 VC₃₀ = 1998 FP₆₂

Id. S. Nakano, G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26037899	ω	314.09628	−0.92494055	−0.37777870		
<i>a</i>	2.4288391	Ω	203.80212	+0.37168656	−0.87572504		
<i>e</i>	0.0695464	<i>i</i>	5.98070	+0.07958694	−0.30064747		
<i>P</i>	3.79	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 01 23	220	(2.7−	2.8+)	1996 11 07	399	(2.6+	2.2+)	1998 03 22	704	0.1−	0.3+
1990 01 23	220	0.2+	1.0+	1996 11 12	399	(0.5−	2.6+)	1998 03 22	704	0.2−	0.8+
1990 01 24	220	0.7+	0.3+	1996 11 12	399	(1.2−	3.4+)	1998 03 22	704	0.2−	0.8+
1990 01 26	220	0.1−	0.5−	1998 03 20	704	0.2+	0.5+	1998 04 01	704	0.3+	0.7−
1990 01 26	220	(6.7−	2.6+)	1998 03 20	704	0.3−	0.0	1998 04 01	704	0.1−	0.2+
1990 01 30	220	(8.7−	1.0+)	1998 03 20	704	1.4+	1.3−	1998 04 01	704	0.1+	0.1−
1990 01 30	220	(10.9−	0.9+)	1998 03 20	704	1.8−	0.2−	1998 04 01	704	0.1−	1.0−
1990 02 21	220	0.8−	0.9−	1998 03 20	704	0.3−	0.4+	1998 04 01	704	0.4+	0.2−
1990 02 21	220	(6.2−	0.6−)	1998 03 22	704	0.2+	0.7+				
1996 11 07	399	0.0	0.3−	1998 03 22	704	0.6+	0.1+				

1990 EK = 1964 VE₁ = 1998 DT₃₁

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24335472	ω	248.98787	+0.28640981	−0.95805611		
<i>a</i>	2.5408335	Ω	184.40472	+0.91993377	+0.27786998		
<i>e</i>	0.3010224	<i>i</i>	7.40244	+0.26775226	+0.07011963		
<i>P</i>	4.05	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1964 11 01	330	0.1−	0.3+	1998 02 19	399	0.6+	0.2−	1998 03 04	704	0.5−	0.2−
1990 03 02	400	0.8−	1.5+	1998 02 19	399	(2.2+	0.4−)	1998 03 04	704	0.1+	0.4−
1990 03 02	400	0.1−	1.7+	1998 02 22	399	0.6+	0.5+	1998 03 04	704	0.7−	0.4−
1990 03 17	400	1.6+	1.3−	1998 02 22	399	1.3+	0.5−	1998 03 04	704	0.3−	0.2−
1990 03 17	400	0.0	1.7−	1998 03 03	704	0.4+	0.1+	1998 03 04	704	0.1−	0.1+
1990 03 21	400	0.1−	1.6+	1998 03 03	704	0.8−	0.5−	1998 03 04	399	0.6−	0.2+
1990 03 21	400	(2.4−	2.7+)	1998 03 03	704	0.7−	0.1−	1998 03 04	399	0.8+	0.4−
1998 02 18	399	0.5−	0.1+	1998 03 03	704	(2.9+	0.1−)				
1998 02 18	399	0.0	0.3+	1998 03 03	704	(2.5−	0.3+)				

1990 HE = 1998 GD

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.36447011	ω	255.72956	+0.31198559	+0.91814655		
<i>a</i>	1.9410115	Ω	35.61865	−0.62617582	+0.39207679		
<i>e</i>	0.1147887	<i>i</i>	24.79942	−0.71454099	+0.05729480		
<i>P</i>	2.70	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 04 25	675	0.1+	0.4−	1990 05 21	675	1.1+	1.0−	1998 04 02	704	0.5−	1.1−
1990 04 25	675	0.1+	0.7+	1990 05 21	675	0.2−	1.1+	1998 04 03	704	0.0	0.6+
1990 04 28	675	0.3+	0.2−	1998 04 02	704	0.4−	0.2−	1998 04 03	704	0.1+	0.9+
1990 04 28	675	0.5−	0.2−	1998 04 02	704	0.3+	0.2+	1998 04 03	704	0.4+	0.3+
1990 05 18	675	0.4−	1.0−	1998 04 02	704	0.3+	0.6−	1998 04 03	704	0.2−	0.4+
1990 05 18	675	0.5−	0.9+	1998 04 02	704	0.4+	0.4−	1998 04 03	704	0.3−	0.0

1990 OZ = 1998 FM₆₀

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22450427	ω	94.00659	+0.10752796	+0.99416486		
<i>a</i>	2.6811410	Ω	182.22178	−0.97730683	+0.10410870		
<i>e</i>	0.1587373	<i>i</i>	12.81741	−0.18250781	+0.02824196		
<i>P</i>	4.39	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 07 20	675	0.1−	0.4+	1990 08 19	675	0.2−	0.1+	1998 03 22	704	0.5−	0.5+
1990 07 20	675	0.0	0.3−	1998 03 20	704	0.7+	0.0	1998 03 22	704	0.8−	0.4−
1990 07 23	675	(1.6+	5.4−)	1998 03 20	704	0.2+	0.1−	1998 03 22	704	0.5+	0.3+
1990 07 23	675	0.3−	0.5−	1998 03 20	704	0.9+	0.2−	1998 03 22	704	0.4+	0.6−
1990 08 16	675	0.8+	0.7+	1998 03 20	704	0.3−	0.3−	1998 03 25	699	0.6−	0.1−
1990 08 16	675	0.8+	0.8+	1998 03 20	704	0.8−	0.0	1998 03 25	699	0.8+	0.4+
1990 08 19	675	0.9−	1.2−	1998 03 22	704	0.4−	0.2+	1998 03 25	699	0.0	0.4+

1990 QX₈ = 1998 DZ₃₄

Id. B. G. Marsden

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i> 155.70214			(2000.0)		P		Q	
<i>n</i>	0.20002194	ω	341.18048		+0.99978745		+0.01722591	
<i>a</i>	2.8956826	Ω	17.84386		−0.01068636		+0.90286520	
<i>e</i>	0.0707563	<i>i</i>	2.11858		−0.01763102		+0.42957852	
<i>P</i>	4.93	<i>H</i>	13.5		<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1990 08 16	809	0.5+	0.4−	1990 08 26	809	(0.5+	2.3+)	1998 02 28	809	0.2−	1.2+
1990 08 16	809	0.3+	1.8−	1990 09 13	675	1.7−	1.7+	1998 02 28	809	0.3−	0.4−
1990 08 16	809	0.4+	0.8−	1990 09 13	675	0.3−	0.7+	1998 03 20	704	0.2+	0.2+
1990 08 18	809	0.3−	0.3−	1990 09 16	675	0.4−	0.4+	1998 03 20	704	0.6+	0.3−
1990 08 18	809	1.1−	0.4−	1990 09 16	675	0.6−	0.9−	1998 03 20	704	0.6−	0.3+
1990 08 18	809	0.2+	0.3+	1990 09 18	675	0.1+	1.3+	1998 03 20	704	0.8−	0.7+
1990 08 24	809	1.8+	0.2−	1990 09 18	675	0.7−	1.7+	1998 03 22	704	0.6+	0.0
1990 08 24	809	0.7+	0.3−	1998 02 27	809	0.5−	0.5+	1998 03 22	704	0.6+	0.8+
1990 08 24	809	0.4+	0.6−	1998 02 27	809	0.0	0.9+	1998 03 22	704	0.4−	0.0
1990 08 26	809	0.3−	1.9+	1998 02 27	809	1.5−	0.5+	1998 03 22	704	1.1+	0.6−
1990 08 26	809	(0.6+	2.7+)	1998 02 28	809	1.4+	0.7−	1998 03 22	704	0.9+	0.6−

1990 SJ₂ = 1980 TN₈ = 1997 WZ₅₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i> 48.96695			(2000.0)		P		Q	
<i>n</i>	0.29869012	ω	318.66485		+0.77777120		−0.62323489	
<i>a</i>	2.2164375	Ω	80.07416		+0.59624470		+0.69050582	
<i>e</i>	0.1635714	<i>i</i>	4.74884		+0.19890754		+0.36712394	
<i>P</i>	3.30	<i>H</i>	14.0		<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1980 10 12	095	0.6−	1.7+	1990 10 11	399	0.2+	0.9−	1998 01 24	566	0.3+	0.3−
1990 09 17	675	(0.5+	2.5−)	1990 10 15	399	(3.6−	1.6+)	1998 01 24	566	0.3+	0.3−
1990 09 17	675	1.0+	0.5−	1990 10 15	399	1.5−	0.5+	1998 01 24	566	0.3+	0.5−
1990 09 19	675	1.2+	1.3−	1990 10 15	399	1.7−	1.4+	1998 03 26	566	0.5−	0.0
1990 09 19	675	1.0+	1.5−	1997 11 28	691	0.7−	0.2+	1998 03 26	566	0.1−	0.2−
1990 09 22	095	(4.0+	5.9−)	1997 11 28	691	0.8−	0.2−	1998 03 26	566	0.1−	0.1−
1990 09 22	095	(3.6+	3.9−)	1997 11 28	691	0.6−	0.0	1998 03 27	566	0.2+	0.2+
1990 10 11	399	0.7+	0.4+	1997 11 29	688	0.9+	0.3+	1998 03 27	566	0.2−	0.2+
1990 10 11	399	(0.7+	2.9−)	1997 11 29	688	0.7+	0.2+	1998 03 27	566	0.1−	0.4+

1990 SH₇ = 1994 LC₉Id. G. V. Williams (*MPC* 26168)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i> 174.32158			(2000.0)		P		Q	
<i>n</i>	0.19789785	ω	253.17448		+0.96785360		+0.24572806	
<i>a</i>	2.9163658	Ω	92.57600		−0.20544713		+0.89541887	
<i>e</i>	0.0758890	<i>i</i>	3.07787		−0.14508923		+0.37127183	
<i>P</i>	4.98	<i>H</i>	14.0		<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 09 14	809	0.0	0.8+	1994 06 09	809	0.9+	0.7+	1998 03 20	704	0.2−	0.6−
1990 09 14	809	0.1−	0.6+	1994 06 09	809	0.2+	0.4−	1998 03 20	704	(4.2−	1.0−)
1990 09 14	809	0.7−	0.2−	1994 06 09	809	1.1−	0.8−	1998 03 22	704	(1.0−	2.5+)
1990 09 22	809	0.6+	0.6+	1998 03 01	809	1.2+	0.2−	1998 03 22	704	0.2−	1.3+
1990 09 22	809	0.8−	0.1−	1998 03 01	809	0.3−	0.1−	1998 03 22	704	0.7+	0.2−

1990 09 22	809	1.0−	0.9−	1998 03 01	809	0.4−	0.9−	1998 03 22	704	0.9−	0.4+
1990 09 25	809	1.4+	0.5−	1998 03 02	809	0.1−	0.3−	1998 03 22	704	0.4+	0.7−
1990 09 25	809	1.0+	0.2−	1998 03 02	809	0.1−	0.7+	1998 03 22	704	1.5−	0.3−
1990 09 25	809	0.3−	0.1−	1998 03 02	809	0.3+	0.9+	1998 03 22	704	1.0+	1.3+
1994 06 08	809	0.5−	0.0	1998 03 20	704	1.1+	0.6−	1998 03 22	704	0.9−	1.3−
1994 06 08	809	0.6+	0.6+	1998 03 20	704	0.3+	0.7+	1998 03 22	704	(5.7−	0.8−)
1994 06 08	809	0.0	0.2−	1998 03 20	704	0.3−	0.0				

1990 SP₈ = 1998 DU₃

Id. A. Gnädig

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i> 322.75862			(2000.0)		P		Q	
<i>n</i>	0.18443090	ω	16.15179		−0.97118924		−0.22133623	
<i>a</i>	3.0566586	Ω	150.60803		+0.19385040		−0.94931986	
<i>e</i>	0.0410257	<i>i</i>	10.36818		+0.13861268		−0.22316377	
<i>P</i>	5.34	<i>H</i>	14.0		<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1990 09 14	809	0.6+	1.1+	1990 09 22	809	0.7+	0.4−	1998 02 22	566	0.4+	0.2−
1990 09 14	809	0.3−	0.1+	1990 09 25	809	0.3+	0.8+	1998 02 22	566	0.2−	0.2+
1990 09 14	809	0.3−	0.8−	1990 09 25	809	0.2+	0.1+	1998 02 23	566	0.2−	0.1−
1990 09 22	809	0.7−	0.4−	1990 09 25	809	0.2−	0.5+	1998 02 23	566	0.1+	0.2−
1990 09 22	809	0.1−	1.1−	1998 02 22	566	0.2+	0.1+	1998 02 23	566	0.3−	0.2+

1990 TT₄ = 1990 TY₁₅ = 1998 DR₃₄Id. S. Nakano (d. *MPC* 20913), B. G. Marsden

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i> 97.56604			(2000.0)		P		Q	
<i>n</i>	0.17609248	ω	235.00044		+0.77881453		−0.62497301	
<i>a</i>	3.1524063	Ω	163.46689		+0.61911377		+0.75222810	
<i>e</i>	0.2255523	<i>i</i>	10.82556		+0.10072764		+0.20871420	
<i>P</i>	5.60	<i>H</i>	13.0		<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 10 09	413	0.5−	1.1−	1990 11 08	413	0.1−	0.2−	1998 03 03	704	0.1+	0.8+
1990 10 09	413	0.1−	0.6+	1990 11 09	413	0.9−	0.9+	1998 03 20	704	0.9−	0.1+
1990 10 14	095	1.6−	1.4+	1998 02 27	809	1.5+	1.0−	1998 03 20	704	1.6−	0.2−
1990 10 14	095	1.6+	1.9−	1998 02 27	809	0.2+	0.5−	1998 03 20	704	0.9+	0.4+
1990 10 16	095	0.0	1.5−	1998 02 27	809	0.2+	2.0−	1998 03 20	704	0.8−	0.3−
1990 10 16	095	(1.8−	3.6+)	1998 02 28	809	1.8+	1.2+	1998 03 22	704	(1.0−	2.9+)
1990 10 20	413	0.3−	0.5−	1998 02 28	809	1.6+	1.4+	1998 03 22	704	1.1−	0.2+
1990 10 20	413	1.5+	1.5+	1998 02 28	809	0.6+	0.4+	1998 03 22	704	1.3−	0.2−
1990 10 22	413	(5.7−	0.7−)	1998 03 03	704	1.3−	1.0+	1998 03 22	704	0.7+	1.6−
1990 10 22	413	(6.1−	3.1−)	1998 03 03	704	0.8−	0.7−	1998 03 22	704	0.8−	0.5+
1990 10 29	413	0.5+	0.4+	1998 03 03	704	0.9+	0.2+				

1990 US₃ = 1993 FS₅₆Id. T. Kobayashi (*MPC* 23975)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i> 115.79143			(2000.0)		P		Q	
<i>n</i>	0.17500894	ω	283.18228		+0.96492420		−0.22968258	
<i>a</i>	3.1654046	Ω	90.20509		+0.26164699		+0.88102307	
<i>e</i>	0.1477826	<i>i</i>	7.30500		−0.02149733		+0.41357499	
<i>P</i>	5.63	<i>H</i>	13.0		<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 10 16	809	(2.5+	0.6+)	1990 10 19	809	(2.6−	2.5+)	1993 03 18	809	0.4−	0.2+
1990 10 16	809	1.4+	0.4−	1990 10 20	809	0.3+	1.4−	1998 03 02	327	0.1−	0.5−
1990 10 16	809	1.6+	0.6−	1990 10 20	809	0.9+	0.3−	1998 03 02	327	0.3+	0.4−
1990 10 16	809	0.3+	0.0	1990 10 20	809	0.3−	1.0−	1998 03 02	327	0.2+	0.3−
1990 10 16	809	(3.5+	1.0+)	1990 10 24	809	0.4−	1.5+	1998 03 14	327	0.3+	0.4+
1990 10 16	809	0.2+	0.1+	1990 10 24	809	(1.0−	2.4+)	1998 03 14	327	0.7−	0.2+
1990 10 19	809	1.6−	1.5+	1990 10 24	809	1.4−	0.6+	1998 03 14	327	0.1−	0.4+
1990 10 19	809	1.1−	0.0	1993 03 17	809	0.4+	0.3−				

1990 VF₈ = 1990 UK₁₁ = 1981 UZ₁₇

Id. S. Nakano (d, *MPC* 20913), C. S. Shoemaker (1994 observations),
G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		<i>P</i>		<i>Q</i>	
240.93229	(2000.0)				
<i>n</i>	0.21775136	ω	328.19568	+0.99076276	+0.12089863
<i>a</i>	2.7362901	Ω	25.07975	-0.07243447	+0.85473132
<i>e</i>	0.1805775	<i>i</i>	8.33176	-0.11464031	+0.50479491
<i>P</i>	4.53	<i>H</i>	13.0	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1981 10 24	095	1.4+	3.5-	1990 11 11	675	0.4-	0.7+	1994 08 03	675	0.1+	0.2+
1990 10 16	095	1.6-	2.1+	1990 11 11	675	0.7-	0.3+	1994 08 05	675	0.4-	0.2-
1990 10 16	095	1.8+	0.3+	1990 11 13	675	0.1+	0.9+	1994 08 05	675	0.6-	0.2+
1990 10 22	675	0.4-	0.3+	1990 11 13	675	0.3-	0.0				
1990 10 22	675	0.0	1.4-	1994 08 03	675	1.0+	0.3-				

1990 VH₁₂ = 1979 UT₃ = 1990 WV₉ = 1998 FK₆₈

Id. S. Nakano (d, *MPC* 20779), G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		<i>P</i>		<i>Q</i>	
165.95026	(2000.0)				
<i>n</i>	0.18644190	ω	171.81633	+0.97876416	-0.19732109
<i>a</i>	3.0346390	Ω	199.82900	+0.17758304	+0.95153596
<i>e</i>	0.0582705	<i>i</i>	9.42420	+0.10239625	+0.23588918
<i>P</i>	5.29	<i>H</i>	13.0	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1979 10 16	095	0.4-	1.6+	1998 03 20	704	0.9+	0.7-	1998 03 22	704	1.3-	0.5-
1990 11 11	372	0.0	0.1+	1998 03 20	704	0.3-	0.6+	1998 03 24	699	0.4+	0.5-
1990 11 11	372	0.1+	1.3-	1998 03 20	704	0.1-	0.1+	1998 03 24	699	0.9+	0.2+
1990 11 15	809	0.6+	0.5+	1998 03 20	704	1.2-	0.5+	1998 03 24	699	0.2-	1.0+
1990 11 15	809	0.6+	0.3+	1998 03 20	704	(6.6-	1.0-)	1998 04 01	704	0.1-	0.6+
1990 11 15	809	1.6-	1.5-	1998 03 22	704	0.4+	0.3-	1998 04 01	704	0.3+	0.4+
1990 11 21	809	0.8+	0.4+	1998 03 22	704	0.3+	0.4-	1998 04 01	704	0.4+	0.5+
1990 11 21	809	0.5+	0.7+	1998 03 22	704	0.2-	0.4-	1998 04 01	704	0.2-	0.4+
1990 11 21	809	0.9-	0.6+	1998 03 22	704	0.0	0.2-	1998 04 01	704	0.2+	0.0

1990 VN₁₄ = 1990 VJ₉ = 1986 AC = 1997 XX₈

Id. A. Lowe (d, *MPC* 19983), G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		<i>P</i>		<i>Q</i>	
76.39058	(2000.0)				
<i>n</i>	0.17423496	ω	301.48577	+0.35663225	-0.93373413
<i>a</i>	3.1747718	Ω	127.58921	+0.86983227	+0.31979900
<i>e</i>	0.1651722	<i>i</i>	2.23389	+0.34088892	+0.16083894
<i>P</i>	5.66	<i>H</i>	13.0	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1986 01 09	675	0.9+	1.7+	1997 12 07	910	0.1-	0.0	1998 03 20	704	0.9+	0.8-
1986 01 09	675	0.2-	1.7+	1997 12 07	910	0.1-	0.0	1998 03 20	704	0.4+	0.6-
1990 11 10	046	1.1+	1.9-	1997 12 07	910	0.4-	0.1+	1998 03 20	704	0.2+	0.7-
1990 11 10	046	0.4-	1.6-	1997 12 08	910	0.2-	0.4-	1998 03 22	704	0.8-	0.5-
1990 11 15	095	(7.7+	4.0+)	1997 12 08	910	0.2-	0.5-	1998 03 22	704	0.1-	1.0-
1990 11 15	095	1.3+	0.5-	1997 12 08	910	0.1-	0.5-	1998 03 22	704	0.2+	0.4+
1990 11 21	095	0.8-	1.4+	1998 03 20	704	0.6+	0.6-	1998 03 22	704	0.7-	0.2-
1990 11 21	095	0.2-	0.8-	1998 03 20	704	0.7-	0.4-	1998 03 22	704	0.9-	0.9+

1991 ED₂ = 1991 CY₂ = 1991 DR₂ = 1998 FY₅₀

Id. G. V. Williams (d, *MPC* 20484; unpublished), S. Nakano (d, *MPC* 20606)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		<i>P</i>		<i>Q</i>	
2.49417	(2000.0)				
<i>n</i>	0.28892425	ω	343.83189	-0.82975607	-0.55756472
<i>a</i>	2.2661051	Ω	162.21245	+0.52071776	-0.78950420
<i>e</i>	0.0964040	<i>i</i>	4.69956	+0.20089271	-0.25652426
<i>P</i>	3.41	<i>H</i>	14.0	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1991 02 10	675	0.1+	0.6+	1991 03 12	809	0.7+	0.1-	1998 03 20	704	0.6+	0.1-
1991 02 10	675	0.1+	0.1-	1991 03 12	809	0.8+	0.3-	1998 03 20	704	0.2-	0.4-
1991 02 12	511	2.0-	0.7+	1991 03 12	809	1.0+	0.1-	1998 03 22	704	1.1-	0.1-
1991 02 12	511	0.5-	1.4+	1991 03 14	809	0.2-	0.2+	1998 03 22	704	0.4-	0.6+
1991 02 19	046	0.0	0.4-	1991 03 14	809	0.3-	0.2+	1998 03 22	704	0.1+	0.1+
1991 02 19	046	2.4+	1.3-	1991 03 14	809	0.2-	0.6+	1998 03 22	704	0.6-	0.4+
1991 03 09	809	2.0-	0.4-	1998 03 20	704	0.9+	0.6-	1998 03 22	704	0.5-	0.4-
1991 03 09	809	0.7-	0.6-	1998 03 20	704	0.6+	0.3+				
1991 03 09	809	0.7+	0.8-	1998 03 20	704	0.8+	0.5+				

1991 EX₂ = 1991 CC₆ = 1997 XZ₈

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

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		<i>P</i>		<i>Q</i>	
64.83474	(2000.0)				
<i>n</i>	0.28923308	ω	107.69040	-0.06200843	-0.99747960
<i>a</i>	2.2644917	Ω	345.73209	+0.85448009	-0.03519906
<i>e</i>	0.0053782	<i>i</i>	8.04404	+0.51577003	-0.06160739
<i>P</i>	3.41	<i>H</i>	15.0	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1991 02 13	675	0.6-	0.0	1997 12 08	910	0.3-	0.0	1998 03 22	704	0.8-	1.6+
1991 02 13	675	0.5+	0.5+	1997 12 08	910	0.0	0.5-	1998 03 22	704	0.4+	0.8+
1991 03 11	809	0.7-	1.0+	1997 12 08	910	0.0	0.2-	1998 03 31	704	0.6+	0.1-
1991 03 11	809	0.2-	0.8+	1998 03 20	704	0.3+	0.3-	1998 03 31	704	0.2+	0.0
1991 03 11	809	0.4+	0.8+	1998 03 20	704	0.5+	1.3-	1998 03 31	704	1.3+	0.3-
1991 03 13	809	0.2+	0.7-	1998 03 20	704	0.7-	1.0-	1998 03 31	704	0.1+	0.4+
1991 03 13	809	0.3+	0.8-	1998 03 20	704	0.2-	0.9-	1998 04 01	704	0.3+	0.1-
1991 03 13	809	0.6+	0.9-	1998 03 20	704	0.0	0.3+	1998 04 01	704	0.2-	0.6+
1997 12 07	910	0.3-	0.1-	1998 03 22	704	0.2+	0.4-	1998 04 01	704	0.4+	0.1-
1997 12 07	910	0.3+	0.1-	1998 03 22	704	0.6-	0.4+	1998 04 01	704	0.2+	0.4-
1997 12 07	910	0.2-	0.1+	1998 03 22	704	1.9-	0.5+	1998 04 01	704	0.0	0.1-

1991 FS = 1998 EQ₁₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		<i>P</i>		<i>Q</i>	
354.81381	(2000.0)				
<i>n</i>	0.28058943	ω	109.10914	-0.81568065	-0.57644330
<i>a</i>	2.3107618	Ω	35.73689	+0.49442417	-0.73841635
<i>e</i>	0.1775480	<i>i</i>	4.78952	+0.30034948	-0.34993487
<i>P</i>	3.51	<i>H</i>	14.0	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1991 03 17	898	1.1+	1.2+	1991 04 11	898	0.3+	0.2-	1998 03 02	809	1.0+	0.6-
1991 03 17	898	0.1+	0.4-	1998 03 01	809	0.3-	0.6+	1998 03 02	809	0.1+	0.8-
1991 03 18	898	1.2-	0.9-	1998 03 01	809	0.4-	0.8+	1998 03 02	809	0.1-	0.6-
1991 04 11	898	0.2-	0.3+	1998 03 01	809	0.3-	0.7+				

1991 FC₄ = 1998 FG₂₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		<i>P</i>		<i>Q</i>	
343.31425	(2000.0)				
<i>n</i>	0.27512578	ω	267.70985	-0.94038688	-0.33792224
<i>a</i>	2.3412539	Ω	252.53793	+0.32587722	-0.86286775
<i>e</i>	0.1420324	<i>i</i>	2.31217	+0.09734760	-0.37585610
<i>P</i>	3.58	<i>H</i>	15.0	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1991 03 22	809	0.9−	0.9+	1991 04 19	675	0.2−	0.3−	1998 03 20	704	0.3+	0.0
1991 03 22	809	0.6−	0.7+	1991 05 15	675	0.1+	0.1−	1998 03 20	704	0.2+	0.2+
1991 03 22	809	0.4−	0.6+	1991 05 15	675	0.6−	1.0−	1998 03 20	704	0.8−	0.5+
1991 03 23	809	0.1+	0.2−	1991 05 17	675	0.3+	0.7+	1998 03 20	704	0.4−	0.3−
1991 03 23	809	0.4+	0.2−	1991 05 17	675	0.1+	0.0	1998 03 20	704	1.2−	0.0
1991 03 23	809	0.8+	0.4−	1998 03 03	704	0.3+	0.3−	1998 03 22	704	0.2+	0.4−
1991 03 27	809	0.2−	1.2+	1998 03 03	704	0.6+	0.0	1998 03 22	704	0.3+	0.3+
1991 03 27	809	0.4+	0.4+	1998 03 03	704	0.5−	0.1+	1998 03 22	704	0.2−	0.6−
1991 03 27	809	1.1+	0.6−	1998 03 03	704	0.4−	1.0+	1998 03 22	704	0.2+	0.4−
1991 04 19	675	0.2−	0.6−	1998 03 03	704	0.6+	0.4+	1998 03 22	704	0.6+	1.5−

1991 GW₈ = 1994 AK₁₂Id. T. Kobayashi (*MPC* 23977)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27700934	ω	290.78693	−0.51778425	+0.85530146		
<i>a</i>	2.3306288	Ω	308.01506	−0.77570302	−0.47870561		
<i>e</i>	0.1990203	<i>i</i>	1.37784	−0.36081061	−0.19824317		
<i>P</i>	3.56	<i>H</i>	16.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 04 08	809	1.0+	0.6−	1994 01 11	691	0.3+	0.0	1998 03 22	704	0.3−	0.3+
1991 04 08	809	1.3+	1.1−	1994 01 11	691	0.0	0.2+	1998 03 22	704	0.8+	1.1+
1991 04 08	809	(2.6+ 2.6−)		1994 01 17	691	0.1−	0.1+	1998 03 22	704	0.9+	0.5−
1991 04 10	809	1.1−	0.3−	1994 01 17	691	0.1−	0.1+	1998 03 22	704	(4.6− 0.3−)	
1991 04 10	809	1.7−	1.4+	1994 01 17	691	0.1+	0.2+	1998 04 01	704	0.4−	1.4+
1991 04 10	809	1.5−	0.7+	1998 03 20	704	1.0+	1.1−	1998 04 01	704	1.2−	0.3−
1991 04 15	675	1.2+	0.3−	1998 03 20	704	0.0	0.2+	1998 04 01	704	0.4−	1.0−
1991 04 15	675	0.1−	0.5−	1998 03 20	704	0.2+	0.8−	1998 04 01	704	0.3−	0.6+
1991 04 19	809	0.0	1.1+	1998 03 20	704	1.2−	0.7−	1998 04 01	704	0.5+	0.4−
1991 04 19	809	0.7+	0.1+	1998 03 20	704	0.9−	0.4+				
1991 04 19	809	0.5+	0.5+	1998 03 22	704	0.8+	0.2−				

1991 GN₉ = 1991 HP = 1996 TU₄₀Id. G. V. Williams (d, *MPC* 20313), K. Ichikawa (*MPC* 29914)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27910313	ω	25.05526	−0.39735428	−0.91711200		
<i>a</i>	2.3189582	Ω	88.37106	+0.83648092	−0.37626062		
<i>e</i>	0.1533083	<i>i</i>	1.82658	+0.37737150	−0.13165688		
<i>P</i>	3.53	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1991 04 10	809	1.1−	1.8−	1996 10 07	809	0.8−	0.1−	1998 03 20	704	0.7−	0.3−
1991 04 10	809	1.8−	2.0−	1996 10 07	809	1.6−	0.3−	1998 03 20	704	1.6+	0.6+
1991 04 10	809	(1.8− 2.7−)		1996 10 08	809	0.0	0.2−	1998 03 20	704	0.4+	0.1−
1991 04 11	033	0.6+	0.3+	1996 10 08	809	0.6−	0.4+	1998 03 20	704	(3.8− 1.5−)	
1991 04 11	033	0.2−	0.8+	1996 10 08	809	1.1+	0.0	1998 03 22	704	0.1+	0.0
1991 04 12	033	0.0	1.1+	1996 10 10	809	1.4+	0.4+	1998 03 22	704	0.5+	0.9+
1991 04 19	809	(2.2+ 0.2+)		1996 10 10	809	1.0+	1.1+	1998 03 22	704	1.0−	1.3−
1991 04 19	809	0.8−	1.3+	1996 10 10	809	1.0+	1.3+	1998 03 22	704	0.3−	0.0
1991 04 19	809	(2.8+ 0.1+)		1996 10 13	566	0.1+	0.8−	1998 03 22	704	0.1+	0.5+
1991 04 19	675	1.5+	0.3−	1996 10 13	566	0.4−	0.7−	1998 03 25	699	(2.3+ 0.4+)	
1991 04 19	675	1.7+	0.0	1996 10 13	566	0.2−	0.6−	1998 03 25	699	0.0	0.2+
1996 10 07	809	1.0−	0.5−	1998 03 20	704	0.4+	0.2−	1998 03 25	699	0.8−	0.3+

1991 LV₂ = 1996 XS₃₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26338555	ω	222.60808	+0.81124165	+0.58181502		
<i>a</i>	2.4103202	Ω	101.72404	−0.51920812	+0.76250904		
<i>e</i>	0.1892376	<i>i</i>	3.40315	−0.26890503	+0.28296864		
<i>P</i>	3.74	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1991 05 18	809	0.4+	0.2−	1991 06 06	809	0.6−	0.3+	1996 12 10	327	1.2−	0.1−
1991 05 18	809	0.6+	0.7−	1991 06 08	809	2.4+	0.0	1996 12 10	327	0.6+	0.8+
1991 05 18	809	1.6−	0.7−	1991 06 08	809	0.7+	0.2−	1996 12 19	327	0.4−	0.1−
1991 06 06	809	0.8−	0.9+	1991 06 08	809	0.1+	0.0	1996 12 19	327	0.1+	0.2+
1991 06 06	809	1.1−	0.7+	1996 12 10	327	0.0	0.9−	1996 12 19	327	0.9+	0.6+

1991 PU = 1992 YQ₁Id. T. Kobayashi (*MPC* 24104)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22087991	ω	80.84535	+0.97961871	−0.18893139		
<i>a</i>	2.7103907	Ω	290.02206	+0.14365269	+0.89630196		
<i>e</i>	0.1294561	<i>i</i>	4.16298	+0.14039616	+0.40118290		
<i>P</i>	4.46	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1991 08 03	809	0.3−	1.2−	1992 12 19	010	0.2+	0.1−	1998 03 03	704	0.8+	0.7+
1991 08 03	809	0.9−	0.6−	1992 12 19	010	0.9+	0.3−	1998 03 03	704	1.1−	0.2+
1991 08 03	809	1.0−	1.1−	1992 12 19	010	0.4−	0.5+	1998 03 03	428	0.6−	0.5+
1991 08 04	809	0.6−	1.4+	1992 12 19	010	0.1−	0.6+	1998 03 03	428	0.5+	0.3+
1991 08 05	675	1.9+	2.0+	1992 12 20	010	0.9−	0.1+	1998 03 04	704	0.2+	0.8−
1991 08 05	675	0.1−	0.0	1998 02 01	428	1.4+	0.7+	1998 03 04	704	0.2−	0.1+
1991 08 07	675	0.1−	1.3−	1998 02 01	428	0.6+	1.3+	1998 03 04	704	0.1−	0.2−
1991 08 07	675	(0.0 3.6−)		1998 02 02	428	0.6+	0.6−	1998 03 04	704	0.0	0.2−
1991 08 08	675	0.9+	1.1+	1998 03 03	704	1.0−	0.9−	1998 03 04	704	0.5−	0.3−
1991 08 08	675	(3.4+ 4.8+)		1998 03 03	704	0.4−	0.2−				
1992 12 18	010	0.3+	1.0−	1998 03 03	704	0.0	0.2−				

1991 PL₂ = 1998 FO₅₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25666905	ω	312.86952	+0.37253862	+0.92766419		
<i>a</i>	2.4521877	Ω	338.96147	−0.82932026	+0.32042399		
<i>e</i>	0.1932460	<i>i</i>	4.08538	−0.41646475	+0.19174883		
<i>P</i>	3.84	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 08 02	809	0.3+	0.6−	1991 09 04	809	1.4+	0.7−	1998 03 22	704	0.1−	1.0+
1991 08 02	809	0.2+	1.0+	1991 09 04	809	0.3−	0.5+	1998 03 22	704	1.6−	0.5−
1991 08 02	809	1.1−	0.8−	1991 09 04	809	0.8−	0.9+	1998 03 22	704	(4.6− 0.9+)	
1991 08 07	809	0.7+	0.5+	1998 03 20	704	0.0	0.2−	1998 04 01	704	0.8+	0.0
1991 08 07	809	1.3+	0.4+	1998 03 20	704	0.9+	0.2−	1998 04 01	704	(2.3− 1.4+)	
1991 08 07	809	0.5+	0.9+	1998 03 20	704	0.5−	0.5−	1998 04 01	704	0.2+	0.3+
1991 08 14	809	0.7−	0.6−	1998 03 20	704	0.7−	0.2+	1998 04 01	704	0.2+	0.3−
1991 08 14	809	0.1−	0.6−	1998 03 22	704	0.4+	1.2+	1998 04 01	704	0.4−	1.5−
1991 08 14	809	1.5−	0.7−	1998 03 22	704	0.8+	0.6+				

1991 PK₃ = 1992 YX₁Id. B. G. Marsden (*MPC* 21578)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24344615	ω	288.50931	+0.97128522	+0.23528664		
<i>a</i>	2.5401973	Ω	57.89594	−0.19954230	+0.88638167		
<i>e</i>	0.1075295	<i>i</i>	2.38752	−0.12956813	+0.39870758		
<i>P</i>	4.05	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 08 02	809	(2.9+ 0.5−)		1991 09 06	809	0.7+	1.0−	1993 01 17	010	0.5+	0.1+
1991 08 02	809	1.5+	0.4+	1991 09 06	809	(3.2− 2.2−)		1997 12 07	910	0.7−	0.1−
1991 08 02	809	1.1+	0.6−	1991 09 07	809	(4.8− 1.0−)		1997 12 07	910	0.9−	0.1−
1991 08 07	809	0.6+	0.9+	1991 09 07	809	(5.7− 0.5−)		1997 12 07	910	0.7−	0.1−
1991 08 07	809	0.1−	0.2+	1991 09 07	809	(5.8− 1.3−)		1998 03 18	691	0.2−	0.4−
1991 08 07	809	0.1−	0.1+	1992 12 18	010	0.1+	1.2+	1998 03 18	691	0.1+	0.4+

1991 08 14	809	1.4−	0.4−	1992 12 19	010	(3.2+	0.6−)	1998 03 22	704	1.1+	0.2+
1991 08 14	809	1.8−	0.9+	1992 12 19	010	(2.2+	0.6+)	1998 03 22	704	1.0+	0.6−
1991 09 04	809	(2.6−	2.5−)	1992 12 19	010	1.3+	0.8+	1998 03 22	704	0.2−	0.3+
1991 09 04	809	(3.7−	2.7−)	1992 12 20	010	0.9+	0.5+	1998 03 22	704	0.3+	0.0
1991 09 04	809	(4.9−	2.9−)	1993 01 16	010	0.3−	0.5−	1998 03 22	704	0.5−	1.3+
1991 09 05	809	(3.9−	1.4−)	1993 01 16	010	0.2−	0.1−	1998 03 25	691	0.2+	0.0
1991 09 05	809	(5.0−	2.8−)	1993 01 16	010	1.0−	0.0	1998 03 25	691	0.2−	0.6−
1991 09 05	809	(4.8−	0.5−)	1993 01 17	010	0.2−	0.8−	1998 03 25	691	0.3−	0.1+
1991 09 06	809	(3.0+	1.2−)	1993 01 17	010	0.8−	0.3−				

1991 PP₉ = 1998 DP₃₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams			
<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.21255720	<i>ω</i>	103.16598	+0.31295557		−0.94771742	
<i>a</i>	2.7806874	<i>Ω</i>	328.37774	+0.81881318		+0.30249934	
<i>e</i>	0.2127804	<i>i</i>	6.83221	+0.48125231		+0.10161614	
<i>P</i>	4.64	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 08 05	675	0.2+	0.6−	1991 09 06	809	1.5−	0.5+	1998 03 03	704	0.5−	0.9−
1991 08 05	675	0.6+	1.1+	1991 09 07	809	(1.4−	3.5−)	1998 03 03	704	0.0	0.6−
1991 08 07	675	(2.9+	2.7−)	1991 09 07	809	(0.3+	2.8−)	1998 03 03	704	0.6−	0.6−
1991 08 07	675	1.1−	0.9−	1998 02 27	098	1.1−	0.6+	1998 03 04	704	0.0	0.4−
1991 09 04	809	(2.7+	0.6+)	1998 02 28	098	0.2−	1.1+	1998 03 04	704	0.1−	0.4+
1991 09 04	809	1.9+	1.0+	1998 03 02	098	0.1−	0.7+	1998 03 04	704	0.4+	0.4−
1991 09 04	809	1.2+	0.5+	1998 03 03	098	1.6+	1.5+	1998 03 04	704	0.0	0.4−
1991 09 06	809	0.2−	0.9−	1998 03 03	704	0.2−	0.4−	1998 03 04	704	0.8+	0.3−
1991 09 06	809	1.2−	0.4−	1998 03 03	704	0.4+	0.2−				

1991 PJ₁₁ = 1998 FD₃₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams			
<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.23636421	<i>ω</i>	87.04869	+0.85446821		+0.51760744	
<i>a</i>	2.5906868	<i>Ω</i>	241.77556	−0.49439297		+0.78397997	
<i>e</i>	0.2004917	<i>i</i>	2.88496	−0.15956087		+0.34272138	
<i>P</i>	4.17	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 08 09	675	0.2−	0.0	1991 09 17	675	0.6+	0.0	1998 03 22	704	1.6−	0.4+
1991 08 10	675	0.2+	0.2−	1998 03 20	704	0.5+	0.4−	1998 03 22	704	1.2−	0.2+
1991 09 06	511	0.7+	0.3−	1998 03 20	704	0.6+	1.9−	1998 03 22	704	0.7+	0.2−
1991 09 07	511	1.5−	0.3−	1998 03 20	704	1.4+	0.6−	1998 04 01	704	1.3+	1.7+
1991 09 08	511	1.2−	0.0	1998 03 20	704	0.3−	0.7+	1998 04 01	704	(2.2−	0.2−)
1991 09 14	675	0.6+	0.3+	1998 03 20	704	(2.4+	2.2−)	1998 04 01	704	0.7−	0.3−
1991 09 14	675	0.3+	0.2+	1998 03 22	704	1.3+	0.5+	1998 04 01	704	1.0−	0.5+
1991 09 17	675	0.6+	0.0	1998 03 22	704	1.2−	1.1−				

1991 PZ₁₄ = 1991 RU₆ = 1998 FH₂₂Id. S. Nakano (d, *MPC* 22572), G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams			
<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.24544404	<i>ω</i>	70.75735	−0.06076963		+0.99766325	
<i>a</i>	2.5263939	<i>Ω</i>	195.85569	−0.95334233		−0.06728141	
<i>e</i>	0.1574142	<i>i</i>	6.56285	−0.29571178		+0.01188521	
<i>P</i>	4.02	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 08 06	675	0.7+	0.5+	1991 09 04	413	0.3−	0.4+	1998 03 22	704	0.3−	0.7−
1991 08 06	675	0.3+	0.3+	1998 03 20	704	0.2+	0.3−	1998 03 22	704	0.1+	0.1+
1991 08 09	675	0.3−	0.1−	1998 03 20	704	0.1+	0.5−	1998 03 22	704	0.2−	0.3−
1991 08 09	675	0.8−	0.8−	1998 03 20	704	0.0	0.2+	1998 03 22	704	0.1−	0.6+
1991 09 03	413	0.0	0.3−	1998 03 20	704	0.2+	0.1−	1998 03 22	704	0.3−	0.5+
1991 09 03	413	0.4+	0.2+	1998 03 20	704	0.4+	0.5+				

1991 PL₁₆ = 1998 FZ₃₇

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams			
<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.23614017	<i>ω</i>	323.52823	+0.69879634		+0.71448652	
<i>a</i>	2.5923251	<i>Ω</i>	350.62622	−0.59588996		+0.55473685	
<i>e</i>	0.1786176	<i>i</i>	12.24169	−0.39572570		+0.42635200	
<i>P</i>	4.17	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 08 07	675	0.5+	0.2−	1991 09 16	675	0.4+	1.1−	1998 03 22	704	0.6+	0.4−
1991 08 08	675	0.5−	0.0	1991 09 16	675	0.2+	0.1+	1998 03 22	704	1.3+	0.6−
1991 09 11	675	1.3+	0.6+	1998 03 20	704	0.5−	1.2+	1998 03 22	704	0.4+	0.4−
1991 09 11	675	1.0−	0.6+	1998 03 20	704	0.5−	0.3+	1998 03 22	704	0.2+	2.3−
1991 09 13	675	0.1+	0.7−	1998 03 20	704	1.5−	0.3+				
1991 09 13	675	0.8−	0.3+	1998 03 20	704	0.2−	1.6+				

1991 PV₃₁ = 1991 PJ₂₀ = 1997 XM₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Marsden			
<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.22973238	<i>ω</i>	151.82118	+0.91996138		+0.39191680	
<i>a</i>	2.6403079	<i>Ω</i>	185.12725	−0.37516172		+0.87392746	
<i>e</i>	0.1195650	<i>i</i>	5.45906	−0.11368706		+0.28749265	
<i>P</i>	4.29	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 08 05	675	0.6+	0.6−	1991 08 11	033	0.3−	0.2−	1997 12 05	691	0.2−	0.2+
1991 08 05	675	0.1−	0.1+	1991 08 12	033	0.2−	0.2−	1997 12 05	691	0.3−	0.0
1991 08 06	033	0.3+	1.1+	1997 12 04	691	0.1+	0.2−	1997 12 05	691	0.1−	0.1−
1991 08 06	033	0.8−	0.4−	1997 12 04	691	0.2+	0.1−				
1991 08 07	033	0.6+	0.2+	1997 12 04	691	0.3+	0.2+				

1991 RK₁₆ = 1998 FM₆₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams			
<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.23578959	<i>ω</i>	283.47557	+0.96608148		+0.25449367	
<i>a</i>	2.5948941	<i>Ω</i>	61.79589	−0.21350778		+0.88260146	
<i>e</i>	0.1374059	<i>i</i>	2.84965	−0.14526183		+0.39528172	
<i>P</i>	4.18	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 09 07	399	0.1−	0.7+	1991 09 17	675	0.5−	0.6+	1998 03 20	704	0.2−	0.4−
1991 09 07	399	0.1−	0.6−	1998 03 20	704	0.1+	0.7+	1998 03 22	704	0.0	0.7−
1991 09 15	675	0.7+	0.3−	1998 03 20	704	0.1−	0.5+	1998 03 22	704	0.1−	0.3+
1991 09 15	675	0.1+	0.3+	1998 03 20	704	0.4+	0.4+	1998 03 22	704	0.5−	0.2+
1991 09 17	675	0.1−	0.6−	1998 03 20	704	0.3+	0.7−	1998 03 22	704	0.0	0.3−

1991 SR₁ = 1949 WQ₁

Id. E. Bowell

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

				Williams			
<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.23401083	<i>ω</i>	158.23131	+0.98889983		−0.10472514	
<i>a</i>	2.6080270	<i>Ω</i>	208.41289	+0.08091244		+0.97453287	
<i>e</i>	0.1643726	<i>i</i>	12.79818	+0.12462065		+0.19828848	
<i>P</i>	4.21	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1949 11 23	675	0.0	0.1+	1991 09 19	894	0.3+	1.3−	1991 10 28	894	0.3−	1.3−
1949 11 23	675	0.1+	0.6−	1991 09 19	894	0.6−	0.4+	1991 10 28	894	1.7−	1.6+
1991 09 10	675	1.3+	1.3−	1991 10 04	033	0.1−	0.9+	1998 03 25	699	0.2+	0.2+
1991 09 10	675	0.4−	0.5−	1991 10 05	033	0.1−	0.4+	1998 03 25	699	0.4+	1.9+
1991 09 13	675	0.3−	0.3+	1991 10 05	033	0.3+	0.8+	1998 03 25	699	0.1+	0.7+
1991 09 13	675	0.1−	0.4+	1991 10 13	894	(0.0	2.4−)	1998 04 01	704	0.3−	0.0
1991 09 15	675	0.1−	0.5−	1991 10 13	894	0.4−	0.2−	1998 04 01	704	0.6+	0.4−
1991 09 15	675	0.2+	0.6−	1991 10 15	894	0.5+	0.4+	1998 04 01	704	1.0−	0.1−

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1991 09 17 675 0.6− 1.2+ 1991 10 18 894 0.8+ 0.3− 1998 04 01 704 0.1+ 0.9−
 1991 09 17 675 0.6− 0.0 1991 10 18 894 1.5+ 0.9+ 1998 04 01 704 (5.7− 1.0+)

1991 UQ₂ = 1998 FE₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	198.76286		(2000.0)	P	Q
<i>n</i>	0.23938750	ω	319.83518	+0.98881912	+0.04905690
<i>a</i>	2.5688283	Ω	38.06712	+0.03732538	+0.83285372
<i>e</i>	0.3088923	<i>i</i>	13.20211	−0.14437301	+0.55131489
<i>P</i>	4.12	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1991 10 17	675	0.5−	0.4+	1991 11 02	400	1.3−	0.3+	1998 03 22	691	0.3−	0.1−
1991 10 29	400	0.5−	0.7+	1991 11 12	691	1.0−	0.7+	1998 03 22	691	0.2+	0.2+
1991 10 29	400	0.0	1.4−	1991 11 12	691	0.8−	0.7+	1998 03 22	691	0.1+	0.0
1991 10 31	400	1.3+	0.6−	1991 11 12	691	1.0−	0.8+	1998 03 25	691	0.2−	0.4+
1991 10 31	400	0.1+	0.1+	1991 11 26	400	1.0+	1.4−	1998 03 25	691	0.7+	0.7−
1991 11 02	400	2.5+	0.8−	1991 11 26	400	0.3+	0.4+	1998 03 25	691	0.4−	0.3+

1991 VD₅ = 1953 TB₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	356.93075		(2000.0)	P	Q
<i>n</i>	0.31083915	ω	239.63182	+0.99771847	+0.03877949
<i>a</i>	2.1583022	Ω	118.09550	−0.01561565	+0.92892912
<i>e</i>	0.1835865	<i>i</i>	3.59164	−0.06568113	+0.36822119
<i>P</i>	3.17	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1953 10 09	760	0.5−	0.7+	1991 11 07	675	1.4+	0.6+	1994 08 01	675	1.7+	1.1+
1953 10 09	760	0.0	0.9+	1991 11 07	675	0.2+	1.9−	1994 08 01	675	0.1+	0.3−
1991 09 13	675	0.1+	0.1−	1991 11 09	675	0.1+	0.5+	1994 08 04	675	0.3−	1.2+
1991 09 13	675	0.6+	0.9−	1991 11 09	675	0.6−	0.6+	1994 08 04	675	1.8−	1.0−
1991 09 15	675	0.3−	0.9−	1991 11 12	675	0.4−	0.5+				
1991 09 15	675	0.3+	1.0−	1991 11 12	675	0.6−	0.5+				

1992 BF₂ = 1998 FY₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	33.27231		(2000.0)	P	Q
<i>n</i>	0.17775144	ω	321.99887	−0.28253976	−0.95074855
<i>a</i>	3.1327613	Ω	143.90049	+0.92455761	−0.30532150
<i>e</i>	0.0917051	<i>i</i>	12.49458	+0.25566484	+0.05344125
<i>P</i>	5.54	<i>H</i>	12.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1992 01 30	809	0.3−	0.4−	1998 01 25	566	0.4+	0.5+	1998 03 23	732	(2.4−	0.5+)
1992 01 30	809	0.9−	0.4−	1998 01 25	566	0.4+	0.3+	1998 03 23	732	1.7−	0.0
1992 01 30	809	1.7−	0.1−	1998 01 25	566	0.3+	0.4+	1998 03 23	732	(2.6+	1.5−)
1992 02 02	809	1.4+	0.3+	1998 03 04	704	0.5−	0.6−	1998 03 26	566	0.7+	0.5+
1992 02 02	809	0.5+	0.8+	1998 03 04	704	0.2−	0.4−	1998 03 26	566	0.6+	0.5+
1992 02 02	809	0.9+	0.6+	1998 03 04	704	0.6−	0.6−	1998 03 26	566	0.5+	0.4+
1992 02 06	809	0.4+	0.2+	1998 03 04	704	0.7−	1.2−	1998 03 27	566	0.7+	0.2+
1992 02 06	809	0.5+	0.6−	1998 03 04	704	0.6−	1.0−	1998 03 27	566	1.0+	0.4+
1992 02 06	809	0.3−	0.0	1998 03 22	732	0.1+	0.2−	1998 03 27	566	0.6+	0.2+
1992 02 11	809	1.2+	1.2−	1998 03 22	732	1.3−	1.0+				
1992 02 11	809	1.7−	0.9+	1998 03 22	732	0.2+	0.2−				

1992 CS = 1998 FU₁₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	156.32679		(2000.0)	P	Q
<i>n</i>	0.16917805	ω	211.18084	+0.96085290	+0.10525064
<i>a</i>	3.2377256	Ω	140.13467	−0.08660191	+0.99277728
<i>e</i>	0.0745076	<i>i</i>	23.56792	−0.26317640	+0.05758105
<i>P</i>	5.83	<i>H</i>	12.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1992 02 05	372	1.9+	0.3−	1992 02 25	691	0.1−	0.4−	1998 01 24	566	0.0	0.0
1992 02 05	372	0.1+	0.4−	1992 02 25	372	0.4−	1.5+	1998 03 26	566	0.1+	0.2+
1992 02 08	372	0.4−	1.1−	1992 02 25	372	1.0−	0.9−	1998 03 26	566	0.2+	0.3+
1992 02 08	372	0.5+	1.6+	1992 02 26	372	0.5−	0.2+	1998 03 26	566	0.2−	0.2+
1992 02 13	372	(2.5+	1.3−)	1992 02 27	372	0.5+	1.2−	1998 03 27	566	0.1+	0.2+
1992 02 13	372	1.0+	1.7+	1992 02 27	372	0.5−	0.4+	1998 03 27	566	0.0	0.4−
1992 02 25	691	0.6−	0.4−	1998 01 24	566	0.0	0.3−	1998 03 27	566	0.2−	0.1−
1992 02 25	691	0.5−	0.6−	1998 01 24	566	0.1−	0.0				

1992 DX₅ = 1998 FO₃₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	219.94598		(2000.0)	P	Q
<i>n</i>	0.16837423	ω	207.54884	+0.61172217	+0.78979345
<i>a</i>	3.2480220	Ω	100.19973	−0.71712986	+0.57764429
<i>e</i>	0.1101038	<i>i</i>	2.61886	−0.33394721	+0.20628469
<i>P</i>	5.85	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 7

Residuals in seconds of arc

1992 02 29	809	0.1+	0.1−	1998 03 20	704	0.3−	0.4−	1998 03 22	704	0.9+	0.3−
1992 03 03	809	0.4−	0.0	1998 03 20	704	0.1−	0.3+	1998 03 22	704	0.0	0.4−
1992 03 07	809	0.3+	0.2+	1998 03 20	704	0.5−	0.6−	1998 03 22	704	0.9−	2.5+
1998 03 20	704	0.6+	0.2−	1998 03 22	704	0.0	0.5+	1998 03 22	704	0.2+	1.5−

1992 DO₈ = 1998 FT₃₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	84.19217		(2000.0)	P	Q
<i>n</i>	0.17072400	ω	248.34140	+0.39221478	−0.91986079
<i>a</i>	3.2181503	Ω	178.53907	+0.89870281	+0.38205377
<i>e</i>	0.0832599	<i>i</i>	11.00758	+0.19621628	+0.08883161
<i>P</i>	5.77	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 7

Residuals in seconds of arc

1992 02 29	809	0.2+	0.4+	1998 03 20	704	0.0	0.2−	1998 03 22	704	0.1−	0.4+
1992 03 03	809	0.1−	0.1+	1998 03 20	704	1.0−	0.5−	1998 03 22	704	0.4+	0.4−
1992 03 05	809	0.5+	0.4−	1998 03 20	704	1.9+	0.7+	1998 03 22	704	0.3−	2.1+
1992 03 08	809	0.6−	0.0	1998 03 20	704	2.0+	0.1+	1998 03 22	704	1.7−	1.8−
1998 03 20	704	0.6+	1.3−	1998 03 22	704	1.7−	0.9+				

1992 ED₄ = 1997 XC₉

Id. G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden

<i>M</i>	30.37724		(2000.0)	P	Q
<i>n</i>	0.17300959	ω	10.39035	−0.56484844	−0.82408229
<i>a</i>	3.1897447	Ω	114.01400	+0.75369756	−0.53634692
<i>e</i>	0.1384788	<i>i</i>	2.68764	+0.33598546	−0.18226453
<i>P</i>	5.70	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1992 02 27	675	0.3+	0.5−	1997 12 08	910	0.0	0.0	1998 03 20	704	0.8−	0.4−
1992 02 27	675	1.0−	0.0	1997 12 08	910	0.0	0.0	1998 03 20	704	0.1−	1.0+
1992 02 28	675	0.1+	0.3−	1998 03 19	104	0.2−	0.5−	1998 03 21	691	1.2−	0.4−
1992 02 28	675	0.2+	0.3−	1998 03 19	104	0.3+	0.1+	1998 03 21	691	1.1−	0.4−
1992 03 01	809	0.2−	0.1−	1998 03 19	104	0.1−	0.6−	1998 03 21	691	1.1−	0.4−
1992 03 04	809	0.6+	0.5+	1998 03 19	104	0.1+	0.4−	1998 03 29	552	0.5+	0.0
1992 03 06	809	0.1+	1.2+	1998 03 19	104	0.8+	0.3−	1998 03 29	552	0.2+	0.7−
1997 12 07	910	0.0	0.0	1998 03 19	104	0.3−	0.2−	1998 03 30	552	0.5+	0.7+
1997 12 07	910	0.0	0.1−	1998 03 20	704	0.3+	0.2−	1998 03 30	552	0.4+	1.7+
1997 12 07	910	0.1−	0.2−	1998 03 20	704	0.6+	0.2+	1998 03 31	552	0.5+	0.0
1997 12 08	910	0.0	0.0	1998 03 20	704	0.4+	0.1+	1998 03 31	552	0.4+	0.6+

1992 EG₄ = 1998 FE₆₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	50.22304		(2000.0)		P		Q	
<i>n</i>	0.17655973	ω	32.83934	−0.32818554	−0.94317491			
<i>a</i>	3.1468420	Ω	76.36534	+0.85468872	−0.31998173			
<i>e</i>	0.1298667	<i>i</i>	3.07368	+0.40224551	−0.08962584			
<i>P</i>	5.58	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	6	

Residuals in seconds of arc

1992 02 27	691	0.5−	0.4−	1992 03 06	809	0.7−	0.1+	1998 03 22	704	0.7+	0.2−
1992 02 27	691	0.1−	0.2−	1992 04 04	809	0.0	0.0	1998 03 22	704	0.6+	1.4+
1992 02 27	691	0.3−	0.3−	1998 03 20	704	0.8−	0.2−	1998 03 22	704	0.4+	0.2+
1992 02 27	675	0.3−	1.3+	1998 03 20	704	0.9+	1.5−	1998 03 22	704	0.1+	1.5−
1992 02 28	675	1.4+	1.3−	1998 03 20	704	0.3+	0.5+	1998 03 22	704	0.6−	1.6+
1992 03 01	809	0.1+	0.6+	1998 03 20	704	0.1−	0.8−				
1992 03 04	809	0.3+	0.3+	1998 03 20	704	1.7−	0.5+				

1992 EU₂₈ = 1998 FK₃₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	242.19063		(2000.0)		P		Q	
<i>n</i>	0.17169077	ω	250.46749	+0.49113361	+0.87079544			
<i>a</i>	3.2060584	Ω	48.96830	−0.78764390	+0.45493805			
<i>e</i>	0.1815357	<i>i</i>	1.70385	−0.37202804	+0.18640457			
<i>P</i>	5.74	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	6	

Residuals in seconds of arc

1992 02 29	809	0.1−	0.9+	1992 04 06	809	0.2−	0.5−	1998 03 22	704	0.7−	1.8+
1992 03 06	691	0.8−	0.0	1998 03 20	704	0.7+	1.7+	1998 03 22	704	0.6+	0.5−
1992 03 06	691	0.4−	0.8−	1998 03 20	704	0.3+	0.1+	1998 03 22	704	1.8−	2.9−
1992 03 06	691	0.1−	0.5−	1998 03 20	704	0.3+	0.2+	1998 03 22	704	0.3+	0.5−
1992 03 08	809	0.1+	0.6+	1998 03 20	704	0.5+	0.1+	1998 03 22	704	0.6−	0.4+
1992 03 09	809	1.4+	0.1+	1998 03 20	704	0.6+	0.1−				

1992 PZ₁ = 1998 FU₅₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	221.73141		(2000.0)		P		Q	
<i>n</i>	0.29685433	ω	144.18902	+0.72270936	+0.69105177			
<i>a</i>	2.2255659	Ω	172.06521	−0.65231616	+0.68763151			
<i>e</i>	0.2160916	<i>i</i>	4.89297	−0.22841806	+0.22273385			
<i>P</i>	3.32	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	6	

Residuals in seconds of arc

1992 08 04	675	0.2−	0.6+	1998 03 20	704	0.1−	1.8−	1998 03 22	704	0.1+	0.7+
1992 08 05	675	0.4+	0.5−	1998 03 20	704	0.4−	0.6+	1998 03 22	704	0.6+	0.5−
1992 08 05	675	0.3−	0.1+	1998 03 20	704	0.4−	0.5+	1998 03 22	704	0.4+	0.7−
1992 08 07	675	0.4+	0.3−	1998 03 20	704	0.6−	0.0	1998 03 22	704	0.2+	0.1+
1992 08 07	675	0.2−	0.2+	1998 03 20	704	0.0	0.7+	1998 03 22	704	0.2+	0.5+

1992 PO₂ = 1998 FU₆₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	171.30209		(2000.0)		P		Q	
<i>n</i>	0.28370397	ω	149.06654	+0.99801907	+0.03607385			
<i>a</i>	2.2938188	Ω	209.00124	−0.05033504	+0.94933285			
<i>e</i>	0.1425979	<i>i</i>	6.10268	+0.03774024	+0.31219514			
<i>P</i>	3.47	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4	

Residuals in seconds of arc

1992 08 02	675	0.2+	0.7−	1998 03 20	704	0.1−	0.9−	1998 03 22	704	0.4+	1.1−
1992 08 02	675	0.2−	0.3+	1998 03 20	704	0.4−	0.4+	1998 03 22	704	1.2+	1.0−
1992 08 06	675	0.5−	0.6−	1998 03 20	704	0.8−	0.8+	1998 04 01	704	0.6+	0.1+
1992 08 06	675	0.5+	0.4+	1998 03 20	704	0.1+	1.3+	1998 04 01	704	0.1+	0.5+
1992 08 21	675	0.7−	0.2−	1998 03 20	704	1.2−	0.7+	1998 04 01	704	0.0	0.3+
1992 08 21	675	0.2+	1.0+	1998 03 22	704	0.0	1.0−	1998 04 01	704	0.7+	0.3+

1992 08 27	675	0.4+	0.3−	1998 03 22	704	0.2−	0.4−	1998 04 01	704	0.2−	0.2+
1992 08 27	675	0.1+	0.1+	1998 03 22	704	0.2−	0.2−				

1992 QW = 1982 SO₉ = 1982 UY₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Gnädig

<i>M</i>	197.68375		(2000.0)		P		Q	
<i>n</i>	0.29258134	ω	339.50154	+0.96644042	+0.25668833			
<i>a</i>	2.2471823	Ω	5.65420	−0.21891604	+0.84370037			
<i>e</i>	0.2040737	<i>i</i>	5.94142	−0.13441978	+0.47146663			
<i>P</i>	3.37	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4	

Residuals in seconds of arc

1982 09 20	095	0.2−	0.1+	1992 08 24	675	1.2−	0.1−	1992 09 22	675	0.2−	0.5−
1982 10 19	033	0.4+	0.1−	1992 08 31	675	0.7+	2.1+	1992 09 22	675	1.4+	1.2−
1982 10 19	033	0.6−	0.5+	1992 09 01	675	1.5+	1.8−				
1992 08 24	675	0.2−	0.4+	1992 09 01	675	1.6−	0.4+				

1992 RD₃ = 1982 UY₈ = 1989 YH₉ = 1997 AX

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Gnädig

<i>M</i>	152.23115		(2000.0)		P		Q	
<i>n</i>	0.28868293	ω	77.12687	+0.72827688	−0.68352927			
<i>a</i>	2.2673678	Ω	325.95563	+0.58990576	+0.66169644			
<i>e</i>	0.1600199	<i>i</i>	5.02078	+0.34874630	+0.30813238			
<i>P</i>	3.41	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	1	

Residuals in seconds of arc

1982 10 21	095	0.1+	0.5−	1992 09 03	809	1.4−	0.0	1992 09 23	809	1.1−	0.7+
1989 12 28	511	0.4+	0.6+	1992 09 22	809	0.6+	0.7−	1997 01 02	411	0.0	0.2+
1989 12 28	511	0.2−	0.8−	1992 09 22	809	0.4+	0.4−	1997 01 02	411	0.2−	0.6+
1992 09 02	809	1.4+	0.9+	1992 09 22	809	0.3+	0.6−	1997 01 03	411	0.2+	0.6−
1992 09 02	809	0.2−	0.4+	1992 09 23	809	0.0	0.0	1997 01 03	411	0.2+	0.9+
1992 09 02	809	0.1−	0.4+	1992 09 23	809	0.3−	0.1+				

1992 RS₃ = 1998 FF₆₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	226.27672		(2000.0)		P		Q	
<i>n</i>	0.28991576	ω	103.63616	+0.62626510	+0.77941670			
<i>a</i>	2.2609354	Ω	205.16429	−0.73013966	+0.57857031			
<i>e</i>	0.1407981	<i>i</i>	2.34086	−0.27329125	+0.24034559			
<i>P</i>	3.40	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5	

Residuals in seconds of arc

1992 09 02	809	0.3+	0.4−	1992 09 23	809	0.0	0.4+	1998 03 22	704	0.1−	0.4−
1992 09 02	809	0.4+	0.1−	1992 09 23	809	0.5−	0.2−	1998 03 22	704	1.2+	1.5−
1992 09 02	809	0.3−	0.4−	1998 03 20	704	0.3−	0.4−	1998 03 22	704	1.0−	0.1+
1992 09 03	809	0.4−	0.5+	1998 03 20	704	0.0	0.3+	1998 04 01	704	0.4+	1.4−
1992 09 22	809	1.1+	0.5+	1998 03 20	704	1.1+	0.3+	1998 04 01	704	0.5+	1.7+
1992 09 22	809	0.1−	0.7−	1998 03 20	704	0.7+	1.2+	1998 04 01	704	0.7−	0.5+
1992 09 22	809	0.6−	0.2−	1998 03 20	704	1.2−	0.2+	1998 04 01	704	0.1+	0.3+
1992 09 23	809	0.1+	0.6+	1998 03 22	704	0.5−	0.8−	1998 04 01	704	(5.1−	2.9+)

1992 SE = 1998 FH₂₇

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	74.13974		(2000.0)		P		Q	
<i>n</i>	0.23942465	ω	220.69450	+0.70267163	−0.71127317			
<i>a</i>	2.5685625	Ω	184.77326	+0.69680682	+0.69317921			
<i>e</i>	0.2801674	<i>i</i>	12.86083	+0.14391953	+0.11658932			
<i>P</i>	4.12	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5	

Residuals in seconds of arc

1992 09 21	400	1.2+	0.0	1992 10 02	691	1.5−	0.1−	1998 03 04	704	1.6−	0.1−
1992 09 21	400	0.6+	0.1−	1992 10 02	400	1.8+	0.1−	1998 03 20	704	0.6−	0.5+
1992 09 23	400	0.6+	1.3−	1992 10 02	400	(4.9−	2.1+)	1998 03 20	704	1.2+	0.2+
1992 09 23	400	(2.9+	3.1+)	1992 10 20	400	0.9+	0.7−	1998 03 20	704	0.8+	1.2+

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1992 09 28	691	(2.5− 3.9−)	1992 10 20	400	1.3+ 1.0+	1998 03 20	704	0.1+ 0.1−
1992 09 28	691	0.1− 0.2−	1998 03 03	704	0.1− 1.3−	1998 03 20	704	0.1+ 0.2+
1992 09 28	691	1.7− 0.3−	1998 03 03	704	0.5+ 0.8−	1998 03 22	704	0.1+ 0.4+
1992 09 28	400	0.7+ 0.8+	1998 03 03	704	(0.9+ 2.3−)	1998 03 22	704	0.1+ 0.4−
1992 09 28	400	0.3− 0.3+	1998 03 03	704	(3.6+ 1.1−)	1998 03 22	704	0.4+ 0.1−
1992 09 30	400	0.1− 0.2+	1998 03 04	704	1.0− 0.6+	1998 03 22	704	1.1+ 1.0−
1992 09 30	400	0.6− 1.6+	1998 03 04	704	0.9− 0.4+	1998 03 22	704	0.6+ 0.9+
1992 10 02	691	1.4− 0.7−	1998 03 04	704	(2.5− 0.2+)			
1992 10 02	691	1.4− 0.1−	1998 03 04	704	0.8− 0.4−			

1993 BX₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.59823320	<i>ω</i>	289.87503	−0.26786718	−0.96344881		
<i>a</i>	1.3949406	<i>Ω</i>	175.65735	+0.90115326	−0.25189598		
<i>e</i>	0.2808046	<i>i</i>	2.78817	+0.34083718	−0.09118557		
<i>P</i>	1.65	<i>H</i>	21.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1993 01 19	413	0.2− 0.9−	1993 02 18	657	0.3− 0.4+	1993 03 02	413	0.6− 0.8−
1993 01 31	413	1.1+ 0.7+	1993 02 18	657	0.0 0.8+	1993 03 03	413	0.2+ 0.8+
1993 01 31	413	0.9+ 1.2+	1993 02 18	474	0.4− 0.6−	1993 03 03	413	0.1+ 0.8+
1993 02 02	413	0.3− 0.6−	1993 02 18	474	1.0− 0.1+	1993 03 22	474	1.3+ 0.5−
1993 02 02	413	0.1+ 0.2−	1993 02 21	801	0.4− 0.5−	1993 03 22	474	1.8+ 0.6−
1993 02 03	413	0.4− 1.0−	1993 02 21	801	0.4− 1.4−	1993 03 23	474	0.9+ 1.0+
1993 02 03	413	0.6+ 1.2+	1993 02 22	658	0.6− 0.2−	1993 03 23	474	1.4+ 0.8+
1993 02 14	413	0.9− 0.1−	1993 02 22	658	1.0− 0.1+	1998 03 23	691	0.0 0.8+
1993 02 14	413	1.0− 0.4−	1993 02 22	658	0.7− 0.0	1998 03 23	691	1.2+ 0.2+
1993 02 15	474	1.2+ 1.6+	1993 02 23	474	0.3− 0.2+	1998 03 23	691	1.6− 0.8+
1993 02 15	474	1.2+ 0.5+	1993 02 23	474	1.7− 0.7+	1998 03 24	691	0.5+ 0.4−
1993 02 16	474	1.4+ 0.4−	1993 03 01	413	0.3− 1.5−	1998 03 24	691	0.1+ 0.0
1993 02 16	474	0.4+ 0.2+	1993 03 01	413	0.3− 1.5−	1998 03 24	691	0.1+ 0.2+
1993 02 18	657	0.2− 0.2+	1993 03 02	413	0.6− 0.9−			

1993 BL₇ = 1991 RU₃₆ = 1998 FG₄₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21539853	<i>ω</i>	181.25528	+0.12502228	−0.99092545		
<i>a</i>	2.7561799	<i>Ω</i>	261.56423	+0.91071770	+0.13435663		
<i>e</i>	0.0688220	<i>i</i>	2.86010	+0.39365302	+0.00387855		
<i>P</i>	4.58	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1991 09 14	675	0.4+ 0.3+	1998 03 03	704	0.8+ 1.7+	1998 03 20	704	0.1− 0.5−
1991 09 14	675	0.5− 0.0	1998 03 03	704	(3.2+ 1.6+)	1998 03 20	704	0.9+ 0.9−
1993 01 23	809	0.2− 0.4−	1998 03 03	704	0.7+ 0.1−	1998 03 22	704	0.7+ 0.1+
1993 01 23	809	0.1− 0.7+	1998 03 03	704	0.3+ 1.1+	1998 03 22	704	0.8+ 0.5+
1993 01 23	809	1.0− 0.4+	1998 03 04	704	1.9− 1.1+	1998 03 22	704	0.6+ 0.3−
1993 01 28	809	0.6+ 0.1−	1998 03 04	704	1.4− 0.6+	1998 03 22	704	0.2− 0.1−
1993 01 28	809	0.7+ 0.1−	1998 03 04	704	1.7− 0.1+	1998 03 22	704	0.4− 0.3+
1993 01 28	809	0.1+ 0.2−	1998 03 04	704	1.2− 0.4+	1998 04 01	704	0.3+ 0.9−
1993 02 17	809	0.2+ 1.0−	1998 03 04	704	(2.8− 0.7+)	1998 04 01	704	0.4+ 0.9−
1993 02 17	809	0.7+ 0.6−	1998 03 20	704	0.6+ 0.1−	1998 04 01	704	0.4− 1.3−
1993 02 17	809	1.3− 0.7+	1998 03 20	704	0.3+ 0.5+	1998 04 01	704	0.4+ 0.6−
1998 03 03	704	0.5− 1.0+	1998 03 20	704	1.2+ 0.3−	1998 04 01	704	0.3− 0.4−

1993 FO = 1979 TE₂ = 1997 BX₄

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Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18564148	<i>ω</i>	128.12729	+0.77711787	+0.62933852		
<i>a</i>	3.0433556	<i>Ω</i>	192.87351	−0.58364506	+0.71794249		
<i>e</i>	0.1707942	<i>i</i>	1.17426	−0.23547031	+0.29747539		
<i>P</i>	5.31	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1979 10 14	095	0.6+ 1.7−	1997 01 31	557	0.2+ 0.5+	1998 03 20	704	0.2+ 1.0−
1993 03 19	809	0.1+ 1.3+	1997 01 31	557	0.2+ 0.3+	1998 03 20	704	0.1+ 1.0+
1993 03 20	809	2.7+ 1.3+	1997 02 01	557	0.3+ 0.2−	1998 03 20	704	0.4+ 0.3−
1993 03 23	474	2.3− 0.7−	1997 02 01	557	0.1− 0.1−	1998 03 20	704	0.0 0.3+
1993 03 23	474	2.3− 0.9−	1997 02 01	557	0.2− 0.1−	1998 03 22	704	0.9− 0.4+
1993 03 24	809	0.3+ 0.7+	1997 02 07	557	0.0 0.1−	1998 03 22	704	1.3− 0.5−
1993 03 25	474	1.2+ 1.9−	1997 02 07	557	0.1− 0.1+	1998 03 22	704	0.9+ 1.0+
1993 03 25	474	0.4− 1.4−	1997 02 07	557	0.1+ 0.1+	1998 03 22	704	0.3+ 1.4−
1997 01 31	557	0.2− 0.3+	1998 03 20	704	0.0 0.1+	1998 03 22	704	(4.4− 3.2−)

1993 FX₂ = 1998 FA₆₇

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20007715	<i>ω</i>	241.13766	+0.99717539	+0.05578903		
<i>a</i>	2.8951499	<i>Ω</i>	115.62533	−0.03291839	+0.92642908		
<i>e</i>	0.0983362	<i>i</i>	3.19723	−0.06751017	+0.37231269		
<i>P</i>	4.93	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1993 03 19	809	0.8+ 0.4+	1993 03 24	691	0.5− 0.3−	1998 03 20	704	0.7− 0.7−
1993 03 23	809	1.3+ 0.1−	1993 03 24	691	0.0 0.5−	1998 03 22	704	0.1− 0.0
1993 03 23	691	0.6− 0.0	1993 04 16	413	0.2− 0.3−	1998 03 22	704	0.6− 0.6+
1993 03 23	691	0.5− 0.3+	1998 03 20	704	0.1+ 0.6−	1998 03 22	704	1.0− 0.3−
1993 03 23	691	0.2− 0.0	1998 03 20	704	0.9+ 1.1+	1998 03 22	704	1.5+ 0.3+
1993 03 24	691	0.3− 0.1−	1998 03 20	704	0.1+ 0.2+	1998 03 22	704	(6.1− 0.2−)

1993 FG₅ = 1998 FC₄₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19600014	<i>ω</i>	101.16313	−0.95635862	−0.28893386		
<i>a</i>	2.9351601	<i>Ω</i>	62.05517	+0.24515572	−0.87451166		
<i>e</i>	0.0599703	<i>i</i>	2.82484	+0.15898700	−0.38954664		
<i>P</i>	5.03	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1993 03 17	809	0.3− 0.4+	1998 03 08	327	0.2+ 0.4−	1998 03 22	704	0.0 0.0
1993 03 18	809	0.3+ 0.6−	1998 03 20	704	0.1+ 1.1+	1998 03 22	704	0.2+ 0.9−
1993 03 23	809	0.3+ 0.1+	1998 03 20	704	0.8+ 0.2+	1998 03 22	704	1.5− 2.1+
1993 04 16	413	0.4− 0.1−	1998 03 20	704	0.0 0.5−	1998 03 22	704	0.5+ 0.1+
1998 03 08	327	0.3− 1.0−	1998 03 20	704	1.6+ 0.8−	1998 03 22	704	1.3− 0.2+
1998 03 08	327	0.2+ 0.7+	1998 03 20	704	0.3− 0.6−			

1993 FP₁₁ = 1998 FO₅₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19587370	<i>ω</i>	14.35671	−0.04513983	−0.99745994		
<i>a</i>	2.9364231	<i>Ω</i>	78.25256	+0.91090649	−0.06374228		
<i>e</i>	0.0300116	<i>i</i>	3.22626	+0.41013627	+0.03178963		
<i>P</i>	5.03	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1993 03 17	809	0.6− 0.1−	1993 04 16	413	0.5− 1.1+	1998 03 22	704	0.7+ 0.5−
1993 03 18	809	0.2+ 0.1+	1998 03 20	704	0.4+ 0.5+	1998 03 22	704	0.6− 0.1−
1993 03 23	809	0.5+ 0.5−	1998 03 20	704	1.3+ 0.8−	1998 03 22	704	0.8+ 0.6+
1993 03 23	691	0.1+ 0.3−	1998 03 20	704	0.8+ 0.4+	1998 03 22	704	2.5− 0.7−
1993 03 23	691	0.1− 0.8−	1998 03 20	704	0.4+ 0.3−	1998 03 22	704	1.8− 2.4+
1993 03 23	691	0.1− 0.7−	1998 03 20	704	1.2+ 0.1−			

1993 FW₁₆ = 1998 FG₅₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	214.95862		(2000.0)		P		Q	
<i>n</i>	0.19432183	ω	246.39658	+0.73715125			+0.67399164	
<i>a</i>	2.9520360	Ω	71.18905	-0.59983542			+0.68566433	
<i>e</i>	0.0993771	<i>i</i>	2.93133	-0.31113582			+0.27495398	
<i>P</i>	5.07	<i>H</i>	14.0	<i>G</i>	0.15		<i>U</i>	8

Residuals in seconds of arc

1993 03 19	809	0.6-	0.8+	1993 03 24	691	0.1-	0.3-	1998 03 22	704	0.6+	1.3+
1993 03 20	809	0.1-	0.0	1998 03 20	704	1.0+	0.9-	1998 03 22	704	1.0-	1.5-
1993 03 23	809	0.9+	0.5-	1998 03 20	704	0.9+	1.2-	1998 03 22	704	0.1+	0.4-
1993 03 24	691	0.1-	0.0	1998 03 20	704	0.8-	0.7+	1998 03 22	704	0.4-	1.0+
1993 03 24	691	0.1-	0.0	1998 03 20	704	0.5-	0.2+	1998 03 22	704	0.0	0.9+

1993 FF₁₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	255.07668		(2000.0)		P		Q	
<i>n</i>	0.18344501	ω	153.23666	-0.03918431			+0.99492013	
<i>a</i>	3.0676003	Ω	114.39545	-0.93404981			-0.00350225	
<i>e</i>	0.1400153	<i>i</i>	5.84393	-0.35498669			-0.10060655	
<i>P</i>	5.37	<i>H</i>	12.5	<i>G</i>	0.15		<i>U</i>	5

Residuals in seconds of arc

1993 03 17	809	0.9+	0.5+	1998 03 04	704	1.8-	0.9+	1998 03 26	566	0.4+	0.5-
1993 03 18	809	0.2+	0.3+	1998 03 04	704	0.0	0.7-	1998 03 26	566	0.5+	0.3+
1993 03 23	809	0.6+	0.0	1998 03 04	704	0.1-	0.3-	1998 03 29	633	0.3+	0.9+
1993 04 16	413	1.7-	0.8-	1998 03 04	704	0.4-	0.7-	1998 03 29	633	0.5+	0.7+
1998 03 04	704	0.9+	0.4-	1998 03 26	566	0.8+	0.3-	1998 03 29	633	1.1-	0.2+

1993 FX₂₀ = 1998 FN₆₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	205.60978		(2000.0)		P		Q	
<i>n</i>	0.19733974	ω	155.14660	+0.90318219			+0.42925729	
<i>a</i>	2.9218619	Ω	179.43265	-0.39912795			+0.84006692	
<i>e</i>	0.0841125	<i>i</i>	1.88388	-0.15798357			+0.33170130	
<i>P</i>	4.99	<i>H</i>	13.5	<i>G</i>	0.15		<i>U</i>	7

Residuals in seconds of arc

1993 03 21	809	0.3-	1.8+	1998 03 20	704	0.4+	1.7-	1998 03 22	704	2.3+	0.3+
1993 03 22	809	0.8+	0.6+	1998 03 20	704	0.5+	0.7+	1998 03 22	704	1.9-	0.8-
1993 03 26	809	0.6-	0.6-	1998 03 20	704	0.6-	0.1-	1998 03 22	704	1.0+	1.6-
1993 03 27	809	0.6+	0.4-	1998 03 20	704	1.5-	0.9-	1998 03 22	704	0.3+	1.1+
1993 04 18	413	0.1+	0.2+	1998 03 22	704	1.1-	1.5+				

1993 FT₂₃ = 1042 T-1 = 1978 RU₃Id. G. V. Williams (*MPC* 23525, unpublished)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	219.38306		(2000.0)		P		Q	
<i>n</i>	0.18019165	ω	15.80232	+0.57160097			+0.82036976	
<i>a</i>	3.1044138	Ω	289.06229	-0.75467922			+0.51782410	
<i>e</i>	0.1620589	<i>i</i>	0.98832	-0.32207391			+0.24259360	
<i>P</i>	5.47	<i>H</i>	13.0	<i>G</i>	0.15		<i>U</i>	2

Residuals in seconds of arc

1971 03 24	675	0.2+	2.8-	1993 04 16	413	0.1+	0.6+	1998 03 20	704	1.0+	0.2-
1971 03 25	675	0.2+	0.3-	1998 03 03	704	0.2-	0.1+	1998 03 20	704	2.3+	0.7-
1971 03 25	675	0.6-	0.4-	1998 03 03	704	1.4+	0.2+	1998 03 20	704	1.8+	0.9-
1971 03 26	675	0.1+	1.2-	1998 03 03	704	0.4-	0.1+	1998 03 20	704	1.6+	0.3-
1971 03 27	675	0.8-	0.9+	1998 03 03	704	0.1-	1.8+	1998 03 22	704	0.4+	0.0
1971 03 27	675	1.5-	1.7-	1998 03 03	704	0.1+	0.2+	1998 03 22	704	0.5-	0.4+
1978 09 03	095	0.3-	0.7+	1998 03 04	704	1.5-	0.4-	1998 03 22	704	0.8+	1.6+
1993 03 21	809	0.0	0.6+	1998 03 04	704	1.4-	1.0+	1998 03 22	704	1.7+	0.7+
1993 03 22	809	0.6+	0.5+	1998 03 04	704	1.9-	0.2+	1998 03 24	566	0.8-	0.3+

1993 03 26	809	0.4+	0.1+	1998 03 04	704	2.8-	0.8-	1998 03 24	566	0.3+	0.6+
1993 03 27	809	0.1+	0.9+	1998 03 20	704	0.4-	0.7-	1998 03 24	566	0.2+	1.0+

1993 FW₂₆ = 1998 FK₄₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	190.79371		(2000.0)		P		Q	
<i>n</i>	0.19040156	ω	339.12657	+0.91271532			+0.40848447	
<i>a</i>	2.9924188	Ω	356.71673	-0.34726453			+0.76318665	
<i>e</i>	0.0893085	<i>i</i>	9.59805	-0.21530931			+0.50068610	
<i>P</i>	5.18	<i>H</i>	13.0	<i>G</i>	0.15		<i>U</i>	5

Residuals in seconds of arc

1993 03 21	809	0.5+	0.3-	1998 03 20	704	0.2-	0.2-	1998 04 01	704	0.0	0.6+
1993 03 22	809	0.5+	0.2-	1998 03 20	704	0.4-	0.1-	1998 04 01	704	0.6+	0.1-
1993 03 26	809	0.9-	0.2+	1998 03 22	704	0.2+	0.3+	1998 04 01	704	0.4+	0.8-
1993 04 18	413	0.1-	0.3+	1998 03 22	704	1.1+	0.1+	1998 04 01	704	0.8-	0.2+
1998 03 20	704	0.1+	0.5+	1998 03 22	704	0.8-	0.2-	1998 04 01	704	0.3-	0.3-
1998 03 20	704	0.1-	0.1+	1998 03 22	704	0.0	0.2-				
1998 03 20	704	0.3-	0.2-	1998 03 22	704	0.3+	0.2+				

1993 FX₂₆ = 1994 NW₁₀ = 1998 FU₃₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	340.97165		(2000.0)		P		Q	
<i>n</i>	0.19023633	ω	240.34219	-0.99790367			-0.04791897	
<i>a</i>	2.9941513	Ω	296.88108	+0.06173260			-0.90656194	
<i>e</i>	0.0717293	<i>i</i>	2.79525	-0.01942537			-0.41934380	
<i>P</i>	5.18	<i>H</i>	14.0	<i>G</i>	0.15		<i>U</i>	5

Residuals in seconds of arc

1993 03 21	809	0.5-	0.2+	1994 07 09	809	1.0+	0.4-	1998 03 22	704	(1.7-	2.4-)
1993 03 22	809	0.6+	0.1+	1994 07 09	809	0.8-	0.3+	1998 03 22	704	0.2-	0.9+
1993 03 26	809	0.3+	0.4-	1998 03 20	704	0.7+	1.8-	1998 03 22	704	0.3+	0.0
1993 04 18	413	0.4-	0.3+	1998 03 20	704	0.7-	1.8+	1998 04 01	704	0.3-	0.9-
1994 07 08	809(15.2-	2.3-)		1998 03 20	704	1.8-	0.1+	1998 04 01	704	1.3-	1.1+
1994 07 08	809(12.4-	1.7-)		1998 03 20	704	(3.0-	1.4+)	1998 04 01	704	(3.2-	0.8+)
1994 07 08	809(13.9-	0.4+)		1998 03 22	704	0.7+	0.7-	1998 04 01	704	1.2+	0.2+
1994 07 09	809	0.2-	0.0	1998 03 22	704	1.4+	0.5-	1998 04 01	704	0.0	0.3-

1993 FS₃₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	162.17308		(2000.0)		P		Q	
<i>n</i>	0.17406484	ω	286.87412	+0.95030399			+0.30973714	
<i>a</i>	3.1768400	Ω	55.09300	-0.26908083			+0.86788349	
<i>e</i>	0.1768615	<i>i</i>	2.19351	-0.15658171			+0.38838274	
<i>P</i>	5.66	<i>H</i>	13.0	<i>G</i>	0.15		<i>U</i>	2

Residuals in seconds of arc

1992 02 05	691	0.3-	0.1-	1996 12 08	411	0.8+	0.2-	1998 03 03	704	1.5-	0.9+
1992 02 05	691	0.4-	0.1-	1996 12 08	411	0.4+	0.5+	1998 03 04	704	1.7-	0.8+
1992 02 05	691	0.6+	0.1-	1998 03 01	691	0.3-	0.1-	1998 03 04	704	0.7-	0.5+
1993 03 19	809	0.5+	0.9-	1998 03 01	691	0.3-	0.3-	1998 03 04	704	0.7-	0.1-
1993 03 20	809	0.7+	0.4+	1998 03 01	691	0.7-	0.5-	1998 03 04	704	(2.6-	0.3-)
1993 03 24	809	0.8-	1.2+	1998 03 03	704	0.9+	1.8-	1998 03 21	691	0.2+	0.5-
1993 04 21	413	(4.1+	2.2+)	1998 03 03	704	1.8+	0.7+	1998 03 21	691	0.4+	0.4-
1996 12 07	411	1.1-	0.1+	1998 03 03	704	1.3+	1.7+	1998 03 21	691	0.2+	0.5-
1996 12 07	411	0.0	0.3+	1998 03 03	704	1.0+	1.0-				

1993 FF₄₀ = 1998 FR₃₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	184.95589		(2000.0)		P		Q	
<i>n</i>	0.19025351	ω	158.39729	+0.90843867			+0.41789268	
<i>a</i>	2.9939711	Ω	176.84472	-0.40558840			+0.88709181	
<i>e</i>	0.0476696	<i>i</i>	10.72329	-0.10117921			+0.19604548	
<i>P</i>	5.18	<i>H</i>	13.0	<i>G</i>	0.15		<i>U</i>	6

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Residuals in seconds of arc

1993 03 19	809	0.7+	0.0	1998 03 20	704	0.4+	0.2+	1998 03 22	704	0.6+	2.2+
1993 03 20	809	0.0	0.1+	1998 03 20	704	0.2+	0.3-	1998 03 22	704	0.5+	0.0
1993 03 24	809	0.4+	0.4+	1998 03 20	704	0.3-	2.2-	1998 03 22	704	0.3+	0.5+
1993 04 16	413	1.1-	0.4-	1998 03 20	704	0.1-	0.3-	1998 03 22	704	1.0-	1.9+
1998 03 20	704	1.2-	2.2-	1998 03 22	704	0.6+	0.2+				

1993 FR₄₁ = 1998 FR₃₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	254.22918		(2000.0)	P	Q
<i>n</i>	0.18927205	ω	107.02032	+0.15735704	+0.98753831
<i>a</i>	3.0043122	Ω	172.03184	-0.91308369	+0.14650208
<i>e</i>	0.1595171	<i>i</i>	1.08214	-0.37618736	+0.05749114
<i>P</i>	5.21	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 7

Residuals in seconds of arc

1993 03 19	809	0.3-	0.1-	1998 03 20	704	0.3-	0.2+	1998 03 22	704	0.0	0.4-
1993 03 20	809	0.2+	0.2+	1998 03 20	704	0.1-	0.7-	1998 03 22	704	0.5+	0.5+
1993 03 24	809	0.1+	0.1-	1998 03 20	704	0.7+	0.1-	1998 03 22	704	0.4-	0.9-
1998 03 20	704	0.1+	0.8+	1998 03 22	704	0.4-	0.6+				

1993 FZ₄₄ = 1998 FR₆₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	30.98583		(2000.0)	P	Q
<i>n</i>	0.20029981	ω	334.94583	-0.65234664	-0.75777446
<i>a</i>	2.8930040	Ω	155.76428	+0.70134639	-0.61098435
<i>e</i>	0.1079426	<i>i</i>	2.07888	+0.28732754	-0.22907639
<i>P</i>	4.92	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1993 03 19	809	0.1-	0.2-	1998 03 20	704	0.2+	0.2-	1998 03 22	704	0.2+	1.7+
1993 03 20	809	0.0	0.6+	1998 03 20	704	0.6-	0.5+	1998 03 22	704	0.0	1.8-
1993 03 24	809	0.7+	0.7-	1998 03 20	704	0.2-	0.4-	1998 03 22	704	1.1-	0.5+
1993 04 16	413	0.4-	1.0+	1998 03 20	704	0.6+	1.6-				
1998 03 20	704	0.3-	0.2-	1998 03 22	704	0.9+	0.7+				

1993 FJ₄₈ = 1998 FW₄₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	302.21667		(2000.0)	P	Q
<i>n</i>	0.19683165	ω	32.13667	-0.70985535	+0.70432752
<i>a</i>	2.9268880	Ω	192.64296	-0.65124503	-0.65918723
<i>e</i>	0.0331396	<i>i</i>	1.38845	-0.26830075	-0.26342918
<i>P</i>	5.01	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1993 03 19	809	0.4-	1.2+	1998 03 20	704	0.1+	0.8+	1998 03 22	704	1.7+	0.9-
1993 03 20	809	0.1-	1.1+	1998 03 20	704	0.7+	0.6+	1998 03 22	704	3.5-	0.5+
1993 03 24	809	1.5+	0.3+	1998 03 20	704	0.7+	0.2+	1998 04 01	704	1.6+	1.0+
1993 04 17	413	0.4+	0.6+	1998 03 22	704	0.2-	1.4-	1998 04 01	704	1.8-	0.8-
1998 03 20	704	0.7+	0.4+	1998 03 22	704	0.0	0.4-	1998 04 01	704	0.9-	1.2-
1998 03 20	704	0.6-	0.6-	1998 03 22	704	0.5+	1.1-	1998 04 01	704	0.3-	0.2-

1993 FO₄₈ = 1995 SJ₅₃Id. G. V. Williams (*MPC* 25961)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	265.82042		(2000.0)	P	Q
<i>n</i>	0.20043991	ω	2.43334	+0.13704952	+0.99055815
<i>a</i>	2.8916557	Ω	275.44383	-0.90888362	+0.12435779
<i>e</i>	0.1095965	<i>i</i>	0.19930	-0.39388831	+0.05770355
<i>P</i>	4.92	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1993 03 19	809	0.0	0.5-	1995 09 29	327	0.1-	0.3+	1998 03 20	704	0.3+	0.3+
1993 03 20	809	0.0	0.4+	1995 09 29	327	0.3+	0.3-	1998 03 20	704	1.1+	0.1+

1993 03 24	809	0.4+	0.5-	1995 09 29	327	0.1-	0.4+	1998 03 20	704	(7.1-	0.8-)
1993 04 17	413	0.3-	0.7+	1997 01 12	566	0.2+	0.2-	1998 04 01	704	0.2-	0.7-
1995 09 28	327	0.1+	0.2-	1997 01 12	566	0.1+	0.2-	1998 04 01	704	1.0-	0.8+
1995 09 28	327	0.0	0.4+	1997 01 12	566	0.3-	0.0	1998 04 01	704	0.2-	0.1-
1995 09 28	327	0.1-	0.1-	1998 03 20	704	0.4-	0.2+	1998 04 01	704	0.2-	0.7-
1995 09 28	327	0.3-	0.2+	1998 03 20	704	0.9+	0.7+	1998 04 01	704	0.2+	0.1-

1993 FF₄₉ = 1996 YG₂ = 1998 FE₅₀

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	52.11280		(2000.0)	P	Q
<i>n</i>	0.19555620	ω	78.32631	+0.09941749	-0.99497273
<i>a</i>	2.9396006	Ω	6.00737	+0.86215834	+0.08008311
<i>e</i>	0.2402948	<i>i</i>	6.61697	+0.49678885	+0.06013293
<i>P</i>	5.04	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1993 03 19	809	0.7+	0.7+	1996 12 24	327	0.6-	0.1+	1998 03 22	704	0.5+	1.0-
1993 03 20	809	1.2+	0.5+	1997 01 09	327	0.4-	0.1+	1998 03 22	704	0.4+	0.1-
1993 03 24	809	0.5+	0.7+	1997 01 09	327	0.3-	0.2+	1998 03 22	704	0.0	1.1-
1993 04 17	413	0.8-	0.9+	1997 01 09	327	0.2-	0.1+	1998 03 22	704	0.8+	1.8-
1996 12 23	327	0.4+	0.4-	1998 03 20	704	0.0	1.0-	1998 04 01	704	0.6-	1.1+
1996 12 23	327	0.4+	0.4+	1998 03 20	704	0.3-	0.7-	1998 04 01	704	0.3-	0.8+
1996 12 23	327	0.2+	0.0	1998 03 20	704	0.7+	0.4-	1998 04 01	704	0.8-	0.8+
1996 12 24	327	0.0	0.1-	1998 03 20	704	0.6-	0.6-	1998 04 01	704	0.5-	1.1+
1996 12 24	327	0.2+	0.1-	1998 03 20	704	0.8-	0.1+	1998 04 01	704	0.2-	0.4+

1993 OK₉ = 1993 ON₁₃ = 1989 TZ₂Id. G. V. Williams (d, *MPC* 22935), A. Gnädig

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Gnädig

<i>M</i>	351.79522		(2000.0)	P	Q
<i>n</i>	0.20104475	ω	137.27376	-0.05995377	+0.99738991
<i>a</i>	2.8858531	Ω	129.24834	-0.92928290	-0.04105145
<i>e</i>	0.0193832	<i>i</i>	2.97823	-0.36447063	-0.05939815
<i>P</i>	4.90	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1989 09 29	675	0.3-	0.8+	1989 10 08	809	0.1-	0.6-	1993 07 20	809	1.1-	0.5-
1989 09 29	675	0.1-	0.5+	1989 10 08	809	0.3-	1.0-	1993 07 20	809	1.7-	0.8-
1989 10 07	809	0.6+	0.3+	1993 07 13	809	1.3+	0.2+	1993 07 24	809	3.6-	1.3+
1989 10 07	809	0.6+	0.4-	1993 07 13	809	0.7+	0.5+	1993 07 26	809	2.9+	0.6-
1989 10 07	809	0.7-	0.5+	1993 07 13	809	0.4+	0.1+	1993 07 26	809	1.7+	0.5-
1989 10 08	809	0.4+	0.2-	1993 07 20	809	1.3-	1.4-	1993 07 26	809	0.7+	1.7+

1993 TU₁₅ = 1993 UF₉ = 1996 GL₁₇

Id. A. Doppler, G. V. Williams (d)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	216.30300		(2000.0)	P	Q
<i>n</i>	0.18052283	ω	254.93550	-0.05296235	-0.99857064
<i>a</i>	3.1006158	Ω	198.10505	+0.92485012	-0.04633487
<i>e</i>	0.1292260	<i>i</i>	1.32545	+0.37662613	-0.02664136
<i>P</i>	5.46	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1993 10 09	809	0.9+	0.2-	1993 10 11	809	1.6+	0.9+	1993 10 22	809	(3.9-	2.0+)
1993 10 09	809	2.0+	0.9+	1993 10 11	809	0.0	0.9-	1996 04 15	809	0.4-	2.4+
1993 10 09	809	0.1-	0.6+	1993 10 20	809	1.1-	0.5-	1996 04 15	809	1.6-	1.7+
1993 10 10	809	0.0	0.6-	1993 10 20	809	0.2-	0.2-	1996 04 15	809	0.0	0.1-
1993 10 10	809	1.1-	0.5-	1993 10 20	809	0.6-	0.1+	1996 04 17	809	0.3+	1.2-
1993 10 10	809	2.0-	1.8-	1993 10 22	809	0.3+	1.3+	1996 04 17	809	1.1+	0.8-
1993 10 11	809	0.5+	0.0	1993 10 22	809	0.3-	1.3+	1996 04 17	809	0.8+	1.4-

1993 TS₁₆ = 1933 XJ = 1991 HL₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	186.23405		(2000.0)		P		Q				
<i>n</i>	0.21313467	ω	359.93109		-0.96333816		-0.26786628				
<i>a</i>	2.7756624	Ω	164.50626		+0.24617838		-0.90488341				
<i>e</i>	0.0944360	<i>i</i>	3.23503		+0.10665741		-0.33080761				
<i>P</i>	4.62	<i>H</i>	14.0		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1933 12 08	012	0.5-	0.1+	1993 10 09	809	1.5+	2.2+	1993 10 20	809	0.5+	0.2+
1991 04 19	809	0.4-	0.9+	1993 10 09	809	0.1-	1.5+	1993 10 20	809	0.3+	0.3-
1991 04 19	809	0.3+	0.2+	1993 10 11	809	0.2-	0.9-	1993 10 20	809	0.8+	0.0
1991 04 19	809	0.1-	1.0-	1993 10 11	809	1.4-	2.1-				
1993 10 09	809	0.2+	1.6+	1993 10 11	809	1.6-	2.3-				

1993 TW₁₆ = 1997 LX₁₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M	2.49248		(2000.0)		P		Q				
n	0.19068079	ω	142.71755		+0.33713617		+0.94105496				
a	2.9894968	Ω	146.95941		-0.87545579		+0.32410154				
e	0.1552662	i	2.88822		-0.34628943		+0.09681813				
P	5.17	H	13.5	G	0.15	U	5				
Residuals in seconds of arc											
1993 10 09	809	0.4+	0.1-	1993 10 11	809	1.1-	0.0	1997 06 08	809	0.1+	1.0+
1993 10 09	809	0.5-	0.3-	1993 10 20	809	0.6+	0.0	1997 06 08	809	0.2-	0.1+
1993 10 09	809	0.2-	0.3-	1993 10 20	809	0.2-	0.6+	1997 06 09	809	0.6+	1.0-
1993 10 11	809	1.1+	0.3+	1993 10 20	809	0.3-	1.1-	1997 06 09	809	0.1-	0.6-
1993 10 11	809	0.2+	1.0+	1997 06 08	809	0.3+	0.9+	1997 06 09	809	0.7-	0.4-

1993 TL₁₇ = 1991 EX₇ = 1997 RM₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	180.92281		(2000.0)		P		Q				
<i>n</i>	0.22069358	ω	357.57653		-0.99971269		+0.02137916				
<i>a</i>	2.7119161	Ω	183.70097		-0.01818049		-0.97099698				
<i>e</i>	0.1690057	<i>i</i>	9.66615		-0.01562069		-0.23813399				
<i>P</i>	4.47	<i>H</i>	13.5		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1991 03 15	809	0.4-	0.2+	1993 10 11	809	0.3-	0.9-	1997 09 08	910	0.3+	0.0
1991 03 15	809	0.0	0.2-	1993 10 11	809	0.5-	0.7-	1997 09 08	910	0.0	0.0
1991 03 15	809	0.3+	0.4-	1993 10 11	809	2.0-	1.5-	1997 09 08	910	0.1+	0.1-
1993 10 09	809	0.7+	1.0+	1993 10 20	809	1.4+	0.2+	1997 09 08	910	0.0	0.2-
1993 10 09	809	0.4+	1.6+	1993 10 20	809	0.6+	0.4-	1997 09 08	910	0.0	0.1-
1993 10 09	809	0.6-	1.4+	1993 10 20	809	0.4+	0.7-	1997 09 08	910	0.1-	0.0

1993 TB₂₃ = 1997 LQ₁₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M	31.03872		(2000.0)		P		Q				
n	0.17431450	ω	82.57476		-0.40242331		+0.91534418				
a	3.1738060	Ω	163.67333		-0.85852999		-0.37198580				
e	0.1205425	i	2.88733		-0.31777624		-0.15418041				
P	5.65	H	12.5	G	0.15	U	6				
Residuals in seconds of arc											
1993 10 09	809	1.6+	0.0	1993 10 11	809	1.3-	0.3-	1997 06 08	809	0.2+	0.2+
1993 10 09	809	0.6+	0.3+	1993 10 20	809	0.5+	0.4+	1997 06 08	809	0.5+	0.3-
1993 10 09	809	0.4+	0.0	1993 10 20	809	0.5+	0.1-	1997 06 09	809	0.2+	0.7+
1993 10 11	809	1.3-	0.2-	1993 10 20	809	0.3-	0.1-	1997 06 09	809	0.7-	0.2+
1993 10 11	809	0.7-	0.0	1997 06 08	809	0.3+	0.3+	1997 06 09	809	0.5-	1.1-

1993 TU₂₄ = 1983 DM = 1997 UC₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M	151.11414		(2000.0)		P		Q				
n	0.24192873	ω	183.44266		-0.57166980		+0.81482621				
a	2.5508079	Ω	51.71539		-0.74982185		-0.47123904				
e	0.0564884	i	7.03870		-0.33310784		-0.33762702				
P	4.07	H	13.5		G	0.15	U	5			
Residuals in seconds of arc											
1983 02 19	688	0.8+	0.1+	1993 10 11	809	0.3+	0.6+	1997 10 21	327	0.3-	0.7+
1983 02 19	688	0.7-	0.2+	1993 10 11	809	0.6-	0.8+	1997 10 21	327	0.4-	0.8+
1993 10 09	809	1.8+	0.5-	1993 10 20	809	0.5+	0.8-	1997 10 23	327	0.2-	0.4+
1993 10 09	809	0.3-	1.0-	1993 10 20	809	0.7-	1.5-	1997 10 23	327	0.5-	0.6+
1993 10 09	809	1.1+	0.6-	1993 10 20	809	0.7-	0.8-	1997 10 23	327	0.3-	0.5+
1993 10 11	809	0.1+	0.6+	1997 10 21	327	0.3-	0.4+				

1993 TX₂₆ = 1980 FC₃ = 1997 NP₄

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Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	317.14926		(2000.0)		P		Q			
<i>n</i>	0.18506395	<i>ω</i>	156.69351		+0.94490142		+0.32710490			
<i>a</i>	3.0496840	<i>Ω</i>	184.27492		−0.32082102		+0.91756399			
<i>e</i>	0.1017180	<i>i</i>	9.88288		−0.06507823		+0.22600599			
<i>P</i>	5.33	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	3			
Residuals in seconds of arc										
1980 03 16	809	0.3−	1.1+	1993 10 09	809	0.9−	1993 10 20	809	0.6−	0.1+
1980 03 16	809	0.1+	0.4+	1993 10 09	809	0.2−	1997 07 08	910	0.0	0.1−
1980 03 16	809	0.1−	1.2−	1993 10 09	809	0.7−	1997 07 08	910	0.1−	0.2−
1980 03 16	809	0.8+	0.1+	1993 10 11	809	0.7+	1997 07 08	910	0.1−	0.0
1980 03 17	809	0.1−	0.1+	1993 10 11	809	0.1−	1997 07 09	910	0.1+	0.0
1980 03 17	809	0.4−	0.1+	1993 10 11	809	0.1−	1997 07 09	910	0.2+	0.0
1980 03 17	809	0.1−	0.3+	1993 10 20	809	1.3+	1997 07 09	910	0.2−	0.3+
1980 03 17	809	0.0	0.9−	1993 10 20	809	0.6+	0.4−			

1993 TY₂₆ = 1997 UA₁₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M	87.94580		(2000.0)		P		Q				
n	0.25912577	ω	228.20803		+0.58031198		+0.81163187				
a	2.4366640	Ω	77.38541		-0.72534591		+0.55252310				
e	0.2234012	i	3.93806		-0.37028546		+0.18966268				
P	3.80	H	15.0	G	0.15	U	5				
Residuals in seconds of arc											
1993 10 09	809	0.7+	0.2-	1993 10 11	809	0.3+	1.2+	1997 10 28	691	0.1-	0.1-
1993 10 09	809	1.0-	1.1-	1993 10 20	809	0.2+	0.3+	1997 10 28	691	0.0	0.5-
1993 10 09	809	1.4-	1.4-	1993 10 20	809	0.1+	0.2+	1997 11 02	691	0.1+	0.2+
1993 10 11	809	0.5+	0.8+	1993 10 20	809	1.4-	0.7-	1997 11 02	691	0.1+	0.5+
1993 10 11	809	2.0+	1.1+	1997 10 28	691	0.1-	0.5-	1997 11 02	691	0.0	0.2+

1993 TV₃₄ = 1998 FV₇

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M	45.45113		(2000.0)		P		Q				
n	0.30302135	ω	358.31616		+0.09855275		-0.99498689				
a	2.1952664	Ω	86.02776		+0.91321447		+0.08364608				
e	0.0698722	i	0.97547		+0.39538169		+0.05481256				
P	3.25	H	15.0	G	0.15	U	5				
Residuals in seconds of arc											
1993 10 09	809	1.0+	0.8-	1998 03 03	704	0.3+	1.0+	1998 03 20	691	0.4-	0.2-
1993 10 09	809	0.6+	0.5+	1998 03 03	704	0.4-	0.0	1998 03 20	691	0.4-	0.3-
1993 10 09	809	0.5+	0.6+	1998 03 03	704	0.7+	0.8+	1998 03 22	704	0.9+	0.4-
1993 10 12	809	0.3+	0.1-	1998 03 03	704	0.3+	0.1+	1998 03 22	704	0.8+	0.3-
1993 10 12	809	0.4-	0.1-	1998 03 20	704	0.0	0.6-	1998 03 22	704	0.4-	0.3+

1998 APR. 11

M.P.C. 31539

1993 10 12	809	0.8−	0.5−	1998 03 20	704	0.8+	0.3−	1998 03 22	704	0.5+	0.2−
1993 10 20	809	0.2+	0.4+	1998 03 20	704	0.5−	0.4−	1998 03 22	704	0.6+	1.0−
1993 10 20	809	0.0	0.2+	1998 03 20	704	0.3−	1.3+	1998 03 25	691	0.6−	0.4−
1993 10 20	809	1.2−	0.7−	1998 03 20	704	0.2−	0.1+	1998 03 25	691	0.8−	0.5−
1998 03 03	704	0.1−	0.9+	1998 03 20	691	0.3−	0.3−	1998 03 25	691	0.7−	0.3−

1993 UB

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden

<i>M</i>	65.39724		(2000.0)	P	Q
<i>n</i>	0.28660293	ω	20.96133	+0.62812435	−0.74636996
<i>a</i>	2.2783248	Ω	31.39887	+0.64024038	+0.33507537
<i>e</i>	0.4591342	<i>i</i>	24.97574	+0.44221268	+0.57502729
<i>P</i>	3.44	<i>H</i>	17.0	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1993 10 23	413	(7.1+ 9.5−)	1993 11 06	413	0.6+	1.0+	1993 11 23	658	0.4+	1.3+
1993 10 23	413	(1.7+ 4.6−)	1993 11 08	786	(2.3− 0.4+)		1993 11 23	658	0.6+	0.5+
1993 10 25	413	1.2+ 0.2−	1993 11 08	786	(2.2− 0.2+)		1993 12 12	801	1.2+	1.1−
1993 10 25	413	1.1+ 0.1−	1993 11 08	786	(2.4− 0.2+)		1993 12 17	801	0.6+	1.2+
1993 10 25	413	1.0+ 0.3−	1993 11 08	658	0.0	0.6−	1994 01 09	104	(3.2− 0.5−)	
1993 10 25	413	1.0− 0.6+	1993 11 08	658	0.2+	0.8−	1994 01 09	104	0.1+	0.5−
1993 10 25	413	0.3− 1.1+	1993 11 09	786	0.4+	0.0	1994 01 09	104	0.1−	0.4+
1993 10 26	413	0.5− 0.3−	1993 11 09	786	0.6+	0.1−	1994 01 09	104	0.4+	0.4+
1993 10 26	413	0.6− 0.4−	1993 11 09	786	0.6+	0.2−	1994 02 05	658	0.0	0.4+
1993 10 26	413	0.4− 0.4−	1993 11 09	675	(0.8− 3.8−)		1994 02 05	658	0.3−	1.1+
1993 10 26	413	0.5− 0.4−	1993 11 09	675	(1.5+ 3.5−)		1994 02 05	658	0.2−	0.5+
1993 10 26	413	0.6− 0.6−	1993 11 10	675	0.5−	2.1−	1994 02 05	658	1.7−	0.3+
1993 10 26	413	1.1− 0.1+	1993 11 10	675	1.2+ 1.4−		1994 02 08	658	0.2−	0.8+
1993 10 27	413	0.9− 0.5+	1993 11 11	801	0.2− 0.4+		1994 02 08	658	0.8−	0.0
1993 10 27	413	0.8− 0.5+	1993 11 11	801	0.1+ 0.2+		1994 02 08	658	0.3−	0.5+
1993 10 27	413	0.6− 0.2+	1993 11 13	801	0.3− 0.0		1994 03 05	658	0.7+	0.3+
1993 10 27	413	0.7− 0.2+	1993 11 13	801	0.1− 0.0		1994 03 05	658	0.3+	0.4−
1993 10 27	413	0.6− 0.3+	1993 11 14	711	0.4− 0.2+		1994 03 05	658	0.6−	0.0
1993 10 27	413	0.7− 0.2+	1993 11 19	670	0.6+	0.0	1994 03 07	658	0.2−	0.0
1993 10 27	587	0.5− 0.1−	1993 11 19	670	0.5+	0.9+	1994 03 07	658	0.4−	0.2−
1993 10 27	587	0.7− 0.6+	1993 11 19	670	0.7+	0.3+	1994 03 07	658	0.2−	0.3−
1993 10 27	587	0.4− 1.4+	1993 11 19	557	0.6+	0.2−	1998 03 08	696	0.1+	0.9+
1993 10 28	108	1.3− 0.8+	1993 11 19	557	0.4+	0.1−	1998 03 08	696	0.2+	0.6+
1993 10 28	108	0.1+ 1.9−	1993 11 19	557	0.5+	0.2−	1998 03 08	696	0.5−	0.3+
1993 10 28	108	0.2+ 0.2−	1993 11 19	557	0.7+	0.0	1998 04 01	693	1.7+	1.1+
1993 10 28	108	0.1− 1.6+	1993 11 20	413	0.8+	0.2−	1998 04 01	693	2.1+	0.8+
1993 10 28	108	2.0+ 0.3−	1993 11 20	413	0.9+	0.3−	1998 04 01	693	1.3+	0.7+
1993 10 28	108	0.8− 0.7−	1993 11 20	413	0.5+	0.4−				
1993 10 28	108	2.1− 1.2+	1993 11 23	658	0.6+	0.5+				

1993 VF₂ = 1998 FX₁₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	101.12308		(2000.0)	P	Q
<i>n</i>	0.30315221	ω	324.91242	+0.77294064	−0.63114558
<i>a</i>	2.1946346	Ω	74.35493	+0.59645628	+0.68790181
<i>e</i>	0.1658781	<i>i</i>	3.86725	+0.21633925	+0.35839413
<i>P</i>	3.25	<i>H</i>	14.5	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1993 11 11	399	1.0− 0.5+	1998 03 24	566	1.0− 0.2−	1998 03 25	566	0.1− 0.5+
1993 11 11	399	0.5+ 0.6−	1998 03 24	566	0.3− 0.0	1998 03 25	566	0.1− 0.6+
1993 11 16	399	0.5+ 0.0	1998 03 24	566	0.5− 0.0	1998 03 25	566	0.1− 0.8+
1993 11 16	399	1.3+ 0.4−	1998 03 25	566	0.6− 0.3+	1998 03 26	566	0.8+ 0.7−
1993 11 22	399	0.4− 1.6+	1998 03 25	566	0.2− 0.4+	1998 03 26	566	0.8+ 0.8−
1993 11 22	399	0.8− 1.1−	1998 03 25	566	0.4+ 0.5+	1998 03 26	566	1.0+ 1.4−

1993 VO₄ = 1997 YB₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	59.84120		(2000.0)	P	Q
<i>n</i>	0.26895102	ω	309.53083	+0.84547854	−0.52425277
<i>a</i>	2.3769529	Ω	82.31107	+0.51599903	+0.75303580
<i>e</i>	0.2237601	<i>i</i>	5.88512	+0.13751744	+0.39761302
<i>P</i>	3.66	<i>H</i>	14.0	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1993 11 09	010	1.1− 0.1−	1993 12 08	372	0.7− 1.6+	1998 01 04	327	0.5+ 0.0
1993 11 09	010	1.5− 0.4+	1997 12 22	327	0.2+ 0.4+	1998 01 04	327	0.2+ 0.3−
1993 11 10	010	0.8+ 0.9−	1997 12 22	327	0.2− 0.1−	1998 01 04	327	0.4+ 0.4−
1993 11 10	010	0.6+ 0.3+	1997 12 22	327	0.3− 0.3+	1998 03 14	327	0.4− 0.7−
1993 11 10	010	0.9+ 0.5+	1997 12 24	327	0.3− 0.3+	1998 03 14	327	0.9− 0.1+
1993 12 06	372	3.4+ 0.8−	1997 12 24	327	0.3+ 0.1+	1998 03 14	327	1.0+ 0.1+
1993 12 06	372	2.5− 1.1−	1997 12 24	327	0.4− 0.2+			

1993 XL = 1998 FK

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden

<i>M</i>	145.07803		(2000.0)	P	Q
<i>n</i>	0.28762647	ω	228.43957	+0.85484111	+0.50425480
<i>a</i>	2.2729165	Ω	100.94099	−0.43122461	+0.82154537
<i>e</i>	0.2172046	<i>i</i>	7.15955	−0.28860354	+0.26606449
<i>P</i>	3.43	<i>H</i>	14.0	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1993 12 08	411	0.6− 0.3+	1993 12 12	411	0.4+ 0.1+	1994 01 01	411	0.7+ 0.0
1993 12 08	411	0.1+ 0.5+	1993 12 15	411	0.3− 0.1−	1994 01 01	411	0.8− 0.9−
1993 12 09	411	0.2− 0.6−	1993 12 15	411	0.7− 0.1+	1994 01 01	411	0.1− 1.0+
1993 12 09	411	0.0 0.4+	1993 12 15	411	0.2− 0.1−	1998 03 19	684	0.1+ 0.2−
1993 12 09	411	0.3− 0.4−	1993 12 17	411	0.2+ 0.1+	1998 03 19	684	0.2+ 0.1+
1993 12 12	411	1.1+ 0.1+	1993 12 17	411	0.0 0.5+	1998 03 20	684	0.2− 0.1+
1993 12 12	411	0.4+ 0.7−	1993 12 17	411	0.2+ 0.4−	1998 03 20	684	0.0 0.1−

1993 YG = 1998 FH₄₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	75.85184		(2000.0)	P	Q
<i>n</i>	0.28055675	ω	138.66461	+0.41987989	−0.90636845
<i>a</i>	2.3109412	Ω	286.46058	+0.81932046	+0.40075822
<i>e</i>	0.1402032	<i>i</i>	2.80153	+0.39040346	+0.13375005
<i>P</i>	3.51	<i>H</i>	15.0	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1993 12 17	411	0.1+ 0.6+	1994 01 19	411	0.3+ 0.3+	1998 03 20	704	(4.3− 0.1−)
1993 12 17	411	0.1− 0.7+	1994 01 19	411	0.1− 1.0−	1998 03 22	704	0.2− 0.2−
1993 12 18	411	0.2− 1.0+	1994 01 19	411	(0.2− 2.6−)	1998 03 22	704	0.1− 0.7−
1993 12 18	411	0.2+ 0.0	1998 03 04	704	(0.1− 2.7−)	1998 03 22	704	1.0− 1.3+
1993 12 18	411	0.9+ 0.3−	1998 03 04	704	(2.3− 2.9−)	1998 03 22	704	0.3+ 1.7+
1993 12 23	411	0.1+ 0.3+	1998 03 04	704	0.4− 1.2+	1998 03 22	704	1.4+ 1.0+
1993 12 23	411	0.2+ 0.0	1998 03 04	704	1.4− 0.9−	1998 04 01	704	(2.5− 2.3−)
1993 12 23	411	0.4+ 0.4−	1998 03 20	704	0.6− 0.8+	1998 04 01	704	0.8+ 0.5−
1994 01 04	411	0.4− 0.9−	1998 03 20	704	0.1+ 0.1+	1998 04 01	704	0.2− 1.0−
1994 01 04	411	0.7− 0.8−	1998 03 20	704	(2.1+ 0.4+)	1998 04 01	704	1.0+ 1.5−
1994 01 04	411	0.5− 0.2+	1998 03 20	704	0.4+ 1.0−	1998 04 01	704	(3.5− 1.0+)

1994 AU = 1998 FQ₃₇

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	50.21023		(2000.0)	P	Q
<i>n</i>	0.26922926	ω	37.37613	+0.25741896	−0.96591146
<i>a</i>	2.3753150	Ω	37.72899	+0.87540162	+0.22110563
<i>e</i>	0.1752690	<i>i</i>	2.56597	+0.40915459	+0.13463786
<i>P</i>	3.66	<i>H</i>	15.0	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1994 01 04	411	1.7−	0.2−	1994 01 14	411	1.4+	1.1+	1998 03 03	704	0.7−	0.1−
1994 01 04	411	0.5−	0.7+	1994 01 14	411	1.0+	0.3−	1998 03 20	704	0.1+	0.5+
1994 01 04	411	0.5−	0.4+	1994 01 14	411	0.6+	0.8+	1998 03 20	704	1.9−	0.4−
1994 01 07	411	1.7+	0.2−	1994 02 01	411	0.2−	0.7+	1998 03 20	704	(2.3−	2.2−)
1994 01 07	411	0.8+	0.7+	1994 02 01	411	0.5−	0.4+	1998 03 20	704	0.7−	0.2+
1994 01 07	411	0.2+	0.1+	1994 02 01	411	(2.8+	2.2+)	1998 03 22	704	0.9+	0.0
1994 01 08	675	0.8−	0.4−	1998 03 03	704	(3.9−	1.3+)	1998 03 22	704	0.7−	0.3+
1994 01 08	675	0.9−	1.0−	1998 03 03	704	0.1−	0.7−	1998 03 22	704	1.6+	0.5+
1994 01 09	675	0.3+	1.1−	1998 03 03	704	1.0+	0.7−	1998 03 22	704	0.6+	0.4+
1994 01 09	675	0.9−	1.3−	1998 03 03	704	0.3−	0.3−	1998 03 22	704	(4.5−	1.0−)

1994 AE₃ = 1998 EU₁₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	318.75337		(2000.0)	P	Q	Williams
<i>n</i>	0.27348662	ω	226.45281	−0.94514816	+0.32606270	
<i>a</i>	2.3505996	Ω	332.56003	−0.28620627	−0.85536622	
<i>e</i>	0.1105654	<i>i</i>	2.41832	−0.15741962	−0.40253167	
<i>P</i>	3.60	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1994 01 15	589	1.3+	0.7−	1994 01 30	589	0.3+	0.0	1998 03 22	704	0.4+	0.2−
1994 01 15	589	1.2−	0.6−	1994 01 30	589	0.3−	0.8−	1998 03 22	704	0.1−	0.5−
1994 01 15	589	0.1+	0.3−	1994 01 30	589	0.1+	0.3+	1998 03 22	704	0.0	0.6−
1994 01 15	589	0.8−	1.3+	1998 03 04	428	0.1+	0.6+	1998 03 22	704	(2.3+	0.1−)
1994 01 15	589	0.2−	0.1−	1998 03 05	428	0.3+	0.7+	1998 03 22	704	0.3−	0.2+
1994 01 18	589	0.2−	0.4+	1998 03 20	704	0.8+	0.1−	1998 04 01	704	0.4+	0.3+
1994 01 18	589	0.2−	0.6+	1998 03 20	704	0.5−	0.5−	1998 04 01	704	1.5−	0.7+
1994 01 18	589	0.1+	0.3+	1998 03 20	704	0.5+	0.6+	1998 04 01	704	1.1+	0.1+
1994 01 20	589	0.2+	0.5−	1998 03 20	704	0.2−	0.8−	1998 04 01	704	0.4−	0.1−
1994 01 20	589	0.8+	0.1−	1998 03 20	704	0.4−	0.3−	1998 04 01	704	(2.4−	0.5−)

1994 AB₈ = 1998 FS₃₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	350.63393		(2000.0)	P	Q	Williams
<i>n</i>	0.26521474	ω	128.03811	−0.93618449	−0.35114530	
<i>a</i>	2.3992248	Ω	31.41375	+0.31213143	−0.85136478	
<i>e</i>	0.1208040	<i>i</i>	1.75766	+0.16165573	−0.38971143	
<i>P</i>	3.72	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i> 6

Residuals in seconds of arc

1994 01 07	691	1.8+	0.7−	1994 01 16	691	0.7+	0.1+	1998 03 22	704	0.1+	0.7+
1994 01 07	691	0.5+	0.1−	1994 01 16	691	0.0	0.0	1998 03 22	704	0.0	0.5+
1994 01 07	691	1.4−	0.7+	1998 03 20	704	0.4+	1.2−	1998 03 22	704	0.6−	0.4−
1994 01 08	691	0.3−	0.0	1998 03 20	704	0.3+	2.0+	1998 03 22	704	0.5+	0.8−
1994 01 08	691	0.5−	0.2+	1998 03 20	704	0.7+	0.2−	1998 03 22	704	(4.9−	0.6−)
1994 01 08	691	0.3−	0.1−	1998 03 20	704	1.8−	0.7−				
1994 01 16	691	0.5−	0.0	1998 03 20	704	0.4+	0.1+				

1994 BF₁ = 1998 DX₃₄

Id. B. G. Marsden

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	79.09810		(2000.0)	P	Q	Williams
<i>n</i>	0.26122337	ω	51.24023	+0.64279462	−0.76603728	
<i>a</i>	2.4236024	Ω	358.75662	+0.68133069	+0.57254817	
<i>e</i>	0.1995304	<i>i</i>	3.69380	+0.35014791	+0.29219082	
<i>P</i>	3.77	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1994 01 23	411	1.3+	0.3−	1994 02 13	411	0.8−	0.6−	1998 02 28	809	1.0−	0.9+
1994 01 23	411	1.2+	0.8+	1994 02 14	411	0.1+	0.4+	1998 03 20	704	0.5+	0.2+
1994 01 24	411	0.1+	1.3+	1994 02 14	411	0.1+	0.7+	1998 03 20	704	0.2−	0.0
1994 01 24	411	0.1+	0.4+	1994 02 14	411	0.4+	0.7+	1998 03 20	704	0.2−	0.2−
1994 01 24	411	0.5+	0.9+	1994 02 16	411	0.3−	0.1+	1998 03 20	704	0.3−	0.3−
1994 02 02	411	0.7−	1.8−	1994 02 16	411	0.6−	0.8−	1998 03 20	704	0.3−	0.3−

1994 02 02	411	0.3+	0.6−	1994 02 16	411	0.4−	0.4−	1998 03 22	704	0.0	0.6−
1994 02 02	411	0.2−	0.9+	1998 02 27	809	(0.4−	2.5+)	1998 03 22	704	0.2+	0.3−
1994 02 11	675	0.2−	1.5−	1998 02 27	809	(2.5−	1.8+)	1998 03 22	704	1.2+	0.1+
1994 02 11	675	0.2+	1.5−	1998 02 27	809	(3.1−	2.0+)	1998 03 22	704	1.2+	0.7−
1994 02 13	411	0.8−	0.2+	1998 02 28	809	0.5+	1.8+	1998 03 22	704	0.7+	1.3−
1994 02 13	411	0.5−	0.3+	1998 02 28	809	1.5−	1.5+				

1994 CL = 1998 FC₁₅

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	280.16404		(2000.0)	P	Q	Williams
<i>n</i>	0.26182736	ω	255.58339	−0.30383572	+0.95266050	
<i>a</i>	2.4198737	Ω	356.66689	−0.78454208	−0.25675625	
<i>e</i>	0.1310100	<i>i</i>	10.94319	−0.54053453	−0.16283180	
<i>P</i>	3.76	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1994 02 03	411	1.2+	1.5−	1994 02 15	675	1.0−	1.4+	1998 03 22	704	0.1−	0.6−
1994 02 03	411	0.7+	0.9−	1994 02 15	675	1.1−	1.2+	1998 03 22	704	1.0+	0.2+
1994 02 05	411	0.3+	0.4−	1994 03 04	411	0.5−	0.4−	1998 03 22	704	0.6−	1.3+
1994 02 05	411	0.2−	0.1+	1994 03 04	411	0.2+	0.7−	1998 03 22	704	0.2−	0.1+
1994 02 05	411	0.5+	0.2+	1994 03 04	411	0.2+	0.2−	1998 03 24	399	0.9−	1.1+
1994 02 10	411	0.2+	0.2−	1998 03 20	704	0.5+	0.2−	1998 03 24	399	1.3−	0.1−
1994 02 10	411	0.2−	0.0	1998 03 20	704	0.3+	0.4−	1998 04 01	704	0.1+	0.3−
1994 02 10	411	0.1+	0.2+	1998 03 20	704	0.7+	0.1+	1998 04 01	704	0.3−	0.3−
1994 02 14	411	0.1+	0.4+	1998 03 20	704	0.2+	0.1−	1998 04 01	704	0.4+	0.0
1994 02 14	411	0.0	0.2−	1998 03 20	704	0.0	0.2−	1998 04 01	704	1.0+	0.1+
1994 02 14	411	0.1−	0.0	1998 03 21	399	0.7−	0.1+	1998 04 01	704	0.3−	0.2−
1994 02 14	896	1.2−	0.1−	1998 03 21	399	0.2−	0.2−				
1994 02 14	896	0.9+	0.5+	1998 03 22	704	0.2+	0.2−				

1994 CQ₁ = 1996 QP₃ = 1998 FV₂₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	58.04985		(2000.0)	P	Q	Williams
<i>n</i>	0.26455129	ω	238.21618	+0.41229645	−0.91101123	
<i>a</i>	2.4032344	Ω	187.44913	+0.85620002	+0.39060014	
<i>e</i>	0.1932325	<i>i</i>	3.70486	+0.31134092	+0.13225004	
<i>P</i>	3.73	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1994 02 07	411	0.5+	0.5+	1996 08 20	010	0.2+	0.2−	1998 03 04	704	(3.6−	1.8+)
1994 02 07	411	0.2−	0.3−	1996 08 20	010	1.0−	0.7−	1998 03 20	704	0.9−	0.4+
1994 02 07	411	0.2−	0.3+	1996 08 20	010	0.0	0.5+	1998 03 20	704	1.5+	0.9+
1994 02 10	411	0.2+	0.3+	1998 03 03	704	1.1+	0.1+	1998 03 20	704	1.0−	0.4+
1994 02 10	411	0.4+	0.0	1998 03 03	704	0.0	1.2−	1998 03 20	704	0.6−	0.2−
1994 02 10	411	0.7+	0.3+	1998 03 03	704	1.8+	0.6−	1998 03 20	704	1.6−	0.3+
1994 02 13	411	0.5−	0.4−	1998 03 03	704	1.2+	0.7−	1998 03 22	704	0.2−	0.1−
1994 02 13	411	0.6−	1.6−	1998 03 03	704	1.0+	0.4−	1998 03 22	704	0.5+	0.0
1994 02 13	411	0.3−	0.7+	1998 03 04	704	1.8−	0.3+	1998 03 22	704	0.5+	0.2−
1996 08 18	010	0.8+	0.2−	1998 03 04	704	(2.4−	1.1+)	1998 03 22	704	0.2+	0.3−
1996 08 18	010	0.2−	0.5−	1998 03 04	704	(2.4−	1.1+)				
1996 08 18	010	0.3+	0.9+	1998 03 04	704	1.9−	1.1+				

1994 CN₁₃ = 1998 FE₃₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	202.90208		(2000.0)	P	Q	Williams
<i>n</i>	0.25632519	ω	260.12800	+0.81848267	+0.57164354	
<i>a</i>	2.4543803	Ω	64.98520	−0.49910994	+0.75705930	
<i>e</i>	0.1898972	<i>i</i>	3.63992	−0.28456175	+0.31636194	
<i>P</i>	3.85	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i> 7

Residuals in seconds of arc

1994 02 08	809	0.1+	0.3+	1994 02 13	809	1.3+	0.9+	1998 03 20	704	0.2−	0.2+
1994 02 08	809	0.6−	0.1−	1994 02 13	809	0.6−	0.7+	1998 03 22	704	1.1+	0.6−
1994 02 08	809	0.5−	1.3−	1994 02 13	809	0.8−	0.1+	1998 03 22	704	0.7+	1.7+

1998 APR. 11

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1994 02 10	809	2.0+	0.0	1998 03 20	704	0.8+	1.3-	1998 03 22	704	1.1-	0.4-
1994 02 10	809	0.7+	0.4-	1998 03 20	704	0.5+	0.0	1998 03 22	704	0.5-	1.0+
1994 02 10	809	1.5-	0.1-	1998 03 20	704	1.4-	0.7-				

1994 EC₅ = 1998 FQ₆₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

			Williams					
<i>M</i>	219.21637	(2000.0)	P		Q			
<i>n</i>	0.26260721	ω	328.37978	+0.69716289	+0.71642937			
<i>a</i>	2.4150806	Ω	345.76088	-0.63341949	+0.59835809			
<i>e</i>	0.0603633	<i>i</i>	6.14323	-0.33577321	+0.35874301			
<i>P</i>	3.75	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	6	

Residuals in seconds of arc

1994 03 06	691	0.1+	0.2+	1998 03 20	704	1.1-	0.3+	1998 03 24	699	1.0+	0.7+
1994 03 06	691	0.3+	0.1-	1998 03 20	704	0.6+	0.6-	1998 03 24	699	0.0	0.6-
1994 03 06	691	0.2+	0.2+	1998 03 20	704	0.9+	0.5+	1998 03 24	699	1.5+	0.8-
1994 03 10	691	0.0	0.1+	1998 03 20	704	1.2-	0.2-	1998 04 01	704	0.6+	0.2-
1994 03 10	691	0.3-	0.3-	1998 03 22	704	0.0	0.9-	1998 04 01	704	0.3+	0.0
1994 03 11	691	0.2-	0.1-	1998 03 22	704	0.5-	0.2+	1998 04 01	704	0.6-	0.7+
1994 03 11	691	0.1+	0.0	1998 03 22	704	0.1+	0.9+	1998 04 01	704	0.2+	0.2-
1994 03 11	691	0.1-	0.0	1998 03 22	704	1.3-	0.9-	1998 04 01	704	0.4+	0.4+
1998 03 20	704	0.6-	1.1+	1998 03 22	704	0.2-	0.7-				

1994 LH

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

			Williams					
<i>M</i>	302.57667	(2000.0)	P		Q			
<i>n</i>	0.22637980	ω	103.95565	-0.50562940	+0.85115987			
<i>a</i>	2.6663118	Ω	134.75630	-0.84819918	-0.46054442			
<i>e</i>	0.2034274	<i>i</i>	11.44840	-0.15778802	-0.25184462			
<i>P</i>	4.35	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4	

Residuals in seconds of arc

1994 06 07	595	0.4+	0.2-	1994 06 29	595	0.4-	1.6+	1998 03 25	566	0.0	0.0
1994 06 07	595	0.0	0.2-	1994 06 29	595	0.4+	0.7-	1998 03 25	566	0.3+	0.0
1994 06 08	595	0.0	0.4-	1994 07 03	595	0.4+	0.3-	1998 03 27	595	0.3+	0.1-
1994 06 08	595	0.4-	0.0	1994 07 03	595	0.3-	0.1+	1998 03 27	595	0.6-	0.1+
1994 06 08	595	0.2-	0.1-	1994 07 09	595	0.4+	0.1-	1998 03 27	595	0.2-	0.2-
1994 06 15	595	0.1-	0.0	1994 07 09	595	0.0	0.2-	1998 03 28	595	0.1-	0.0
1994 06 15	595	0.0	0.4+	1998 03 25	566	0.4+	0.2+				

1994 PG₁₇ = 1998 FY₄₇

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

			Williams					
<i>M</i>	254.58481	(2000.0)	P		Q			
<i>n</i>	0.18257011	ω	28.94423	+0.35657465	+0.93351504			
<i>a</i>	3.0773927	Ω	261.96680	-0.86429357	+0.31437304			
<i>e</i>	0.1870134	<i>i</i>	2.16881	-0.35475504	+0.17239277			
<i>P</i>	5.40	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5	

Residuals in seconds of arc

1994 08 10	809	(1.5-	2.5-)	1994 08 13	809	0.0	0.8+	1998 03 20	704	1.2+	0.8+
1994 08 10	809	1.6-	1.9-	1994 09 05	809	0.4-	0.3+	1998 03 22	704	0.2+	0.2+
1994 08 10	809	(2.3-	2.0-)	1994 09 05	809	0.3-	0.4+	1998 03 22	704	(5.3+	0.8-)
1994 08 11	809	0.7+	0.7-	1994 09 05	809	1.2-	1.3+	1998 03 22	704	0.1-	0.2+
1994 08 11	809	0.3+	1.0-	1994 09 06	809	0.3-	0.8-	1998 03 22	704	(0.7-	2.3+)
1994 08 11	809	0.5-	1.2-	1994 09 06	809	1.2+	0.8-	1998 03 22	704	1.4-	1.2+
1994 08 12	809	0.3-	0.8+	1994 09 06	809	0.5+	1.5-	1998 04 01	704	0.1-	0.3-
1994 08 12	809	0.5-	0.8+	1998 03 20	704	0.2-	0.2-	1998 04 01	704	0.2+	0.0
1994 08 12	809	0.4-	1.2+	1998 03 20	704	0.1+	0.1+	1998 04 01	704	(0.4-	2.6-)
1994 08 13	809	1.8+	1.2+	1998 03 20	704	0.3-	0.1-	1998 04 01	704	0.4+	0.9-
1994 08 13	809	0.8+	1.0+	1998 03 20	704	0.2+	0.1-	1998 04 01	704	0.3-	1.0-

1994 PT₁₉ = 1998 FY₄

Id. B. G. Marsden

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

			Williams					
<i>M</i>	243.28428	(2000.0)	P		Q			
<i>n</i>	0.17900092	ω	119.57740	+0.54435963	+0.83884979			
<i>a</i>	3.1181658	Ω	183.40532	-0.78028192	+0.50551810			
<i>e</i>	0.1681128	<i>i</i>	1.83446	-0.30794922	+0.20194673			
<i>P</i>	5.51	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5	

Residuals in seconds of arc

1994 08 12	809	1.0+	0.0	1998 03 20	704	0.2-	0.9+	1998 03 23	684	0.7-	0.9+
1994 08 12	809	0.4+	0.7-	1998 03 20	704	0.3-	0.1+	1998 03 23	684	0.1+	0.5+
1994 08 12	809	1.0-	0.9-	1998 03 20	704	1.4+	0.4+	1998 03 24	684	0.0	0.2+
1994 08 13	809	(0.9-	2.9-)	1998 03 20	704	0.4+	0.4+	1998 03 24	684	0.1-	0.2+
1994 08 13	809	(0.9-	2.4-)	1998 03 20	704	1.1+	0.1-	1998 03 24	684	0.1+	0.2+
1994 08 13	809	(1.7-	3.0-)	1998 03 22	704	0.1+	0.1-	1998 04 01	704	0.2-	0.2-
1994 09 05	809	0.3+	0.3+	1998 03 22	704	0.7+	0.4-	1998 04 01	704	0.6-	0.7-
1994 09 05	809	0.4-	0.2-	1998 03 22	704	0.0	0.0	1998 04 01	704	0.1-	0.1-
1994 09 05	809	0.3-	0.2+	1998 03 22	704	0.0	0.3+	1998 04 01	704	0.5-	1.5-
1994 09 06	809	0.1+	0.8+	1998 03 22	704	(2.7+	1.4+)	1998 04 01	704	0.8-	0.7-
1994 09 06	809	0.2-	0.1+	1998 03 22	684	0.0	0.3+				
1994 09 06	809	0.1-	0.9+	1998 03 22	684	0.1-	0.4+				

1994 PD₃₈ = 1992 CD₄ = 1998 ET₁₂

Id. G. V. Williams, A. Gnädig

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

			Williams					
<i>M</i>	306.74631	(2000.0)	P		Q			
<i>n</i>	0.18082672	ω	71.78073	-0.70485317	+0.70683808			
<i>a</i>	3.0971410	Ω	153.09747	-0.69042402	-0.66430454			
<i>e</i>	0.1614937	<i>i</i>	7.57949	-0.16277801	-0.24306257			
<i>P</i>	5.45	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	3	

Residuals in seconds of arc

1992 01 30	809	(1.3+	2.7+)	1994 08 11	809	(2.4+	1.9-)	1998 03 02	809	0.3+	1.4+
1992 02 02	809	(0.6-	2.5-)	1994 09 03	809	0.3+	0.3+	1998 03 20	704	0.3-	0.7-
1992 02 02	809	(0.0	3.3-)	1994 09 03	809	0.0	0.7+	1998 03 20	704	0.8-	0.4-
1992 02 02	809	(0.4-	3.5-)	1994 09 03	809	0.1-	0.3+	1998 03 20	704	1.2-	0.1-
1992 02 12	809	0.8-	0.8-	1994 09 04	809	1.2-	0.2+	1998 03 20	704	1.2-	0.1+
1992 02 12	809	0.1+	0.9-	1994 09 04	809	0.4-	0.2-	1998 03 20	704	1.3-	0.2-
1992 02 12	809	0.3+	1.0-	1994 09 04	809	0.1-	0.6+	1998 03 22	704	0.3+	1.2-
1994 08 10	809	(2.6+	1.1-)	1998 03 01	809	1.2+	0.5+	1998 03 22	704	0.6+	1.2-
1994 08 10	809	1.7+	1.6-	1998 03 01	809	0.7+	0.5+	1998 03 22	704	0.6+	0.9-
1994 08 10	809	1.3+	1.6-	1998 03 01	809	0.7+	0.6+	1998 03 22	704	0.2+	1.0-
1994 08 11	809	0.7-	1.7-	1998 03 02	809	(0.2+	2.3+)	1998 03 22	704	(0.9+	2.5-)
1994 08 11	809	(0.9+	2.8-)	1998 03 02	809	0.1+	1.8+				

1994 RW₁₇ = 1997 HF₁₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

			Gnädig					
<i>M</i>	2.56569	(2000.0)	P		Q			
<i>n</i>	0.25582884	ω	345.86142	+0.01709977	+0.99975747			
<i>a</i>	2.4575539	Ω	285.11698	-0.91594548	+0.01009741			
<i>e</i>	0.1366645	<i>i</i>	0.82368	-0.40093824	+0.01957145			
<i>P</i>	3.85	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4	

Residuals in seconds of arc

1994 08 10	809	0.0	0.1+	1994 09 03	809	0.4+	0.4+	1997 04 27	691	0.1+	0.0
1994 08 10	809	0.0	0.0	1994 09 04	809	0.4+	0.1+	1997 04 27	691	0.1-	0.0
1994 08 10	809	0.0	0.1-	1994 09 04	809	0.1+	0.3+	1997 05 08	691	0.1+	0.1-
1994 09 03	809	0.1+	0.0	1994 09 04	809	0.5-	0.7-	1997 05 08	691	0.1-	0.0
1994 09 03	809	0.5-	0.0	1997 04 27	691	0.0	0.1+	1997 05 08	691	0.0	0.0

1994 WL₃ = 1996 JJ₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	265.00026		(2000.0)		P		Q		
<i>n</i>	0.24639657	ω	299.41861		+0.18943552		−0.98068586		
<i>a</i>	2.5198786	Ω	139.56855		+0.92487607		+0.16156854		
<i>e</i>	0.1507374	<i>i</i>	4.30445		+0.32972481		+0.11023088		
<i>P</i>	4.00	<i>H</i>	14.0		<i>G</i>	0.15	<i>U</i>	5	
Residuals in seconds of arc									
1994 11 27	675	1.2+	0.3−	1994 11 29	399	1.4−	0.4−	1996 05 10	691 0.2+ 0.0
1994 11 27	675	0.9+	0.2+	1994 12 10	399	0.9+	0.5−	1996 05 15	691 0.0 0.1+
1994 11 28	399	0.4+	0.3−	1994 12 10	399	0.3−	0.3+	1996 05 15	691 0.4+ 0.1+
1994 11 28	399	0.5+	0.8+	1996 05 10	691	0.0	0.0	1996 05 15	691 0.4− 0.2−
1994 11 29	399	2.1−	0.2+	1996 05 10	691	0.1−	0.0		

1995 BC₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	66.70529		(2000.0)			P		Q			
<i>n</i>	0.37089611	ω	81.20663			+0.64224256		−0.76514438			
<i>a</i>	1.9185268	Ω	328.68596			+0.66425567		+0.58526647			
<i>e</i>	0.4296568	<i>i</i>	5.03254			+0.38247732		+0.26836027			
<i>P</i>	2.66	<i>H</i>	17.5			<i>G</i>	0.15	<i>U</i>	4		
Residuals in seconds of arc											
1995 01 25	411	1.7−	1.0−	1995 02 10	360	0.1+	0.1−	1995 02 23	658	0.8−	0.1−
1995 01 30	411	0.0	1.1+	1995 02 10	360	0.3+	0.2−	1995 02 27	104	0.4−	1.3−
1995 01 30	411	0.1+	1.4+	1995 02 11	557	0.2+	0.1−	1995 02 27	104	0.8+	0.6−
1995 01 31	411	0.1−	0.9+	1995 02 11	557	0.3−	0.3+	1995 02 27	104	1.1−	0.4−
1995 01 31	411	0.3+	0.8+	1995 02 16	118	0.4+	0.5−	1995 02 27	104	0.2+	0.4+
1995 02 06	411	0.1+	0.1+	1995 02 16	118	0.4+	0.6−	1995 02 27	104	1.7+	0.4+
1995 02 07	411	0.6−	0.1−	1995 02 16	118	0.6+	0.8−	1995 02 28	658	0.0	0.1−
1995 02 07	411	0.5−	0.3+	1995 02 16	118	0.1−	0.6−	1995 02 28	658	0.2−	0.1−
1995 02 08	411	0.5−	0.6+	1995 02 17	118	0.3+	0.3−	1995 02 28	658	0.2+	0.1−
1995 02 08	411	0.5+	0.5+	1995 02 17	411	0.7+	0.5+	1995 02 28	587	0.4+	0.7−
1995 02 08	411	0.9+	0.4+	1995 02 17	411	0.3+	1.1+	1995 02 28	587	0.5−	0.3+
1995 02 08	897	0.2−	0.3−	1995 02 19	411	0.8+	0.3+	1995 03 01	118	0.1−	0.4+
1995 02 08	897	0.6−	0.4+	1995 02 19	411	0.9−	0.9+	1995 03 01	118	0.5+	0.3+
1995 02 09	657	(2.0+	2.1+)	1995 02 19	411	0.5−	0.4+	1995 03 06	360	0.3+	0.2−
1995 02 09	657	1.6−	1.8+	1995 02 19	360	0.3−	0.0	1995 03 06	360	0.2−	0.1+
1995 02 09	657	(3.3+	1.0+)	1995 02 19	360	0.8−	0.3+	1995 03 06	360	0.5−	0.6+
1995 02 09	413	0.4+	0.1−	1995 02 19	360	0.1−	0.5+	1995 03 06	360	0.7+	0.3+
1995 02 09	413	0.3+	0.2−	1995 02 19	104	1.1+	0.9+	1995 03 07	587	0.4−	1.4−
1995 02 09	411	0.1+	1.0−	1995 02 19	104	0.1−	0.3+	1995 03 07	587	0.0	0.1−
1995 02 09	411	1.0+	1.1−	1995 02 19	104	0.4+	0.0	1995 03 21	413	0.2−	1.0+
1995 02 09	557	0.4+	0.0	1995 02 19	104	0.5−	0.1+	1995 03 21	413	0.0	0.6+
1995 02 09	557	0.6+	0.3−	1995 02 20	411	0.9−	1.5−	1995 03 22	413	0.4−	0.4+
1995 02 09	557	1.0+	0.0	1995 02 20	411	0.6−	0.0	1995 03 22	413	0.4−	0.3+
1995 02 09	104	0.1+	0.2−	1995 02 20	411	0.0	1.2−	1995 03 22	587	0.0	0.3−
1995 02 09	104	0.6+	0.0	1995 02 20	587	0.3−	0.3−	1995 03 22	587	0.3−	0.8−
1995 02 09	104	0.3+	0.6+	1995 02 20	587	0.1−	0.2−	1995 03 23	608	0.3−	0.7+
1995 02 10	046	0.5+	0.6+	1995 02 21	411	0.1−	0.5−	1995 03 23	608	0.1−	0.6+
1995 02 10	046	1.2+	0.8−	1995 02 21	411	0.1−	0.5+	1995 04 03	711	0.6+	0.4−
1995 02 10	046	0.1+	0.5−	1995 02 21	046	1.0−	0.9−	1998 03 08	696	0.7−	0.2+
1995 02 10	411	0.4+	0.6−	1995 02 21	046	1.1−	0.3−	1998 03 08	696	0.5+	0.5+
1995 02 10	411	1.1+	0.8−	1995 02 21	046	0.1+	0.2+	1998 03 08	696	0.1−	0.2+
1995 02 10	897	0.4+	0.6+	1995 02 22	897	1.4−	0.6−	1998 04 01	693	0.7+	0.2−
1995 02 10	897	0.0	0.8+	1995 02 22	897	0.8+	0.4−	1998 04 01	693	0.0	0.4+
1995 02 10	897	0.8−	0.4−	1995 02 23	658	0.6−	0.4−				
1995 02 10	360	0.1−	0.3−	1995 02 23	658	0.6−	0.8−				

1995 CG

Id. T. Kobayashi (1998 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M	226.58832		(2000.0)		P		Q
n	0.35891981	ω	163.00663		+0.52938643		+0.80133106
a	1.9609707	Ω	137.77151		-0.81858786		+0.56873028
e	0.0749847	i	24.48973		-0.22285405		-0.18551119
P	2.75	H	13.6	G	0.15	U	4
Residuals in seconds of arc							
1995 02 01	411	0.2-	0.1-	1995 02 10	411	0.0	0.5+
1995 02 01	411	0.1+	0.1+	1995 02 10	411	0.4-	0.2-
1995 02 03	411	0.3+	0.7-	1995 02 19	411	0.1+	1.0-
1995 02 03	411	0.3-	0.3-	1995 02 19	411	0.4+	0.2+
1995 02 07	411	0.2+	0.5+	1995 03 01	411	0.5-	0.2+
1995 02 07	411	0.6+	0.6+	1995 03 01	411	0.2-	0.2+

1995 FA₇ = 1998 FS₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M	217.53583	(2000.0)		P		Q					
n	0.29642072	ω	130.06378	+0.00274747		+0.99900798					
a	2.2277358	Ω	140.02614	−0.93725341		+0.01806849					
e	0.1399277	i	3.96715	−0.34863805		−0.04070124					
P	3.33	H	15.5	G	0.15	U	5				
Residuals in seconds of arc											
1995 03 23	691	0.1+	0.2+	1995 03 29	691	0.4−	0.2+	1998 03 24	910	0.1+	0.5+
1995 03 23	691	0.0	0.1−	1995 04 04	691	0.5+	0.1+	1998 03 24	910	0.1+	0.2−
1995 03 23	691	0.0	0.0	1995 04 04	691	0.0	0.0	1998 03 25	910	0.3−	0.2−
1995 03 29	691	0.1+	0.4−	1995 04 04	691	0.5−	0.1+	1998 03 25	910	0.1+	0.2−
1995 03 29	691	0.1+	0.1+	1998 03 24	910	0.4−	0.1+	1998 03 25	910	0.3+	0.1+

1995 KM₁ = 1998 FN₃₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M	229.65652		(2000.0)		P		Q				
n	0.28175122	ω	182.40210		+0.50399169		+0.86150082				
a	2.3044052	Ω	117.86834		−0.79126864		+0.48918573				
e	0.2211424	i	4.00314		−0.34624604		+0.13606487				
P	3.50	H	15.5		G	0.15	U	4			
Residuals in seconds of arc											
1995 05 23	589	0.8−	0.1−	1995 06 03	589	0.2+	0.1−	1995 07 22	589	0.3−	0.2−
1995 05 23	589	0.8−	0.2−	1995 06 07	589	1.0+	0.2−	1995 07 22	589	0.2+	0.4+
1995 05 23	589	0.4+	0.3−	1995 06 07	589	0.5+	0.5+	1995 07 24	589	0.9−	0.2−
1995 05 23	589	1.8+	0.5−	1995 06 07	589	0.4+	1.0+	1995 07 24	589	0.5+	0.5−
1995 05 23	589	1.2−	1.0−	1995 06 19	589	0.2−	0.3−	1995 07 24	589	0.5−	1.2+
1995 05 24	589	0.3−	0.0	1995 06 19	589	0.2−	0.3+	1998 03 20	704	0.4+	1.1−
1995 05 24	589	0.1−	0.8+	1995 06 25	589	0.3+	0.5−	1998 03 20	704	2.5+	0.5+
1995 05 24	589	0.2−	0.5+	1995 06 25	589	0.8+	0.1+	1998 03 20	704	1.0+	0.5+
1995 05 24	589	0.4−	0.9+	1995 06 30	589	0.2−	0.6−	1998 03 20	704	2.9−	0.9−
1995 05 29	589	0.3−	0.2+	1995 06 30	589	0.2−	0.6−	1998 03 22	704	0.6+	0.4+
1995 05 29	589	0.4−	0.0	1995 07 18	589	0.1+	0.6−	1998 03 22	704	0.4+	0.3−
1995 06 03	589	0.1+	0.2−	1995 07 18	589	0.6+	0.1−	1998 03 22	704	0.0	1.7+
1995 06 03	589	0.2−	0.2−	1995 07 18	589	0.7+	1.0−	1998 03 22	704	0.5+	0.7−
1995 06 03	589	0.1−	0.3+	1995 07 22	589	0.7−	0.9+	1998 03 22	704	2.6−	0.5−

1995 OU₂ = 9616 P-L

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>		ω		+0.97864883		+0.20552941	
<i>a</i>		Ω		−0.19953193		+0.95237084	
<i>e</i>		<i>i</i>		−0.04933023		+0.22527192	
<i>P</i>		<i>H</i>		<i>G</i>		<i>U</i>	
45.71374		12.0		0.15		5	

1998 APR. 11

M.P.C. 31543

Residuals in seconds of arc

1960 10 17	675	0.2−	0.2−	1995 07 22	691	0.2−	0.2−	1995 07 27	691	0.5+	0.0
1960 10 22	675	0.5−	0.4−	1995 07 22	691	0.0	0.3−	1995 08 03	691	0.1−	0.2+
1960 10 26	675	0.8+	0.5+	1995 07 27	691	0.8+	0.0	1995 08 03	691	0.1−	0.0
1995 07 22	691	0.2−	0.1+	1995 07 27	691	0.5+	0.0	1995 08 03	691	0.2−	0.3+

1995 ON₄ = 1998 DP₃₄

Id. B. G. Marsden

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	281.88367		(2000.0)	P	Q
<i>n</i>	0.23983242	ω	104.73175	−0.48840610	+0.87196678
<i>a</i>	2.5656503	Ω	135.98055	−0.81809274	−0.44412434
<i>e</i>	0.1118383	<i>i</i>	2.77692	−0.30361777	−0.20597938
<i>P</i>	4.11	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1995 07 22	691	1.0+	0.1+	1998 02 27	809	0.9+	0.8+	1998 03 20	704	0.5−	0.2−
1995 07 22	691	1.1+	0.2+	1998 02 27	809	0.0	0.8+	1998 03 20	704	0.5−	0.6−
1995 07 22	691	0.8+	0.2−	1998 02 27	809	0.0	0.3+	1998 03 22	704	0.3+	0.5−
1995 07 27	691	0.1−	0.1+	1998 02 28	809	1.2+	1.5+	1998 03 22	704	0.7+	0.2−
1995 07 27	691	0.1−	0.0	1998 02 28	809	0.5+	1.5+	1998 03 22	704	0.9−	0.7−
1995 07 27	691	0.1−	0.0	1998 02 28	809	0.5+	1.0+	1998 03 22	704	1.2−	0.0
1995 08 01	691	1.2−	0.5+	1998 03 20	704	0.1−	1.1−	1998 03 22	704	0.5−	0.5−
1995 08 01	691	1.1−	0.4+	1998 03 20	704	0.3+	0.4−				
1995 08 01	691	0.7−	0.4+	1998 03 20	704	0.0	0.5−				

1995 QQ = 1998 FX₁₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	238.44385		(2000.0)	P	Q
<i>n</i>	0.22836190	ω	330.92469	+0.27568001	+0.94624327
<i>a</i>	2.6508610	Ω	314.48918	−0.82972313	+0.14537634
<i>e</i>	0.1110553	<i>i</i>	13.71907	−0.48534530	+0.28894531
<i>P</i>	4.32	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1995 08 17	358	1.3−	0.7−	1995 08 28	358	0.2−	0.8−	1998 03 26	566	0.9−	1.2−
1995 08 17	358	1.3−	0.7−	1995 08 28	358	(2.1−	0.6+)	1998 03 26	566	0.6−	0.4−
1995 08 22	358	0.5+	0.4+	1998 02 26	566	0.2−	1.3+	1998 03 27	566	0.9+	0.5+
1995 08 22	358	1.3+	2.0+	1998 02 26	566	0.5+	0.5+	1998 03 27	566	0.0	0.5+
1995 08 24	358	0.7+	0.2+	1998 02 26	566	0.1+	0.4−	1998 03 27	566	0.6−	0.1+
1995 08 24	358	(2.2+	2.8+)	1998 03 26	566	1.1+	0.5−				

1995 QB₁ = 1995 SJ₄₆ = 1998 FT₄₉Id. S. Nakano (d, *MPC* 31161), G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	18.83497		(2000.0)	P	Q
<i>n</i>	0.18534390	ω	298.41447	−0.63804406	−0.76996952
<i>a</i>	3.0466123	Ω	191.23950	+0.71816296	−0.59186512
<i>e</i>	0.2006103	<i>i</i>	2.00968	+0.27774401	−0.23841691
<i>P</i>	5.32	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1995 08 19	327	0.5−	0.5+	1995 09 26	691	0.1−	0.5−	1998 03 20	704	0.4+	1.1+
1995 08 19	327	0.3+	1.0+	1995 09 26	691	0.1−	0.3−	1998 03 20	704	0.5+	0.9−
1995 08 19	327	0.3−	0.5−	1995 10 02	691	0.2−	0.5−	1998 03 20	704	1.0+	0.2+
1995 08 19	327	0.2−	0.6+	1995 10 02	691	0.2+	0.7−	1998 03 22	704	0.6+	0.8−
1995 08 20	327	0.4+	0.2+	1995 10 02	691	0.1−	0.2−	1998 03 22	704	0.8+	0.4−
1995 08 20	327	0.2+	0.4+	1998 03 04	704	0.1−	0.3−	1998 03 22	704	0.1+	0.2+
1995 08 20	327	0.3+	0.8−	1998 03 04	704	1.8−	1.2+	1998 03 22	704	0.8+	0.3−
1995 08 23	327	0.2+	0.5+	1998 03 04	704	2.0−	1.8+	1998 03 22	704	0.3−	0.5−
1995 08 23	327	0.4+	0.5+	1998 03 04	704	1.6−	0.6+	1998 04 01	704	0.4+	1.1+
1995 08 23	327	0.5−	0.4−	1998 03 04	704	0.9−	0.4−	1998 04 01	704	0.0	1.2−
1995 08 23	327	0.2+	0.0	1998 03 20	704	0.6+	0.3−	1998 04 01	704	0.4−	0.1−
1995 09 26	691	0.0	0.2−	1998 03 20	704	0.7+	0.3−	1998 04 01	704	0.9+	0.8−

1995 QP₁₀ = 1987 GO = 1998 DJ₃₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	19.13132		(2000.0)	P	Q
<i>n</i>	0.18065874	ω	327.47991	−0.65040198	−0.75649141
<i>a</i>	3.0990606	Ω	162.76685	+0.73697849	−0.65031937
<i>e</i>	0.1176659	<i>i</i>	13.37698	+0.18395643	−0.06932142
<i>P</i>	5.46	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1987 04 01	675	0.4−	0.3−	1995 09 22	809	0.6−	0.6−	1998 02 28	809	(4.4−	1.1+)
1987 04 01	675	0.1+	1.3−	1995 09 22	809	0.4+	0.6−	1998 03 20	704	0.6+	0.8+
1987 04 03	675	(9.0+	0.6−)	1995 09 23	809	0.1+	0.1−	1998 03 20	704	0.1+	0.7+
1987 04 03	675	(7.2+	0.6−)	1995 09 24	809	0.5+	0.1+	1998 03 20	704	0.5+	0.3−
1995 08 19	809	0.1−	0.1−	1995 09 29	809	0.7−	0.5+	1998 03 20	704	0.6+	0.4−
1995 08 20	809	0.7−	0.7−	1998 02 22	566	1.1−	0.2−	1998 03 20	704	1.0+	0.5−
1995 08 22	809	0.4+	0.2−	1998 02 22	566	1.3−	0.2+	1998 03 22	704	0.3+	0.7−
1995 08 24	809	0.7+	0.0	1998 02 22	566	1.5−	0.4−	1998 03 22	704	0.2+	0.1−
1995 08 25	809	0.3+	1.4−	1998 02 27	809	(3.4−	1.0−)	1998 03 22	704	0.5+	0.0
1995 08 26	809	0.5+	0.4−	1998 02 27	809	(3.8−	0.5−)	1998 03 22	704	0.1+	0.3+
1995 08 27	809	0.1−	0.2+	1998 02 27	809	(3.4−	0.3−)	1998 03 22	704	0.2−	0.1+
1995 09 01	809	0.4+	1.3+	1998 02 28	809	(3.8−	2.0+)				
1995 09 20	809	0.6−	0.1−	1998 02 28	809	(4.2−	2.5+)				

1995 SR₂₆ = 1985 SK₄ = 1993 FL₅₉ = 1998 FK₇₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	189.87940		(2000.0)	P	Q
<i>n</i>	0.20169135	ω	144.68891	+0.97003260	+0.24273464
<i>a</i>	2.8796821	Ω	201.27085	−0.22921016	+0.89942700
<i>e</i>	0.0711230	<i>i</i>	1.70599	−0.08061917	+0.36347072
<i>P</i>	4.89	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1985 09 20	095	0.4+	1.0−	1995 10 20	010	0.8+	0.2−	1998 03 22	704	0.3+	0.4+
1993 03 19	809	0.3−	0.5−	1995 10 20	010	0.5+	0.7−	1998 03 22	704	0.3−	0.8+
1993 03 20	809	(28.8+	70.4+)	1995 10 23	010	0.2+	1.2−	1998 03 22	704	1.0+	0.4+
1995 09 19	691	0.9−	0.5+	1995 10 23	010	1.0−	0.2+	1998 03 22	704	(3.4−	0.1+)
1995 09 19	691	0.6−	0.6+	1995 10 23	010	1.3+	0.8+	1998 04 01	704	1.2+	1.1−
1995 09 19	691	0.6−	0.7+	1998 03 20	704	0.2+	0.4−	1998 04 01	704	1.3−	0.9+
1995 09 24	691	0.4−	0.6+	1998 03 20	704	1.5−	0.1−	1998 04 01	704	0.6−	0.6+
1995 09 24	691	0.2−	0.5+	1998 03 20	704	1.4+	0.1−	1998 04 01	704	0.2+	0.3−
1995 09 24	691	0.4−	0.6+	1998 03 20	704	1.7−	0.6+				
1995 10 20	010	0.7+	0.8−	1998 03 22	704	1.5+	0.9−				

1995 SM₂₉ = 1978 VD₁₅ = 1989 RM₅Id. T. B. Spahr (*MPC* 30456)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	129.38928		(2000.0)	P	Q
<i>n</i>	0.17254742	ω	338.46760	+0.83100711	−0.55480262
<i>a</i>	3.1954380	Ω	55.29275	+0.51724438	+0.74405998
<i>e</i>	0.1668751	<i>i</i>	2.80743	+0.20465930	+0.37224831
<i>P</i>	5.71	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1978 11 01	095	0.0	0.1+	1995 10 16	114	1.8+	1.0+	1995 10 27	399	1.9−	1.4+
1989 09 08	372	1.1−	2.1+	1995 10 16	114	1.2+	0.7+	1998 02 27	910	0.6+	0.3+
1989 09 08	372	(0.3+	3.8+)	1995 10 17	114	(2.8−	0.7−)	1998 02 27	910	0.6+	0.6+
1995 09 26	114	0.5−	0.6−	1995 10 18	114	1.5−	0.0	1998 02 28	910	0.2+	1.2+
1995 09 26	114	0.5+	0.7−	1995 10 19	114	0.3+	0.8−	1998 03 20	704	0.6+	1.3+
1995 09 28	114	0.5−	0.1+	1995 10 19	114	1.3+	0.5−	1998 03 20	704	(0.5+	2.5+)
1995 09 29	114	0.3+	0.3−	1995 10 21	399	(0.4−	2.2+)	1998 03 20	704	0.8+	0.3+
1995 10 01	114	0.9−	0.1−	1995 10 21	399	1.6−	0.1−	1998 03 20	704	0.2+	0.3+
1995 10 01	114	1.0+	1.3+	1995 10 27	399	(0.5−	3.6+)	1998 03 20	704	1.1−	0.1+

1995 SV₅₃ = 1995 QL₁ = 1998 FX₂₆Id. S. Nakano (d, *MPC* 31161), G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	18.85018		(2000.0)	P	Q
<i>n</i>	0.19471711	ω	279.74890	-0.62599820	-0.77974179
<i>a</i>	2.9480396	Ω	209.01622	+0.72434070	-0.57600218
<i>e</i>	0.0667386	<i>i</i>	1.34164	+0.28888892	-0.24540624
<i>P</i>	5.06	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1995 08 19	327	0.2+	0.3+	1995 10 02	691	0.6-	0.1-	1998 03 04	704	0.2+	1.6+
1995 08 19	327	0.2+	0.6+	1995 10 02	691	0.5-	0.1+	1998 03 20	704	(3.8+	0.6+)
1995 08 19	327	0.2-	0.1-	1995 10 02	691	0.6-	0.4+	1998 03 20	704	0.2-	0.3+
1995 08 19	327	0.4-	0.1-	1998 03 03	704	0.5+	0.6-	1998 03 20	704	0.2-	0.6-
1995 08 20	327	0.0	0.5-	1998 03 03	704	0.3+	0.1-	1998 03 20	704	0.0	0.3+
1995 08 20	327	0.3+	0.0	1998 03 03	704	1.1-	0.5-	1998 03 20	704	1.0-	0.2+
1995 08 20	327	0.4+	0.4-	1998 03 03	704	1.2+	0.5-	1998 03 22	704	0.9+	0.4-
1995 09 28	327	0.6+	0.1+	1998 03 03	704	1.0+	0.5-	1998 03 22	704	1.3+	0.6+
1995 09 28	327	0.3+	0.6+	1998 03 04	704	0.8-	0.6-	1998 03 22	704	(2.4+	0.6-)
1995 09 28	327	0.3-	0.5+	1998 03 04	704	1.7-	0.3+	1998 03 22	704	(2.5+	1.0-)
1995 09 29	327	0.1+	0.0	1998 03 04	704	(2.0-	0.7+)	1998 03 22	704	(4.5-	0.9-)
1995 09 29	327	0.3+	0.8-	1998 03 04	704	0.4-	1.2+				

1995 TT = 1998 FY₆₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	182.83423		(2000.0)	P	Q
<i>n</i>	0.19066439	ω	323.49543	+0.98661873	+0.13627848
<i>a</i>	2.9896682	Ω	29.05856	-0.06711904	+0.83978153
<i>e</i>	0.1139028	<i>i</i>	10.61946	-0.14858843	+0.52554272
<i>P</i>	5.17	<i>H</i>	12.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1995 10 02	691	0.3-	0.1-	1995 10 20	411	0.2+	0.5-	1995 10 28	399	0.5+	2.3+
1995 10 02	691	0.4-	0.0	1995 10 24	046	3.5-	0.3+	1995 10 28	399	0.8-	1.4+
1995 10 02	691	0.3-	0.1-	1995 10 24	046	1.3-	0.6-	1998 03 20	704	0.2-	0.1+
1995 10 02	411	2.0-	0.4+	1995 10 25	046	0.7+	0.1-	1998 03 20	704	0.1-	0.6-
1995 10 02	411	0.7+	0.6+	1995 10 25	046	0.6+	0.3-	1998 03 20	704	0.2-	0.6+
1995 10 13	411	1.3+	0.2+	1995 10 25	046	0.5+	0.3-	1998 03 20	704	0.3+	0.2-
1995 10 13	411	1.5+	1.1+	1995 10 25	046	0.5+	0.2-	1998 03 20	704	0.3-	1.3+
1995 10 13	411	0.6+	0.2-	1995 10 25	046	0.4+	0.4-	1998 03 22	704	0.0	0.1+
1995 10 14	411	0.5+	0.2-	1995 10 26	046	0.3+	0.1-	1998 03 22	704	0.4-	0.1+
1995 10 14	411	0.5+	0.2+	1995 10 26	046	0.2+	0.1-	1998 03 22	704	0.7+	0.3-
1995 10 14	411	0.4+	0.8+	1995 10 26	046	0.2+	0.1-	1998 03 22	704	0.1+	0.3-
1995 10 17	411	0.4-	1.2-	1995 10 26	046	0.3+	0.2-	1998 03 22	704	0.1+	0.8-
1995 10 17	411	0.2-	1.2-	1995 10 27	399	0.6-	0.2+				
1995 10 20	411	0.4+	1.0-	1995 10 27	399	0.7-	0.6-				

1995 UJ₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	158.36719		(2000.0)	P	Q
<i>n</i>	0.19120868	ω	174.71653	+0.98098646	-0.18769029
<i>a</i>	2.9839920	Ω	196.35501	+0.17102143	+0.95627681
<i>e</i>	0.0949987	<i>i</i>	10.09879	+0.09174552	+0.22429225
<i>P</i>	5.15	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1995 09 27	071	1.9-	0.4-	1996 02 08	327	0.1-	0.3-	1998 03 21	426	0.5+	0.1+
1995 09 28	071	0.7+	0.5-	1996 02 08	327	0.3-	0.4+	1998 03 21	426	0.2-	0.0
1995 10 23	817	0.2+	0.3+	1998 03 18	426	0.1-	0.5-	1998 03 21	426	0.3+	0.2+
1995 10 23	817	0.1+	0.4+	1998 03 18	426	0.1-	0.1+	1998 03 22	704	0.0	0.0
1995 10 23	817	0.5+	0.0	1998 03 18	426	0.1+	0.4-	1998 03 22	704	0.0	0.2-
1995 10 24	817	0.1+	0.2+	1998 03 20	704	0.3+	0.0	1998 03 22	704	0.2+	0.3+
1995 10 24	817	0.1-	0.1+	1998 03 20	704	1.0+	0.6-	1998 03 22	704	0.0	0.7+
1995 10 27	817	0.1+	0.1+	1998 03 20	704	0.0	0.2-	1998 03 22	704	0.3+	1.1+
1995 10 27	817	0.2+	0.2+	1998 03 20	704	0.6+	0.1+	1998 04 01	704	0.2-	0.0
1996 02 07	327	0.5-	0.1-	1998 03 20	704	0.3-	0.0	1998 04 01	704	0.6-	0.1-
1996 02 07	327	0.1+	0.0	1998 03 20	426	0.2+	0.4-	1998 04 01	704	0.5-	0.0

1996 02 07	327	0.6+	0.0	1998 03 20	426	0.4+	0.2-	1998 04 01	704	1.1-	0.4+
1996 02 08	327	0.3+	0.3-	1998 03 20	426	0.1-	0.7-	1998 04 01	704	0.8-	0.3+

1995 UA₉ = 1984 SX₃ = 1998 FF₅₀

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	196.34237		(2000.0)	P	Q
<i>n</i>	0.18331494	ω	321.89605	+0.90114501	+0.43320468
<i>a</i>	3.0690513	Ω	12.46433	-0.37665547	+0.80119436
<i>e</i>	0.0805740	<i>i</i>	4.37733	-0.21463532	+0.41282115
<i>P</i>	5.38	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1984 09 27	033	0.0	0.1+	1995 11 16	691	0.8-	0.2-	1998 03 20	704	1.2+	0.6-
1984 09 27	033	0.2+	0.4-	1995 11 21	400	0.2-	0.2-	1998 03 20	704	0.8+	0.6-
1995 10 28	400	(3.0+	1.4+)	1995 11 21	400	1.0+	1.6-	1998 03 20	704	1.2-	0.2-
1995 10 28	400	(2.8+	0.2+)	1998 03 04	704	0.1+	0.4+	1998 03 22	704	0.1+	0.7-
1995 10 30	400	0.4+	1.2+	1998 03 04	704	0.9-	1.5+	1998 03 22	704	0.7+	0.7-
1995 10 30	400	0.3+	0.7+	1998 03 04	704	1.1-	1.7+	1998 03 22	704	0.7+	0.6+
1995 11 02	400	0.4-	0.1-	1998 03 04	704	1.1-	0.4+	1998 03 22	704	0.8+	0.4-
1995 11 02	400	1.0+	0.5+	1998 03 04	704	1.6-	0.7+	1998 03 22	704	0.3+	0.1+
1995 11 16	691	0.4-	0.3-	1998 03 20	704	0.3+	1.3-				
1995 11 16	691	0.9-	0.1-	1998 03 20	704	0.5+	0.8-				

1995 UX₄₄ = 1997 EH₃₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Gnädig

<i>M</i>	120.81424		(2000.0)	P	Q
<i>n</i>	0.19421703	ω	47.50874	+0.33174149	-0.94327904
<i>a</i>	2.9530979	Ω	23.12657	+0.85542900	+0.29492192
<i>e</i>	0.0854422	<i>i</i>	1.91490	+0.39772956	+0.15246548
<i>P</i>	5.07	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1995 10 02	691	0.1-	0.1-	1995 10 27	399	0.1+	0.3+	1997 03 04	704	0.2-	0.0
1995 10 02	691	0.1-	0.0	1995 10 28	399	0.2-	1.0-	1997 03 05	704	0.6+	0.1+
1995 10 02	691	0.1+	0.1+	1995 10 28	399	0.4-	0.2-	1997 03 05	704	0.0	0.4-
1995 10 27	399	0.4+	0.9+	1997 03 04	704	0.3-	0.2+				

1995 VV₁₃ = 1998 FZ₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	237.86087		(2000.0)	P	Q
<i>n</i>	0.18987390	ω	148.68552	+0.47079043	+0.88149505
<i>a</i>	2.9979603	Ω	149.35625	-0.82348096	+0.45385277
<i>e</i>	0.0779379	<i>i</i>	4.09198	-0.31659988	+0.13032325
<i>P</i>	5.19	<i>H</i>	15.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1995 11 15	691	0.0	0.1+	1995 11 20	691	0.3-	0.0	1998 03 18	691	0.0	0.1+
1995 11 15	691	0.0	0.1-	1995 11 27	691	0.1+	0.1-	1998 03 18	691	0.2+	0.3-
1995 11 15	691	0.2+	0.1+	1995 11 27	691	0.2-	0.3+	1998 03 25	691	0.1-	0.1+
1995 11 20	691	0.2-	0.1+	1995 11 27	691	0.4+	0.1-	1998 03 25	691	0.0	0.3-
1995 11 20	691	0.1+	0.1-	1998 03 18	691	0.2-	0.1+	1998 03 25	691	0.2+	0.3+

1995 WM₇ = 1998 FZ₁₀

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	184.50106		(2000.0)	P	Q
<i>n</i>	0.19179614	ω	305.52009	+0.90548117	-0.38854331
<i>a</i>	2.9778957	Ω	77.88737	+0.42341517	+0.79991080
<i>e</i>	0.1172481	<i>i</i>	10.05452	+0.02869584	+0.45735852
<i>P</i>	5.14	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1995 11 27	411	0.4+	0.1-	1995 12 02	411	0.4-	0.8+	1998 03 25	910	0.3+	0.0
1995 11 27	411	0.5+	0.2+	1995 12 02	411	0.1+	0.2-	1998 03 25	910	0.0	0.3+
1995 11 28	411	0.1+	0.8+	1995 12 09	411	0.3-	1.4-	1998 03 25	910	0.0	0.2+

1998 APR. 11

M.P.C. 31545

1995 11 28	411	0.3−	0.4−	1995 12 10	411	0.2+	0.3+	1998 03 26	910	0.0	0.3−
1995 12 01	411	0.1−	0.1−	1995 12 21	411	0.5+	0.2+	1998 03 26	910	0.2+	0.1+
1995 12 01	411	0.4−	0.4−	1995 12 21	411	0.3−	0.3+	1998 03 26	910	0.5−	0.2−

1995 YN₁₁ = 1997 GN₃₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Doppler

M	327.12601		(2000.0)	$\mathbf{P}$		$\mathbf{Q}$	
n	0.19323517	ω	123.87640	+0.35457968		+0.93493786	
a	2.9630929	Ω	166.87286	−0.87543821		+0.33676949	
e	0.0985945	i	3.23694	−0.32845273		+0.11170277	
P	5.10	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1995 12 18	691	0.1+	0.0	1995 12 25	691	0.1+	0.0	1997 04 03	704	0.2+	0.4+
1995 12 18	691	0.1+	0.3+	1995 12 25	691	0.1+	0.1−	1997 04 03	704	0.4−	0.3−
1995 12 18	691	0.0	0.2+	1995 12 30	691	0.4−	0.4−	1997 04 11	704	0.8+	0.2−
1995 12 25	691	0.1−	0.1+	1995 12 30	691	0.0	0.2−	1997 04 11	704	0.7−	0.1+

1995 YT₂₀ = 1994 RQ₁₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Gnädig

M	187.78854		(2000.0)	P	Q
n	0.19065935	ω	252.50056	+0.75383905	−0.65632981
a	2.9897209	Ω	148.49905	+0.62307854	+0.69910830
e	0.2431915	i	3.39573	+0.20856611	+0.28368779
P	5.17	H	16.0	G 0.15	U 5

Residuals in seconds of arc

1994 09 03	809	0.4+	1.0+	1994 09 04	809	0.3−	0.0	1995 12 29	691	0.2+	0.1+
1994 09 03	809	0.1−	0.7+	1995 12 25	691	0.0	0.4+	1995 12 29	691	0.1+	0.3−
1994 09 03	809	1.3−	1.0−	1995 12 25	691	0.3−	0.1−	1996 01 13	691	0.0	0.0
1994 09 04	809	0.5+	0.8−	1995 12 25	691	0.3+	0.2−	1996 01 13	691	0.1+	0.2+
1994 09 04	809	0.7+	0.0	1995 12 29	691	0.1−	0.1−	1996 01 13	691	0.1−	0.1+

1996 GT

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden

M	77.05949		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.46831066	ω	318.88222	+0.84385153	−0.53356371
a	1.6422780	Ω	73.45029	+0.50649588	+0.75713690
e	0.3829079	i	3.39604	+0.17713416	+0.37689983
P	2.10	H	18.5	G 0.15	U 5

Residuals in seconds of arc

1996 04 11	691	0.1+	0.1−	1996 04 15	691	0.4−	0.2+	1996 05 16	691	0.4+	0.8+
1996 04 11	691	0.6+	0.1−	1996 04 15	691	0.0	0.1+	1996 05 16	691	0.9+	0.8+
1996 04 11	691	0.3+	0.3+	1996 04 15	691	0.0	0.8+	1996 05 16	691	0.9+	0.4+
1996 04 12	691	0.9−	0.7−	1996 04 15	608	0.1−	0.1+	1998 03 08	696	0.6−	0.3−
1996 04 12	691	0.6−	1.0−	1996 04 15	608	1.7+	0.6−	1998 03 08	696	0.1−	0.2−
1996 04 12	691	1.0−	0.5−	1996 04 16	608	(3.1+ 5.4−)		1998 04 01	693	0.1+	0.5+
1996 04 13	691	0.4−	1.0−	1996 04 16	608	(3.0+ 2.1−)		1998 04 01	693	0.2+	0.6+
1996 04 14	691	0.2−	0.0	1996 04 18	691	0.3−	0.1−	1998 04 01	693	1.1+	1.0+
1996 04 14	691	0.2−	0.3+	1996 04 18	691	0.8−	0.6−				
1996 04 14	691	0.3+	0.0	1996 04 18	691	0.6−	0.5−				

1996 GL₁ = 1987 QA₉ = 1991 VD₁₆ = 1991 XU₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Gnädig

M	231.00137		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.27822328	ω	58.00387	−0.13976826	−0.98731580
a	2.3238445	Ω	40.24678	+0.86461143	−0.15876157
e	0.1330672	i	6.69431	+0.48260948	−0.00150918
P	3.54	H	14.5	G 0.15	U 4

Residuals in seconds of arc

1987 08 21	809	1.4−	3.1+	1996 04 06	327	0.2−	0.8+	1996 04 09	327	0.3−	0.6+
1987 08 21	809	1.1−	0.4+	1996 04 07	327	0.4−	0.2+	1996 04 18	327	0.1+	0.5+

1987 08 21	809	0.8−	2.0+	1996 04 07	327	0.2−	0.2+	1996 04 18	327	0.2−	0.4+	
1991 11 05	887	0.1−	1.7+	1996 04 07	327	0.8−	0.1+	1996 04 18	327	0.3−	0.1+	
1991 11 05	887	2.2−	0.9−	Y	1996 04 08	327	1.3+	0.7+	1996 04 20	327	0.3+	0.2+
1991 12 03	675	1.1+	0.4+		1996 04 08	327	1.4+	0.7+	1996 04 20	327	0.3+	0.1+
1991 12 03	675	1.0+	0.2−		1996 04 08	327	1.5+	0.3+	1996 04 20	327	0.1−	0.1+
1996 04 06	327	0.1+	0.3+		1996 04 09	327	0.0	0.4+				
1996 04 06	327	0.0	0.8+		1996 04 09	327	0.1+	0.1+				

1996 QH = 1998 FC₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	86.25815		(2000.0)	P	Q
n	0.29051390	ω	82.44223	+0.69986862	−0.71203296
a	2.2578310	Ω	322.92985	+0.61279750	+0.63920273
e	0.1820204	i	5.37887	+0.36696476	+0.29056656
P	3.39	H	14.5	G 0.15	U 4

Residuals in seconds of arc

1996 08 16	566	0.3−	0.3+	1998 03 03	704	0.6+	0.7−	1998 03 22	704	0.3+	0.6−
1996 08 16	566	0.0	0.2−	1998 03 03	704	1.1+	0.9+	1998 03 22	704	0.5−	0.1−
1996 08 16	566	0.1+	0.2+	1998 03 03	704	0.6−	0.1−	1998 03 22	704	0.4+	1.3+
1996 08 19	566	0.5+	0.3−	1998 03 03	704	0.0	0.7−	1998 03 22	704	0.3+	0.1−
1996 08 19	566	0.5+	0.0	1998 03 04	704	0.5−	0.4+	1998 03 22	704	0.2−	1.1+
1996 08 19	566	0.8+	0.1+	1998 03 04	704	(2.4− 1.0+)		1998 03 22	704	0.0	0.4−
1996 09 15	327	0.8−	0.2−	1998 03 04	704	1.7−	1.2+	1998 03 22	704	0.5+	0.2+
1996 09 15	327	0.0	0.4−	1998 03 04	704	0.1−	0.0	1998 03 22	704	0.4+	0.5+
1996 09 15	327	0.2−	0.1−	1998 03 04	704	0.2+	0.4+	1998 03 22	704	0.3+	1.9+
1996 09 18	327	0.1+	0.3+	1998 03 20	704	0.2+	0.2−	1998 03 22	557	0.1+	0.1−
1996 09 18	327	0.1+	1.5+	1998 03 20	704	0.5+	0.1+	1998 03 22	557	0.1−	0.2+
1996 09 18	327	0.1−	0.2−	1998 03 20	704	0.7−	0.4−	1998 03 22	557	0.3+	0.5−
1996 09 20	327	0.1+	0.1+	1998 03 20	704	0.9+	1.0−	1998 04 01	704	(0.5+ 2.3−)	
1996 09 20	327	0.2+	0.1−	1998 03 20	704	0.1−	1.3−	1998 04 01	704	0.5−	0.1−
1996 09 20	327	0.4−	0.4−	1998 03 21	557	0.7−	1.1−	1998 04 01	704	0.6+	0.7−
1996 09 22	327	0.2−	0.2−	1998 03 21	557	0.0	0.2−	1998 04 01	704	0.8+	0.8+
1996 09 22	327	0.3−	0.0	1998 03 21	557	0.6−	0.2+	1998 04 01	704	1.1−	0.5−
1996 09 22	327	0.1+	0.1+	1998 03 21	557	0.0	0.7−				
1996 09 22	327	0.5−	0.1−	1998 03 22	704	0.4+	0.7+				

1996 RJ₂ = 1998 FO₂₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	47.62426		(2000.0)	P	Q
n	0.28262281	ω	264.45334	+0.05154059	−0.99865878
a	2.2996650	Ω	182.60753	+0.95374063	+0.05068223
e	0.0748594	i	6.20828	+0.29617965	+0.01058061
P	3.49	H	15.0	G	0.15
					U
					4

Residuals in seconds of arc

1996 09 08	566	0.1−	1.1+	1996 10 07	809	(2.3+ 0.5+)		1998 03 20	704	1.2−	1.9+
1996 09 08	566	0.2+	1.0+	1996 10 07	809	(2.8+ 1.2+)		1998 03 20	704	1.3+	0.9+
1996 09 08	566	0.2+	0.5+	1996 10 11	566	0.4−	0.0	1998 03 20	704	0.2−	0.0
1996 09 14	566	0.3−	0.2−	1996 10 11	566	0.8−	0.1−	1998 03 20	704	0.1−	0.7+
1996 09 14	566	0.6+	0.0	1996 10 11	566	0.4−	0.3−	1998 03 20	704	0.1−	0.1+
1996 09 14	566	0.5−	0.1−	1998 03 04	704	0.1−	0.3−	1998 03 22	704	0.7+	0.3+
1996 10 06	809	0.0	0.3−	1998 03 04	704	0.6−	0.1+	1998 03 22	704	0.1+	0.7−
1996 10 06	809	0.4+	0.5−	1998 03 04	704	0.6−	0.4+	1998 03 22	704	0.8+	0.2−
1996 10 06	809	0.7+	0.2+	1998 03 04	704	0.4−	0.2+	1998 03 22	704	0.5+	1.5−
1996 10 07	809	(3.1+ 1.1+)		1998 03 04	704	0.8−	0.2−	1998 03 22	704	1.1+	0.3−

1996 RH₁₀ = 1995 OU₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Gnädig

M	252.19513		(2000.0)	$\mathbf{P}$		$\mathbf{Q}$	
n	0.08360166	ω	338.90248	−0.74573210		−0.65721921	
a	5.1799566	Ω	158.79866	+0.64633856		−0.75345157	
e	0.0785204	i	17.59157	+0.16164807		−0.01933001	
P	11.79	H	12.5	G	0.15	U	5

Residuals in seconds of arc

1995 07 24	691	0.2−	0.1+	1995 07 30	691	0.2+	0.3−	1996 09 21	691	0.5−	0.2+
1995 07 24	691	0.3−	0.1+	1996 09 07	691	0.3−	0.4−	1996 09 21	691	0.4−	0.1−
1995 07 24	691	0.1−	0.1−	1996 09 07	691	0.2−	0.2−	1996 09 21	691	0.1−	0.1+
1995 07 30	691	0.1+	0.1+	1996 09 07	691	0.4−	0.1−				
1995 07 30	691	0.3+	0.1+	1996 09 11	809	1.9+	0.5+				

1996 SO

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden

<i>M</i>	87.16983		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.27088205	ω	37.98558	+0.61703170	−0.78657996
<i>a</i>	2.3656432	Ω	13.96718	+0.69577621	+0.53120646
<i>e</i>	0.2102991	<i>i</i>	5.64591	+0.36765112	+0.31482005
<i>P</i>	3.64	<i>H</i>	16.5	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1996 09 18	684	0.7+	0.4+	1996 10 04	684	0.9−	0.0	1996 12 01	684	1.7−	0.9−
1996 09 18	684	0.6+	0.5+	1996 10 04	684	0.8−	0.0	1996 12 01	684	0.2−	0.5+
1996 09 18	684	0.7+	0.6+	1996 10 06	809	0.1−	0.5−	1996 12 02	684	0.3+	1.2−
1996 09 20	684	0.2+	0.3−	1996 10 06	809	0.4+	1.1−	1996 12 02	684	1.6+	1.2+
1996 09 20	684	0.4+	0.3−	1996 10 06	809	0.3−	1.1−	1998 03 19	684	0.3−	0.5−
1996 09 20	684	0.0	0.2−	1996 10 07	809	1.5+	0.3−	1998 03 19	684	1.5−	0.6+
1996 09 21	684	0.2−	0.0	1996 10 07	809	0.5−	0.3+	1998 03 19	684	0.5+	1.2−
1996 09 21	684	0.0	0.1−	1996 10 07	809	0.3+	0.2−	1998 03 20	684	0.1−	0.5−
1996 09 21	684	0.1+	0.0	1996 10 16	684	0.3−	0.1+	1998 03 20	684	0.2−	0.5−
1996 10 03	684	0.2−	0.2−	1996 10 16	684	0.0	0.3+	1998 03 20	684	0.0	0.8−
1996 10 03	684	0.4−	0.3−	1996 11 01	684	0.1+	0.2+				
1996 10 03	684	0.2−	0.3−	1996 11 01	684	0.4+	0.2+				

1996 SU₄ = 1998 EL₁₀

Id. B. G. Marsden

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	4.97430		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.26636645	ω	122.74081	−0.79672265	−0.60298236
<i>a</i>	2.3923040	Ω	20.26791	+0.50788618	−0.70442507
<i>e</i>	0.0779354	<i>i</i>	6.72434	+0.32754334	−0.37442968
<i>P</i>	3.70	<i>H</i>	14.5	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1996 09 20	327	0.5+	0.2−	1996 10 09	358	(0.3−	2.5−)	1998 03 02	809	0.4+	1.1−
1996 09 20	327	0.1−	0.0	1996 10 10	358	1.3−	0.7+	1998 03 02	809	0.9+	0.6−
1996 09 20	327	0.1+	0.2−	1996 10 10	358	1.7−	0.2−	1998 03 02	809	0.3−	0.1−
1996 09 20	327	0.0	0.1+	1996 10 18	566	0.3+	0.4−	1998 03 20	704	0.5+	0.2+
1996 09 22	327	0.8+	0.5+	1996 10 18	566	0.0	0.5−	1998 03 20	704	0.2−	1.0+
1996 09 22	327	0.3−	0.7+	1996 10 18	566	0.0	0.1−	1998 03 20	704	0.0	0.7+
1996 09 22	327	0.2+	0.0	1996 10 21	358	0.4+	0.0	1998 03 20	704	0.8−	0.5+
1996 10 05	327	0.1+	0.1−	1996 10 21	358	0.9+	0.5−	1998 03 20	704	0.3+	1.0+
1996 10 05	327	0.1+	0.1+	1998 03 01	809	0.2+	0.4−	1998 03 26	566	0.5+	0.1−
1996 10 05	327	0.4+	0.3+	1998 03 01	809	0.8−	0.5−	1998 03 26	566	0.5+	0.0
1996 10 09	358	0.9−	0.8+	1998 03 01	809	0.9−	0.1−	1998 03 26	566	0.4+	0.1+

1996 SH₆ = 1975 TW₁ = 1998 FD₂₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	317.59971		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.28318440	ω	355.46216	−0.98260407	+0.18215136
<i>a</i>	2.2966237	Ω	195.17900	−0.16574190	−0.94804482
<i>e</i>	0.0642533	<i>i</i>	7.94588	−0.08377861	−0.26082927
<i>P</i>	3.48	<i>H</i>	14.5	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1975 10 03	095(73.5−	23.4−)	1996 10 11	566	0.1−	0.1−	1998 03 04	704	1.4−	0.3+	
1996 09 18	327	0.8−	0.1+	1996 10 14	327	0.3−	0.3−	1998 03 04	704	1.5−	0.1−
1996 09 18	327	0.2+	0.5+	1996 10 14	327	0.5+	0.5−	1998 03 20	704	0.6+	0.2−
1996 09 18	327	0.3−	0.3+	1996 10 14	327	0.1+	0.1+	1998 03 20	704	0.8+	0.2+
1996 09 21	327	0.2+	0.6+	1998 03 03	704	0.5+	0.2−	1998 03 20	704	0.5+	0.9+

1996 09 21	327	0.6−	0.6+	1998 03 03	704	1.4+	0.6+	1998 03 20	704	1.4+	0.2−
1996 09 21	327	0.1+	0.7+	1998 03 03	704	0.9+	0.0	1998 03 20	704	1.2+	1.0+
1996 10 05	327	0.8+	0.3−	1998 03 03	704	0.4+	0.4−	1998 03 22	704	0.5−	0.3+
1996 10 05	327	0.4+	0.2−	1998 03 03	704	0.1+	1.4−	1998 03 22	704	0.1+	0.6+
1996 10 05	327	0.0	0.4−	1998 03 04	704	0.9−	0.5−	1998 03 22	704	0.2−	0.3−
1996 10 11	566	0.2−	0.1+	1998 03 04	704	1.4−	0.1−	1998 03 22	704	0.1−	0.3+
1996 10 11	566	0.3−	0.2−	1998 03 04	704	1.2−	0.2+	1998 03 22	704	0.4−	0.2−

1996 TQ₇ = 1998 EC₁₂

Id. B. G. Marsden

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	323.65317		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.28391438	ω	84.55327	−0.99209258	+0.08159232
<i>a</i>	2.2926854	Ω	100.10156	−0.11206135	−0.91804158
<i>e</i>	0.0657410	<i>i</i>	5.55892	+0.05652052	−0.38799789
<i>P</i>	3.47	<i>H</i>	15.5	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1996 10 09	566	1.9+	0.0	1996 10 17	691	1.0−	0.1−	1998 03 02	809	0.4−	0.3+
1996 10 09	566	0.3−	0.0	1996 10 17	691	1.4−	0.3+	1998 03 02	809	0.8−	0.1−
1996 10 09	566	0.8−	0.4+	1996 10 17	691	1.6−	0.4−	1998 03 02	809	0.7−	0.7−
1996 10 12	566	0.8+	0.1+	1998 03 01	809	0.8+	0.0	1998 03 26	566	0.6+	0.2−
1996 10 12	566	0.9+	0.3−	1998 03 01	809	0.6+	0.1−	1998 03 26	566	0.0	0.3−
1996 10 12	566	1.4+	0.1−	1998 03 01	809	0.2−	1.2+	1998 03 26	566	0.1+	0.2−

1996 TS₁₀ = 1998 FS₆₇

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	119.25217		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.30167568	ω	356.80223	+0.81254406	−0.57959596
<i>a</i>	2.2017898	Ω	38.83570	+0.53696904	+0.70290889
<i>e</i>	0.1414973	<i>i</i>	5.67160	+0.22679594	+0.41229554
<i>P</i>	3.27	<i>H</i>	15.0	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1996 10 09	399	1.1−	0.6−	1996 11 06	399	0.4−	0.9+	1998 03 22	704	0.2+	1.5+
1996 10 09	399	1.1−	0.2+	1998 03 20	704	0.1+	0.7−	1998 03 22	704	0.9−	0.4−
1996 10 10	399	0.4+	0.2−	1998 03 20	704	0.1+	0.4−	1998 03 22	704	1.8−	1.0+
1996 10 10	399	1.5+	0.1+	1998 03 20	704	0.0	1.4+	1998 03 22	704	1.6+	1.2−
1996 10 16	399	0.1−	0.2−	1998 03 20	704	0.5−	0.0	1998 03 24	699	(2.1+	0.2+)
1996 10 16	399	0.9+	0.8+	1998 03 20	704	(4.6−	0.5−)	1998 03 24	699	(2.1+	0.0)
1996 11 06	399	0.2−	1.0−	1998 03 22	704	1.5+	1.3−	1998 03 24	699	0.4−	0.1−

1996 TG₁₃ = 1998 FB₆₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	47.38368		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.25501202	ω	121.86844	−0.24547038	−0.96933698
<i>a</i>	2.4627989	Ω	342.33043	+0.87623302	−0.21682888
<i>e</i>	0.1551120	<i>i</i>	2.15377	+0.41468059	−0.11563331
<i>P</i>	3.86	<i>H</i>	15.0	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1996 10 14	400	1.5+	1.4+	1996 10 21	400	1.1+	0.5+	1998 03 22	704	0.0	0.5−
1996 10 14	400	0.8+	1.5−	1996 10 21	400	0.6+	1.5+	1998 03 22	704	0.3+	0.2−
1996 10 16	566	0.1−	0.1+	1998 03 20	704	(0.5−	2.7−)	1998 04 01	704	0.4+	0.4+
1996 10 16	566	0.7−	0.1+	1998 03 20	704	0.6+	1.3+	1998 04 01	704	(2.3+	0.8+)
1996 10 16	566	1.1−	0.3−	1998 03 20	704	0.1−	0.7+	1998 04 01	704	(1.3−	3.1+)
1996 10 17	400	1.1−	0.2+	1998 03 20	704	0.5−	0.0	1998 04 01	704	1.3−	0.6+
1996 10 17	400	0.4+	0.3−	1998 03 22	704	1.0+	1.2−	1998 04 01	704	1.5+	0.3−
1996 10 21	400	1.4−	1.7−	1998 03 22	704	1.9−	0.8−				

1998 APR. 11

M.P.C. 31547

1996 TT₁₄ = 1998 FF₃₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	149.39759		(2000.0)	P		Q	
<i>n</i>	0.30445457	ω	238.91956	+0.99869761	−0.00760238		
<i>a</i>	2.1883715	Ω	121.47185	+0.02570100	+0.92917453		
<i>e</i>	0.1952114	<i>i</i>	3.39116	−0.04407432	+0.36956310		
<i>P</i>	3.24	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 10 09	399	0.1+	0.0	1996 11 06	399	0.1+	0.1−	1998 03 20	704	0.9+	0.3−
1996 10 09	399	0.7−	0.5−	1996 11 15	399	0.3−	0.3+	1998 03 22	704	1.4−	0.2+
1996 10 10	399	0.2+	0.8+	1996 11 15	399	0.1+	0.3−	1998 03 22	704	0.0	0.4−
1996 10 10	399	0.3+	0.1−	1998 03 20	704	0.4−	0.7+	1998 03 22	704	0.6−	0.6+
1996 11 03	399	0.6−	0.5+	1998 03 20	704	0.6+	0.8+	1998 03 22	704	0.1−	0.7−
1996 11 03	399	0.3+	1.4−	1998 03 20	704	1.0+	0.3−				
1996 11 06	399	0.5+	0.8+	1998 03 20	704	0.1+	0.4−				

1996 TG₁₅ = 1998 FQ₅₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	105.50251		(2000.0)	P		Q	
<i>n</i>	0.27052421	ω	332.72033	+0.78196958	−0.62111044		
<i>a</i>	2.3677288	Ω	65.77489	+0.58184630	+0.69721098		
<i>e</i>	0.1994995	<i>i</i>	3.29381	+0.22355864	+0.35793669		
<i>P</i>	3.64	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 10 09	399	0.1+	0.2+	1996 12 08	327	0.1+	0.8−	1998 03 20	704	0.1−	0.6+
1996 10 09	399	1.9−	1.7+	1996 12 08	327	0.1−	0.5−	1998 03 20	704	0.4+	0.7−
1996 10 10	399	0.7+	0.2−	1996 12 08	327	0.5+	0.6−	1998 03 20	704	(6.8−	0.8+)
1996 10 10	399	0.1+	0.9−	1996 12 12	327	0.9+	0.1−	1998 03 22	704	0.2+	1.1+
1996 10 16	399	1.1−	0.9+	1996 12 12	327	0.6+	0.2−	1998 03 22	704	0.0	1.4+
1996 10 16	399	0.2+	2.0+	1996 12 12	327	1.0+	0.0	1998 03 22	704	1.0−	1.4+
1996 11 06	399	0.9−	0.7−	1998 03 20	704	1.8+	0.4+	1998 03 22	704	(5.1−	1.0+)
1996 11 06	399	0.3−	1.1+	1998 03 20	704	0.2+	0.9−				

1996 TY₄₆ = 1998 FL₃₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	112.09116		(2000.0)	P		Q	
<i>n</i>	0.26595637	ω	116.74549	+0.77426131	−0.63283962		
<i>a</i>	2.3947625	Ω	282.51502	+0.57851910	+0.71144669		
<i>e</i>	0.0389452	<i>i</i>	0.33935	+0.25658346	+0.30554479		
<i>P</i>	3.71	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1996 10 10	691	0.0	2.0−	1996 11 15	817	0.3+	0.0	1998 03 20	704	0.4−	0.7−
1996 10 10	691	0.4+	0.0	1996 11 16	817	0.0	0.2+	1998 03 20	704	1.0+	0.8−
1996 10 11	691	0.0	0.2+	1996 11 16	817	0.1−	0.5+	1998 03 22	704	0.1−	0.2+
1996 10 11	691	0.0	0.1+	1996 11 16	817	0.3−	0.4+	1998 03 22	704	1.3−	0.4+
1996 10 11	691	0.2−	0.1+	1998 03 20	704	0.1−	1.6+	1998 03 22	704	0.7−	0.4−
1996 11 15	817	0.2−	0.1+	1998 03 20	704	1.7+	0.4−	1998 03 22	704	1.5−	0.8−
1996 11 15	817	0.0	0.0	1998 03 20	704	1.2+	0.6+				

1996 TY₆₄ = 1998 FR₄₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	48.86560		(2000.0)	P		Q	
<i>n</i>	0.24486646	ω	167.03251	−0.10606675	−0.99435260		
<i>a</i>	2.5303650	Ω	289.05603	+0.91196908	−0.09584675		
<i>e</i>	0.1365322	<i>i</i>	0.21641	+0.39631079	−0.04556645		
<i>P</i>	4.03	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 09 21	327	0.2+	0.3+	1996 11 07	327	0.2+	0.7+	1998 03 22	704	0.6−	0.4−
1996 09 21	327	0.6+	0.1−	1996 11 07	327	0.5+	0.4+	1998 03 22	704	(2.4+	0.4−)
1996 09 21	327	0.1−	0.3+	1996 11 07	327	0.7−	0.7+	1998 03 22	704	0.4+	0.5−

1996 10 05	327	0.3−	0.7−	1998 03 20	704	1.3+	0.3−	1998 04 01	704	1.4−	1.0−
1996 10 05	327	0.0	0.3−	1998 03 20	704	(0.1+	2.1+)	1998 04 01	704	1.6+	1.6+
1996 10 05	327	0.6−	0.6−	1998 03 20	704	0.9−	0.0	1998 04 01	704	0.1−	1.8+
1996 10 18	566	0.2+	0.4−	1998 03 20	704	0.4−	1.3−	1998 04 01	704	(4.7−	0.7+)
1996 10 18	566	0.1+	0.6−	1998 03 20	704	(4.5−	2.6−)				
1996 10 18	566	0.0	0.1+	1998 03 22	704	0.0	0.2−				

1996 UF = 1970 PZ = 1988 BJ₂ = 1998 FJ₄₆

Id. G. V. Williams, S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	164.51458		(2000.0)	P		Q	
<i>n</i>	0.30721204	ω	201.47373	+0.98814844	+0.15285983		
<i>a</i>	2.1752569	Ω	149.72306	−0.13647584	+0.91668140		
<i>e</i>	0.1553039	<i>i</i>	1.59333	−0.07026378	+0.36922768		
<i>P</i>	3.21	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1970 08 11	095	0.8−	3.0+	1996 10 20	411	0.7−	0.8−	1998 03 20	704	0.1−	0.2+
1988 01 22	303	0.5−	2.1+	1996 10 21	411	0.6−	0.5−	1998 03 20	704	0.9+	0.0
1988 01 22	303	0.2−	1.9+	1996 10 21	411	0.6−	0.1−	1998 03 20	704	0.2−	0.0
1988 01 22	303	2.4+	2.6+	1996 11 03	411	0.5+	0.8−	1998 03 20	704	1.9−	3.1−
1988 01 23	303	(5.9+	0.3+)	1996 11 03	411	0.1+	0.6+	1998 03 20	704	1.1−	0.8+
1988 01 23	303	(6.1+	6.4−)	1996 11 13	411	0.6+	0.1−	1998 03 22	704	0.1−	0.1−
1988 01 23	303	(6.8+	5.3−)	1996 11 13	411	0.2+	0.6+	1998 03 22	704	0.7+	0.5−
1996 10 16	411	1.1−	0.4+	1996 11 30	411	0.8+	0.8+	1998 03 22	704	0.1+	0.3−
1996 10 16	411	0.0	0.1−	1996 11 30	411	0.1−	0.4+	1998 03 22	704	0.3−	0.8−
1996 10 17	411	1.4+	0.0	1997 01 15	566	0.4+	0.1+	1998 03 22	704	0.4+	0.3−
1996 10 17	411	0.7+	1.2−	1997 01 15	566	0.6+	0.2+				
1996 10 20	411	0.0	1.1−	1997 01 15	566	0.2+	0.8−				

1996 UN

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	21.95244		(2000.0)	P		Q	
<i>n</i>	0.29717269	ω	304.18082	−0.80365974	−0.59444343		
<i>a</i>	2.2239761	Ω	199.39257	+0.56976137	−0.75517834		
<i>e</i>	0.1407817	<i>i</i>	4.78772	+0.17176437	−0.27630181		
<i>P</i>	3.32	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1996 10 18	046	0.3−	0.1+	1996 10 31	046	1.0+	0.9+	1996 12 12	046	0.1+	0.4−
1996 10 18	046	0.2−	0.2+	1996 11 02	046	0.4−	0.8+	1996 12 12	046	0.3−	0.5−
1996 10 18	046	0.1−	0.4−	1996 11 02	046	0.4−	0.2+	1996 12 29	046	0.5+	0.2+
1996 10 18	046	0.1+	0.2+	1996 11 02	046	0.1−	0.1+	1997 01 08	046	0.6−	0.0
1996 10 19	046	0.0	0.0	1996 11 16	046	0.7−	0.0	1997 01 08	046	0.8+	0.7+
1996 10 19	046	0.1−	0.1−	1996 11 16	046	0.2−	0.4−	1997 01 08	046	0.2−	0.2+
1996 10 19	046	0.3−	0.7−	1996 11 16	046	0.7−	0.0	1998 02 27	046	0.2+	0.1+
1996 10 19	046	0.9−	0.0	1996 11 17	046	0.2−	0.2+	1998 02 27	046	0.2−	0.2−
1996 10 19	046	1.0+	0.8−	1996 11 17	046	0.2−	0.4−	1998 02 27	046	0.4+	0.3+
1996 10 23	046	1.1+	0.6+	1996 11 17	046	0.6−	0.0	1998 03 24	046	0.1−	0.3−
1996 10 23	046	0.5+	0.5+	1996 12 11	046	0.5−	0.2−	1998 03 24	046	0.6−	0.1−
1996 10 23	046	0.8+	0.0	1996 12 11	046	0.3+	0.2−	1998 03 24	046	0.3+	0.2−
1996 10 31	046	0.3+	0.1+	1996 12 11	046	0.5−	0.7−				
1996 10 31	046	0.9+	0.5−	1996 12 12	046	0.2−	0.3−				

1996 VN

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	27.56492		(2000.0)	P		Q	
<i>n</i>	0.22410648	ω	120.47658	−0.48176490	−0.87629615		
<i>a</i>	2.6843127	Ω	358.31681	+0.76826976	−0.42085302		
<i>e</i>	0.2102340	<i>i</i>	5.40098	+0.42150227	−0.23449477		
<i>P</i>	4.40	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 10 04	691	0.7−	0.7+	1996 11 09	046	0.5+	0.4+	1998 02 27	046	0.2−	0.9+
1996 10 04	691	0.7−	0.6+	1996 11 16	046	0.0	0.5+	1998 03 20	704	0.4−	1.9+

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1996 10 04	691	0.6−	0.5+	1996 11 16	046	0.1−	0.3+	1998 03 20	704	1.7+	0.7−
1996 10 18	566	0.0	0.1−	1996 11 16	046	0.2−	0.6+	1998 03 20	704	0.4+	0.3+
1996 10 18	566	0.0	0.3+	1996 11 30	046	0.8−	0.4−	1998 03 20	704	0.2−	0.2+
1996 10 18	566	0.1+	0.1+	1996 11 30	046	0.7−	0.3−	1998 03 20	704	1.5−	0.9+
1996 11 03	046	0.3+	0.3−	1996 11 30	046	0.2−	0.4−	1998 03 22	704	0.1−	0.4−
1996 11 03	046	0.2−	0.1+	1996 12 03	046	0.6−	0.1−	1998 03 22	704	0.6+	0.6−
1996 11 03	046	0.0	0.3−	1996 12 03	046	0.2+	0.2−	1998 03 22	704	0.2+	1.4−
1996 11 03	046	0.3+	0.0	1996 12 03	046	0.3+	0.1+	1998 03 22	704	0.5−	0.2−
1996 11 03	046	0.0	0.3−	1996 12 04	046	0.4+	0.6−	1998 03 22	704	0.5−	0.5−
1996 11 03	046	0.2−	0.5−	1996 12 04	046	0.5−	0.2+	1998 03 24	046	0.8+	0.0
1996 11 03	046	0.1+	0.4−	1996 12 04	046	0.9−	0.3+	1998 03 24	046	0.4+	0.2−
1996 11 03	046	0.0	0.3−	1996 12 29	046	0.0	0.2+	1998 03 24	046	0.1+	0.1−
1996 11 04	046	0.4+	0.3−	1996 12 29	046	0.1−	0.0	1998 04 01	704	0.0	0.3−
1996 11 04	046	0.6+	0.2−	1996 12 29	046	0.0	0.4+	1998 04 01	704	0.1−	0.1+
1996 11 04	046	0.3+	0.3−	1997 01 08	046	1.2+	0.5−	1998 04 01	704	0.3+	0.3+
1996 11 04	046	0.2+	0.3−	1997 01 08	046	0.3+	0.1+	1998 04 01	704	0.2+	0.5−
1996 11 04	046	0.4+	0.2−	1997 01 08	046	0.2+	0.2+	1998 04 01	704	0.2−	0.3−
1996 11 09	046	0.4+	0.3+	1998 02 27	046	0.7−	0.6+				
1996 11 09	046	0.6+	0.6+	1998 02 27	046	0.3−	0.5+				

1996 VW

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Urata

<i>M</i>	101.95427		(2000.0)	P	Q
<i>n</i>	0.29271728	ω	199.94427	+0.49052411	−0.87052799
<i>a</i>	2.2464865	Ω	220.70766	+0.80752917	+0.47116125
<i>e</i>	0.1212670	<i>i</i>	3.47983	+0.32754043	+0.14208481
<i>P</i>	3.37	<i>H</i>	15.0	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1996 11 03	385	0.6+	0.5+	1996 11 13	385	0.1+	0.4−	1997 01 09	385	0.2−	0.6−
1996 11 03	385	0.5+	0.4−	1996 11 13	385	0.0	0.1−	1997 01 09	385	0.3+	0.2+
1996 11 03	385	0.2−	0.0	1996 11 13	385	0.1+	0.3−	1998 04 03	385	0.0	0.3+
1996 11 04	385	0.6−	0.3+	1996 11 30	385	0.0	0.5+	1998 04 03	385	0.1+	0.2+
1996 11 06	385	0.5+	0.1−	1996 11 30	385	0.1+	0.2+	1998 04 04	888	0.2+	0.1−
1996 11 06	385	0.3+	0.2−	1996 11 30	385	0.2−	0.4−	1998 04 04	888	0.4−	0.4−
1996 11 09	385	0.6−	0.1−	1996 12 02	385	0.2−	0.6+	1998 04 04	888	0.1+	0.0
1996 11 09	385	0.5−	0.6−	1996 12 02	385	0.1+	0.3+				
1996 11 09	385	0.3−	0.7+	1996 12 02	385	0.4+	0.1−				

1996 VE₁ = 1998 EW₁₄

Id. A. Miyamoto

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Nakano

<i>M</i>	111.96432		(2000.0)	P	Q
<i>n</i>	0.24305432	ω	271.50192	+0.78288704	−0.61342865
<i>a</i>	2.5429266	Ω	126.34870	+0.60972131	+0.72323013
<i>e</i>	0.0982444	<i>i</i>	7.41112	+0.12380556	+0.31724355
<i>P</i>	4.06	<i>H</i>	15.0	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1996 11 03	867	0.1−	0.5+	1996 11 22	867	0.0	0.2+	1997 01 12	867	0.6−	0.5+
1996 11 03	867	0.0	0.3+	1996 11 22	867	0.1+	0.1+	1997 01 12	867	0.0	0.4+
1996 11 06	867	0.1+	0.9+	1996 11 22	867	0.2+	0.6+	1997 02 05	867	1.0+	0.5−
1996 11 06	867	0.2+	0.7+	1996 11 22	867	0.1+	0.1+	1997 02 05	867	0.6+	1.5+
1996 11 06	867	0.6+	1.2+	1996 12 03	867	(4.4+	0.2−)	1997 02 05	867	0.8+	1.7−
1996 11 06	867	0.6+	0.8+	1996 12 03	867	0.8+	0.1−	1998 03 03	867	0.1−	0.2+
1996 11 13	867	1.2+	1.6−	1996 12 07	691	0.7−	0.2+	1998 03 03	867	0.2+	0.1+
1996 11 13	867	0.4+	0.3−	1996 12 07	691	0.5−	0.3−	1998 03 03	867	0.1+	0.3+
1996 11 13	867	0.6+	0.6−	1996 12 07	691	0.3−	0.2+	1998 03 25	867	0.3+	0.1+
1996 11 19	691	1.6−	0.1+	1996 12 29	867	0.2+	1.3−	1998 03 25	867	0.1−	0.2+
1996 11 19	691	1.8−	0.3+	1996 12 29	867	0.2+	1.3−	1998 03 25	867	0.1+	0.2+
1996 11 19	691	1.7−	0.3+	1996 12 29	867	0.2+	1.4−				

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1996 VF₁ = 1998 FK₆₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	80.45741		(2000.0)	P	Q
<i>n</i>	0.26383492	ω	40.78390	+0.30929819	−0.95034729
<i>a</i>	2.4075826	Ω	31.24376	+0.85442522	+0.26189627
<i>e</i>	0.1548727	<i>i</i>	3.78873	+0.41748315	+0.16807845
<i>P</i>	3.74	<i>H</i>	16.5	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1996 10 29	327	0.4−	0.5+	1996 11 13	388	0.8−	0.2+	1996 12 29	388	0.5−	0.7+
1996 10 29	327	0.6−	0.7+	1996 11 13	388	0.5+	0.2+	1996 12 29	388	2.6+	0.9+
1996 10 29	327	0.2−	0.4+	1996 11 13	388	0.3−	0.1−	1996 12 30	388	0.5−	0.2−
1996 11 04	388	0.5+	0.3+	1996 11 13	388	0.2−	0.1−	1996 12 30	388	0.7−	0.2−
1996 11 04	388	0.1+	0.3+	1996 11 13	388	0.5+	0.2−	1998 03 20	704	0.7+	0.8+
1996 11 06	388	0.6+	0.2−	1996 11 16	388	0.3+	0.2+	1998 03 20	704	1.4−	0.8+
1996 11 06	388	0.5+	0.2−	1996 11 16	388	0.1−	0.2−	1998 03 20	704	2.0−	1.0+
1996 11 06	388	0.7+	0.2−	1996 11 16	388	0.2−	0.1−	1998 03 20	704	0.7+	0.4+
1996 11 06	388	0.1+	0.1+	1996 11 16	388	0.3+	0.3−	1998 03 22	704	0.7−	1.1−
1996 11 13	388	0.1+	0.3−	1996 11 17	388	0.1+	0.0	1998 03 22	704	1.2+	1.6−
1996 11 13	388	0.3+	1.0−	1996 12 03	388	0.1−	0.1+	1998 03 22	704	1.5+	0.4−
1996 11 13	388	2.0−	0.0	1996 12 03	388	0.2−	0.2+	1998 03 22	704	(4.9−	0.3−)
1996 11 13	388	0.5−	0.3−	1996 12 29	388	0.3−	0.1−				
1996 11 13	388	0.9+	0.6−	1996 12 29	388	0.6−	0.5−				

1996 VL₃ = 1987 SR₆ = 1998 FP₂₅

Id. G. B. Williams, M. W. Buie

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	121.95379		(2000.0)	P	Q
<i>n</i>	0.22830600	ω	134.84577	+0.93098516	−0.36265965
<i>a</i>	2.6512937	Ω	246.45913	+0.32077024	+0.86729334
<i>e</i>	0.1001572	<i>i</i>	2.61131	+0.17427875	+0.34099889
<i>P</i>	4.32	<i>H</i>	13.5	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1987 09 21	046	(2.6−	1.3−)	1996 11 30	411	0.6−	0.1−	1998 03 20	704	0.3−	0.0
1987 09 22	046	0.2+	0.6−	1996 12 08	411	0.0	0.1+	1998 03 20	704	0.5+	0.3+
1987 09 23	095	(4.7+	2.0+)	1996 12 08	411	0.0	0.4−	1998 03 20	704	0.3+	0.2+
1996 11 06	411	0.8+	0.4+	1998 01 08	688	0.1−	0.2+	1998 03 20	704	0.5+	1.6−
1996 11 06	411	0.5+	0.4+	1998 01 08	688	0.2+	0.6−	1998 03 20	704	0.3+	0.9+
1996 11 13	411	0.2−	0.1−	1998 03 03	704	1.6+	0.5+	1998 03 22	704	0.5+	0.4−
1996 11 13	411	0.3+	0.4−	1998 03 03	704	1.8−	0.9+	1998 03 22	704	0.7+	0.2+
1996 11 15	411	0.1−	0.7+	1998 03 03	704	1.2−	1.2−	1998 03 22	704	1.2+	0.3−
1996 11 15	411	0.4+	0.3−	1998 03 03	704	(2.2−	0.7+)	1998 03 22	704	0.9−	0.8−
1996 11 30	411	1.1−	0.0	1998 03 03	704	1.3−	0.3+	1998 03 22	704	0.2−	0.7+

1996 VX₄ = 1998 FV₃₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	162.66846		(2000.0)	P	Q
<i>n</i>	0.27144999	ω	16.24565	+0.97661412	+0.21442295
<i>a</i>	2.3623423	Ω	331.35812	−0.20073168	+0.88313764
<i>e</i>	0.2283937	<i>i</i>	1.88140	−0.07701717	+0.41724178
<i>P</i>	3.63	<i>H</i>	14.5	<i>G</i>	0.15
				<i>U</i>	6

Residuals in seconds of arc

1996 11 13	411	0.3−	0.1−	1996 11 30	411	0.2−	0.4−	1998 03 20	704	1.5−	1.0+
1996 11 13	411	1.8+	0.2+	1996 11 30	411	0.0	0.2−	1998 03 22	704	0.4−	0.9+
1996 11 14	411	1.3+	1.5+	1996 12 08	411	0.3+	0.6+	1998 03 22	704	0.3−	0.6−
1996 11 14	411	0.8−	0.6+	1996 12 08	411	0.5+	0.2+	1998 03 22	704	0.1−	1.3−
1996 11 14	411	0.4+	0.2+	1998 03 20	704	1.2+	0.4+	1998 03 22	704	1.3+	0.5+
1996 11 19	411	0.3−	0.4−	1998 03 20	704	1.3−	0.2−	1998 03 22	704	0.1+	1.0−
1996 11 19	411	2.5−	2.2−	1998 03 20	704	1.1+	0.3+				

1996 VS₅ = 1982 OV

Id. J. Roe (1998 observations), S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	289.73266		(2000.0)	P	Q
<i>n</i>	0.24047375	ω	358.65916	-0.58250994	+0.78774980
<i>a</i>	2.5610866	Ω	235.67287	-0.74347493	-0.61598925
<i>e</i>	0.0576643	<i>i</i>	14.03891	-0.32852274	-0.00273810
<i>P</i>	4.10	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1982 07 17	413	1.1+	0.1+	1996 11 19	411	0.0	0.3+	1998 03 22	732	0.9+	1.1+
1982 07 17	413	1.1-	0.3-	1996 11 19	411	0.4-	0.1-	1998 03 22	732	0.6-	0.1+
1996 11 14	411	0.1+	0.3-	1996 11 30	411	0.2-	0.1+	1998 03 22	732	0.5-	0.6+
1996 11 14	411	0.1+	0.2+	1996 11 30	411	0.6-	0.5+	1998 03 24	732	0.2+	1.8-
1996 11 15	411	0.1-	0.8-	1996 12 08	411	0.2-	0.1-				
1996 11 15	411	1.6+	0.2-	1996 12 08	411	0.2-	0.2+				

1996 VY₅ = 1998 GN

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	114.21350		(2000.0)	P	Q
<i>n</i>	0.25676180	ω	329.12689	+0.80424781	-0.59309747
<i>a</i>	2.4515971	Ω	67.29731	+0.55325484	+0.72404165
<i>e</i>	0.1764597	<i>i</i>	2.34176	+0.21701276	+0.35213503
<i>P</i>	3.84	<i>H</i>	16.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 11 15	411	0.4+	1.3+	1996 11 30	411	1.9-	1.8-	1998 04 03	691	0.8-	0.6+
1996 11 15	411	0.3-	0.1+	1996 12 01	411	0.6-	0.9+	1998 04 03	691	0.8-	0.0
1996 11 16	411	0.3+	0.4+	1996 12 01	411	0.7+	0.3-	1998 04 04	691	0.8+	0.2-
1996 11 16	411	0.2+	1.1-	1996 12 06	411	1.0+	0.1+	1998 04 04	691	0.7+	0.0
1996 11 19	411	0.8+	0.6+	1996 12 06	411	0.0	0.6+	1998 04 04	691	0.8+	0.2-
1996 11 19	411	1.0-	0.4-	1996 12 06	411	0.3+	0.0				
1996 11 30	411	0.0	0.4-	1998 04 03	691	0.6-	0.2-				

1996 VQ₈ = 1998 FX₃₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	127.29134		(2000.0)	P	Q
<i>n</i>	0.25968113	ω	188.68946	+0.97602623	-0.21762078
<i>a</i>	2.4331887	Ω	183.88587	+0.20286424	+0.91580360
<i>e</i>	0.2028622	<i>i</i>	3.16530	+0.07886005	+0.33755735
<i>P</i>	3.80	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1996 11 07	400	0.3+	0.5-	1996 11 16	400	0.3-	0.4+	1998 03 22	704	0.9-	0.1-
1996 11 07	400	0.2-	0.4-	1996 11 16	400	0.4-	0.2+	1998 03 22	704	1.3+	0.8-
1996 11 08	400	0.1-	0.8-	1998 03 20	704	0.9+	0.3+	1998 03 22	704	0.2-	1.8+
1996 11 08	400	0.1-	0.6+	1998 03 20	704	1.2-	0.9-	1998 03 22	704	0.7-	0.6+
1996 11 15	400	0.2+	0.1-	1998 03 20	704	0.5+	1.4-				
1996 11 15	400	0.6+	0.6+	1998 03 20	704	0.5+	0.4+				

1996 VZ₈ = 1998 BF₂₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	147.45991		(2000.0)	P	Q
<i>n</i>	0.28873853	ω	223.56472	+0.99064306	-0.13497191
<i>a</i>	2.2670767	Ω	144.17763	+0.13276759	+0.91875489
<i>e</i>	0.1609000	<i>i</i>	1.98002	+0.03160859	+0.37104182
<i>P</i>	3.41	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 11 07	400	0.1-	1.6+	1998 01 28	910	0.1-	0.2+	1998 03 20	704	1.3-	1.4-
1996 11 07	400	1.8+	0.5+	1998 01 30	910	0.2+	0.8+	1998 03 20	704	0.9+	0.9-
1996 11 08	400	1.4-	0.1+	1998 01 30	910	0.3+	0.5+	1998 03 22	704	1.8-	1.6-
1996 11 16	400	0.2-	0.3-	1998 01 30	910	0.1+	0.4+	1998 03 22	704	0.4+	0.7-
1996 11 16	400	0.0	2.1-	1998 03 20	704	1.0-	0.5-	1998 03 22	704	0.6-	0.3+
1998 01 28	910	0.2+	0.1+	1998 03 20	704	0.5+	0.5+	1998 03 22	704	1.4+	1.3+
1998 01 28	910	0.1-	0.3+	1998 03 20	704	0.7+	0.1-	1998 03 22	704	0.4+	1.1+

1996 VZ₁₂ = 1981 UG₄ = 1991 KX₂ = 1991 LP₆ = 1998 FC₅₄

Id. A. Doppler, G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	69.82895		(2000.0)	P	Q
<i>n</i>	0.26251605	ω	223.19533	+0.06515876	-0.99737590
<i>a</i>	2.4156396	Ω	223.09736	+0.92764712	+0.07219551
<i>e</i>	0.0343757	<i>i</i>	2.64701	+0.36772973	-0.00539575
<i>P</i>	3.75	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1981 10 30	381	1.0-	0.9+	1996 11 10	691	0.3+	0.0	1998 03 22	704	0.8+	0.4+
1981 10 30	381	0.7+	0.5+	1996 11 10	691	0.1+	0.2-	1998 03 22	704	0.2+	0.2-
1991 05 18	809	0.7-	0.9+	1996 11 10	691	0.3+	0.3+	1998 03 22	704	0.6+	0.4-
1991 05 18	809	0.0	0.7+	1996 11 18	691	0.2-	0.1+	1998 03 22	704	0.3+	0.9+
1991 05 18	809	1.7-	0.1-	1996 11 18	691	0.3-	0.3+	1998 04 01	704	0.1-	0.5-
1991 06 06	809	1.9+	0.5-	1996 11 18	691	0.3-	0.2+	1998 04 01	704	0.4+	0.8+
1991 06 06	809	0.9+	0.2+	1998 03 20	704	0.3-	0.5+	1998 04 01	704	0.4-	0.2-
1991 06 06	809	0.3-	0.5+	1998 03 20	704	0.2-	0.9-	1998 04 01	704	0.5+	0.8-
1996 11 05	691	0.1-	0.0	1998 03 20	704	0.1+	1.3+	1998 04 01	704	1.0-	0.2-
1996 11 05	691	0.0	0.1-	1998 03 20	704	0.3+	0.7+				
1996 11 05	691	0.0	0.0	1998 03 20	704	1.0-	0.5-				

1996 WD

Id. T. Kobayashi (1998 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Nakano

<i>M</i>	132.32165		(2000.0)	P	Q
<i>n</i>	0.22501680	ω	308.33111	+0.97148123	-0.16447349
<i>a</i>	2.6770681	Ω	61.73840	+0.22739177	+0.85039544
<i>e</i>	0.1979182	<i>i</i>	11.18140	-0.06721014	+0.49977601
<i>P</i>	4.38	<i>H</i>	11.9	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 11 16	411	0.6+	0.5+	1996 11 19	411	0.5+	0.2-	1996 12 28	411	0.0	0.0
1996 11 16	411	0.7-	1.3-	1996 12 06	411	0.6-	0.1+	1998 03 16	411	0.3+	0.1-
1996 11 17	411	0.1-	0.2-	1996 12 06	411	0.6-	0.3+	1998 03 16	411	0.0	0.2-
1996 11 17	411	0.5+	0.0	1996 12 19	411	0.6+	0.2+	1998 03 16	411	0.6-	0.4+
1996 11 17	411	0.4-	0.4+	1996 12 19	411	0.3+	0.2-	1998 03 18	411	0.1-	0.2+
1996 11 19	411	0.2+	0.7+	1996 12 28	411	0.0	0.2-	1998 03 18	411	0.4+	0.4-

1996 XJ₁ = 1998 FT₅₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	204.01047		(2000.0)	P	Q
<i>n</i>	0.25690867	ω	249.87302	+0.85524771	+0.51450268
<i>a</i>	2.4506627	Ω	79.11777	-0.44877778	+0.79511375
<i>e</i>	0.1897206	<i>i</i>	3.61713	-0.25913291	+0.32106248
<i>P</i>	3.84	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 12 02	411	0.2+	0.5-	1996 12 14	411	0.3+	0.2+	1998 03 20	704	0.1-	0.7+
1996 12 02	411	0.7+	0.4+	1996 12 28	411	0.3-	0.7-	1998 03 22	704	0.1-	0.3-
1996 12 03	411	0.0	0.1+	1996 12 28	411	0.4+	0.7+	1998 03 22	704	0.8-	2.2-
1996 12 03	411	0.9-	0.3+	1998 03 20	704	0.8-	0.1+	1998 03 22	704	0.9-	0.3-
1996 12 08	411	0.7-	0.0	1998 03 20	704	3.6+	0.9+	1998 03 22	704	0.3+	1.0-
1996 12 08	411	0.6+	0.3-	1998 03 20	704	0.1-	2.0+	1998 03 22	704	0.5+	0.8+
1996 12 14	411	0.4-	0.0	1998 03 20	704	1.5-	0.7-				

1996 XM₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	204.71813		(2000.0)	P	Q
<i>n</i>	0.29950476	ω	248.89662	+0.87663712	+0.47329054
<i>a</i>	2.2124165	Ω	82.76651	-0.40267226	+0.82020654
<i>e</i>	0.2402220	<i>i</i>	5.00929	-0.26336742	+0.32133674
<i>P</i>	3.29	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 11 08	327	0.1−	0.4+	1996 12 08	411	0.6−	0.1+	1997 03 09	046	0.2+	0.7−
1996 11 08	327	0.7+	0.6+	1996 12 08	411	0.5−	0.1+	1997 03 09	046	0.2+	0.3−
1996 11 08	327	0.1+	0.4+	1996 12 09	046	0.3−	0.4+	1997 03 09	046	0.4−	0.7−
1996 12 04	046	0.4+	0.1−	1996 12 10	046	0.6+	1.0−	1998 02 27	046	0.2−	0.1−
1996 12 04	046	0.1−	0.2−	1996 12 10	046	1.2+	0.9−	1998 02 27	046	0.1+	0.1−
1996 12 04	046	0.2+	0.9−	1996 12 12	046	0.2−	0.0	1998 02 27	046	0.3−	0.1−
1996 12 04	046	0.1+	0.7+	1996 12 12	046	0.0	0.1+	1998 03 24	046	0.1+	0.6+
1996 12 04	046	0.6+	0.4−	1996 12 12	046	0.0	0.1−	1998 03 24	046	0.0	0.5+
1996 12 05	046	0.3−	0.1+	1996 12 28	046	0.0	0.7+	1998 03 24	046	0.2+	0.5+
1996 12 05	046	0.2−	0.1−	1996 12 28	046	0.3−	0.8+	1998 03 26	566	0.5−	0.2−
1996 12 05	046	0.9−	0.0	1996 12 28	046	0.2−	0.4+	1998 03 26	566	0.2+	0.8−
1996 12 05	046	0.1−	0.4−	1997 03 04	046	0.1+	0.3−	1998 03 26	566	0.6+	0.1−
1996 12 07	411	0.7−	0.6+	1997 03 04	046	0.4+	0.4+				
1996 12 07	411	0.2+	0.1−	1997 03 04	046	0.3+	0.1+				

1996 XW₅ = 1992 AH₃

Id. S. Nakano, T. Kobayashi, A. Gnädig

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	305.41283		(2000.0)	<i>P</i>		<i>Q</i>
<i>n</i>	0.18341668	<i>ω</i>	285.24446	−0.69463295	+0.70577478	
<i>a</i>	3.0679162	<i>Ω</i>	299.88727	−0.58292692	−0.66561123	
<i>e</i>	0.0505302	<i>i</i>	9.23664	−0.42152256	−0.24257710	
<i>P</i>	5.37	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>
						4

Residuals in seconds of arc

1992 01 11	303	0.0	0.0	1996 12 28	411	0.1+	0.2+	1998 03 31	704	0.4−	0.1−
1992 01 12	303	(4.7−	0.6−)	1996 12 28	411	0.1−	0.2−	1998 03 31	704	1.0−	0.2−
1996 12 07	411	0.6−	0.6+	1998 03 18	411	0.8+	0.0	1998 04 01	704	0.1+	0.4−
1996 12 07	411	0.3+	0.3+	1998 03 18	411	0.2+	0.1−	1998 04 01	704	0.6+	0.7+
1996 12 08	411	0.0	0.2−	1998 03 18	411	0.6+	0.6−	1998 04 01	704	0.4+	0.3+
1996 12 08	411	0.3+	0.3+	1998 03 31	704	0.1−	0.5+	1998 04 01	704	0.0	0.3−
1996 12 14	411	0.1+	1.0−	1998 03 31	704	0.4−	0.7+	1998 04 01	704	0.1−	0.5−
1996 12 14	411	0.0	0.1−	1998 03 31	704	0.6−	0.1+				

1996 XS₁₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	60.06763		(2000.0)	<i>P</i>		<i>Q</i>
<i>n</i>	0.18260245	<i>ω</i>	21.66357	−0.20880877	−0.97678557	
<i>a</i>	3.0770295	<i>Ω</i>	80.41410	+0.88998235	−0.21007560	
<i>e</i>	0.0901295	<i>i</i>	2.78105	+0.40537675	−0.04193091	
<i>P</i>	5.40	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>
						3

Residuals in seconds of arc

1996 12 12	046	0.1+	0.1−	1997 01 12	046	0.4−	0.0	1998 03 20	704	1.0+	0.2−
1996 12 12	046	0.1−	0.2−	1997 01 12	046	0.2+	0.2+	1998 03 20	704	0.1−	0.9−
1996 12 12	046	0.3+	0.1−	1997 01 14	046	0.2+	0.3+	1998 03 20	704	0.6−	1.7−
1996 12 12	046	0.2+	0.1−	1997 01 14	046	0.2−	0.1+	1998 03 22	704	0.4+	0.2−
1996 12 12	046	0.2+	0.4−	1997 01 14	046	0.2+	0.7+	1998 03 22	704	1.4+	1.5+
1996 12 12	046	0.3+	0.1+	1997 03 04	046	0.2+	0.3−	1998 03 22	704	0.3+	0.6−
1996 12 12	046	0.3+	0.0	1997 03 04	046	0.3+	0.4−	1998 03 22	704	0.3+	0.2−
1996 12 12	046	0.5+	0.1−	1997 03 05	046	0.5−	0.9−	1998 03 22	704	0.1−	1.0−
1996 12 16	046	0.0	0.7+	1997 03 05	046	0.4+	1.2−	1998 03 24	046	0.1−	0.0
1996 12 16	046	0.2+	0.4−	1997 03 05	046	0.7+	1.2−	1998 03 24	046	0.2+	0.0
1996 12 16	046	0.2+	0.1+	1997 03 12	046	0.0	0.1−	1998 03 24	046	0.3−	0.0
1996 12 22	046	0.3−	0.1+	1997 03 12	046	0.3−	0.7+	1998 03 31	704	0.2+	0.4−
1996 12 22	046	0.3−	0.1+	1997 03 12	046	0.1−	0.5+	1998 03 31	704	(0.4−	3.6−)
1996 12 28	046	0.5−	1.0+	1998 02 27	046	0.5−	1.4+	1998 03 31	704	0.8−	1.4+
1996 12 28	046	0.1−	0.2+	1998 02 27	046	0.9−	0.1+	1998 03 31	704	0.1+	0.5+
1996 12 28	046	0.7−	0.1−	1998 02 27	046	0.6−	1.0+				
1997 01 12	046	0.7−	0.1+	1998 03 20	704	0.1+	0.2−				

1996 XU₁₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden

<i>M</i>	65.66427		(2000.0)	<i>P</i>		<i>Q</i>
<i>n</i>	0.17485393	<i>ω</i>	334.85079	−0.14946337	−0.98813744	
<i>a</i>	3.1672751	<i>Ω</i>	123.72660	+0.91419744	−0.15169931	
<i>e</i>	0.1489605	<i>i</i>	2.43160	+0.37670112	−0.02391083	
<i>P</i>	5.64	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>
						3

Residuals in seconds of arc

1996 12 12	046	0.5−	0.1−	1996 12 16	046	0.2+	0.3+	1997 03 04	046	0.1+	0.1+
1996 12 12	046	0.1−	0.2−	1996 12 22	046	0.8+	0.5+	1997 03 04	046	0.1−	0.1+
1996 12 12	046	0.2−	0.3−	1996 12 22	046	0.1−	0.4+	1997 03 07	046	0.6−	0.5+
1996 12 12	046	0.0	0.5−	1996 12 22	046	0.3+	0.0	1997 03 07	046	0.3−	0.3−
1996 12 13	046	0.5−	0.3−	1996 12 30	046	0.3+	0.4+	1997 03 07	046	0.2+	0.6+
1996 12 13	046	0.2−	0.2−	1996 12 30	046	0.2−	0.2+	1998 03 24	046	0.2+	0.4+
1996 12 13	046	0.1−	0.4−	1996 12 30	046	0.0	0.6+	1998 03 24	046	0.3+	0.4+
1996 12 13	046	0.0	0.3−	1997 01 12	046	0.0	0.4−	1998 03 24	046	0.2+	0.3+
1996 12 13	046	0.0	0.4−	1997 01 12	046	0.0	0.3−	1998 03 26	046	0.3−	0.5−
1996 12 16	046	0.3+	0.2+	1997 01 12	046	0.1+	0.4−	1998 03 26	046	0.1−	0.6−
1996 12 16	046	0.0	0.2+	1997 03 04	046	0.4+	0.1+	1998 03 26	046	0.4−	0.3−

1996 XQ₁₉ = 1998 FV₂₇

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	110.85465		(2000.0)	<i>P</i>		<i>Q</i>
<i>n</i>	0.21173610	<i>ω</i>	139.77587	+0.81973619	−0.57130496	
<i>a</i>	2.7878717	<i>Ω</i>	255.11075	+0.51411719	+0.76517797	
<i>e</i>	0.0841507	<i>i</i>	2.40397	+0.25242046	+0.29683887	
<i>P</i>	4.65	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>
						5

Residuals in seconds of arc

1996 12 08	385	0.1+	0.5−	1996 12 18	327	0.2+	0.4+	1998 03 20	704	1.0+	0.5−
1996 12 08	385	0.5−	0.2−	1996 12 18	327	0.4+	0.4+	1998 03 22	704	0.1+	1.1−
1996 12 08	385	0.0	0.1+	1997 01 07	385	0.0	0.7−	1998 03 22	704	0.7+	1.2+
1996 12 10	327	0.2−	0.1−	1997 01 07	385	0.2+	1.5+	1998 03 22	704	(1.1−	2.5+)
1996 12 10	327	0.1−	0.0	1997 01 09	385	0.4−	0.0	1998 03 22	704	1.0−	0.6−
1996 12 10	327	0.7+	0.1+	1997 01 09	385	0.4+	0.2+	1998 04 01	704	(2.1+	1.4+)
1996 12 12	385	0.6−	0.4−	1998 03 20	704	0.1−	1.5−	1998 04 01	704	0.7+	0.3+
1996 12 12	385	0.2−	0.2−	1998 03 20	704	0.5−	0.3+	1998 04 01	704	1.0−	0.6−
1996 12 12	385	0.2−	0.6−	1998 03 20	704	0.2+	0.6−	1998 04 01	704	(2.1−	1.0+)
1996 12 18	327	0.3+	0.1+	1998 03 20	704	0.1+	1.3+	1998 04 01	704	0.2−	1.6+

1996 XU₂₅ = 1981 UH₄ = 1998 FW₂₅

Id. G. V. Williams, S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	115.32978		(2000.0)	<i>P</i>		<i>Q</i>
<i>n</i>	0.20034773	<i>ω</i>	171.75697	+0.85832780	−0.51271293	
<i>a</i>	2.8925426	<i>Ω</i>	219.10862	+0.46893763	+0.79965231	
<i>e</i>	0.0610851	<i>i</i>	1.81429	+0.20825678	+0.31254061	
<i>P</i>	4.92	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>
						4

Residuals in seconds of arc

1981 10 30	381	0.9−	1.4+	1997 02 04	385	0.6+	0.1−	1998 03 20	704	1.2−	0.5+
1981 10 30	381	0.4+	0.8+	1997 02 04	385	0.8−	0.5−	1998 03 20	704	0.1+	1.5+
1996 12 12	385	1.0+	0.2−	1998 03 03	704	0.9+	0.1−	1998 03 20	704	0.2−	0.2+
1996 12 12	385	0.3−	0.4−	1998 03 03	704	1.2+	0.9−	1998 03 20	704	0.3+	0.6+
1996 12 12	385	0.0	0.3−	1998 03 03	704	1.7+	0.4+	1998 03 20	704	0.3+	0.4+
1996 12 14	385	0.0	0.4−	1998 03 03	704	1.2+	0.8−	1998 03 22	704	0.7−	0.5−
1996 12 14	385	0.0	0.4−	1998 03 03	704	1.4+	0.2+	1998 03 22	704	0.5+	0.0
1996 12 14	385	0.1−	0.2−	1998 03 04	704	1.8−	0.0	1998 03 22	704	0.3+	0.0
1997 01 06	385	0.5+	0.2−	1998 03 04	704	1.7−	0.5−	1998 03 22	704	0.8+	0.2−
1997 01 06	385	0.2−	0.1+	1998 03 04	704	(2.5−	0.8+)	1998 03 22	704	(2.4+	0.4+)
1997 01 07	385	0.0	0.1−	1998 03 04	704	1.5−	0.2−				
1997 01 07	385	0.6−	0.8+	1998 03 04	704	1.0−	0.5+				

1998 APR. 11

M.P.C. 31551

1996 XL₃₂ = 1998 EH₁₀

Id. B. G. Marsden

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Nakano

M	251.62344		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$
n	0.17946058	ω	160.05916		+0.14814621		+0.98436496
a	3.1128391	Ω	118.35814		-0.92141393		+0.17238094
e	0.1453365	i	6.21580		-0.35923401		-0.03620000
P	5.49	H	13.7	G	0.15	U	4

Residuals in seconds of arc

1996 12 15	867	0.1-	0.2+	1997 01 12	867	0.1+	0.4+	1998 03 02	809	0.2-	0.4+
1996 12 15	867	0.2+	0.3+	1997 02 09	867	0.5-	0.1-	1998 03 18	867	1.0-	0.6-
1996 12 15	867	0.1-	0.4+	1997 02 09	867	1.0-	1.2-	1998 03 18	867	1.1-	0.6-
1996 12 20	867	0.5-	0.9+	1997 02 09	867	(0.8-	2.5-)	1998 03 18	867	0.7-	0.5-
1996 12 20	867	0.1+	0.6+	1998 03 01	809	0.9+	0.7+	1998 03 25	867	0.4+	0.8-
1997 01 05	867	0.4+	1.0-	1998 03 01	809	0.2+	0.2+	1998 03 25	867	0.3+	0.9-
1997 01 05	867	0.9+	0.5-	1998 03 01	809	0.6+	0.7+	1998 03 25	867	0.3+	0.8-
1997 01 12	867	0.2+	0.1-	1998 03 02	809	0.4+	1.4+				
1997 01 12	867	0.4+	0.3-	1998 03 02	809	0.2+	1.0+				

1996 YH₁

Id. P. Kolény (1998 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden

M	272.13963		(2000.0)		P		Q	
n	0.24505823	ω	150.73397		+0.14975036		+0.98363448	
a	2.5290448	Ω	127.69811		-0.92997990		+0.17453611	
e	0.1135621	i	7.27452		-0.33572641		-0.04472528	
P	4.02	H	15.0		G	0.15	U	4

Residuals in seconds of arc

1996 12 27	118	0.2-	0.1+	1997 01 13	118	0.3-	0.3-	1998 02 28	118	0.3+	0.9+
1996 12 28	118	0.4-	0.1+	1997 01 14	118	0.3-	0.2+	1998 03 10	118	0.1+	0.2+
1996 12 28	118	0.3+	0.3+	1997 01 14	118	0.1-	0.0	1998 03 10	118	0.5+	0.1+
1996 12 28	118	0.4+	0.8+	1997 01 14	118	0.4-	0.3+	1998 03 10	118	0.4+	0.2+
1996 12 28	118	0.5+	0.8+	1997 01 26	118	0.2+	0.3-	1998 03 21	118	0.3-	0.1-
1996 12 30	118	0.1+	0.3-	1997 01 26	118	0.5+	0.4-	1998 03 21	118	0.3-	0.3-
1996 12 30	118	0.5+	0.2-	1997 02 03	118	0.4-	0.4-	1998 03 21	118	0.4-	0.3-
1997 01 08	118	0.2+	0.2+	1997 02 03	118	0.3-	0.6-	1998 03 24	118	0.0	0.2-
1997 01 08	118	0.6-	0.9-	1998 02 28	118	0.2-	0.1-	1998 03 24	118	0.2-	0.3-
1997 01 11	118	0.3+	0.3+	1998 02 28	118	0.2+	0.3+				

1996 YT₂

Id. P. G. Comba (1998 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden

M	126.54459		(2000.0)		P		Q
n	0.24588223	ω	202.68436		+0.90090780		-0.43400442
a	2.5233914	Ω	183.04053		+0.40455896		+0.84168197
e	0.2011748	i	2.48765		+0.15715336		+0.32126565
P	4.01	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1996 12 18	684	0.3-	0.1+	1996 12 30	684	0.2+	0.1+	1997 02 08	684	0.1-	0.5+
1996 12 18	684	0.1-	0.1+	1996 12 30	684	0.1+	0.0	1997 02 08	684	0.1-	0.3+
1996 12 18	684	0.1-	0.0	1997 01 10	684	1.2-	0.2+	1998 03 22	684	0.0	0.1+
1996 12 29	684	0.4+	0.5-	1997 01 10	684	0.3+	0.1+	1998 03 22	684	0.2-	0.2-
1996 12 29	684	0.4+	0.3-	1997 01 30	684	0.2+	0.2-	1998 03 24	684	0.0	0.1-
1996 12 30	684	0.3+	0.0	1997 01 30	684	0.1+	0.2-	1998 03 24	684	0.2+	0.1+

1996 YY₂ = 1998 EK₁₀

Id. B. G. Marsden

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	132.86166		(2000.0)		P		Q	
n	0.18062579	ω	302.22456		+0.95226392		-0.30272631	
a	3.0994374	Ω	75.42255		+0.29198950		+0.86557585	
e	0.1798006	i	2.33157		+0.08908178		+0.39891756	
P	5.46	H	13.0		G	0.15	U	5

Residuals in seconds of arc

1996 12 29	369	0.2-	0.7+	1997 02 01	369	0.2-	0.6+	1998 03 22	704	(0.9-	3.2-)
1996 12 29	369	0.2+	0.2+	1997 02 01	369	0.7-	0.1-	1998 03 22	704	0.8+	0.8-
1996 12 29	369	0.0	0.2+	1997 02 13	369	0.7+	0.1-	1998 03 22	704	0.7+	1.5-
1996 12 30	369	0.0	0.2-	1997 02 13	369	0.1+	0.2+	1998 03 22	704	(0.9-	2.5-)
1996 12 30	369	0.0	0.3+	1998 03 01	809	1.5+	0.4+	1998 03 22	704	(3.4-	3.0-)
1997 01 02	369	0.1+	0.2-	1998 03 01	809	0.8+	0.3+	1998 03 22	704	1.9-	0.9-
1997 01 02	369	0.2-	0.8-	1998 03 01	809	0.6+	1.6+	1998 03 22	704	1.7-	0.2+
1997 01 15	369	0.1-	0.7-	1998 03 02	809	0.2+	0.5+	1998 03 22	704	(2.7-	3.9-)
1997 01 15	369	0.0	0.4-	1998 03 02	809	0.4-	0.1-	1998 03 22	704	(7.9-	3.3-)
1997 01 30	369	0.4+	0.3+	1998 03 02	809	0.5-	0.4+				

1996 YD₃ = 1998 FU₄₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	270.03252		(2000.0)		P		Q
n	0.18685542	ω	273.47435		-0.08536540		+0.99605408
a	3.0301602	Ω	351.51328		-0.83634752		-0.08487421
e	0.0764230	i	9.46529		-0.54151230		-0.02593519
P	5.27	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1996 12 30	369	0.2-	0.3-	1997 01 18	369	0.7+	0.1+	1998 03 20	704	1.0+	0.3-
1996 12 30	369	0.0	0.2-	1997 01 18	369	0.9-	0.1+	1998 03 22	704	0.3-	0.3+
1996 12 30	369	0.3+	0.2+	1997 01 30	369	0.7+	0.2+	1998 03 22	704	0.7-	0.6-
1997 01 02	369	0.5-	0.3-	1997 01 30	369	1.9-	0.2-	1998 03 22	704	0.7-	1.2-
1997 01 02	369	0.8+	1.5-	1997 02 09	369	0.4+	0.2+	1998 03 22	704	0.6-	0.1+
1997 01 06	369	0.3-	1.0-	1997 02 09	369	1.2+	0.7-	1998 03 22	704	0.9-	0.5-
1997 01 06	369	0.8+	0.5+	1997 03 01	369	0.2-	0.0	1998 04 01	704	0.1-	0.4+
1997 01 06	369	0.4+	1.0+	1997 03 01	369	0.4+	1.0+	1998 04 01	704	0.2-	0.4+
1997 01 09	369	0.6-	0.3+	1998 03 20	704	0.6+	0.4+	1998 04 01	704	0.1-	0.2+
1997 01 09	369	0.5-	1.3+	1998 03 20	704	0.4+	0.2-	1998 04 01	704	0.5+	0.7+
1997 01 15	369	(2.5-	2.0+)	1998 03 20	704	1.1+	0.2+	1998 04 01	704	(0.2+	2.6+)
1997 01 15	369	0.6-	0.5-	1998 03 20	704	(3.2+	0.7-)				

1997 AZ₁ = 1998 FB₆₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	102.97250		(2000.0)		P		Q
n	0.17244648	ω	59.18938		+0.44468425		-0.89565212
a	3.1966849	Ω	4.43001		+0.78260420		+0.38420936
e	0.1079263	i	5.90734		+0.43564503		+0.22403224
P	5.72	H	13.5	G	0.15	U	5

Residuals in seconds of arc

1997 01 03	411	0.0	0.0	1997 01 26	411	1.0-	0.7+	1998 03 22	704	1.2-	1.1-
1997 01 03	411	0.1-	1.2-	1997 02 06	657	0.9-	0.3+	1998 03 22	704	1.4+	1.5-
1997 01 04	411	0.0	0.1+	1997 02 06	657	1.4+	0.1-	1998 03 22	704	0.3-	0.8-
1997 01 04	411	0.0	0.0	1997 02 06	657	0.1-	0.3-	1998 03 22	704	(6.1-	1.2+)
1997 01 08	411	1.0+	1.5-	1998 03 20	704	0.1-	0.1-	1998 04 01	704	0.1-	0.3+
1997 01 08	411	0.6-	0.5+	1998 03 20	704	0.8+	0.9+	1998 04 01	704	0.2+	0.1+
1997 01 14	411	0.5-	0.4+	1998 03 20	704	0.3+	0.4+	1998 04 01	704	0.2-	0.6+
1997 01 14	411	0.3-	0.4-	1998 03 20	704	1.2-	0.8-	1998 04 01	704	1.1+	0.9+
1997 01 26	411	1.0+	1.7+	1998 03 22	704	0.3-	0.6+	1998 04 01	704	0.4-	0.4+

1997 AE₂

Id. F. B. Zoltowski (1998 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	160.13589	(2000.0)	P	Q
<i>n</i>	0.18567523	ω 76.94270	+0.92726016	-0.35168088
<i>a</i>	3.0429868	Ω 303.50981	+0.25498962	+0.84443034
<i>e</i>	0.0959140	<i>i</i> 8.86465	+0.27416945	+0.40405193
<i>P</i>	5.31	<i>H</i> 13.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 12 19	327	0.1-	0.3-	1997 01 03	411	0.5-	0.2-	1997 02 15	691	0.3-	0.1-
1996 12 19	327	0.5-	0.1-	1997 01 04	411	0.6-	0.1-	1997 02 15	691	0.2-	0.3-
1996 12 19	327	0.9-	0.5-	1997 01 04	411	0.1+	0.4+	1998 03 30	426	0.1+	0.0
1996 12 20	327	0.8+	0.0	1997 01 10	411	1.4+	0.3+	1998 03 30	426	0.2+	0.1-
1996 12 20	327	0.6+	0.1+	1997 01 10	411	1.0+	0.8+	1998 03 30	426	0.8-	0.2-
1996 12 20	327	0.6+	0.1-	1997 01 15	411	0.7+	0.9+	1998 04 02	426	0.0	0.1+
1997 01 01	327	0.7-	0.3+	1997 01 15	411	(2.5+ 0.4+)		1998 04 02	426	0.3+	0.2+
1997 01 01	327	0.2-	0.4-	1997 01 27	411	0.5+	0.5-	1998 04 02	426	0.2+	0.1+
1997 01 01	327	0.1-	0.1-	1997 01 27	411	0.4+	0.2-				
1997 01 03	411	1.5-	0.3+	1997 02 15	691	0.5-	0.0				

1997 AN₁₂ = 1998 FQ₅₇

Id. G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden

<i>M</i>	350.85054	(2000.0)	P	Q
<i>n</i>	0.23831392	ω 325.61778	-0.98674479	-0.15233481
<i>a</i>	2.5765373	Ω 205.79265	+0.16203699	-0.94373629
<i>e</i>	0.0413163	<i>i</i> 7.38606	-0.00887361	-0.29352328
<i>P</i>	4.14	<i>H</i> 14.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 01 10	684	0.0	0.0	1998 03 20	704	0.1+	0.0	1998 03 22	704	0.3+	0.4+
1997 01 10	684	0.0	0.0	1998 03 20	704	0.5+	0.7-	1998 04 01	704	0.1+	0.1+
1997 01 12	684	0.1-	0.1+	1998 03 20	704	1.2+	0.1-	1998 04 01	704	0.2+	0.1-
1997 01 12	684	0.1+	0.1-	1998 03 20	704	0.3-	0.8-	1998 04 01	704	0.6-	0.1+
1997 01 12	684	0.0	0.2-	1998 03 20	704	1.0-	0.2-	1998 04 01	704	0.1+	0.2-
1997 01 28	684	0.2+	0.0	1998 03 22	704	0.2+	0.1+	1998 04 01	704	0.0	0.2+
1997 01 28	684	0.0	0.1+	1998 03 22	704	0.2-	0.4+	1998 04 04	684	0.1+	0.2-
1997 01 30	684	0.0	0.1-	1998 03 22	704	0.3+	0.4+	1998 04 04	684	0.1+	0.1-
1997 01 30	684	0.1-	0.2+	1998 03 22	704	1.3-	0.7+				

1997 AS₁₆ = 1992 CQ₄

Id. S. Nakano, E. Bowell (1998 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	41.71539	(2000.0)	P	Q
<i>n</i>	0.18542120	ω 88.25828	-0.72139803	-0.69179188
<i>a</i>	3.0457654	Ω 47.96796	+0.61716167	-0.66302693
<i>e</i>	0.0345627	<i>i</i> 2.45088	+0.31415977	-0.28604072
<i>P</i>	5.32	<i>H</i> 13.5	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1992 02 01	372	0.9-	0.7-	1997 01 14	411	0.6-	0.3-	1997 02 12	411	0.9+	0.3-
1992 02 01	372	0.5+	0.4-	1997 01 15	411	0.5-	0.0	1998 03 25	699	0.3+	1.0+
1996 11 08	327	0.6-	1.2+	1997 01 15	411	0.3+	0.2+	1998 03 25	699	0.2-	0.2-
1996 11 08	327	0.1+	1.0+	1997 01 26	411	0.1+	0.3-	1998 03 25	699	0.3+	0.3+
1996 11 08	327	0.4+	1.1+	1997 01 26	411	0.4+	0.6-				
1997 01 14	411	0.0	0.1+	1997 02 12	411	0.1-	0.4-				

1997 AQ₁₇

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	189.35200	(2000.0)	P	Q
<i>n</i>	0.20999817	ω 46.92578	+0.94353200	+0.31973845
<i>a</i>	2.8032320	Ω 294.25644	-0.32481709	+0.84144589
<i>e</i>	0.1957927	<i>i</i> 5.45601	-0.06512464	+0.43558713
<i>P</i>	4.69	<i>H</i> 13.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 12 20	327	0.1+	0.1-	1997 01 14	599	(0.6- 2.6-)	1997 02 03	566	0.3+	0.3+	
1996 12 20	327	0.4+	0.2+	1997 01 15	599	0.1-	0.2-	1998 03 26	595	0.8-	0.8+
1996 12 20	327	0.5-	0.4+	1997 01 15	599	0.2+	0.5-	1998 03 26	595	0.2-	0.5+
1997 01 13	595	0.2-	1.3-	1997 01 16	599	0.2+	0.7-	1998 03 28	595	0.9-	0.2-
1997 01 13	595	0.1+	0.4+	1997 01 16	599	0.3+	0.5-	1998 03 28	595	0.5-	0.1+
1997 01 13	595	0.3+	0.6-	1997 01 27	595	0.2+	0.7-	1998 04 01	704	1.6+	0.2+
1997 01 13	595	0.3-	0.2-	1997 01 27	595	0.1-	0.1-	1998 04 01	704	0.5-	0.9+
1997 01 14	566	0.2-	0.1+	1997 01 28	595	0.2+	0.6+	1998 04 01	704	1.4-	1.2-
1997 01 14	566	0.2+	0.1+	1997 01 28	595	1.1-	1.3+	1998 04 01	704	0.9+	0.9-
1997 01 14	566	0.1+	0.1+	1997 02 03	566	0.2-	0.7+	1998 04 01	704	1.7+	0.3-
1997 01 14	599	(0.4-	3.0-)	1997 02 03	566	0.0	0.9+				

1997 AT₁₈

Id. F. B. Zoltowski (1998 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	95.40827	(2000.0)	P	Q
<i>n</i>	0.17933724	ω 79.83578	+0.30133440	-0.95328797
<i>a</i>	3.1142661	Ω 352.52582	+0.79952957	+0.26459108
<i>e</i>	0.0283304	<i>i</i> 9.27590	+0.51956717	+0.14571758
<i>P</i>	5.50	<i>H</i> 13.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 01 06	369	0.5+	0.2-	1997 02 13	369	(1.6- 2.3+)	1998 03 22	704	1.1+	0.1-
1997 01 06	369	0.5+	0.7-	1997 03 04	369	0.1- 1.0-	1998 03 22	704	0.4+	0.5+
1997 01 06	369	0.4+	0.3+	1997 03 04	369	0.9+ 0.8-	1998 03 22	704	0.6-	1.0+
1997 01 06	369	0.7+	0.1-	1997 03 09	369	0.2+ 1.0+	1998 03 22	704	0.3-	1.4+
1997 01 06	369	0.1-	0.5-	1997 03 09	369	0.7- 0.3+	1998 03 22	704	(5.3- 1.5+)	
1997 01 06	369	0.6+	0.4-	1998 03 18	426	0.2- 0.3-	1998 03 28	426	0.2+	0.1-
1997 01 09	369	0.4+	0.4+	1998 03 18	426	0.5- 0.2-	1998 03 28	426	0.2+	0.3-
1997 01 09	369	0.1+	0.2+	1998 03 18	426	0.4+ 0.2-	1998 03 28	426	0.1+	0.2-
1997 01 15	369	0.8-	0.2+	1998 03 20	704	0.3- 0.1+	1998 03 30	426	0.8-	0.0
1997 01 15	369	0.5-	0.1+	1998 03 20	704	0.5- 0.1-	1998 03 30	426	0.3-	0.1+
1997 01 18	369	0.5-	0.3+	1998 03 20	704	0.0 0.4+	1998 04 01	704	0.8+	0.2-
1997 01 18	369	0.4-	0.2-	1998 03 20	704	0.2- 0.1+	1998 04 01	704	1.1+	0.1-
1997 01 18	369	0.5-	0.2-	1998 03 20	704	0.6- 1.1+	1998 04 01	704	0.2-	1.3-
1997 01 30	369	0.2-	0.1+	1998 03 20	426	0.5- 0.3-	1998 04 01	704	0.8+	1.1-
1997 01 30	369	0.6-	0.3+	1998 03 20	426	0.2- 0.0	1998 04 01	704	0.1+	0.2-
1997 02 13	369	0.0	0.9+	1998 03 20	426	0.1- 0.0				

1997 AF₂₂

Id. F. B. Zoltowski (1998 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	105.49070	(2000.0)	P	Q
<i>n</i>	0.17158686	ω 73.49511	+0.64705812	-0.75335482
<i>a</i>	3.2073525	Ω 334.97734	+0.54974986	+0.56764540
<i>e</i>	0.2506476	<i>i</i> 16.10815	+0.52829053	+0.33201689
<i>P</i>	5.74	<i>H</i> 13.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 01 09	399	0.3-	0.1+	1998 03 27	426	0.3-	0.4-	1998 03 31	704	0.4+	0.0
1997 01 09	399	0.9+	0.1+	1998 03 27	426	0.6+	0.2-	1998 03 31	704	0.5-	0.2+
1997 01 12	399	0.2+	0.1-	1998 03 27	426	0.5+	0.3-	1998 03 31	704	0.3-	0.1+
1997 01 12	399	0.9-	0.1+	1998 03 28	426	0.6+	0.7-	1998 04 01	704	1.4-	0.5-
1997 02 02	399	0.7-	0.5-	1998 03 28	426	0.3+	0.4-	1998 04 01	704	1.1+	0.1+
1997 02 02	399	0.0	0.4+	1998 03 28	426	0.0	0.9-	1998 04 01	704	0.1-	0.7+
1997 02 10	399	(2.9- 2.1-)		1998 03 31	704	1.3+	0.0	1998 04 01	704	1.2-	1.2+
1997 02 10	399	0.9+	0.0	1998 03 31	704	0.0	0.7+	1998 04 01	704	1.0-	0.3+

1997 CQ₁

Id. M. Tichý (1998 observations)

1998 APR. 11

M.P.C. 31553

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5					Marsden						
<i>M</i>	119.52608		(2000.0)		P		Q				
<i>n</i>	0.17015147	ω	269.18342	+0.58307246	−0.78779070						
<i>a</i>	3.2253653	Ω	142.75173	+0.81240326	+0.56695977						
<i>e</i>	0.1593271	<i>i</i>	19.14711	−0.00523821	+0.24071233						
<i>P</i>	5.79	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	3				
Residuals in seconds of arc											
1997 02 01	691	1.1−	0.2−	1997 02 02	046	0.1+	0.0	1997 02 10	046	0.3−	0.0
1997 02 01	691	1.0−	0.5−	1997 02 02	046	0.2−	0.0	1997 02 10	046	0.2−	0.3−
1997 02 01	691	1.1−	0.5−	1997 02 02	046	0.2+	0.2+	1997 02 27	046	0.2+	0.2−
1997 02 02	046	0.2+	0.1−	1997 02 02	540	0.5−	0.4−	1997 02 27	046	0.0	0.1−
1997 02 02	046	0.1+	0.1−	1997 02 02	540	0.3+	0.3−	1997 02 27	046	0.5+	0.5−
1997 02 02	046	0.3+	0.1−	1997 02 03	046	0.3+	0.3+	1997 03 05	046	0.5−	0.3+
1997 02 02	046	0.1+	0.1−	1997 02 03	046	0.3+	0.0	1997 03 05	046	0.0	0.4+
1997 02 02	046	0.2+	0.1+	1997 02 03	046	0.2+	0.0	1997 03 05	046	0.4−	0.3+
1997 02 02	327	0.5+	0.3+	1997 02 04	566	0.3+	0.2+	1998 03 26	046	0.1+	0.2+
1997 02 02	327	0.2−	0.2+	1997 02 04	566	0.6+	0.0	1998 03 26	046	0.0	0.2+
1997 02 02	327	0.8−	0.3+	1997 02 04	566	0.2+	0.1+	1998 03 26	046	0.1−	0.1−
1997 02 02	327	0.2+	0.4+	1997 02 07	046	0.3+	0.1+	1998 03 30	046	0.2+	0.2−
1997 02 02	540	0.2−	0.7+	1997 02 07	046	0.3+	0.0	1998 03 30	046	0.2−	0.0
1997 02 02	046	0.0	0.0	1997 02 07	046	0.4+	0.0	1998 03 30	046	0.0	0.1−
1997 02 02	046	0.4+	0.2−	1997 02 10	046	0.2+	0.5−				

1997 EJ ₆											
Epoch 1997 Dec. 18.0 TT = JDT 2450800.5						Marsden					
<i>M</i>	4.04922			(2000.0)		P			Q		
<i>n</i>	0.17229981			<i>ω</i>	149.25010	−0.92221166			+0.35410129		
<i>a</i>	3.1984987			<i>Ω</i>	52.30149	−0.38254586			−0.77682740		
<i>e</i>	0.1447186			<i>i</i>	11.32389	−0.05642979			−0.52072205		
<i>P</i>	5.72			<i>H</i>	13.0	<i>G</i>	0.15		<i>U</i>	4	
Residuals in seconds of arc											
1997 03 06	046	0.5+	0.5+	1997 03 09	046	0.7−	0.3+	1997 04 24	046	0.3−	0.2−
1997 03 06	046	0.6+	0.4+	1997 03 12	046	0.4−	0.2+	1997 04 24	046	0.2−	0.4−
1997 03 06	046	0.9+	0.3+	1997 03 12	046	0.2−	0.3+	1997 04 24	046	0.8+	0.0
1997 03 06	046	0.3+	0.5+	1997 03 12	046	0.4−	0.2+	1997 05 04	046	1.1−	0.2−
1997 03 07	046	0.3−	0.2−	1997 04 01	046	0.6+	0.5−	1997 05 04	046	0.4−	0.5+
1997 03 07	046	0.2−	0.2−	1997 04 01	046	0.6+	0.2−	1997 05 04	046	0.1+	1.1+
1997 03 07	046	0.1+	0.0	1997 04 01	046	0.9+	0.6−	1998 03 26	046	0.2+	0.1+
1997 03 07	046	0.1−	0.1−	1997 04 02	046	0.6+	0.6−	1998 03 26	046	0.3−	0.2+
1997 03 08	046	0.4−	0.1−	1997 04 02	046	0.1−	0.8−	1998 03 26	046	1.1−	0.2+
1997 03 08	046	0.3−	0.4+	1997 04 02	046	0.8+	0.7−	1998 03 31	046	0.2+	0.1−
1997 03 09	046	0.8−	0.0	1997 04 24	046	0.3−	0.6+	1998 03 31	046	0.4+	0.3−
1997 03 09	046	0.6−	0.2+	1997 04 24	046	0.2+	0.6−	1998 03 31	046	0.6+	0.1+

1997 EO ₇											
Epoch 1997 Dec. 18.0 TT = JDT 2450800.5											
Marsden											
<i>M</i>	283.87466			(2000.0)			P			Q	
<i>n</i>	0.17529213			ω	321.01241			+0.36616608			+0.92714862
<i>a</i>	3.1619945			Ω	330.21919			−0.80870055			+0.27479933
<i>e</i>	0.1710823			<i>i</i>	9.20871			−0.46035402			+0.25471702
<i>P</i>	5.62			<i>H</i>	13.0			<i>G</i>	0.15		<i>U</i> 3
Residuals in seconds of arc											
1997 01 09	691	0.1+	0.5−	1997 03 10	684	0.3−	0.2+	1997 04 26	684	0.0	0.0
1997 01 09	691	0.0	0.4−	1997 03 10	684	0.1−	0.3+	1997 04 26	684	0.1+	0.0
1997 01 09	691	0.0	0.4−	1997 03 14	684	0.1−	0.5+	1997 04 26	684	0.2−	0.1+
1997 03 07	684	0.1−	0.1−	1997 03 14	684	0.1−	0.3+	1998 03 24	684	0.1−	0.0
1997 03 07	684	0.1+	0.2−	1997 03 31	684	0.1+	0.0	1998 03 24	684	0.2+	0.2−
1997 03 07	684	0.0	0.0	1997 03 31	684	0.1+	0.2+	1998 03 24	684	0.2+	0.1−
1997 03 08	684	0.3−	0.1−	1997 03 31	684	0.0	0.2−	1998 03 25	684	0.2−	0.1+
1997 03 08	684	0.3−	0.3+	1997 04 13	684	0.4+	0.2−	1998 03 25	684	0.1−	0.0
1997 03 08	684	0.2−	0.1+	1997 04 13	684	0.5+	0.1−				
1997 03 10	684	0.3−	0.3+	1997 04 13	684	0.8+	0.0				

1997 NC ₁											
Epoch 1997 Dec. 18.0 TT = JDT 2450800.5											
Marsden											
<i>M</i>	358.37789		(2000.0)		P			Q			
<i>n</i>	1.22382909	ω	16.60597		−0.38235458		−0.87874154				
<i>a</i>	0.8656099	Ω	96.61941		+0.81171195		−0.46715777				
<i>e</i>	0.2085740	<i>i</i>	16.71471		+0.44150728		+0.09786179				
<i>P</i>	0.81	<i>H</i>	18.5		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1997 07 05	566	0.3+	0.4+	1997 07 07	670	0.4+	0.1+	1997 07 13	696	0.8−	0.7+
1997 07 05	566	0.1−	0.4+	1997 07 07	422	0.9+	0.1−	1997 07 14	422	0.0	0.0
1997 07 05	566	0.2+	0.4+	1997 07 07	422	0.8+	0.1+	1997 07 14	422	0.2+	0.1+
1997 07 06	816	0.1+	0.1−	1997 07 07	422	0.5+	0.1+	1997 07 14	422	0.2+	0.1+
1997 07 06	816	0.2+	0.2+	1997 07 07	620	0.3+	0.5−	1997 07 16	568	0.4+	0.1−
1997 07 06	816	0.0	0.1+	1997 07 07	620	0.4+	0.4−	1997 07 16	568	0.1−	0.1+
1997 07 06	704	0.1−	0.8+	1997 07 07	620	0.3+	0.3−	1997 07 17	568	0.2+	0.4+
1997 07 06	704	0.6−	0.9+	1997 07 07	620	0.3+	0.2−	1997 07 17	568	0.3+	0.4+
1997 07 06	704	0.6−	0.9+	1997 07 08	670	0.5+	1.1−	1997 07 21	422	0.3+	0.8−
1997 07 06	670	0.1+	0.3−	1997 07 08	670	0.3+	1.1−	1997 07 21	422	0.7+	0.7−
1997 07 06	670	0.4−	0.2−	1997 07 08	104	(1.0+	2.6+)	1997 07 23	422	0.4+	0.1+
1997 07 06	704	1.4+	1.9+	1997 07 08	104	(1.1+	2.6+)	1997 07 23	422	0.1+	0.2+
1997 07 06	670	0.3−	1.0−	1997 07 08	104	1.6+	1.7+	1997 07 23	422	0.3+	0.2−
1997 07 06	704	0.1−	0.4+	1997 07 08	046	0.1−	0.1+	1997 07 24	422	0.4+	0.9−
1997 07 06	704	0.6−	0.5+	1997 07 08	046	0.7−	0.5+	1997 07 24	422	0.3+	0.2−
1997 07 06	670	0.9+	0.1+	1997 07 08	104	(2.1+	1.3+)	1997 07 24	422	0.5+	0.5−
1997 07 06	422	0.4−	0.4−	1997 07 08	587	0.1−	0.3−	1997 07 28	422	0.7+	0.3−
1997 07 06	104	0.5+	0.9−	1997 07 08	046	0.4−	0.2+	1997 07 28	422	0.4+	0.0
1997 07 06	104	0.3+	1.6−	1997 07 08	587	0.3+	0.1−	1997 07 28	422	0.4+	0.1+
1997 07 06	104	0.2+	0.8−	1997 07 08	046	0.2+	0.2+	1997 07 31	422	0.1−	0.1+
1997 07 06	104	1.6+	0.3−	1997 07 08	587	0.3+	0.1+	1997 07 31	422	0.1−	0.8−
1997 07 06	587	0.6−	0.7−	1997 07 08	587	0.3+	0.2−	1997 08 12	422	0.1−	0.3−
1997 07 06	587	0.2−	0.5−	1997 07 09	599	1.1−	0.5+	1997 08 12	422	0.4−	0.7+
1997 07 06	587	0.8+	0.3−	1997 07 09	599	1.5−	0.4+	1997 08 29	422	0.3+	0.1+
1997 07 07	816	0.3+	0.3−	1997 07 09	599	1.5−	0.2−	1997 08 29	422	0.4−	0.2+
1997 07 07	816	0.0	0.1+	1997 07 09	104	1.5−	1.4+	1997 08 29	422	0.4−	0.4+
1997 07 07	816	0.4+	0.4−	1997 07 09	104	1.8−	0.6+	1997 08 30	422	0.1+	0.2+
1997 07 07	784	0.5+	0.7−	1997 07 09	599	1.6−	0.3+	1997 08 30	422	0.3+	0.4−
1997 07 07	816	0.6+	0.3−	1997 07 09	104	0.9−	0.0	1997 08 30	422	0.1−	0.3+
1997 07 07	784	0.2−	0.0	1997 07 10	422	0.7−	0.6+	1997 09 06	422	0.1−	0.2+
1997 07 07	784	0.2−	0.0	1997 07 10	422	0.7−	0.0	1997 09 06	422	0.2−	0.3+
1997 07 07	784	0.4−	0.2+	1997 07 11	696	0.1−	0.3+	1998 03 08	696	0.1+	0.1+
1997 07 07	784	0.3−	0.3−	1997 07 11	696	0.0	0.0	1998 03 08	696	0.6+	0.4−
1997 07 07	670	0.0	0.2−	1997 07 11	696	0.0	0.1−	1998 03 08	696	0.9+	0.2−
1997 07 07	670	0.0	0.1+	1997 07 13	696	0.6−	0.6+	1998 04 01	693	(4.5−	1.1+)
1997 07 07	670	0.2−	0.3−	1997 07 13	696	0.7−	0.5+	1998 04 01	693	1.7−	0.7+

1997 RG₉ = 1991 RU₄₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden

<i>M</i>	88.56183		(2000.0)	P		Q	
<i>n</i>	0.17863602	ω	328.21977	−0.02067490	+0.97217830		
<i>a</i>	3.1224107	Ω	299.63248	−0.85183325	−0.13930608		
<i>e</i>	0.1684764	<i>i</i>	15.57118	−0.52340488	+0.18831667		
<i>P</i>	5.52	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 09 06	033	0.4+	0.3−	1997 09 08	012	0.4−	0.4−	1997 09 22	012	0.2−	0.2−
1991 09 10	033	0.5−	0.2+	1997 09 08	012	0.6+	0.2−	1997 09 24	012	0.1−	0.3−
1991 09 12	033	0.1−	0.7+	1997 09 08	012	0.2+	0.3+	1997 09 25	012	0.5−	0.3−
1991 09 13	033	0.2+	0.0	1997 09 10	012	0.5−	0.2+	1997 09 25	012	0.0	0.4−
1991 09 14	033	0.0	0.5−	1997 09 10	012	0.2+	0.1+	1997 10 22	012	0.1+	0.1+
1997 09 08	012	0.8+	0.1+	1997 09 10	012	0.5−	0.2+	1997 10 22	012	0.7+	0.1−
1997 09 08	012	0.2−	0.2+	1997 09 22	012	0.3−	0.4−	1997 10 22	012	0.1−	0.9+
1997 09 08	012	0.0	0.6+	1997 09 22	012	0.3+	0.4−				

1997 UD₂₅ = 1987 SD₇

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Nakano

<i>M</i>	6.86954		(2000.0)	P		Q	
<i>n</i>	0.20082895	ω	305.05486	+0.77898663	−0.62406201		
<i>a</i>	2.8879201	Ω	93.63726	+0.59337874	+0.70219755		
<i>e</i>	0.0567059	<i>i</i>	3.50684	+0.20268571	+0.34273198		
<i>P</i>	4.91	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1987 09 29	033	0.5+	0.5+	1997 10 27	894	1.2−	0.2+	1997 11 05	894	0.9−	0.0
1987 09 30	033	1.2−	0.0	1997 10 27	894	0.3+	0.4−	1997 11 05	894	0.9+	1.2+
1987 09 30	033	0.8+	0.3+	1997 10 29	894	1.3−	0.9−	1997 11 06	894	0.0	0.1−
1987 10 01	033	0.3−	0.7−	1997 10 29	894	0.9+	0.4+	1997 11 06	894	0.4−	1.0−
1987 10 01	033	0.3+	0.3−	1997 11 01	894	0.6+	1.0+				
1987 10 01	033	0.0	0.1+	1997 11 01	894	1.1+	0.2−				

1997 WR₃₁ = 1998 DP₃₂ = 1980 FN₄ = 1991 EF₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	337.32003		(2000.0)	P		Q	
<i>n</i>	0.26435182	ω	288.18253	−0.10833981	−0.99410243		
<i>a</i>	2.4044431	Ω	168.03407	+0.92057261	−0.10213889		
<i>e</i>	0.1486440	<i>i</i>	1.32099	+0.37524465	−0.03644184		
<i>P</i>	3.73	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1980 03 16	809	0.1−	0.6+	1991 03 16	809	(7.8+ 19.7−)	1998 01 27	910	1.5−	0.5−
1980 03 16	809	0.2+	0.2−	1991 03 16	809	(8.0+ 19.7−)	1998 01 27	910	1.6−	0.5−
1980 03 16	809	0.6+	1.4+	1997 11 29	704	0.5+ 0.0	1998 02 23	327	0.5+	0.6+
1980 03 16	809	0.1−	0.3−	1997 11 29	704	0.6+ 0.1+	1998 02 23	327	0.5+	0.2+
1980 03 17	809	0.2+	0.3+	1997 11 29	704	1.2+ 0.0	1998 02 23	327	0.6+ 0.6+	
1980 03 17	809	0.1−	0.1+	1997 11 29	704	0.5− 0.7−	1998 02 23	327	0.5+ 0.3+	
1980 03 17	809	0.2+	0.4+	1997 11 29	704	0.8+ 0.5−	1998 02 27	327	0.8+ 0.3+	
1980 03 17	809	0.3+	0.0	1997 12 04	704	0.0 0.4+	1998 02 27	327	0.7+ 0.1−	
1980 03 23	809	0.3−	0.3−	1997 12 04	704	0.3− 0.9+	1998 02 27	327	0.4+ 0.1−	
1991 03 14	809	1.4−	0.3−	1997 12 04	704	0.7+ 0.4+	1998 03 23	327	0.6+ 0.6+	
1991 03 14	809	0.4−	0.8−	1997 12 04	704	1.3− 0.6+	1998 03 23	327	0.1+ 0.2+	
1991 03 14	809	0.7+	1.1−	1997 12 04	704	0.8− 0.9−	1998 03 23	327	0.5− 0.1−	
1991 03 16	809	(7.5+ 20.0−)		1998 01 27	910	1.6− 0.4−	1998 03 23	327	0.4− 0.0	

1997 XA₉ = 1990 QU₁₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	78.67477		(2000.0)	P		Q	
<i>n</i>	0.19966104	ω	308.79989	+0.21277863	−0.97625438		
<i>a</i>	2.8991710	Ω	128.86634	+0.91188023	+0.18345832		
<i>e</i>	0.0638982	<i>i</i>	2.99287	+0.35099814	+0.11519735		
<i>P</i>	4.94	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1990 08 24	809	0.2−	0.4−	1997 12 07	910	0.2−	0.0	1998 03 20	704	0.1+	0.6−
1990 08 24	809	0.1−	0.4+	1997 12 08	910	0.3+	0.2−	1998 03 22	704	0.1−	1.3+
1990 08 24	809	1.1+	0.7−	1997 12 08	910	0.1+	0.3−	1998 03 22	704	0.6+	0.5−
1990 08 26	809	0.5−	0.3+	1997 12 08	910	0.3+	0.2−	1998 03 22	704	0.0	0.3+
1990 08 26	809	0.3−	0.1−	1998 03 20	704	0.0	0.3−	1998 03 22	704	0.0	0.2+
1990 08 26	809	0.0	0.3+	1998 03 20	704	0.7−	0.4−	1998 03 22	704	0.1+	0.2+
1997 12 07	910	0.2−	0.2+	1998 03 20	704	0.3−	0.2+				
1997 12 07	910	0.4−	0.2+	1998 03 20	704	0.1+	0.3−				

1997 XF₁₁

Id. K. J. Lawrence (1990 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	96.68070		(2000.0)	P		Q	
<i>n</i>	0.56936038	ω	102.46479	+0.72513030	+0.68744509		
<i>a</i>	1.4417099	Ω	214.13139	−0.65627667	+0.67228954		
<i>e</i>	0.4837730	<i>i</i>	4.09484	−0.20853534	+0.27467440		
<i>P</i>	1.73	<i>H</i>	17.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 03 22	675	1.1−	1.0−	1997 12 31	897	0.3−	0.6−	1998 02 04	711	0.7+	1.6+
1990 03 22	675	1.6−	0.5−	1997 12 31	897	0.4−	0.5+	1998 03 03	711	0.4−	0.3+
1990 03 23	675	0.5−	0.4+	1997 12 31	897	0.9−	0.5+	1998 03 03	711	0.2+	0.2+
1990 03 23	675	0.5−	0.5−	1998 01 02	900	0.2−	0.5+	1998 03 04	711	0.2−	0.1−
1990 03 25	675	(0.7+ 2.5−)		1998 01 02	900	0.4+	0.3+	1998 03 04	711	0.1+	0.5−
1990 03 25	675	(3.2− 3.7−)		1998 01 03	587	0.2−	0.0	1998 03 14	658	0.4−	0.4−
1990 03 27	675	0.5+ 0.8+		1998 01 03	587	0.4−	0.5−	1998 03 14	658	0.2+	0.3−
1990 04 22	675	1.4+ 1.2−		1998 01 06	360	0.0	0.0	1998 03 14	658	0.3+	1.2+
1990 04 22	675	0.9+ 1.0+		1998 01 06	360	0.3+	0.1−	1998 03 16	954	0.1+	0.4+
1997 12 06	691	0.3−	0.7−	1998 01 06	360	0.2+	0.3+	1998 03 16	954	0.1+	0.4+
1997 12 06	691	0.5−	0.6−	1998 01 06	118	0.4+	0.6−	1998 03 16	954	0.1+	0.4+
1997 12 06	691	0.2−	0.7−	1998 01 06	118	0.4+	0.5−	1998 03 16	954	0.1+	0.4+
1997 12 08	587	1.2+	0.7+	1998 01 07	691	0.6−	0.1−	1998 03 16	954	0.0	0.4+
1997 12 09	402	0.1+	1.0−	1998 01 07	691	0.7−	0.1−	1998 03 16	954	0.1+	0.4+
1997 12 09	402	0.3+	0.9−	1998 01 07	691	0.6−	0.2−	1998 03 16	954	0.1+	0.4+
1997 12 09	402	0.2+	0.0	1998 01 08	658	0.5−	0.0	1998 03 16	954	0.1+	0.4+
1997 12 09	402	0.4+	0.7−	1998 01 08	658	0.4−	0.4+	1998 03 16	954	0.1+	0.4+
1997 12 09	402	0.1+	0.2−	1998 01 08	658	0.4−	0.1+	1998 03 16	954	0.1+	0.4+
1997 12 09	402	0.7+	0.3−	1998 01 09	658	0.6−	0.5−	1998 03 17	658	1.5−	0.6−
1997 12 18	402	(2.5+ 1.5−)		1998 01 09	658	0.5−	0.0	1998 03 17	658	0.3−	0.6+
1997 12 18	402	0.2−	0.3−	1998 01 09	658	1.0−	0.3−	1998 03 17	658	1.6−	0.6+
1997 12 18	402	(0.7+ 2.8−)		1998 01 10	118	0.5−	0.1+	1998 03 17	954	0.5−	0.7−
1997 12 18	402	0.6+ 1.5−		1998 01 10	118	0.1−	0.0	1998 03 17	954	0.1−	0.4−
1997 12 21	897	0.6+	0.2+	1998 01 10	118	0.2+	0.0	1998 03 17	954	0.6−	0.8−
1997 12 21	897	2.0+	0.6+	1998 01 17	046	0.2+	0.1+	1998 03 17	954	0.8−	0.5−
1997 12 21	897	0.3+	1.0−	1998 01 17	046	0.5+	0.3+	1998 03 17	954	(0.2+ 2.2−)	
1997 12 21	897	0.6−	0.2+	1998 01 17	046	0.3−	0.4−	1998 03 17	954	0.4−	0.8−
1997 12 21	897	0.9−	0.2+	1998 01 17	046	0.1+	0.3+	1998 03 17	954	0.1−	0.7−
1997 12 21	897	(2.1− 0.0)		1998 01 22	691	0.4−	0.5−	1998 03 17	954	0.3−	0.8−
1997 12 23	900	0.6−	0.0	1998 01 22	691	0.6−	0.3−	1998 03 17	954	0.5−	0.6−
1997 12 23	900	1.2+	0.1−	1998 01 22	691	0.5−	0.5−	1998 03 17	954	0.1−	0.6−
1997 12 24	360	0.4−	0.5−	1998 01 23	118	0.7+	0.4+	1998 03 17	954	0.4−	0.6−
1997 12 24	360	0.4−	0.4−	1998 01 23	118	0.6+	0.2+	1998 03 17	954	0.3−	0.8−
1997 12 24	360	0.5−	0.4−	1998 01 23	118	0.6+	0.2+	1998 03 17	954	0.3−	0.8−
1997 12 24	104	0.2+	0.6−	1998 01 26	118	1.1+	0.3+	1998 03 19	711	(2.9+ 1.9+)	
1997 12 24	104	0.0	0.2+	1998 01 26	118	1.0+	0.7+	1998 03 19	711	1.2+	0.7+
1997 12 25	402	0.1−	0.2−	1998 01 26	118	1.1+	0.3+	1998 03 19	658	0.9−	0.1−
1997 12 25	402	0.2−	0.2−	1998 01 29	360	0.5+	0.7+	1998 03 19	658	0.7−	0.1+

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1997 12 25	402	0.2+	0.1-	1998 01 29	360	0.4+	0.8+	1998 03 19	658	0.5-	0.3-
1997 12 26	046	0.1+	0.5-	1998 01 29	360	1.0+	0.8+	1998 03 19	658	0.1-	0.4+
1997 12 26	046	0.4-	0.4-	1998 01 30	402	0.7+	0.2-	1998 03 20	711	(2.2+	1.8-)
1997 12 26	046	0.2+	0.1-	1998 01 30	402	0.4-	0.5-	1998 03 20	711	0.1+	1.9-
1997 12 26	046	0.1+	0.3+	1998 01 30	402	0.4+	0.6+	1998 03 21	711	(0.2-	3.5+)
1997 12 26	046	0.0	0.1-	1998 02 02	557	0.3+	0.6+	1998 03 21	711	0.6+	0.9-
1997 12 27	104	1.0+	0.7+	1998 02 02	557	0.4-	1.1+	1998 03 21	711	1.4-	1.1-
1997 12 27	104	0.8-	1.0+	1998 02 02	557	0.2+	1.4+	1998 03 22	711	(2.2+	1.4-)
1997 12 28	897	0.4+	1.5+	1998 02 03	711	0.3-	0.5+	1998 03 22	711	1.6+	0.9+
1997 12 28	897	1.5-	1.3+	1998 02 03	711	1.4+	0.5+	1998 03 23	711	0.5-	0.0
1997 12 31	118	0.1-	0.5-	1998 02 03	046	0.1-	0.6+	1998 03 23	711	0.6+	1.6+
1997 12 31	118	0.3-	0.5-	1998 02 03	046	0.2+	0.7+				
1997 12 31	118	0.1+	0.5-	1998 02 04	711	0.8+	0.5+				

1998 AJ₆ = 1986 PS₁ = 1988 CZ₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	99.97764			(2000.0)	P	Q	
<i>n</i>	0.30301843	ω	43.14663		+0.69473149	-0.71926485	
<i>a</i>	2.1952805	Ω	2.85096		+0.64551380	+0.62195779	
<i>e</i>	0.0596593	<i>i</i>	2.87649		+0.31726975	+0.30955869	
<i>P</i>	3.25	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1986 08 01	675	1.7+	0.7+	1998 01 09	910	0.3+	0.5-	1998 03 22	704	0.6-	0.6-
1986 08 01	675	(2.7+	1.8+)	1998 01 09	910	0.4-	0.0	1998 03 22	704	0.7-	0.0
1986 08 02	675	(2.7-	0.6+)	1998 02 26	566	(0.1+	3.1-)	1998 03 22	704	1.6-	0.1-
1986 08 02	675	1.9-	0.0	1998 02 26	566	(0.3+	2.4-)	1998 03 22	704	0.7-	0.5+
1986 08 04	675	(1.0+	2.6-)	1998 02 26	566	(0.1-	2.7-)	1998 03 22	704	0.9-	1.3+
1986 08 04	675	0.3+	0.9-	1998 03 20	704	0.7+	0.1-	1998 03 22	399	0.2+	0.1-
1988 02 13	054	1.0+	1.4+	1998 03 20	704	0.5+	0.1+	1998 03 22	399	0.3+	0.6+
1988 02 13	054	0.7-	0.8-	1998 03 20	704	0.4+	0.3+	1998 03 26	566	0.5+	0.4-
1998 01 08	910	0.3-	0.4-	1998 03 20	704	0.4+	0.7+	1998 03 26	566	0.6+	0.5-
1998 01 08	910	0.4-	0.4-	1998 03 20	704	0.2+	0.2+	1998 03 26	566	0.3+	0.4-
1998 01 08	910	0.4-	0.4-	1998 03 21	399	(2.7+	1.1+)				
1998 01 09	910	0.1-	0.4-	1998 03 21	399	0.8+	0.9-				

1998 AP₈ = 1982 BH₁₃ = 1985 YQ

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	311.05488			(2000.0)	P	Q	
<i>n</i>	0.24013084	ω	327.25696		-0.66611817	-0.74577069	
<i>a</i>	2.5635242	Ω	164.50244		+0.69256334	-0.62375086	
<i>e</i>	0.2451605	<i>i</i>	2.27671		+0.27684402	-0.23401056	
<i>P</i>	4.10	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1982 01 30	675	0.0	0.1+	1997 10 30	704	1.4+	1.7-	1998 01 10	557	0.0	0.2-
1982 01 31	675	0.3-	0.1-	1997 10 31	704	1.4-	1.5-	1998 01 11	557	0.2-	0.3-
1985 12 14	675(49.3+	0.5-)		1997 10 31	704	1.7-	0.5-	1998 01 11	557	0.3-	0.1-
1985 12 14	675(55.0+	0.8+)		1997 10 31	704	1.0-	0.2-	1998 01 14	557	0.6+	0.2-
1985 12 18	688	1.0+	1.1-	1997 10 31	704	1.5-	0.5-	1998 01 14	557	0.4-	0.1-
1985 12 18	688	0.8-	0.3-	1997 10 31	704	0.4-	0.2-	1998 01 14	557	0.1+	0.1-
1997 10 29	704	3.4+	0.9+	1997 12 30	557	0.4-	0.5+	1998 01 17	557	0.6-	0.2+
1997 10 29	704	1.0+	0.1-	1997 12 30	557	0.2+	0.5+	1998 02 01	557	0.6-	0.6+
1997 10 29	704	0.3+	1.8+	1997 12 30	557	0.3-	0.2+	1998 02 01	557	0.0	0.5-
1997 10 29	704	1.5+	0.2-	1998 01 10	557	0.9-	0.8+	1998 02 01	557	0.3-	0.9+
1997 10 29	704	0.1+	0.5+	1998 01 10	557	0.2-	0.4+	1998 02 20	557	0.5+	1.1+

1998 AQ₁₀ = 1977 DJ₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	302.84546			(2000.0)	P	Q	
<i>n</i>	0.23159604	ω	57.08108		-0.97958472	-0.18232827	
<i>a</i>	2.6261244	Ω	112.29053		+0.13988678	-0.92073136	
<i>e</i>	0.0578112	<i>i</i>	5.25080		+0.14437956	-0.34497851	
<i>P</i>	4.26	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1977 02 18	381	1.0+	1.0-	1998 01 02	704	0.2-	0.0	1998 01 24	566	0.1-	0.2-
1977 02 18	381	0.2+	0.5+	1998 01 02	704	1.1+	0.3+	1998 01 24	566	0.4-	0.4-
1977 02 19	381	0.0	0.0	1998 01 02	704	0.9+	0.5+	1998 01 24	704	0.4+	1.1+
1977 02 19	381	1.3-	0.5+	1998 01 02	704	0.8+	0.1-	1998 01 24	566	0.0	0.3+
1998 01 01	691	0.8-	0.1-	1998 01 24	704	0.6+	0.1+	1998 01 24	704	0.8-	0.9-
1998 01 01	691	1.0-	0.3-	1998 01 24	704	0.2+	0.3+				
1998 01 01	691	1.0-	0.2-	1998 01 24	704	0.4+	0.5-				

1998 BA₂ = 1955 OM = 1984 SM₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	97.61048			(2000.0)	P	Q	
<i>n</i>	0.24041623	ω	303.76629		+0.98850215	+0.14108687	
<i>a</i>	2.5614951	Ω	48.18688		-0.10294570	+0.89140903	
<i>e</i>	0.1847651	<i>i</i>	4.18469		-0.11075056	+0.43067904	
<i>P</i>	4.10	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1955 07 24	675	0.1+	0.3-	1998 01 24	560	1.5-	0.1-	1998 02 15	560	0.2+	0.6+
1955 07 24	675	0.3+	0.5-	1998 01 24	560	0.6+	0.1-	1998 02 15	560	0.6+	0.4+
1984 09 28	688	0.1+	0.6+	1998 01 27	560	0.1-	0.4-	1998 02 26	560	0.9+	0.0
1984 09 28	688	0.1-	0.5-	1998 01 27	560	0.6-	0.2+	1998 02 26	560	0.9+	0.3+
1998 01 17	560	0.3-	0.5-	1998 01 27	560	0.4-	0.1-	1998 02 26	560	0.4-	1.4-
1998 01 17	560	1.6-	0.3+	1998 02 01	560	1.2-	0.3-	1998 03 02	560	0.9+	0.0
1998 01 20	560	0.2+	0.3-	1998 02 01	560	0.4+	0.5+	1998 03 02	560	1.5+	0.8-
1998 01 20	560	0.3-	0.2+	1998 02 01	560	0.7-	0.5+				
1998 01 24	560	0.4+	0.7+	1998 02 15	560	1.2+	0.8-				

1998 BC₂ = 1953 XV₁ = 1973 UY₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	35.43127			(2000.0)	P	Q	
<i>n</i>	0.29177695	ω	70.28890		+0.56076477	-0.82770596	
<i>a</i>	2.2513105	Ω	345.54412		+0.72446297	+0.50284439	
<i>e</i>	0.1612425	<i>i</i>	4.85136		+0.40086941	+0.24909910	
<i>P</i>	3.38	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1953 12 07	675	0.1+	0.1+	1998 01 20	560	0.1+	0.5-	1998 02 15	560	1.6+	0.8+
1953 12 07	675	0.1-	0.2-	1998 01 20	560	0.0	0.4+	1998 02 15	560	1.3+	0.2-
1973 10 29	095	0.0	0.2-	1998 01 24	560	0.2-	0.5+	1998 02 15	560	1.4+	0.1-
1997 12 29	566	0.6-	0.5+	1998 01 24	560	0.7-	0.5-	1998 02 26	560	0.4-	0.2+
1997 12 29	566	0.3-	0.5+	1998 01 27	560	0.1+	0.4-	1998 02 26	560	0.6+	0.3+
1997 12 29	566	0.5-	0.5+	1998 01 27	560	0.5-	0.3+	1998 03 05	560	1.4-	0.5-
1998 01 17	560	0.4+	0.2-	1998 01 27	560	0.1-	0.4+	1998 03 05	560	1.0-	0.5-
1998 01 17	560	0.5+	0.6-	1998 02 01	560	0.1-	0.9+	1998 03 05	560	0.9-	0.7-
1998 01 17	560	0.5+	0.7-	1998 02 01	560	0.0	0.7+				
1998 01 20	560	0.0	1.1-	1998 02 01	560	0.1-	0.1+				

1998 BY₂ = 1993 TW₄₁ = 1993 UH₉

Id. T. Urata

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	5.26393			(2000.0)	P	Q	
<i>n</i>	0.29044508	ω	102.05910		-0.27899786	-0.96028466	
<i>a</i>	2.2581877	Ω	4.14678		+0.86004726	-0.25157799	
<i>e</i>	0.1025534	<i>i</i>	2.92008		+0.42717549	-0.12067265	
<i>P</i>	3.39	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 10 10	809	0.6+	1.2+	1998 01 20	905	0.9+	0.0	1998 02 06	385	0.1-	0.4-
1993 10 10	809	1.0+	1.1+	1998 01 23	385	0.2-	0.1+	1998 02 06	886	0.6+	0.6-
1993 10 10	809	1.3-	0.6+	1998 01 23	385	0.2-	0.3+	1998 02 06	886	1.0+	0.8-
1993 10 22	809	0.7+	1.1-	1998 01 24	886	0.2-	1.8+	1998 02 06	385	0.3+	0.4-
1993 10 22	809	0.2-	0.7-	1998 01 24	886	0.8-	0.5+	1998 03 01	327	0.1-	0.1+
1993 10 22	809	1.1-	0.3-	1998 01 29	886	0.4-	0.1-	1998 03 01	327	0.3-	0.1-
1998 01 19	905	0.9-	2.1-	1998 01 29	886	0.5-	0.5-	1998 03 01	327	0.1+	0.1-

1998 01 19 905 0.3− 0.9− 1998 01 30 385 0.1− 0.5+ 1998 03 15 385 0.1− 1.7+
 1998 01 20 905 0.7+ 0.8+ 1998 01 30 385 0.4− 0.2− 1998 03 15 385 1.1+ 1.5+

1998 BE₄ = 1977 EV₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Urata

<i>M</i>	294.70485		(2000.0)		P		Q
<i>n</i>	0.27847224	ω	230.62185	−0.95647887		+0.28864435	
<i>a</i>	2.3224593	Ω	326.09252	−0.23853794		−0.85792822	
<i>e</i>	0.0821854	<i>i</i>	4.40112	−0.16807087		−0.42502189	
<i>P</i>	3.54	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1977 03 14	381	0.3−	0.3+	1998 01 24	385	1.2+	0.1+	1998 02 05	886	0.8−	0.6+
1977 03 14	381	0.1+	0.3+	1998 01 29	886	0.0	0.8−	1998 02 05	886	1.2−	1.2−
1977 03 15	381	0.1+	0.2−	1998 01 29	886	0.8+	0.5+	1998 02 06	886	0.6+	0.4−
1977 03 15	381	0.2+	0.1−	1998 01 30	385	0.0	0.3+	1998 02 06	886	0.4+	0.6−
1998 01 21	905	0.0	0.3−	1998 01 30	385	1.1+	0.2+	1998 03 15	385	0.0	0.8−
1998 01 21	905	1.0+	0.1+	1998 02 02	886	2.2−	1.2+	1998 03 15	385	0.4−	0.1+
1998 01 24	385	0.6+	0.1−	1998 02 02	886	1.0−	0.5+				

1998 BE₂₆ = 1975 XE₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	99.08269		(2000.0)		P		Q
<i>n</i>	0.19161785	ω	243.88215	+0.54176131		−0.84025246	
<i>a</i>	2.9797425	Ω	173.19166	+0.82164863		+0.52397417	
<i>e</i>	0.1079254	<i>i</i>	10.54269	+0.17716718		+0.13938029	
<i>P</i>	5.14	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1975 12 06	809	0.2+	0.2+	1998 01 30	910	0.3−	0.7−	1998 03 22	704	1.0+	0.3−
1975 12 06	809	0.1+	0.2−	1998 03 18	691	0.1−	0.1+	1998 03 22	704	0.7−	0.6+
1975 12 07	809	0.3−	0.3−	1998 03 18	691	0.3+	0.3+	1998 03 22	704	0.1+	0.1−
1975 12 07	809	0.0	0.3+	1998 03 18	691	0.5+	0.1+	1998 03 22	704	(3.5−	0.2−)
1998 01 28	910	0.3+	0.2−	1998 03 20	704	1.8+	0.0	1998 03 25	691	0.4−	0.3−
1998 01 28	910	0.1+	0.2−	1998 03 20	704	(1.4+	2.4+)	1998 03 25	691	0.8−	0.0
1998 01 28	910	0.1+	0.3−	1998 03 20	704	1.1−	0.3+	1998 03 25	691	1.2−	0.0
1998 01 30	910	0.2−	1.1+	1998 03 20	704	0.9+	0.4−				
1998 01 30	910	0.3−	0.3+	1998 03 22	704	0.2−	0.2−				

1998 BH₂₆ = 1991 RZ₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	270.59832		(2000.0)		P		Q
<i>n</i>	0.24491444	ω	276.96571	+0.06130323		+0.99797557	
<i>a</i>	2.5300346	Ω	356.41579	−0.77497533		+0.03690084	
<i>e</i>	0.1889783	<i>i</i>	15.71415	−0.62901125		+0.05179858	
<i>P</i>	4.02	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 09 11	675	(1.1−	2.3−)	1998 01 28	910	0.1+	0.1−	1998 03 22	704	0.4−	0.6−
1991 09 11	675	1.3+	1.5−	1998 01 30	910	0.1+	0.1+	1998 03 22	704	0.0	0.7−
1991 09 12	033	1.0−	0.9+	1998 01 30	910	0.5−	0.4+	1998 03 22	704	0.6−	1.1−
1991 09 12	033	0.5−	1.2+	1998 01 30	910	0.1−	0.1+	1998 03 30	910	0.8+	0.4+
1991 09 14	033	0.1−	1.6+	1998 03 20	704	0.2+	0.5−	1998 03 30	910	0.7+	0.5+
1991 09 14	675	0.7+	1.6−	1998 03 20	704	0.0	0.0	1998 03 30	910	0.7+	0.9+
1991 09 14	675	0.1+	0.5−	1998 03 20	704	0.4+	0.9+	1998 04 01	704	0.6−	0.5+
1991 09 15	033	0.9−	0.3−	1998 03 20	704	0.7−	0.7−	1998 04 01	704	0.1−	0.1−
1991 09 15	033	0.3+	0.2+	1998 03 20	704	0.6+	1.0+	1998 04 01	704	0.6−	0.3−
1998 01 28	910	0.2+	0.1−	1998 03 22	704	0.1+	0.2−	1998 04 01	704	0.8+	0.9+
1998 01 28	910	0.3+	0.0	1998 03 22	704	0.2−	0.3−	1998 04 01	704	1.1−	0.8−

1998 BE₃₃ = 1983 XB₂ = 1987 SR₁₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	64.28622		(2000.0)		P		Q
<i>n</i>	0.22268211	ω	257.44862	+0.41486783		−0.90910370	
<i>a</i>	2.6957472	Ω	167.83220	+0.88865301		+0.39596322	
<i>e</i>	0.2859611	<i>i</i>	10.28105	+0.19539833		+0.12939704	
<i>P</i>	4.43	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1983 12 07	808	0.1+	0.5−	1998 01 30	910	0.5+	0.1−	1998 03 20	704	0.0	0.1+
1983 12 07	808	0.1−	0.1+	1998 01 30	910	0.2+	0.6−	1998 03 20	704	1.7+	0.5−
1987 09 18	809	0.8−	0.4−	1998 01 30	910	0.5+	0.1−	1998 03 20	704	1.2−	1.3−
1987 09 18	809	0.7−	0.3+	1998 01 31	910	0.3+	0.1−	1998 03 22	704	0.3+	0.0
1987 09 18	809	1.3+	0.4+	1998 01 31	910	0.2+	0.6−	1998 03 22	704	0.7−	0.7−
1987 09 19	809	0.2+	0.8−	1998 01 31	910	0.3+	0.3−	1998 03 22	704	0.6+	0.3+
1987 09 19	809	0.3+	0.8−	1998 03 20	704	0.1+	0.2−	1998 03 22	704	0.8−	1.5+
1987 09 19	809	0.2+	0.9−	1998 03 20	704	1.3−	0.0	1998 03 22	704	0.9−	0.1−

1998 BT₃₅ = 1962 TK = 1986 RQ₁₅ = 1993 VV

Id. A. Gnädig, G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	79.90350		(2000.0)		P		Q
<i>n</i>	0.28740109	ω	46.26458	+0.81342366		−0.58141973	
<i>a</i>	2.2741046	Ω	349.24758	+0.50382409		+0.71896226	
<i>e</i>	0.1627122	<i>i</i>	5.26462	+0.29069441		+0.38084690	
<i>P</i>	3.43	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1962 10 04	760	(45.9+	88.0+)X	1998 01 28	691	1.1−	0.6−	1998 03 03	704	0.2+	0.7+
1986 09 12	095	0.4−	0.8+	1998 01 28	691	1.0−	0.6−	1998 03 03	704	0.3+	0.0
1993 11 09	391	(2.2−	3.0−)	1998 02 02	691	0.5−	0.7−	1998 03 03	704	0.4+	0.0
1993 11 09	391	(0.2−	4.5−)	1998 02 02	691	0.4−	0.5−	1998 03 03	704	0.9+	0.7+
1993 11 15	391	0.9−	0.8+	1998 02 02	691	0.6−	0.5−	1998 03 04	704	0.7+	0.5+
1993 11 15	391	1.8+	0.0	1998 02 26	566	(0.1+	2.6−)	1998 03 04	704	0.8+	0.8+
1993 11 22	391	1.2−	0.5−	1998 02 26	566	(2.0+	3.5−)	1998 03 04	704	0.8+	0.1−
1993 11 22	391	0.1+	0.1−	1998 02 26	566	(0.9+	2.2−)	1998 03 04	704	0.2+	0.3+
1998 01 28	691	1.1−	0.4−	1998 03 03	704	0.2+	0.7+	1998 03 04	704	0.5+	0.7+

1998 BU₄₁ = 1971 VD₁ = 1987 DV₅

Id. S. Nakano, A. Gnädig

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	19.91078		(2000.0)		P		Q
<i>n</i>	0.27025761	ω	152.84327	−0.13528668		−0.98441421	
<i>a</i>	2.3692857	Ω	304.72828	+0.88241983		−0.06813475	
<i>e</i>	0.1585906	<i>i</i>	7.85817	+0.45059157		−0.16213058	
<i>P</i>	3.65	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1971 11 11	095	0.1−	0.6+	1998 02 06	888	1.1−	0.5−	1998 03 03	704	1.6+	0.5+
1987 02 19	809	0.5−	1.3−	1998 02 17	886	0.2+	1.4+	1998 03 03	704	1.1+	0.0
1987 02 19	809	0.5−	1.0−	1998 02 17	886	0.3+	0.1+	1998 03 03	704	0.7+	0.9+
1987 02 19	809	0.0	0.2+	1998 02 17	888	0.5−	0.5+	1998 03 03	428	0.1+	0.4−
1998 01 30	888	1.7+	0.6+	1998 02 17	888	0.5−	0.2+	1998 03 03	888	0.1+	0.3−
1998 01 30	888	(2.2+	0.4+)	1998 02 20	428	0.6−	0.0	1998 03 03	888	0.3+	0.3−
1998 02 01	428	0.0	0.1+	1998 02 20	428	0.7−	0.3+	1998 03 03	888	0.3+	0.4−
1998 02 02	888	0.4+	0.2−	1998 02 22	566	0.3−	0.1−	1998 03 04	704	0.1+	0.1−
1998 02 02	888	0.4+	0.3−	1998 02 22	566	0.1−	0.1−	1998 03 04	704	0.0	0.8+
1998 02 02	428	0.1+	0.1+	1998 02 22	566	0.4−	0.1−	1998 03 04	704	0.4−	0.3+
1998 02 03	428	0.3+	0.6+	1998 02 23	566	0.2−	0.5−	1998 03 04	704	0.4−	0.4−
1998 02 05	888	0.9−	0.1−	1998 02 23	566	0.1−	0.4−	1998 03 04	704	0.2+	0.3+
1998 02 05	888	0.3+	0.2−	1998 02 23	566	0.4−	0.5−	1998 03 15	888	1.0+	0.5+
1998 02 06	888	1.0−	0.4−	1998 03 03	704	0.3+	0.1−	1998 03 15	888	0.9+	0.4+
1998 02 06	888	1.2−	0.2+	1998 03 03	704	0.1−	0.4−				

1998 BA₄₆ = 1993 FE₂₅

Id. A. Gnädig

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	16.50178		(2000.0)	P		Q	
<i>n</i>	0.17514392	ω	174.27432	−0.15781024	−0.98744581		
<i>a</i>	3.1637780	Ω	284.80536	+0.90570475	−0.14198213		
<i>e</i>	0.1558359	<i>i</i>	0.40503	+0.39343975	−0.06922323		
<i>P</i>	5.63	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 03 21	809	0.5−	0.2−	1998 01 26	691	1.0−	0.2+	1998 01 29	566	1.0+	0.0
1993 03 22	809	0.7+	0.5+	1998 01 26	691	0.7−	0.3−	1998 02 27	910	0.5+	0.0
1993 03 26	809	0.2−	0.3−	1998 01 29	566	0.6+	0.2+	1998 02 27	910	0.1−	0.3−
1998 01 26	691	1.0−	0.0	1998 01 29	566	0.8+	0.5+	1998 02 27	910	0.0	0.4−

1998 CM₂ = 1991 EZ₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	356.87521		(2000.0)	P		Q	
<i>n</i>	0.26004970	ω	287.02099	+0.43130764	−0.90143529		
<i>a</i>	2.4308891	Ω	137.36615	+0.84727150	+0.39051081		
<i>e</i>	0.1504003	<i>i</i>	3.15334	+0.31000763	+0.18685751		
<i>P</i>	3.79	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 03 13	809	0.0	0.3+	1998 02 15	327	0.4+	0.3−	1998 02 26	327	1.0−	0.8−
1991 03 13	809	1.1+	0.4+	1998 02 16	327	0.7−	0.6+	1998 02 26	327	1.0−	0.9−
1991 03 13	809	1.9+	0.1+	1998 02 16	327	0.1−	0.9+	1998 02 26	327	0.8−	0.9−
1991 03 15	809	1.2−	0.7−	1998 02 16	327	0.1+	1.7+	1998 03 11	327	1.0+	0.1+
1991 03 15	809	1.0−	0.2−	1998 02 22	327	0.2−	0.3+	1998 03 11	327	0.3−	0.5−
1991 03 15	809	0.8−	0.3+	1998 02 22	327	0.0	0.2+	1998 03 11	327	0.9+	0.8−
1998 02 15	327	0.5+	0.5−	1998 02 22	327	0.3+	0.2+				
1998 02 15	327	0.2+	0.3−	1998 02 22	327	0.5+	0.7+				

1998 CP₂ = 1981 LG = 1991 CU₄ = 1996 TM₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	287.34849		(2000.0)	P		Q	
<i>n</i>	0.28173608	ω	28.72821	−0.86343865	+0.50445292		
<i>a</i>	2.3044878	Ω	181.56784	−0.46936772	−0.80409019		
<i>e</i>	0.1622263	<i>i</i>	2.04022	−0.18484491	−0.31458898		
<i>P</i>	3.50	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1981 06 04	688	0.3−	0.1−	1996 10 13	566	0.2+	0.8−	1998 02 25	132	1.6−	0.7+
1981 06 04	688	0.3+	0.8−	1998 02 15	132	0.5−	0.3−	1998 02 25	132	1.3−	0.5+
1981 06 09	688	0.5−	2.0−	1998 02 16	132	0.3−	0.3−	1998 02 25	132	0.7−	0.2−
1981 06 09	688	0.5−	1.3−	1998 02 17	132	1.3−	0.4−	1998 02 25	132	0.5−	0.2+
1991 02 09	675	0.4+	0.9−	1998 02 17	132	0.3−	0.4−	1998 03 13	958	1.2+	0.4+
1991 02 09	675	0.6−	0.5−	1998 02 17	132	0.5−	0.3+	1998 03 13	958	(4.7+	2.1+)
1996 10 09	566	0.1−	0.3−	1998 02 18	132	0.5−	0.6−	1998 03 14	958	3.3+	0.5+
1996 10 09	566	0.1−	0.3−	1998 02 18	132	1.7+	2.1−	1998 03 26	958	0.2+	0.5+
1996 10 09	566	0.1+	0.4−	1998 02 18	132	0.8−	0.3−	1998 03 26	958	0.5+	0.5+
1996 10 13	566	1.0+	2.3−	1998 02 23	958	(4.3−	0.4−)	1998 03 27	958	1.0+	0.1−
1996 10 13	566	0.8+	0.6−	1998 02 23	958	(2.0−	6.9−)	1998 03 27	958	0.4+	0.8−

1998 CR₃ = 1996 VY₂₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	5.30172		(2000.0)	P		Q	
<i>n</i>	0.17587106	ω	11.04600	−0.70801539	−0.70615333		
<i>a</i>	3.1550516	Ω	124.02825	+0.64719875	−0.65327484		
<i>e</i>	0.1350128	<i>i</i>	0.54294	+0.28257386	−0.27309238		
<i>P</i>	5.60	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 11 08	691	0.1+	0.3+	1998 02 07	809	(1.0+	3.1−)	1998 03 20	704	1.4−	0.5−
1996 11 08	691	0.0	0.2+	1998 03 03	704	0.5+	0.7−	1998 03 20	704	0.3+	0.2−
1996 11 08	691	0.3+	0.0	1998 03 03	704	1.3+	0.1+	1998 03 20	704	0.2+	0.4+
1996 11 09	691	0.2−	0.3−	1998 03 03	704	0.4+	0.0	1998 03 20	704	0.3−	0.9+
1996 11 09	691	0.1−	0.2−	1998 03 03	704	0.9+	0.0	1998 03 20	704	1.5+	1.0+
1996 11 09	691	0.1−	0.1−	1998 03 03	704	1.4+	1.0−	1998 03 22	704	0.6−	0.4−
1998 02 06	809	0.4+	2.0+	1998 03 04	704	1.7−	1.2−	1998 03 22	704	0.1−	0.1+
1998 02 06	809	0.9+	1.5+	1998 03 04	704	1.2−	0.1−	1998 03 22	704	1.1+	0.9+
1998 02 06	809	0.0	0.8+	1998 03 04	704	1.2−	1.0−	1998 03 22	704	(2.0+	2.8−)
1998 02 07	809	(1.8+	3.3−)	1998 03 04	704	1.5−	0.7−	1998 03 22	704	(1.2−	2.1+)
1998 02 07	809	0.7−	1.7−	1998 03 04	704	(3.2−	1.0−)				

1998 DT = 1995 SZ

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	159.23721		(2000.0)	P		Q	
<i>n</i>	0.18496301	ω	77.83665	+0.95810605	+0.28601152		
<i>a</i>	3.0507934	Ω	265.54257	−0.26834233	+0.87787493		
<i>e</i>	0.0900050	<i>i</i>	0.87199	−0.10012584	+0.38410027		
<i>P</i>	5.33	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 09 16	560	0.5−	0.3+	1998 02 19	540	0.8−	0.7−	1998 03 03	704	0.3+	1.0+
1995 09 16	560	1.1−	0.0	1998 02 19	540	1.0−	0.9−	1998 03 03	704	0.6−	1.2+
1995 09 16	560	0.4−	0.4+	1998 02 20	540	0.1−	0.4−	1998 03 03	704	(2.6−	0.2+)
1995 09 17	560(19.2+	7.9+)		1998 02 20	540	0.1−	0.6+	1998 03 04	704	(2.4−	1.1−)
1995 09 17	560(19.8+	7.2+)		1998 02 20	540	0.2+	0.2+	1998 03 04	704	1.9−	1.7−
1995 09 17	560(19.1+	6.7+)		1998 02 21	540	0.3+	0.2−	1998 03 04	704	(2.5−	1.2−)
1995 09 25	560	0.4+	0.7+	1998 02 21	540	0.8+	0.9+	1998 03 04	704	(5.2−	0.8+)
1995 09 25	560	0.9+	0.7+	1998 02 21	540	1.0+	0.2−	1998 03 23	540	0.4−	0.2−
1995 09 25	560	0.0	0.1−	1998 02 21	540	0.7+	0.4−	1998 03 23	540	0.0	0.1−
1995 09 26	560	1.1−	1.2−	1998 02 21	540	0.6+	0.0	1998 03 23	540	0.2+	0.2+
1995 09 26	560	0.5+	0.3−	1998 02 26	540	0.1+	0.4+	1998 03 23	540	0.9−	0.5−
1995 09 26	560	1.1+	0.0	1998 02 26	540	0.1−	0.2+	1998 03 25	540	1.3+	1.4+
1998 02 18	540	0.0	0.4−	1998 02 26	540	0.4+	0.1−	1998 03 26	540	0.7+	0.8+
1998 02 18	540	0.1+	0.4+	1998 02 26	540	0.2+	0.4+	1998 03 26	540	0.1+	0.5−
1998 02 18	540	0.4+	0.0	1998 03 03	704	0.8−	1.0−				
1998 02 18	540	0.3−	0.2−	1998 03 03	704	0.1−	0.6+				

1998 DK₁ = 1993 TV₄₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	2.43683		(2000.0)	P		Q	
<i>n</i>	0.31134087	ω	135.67297	−0.71862882	−0.69539383		
<i>a</i>	2.1559828	Ω	0.26864	+0.62602450	−0.64706247		
<i>e</i>	0.0526665	<i>i</i>	2.35908	+0.30276383	−0.31263011		
<i>P</i>	3.17	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 10 10	809	(2.1+	3.2+)	1998 02 23	611	0.8−	0.0	1998 03 09	611	0.8−	0.0
1993 10 10	809	(1.0+	2.5+)	1998 02 23	611	0.5−	0.1+	1998 03 20	704	0.1+	0.5+
1993 10 10	809	0.2−	1.5+	1998 02 24	566	0.1−	0.0	1998 03 20	704	1.2+	0.8+
1993 10 22	809	1.0+	0.2+	1998 02 24	566	0.3−	0.2−	1998 03 20	704	0.5+	0.3+
1993 10 22	809	0.3−	0.9−	1998 02 24	566	0.0	0.2−	1998 03 20	704	1.3+	0.1−
1993 10 22	809	0.6−	0.4−	1998 02 26	611	0.1+	0.2−	1998 03 20	704	0.7+	1.2+
1998 02 18	611	1.7−	0.6+	1998 02 26	611	0.0	0.2+	1998 03 22	704	0.1−	0.0
1998 02 18	611	0.1+	0.8+	1998 02 26	611	0.3+	0.1−	1998 03 22	704	0.4+	0.2−
1998 02 18	611	0.4+	0.0	1998 03 03	704	0.0	0.7−	1998 03 22	704	0.9−	0.6+
1998 02 19	611	1.0+	0.9+	1998 03 03	704	0.1+	0.2−	1998 03 22	704	0.7−	0.2−
1998 02 19	611	0.9+	0.8+	1998 03 03	704	1.0+	0.3−	1998 03 22	704	0.4−	0.4−
1998 02 20	611	0.9+	0.4−	1998 03 03	704	1.0−	1.1−	1998 03 24	611	0.3−	0.0
1998 02 20	611	0.1−	0.5−	1998 03 03	704	1.1+	0.9−	1998 03 24	611	0.1+	0.3−
1998 02 20	611	0.2−	0.9−	1998 03 09	611	0.1+	0.1−				
1998 02 23	611	1.7−	0.1−	1998 03 09	611	0.4−	0.5+				

1998 DX₁ = 1995 NJ

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	51.78915		(2000.0)		P		Q		
<i>n</i>	0.25710022	ω	315.26161		+0.34447780		-0.92413261		
<i>a</i>	2.4494453	Ω	113.93988		+0.90400262		+0.27904886		
<i>e</i>	0.0833880	<i>i</i>	10.41784		+0.25320804		+0.26098017		
<i>P</i>	3.83	<i>H</i>	15.5	<i>G</i>	0.15		<i>U</i>	4	
Residuals in seconds of arc									
1995 07 01	691	0.1+	0.2+	1998 02 20	595	0.3+	0.1+	1998 03 03	704 0.6- 1.1+
1995 07 01	691	0.1+	0.5-	1998 02 20	595	1.0-	0.2+	1998 03 03	704 (3.7- 0.7+)
1995 07 02	691	0.3+	0.2+	1998 02 22	595	1.0-	0.4+	1998 03 21	595 0.3+ 1.3-
1995 07 02	691	0.3-	0.2+	1998 02 22	595	0.9+	0.1-	1998 03 21	595 0.6+ 0.9+
1995 07 02	691	0.3-	0.1-	1998 02 27	595	0.3+	0.1-	1998 03 25	595 0.7- 0.3-
1998 02 19	595	0.2+	0.1-	1998 02 27	595	0.6+	0.7-	1998 03 25	595 0.0 0.0
1998 02 19	595	0.9+	0.4-	1998 03 03	704	(2.6+ 0.8+)			
1998 02 20	595	0.2-	0.5-	1998 03 03	704	0.6-	0.9+		

1998 DD₂ = 1996 RU₁₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden

<i>M</i>	12.94173		(2000.0)		P		Q		
<i>n</i>	0.18426843	ω	109.76456		-0.12984382		-0.99104219		
<i>a</i>	3.0584549	Ω	347.57206		+0.84669914		-0.09442621		
<i>e</i>	0.3180039	<i>i</i>	8.34663		+0.51598561		-0.09444085		
<i>P</i>	5.35	<i>H</i>	17.0	<i>G</i>	0.15		<i>U</i>	4	
Residuals in seconds of arc									
1996 09 08	691	0.2-	0.2+	1998 02 21	118	0.0	0.3-	1998 02 28	118 0.5- 0.1-
1996 09 08	691	0.0	0.0	1998 02 22	118	0.7+	0.1+	1998 02 28	118 0.8- 0.3-
1996 09 08	691	0.1-	0.0	1998 02 22	118	0.5+	0.1-	1998 02 28	118 0.7- 0.4+
1996 09 11	691	0.1+	0.2-	1998 02 22	118	0.5+	0.1-	1998 03 19	118 0.3+ 0.1+
1996 09 11	691	0.2+	0.1+	1998 02 24	118	0.4-	0.3+	1998 03 19	118 0.2+ 0.2+
1998 02 21	118	0.2+	0.3+	1998 02 24	118	0.2+	0.6-		
1998 02 21	118	0.2-	0.1+	1998 02 24	118	0.0	0.2+		

1998 DS₄ = 1977 EO₂ = 1990 QQ₉ = 1995 OZ₇

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	105.15235		(2000.0)		P		Q		
<i>n</i>	0.18704148	ω	229.13851		+0.92258664		-0.36258399		
<i>a</i>	3.0281503	Ω	151.37884		+0.38082916		+0.91054545		
<i>e</i>	0.0941359	<i>i</i>	15.96868		-0.06166890		+0.19859466		
<i>P</i>	5.27	<i>H</i>	13.5	<i>G</i>	0.15		<i>U</i>	2	
Residuals in seconds of arc									
1977 03 12	381	0.2-	1.2-	1998 02 22	566	0.1-	0.3+	1998 03 03	098 1.5+ 1.2-
1977 03 12	381	0.0	1.3-	1998 02 22	566	0.1+	0.0	1998 03 03	704 0.1- 0.2-
1990 08 16	809	0.0	1.2-	1998 02 22	566	0.1-	0.3-	1998 03 03	704 0.2+ 0.3+
1990 08 16	809	0.4+	1.3-	1998 02 23	566	0.2-	0.6+	1998 03 03	704 0.1+ 1.0-
1990 08 16	809	0.1+	1.8-	1998 02 23	566	0.3-	0.1+	1998 03 03	704 0.4+ 0.4-
1995 07 25	691	0.7-	0.4-	1998 02 23	566	0.3+	0.2-	1998 03 03	704 0.2+ 0.2+
1995 07 25	691	0.2-	0.2-	1998 02 26	566	0.5-	0.1+	1998 03 04	704 0.8- 1.0-
1995 07 25	691	0.0	0.5-	1998 02 26	566	0.4-	0.4+	1998 03 04	704 0.2- 1.0-
1995 07 30	691	0.2+	0.2-	1998 02 26	566	0.3-	0.4+	1998 03 04	704 0.3- 0.4-
1995 07 30	691	0.4+	0.0	1998 02 27	098	0.7-	0.8+	1998 03 04	704 0.9+ 0.7-
1995 07 30	691	0.3+	0.1-	1998 02 28	098	1.1+	1.6+	1998 03 04	704 0.1- 0.8-
1998 02 02	428	0.9-	0.3+	1998 03 02	098	0.1+	1.6-		

1998 DJ₇ = 1990 QY₁₄ = 1995 QR₁₀

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	0.12324		(2000.0)		P		Q		
<i>n</i>	0.20283603	ω	30.91350		-0.92700999		-0.37262691		
<i>a</i>	2.8688377	Ω	127.14886		+0.33229019		-0.86854717		
<i>e</i>	0.0108130	<i>i</i>	3.05259		+0.17388417		-0.32676443		
<i>P</i>	4.86	<i>H</i>	14.5	<i>G</i>	0.15		<i>U</i>	4	
Residuals in seconds of arc									
1990 08 26	809	0.3+	0.3+	1995 08 30	809	0.3+	0.4-	1998 03 02	809 (0.4- 2.1-)
1990 08 26	809	1.0+	0.3+	1995 08 31	809	0.9+	0.5-	1998 03 02	809 0.9- 1.6-
1990 08 26	809	1.1-	1.1-	1995 09 20	809	0.3-	0.1-	1998 03 20	704 0.2+ 0.5+
1995 08 19	809	(3.8- 3.6+)		1995 09 22	809	0.2-	0.6-	1998 03 20	704 0.1+ 0.8+
1995 08 20	809	(3.9- 2.3+)		1995 09 22	809	1.0+	0.0	1998 03 20	704 0.8- 1.0+
1995 08 24	809	(2.2+ 2.4+)		1995 09 23	809	0.9+	1.5+	1998 03 20	704 (0.7- 2.4+)
1995 08 26	809	0.4+	0.5+	1998 02 21	691	0.6-	0.0	1998 03 20	704 (0.5- 2.4-)
1995 08 27	809	0.3-	0.3-	1998 02 21	691	0.7-	0.2-	1998 03 22	704 1.2+ 0.4-
1995 08 27	809	0.6-	0.0	1998 02 21	691	0.8-	0.1-	1998 03 22	704 0.3+ 0.6+
1995 08 28	809	1.5-	0.3-	1998 02 23	691	0.6+	0.2+	1998 03 22	704 0.9+ 0.6-
1995 08 29	809	0.2-	0.1-	1998 02 23	691	0.4+	0.4+	1998 03 22	704 1.0+ 0.3-
1995 08 30	809	0.4-	0.0	1998 03 02	809	1.2-	1.6-	1998 03 22	704 0.1+ 0.4+

1998 DF₈ = 1993 TK₄₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	294.60025		(2000.0)		P		Q		
<i>n</i>	0.30640359	ω	136.01984		-0.97012186		+0.23531861		
<i>a</i>	2.1790815	Ω	57.67825		-0.23740460		-0.87051657		
<i>e</i>	0.0487959	<i>i</i>	4.00796		-0.05002638		-0.43223380		
<i>P</i>	3.22	<i>H</i>	15.5	<i>G</i>	0.15		<i>U</i>	5	
Residuals in seconds of arc									
1993 10 11	809	0.9-	0.4-	1993 10 20	809	0.3-	1.3-	1998 02 23	327 0.2- 0.1+
1993 10 11	809	0.7+	2.0+	1998 02 01	327	0.2+	0.2+	1998 02 23	327 0.1- 0.1+
1993 10 11	809	0.8-	0.0	1998 02 01	327	0.1+	0.7+	1998 02 23	327 0.1- 0.2-
1993 10 11	809	0.4+	0.7+	1998 02 01	327	0.1+	0.2+	1998 03 01	327 0.2- 0.0
1993 10 11	809	0.5+	0.5+	1998 02 21	327	0.3+	0.3-	1998 03 01	327 0.3- 0.2+
1993 10 11	809	0.4-	1.3-	1998 02 21	327	0.1+	0.7-	1998 03 01	327 0.0 0.4-
1993 10 20	809	0.9+	0.5-	1998 02 21	327	0.1+	0.0		

1998 DT₉ = 1996 TB₂₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	180.16730		(2000.0)		P		Q		
<i>n</i>	0.31675359	ω	345.93246		+0.87439195		+0.48513359		
<i>a</i>	2.1313512	Ω	345.03595		-0.44167598		+0.78795401		
<i>e</i>	0.1184100	<i>i</i>	2.03567		-0.20090061		+0.37917526		
<i>P</i>	3.11	<i>H</i>	15.0	<i>G</i>	0.15		<i>U</i>	5	
Residuals in seconds of arc									
1996 10 06	691	0.3+	0.1-	1998 02 24	557	0.4+	0.1-	1998 03 03	704 (3.5+ 0.9+)
1996 10 08	691	0.0	0.0	1998 02 24	557	0.5-	0.1-	1998 03 03	704 0.4- 0.0
1996 10 08	691	0.2-	0.0	1998 02 24	557	0.6-	0.5-	1998 03 20	704 0.1- 0.4+
1996 10 08	691	0.0	0.0	1998 02 24	557	0.3+	0.7-	1998 03 20	704 0.5+ 0.7+
1998 02 22	566	1.0+	0.2+	1998 02 25	422	(2.8+ 0.1-)		1998 03 20	704 0.4- 0.1-
1998 02 22	566	0.1-	0.1-	1998 02 25	422	1.6+	0.4+	1998 03 20	704 0.6- 0.1+
1998 02 22	566	0.2-	0.3+	1998 02 25	422	0.8+	0.0	1998 03 20	704 0.2+ 1.9-
1998 02 23	566	0.0	0.2+	1998 02 25	426	0.8-	0.3+	1998 03 22	704 0.4+ 1.1-
1998 02 23	566	0.0	0.0	1998 02 25	426	0.1-	0.1-	1998 03 22	704 0.7+ 1.1-
1998 02 23	566	0.2-	0.2+	1998 02 25	426	0.3-	0.2-	1998 03 22	704 0.5+ 1.0+
1998 02 23	327	0.1+	0.1-	1998 03 03	704	0.4-	1.7+	1998 03 22	704 0.0 0.9+
1998 02 23	327	0.0	0.0	1998 03 03	704	0.2+	0.0	1998 03 22	704 0.2- 0.5+
1998 02 23	327	0.2-	0.1-	1998 03 03	704	0.7-	0.6-		

1998 APR. 11

M.P.C. 31559

1998 DW₉ = 1993 JA₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	97.92250		(2000.0)	Williams		<i>P</i>	<i>Q</i>
<i>n</i>	0.15492847	ω	163.04371	+0.63455655	−0.76349130		
<i>a</i>	3.4333275	Ω	247.39942	+0.69315673	+0.63091644		
<i>e</i>	0.0997708	<i>i</i>	7.47350	+0.34186509	+0.13793286		
<i>P</i>	6.36	<i>H</i>	12.5	<i>G</i> 0.15	<i>U</i> 5		

Residuals in seconds of arc

1993 05 14	809	0.1+	0.0	1998 02 27	426	0.6+	0.3+	1998 03 17	426	0.7+	0.1+
1993 05 14	809	0.9+	0.9+	1998 03 03	704	0.8+	0.4−	1998 03 17	426	0.1+	0.1+
1993 05 14	809	0.5−	0.4−	1998 03 03	704	0.1+	0.6+	1998 03 17	426	0.5+	0.0
1993 05 15	809	0.1+	0.1+	1998 03 03	704	0.8+	1.1−	1998 03 31	704	0.3−	0.4−
1993 05 15	809	0.3−	0.1+	1998 03 03	704	1.2−	0.1−	1998 03 31	704	0.5+	0.7+
1993 05 15	809	0.4−	0.7−	1998 03 03	704	(3.7−	4.1−)	1998 03 31	704	0.2−	0.7+
1998 02 20	426	0.0	0.3−	1998 03 04	704	1.6−	0.4+	1998 03 31	704	0.3−	0.5−
1998 02 20	426	0.4+	0.3−	1998 03 04	704	(4.3−	0.6−)	1998 03 31	704	0.0	0.0
1998 02 20	426	0.1−	0.1+	1998 03 04	704	1.6−	0.1−	1998 04 01	704	0.2+	0.2−
1998 02 24	426	0.5+	0.1+	1998 03 04	704	(2.3−	0.1+)	1998 04 01	704	0.1−	0.4−
1998 02 24	426	0.4+	0.6+	1998 03 04	704	1.8−	0.9−	1998 04 01	704	0.4−	0.2+
1998 02 24	426	0.5−	0.4+	1998 03 16	426	0.6+	0.2−	1998 04 01	704	0.3−	0.2+
1998 02 27	426	0.3+	0.1+	1998 03 16	426	0.8+	0.3−	1998 04 01	704	0.1+	0.3+
1998 02 27	426	0.6+	0.2+	1998 03 16	426	0.4+	0.1+				

1998 DY₉ = 1996 MJ

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	326.89657		(2000.0)	Williams		<i>P</i>	<i>Q</i>
<i>n</i>	0.31472507	ω	211.12994	−0.90396210	−0.42525728		
<i>a</i>	2.1404996	Ω	303.63767	+0.40256551	−0.81098076		
<i>e</i>	0.0651777	<i>i</i>	3.08591	+0.14419962	−0.40182888		
<i>P</i>	3.13	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 4		

Residuals in seconds of arc

1996 06 21	566	0.3−	0.0	1998 02 24	133	0.6−	0.0	1998 03 01	133	0.1+	0.1+
1996 06 21	566	0.3−	0.3−	1998 02 24	133	0.7−	0.0	1998 03 01	133	0.3−	0.2−
1996 06 21	566	0.1−	0.2−	1998 02 24	133	0.7−	0.8−	1998 03 02	133	0.2+	0.1+
1996 06 22	566	0.3+	0.2+	1998 02 25	133	0.2+	0.4+	1998 03 02	133	0.6+	0.3+
1996 06 22	566	0.1−	0.2−	1998 02 25	133	0.3+	0.1−	1998 03 02	133	0.6−	0.1−
1996 06 22	566	0.3+	0.1+	1998 02 27	133	0.6+	0.6−	1998 03 26	958	0.3+	0.6−
1996 06 22	566	0.2+	0.2+	1998 02 27	133	0.2−	0.4+	1998 03 26	958	0.3+	0.3−
1996 06 22	566	0.0	0.1−	1998 02 27	133	0.0	0.0	1998 03 27	958	0.0	0.5−
1996 06 22	566	0.3+	0.1−	1998 03 01	133	0.9+	0.0	1998 03 27	958	0.6−	1.6+

1998 DG₁₀ = 1972 TV₈ = 1996 RL₂₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	103.83416		(2000.0)	Williams		<i>P</i>	<i>Q</i>
<i>n</i>	0.28611869	ω	199.17755	+0.89018587	−0.45546120		
<i>a</i>	2.2808946	Ω	187.94442	+0.42783215	+0.84409452		
<i>e</i>	0.1261669	<i>i</i>	4.62517	+0.15661662	+0.28294793		
<i>P</i>	3.44	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 4		

Residuals in seconds of arc

1972 10 05	095	0.6−	1.0−	1998 02 24	566	0.8+	0.6−	1998 03 04	704	1.8−	0.4+
1972 10 13	095	0.6+	0.9+	1998 02 27	566	0.5+	0.4−	1998 03 20	704	0.5+	0.4+
1996 09 12	691	0.5−	0.0	1998 02 27	566	0.4+	0.1−	1998 03 20	704	0.5−	0.2−
1996 09 12	691	0.7−	0.0	1998 02 27	566	0.4+	0.1−	1998 03 20	704	0.1−	0.5−
1996 09 12	691	0.5−	0.2−	1998 03 03	704	0.2+	0.3+	1998 03 20	704	0.0	1.1+
1996 09 13	566	0.7+	0.1−	1998 03 03	704	0.3−	0.2+	1998 03 20	704	0.8−	0.5+
1996 09 13	566	0.7+	0.1−	1998 03 03	704	0.6+	0.3−	1998 03 22	704	0.1−	0.2−
1996 09 13	566	0.5+	0.0	1998 03 03	704	0.4+	0.0	1998 03 22	704	0.6−	0.5−
1998 02 22	566	0.1−	0.5+	1998 03 03	704	0.3+	0.3+	1998 03 22	704	0.7+	0.4−
1998 02 22	566	0.3−	0.4+	1998 03 04	704	2.0−	0.2+	1998 03 22	704	0.2−	0.5−
1998 02 22	566	0.0	0.1+	1998 03 04	704	(2.3−	0.2+)	1998 03 22	704	0.4+	0.6−
1998 02 24	566	0.9+	0.4−	1998 03 04	704	(2.2−	0.2−)				
1998 02 24	566	0.4+	0.3−	1998 03 04	704	(2.4−	0.6−)				

1998 DJ₁₀ = 1986 TY₅ = 1993 EX

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	39.68973		(2000.0)	Williams		<i>P</i>	<i>Q</i>
<i>n</i>	0.19971315	ω	106.47216	−0.09126376	−0.99580298		
<i>a</i>	2.8986667	Ω	348.75745	+0.89966309	−0.07948645		
<i>e</i>	0.1931613	<i>i</i>	2.02252	+0.42693939	−0.04536874		
<i>P</i>	4.94	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 3		

Residuals in seconds of arc

1986 10 09	046	0.7−	0.5−	1998 02 24	566	0.1+	0.3−	1998 03 03	704	0.0	0.4+
1986 10 09	046	0.7+	0.4+	1998 02 24	566	0.2−	0.3−	1998 03 20	704	0.2−	0.1+
1986 10 10	046	(3.8+	0.3−)	1998 02 25	566	0.3−	0.2+	1998 03 20	704	0.3+	0.2+
1986 10 10	046	(8.0+	2.2+)	1998 02 25	566	0.2−	0.1+	1998 03 20	704	0.7+	0.5−
1993 03 12	399	0.1−	0.7+	1998 02 25	566	0.2−	0.0	1998 03 20	704	0.5−	1.5+
1993 03 12	399	0.2+	0.3−	1998 02 27	566	0.5−	0.3+	1998 03 20	704	0.6+	1.0−
1993 03 15	400	1.2+	0.7+	1998 02 27	566	0.1−	0.1+	1998 03 22	704	0.2−	0.1−
1993 03 15	400	0.7−	0.2+	1998 02 27	566	0.2−	0.4+	1998 03 22	704	0.6+	0.4−
1998 02 22	566	0.8−	0.1−	1998 03 03	704	0.1−	0.0	1998 03 22	704	0.1+	0.1−
1998 02 22	566	0.1+	0.2−	1998 03 03	704	0.5+	0.8−	1998 03 22	704	0.0	0.2+
1998 02 22	566	0.0	0.0	1998 03 03	704	0.3−	0.0	1998 03 22	704	0.0	0.6−
1998 02 24	566	0.1−	0.4−	1998 03 03	704	0.1+	0.1+				

1998 DP₁₀ = 1996 UO₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	4.17363		(2000.0)	Williams		<i>P</i>	<i>Q</i>
<i>n</i>	0.30160896	ω	289.16918	−0.67810082	−0.73467542		
<i>a</i>	2.2021145	Ω	203.56599	+0.69233346	−0.62902505		
<i>e</i>	0.0717537	<i>i</i>	2.97758	+0.24668535	−0.25412500		
<i>P</i>	3.27	<i>H</i>	16.0	<i>G</i> 0.15	<i>U</i> 6		

Residuals in seconds of arc

1996 10 17	910	0.5−	0.5+	1998 02 23	566	0.1−	1.2−	1998 03 20	704	1.1+	0.6−
1996 10 17	910	0.0	0.6+	1998 02 23	566	0.3−	1.6−	1998 03 20	704	(2.2+	2.0−)
1996 10 17	910	0.3+	0.6+	1998 02 24	566	0.6−	0.8+	1998 03 20	704	1.0−	1.8+
1996 10 18	910	0.4+	0.5−	1998 02 24	566	0.2−	0.7+	1998 03 20	704	(0.0	2.5+)
1996 10 18	910	0.1−	0.4−	1998 02 24	566	0.5−	0.8+	1998 03 22	704	0.7+	0.2−
1996 10 18	910	0.2+	0.4−	1998 03 03	704	1.6+	0.1+	1998 03 22	704	0.1+	0.5−
1996 10 19	910	0.1−	0.1−	1998 03 03	704	0.4−	1.6+	1998 03 22	704	0.6−	0.1+
1996 10 19	910	0.1−	0.3+	1998 03 03	704	0.5−	0.2+	1998 03 22	704	0.8−	0.3−
1996 10 19	910	0.4−	0.2+	1998 03 03	704	(0.8+	2.2+)	1998 03 22	704	0.8+	0.7+
1998 02 23	566	0.7+	1.3−	1998 03 03	704	0.1+	0.5−				

1998 DH₁₁ = 1988 OB = 1990 HR₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	209.97980		(2000.0)	Williams		<i>P</i>	<i>Q</i>
<i>n</i>	0.36964431	ω	160.55159	+0.50007548	+0.81966838		
<i>a</i>	1.9228557	Ω	138.11249	−0.83959557	+0.53794825		
<i>e</i>	0.0313498	<i>i</i>	24.73869	−0.21214097	−0.19686398		
<i>P</i>	2.67	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 3		

Residuals in seconds of arc

1988 07 18	675	1.0−	1.3+	1998 02 25	566	0.1−	0.4−	1998 02 27	566	0.3+	0.4−
1988 07 19	675	0.1−	0.6−	1998 02 25	566	0.0	0.6−	1998 02 27	566	0.1+	0.1−
1988 07 20	675	1.1+	0.7−	1998 02 26	566	0.2+	0.2+	1998 03 25	566	0.4−	0.8+
1990 04 20	675	0.4+	1.0−	1998 02 26	566	0.3+	0.1+	1998 03 25	566	0.2−	0.6+
1990 04 22	675	0.4−	0.2−	1998 02 26	566	0.2+	0.5+	1998 03 25	566	0.3−	0.8+
1998 02 25	566	0.1+	0.7−	1998 02 27	566	0.1+	0.2+				

1998 DJ₁₁ = 1976 JO₉ = 1978 PB₂ = 1978 SA₄ = 1986 TU₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	194.83563		(2000.0)		P		Q				
<i>n</i>	0.12817796	ω	356.68314		+0.81585902		+0.57667406				
<i>a</i>	3.8957745	Ω	327.97939		-0.52866531		+0.71396473				
<i>e</i>	0.0527148	<i>i</i>	4.61633		-0.23427985		+0.39711634				
<i>P</i>	7.69	<i>H</i>	11.0	<i>G</i>	0.15	<i>U</i>	3				
Residuals in seconds of arc											
1976 05 02	809	0.2+	0.5-	1998 03 01	596	0.8+	0.3+	1998 03 17	596	0.4-	1.1+
1978 08 08	095	1.8-	0.3+	1998 03 01	596	0.4+	0.3+	1998 03 17	596	0.6-	0.7+
1978 09 28	095	0.1+	1.4+	1998 03 01	596	0.5+	0.1+	1998 03 17	596	0.8-	0.8+
1986 10 02	095	0.0	2.0+	1998 03 03	704	0.5+	0.2-	1998 03 20	704	0.4+	0.7+
1998 02 24	566	0.7+	0.1-	1998 03 03	704	0.6+	0.7-	1998 03 20	704	0.1+	0.8+
1998 02 24	566	0.5+	0.1-	1998 03 03	704	0.4+	0.1+	1998 03 20	704	0.8-	0.6+
1998 02 24	566	0.6+	0.1-	1998 03 03	704	0.3+	0.7-	1998 03 20	704	0.8+	0.1+
1998 02 24	596	0.1-	0.9-	1998 03 03	704	0.7-	0.7+	1998 03 20	704	0.3-	0.2+
1998 02 24	596	0.3-	0.6-	1998 03 04	704	1.7-	0.1+	1998 03 22	704	0.4+	0.8+
1998 02 24	596	0.1+	0.7-	1998 03 04	704	(2.1-	0.1+)	1998 03 22	704	0.1+	0.5+
1998 02 26	596	0.1+	0.2-	1998 03 04	704	2.0-	0.7+	1998 03 22	704	0.2+	0.0
1998 02 26	596	0.2-	0.9-	1998 03 04	704	(2.1-	0.2-)	1998 03 22	704	0.2-	0.6+
1998 02 26	596	0.1+	0.3+	1998 03 04	704	(2.5-	0.6+)	1998 03 22	704	1.1-	0.6+
1998 02 27	596	0.0	0.7-	1998 03 09	596	0.7+	0.3+	1998 03 26	596	0.1-	0.1+
1998 02 27	596	0.4+	0.5-	1998 03 09	596	1.3+	0.1+	1998 03 26	596	0.0	0.2+
1998 02 27	596	0.1+	0.5-	1998 03 09	596	0.7+	0.1+	1998 03 26	596	0.1+	0.2+

1998 DU₁₁ = 1993 GT

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	272.83310		(2000.0)		P		Q				
<i>n</i>	0.18135686	ω	169.10686		-0.21347150		+0.97615755				
<i>a</i>	3.0911024	Ω	88.55870		-0.89926444		-0.18060782				
<i>e</i>	0.1616704	<i>i</i>	2.25437		-0.38177662		-0.12040451				
<i>P</i>	5.43	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	6				
Residuals in seconds of arc											
1993 04 15	675	0.1-	0.2+	1993 04 20	400	1.7+	0.2-	1998 03 03	704	0.5-	0.4-
1993 04 15	675	0.1+	1.0+	1998 02 24	566	0.2+	0.4+	1998 03 20	704	0.7+	0.9-
1993 04 15	399	(3.1-	3.4+)	1998 02 24	566	0.6+	0.7+	1998 03 20	704	0.4-	0.4-
1993 04 15	399	(3.4-	5.5+)	1998 02 24	566	0.0	0.5+	1998 03 20	704	0.2+	0.2-
1993 04 16	675	0.2-	0.6+	1998 02 25	566	0.1+	0.5+	1998 03 20	704	1.8-	0.0
1993 04 16	675	1.4-	0.2-	1998 02 25	566	0.2+	0.4+	1998 03 20	704	1.4-	0.7+
1993 04 16	399	0.4+	1.1-	1998 02 25	566	0.4+	0.4+	1998 03 22	704	0.5+	0.5-
1993 04 16	399	1.2-	0.7+	1998 03 03	704	0.1+	0.4+	1998 03 22	704	0.3-	0.4-
1993 04 19	675	0.7-	0.3-	1998 03 03	704	0.4+	0.5-	1998 03 22	704	0.1-	0.2-
1993 04 19	675	0.0	0.2-	1998 03 03	704	0.3+	0.2-	1998 03 22	704	0.3+	0.4-
1993 04 20	400	1.5+	0.2-	1998 03 03	704	0.1-	0.0	1998 03 22	704	0.7+	0.0

1998 DD₁₂ = 1992 SJ₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	57.86037		(2000.0)		P		Q				
<i>n</i>	0.26139033	ω	292.14304	+0.09359699		-0.99395265					
<i>a</i>	2.4225702	Ω	152.29657	+0.95291399		+0.07272401					
<i>e</i>	0.0972698	<i>i</i>	7.09554	+0.28843462		+0.08227599					
<i>P</i>	3.77	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	6				
Residuals in seconds of arc											
1992 09 26	691	0.2+	0.0	1998 02 26	691	0.6-	0.4-	1998 03 03	691	0.9-	0.3-
1992 09 26	691	0.2+	0.1-	1998 02 26	691	0.1+	0.7-	1998 03 03	691	0.5-	0.4-
1992 09 26	691	0.2-	0.3+	1998 03 01	809	1.2+	1.7+	1998 03 22	704	0.1-	0.3+
1992 09 27	691	0.1-	0.0	1998 03 01	809	0.9-	1.1+	1998 03 22	704	0.8-	0.2+
1992 09 27	691	0.0	0.2-	1998 03 01	809	0.9-	2.6+	1998 03 22	704	0.6+	1.1+
1992 09 27	691	0.1+	0.3-	1998 03 02	809	0.7+	0.2+	1998 03 22	704	0.2+	0.2-
1998 02 23	691	0.1+	0.9-	1998 03 02	809	0.4+	0.2+	1998 03 22	704	2.2+	2.6-
1998 02 23	691	0.0	0.8-	1998 03 02	809	0.4+	0.2-				
1998 02 26	691	0.3-	0.8-	1998 03 03	691	1.0-	0.2-				

1998 DT₁₂ = 1978 NP₅ = 1996 TO₄₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	144.86353		(2000.0)		P		Q					
n	0.27765275	ω	1.31992		+0.91070060		+0.41225556					
a	2.3270268	Ω	334.28490		-0.37952606		+0.81037730					
e	0.1695104	i	3.41945		-0.16304719		+0.41633399					
P	3.55	H	16.0		G	0.15	U	5				
Residuals in seconds of arc												
1978 07 10	675	(7.3+	6.0-)	Y	1996 10 05	809	2.2+	0.6+	1998 02 26	691	0.2+	0.6-
1978 07 11	675	0.7+	2.0-	Y	1996 10 05	809	0.3+	1.4-	1998 02 26	691	0.1+	0.8-
1978 07 13	675	(6.7+	3.4+)	Y	1996 10 05	809	0.4+	0.7+	1998 02 26	691	0.2+	0.2+
1996 10 04	809	0.7+	0.3-		1998 02 24	691	0.7-	0.1-	1998 03 22	691	0.1+	1.0-
1996 10 04	809	2.1-	0.2-		1998 02 24	691	0.5-	0.3-	1998 03 22	691	0.2+	0.6-
1996 10 04	809	0.9-	0.7-		1998 02 24	691	0.7-	0.0	1998 03 22	691	0.0	0.5-

1998 DZ₁₂ = 1992 UL₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	27.61594		(2000.0)		P		Q				
<i>n</i>	0.23892324	ω	109.37982	-0.29735219	-0.95475630						
<i>a</i>	2.5721549	Ω	357.90167	+0.82074282	-0.25309338						
<i>e</i>	0.1541829	<i>i</i>	7.37490	+0.48781441	-0.15615426						
<i>P</i>	4.13	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1992 10 19	399	0.9-	0.4+	1998 03 02	727	0.7+	0.3-	1998 03 21	727	0.3-	0.4-
1992 10 19	399	1.3+	1.4+	1998 03 03	704	0.1-	0.0	1998 03 21	727	0.3-	0.6-
1992 10 22	399	0.5-	1.7-	1998 03 03	704	0.3+	0.2-	1998 03 22	704	0.1-	0.0
1992 10 22	399	(0.7+	3.9-)	1998 03 03	704	0.9+	0.1-	1998 03 22	704	0.2+	0.9-
1998 02 24	727	0.8-	0.1+	1998 03 03	704	0.2+	0.3+	1998 03 22	704	0.2-	0.3-
1998 02 24	727	0.2-	0.5+	1998 03 03	704	1.0+	0.5-	1998 03 22	704	0.1+	0.4-
1998 02 24	727	0.8-	0.4+	1998 03 04	727	0.3-	0.4-	1998 03 22	704	0.6+	0.5-
1998 02 27	727	0.2-	0.6+	1998 03 04	727	0.4+	0.1-	1998 03 23	727	0.2+	0.2-
1998 02 27	727	0.0	0.3+	1998 03 04	727	0.2+	0.5-	1998 03 23	727	0.5-	0.3-
1998 02 27	727	0.1+	0.3-	1998 03 09	727	0.0	0.3-	1998 03 23	727	0.2-	0.4-
1998 02 27	809	(3.1+	2.8+)	1998 03 09	727	0.1+	0.0	1998 03 26	727	0.0	1.1+
1998 02 27	809	(2.0+	3.2+)	1998 03 09	727	0.2+	0.0	1998 03 26	727	0.1+	0.1+
1998 02 27	809	(2.5+	2.6+)	1998 03 20	704	0.6-	0.4+	1998 03 30	727	0.9+	0.5+
1998 02 28	809	1.3-	0.6+	1998 03 20	704	0.4-	0.3+	1998 03 30	727	0.3+	0.8+
1998 02 28	809	(2.7-	0.1+)	1998 03 20	704	0.4-	0.5+	1998 03 30	727	0.5+	0.3+
1998 02 28	809	(2.3-	0.1-)	1998 03 20	704	0.2-	0.9+	1998 04 01	727	0.2+	0.2-
1998 03 02	727	0.4+	0.1-	1998 03 20	704	0.9-	0.5+	1998 04 01	727	0.1-	0.4+
1998 03 02	727	0.4+	0.1-	1998 03 21	727	0.2-	0.8-	1998 04 01	727	0.4+	0.3-

1998 DD₁₃ = 1995 UR₂₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	322.11233		(2000.0)		P		Q				
n	0.18364642	ω	170.73721		-0.96013891		+0.26379838				
a	3.0653570	Ω	25.15551		-0.26836175		-0.77743201				
e	0.1584366	i	12.55919		-0.07820002		-0.57097276				
P	5.37	H	13.5		G	0.15	U	4			
Residuals in seconds of arc											
1995 10 20	691	0.4+	0.2+	1998 02 22	566	0.3+	0.1+	1998 03 24	587	0.4+	0.1-
1995 10 20	691	0.5+	0.0	1998 02 26	566	0.1+	0.1-	1998 03 24	587	0.0	0.6+
1995 10 20	691	0.3+	0.1+	1998 02 26	566	0.1-	0.0	1998 03 25	587	0.3-	0.2-
1995 10 24	691	0.6-	0.2+	1998 02 26	566	0.1-	0.1+	1998 03 25	587	0.9+	0.0
1995 10 24	691	0.3-	0.4-	1998 03 22	587	(2.8-	3.1+)	1998 03 29	587	0.2-	0.5-
1995 10 24	691	0.4-	0.1-	1998 03 22	587	0.6-	1.0+	1998 03 29	587	0.4-	0.5-
1998 02 22	566	0.5-	0.6+	1998 03 24	587	0.2+	0.8-	1998 03 31	587	0.1-	0.4+
1998 02 22	566	0.0	0.6-	1998 03 24	587	0.4+	0.1+	1998 03 31	587	0.1-	0.1+

1998 APR. 11

M.P.C. 31561

1998 DQ₁₃ = 1980 WQ₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	357.36215		(2000.0)			P		Q			
<i>n</i>	0.18614701	ω	57.10136			-0.96503614		-0.25885085			
<i>a</i>	3.0378431	Ω	107.86794			+0.22368389		-0.89531230			
<i>e</i>	0.1133980	<i>i</i>	2.48395			+0.13664104		-0.36250809			
<i>P</i>	5.29	<i>H</i>	13.5		<i>G</i>	0.15		<i>U</i>	6		
Residuals in seconds of arc											
1980 11 30	095	0.1+	1.3-	1998 03 18	143	0.8+	0.5-	1998 03 21	691	1.2-	0.1+
1980 12 10	095	0.1-	1.1+	1998 03 19	143	0.1-	0.1-	1998 03 22	704	0.4+	0.0
1998 02 27	122	0.1-	0.1+	1998 03 19	143	0.8-	0.5+	1998 03 22	704	0.3+	1.6-
1998 02 27	122	0.1-	0.2+	1998 03 19	143	1.1+	0.5+	1998 03 22	704	0.8+	0.3-
1998 02 28	122	0.2-	0.2+	1998 03 20	704	0.2+	0.3-	1998 03 22	704	0.8+	0.5-
1998 02 28	122	0.2-	0.0	1998 03 20	704	0.7+	0.3-	1998 03 22	704	(1.5+	2.7+)
1998 02 28	122	0.2+	0.1+	1998 03 20	704	0.2+	0.5+	1998 03 24	566	0.2-	0.1-
1998 02 28	122	0.0	0.4+	1998 03 20	704	0.0	0.3+	1998 03 24	566	0.4-	0.4-
1998 02 28	122	0.1+	0.6+	1998 03 20	704	0.8-	0.6+	1998 03 24	566	0.5-	0.2-
1998 03 18	143	0.0	0.1+	1998 03 21	691	1.1-	0.2-				
1998 03 18	143	1.1+	0.1+	1998 03 21	691	0.9-	0.0				

1998 DU₁₃ = 6681 P-L

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	16.50370	(2000.0)		P		Q					
<i>n</i>	0.27579053	ω	133.46522		-0.73472585		-0.67831476				
<i>a</i>	2.3374903	Ω	3.84955		+0.58186672		-0.63636843				
<i>e</i>	0.0492992	<i>i</i>	7.00348		+0.34872487		-0.36732044				
<i>P</i>	3.57	<i>H</i>	16.5	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1960 09 24	675	0.8-	0.9-	1998 02 27	910	0.1+	0.4+	1998 03 22	704	1.6-	1.7+
1960 09 24	675	0.6+	0.8-	1998 02 27	910	0.2-	0.1+	1998 03 22	704	0.2+	3.3+
1960 09 26	675	0.2-	0.4-	1998 02 27	910	0.1+	0.2-	1998 03 22	704	1.2+	0.5+
1960 09 26	675	0.3-	0.2+	1998 03 20	704	2.0+	1.4-	1998 04 01	704	0.6-	0.1-
1960 09 27	675	1.4-	1.7+	1998 03 20	704	0.1-	0.2-	1998 04 01	704	0.5-	1.6+
1960 09 28	675	0.4+	0.2-	1998 03 20	704	0.7+	2.7-	1998 04 01	704	0.5+	1.8-
1960 09 28	675	1.4+	1.3+	1998 03 20	704	2.3-	1.2-	1998 04 01	704	1.0+	0.1-
1998 02 27	910	0.0	0.1-	1998 03 20	704	(4.6-	1.4+)	1998 04 01	704	1.7-	0.2+
1998 02 27	910	0.0	0.3+	1998 03 22	704	0.7+	0.5+				
1998 02 27	910	0.2+	0.0	1998 03 22	704	1.0+	0.2-				

1998 DZ₁₃ = 1981 JL₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	253.16433		(2000.0)			P		Q			
<i>n</i>	0.28537832	ω	183.73665			+0.29071413		+0.95642759			
<i>a</i>	2.2848379	Ω	103.16553			−0.87713432		+0.27769269			
<i>e</i>	0.1853455	<i>i</i>	1.59173			−0.38225735		+0.09018329			
<i>P</i>	3.45	<i>H</i>	16.0		<i>G</i>	0.15		<i>U</i>	6		
Residuals in seconds of arc											
1981 05 08	675	0.8−	1.1+	1998 02 28	910	0.1+	0.2+	1998 03 22	704	0.5−	0.4−
1981 05 09	675	1.0+	0.5−	1998 03 20	704	0.0	2.1+	1998 03 22	704	0.0	1.0−
1998 02 27	910	0.2−	0.6+	1998 03 20	704	0.1+	0.8−	1998 03 22	704	0.8+	1.0−
1998 02 27	910	0.0	0.4+	1998 03 20	704	0.3−	3.0+	1998 04 03	691	0.4−	1.2−
1998 02 27	910	0.2−	0.7+	1998 03 20	704	0.2+	0.4−	1998 04 03	691	0.5−	1.2−
1998 02 27	910	0.4+	0.4+	1998 03 20	704	(4.7−	0.0)	1998 04 03	691	0.6−	1.1−
1998 02 27	910	0.4+	0.1+	1998 03 22	704	0.5+	0.4−				

1998 DL₁₄ = 1976 JW₁₀ = 1977 RY₁₅

Id. B. G. Marsden

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	311.61352		(2000.0)		P		Q				
<i>n</i>	0.26397519	<i>ω</i>	175.27733		−0.98041891		+0.19644593				
<i>a</i>	2.4067297	<i>Ω</i>	16.07163		−0.18225591		−0.87884338				
<i>e</i>	0.1331980	<i>i</i>	2.83714		−0.07457583		−0.43479111				
<i>P</i>	3.73	<i>H</i>	15.0		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1976 05 02	809	0.1+	0.2+	1998 03 01	552	0.5−	0.3+	1998 03 04	704	0.1+	0.2+
1977 09 09	675	(5.3+ 1.6+)		1998 03 03	704	0.3−	0.1+	1998 03 04	704	0.6+	0.1−
1977 09 10	675	0.1+	0.2−	1998 03 03	704	0.0	0.5+	1998 03 04	704	0.3+	0.4+
1998 02 24	552	0.6+	0.0	1998 03 03	704	0.8+	0.3+	1998 03 18	552	0.4−	0.8−
1998 02 24	552	0.4−	0.5−	1998 03 03	704	0.2+	0.1−	1998 03 18	552	0.6−	0.5−
1998 02 26	552	0.4+	0.3−	1998 03 03	704	0.2−	0.6+	1998 03 25	552	0.2−	0.1−
1998 02 26	552	0.1−	0.6+	1998 03 04	704	0.2+	0.4−	1998 03 25	552	0.5−	0.5−
1998 03 01	552	0.2−	0.0	1998 03 04	704	0.0	0.2+				

1998 DD₁₅ = 1977 ES₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M	30.73016		(2000.0)		P		Q				
n	0.23396839	ω	267.66324		+0.03757953		-0.99929343				
a	2.6083423	Ω	180.18677		+0.97719742		+0.03688306				
e	0.2547453	i	11.36945		+0.20898079		+0.00723010				
P	4.21	H	14.5	G	0.15	U	4				
Residuals in seconds of arc											
1977 03 12	381	0.4+	0.2+	1998 02 27	566	1.2+	0.1-	1998 03 20	704	0.2+	0.3+
1977 03 12	381	1.5-	0.5+	1998 03 03	704	0.1+	0.4-	1998 03 20	704	0.1-	0.6-
1977 03 14	381	0.1+	0.8+	1998 03 03	704	0.5-	0.5-	1998 03 20	704	0.1+	0.3-
1977 03 14	381	1.2+	1.0-	1998 03 03	704	0.3+	1.9+	1998 03 20	704	0.6+	0.5+
1977 03 15	381	0.7+	0.8-	1998 03 03	704	0.3+	0.0	1998 03 20	704	0.1+	0.8+
1977 03 15	381	0.9-	0.5+	1998 03 03	704	0.2-	0.4+	1998 03 22	704	0.2+	0.2+
1998 02 22	566	0.6+	0.3-	1998 03 04	704	(2.2-	0.2-)	1998 03 22	704	0.3+	0.8-
1998 02 22	566	0.3-	0.2+	1998 03 04	704	1.2-	0.5-	1998 03 22	704	0.2+	0.3+
1998 02 22	566	0.5+	0.2+	1998 03 04	704	1.5-	0.5+	1998 03 22	704	0.1-	0.2-
1998 02 27	566	0.9+	0.2-	1998 03 04	704	1.4-	0.4-	1998 03 22	704	0.3+	0.6-
1998 02 27	566	1.0+	0.0	1998 03 04	704	1.4-	0.6-				

1998 DG₁₅ = 1991 RF₃₈ = 1995 OE₁₀

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

M	188.66008		(2000.0)		P		Q				
n	0.22165613	ω	157.83229		+0.78077187		+0.62155597				
a	2.7040594	Ω	163.25265		-0.60132199		+0.77520629				
e	0.0624146	i	12.78077		-0.16972671		+0.11279794				
P	4.45	H	13.5	G	0.15	U	4				
Residuals in seconds of arc											
1991 09 15	675	0.4-	0.5+	1998 02 27	566	0.4+	0.8-	1998 03 20	704	0.4-	0.7-
1991 09 15	675	0.4+	0.7-	1998 02 27	566	0.3+	1.0-	1998 03 20	704	0.7+	0.1+
1995 07 25	033	0.7+	0.6-	1998 03 03	704	0.3+	0.0	1998 03 20	704	0.4+	0.3-
1995 07 25	033	1.4-	0.6+	1998 03 03	704	0.0	0.5-	1998 03 22	704	0.1+	0.2+
1995 07 26	033	0.6+	0.2-	1998 03 03	704	0.9-	1.1+	1998 03 22	704	0.6-	0.1+
1998 02 22	566	0.4-	0.5+	1998 03 03	704	0.4+	0.1-	1998 03 22	704	0.0	0.1+
1998 02 22	566	0.1+	0.4+	1998 03 03	704	0.1-	0.9+	1998 03 22	704	0.6-	0.4+
1998 02 22	566	0.9-	0.7+	1998 03 20	704	0.6+	0.1+				
1998 02 27	566	0.5+	0.9-	1998 03 20	704	0.2+	0.6-				

1998 DR₁₅ = 1982 UT₃ = 1991 FP₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.28292874	ω	55.79669	+0.58797012	-0.80887549				
<i>a</i>	2.2980070	Ω	358.17951	+0.70242655	+0.51266991				
<i>e</i>	0.0708238	<i>i</i>	6.14983	+0.40110856	+0.28790625				
<i>P</i>	3.48	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1982 10 19	033	0.1+	0.1-	1998 02 22	566	0.6-	0.7-	1998 02 28	809	0.5-	0.4+
1982 10 19	033	0.1+	0.2-	1998 02 22	566	1.0-	0.7-	1998 03 20	704	0.8+	1.1-
1991 03 17	809	1.0-	0.9+	1998 02 22	566	0.9-	0.8-	1998 03 20	704	0.5+	0.3-
1991 03 17	809	0.5-	0.8+	1998 02 27	809	0.8+	0.4+	1998 03 20	704	0.3+	0.7-
1991 03 17	809	0.1+	0.8+	1998 02 27	809	0.1-	0.4-	1998 03 20	704	0.4+	0.9-
1991 03 20	809	0.9+	0.6+	1998 02 27	809	0.1-	0.1+	1998 03 20	704	0.1+	0.1-
1991 03 20	809	1.2+	0.7+	1998 02 27	566	0.0	0.4+	1998 03 22	704	0.5+	0.9-
1991 03 20	809	1.4+	0.5+	1998 02 27	566	0.1+	0.4+	1998 03 22	704	0.1-	1.0-
1991 03 21	809	0.3-	0.2-	1998 02 27	566	0.1+	0.3+	1998 03 22	704	0.4-	0.0
1991 03 21	809	0.1-	0.2-	1998 02 28	809	0.2+	0.5+	1998 03 22	704	1.1+	2.1+
1991 03 21	809	0.2+	0.5-	1998 02 28	809	1.0-	0.2+	1998 03 22	704	2.5-	0.9-

1998 DE₁₆ = 1995 KS₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams			
<i>M</i>	263.86355	(2000.0)	
<i>n</i>	0.28783545	ω	110.35324
<i>a</i>	2.2718162	Ω	142.45813
<i>e</i>	0.1186035	<i>i</i>	3.82738
<i>P</i>	3.42	<i>H</i>	15.5

Residuals in seconds of arc

1995 05 22	010	(2.0+	0.1-)	1998 02 27	566	0.2-	0.9+	1998 03 20	704	0.7-	1.0-
1995 05 22	010	0.9+	1.0+	1998 02 27	566	0.2-	0.9+	1998 03 20	704	0.2+	0.3-
1995 05 22	010	0.3-	1.0-	1998 02 27	566	0.1-	0.7+	1998 03 20	704	0.4+	0.4+
1995 05 23	010	(2.8-	1.1+)	1998 03 03	704	0.6+	0.3-	1998 03 20	704	0.5+	1.0+
1995 05 23	010	0.6-	0.0	1998 03 03	704	0.5-	1.6-	1998 03 22	704	0.5+	0.0
1995 05 23	010	(4.4-	0.9-)	1998 03 03	704	0.6+	0.5-	1998 03 22	704	1.1+	0.5-
1998 02 25	566	0.4+	0.3+	1998 03 03	704	0.1+	1.2-	1998 03 22	704	(2.9+	2.2+)
1998 02 25	566	0.0	0.7+	1998 03 03	704	0.9-	1.4-	1998 03 22	704	1.5-	0.8+
1998 02 25	566	0.2-	0.6+	1998 03 20	704	1.0+	1.5+	1998 03 22	704	1.3-	0.8-

1998 DG₁₆ = 1981 EK₂₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams			
<i>M</i>	108.34572	(2000.0)	
<i>n</i>	1.16072810	ω	356.77689
<i>a</i>	0.8967039	Ω	344.47310
<i>e</i>	0.3582081	<i>i</i>	16.20832
<i>P</i>	0.85	<i>H</i>	20.5

Residuals in seconds of arc

1981 03 02	413	2.6-	0.1+	1998 03 01	673	(2.2-	0.3+)	1998 03 18	104	0.8+	0.0
1981 03 03	413	2.6+	0.0	1998 03 01	673	0.4-	0.8-	1998 03 18	104	1.7+	0.6+
1998 02 27	566	0.6+	0.3+	1998 03 02	402	(2.5-	1.1-)	1998 03 19	422	(2.5+	0.4+)
1998 02 27	566	1.0+	0.1+	1998 03 02	402	(2.5-	1.0-)	1998 03 19	422	(2.4+	0.6+)
1998 02 27	566	0.6+	0.7+	1998 03 02	402	(2.6-	1.1-)	1998 03 19	422	(2.4+	0.5+)
1998 02 28	673	1.3-	1.4-	1998 03 02	360	0.2+	0.7+	1998 03 22	360	0.6-	0.4+
1998 02 28	673	1.5-	1.5-	1998 03 02	360	0.1+	1.0+	1998 03 22	360	0.8-	0.3+
1998 02 28	673	(2.5-	1.6-)	1998 03 02	360	0.1+	0.8+	1998 03 22	360	0.7-	0.2+
1998 02 28	426	0.2+	0.3+	1998 03 11	118	0.1-	0.2-	1998 03 24	566	0.3+	0.1-
1998 02 28	426	0.1-	0.4+	1998 03 11	118	0.4+	0.2-	1998 03 24	566	0.0	0.1-
1998 02 28	426	0.7+	0.1+	1998 03 11	118	0.2+	0.4-	1998 03 24	566	0.3-	0.4+
1998 03 01	557	1.3-	0.3-	1998 03 17	426	0.3-	0.9-	1998 03 24	426	0.4-	0.9-
1998 03 01	557	0.6+	0.2+	1998 03 17	426	0.9-	0.8-	1998 03 24	426	0.6+	0.2+
1998 03 01	557	0.3+	0.6-	1998 03 17	426	1.1-	0.5-	1998 03 24	426	0.4+	0.3+
1998 03 01	673	0.3+	0.8+	1998 03 18	104	0.8+	0.9+				

1998 DS₂₀ = 1992 ES₃₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams			
<i>M</i>	308.67204	(2000.0)	
<i>n</i>	0.17292190	ω	54.50123
<i>a</i>	3.1908230	Ω	175.62816
<i>e</i>	0.1478616	<i>i</i>	15.52376
<i>P</i>	5.70	<i>H</i>	15.0

Residuals in seconds of arc

1992 03 03	809	0.8+	1.9-	1998 03 04	684	0.5+	0.2-	1998 03 20	704	0.7-	0.8+
1992 03 05	809	0.8-	1.9+	1998 03 04	684	0.3+	0.4-	1998 03 22	704	0.2+	0.5-
1998 02 28	684	0.3-	0.0	1998 03 20	704	0.1-	0.4-	1998 03 22	704	1.0+	1.1-
1998 02 28	684	0.0	0.1-	1998 03 20	704	0.4-	0.2-	1998 03 22	704	2.4-	0.3+
1998 03 01	684	0.1+	0.1+	1998 03 20	704	1.4+	0.5+	1998 03 22	704	0.4-	1.6+
1998 03 01	684	0.0	0.3+	1998 03 20	704	1.0+	0.7-				

1998 DO₂₃ = 1991 VS₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams			
<i>M</i>	90.87513	(2000.0)	
<i>n</i>	0.37244534	ω	53.26593
<i>a</i>	1.9132029	Ω	10.37170
<i>e</i>	0.0860083	<i>i</i>	19.84323
<i>P</i>	2.65	<i>H</i>	16.0

Residuals in seconds of arc

1991 11 02	675	0.5-	1.1+	1998 03 02	910	0.0	0.1-	1998 03 31	704	1.1+	0.3-
1991 11 02	675	0.3+	0.0	1998 03 03	910	0.2-	0.1-	1998 03 31	704	0.6-	0.9-
1991 11 04	675	0.3-	1.2-	1998 03 03	910	0.5-	0.1+	1998 03 31	704	0.1+	0.9+
1991 11 04	675	0.4+	0.1+	1998 03 03	910	0.4-	0.0	1998 04 01	704	0.8-	1.1+
1998 02 27	910	0.3-	0.1+	1998 03 06	910	0.3+	0.3-	1998 04 01	704	0.1+	0.1+
1998 02 27	910	0.1+	0.1-	1998 03 06	910	0.8+	0.0	1998 04 01	704	0.0	0.2-
1998 02 27	910	0.1+	0.2+	1998 03 06	910	0.2+	0.1+	1998 04 01	704	0.4-	0.2+
1998 03 02	910	0.1+	0.1+	1998 03 31	704	0.2-	0.0	1998 04 01	704	0.5+	0.9-
1998 03 02	910	0.0	0.1+	1998 03 31	704	0.1-	0.3+				

1998 DY₂₃ = 1995 OU₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Marsden			
<i>M</i>	293.40021	(2000.0)	
<i>n</i>	0.19125897	ω	53.07254
<i>a</i>	2.9834689	Ω	144.94750
<i>e</i>	0.0487148	<i>i</i>	11.16366
<i>P</i>	5.15	<i>H</i>	14.5

Residuals in seconds of arc

1995 07 22	691	0.2-	0.4+	1998 02 18	552	0.0	0.4+	1998 03 01	552	0.5-	0.5+
1995 07 22	691	0.4+	0.2-	1998 02 18	552	0.1-	0.0	1998 03 16	552	0.0	0.7+
1995 07 22	691	0.0	0.1+	1998 02 27	552	0.1+	0.6-	1998 03 16	552	0.0	0.6-
1995 07 27	691	0.0	0.2-	1998 02 27	552	0.2-	0.3+	1998 03 16	552	0.1+	0.0
1995 07 27	691	0.1-	0.0	1998 02 27	552	0.1+	0.7-				
1995 07 27	691	0.1+	0.1-	1998 03 01	552	0.7+	0.1+				

1998 DC₃₃ = 1987 GW

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams			
<i>M</i>	297.11276	(2000.0)	
<i>n</i>	0.26494353	ω	196.66702
<i>a</i>	2.4008619	Ω	5.85720
<i>e</i>	0.1650616	<i>i</i>	10.90390
<i>P</i>	3.72	<i>H</i>	15.0

Residuals in seconds of arc

1987 04 01	675	0.2+	0.3-	1998 02 23	566	0.5+	0.3+	1998 02 27	098	1.3-	0.1-
1987 04 01	675	2.3+	0.0	1998 02 23	566	0.1+	0.1+	1998 03 02	098	1.6+	1.0+
1987 04 03	675	2.6-	0.2+	1998 02 27	098	0.0	0.0	1998 03 02	098	1.3-	1.8-
1987 04 03	675	0.2+	0.3+	1998 02 27	098	0.5+	1.0+				
1998 02 23	566	0.0	0.2+	1998 02 27	098	0.0	0.7-				

1998 DD₃₃ = 1982 VU₁₂ = 1993 VX₇

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	23.95982	(2000.0)	P		Q		Williams	
<i>n</i>	0.26772652	ω	271.75830	+0.17642088	-0.98402573			
<i>a</i>	2.3841951	Ω	168.00045	+0.94255907	+0.16190360			
<i>e</i>	0.2420238	<i>i</i>	6.58848	+0.28365132	+0.07403096			
<i>P</i>	3.68	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	3	

Residuals in seconds of arc

1982 11 14	095	0.2-	1.2+	1998 01 24	566	0.0	0.8-	1998 03 19	012	0.5-	0.4+
1993 11 13	303	1.5-	0.2-	1998 02 17	012	0.2+	0.5+	1998 03 19	012	0.2+	0.4-
1993 11 13	303	0.6+	0.4-	1998 02 17	012	0.2+	0.7+	1998 03 19	012	0.3-	0.2+
1993 11 13	303	1.0+	0.2-	1998 02 17	012	0.2+	0.4+	1998 03 23	012	0.4-	0.0
1993 11 15	303	(1.2+	3.5-)	1998 03 04	012	0.3+	0.0	1998 03 23	012	0.1-	0.2+
1998 01 24	566	0.1-	1.0-	1998 03 04	012	0.2+	0.4+	1998 03 23	012	0.3-	0.0
1998 01 24	566	0.1-	0.6-	1998 03 04	012	0.0	0.2-				

1998 DT₃₃ = 1992 SL₅ = 1996 TY₃₇

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	5.10573	(2000.0)	P		Q		Williams	
<i>n</i>	0.26681849	ω	341.68262	-0.75702824	-0.65223071			
<i>a</i>	2.3896012	Ω	157.46612	+0.61140431	-0.72807039			
<i>e</i>	0.0593503	<i>i</i>	5.80681	+0.23041923	-0.21097064			
<i>P</i>	3.69	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4	

Residuals in seconds of arc

1992 09 25	691	0.2-	0.4-	1996 10 16	691	0.4-	0.1+	1998 03 03	704	1.7+	0.6-
1992 09 25	691	1.5+	0.2+	1996 10 16	691	0.6-	0.2-	1998 03 03	704	1.7+	1.4-
1992 09 25	691	0.2-	0.3-	1996 10 16	691	0.3-	0.1+	1998 03 20	704	0.7-	1.4+
1992 09 26	691	0.0	0.9-	1998 02 27	809	0.1-	1.2-	1998 03 20	704	0.0	1.1+
1992 09 26	691	0.2-	0.1+	1998 02 27	809	1.8-	0.1-	1998 03 20	704	(1.9-	2.6+)
1992 09 26	691	0.3-	0.1-	1998 02 27	809	1.8-	1.3-	1998 03 20	704	(3.4-	2.2+)
1996 10 15	691	0.1+	0.1+	1998 02 28	809	(0.4+	3.4+)	1998 03 22	704	0.1+	0.1+
1996 10 15	691	0.1-	0.5+	1998 02 28	809	0.5+	1.8+	1998 03 22	704	0.0	0.2-
1996 10 15	691	0.5+	0.1+	1998 02 28	809	1.3+	1.8+	1998 03 22	704	0.6+	0.0
1996 10 15	691	0.6+	0.1-	1998 03 03	704	0.2-	0.6-	1998 03 22	704	1.9-	0.6+
1996 10 15	691	0.1+	0.4-	1998 03 03	704	0.8+	1.9-	1998 03 22	704	0.8-	0.5-

1998 DX₃₃ = 1994 LP₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	262.64360	(2000.0)	P		Q		Williams	
<i>n</i>	0.20415048	ω	210.19919	-0.30985833	+0.95031972			
<i>a</i>	2.8565102	Ω	41.77015	-0.86317245	-0.26808561			
<i>e</i>	0.0175447	<i>i</i>	2.55270	-0.39864913	-0.15818514			
<i>P</i>	4.83	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	5	

Residuals in seconds of arc

1994 06 03	809	0.2+	0.8-	1998 02 28	809	0.2-	0.4+	1998 03 20	704	0.0	0.2+
1994 06 03	809	0.4-	0.3-	1998 02 28	809	0.5-	0.2+	1998 03 20	704	0.0	0.2+
1994 06 03	809	0.4+	1.0-	1998 03 03	704	0.8-	1.6-	1998 03 22	704	0.0	0.1-
1994 06 04	809	0.1+	1.3+	1998 03 03	704	1.6-	1.8-	1998 03 22	704	0.2+	0.4-
1994 06 04	809	0.5-	0.3+	1998 03 03	704	(0.8-	2.5-)	1998 03 22	704	(2.5+	0.5+)
1994 06 04	809	0.2+	0.5+	1998 03 03	704	(1.7-	2.7-)	1998 03 22	704	(3.0-	0.3-)
1998 02 27	809	1.1+	1.1+	1998 03 03	704	(1.0-	2.2-)	1998 03 22	704	0.4+	0.1+
1998 02 27	809	0.7+	1.1+	1998 03 20	704	0.6+	0.7-	1998 03 26	566	0.3-	0.5+
1998 02 27	809	0.1+	0.7+	1998 03 20	704	0.7+	0.7-	1998 03 26	566	0.3-	0.4+
1998 02 28	809	1.0+	0.4+	1998 03 20	704	0.6-	0.6-	1998 03 26	566	0.3-	0.6+

1998 DA₃₄ = 1982 BB₇ = 1994 CT₁₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	299.98575	(2000.0)	P		Q		Williams	
<i>n</i>	0.25066103	ω	206.51618	-0.85387030	+0.52042952			
<i>a</i>	2.4912166	Ω	4.86568	-0.46007347	-0.74780220			
<i>e</i>	0.0318097	<i>i</i>	5.17871	-0.24338839	-0.41224384			
<i>P</i>	3.93	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4	

Residuals in seconds of arc

1982 01 26	381	0.1-	0.3-	1998 02 27	809	0.9+	0.2+	1998 03 20	704	0.2-	0.2-
1982 01 26	381	0.1+	0.4+	1998 02 28	809	0.7-	1.5+	1998 03 20	704	0.7+	0.0
1994 02 08	809	0.6+	0.6+	1998 02 28	809	0.1-	1.4+	1998 03 20	704	0.6+	0.4+
1994 02 08	809	0.8-	0.2+	1998 02 28	809	0.5-	0.6+	1998 03 20	704	0.4+	0.2+
1994 02 08	809	0.6-	0.3-	1998 03 03	704	0.4+	1.6-	1998 03 22	704	0.6-	0.1-
1994 02 10	809	0.4+	1.5-	1998 03 03	704	0.2-	1.1-	1998 03 22	704	0.0	1.4-
1994 02 10	809	(0.7-	2.4-)	1998 03 03	704	0.7-	1.1-	1998 03 22	704	0.9-	0.1-
1994 02 10	809	(0.8-	2.7-)	1998 03 03	704	0.1-	1.3-	1998 03 22	704	0.8-	0.9+
1998 02 27	809	1.9+	1.4+	1998 03 03	704	0.1-	0.2-	1998 03 22	704	0.7-	0.1+
1998 02 27	809	1.7+	0.6+	1998 03 20	704	0.5-	0.6+				

1998 DB₃₄ = 1995 QQ₁₀

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	286.09078	(2000.0)	P		Q		Williams	
<i>n</i>	0.27102378	ω	103.36393	-0.28123408	+0.95874907			
<i>a</i>	2.3648183	Ω	150.20220	-0.90949880	-0.25255557			
<i>e</i>	0.2937103	<i>i</i>	4.76995	-0.30613613	-0.13044499			
<i>P</i>	3.64	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4	

Residuals in seconds of arc

1995 08 19	809	0.1+	1.6+	1995 09 20	809	0.1-	0.8-	1998 03 03	704	0.2+	0.2+
1995 08 20	809	0.5-	0.3+	1995 09 22	809	0.0	0.8+	1998 03 20	704	0.2+	0.4+
1995 08 22	809	0.1-	0.2+	1998 02 27	809	0.1-	1.7+	1998 03 20	704	0.3-	0.6-
1995 08 24	809	0.7+	0.9+	1998 02 27	809	0.4-	0.9+	1998 03 20	704	0.2-	0.5+
1995 08 25	809	0.4+	0.9-	1998 02 27	809	0.6-	0.4-	1998 03 20	704	0.3-	0.1+
1995 08 26	809	0.5+	0.4+	1998 02 28	809	(0.1-	3.3+)	1998 03 20	704	0.1-	1.1+
1995 08 27	809	0.2-	0.3-	1998 02 28	809	(0.1-	2.2+)	1998 03 22	704	0.0	0.5-
1995 08 27	809	0.6-	0.0	1998 02 28	809	(0.6-	2.3+)	1998 03 22	704	0.2	0.1-
1995 08 28	809	0.8-	0.1+	1998 03 03	704	0.5+	0.1-	1998 03 22	704	0.3+	0.6-
1995 08 29	809	0.4-	0.8-	1998 03 03	704	0.5+	0.0	1998 03 22	704	0.1-	0.8-
1995 08 30	809	0.5+	0.3+	1998 03 03	704	0.4+	0.4+	1998 03 22	704	0.1+	0.5-
1995 08 30	809	(2.9+	2.8-)	1998 03 03	704	0.4+	0.0				

1998 DE₃₄ = 1993 HX₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	6.06523	(2000.0)	P		Q		Williams	
<i>n</i>	0.18517366	ω	139.09063	-0.78148396	-0.62392494			
<i>a</i>	3.0484793	Ω	2.30638	+0.56778612	-0.71163541			
<i>e</i>	0.1587524	<i>i</i>	1.00252	+0.25865371	-0.32294383			
<i>P</i>	5.32	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	6	

Residuals in seconds of arc

1993 04 27	809	0.8-	1.1+	1998 02 28	809	(1.8+	4.3+)	1998 03 20	704	0.1+	0.6+
1993 04 27	809	0.3-	0.8+	1998 02 28	809	(0.4+	4.3+)	1998 03 20	704	0.3-	0.2-
1993 04 27	809	0.5+	1.2+	1998 02 28	809	(0.1-	3.1+)	1998 03 20	704	0.3-	1.1-
1993 05 01	809	0.4+	1.0-	1998 03 03	704	0.6+	0.4-	1998 03 20	704	0.4-	0.2+
1993 05 01	809	0.3+	0.9-	1998 03 03	704	0.1+	1.0-	1998 03 22	704	0.1+	0.7+
1993 05 01	809	0.1-	1.2-	1998 03 03	704	0.1-	0.6-	1998 03 22	704	0.7-	0.2+
1998 02 27	809	0.5+	1.6+	1998 03 03	704	0.4+	1.4-	1998 03 22	704	1.3+	0.2-
1998 02 27	809	0.4-	1.0+	1998 03 03	704	0.2+	1.7-	1998 03 22	704	0.0	0.9+
1998 02 27	809	0.3-	1.1+	1998 03 20	704	0.2-	0.0	1998 03 22	704	0.5-	0.4+

1998 DF₃₄ = 1992 QM₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	159.25792	ω	199.83787	+0.97936814	+0.19372604		
<i>a</i>	2.3561640	Ω	148.81573	-0.16715932	+0.93654489		
<i>e</i>	0.1696306	<i>i</i>	6.37770	-0.11355969	+0.29215388		
<i>P</i>	3.62	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 08 29	095	0.6+	0.5+	1998 02 27	809	0.9-	0.1-	1998 03 20	704	0.3-	0.4-
1992 08 29	095	0.7-	0.6-	1998 02 27	809	1.0-	0.4-	1998 03 20	704	0.5-	0.5-
1992 09 03	095	0.2+	0.8+	1998 02 28	809	(0.0	3.2+)	1998 03 22	704	0.3+	1.3-
1992 09 03	095	0.2-	0.6-	1998 02 28	809	(0.1-	3.4+)	1998 03 22	704	(0.6+	2.9-)
1998 02 26	566	1.3+	0.0	1998 02 28	809	(0.1+	4.0+)	1998 03 22	704	1.5-	1.0+
1998 02 26	566	0.8+	0.1+	1998 03 20	704	1.0+	0.7-	1998 03 22	704	0.3+	0.1+
1998 02 26	566	0.8+	0.2+	1998 03 20	704	0.0	0.7+	1998 03 22	704	0.6+	1.1+
1998 02 27	809	1.0-	0.3+	1998 03 20	704	0.0	0.2-				

1998 DG₃₄ = 1992 OY₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	99.85813	ω	14.66100	+0.85416547	-0.51966302		
<i>a</i>	2.3949036	Ω	16.68843	+0.47027597	+0.75659277		
<i>e</i>	0.1965942	<i>i</i>	3.74442	+0.22190509	+0.39688503		
<i>P</i>	3.71	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1992 07 24	809	0.4-	0.2+	1998 02 28	809	0.3+	0.9+	1998 03 20	704	0.6-	1.5-
1992 07 24	809	0.1-	0.4+	1998 02 28	809	0.9-	1.5+	1998 03 20	704	1.5+	0.7-
1992 07 24	809	0.1-	0.5+	1998 02 28	809	1.2-	0.6+	1998 03 20	704	1.1+	1.0+
1992 07 26	809	0.2-	0.1-	1998 03 03	704	0.1+	1.3-	1998 03 20	704	0.7+	0.6-
1992 07 26	809	0.2+	0.4-	1998 03 03	704	0.3-	0.9-	1998 03 22	704	(1.2+	4.6-)
1992 07 26	809	0.6+	0.6-	1998 03 03	704	0.2+	0.9-	1998 03 22	704	0.3+	1.7+
1998 02 27	809	0.2-	1.2+	1998 03 03	704	0.9+	1.8-	1998 03 22	704	0.8-	0.2-
1998 02 27	809	1.0-	1.5+	1998 03 03	704	0.2+	0.2-	1998 03 22	704	1.2-	1.1-
1998 02 27	809	0.8+	0.3+	1998 03 20	704	1.2-	0.6-	1998 03 22	704	1.2+	1.1+

1998 DN₃₄ = 1989 TF₁₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	346.26640	ω	67.55198	-0.98241879	-0.17677072		
<i>a</i>	3.2131031	Ω	102.22526	+0.14058297	-0.91210891		
<i>e</i>	0.0690211	<i>i</i>	3.52239	+0.12284035	-0.36987761		
<i>P</i>	5.76	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1989 10 03	809	0.4-	0.2-	1998 02 27	809	0.2+	0.6-	1998 03 20	704	0.2-	1.1+
1989 10 03	809	0.1-	0.2-	1998 02 28	809	0.2-	1.0+	1998 03 22	704	0.7-	0.5+
1989 10 03	809	0.3+	0.2-	1998 02 28	809	0.0	0.1+	1998 03 22	704	0.4+	0.5-
1989 10 04	809	0.2-	0.3+	1998 02 28	809	0.6-	0.6+	1998 03 22	704	0.0	0.1-
1989 10 04	809	0.0	0.2+	1998 03 20	704	0.4+	0.1+	1998 03 22	704	0.2-	0.0
1989 10 04	809	0.4+	0.2+	1998 03 20	704	0.1-	0.2-	1998 03 22	704	0.9+	0.8-
1998 02 27	809	0.4+	0.0	1998 03 20	704	0.1+	0.1-				
1998 02 27	809	0.3+	1.0-	1998 03 20	704	0.9-	0.0				

1998 DV₃₄ = 1995 SF₂₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	288.95728	ω	73.41527	-0.66111274	+0.74981725		
<i>a</i>	2.7487368	Ω	155.13856	-0.71019392	-0.61398800		
<i>e</i>	0.0391773	<i>i</i>	3.61844	-0.24198046	-0.24656203		
<i>P</i>	4.56	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 09 20	691	0.0	0.4+	1998 02 27	566	1.0-	0.1+	1998 03 20	704	0.4+	1.1+
1995 09 20	691	0.1+	0.0	1998 02 27	566	1.0-	0.2+	1998 03 20	704	1.2+	0.5+
1995 09 20	691	0.1-	0.1+	1998 02 28	809	(2.5+	0.5+)	1998 03 20	704	0.7+	0.2+
1995 09 25	691	0.0	0.0	1998 02 28	809	0.3+	0.2-	1998 03 20	704	0.5+	0.8-
1995 09 25	691	0.0	0.2-	1998 02 28	809	0.8+	0.6-	1998 03 20	704	1.9-	1.8-
1995 09 25	691	0.0	0.2-	1998 03 03	704	0.9-	0.1+	1998 03 22	704	0.1-	0.5-
1998 02 27	809	1.2+	0.9+	1998 03 03	704	0.1-	1.2+	1998 03 22	704	0.6-	0.3+
1998 02 27	809	0.6-	0.1+	1998 03 03	704	0.6+	0.5-	1998 03 22	704	0.2-	0.1-
1998 02 27	809	0.3-	0.1-	1998 03 03	704	1.5+	0.6-	1998 03 22	704	0.2-	0.7+
1998 02 27	566	0.9-	0.1+	1998 03 03	704	0.7+	0.1-	1998 03 22	704	0.1-	0.1+

1998 EC = 1977 AQ₁ = 1991 PK₉ = 1992 WY₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	163.76886	ω	248.72650	+0.93276850	+0.22069896		
<i>a</i>	2.5422753	Ω	97.62952	-0.11462606	+0.93122573		
<i>e</i>	0.2003373	<i>i</i>	16.71212	-0.34176571	+0.29001830		
<i>P</i>	4.05	<i>H</i>	12.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1977 01 13	095	0.9+	5.7-	1992 11 30	675	0.1-	0.4-	1998 03 02	411	0.4-	0.6-
1991 08 15	675	0.9-	1.8-	1992 11 30	675	0.5-	0.6+	1998 03 08	411	0.5+	0.3+
1991 08 15	675	0.9-	2.5-	1998 03 01	411	0.3+	1.3-	1998 03 08	411	0.3-	0.3+
1991 08 16	675	0.6-	1.6-	1998 03 01	411	0.3+	0.5+	1998 03 16	411	0.3+	0.2+
1992 11 28	675	0.1+	0.7-	1998 03 02	411	0.0	0.2+	1998 03 16	411	0.0	0.4+

1998 EP₁ = 1991 BW₁ = 1996 RK₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	24.92126	ω	282.10927	-0.39214587	-0.91985625		
<i>a</i>	2.2630578	Ω	190.99257	+0.86178990	-0.36382597		
<i>e</i>	0.0827441	<i>i</i>	2.78908	+0.32177599	-0.14661220		
<i>P</i>	3.40	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 01 21	511	0.7-	1.0-	1998 03 02	910	0.7+	0.2+	1998 03 20	704	0.3+	0.5-
1991 01 22	511	0.6+	0.1+	1998 03 02	910	0.6+	0.1+	1998 03 20	704	0.2+	0.4-
1991 01 22	511	0.0	0.3+	1998 03 02	910	0.5+	0.3+	1998 03 20	704	0.1+	0.6-
1996 09 08	566	0.1+	0.1-	1998 03 02	910	0.7+	0.1+	1998 03 22	704	0.1+	0.1+
1996 09 08	566	0.0	0.2+	1998 03 03	704	1.0-	0.8+	1998 03 22	704	0.7-	0.0
1996 09 08	566	0.2-	0.0	1998 03 03	704	0.1-	1.5+	1998 03 22	704	0.4-	0.9-
1996 09 14	566	0.4+	0.5-	1998 03 03	704	1.0-	0.2+	1998 03 22	704	0.1-	0.6-
1996 09 14	566	0.3+	0.4-	1998 03 03	704	0.3-	0.3-	1998 03 22	704	0.4-	0.6-
1996 09 14	566	0.0	0.7-	1998 03 03	704	0.9-	0.7+	1998 03 26	566	0.0	0.3-
1998 03 02	910	0.6+	0.2+	1998 03 20	704	0.1-	0.1-	1998 03 26	566	0.2-	0.4-
1998 03 02	910	0.7+	0.2+	1998 03 20	704	0.1+	0.3-	1998 03 26	566	0.1+	0.4-

1998 EP₃ = 1996 XB₃₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	239.39022	ω	300.50552	+0.60514772	+0.79587495		
<i>a</i>	2.6525039	Ω	6.83352	-0.66277175	+0.51719342		
<i>e</i>	0.1762175	<i>i</i>	9.42066	-0.44105537	+0.31479205		
<i>P</i>	4.32	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 12 14	402	0.0	1.3-	1998 03 03	910	0.1+	0.2-	1998 03 22	704	1.1+	0.6-
1996 12 14	402	0.2-	0.7-	1998 03 03	910	0.4+	0.5+	1998 03 22	704	0.9-	0.9-
1996 12 14	402	0.1-	1.0-	1998 03 04	910	0.0	0.1+	1998 03 22	704	0.8+	0.3+
1996 12 21	402	0.0	0.9+	1998 03 20	704	1.3-	0.6-	1998 03 22	704	0.4-	0.0
1996 12 21	402	0.3+	0.8+	1998 03 20	704	0.8-	0.0	1998 04 01	704	0.1+	0.1+
1996 12 21	402	0.1-	1.2+	1998 03 20	704	0.6+	0.3-	1998 04 01	704	0.4+	0.2+
1998 03 02	910	0.0	0.2+	1998 03 20	704	0.2+	0.4+	1998 04 01	704	0.1+	0.7+

1998 APR. 11

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1998 03 03 910 0.1- 0.2+ 1998 03 20 704 0.9- 0.2+ 1998 04 01 704 0.2- 0.2+
 1998 03 03 910 0.0 0.1+ 1998 03 22 704 0.5+ 0.4- 1998 04 01 704 0.1+ 0.2-

1998 EF₆ = 1977 CT = 1991 CP₄

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	281.43874		(2000.0)	P	Q
<i>n</i>	0.28260460	ω	279.05079	-0.43375299	+0.87492249
<i>a</i>	2.2997638	Ω	322.73045	-0.62162642	-0.46357942
<i>e</i>	0.2491005	<i>i</i>	20.82976	-0.65225680	-0.14001698
<i>P</i>	3.49	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1977 02 11	675(17.7+ 3.1+)	1998 03 03	905	0.9+	1.2-	1998 03 15	385	0.8+	0.8-
1977 02 12	675 0.2-	1998 03 03	905	0.3+	0.9-	1998 03 15	385	0.6-	0.1-
1977 02 14	675 0.6+ 0.2-	1998 03 04	704	1.1-	0.3-	1998 03 25	699	0.1+	0.2+
1991 02 12	511 1.1-	1998 03 04	704	0.3-	0.4-	1998 03 25	699	0.5+	0.1-
1991 02 12	511 (2.1- 1.2+)	1998 03 04	704	0.4-	0.5-	1998 03 25	699	0.8+	0.2+
1998 03 02	905 1.8+ 0.9+	1998 03 04	704	0.5-	0.2-	1998 03 26	566	0.2-	0.1-
1998 03 02	905 1.3+ 0.8+	1998 03 04	704	0.5-	0.3-	1998 03 26	566	0.0	0.2-
1998 03 03	704 0.0 0.2-	1998 03 06	385	0.6+	0.1+	1998 03 26	566	0.4-	0.1-
1998 03 03	704 0.5- 1.8+	1998 03 06	385	0.1+	0.1-	1998 03 27	566	0.5-	0.1-
1998 03 03	704 0.3- 0.4+	1998 03 07	888	0.2-	0.3-	1998 03 27	566	0.4-	0.0
1998 03 03	704 0.4- 0.5+	1998 03 07	888	0.0	0.1-	1998 03 27	566	0.2-	0.3+
1998 03 03	704 0.3+ 0.9+	1998 03 07	888	0.1-	0.2+				

1998 EJ₆ = 1980 BX₂ = 1986 XV₁ = 1989 TY₁₄

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	40.48216		(2000.0)	P	Q
<i>n</i>	0.27525307	ω	265.91101	-0.01146007	-0.99991346
<i>a</i>	2.3405321	Ω	184.76002	+0.94554019	-0.00873459
<i>e</i>	0.1264109	<i>i</i>	4.46512	+0.32530358	-0.00983751
<i>P</i>	3.58	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1980 01 24	095 0.2- 0.6-	1998 03 03	704	0.3-	0.3-	1998 03 22	704	1.0-	0.5+
1986 12 01	010 0.0 0.7+	1998 03 03	704	1.1-	0.2+	1998 03 22	704	0.3-	0.8+
1986 12 01	010 1.4- 0.4+	1998 03 03	704	0.9-	0.1+	1998 03 22	704	0.8-	0.3+
1986 12 01	010 1.6+ 0.5-	1998 03 05	910	1.2+	0.6-	1998 03 22	704	0.4-	0.9+
1989 10 02	809 (3.8+ 2.5+)	1998 03 05	910	1.2+	0.5-	1998 03 24	888	0.2-	0.1+
1989 10 02	809 0.2- 0.5+	1998 03 06	910	1.3+	0.3-	1998 03 24	888	0.0	0.3+
1989 10 02	809 (4.3- 1.3-)	1998 03 20	704	1.2+	0.2+	1998 03 24	888	0.1-	0.8+
1998 03 01	910 0.9+ 0.6-	1998 03 20	704	1.3-	0.7-	1998 03 25	888	0.1+	0.7+
1998 03 01	910 0.8+ 0.6-	1998 03 20	704	0.0	0.4-	1998 03 25	888	0.2+	0.4+
1998 03 01	910 0.8+ 0.5-	1998 03 20	704	0.1-	0.5+	1998 03 25	888	0.1+	0.4+
1998 03 03	704 0.5- 0.8-	1998 03 20	704	0.5-	0.7+				
1998 03 03	704 0.1+ 0.5-	1998 03 22	704	0.4-	0.1+				

1998 EP₆ = 1943 GD = 1980 UP₁ = 1985 DW₃ = 1986 RY₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	326.17983		(2000.0)	P	Q
<i>n</i>	0.30434726	ω	215.22719	-0.99978233	+0.00526236
<i>a</i>	2.1888859	Ω	325.05766	+0.00379600	-0.90563534
<i>e</i>	0.1035035	<i>i</i>	2.02004	-0.02051533	-0.42402469
<i>P</i>	3.24	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1943 04 03	062 1.3+ 0.4-	1998 03 03	704	0.9-	0.5+	1998 03 20	704	0.4+	0.3-
1943 04 03	062 1.0- 0.4-	1998 03 03	704	0.5-	0.1+	1998 03 20	704	0.3+	0.3-
1980 10 31	675 0.4+ 0.5-	1998 03 03	704	1.0-	0.2+	1998 03 20	704	0.6+	0.4-
1980 11 02	675 0.7+ 0.2+	1998 03 04	704 (2.7- 0.2-)			1998 03 22	704	0.8-	0.1+
1985 02 20	675 (0.1+ 3.0-)	1998 03 04	704 (2.7- 0.7+)			1998 03 22	704	0.2+	0.5+
1985 02 22	675 1.8- 0.6+	1998 03 04	704 (2.9- 0.1+)			1998 03 22	704	0.8-	0.3+
1985 02 23	675 0.8- 0.7+	1998 03 04	704 (2.7- 5.0-)			1998 03 22	704 (0.5- 3.6+)		

1986 09 08	095 0.7- 0.5-	1998 03 04	704 (4.5- 1.7+)			1998 03 22	704	1.0-	0.0
1998 03 01	910 1.1+ 0.1-	1998 03 05	910 1.1+ 0.3-			1998 04 01	704	0.7+	0.5-
1998 03 01	910 1.2+ 0.1+	1998 03 06	910 1.1+ 0.3-			1998 04 01	704	0.3+	0.1+
1998 03 01	910 1.1+ 0.1-	1998 03 06	910 1.0+ 0.3-			1998 04 01	704	0.1+	0.3+
1998 03 03	704 (0.4+ 3.7+)	1998 03 20	704 0.9- 0.4-			1998 04 01	704	0.1+	0.5-
1998 03 03	704 0.3- 0.1+	1998 03 20	704 0.6- 0.1+			1998 04 01	704	0.7-	0.1+

1998 ER₆ = 1977 DN = 1991 EJ₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	329.71208		(2000.0)	P	Q
<i>n</i>	0.28331544	ω	200.84676	-0.99890894	-0.03745118
<i>a</i>	2.2959154	Ω	336.95361	+0.04606621	-0.88830808
<i>e</i>	0.0830963	<i>i</i>	4.08666	-0.00766993	-0.45771844
<i>P</i>	3.48	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1977 02 18	381 1.6- 0.6+	1998 03 01	910	1.8+	0.0	1998 03 20	704	0.6+	0.1+
1977 02 18	381 2.1+ 0.2-	1998 03 03	704	0.5+	0.5-	1998 03 20	704	1.2+	0.4-
1977 02 19	381 0.5+ 0.7+	1998 03 03	704	0.7+	0.5-	1998 03 20	704	1.5+	0.3-
1977 02 19	381 0.3+ 0.5+	1998 03 03	704	0.2-	0.3-	1998 03 20	704	0.2+	0.1+
1991 03 10	809 2.5- 0.7-	1998 03 03	704	0.4+	0.2-	1998 03 22	704	0.2-	0.3+
1991 03 10	809 2.2- 0.8-	1998 03 03	704	0.3+	0.1-	1998 03 22	704	0.5+	0.0
1991 03 10	809 1.7- 0.8-	1998 03 04	704	2.5-	0.0	1998 03 22	704	0.2-	0.8+
1991 03 12	809 0.2+ 0.3+	1998 03 04	704	2.5-	0.4+	1998 03 22	704	0.6-	0.2+
1991 03 12	809 0.8+ 0.2+	1998 03 04	704	2.3-	0.5+	1998 04 01	704	0.8-	0.5+
1991 03 12	809 1.1+ 0.3+	1998 03 04	704	2.5-	0.6-	1998 04 01	704	1.2+	1.1-
1991 03 14	809 0.3+ 0.3-	1998 03 04	704	3.0-	0.2+	1998 04 01	704	1.1-	0.5+
1991 03 14	809 0.5+ 0.3-	1998 03 05	910	1.4+	0.4-	1998 04 01	704	1.0+	0.6+
1991 03 14	809 0.7+ 0.1-	1998 03 06	910	1.3+	0.2-	1998 04 01	704	0.2-	1.5+
1998 03 01	910 2.0+ 0.2-	1998 03 06	910	1.2+	0.3-				
1998 03 01	910 1.8+ 0.1+	1998 03 20	704	0.2+	0.3+				

1998 EX₆ = 1953 KF = 1983 EP₁

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	283.11612		(2000.0)	P	Q
<i>n</i>	0.26063572	ω	166.69125	-0.44654192	+0.89325897
<i>a</i>	2.4272439	Ω	76.76635	-0.82572923	-0.38907637
<i>e</i>	0.1692839	<i>i</i>	3.05345	-0.34463250	-0.22518434
<i>P</i>	3.78	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1953 05 18	675 0.3- 0.2-	1998 03 01	809	1.2+	1.2-	1998 03 15	411	0.3-	0.7+
1953 05 18	675 0.3+ 0.4+	1998 03 01	809	1.0+	1.7-	1998 03 18	402	0.2+	0.3+
1983 03 11	381 0.4- 0.5-	1998 03 01	809	0.7+	1.6-	1998 03 18	402	0.2+	0.3+
1983 03 11	381 0.0 0.6-	1998 03 02	809 (2.5+ 1.1-)			1998 03 18	402	0.1+	0.4+
1998 02 26	566 0.7- 0.5+	1998 03 02	809	0.6+	0.9-	1998 03 20	704	0.3-	0.2-
1998 02 26	566 0.5- 0.4+	1998 03 02	809	0.3+	0.9-	1998 03 20	704	0.6-	0.3-
1998 02 26	566 0.7- 0.6+	1998 03 03	367	1.2-	0.2+	1998 03 20	704	0.7-	0.4+
1998 02 27	809 1.2+ 0.2-	1998 03 03	367	1.2-	0.3+	1998 03 20	704	0.7+	0.4+
1998 02 27	809 0.4+ 0.6-	1998 03 06	367	0.2+	0.7+	1998 03 20	704 (1.8- 2.8+)		
1998 02 27	809 0.8+ 0.2-	1998 03 06	367	1.3-	0.6+	1998 03 26	566	0.3+	0.3-
1998 02 28	809 0.2+ 0.9+	1998 03 15	367	0.4-	0.4+	1998 03 26	566	0.3+	0.3-
1998 02 28	809 0.4- 0.6+	1998 03 15	367	0.1-	0.7+	1998 03 26	566	0.3+	0.3-
1998 02 28	809 0.0 0.5+	1998 03 15	411	0.1-	0.7+				

1998 EX₇ = 1986 RT₁₅ = 1993 VZ₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	65.18505		(2000.0)	P	Q
<i>n</i>	0.28825136	ω	168.28073	+0.51742021	-0.85433697
<i>a</i>	2.2696304	Ω	250.54270	+0.78087449	+0.49472972
<i>e</i>	0.1400073	<i>i</i>	2.96872	+0.35001622	+0.15921948
<i>P</i>	3.42	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1986 09 12	095	0.1+	0.3-	1998 03 03	704	0.7-	0.3+	1998 03 20	704	0.3+	0.5-
1993 11 11	399	0.3-	0.6-	1998 03 03	704	1.1-	0.1+	1998 03 20	704	0.6+	0.3-
1993 11 11	399	0.5-	1.0-	1998 03 04	704	(2.9-	0.1+)	1998 03 20	704	0.3-	0.8+
1993 11 16	399	0.2+	0.3+	1998 03 04	704	(2.8-	0.3-)	1998 03 20	704	0.3-	0.1+
1993 11 16	399	0.6+	1.6+	1998 03 04	704	(2.8-	0.7+)	1998 03 22	327	0.3+	0.6+
1998 02 26	566	0.5+	1.1-	1998 03 04	704	(3.1-	0.5+)	1998 03 22	327	0.5+	0.4+
1998 02 26	566	1.0+	1.3-	1998 03 04	704	(2.5-	0.1+)	1998 03 22	327	0.2+	0.3+
1998 02 26	566	0.2+	1.7-	1998 03 05	327	0.3-	0.9+	1998 03 22	327	0.2+	0.3+
1998 03 02	327	0.2-	0.6+	1998 03 05	327	0.2+	0.4+	1998 03 26	566	0.4-	0.5-
1998 03 02	327	0.0	0.5+	1998 03 05	327	0.1-	0.5+	1998 03 26	566	0.1+	0.4-
1998 03 02	327	0.1-	0.4+	1998 03 08	327	0.1+	0.1-	1998 03 26	566	0.4-	0.4-
1998 03 03	704	0.1+	0.4+	1998 03 08	327	0.2+	0.2-	1998 03 27	566	0.3-	0.2+
1998 03 03	704	0.2-	0.8-	1998 03 08	327	0.1+	0.1+	1998 03 27	566	0.1+	0.0
1998 03 03	704	0.6-	0.4-	1998 03 20	704	0.0	0.1-	1998 03 27	566	0.2+	0.5+

1998 EB₈ = 1996 VE₁₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		Williams		<i>Q</i>	
<i>M</i>	276.45305			<i>P</i>		<i>Q</i>	
<i>n</i>	0.30218845	ω	182.59780	-0.37565812	+0.92644540		
<i>a</i>	2.1992983	Ω	65.33810	-0.84980568	-0.33398261		
<i>e</i>	0.1163590	<i>i</i>	1.51839	-0.36974488	-0.17365059		
<i>P</i>	3.26	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 11 05	691	0.3-	0.1-	1998 03 05	327	0.3-	0.6-	1998 03 22	704	0.6-	0.4+
1996 11 05	691	0.5-	0.1+	1998 03 05	327	0.3-	0.4-	1998 03 22	704	0.4+	1.0+
1996 11 05	691	0.2-	0.1+	1998 03 11	327	0.5+	0.6-	1998 03 22	704	0.2+	0.1+
1996 11 11	691	0.3+	0.0	1998 03 11	327	0.3-	0.6-	1998 03 22	704	0.6+	0.7-
1996 11 11	691	0.3+	0.1+	1998 03 11	327	0.3-	0.3-	1998 03 22	704	0.6-	0.5+
1996 11 11	691	0.3+	0.2+	1998 03 20	704	0.4+	0.3+	1998 03 26	327	0.3+	0.1+
1998 03 02	327	0.2-	0.0	1998 03 20	704	0.2-	0.3+	1998 03 26	327	0.9+	0.5+
1998 03 02	327	0.1+	0.6-	1998 03 20	704	0.2-	0.7+	1998 03 26	327	0.0	0.2+
1998 03 02	327	0.2+	0.1+	1998 03 20	704	0.0	0.1-				
1998 03 05	327	0.2-	0.7-	1998 03 20	704	0.5-	0.7+				

1998 EO₈ = 1996 VG₃₁

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		Williams		<i>Q</i>	
<i>M</i>	61.39836			<i>P</i>		<i>Q</i>	
<i>n</i>	0.18996515	ω	249.71668	+0.35292017	-0.93565286		
<i>a</i>	2.9970001	Ω	179.61267	+0.90556464	+0.34129120		
<i>e</i>	0.0817700	<i>i</i>	8.84723	+0.23537212	+0.08985569		
<i>P</i>	5.19	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 11 03	691	0.8+	0.0	1998 03 03	704	0.3+	0.3+	1998 03 04	704	0.1+	0.2-
1996 11 03	691	0.5-	0.2-	1998 03 03	704	0.8+	0.1+	1998 03 04	704	0.2+	0.5-
1996 11 03	691	0.3-	0.0	1998 03 03	704	0.7+	1.3+	1998 03 07	888	0.5-	1.0-
1996 11 06	691	0.1-	0.0	1998 03 03	385	0.7-	0.1-	1998 03 07	888	0.1-	0.3-
1996 11 06	691	0.1-	0.1+	1998 03 03	385	1.5-	0.1-	1998 03 07	888	0.2+	0.0
1996 11 06	691	0.3+	0.0	1998 03 04	704	0.4-	0.3-	1998 03 15	385	0.1-	0.0
1998 03 03	704	0.3+	0.2-	1998 03 04	704	0.4+	1.0+	1998 03 15	385	0.2+	0.4+
1998 03 03	704	0.6-	0.3-	1998 03 04	704	0.7+	0.1-				

1998 ER₈ = 1996 XJ₁₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		Williams		<i>Q</i>	
<i>M</i>	264.49825			<i>P</i>		<i>Q</i>	
<i>n</i>	0.22299590	ω	349.31966	-0.46123229	+0.88628365		
<i>a</i>	2.6932177	Ω	253.20265	-0.81079261	-0.44023709		
<i>e</i>	0.0213292	<i>i</i>	2.51596	-0.36038885	-0.14384923		
<i>P</i>	4.42	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 12 04	691	0.3+	0.2+	1998 03 03	704	0.5-	0.2-	1998 03 08	327	0.2+	0.4+
1996 12 04	691	0.1-	0.1+	1998 03 03	704	0.3+	0.4-	1998 03 08	327	1.0-	0.1-
1996 12 04	691	0.1-	0.2-	1998 03 03	704	(0.1+	2.2-)	1998 03 20	704	0.6-	0.9+
1996 12 12	691	0.1+	0.0	1998 03 03	704	1.0+	0.6+	1998 03 20	704	1.0-	1.1+
1996 12 12	691	0.1-	0.1+	1998 03 04	704	(4.1-	0.6-)	1998 03 20	704	0.7-	0.0
1996 12 12	691	0.0	0.1-	1998 03 04	704	(3.8-	0.1+)	1998 03 20	704	(3.9-	0.5-)
1996 12 15	691	0.2-	0.1-	1998 03 04	704	(3.2-	0.1-)	1998 03 22	704	1.2+	0.1+
1996 12 15	691	0.4-	0.1+	1998 03 04	704	(2.8-	0.2-)	1998 03 22	704	0.3-	0.5-
1996 12 15	691	0.5-	0.0	1998 03 05	327	0.1-	0.0	1998 03 22	704	1.3+	1.6-
1996 12 17	691	0.2+	0.2-	1998 03 05	327	0.2+	0.3-	1998 03 22	704	(3.2-	2.2-)
1996 12 17	691	0.8+	0.0	1998 03 05	327	0.3-	0.0				
1998 03 03	704	(0.7-	2.5+)	1998 03 08	327	0.3+	0.2+				

1998 EG₁₀ = 1969 EG = 1987 DV₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		Urata		<i>Q</i>	
<i>M</i>	76.48017			<i>P</i>		<i>Q</i>	
<i>n</i>	0.27230964	ω	103.51862	+0.60802194	-0.78792221		
<i>a</i>	2.3573679	Ω	308.60589	+0.67166277	+0.57591975		
<i>e</i>	0.1031074	<i>i</i>	7.16035	+0.42329474	+0.21793357		
<i>P</i>	3.62	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1969 03 12	095	0.9+	1.8+	1998 03 17	888	0.5+	0.8-	1998 03 24	888	0.3+	0.1+
1987 02 23	010	0.2+	0.7-	1998 03 17	888	0.4+	0.8-	1998 03 24	888	0.4+	0.2+
1987 02 23	010	0.3-	0.1-	1998 03 17	888	0.1+	0.8-	1998 04 04	888	0.3-	0.5-
1987 02 23	010	0.0	0.5+	1998 03 22	888	0.8-	0.7+	1998 04 04	888	0.2-	0.2+
1998 03 06	888	0.3-	0.3-	1998 03 22	888	0.2+	0.5+	1998 04 04	888	0.2+	0.0
1998 03 06	888	0.2-	0.0	1998 03 22	888	0.4-	0.7+				
1998 03 06	888	0.2-	0.7-	1998 03 24	888	0.4-	0.2+				

1998 EP₁₁ = 1996 VB₃₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		Williams		<i>Q</i>	
<i>M</i>	298.04931			<i>P</i>		<i>Q</i>	
<i>n</i>	0.25272399	ω	218.46598	-0.69664094	+0.71677079		
<i>a</i>	2.4776412	Ω	7.55398	-0.58732047	-0.54536845		
<i>e</i>	0.1804832	<i>i</i>	13.42116	-0.41200252	-0.43452605		
<i>P</i>	3.90	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 11 07	327	0.7-	0.2-	1998 03 02	809	1.8-	0.9-	1998 03 27	732	0.1+	1.3-
1996 11 07	327	0.3-	0.0	1998 03 02	809	2.1-	2.2-	1998 03 28	732	0.8-	0.2+
1996 11 07	327	0.3-	0.5+	1998 03 02	809	2.6-	1.4-	1998 03 28	732	1.2+	0.0
1996 11 09	327	0.5+	0.6+	1998 03 26	732	0.9-	0.2-	1998 03 28	732	2.0+	1.8+
1996 11 09	327	0.1+	0.7-	1998 03 26	732	1.1+	0.8-	1998 03 29	732	0.0	1.5+
1996 11 09	327	0.7+	0.1-	1998 03 26	732	0.0	0.4-	1998 03 29	732	0.2-	0.0
1998 03 01	809	2.3+	1.5+	1998 03 26	732	0.2+	0.4-	1998 03 29	732	1.3-	0.3-
1998 03 01	809	2.1+	1.9+	1998 03 27	732	0.3-	0.2-				
1998 03 01	809	2.0+	1.1+	1998 03 27	732	0.8-	0.1+				

1998 EA₁₃ = 1992 DX₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		Williams		<i>Q</i>	
<i>M</i>	231.78699			<i>P</i>		<i>Q</i>	
<i>n</i>	0.16905495	ω	214.60154	+0.54515885	+0.83737684		
<i>a</i>	3.2392972	Ω	88.46510	-0.75982854	+0.51371630		
<i>e</i>	0.1512064	<i>i</i>	2.29459	-0.35420673	+0.18680361		
<i>P</i>	5.83	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	7

Residuals in seconds of arc

1992 02 29	809	1.9+	2.2-	1998 03 02	809	0.3+	0.7+	1998 03 20	704	0.7-	1.9-
1992 03 03	809	1.5-	0.3+	1998 03 02	809	2.1+	0.9+	1998 03 20	704	0.1+	0.8-
1992 03 07	809	1.1-	0.0	1998 03 02	809	0.8+	2.5+	1998 03 22	704	1.7-	0.5-
1998 03 01	809	0.5+	0.9+	1998 03 20	704	1.4+	0.9+	1998 03 22	704	1.9-	1.3-
1998 03 01	809	0.1+	1.8+	1998 03 20	704	0.4-	0.1-	1998 03 22	704	0.6-	0.1-
1998 03 01	809	0.8-	0.8+	1998 03 20	704	1.6+	1.0-	1998 03 22	704	0.2+	0.9-

1998 EX₁₃ = 1994 NS₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	197.47181		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.18266606	ω	198.49184	+0.83358321	+0.54891594
a	3.0763150	Ω	128.05699	-0.49637871	+0.79349816
e	0.0713310	i	4.50810	-0.24237822	+0.26277740
P	5.40	H	12.5	G 0.15	U 5

Residuals in seconds of arc

1994 07 11	809	0.5-	0.2-	1998 03 01	809	0.1-	0.0	1998 03 20	704	0.7+	0.2+
1994 07 11	809	0.1-	1.2-	1998 03 02	809	0.3+	0.1+	1998 03 22	704	0.1-	0.1-
1994 07 11	809	1.5+	0.5-	1998 03 02	809	0.7-	0.3+	1998 03 22	704	0.8-	0.1+
1994 07 12	809	0.0	0.9+	1998 03 02	809	0.4-	0.0	1998 03 22	704	0.5-	0.3+
1994 07 12	809	0.3-	0.3+	1998 03 20	704	0.2-	0.5+	1998 03 22	704	0.4-	0.1-
1994 07 12	809	0.6-	0.7+	1998 03 20	704	0.3+	0.7-	1998 03 22	704	0.3-	0.4+
1998 03 01	809	0.6+	0.0	1998 03 20	704	0.7+	0.2-				
1998 03 01	809	0.2+	0.0	1998 03 20	704	0.7+	0.6-				

1998 ES₁₄ = 1993 FW₂₀

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	141.93470		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.18753069	ω	1.40023	+0.96832501	-0.24620781
a	3.0228817	Ω	13.08071	+0.22726646	+0.80008519
e	0.1051956	i	10.58491	+0.10342452	+0.54703328
P	5.26	H	12.5	G 0.15	U 5

Residuals in seconds of arc

1993 03 21	809	1.7-	0.1+	1998 03 02	809	0.1-	0.2+	1998 03 20	704	0.5+	2.2-
1993 03 22	809	0.5-	0.2-	1998 03 02	809	0.6+	0.8-	1998 03 22	704	0.2+	0.5+
1993 03 26	809	0.2-	0.4+	1998 03 02	809	0.1+	0.8+	1998 03 22	704	0.1-	0.8+
1993 03 27	809	2.4+	0.2-	1998 03 20	704	0.5-	0.6+	1998 03 22	704	0.1-	0.3-
1998 03 01	809	0.3-	0.4+	1998 03 20	704	0.3-	0.2-	1998 03 22	704	0.4-	0.1-
1998 03 01	809	0.0	0.8+	1998 03 20	704	0.2+	0.8-	1998 03 22	704	0.3+	0.8+
1998 03 01	809	0.5-	0.1+	1998 03 20	704	0.3+	0.8-				

1998 FH = 1991 RK₁₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	121.16107		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.21783725	ω	178.13906	+0.95173811	-0.29824462
a	2.7355708	Ω	199.68632	+0.27873581	+0.93871870
e	0.1020231	i	12.41435	+0.12845588	+0.17279279
P	4.52	H	14.5	G 0.15	U 5

Residuals in seconds of arc

1991 09 13	675	0.7+	0.1+	1998 03 03	704	0.9+	1.3+	1998 03 20	426	1.2-	0.8+
1991 09 13	675	0.8-	0.3-	1998 03 03	704	(4.5-	1.4-)	1998 03 20	426	0.9+	0.2+
1991 09 15	675	0.4+	0.2+	1998 03 04	704	(2.8-	0.7+)	1998 03 20	426	0.1+	0.2-
1991 09 15	675	0.3-	0.0	1998 03 04	704	(2.8-	0.3+)	1998 03 21	426	1.0-	0.2+
1998 02 27	566	0.4-	0.2-	1998 03 04	704	(2.8-	0.7-)	1998 03 21	426	0.4-	0.5-
1998 02 27	566	0.5+	0.1-	1998 03 04	704	(4.6-	0.8+)	1998 03 21	426	0.8+	0.2+
1998 02 27	566	0.1+	0.4+	1998 03 18	426	1.2+	0.8+	1998 03 27	426	0.3-	0.0
1998 03 03	704	0.8-	0.7-	1998 03 18	426	0.5+	0.4-	1998 03 27	426	0.2-	0.6-
1998 03 03	704	0.7-	0.8-	1998 03 18	426	0.0	0.5-				

1998 FE₂ = 1995 QS₁₀

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	275.07074		(2000.0)	P	Q
n	0.24756862	ω	172.87319	-0.09781662	+0.99276892
a	2.5119191	Ω	91.49603	-0.91648298	-0.06260463
e	0.1298093	i	3.99139	-0.38793151	-0.10242328
P	3.98	H	14.5	G 0.15	U 6

Residuals in seconds of arc

1995 08 29	809	0.1-	0.1+	1998 03 22	704	0.9+	0.5-	1998 03 22	557	0.2-	0.2-
1995 08 30	809	0.3+	0.3+	1998 03 22	704	0.8+	0.6+	1998 03 22	557	0.0	0.3+
1995 08 30	809	0.2+	0.1-	1998 03 22	704	0.3-	1.8-	1998 03 22	557	0.6+	0.2-
1995 08 31	809	0.5-	0.2-	1998 03 22	704	0.6-	0.6-	1998 03 24	557	0.3+	0.1+
1998 03 21	557	0.1-	0.1-	1998 03 22	699	0.5+	0.9+	1998 03 24	557	0.3+	0.0
1998 03 21	557	0.5+	0.1+	1998 03 22	699	0.3-	0.2+	1998 03 26	557	0.2-	0.1-
1998 03 21	557	0.8+	0.2+	1998 03 22	699	0.1-	0.8+	1998 03 26	557	0.1-	0.1-
1998 03 22	620	0.7-	0.2-	1998 03 22	900	0.4-	0.0	1998 03 28	620	0.6-	0.1-
1998 03 22	620	0.8-	0.1-	1998 03 22	900	1.0-	0.3-	1998 03 28	620	0.1+	0.1+
1998 03 22	620	0.5-	0.0	1998 03 22	557	0.4+	0.7+	1998 03 28	620	0.9+	0.2+
1998 03 22	620	0.2+	0.2+	1998 03 22	557	0.2-	0.1-				

1998 FK₂ = 1990 FE

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	141.85951		(2000.0)	P	Q
n	0.36718484	ω	176.94137	+0.99977660	+0.01351918
a	1.9314326	Ω	182.46628	-0.01387883	+0.99965653
e	0.0819672	i	22.18386	+0.01594166	+0.02245100
P	2.68	H	14.5	G 0.15	U 4

Residuals in seconds of arc

1990 03 22	675	0.5+	0.6-	1998 03 20	704	0.2-	1.0-	1998 03 26	704	0.4-	0.8+
1990 03 22	675	0.2-	0.0	1998 03 22	704	0.4-	0.7+	1998 04 01	704	0.4+	0.5-
1990 03 24	675	0.4+	0.1-	1998 03 22	704	0.7+	0.3+	1998 04 01	704	0.3-	0.3-
1990 03 24	675	0.7-	0.6+	1998 03 22	704	0.6-	0.0	1998 04 01	704	0.0	0.1-
1998 03 20	704	0.4-	0.1+	1998 03 22	704	0.4+	0.6+	1998 04 01	704	0.0	0.1-
1998 03 20	704	0.3+	0.2-	1998 03 22	704	0.2+	0.1-	1998 04 01	704	0.0	0.4+
1998 03 20	704	0.1+	0.2+	1998 03 26	704	0.2-	0.5-				
1998 03 20	704	0.7+	0.6-	1998 03 26	704	0.2-	0.5+				

1998 FB₃ = 1995 UW₃₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	262.29038		(2000.0)	P	Q
n	0.23477238	ω	191.78476	+0.45653170	+0.88703784
a	2.6023840	Ω	105.41117	-0.81037713	+0.44652793
e	0.1496667	i	4.09645	-0.36724340	+0.11737412
P	4.20	H	14.5	G 0.15	U 5

Residuals in seconds of arc

1995 10 21	691	0.1+	0.3+	1998 03 23	557	0.0	0.1-	1998 03 26	557	0.3+	0.1+
1995 10 21	691	0.0	0.3+	1998 03 23	557	0.3+	0.5+	1998 03 26	557	0.6-	0.2+
1995 10 21	691	0.1-	0.2+	1998 03 23	557	0.1-	0.2-	1998 03 26	557	0.0	0.2+
1995 10 26	691	0.4-	0.3-	1998 03 24	557	0.3+	0.3-	1998 03 30	557	0.1-	0.3-
1995 10 26	691	0.4+	0.1-	1998 03 24	557	0.4+	0.2+	1998 03 30	557	0.2-	0.2+
1995 10 26	691	0.1-	0.4-	1998 03 26	557	0.2-	0.4-				

1998 FF₃ = 1994 CZ₇ = 1995 OQ₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

M	324.06115		(2000.0)	P	Q
n	0.25193883	ω	234.29016	-0.95998699	+0.26788861
a	2.4827861	Ω	321.06386	-0.19608170	-0.85105714
e	0.0849631	i	7.46169	-0.19994238	-0.45159433
P	3.91	H	14.0	G 0.15	U 4

Residuals in seconds of arc

1994 02 08	303	0.1-	0.2-	1998 03 03	704	0.2+	0.3+	1998 03 23	557	0.1+	0.3+
1994 02 09	303	0.1+	0.2+	1998 03 03	704	0.3+	0.4-	1998 03 24	557	0.1-	0.2+
1995 07 19	327	0.0	0.1+	1998 03 03	704	0.3-	1.0+	1998 03 24	557	0.1-	0.2+
1995 07 19	327	0.3+	0.3-	1998 03 03	704	0.4+	0.3-	1998 03 31	704	1.5+	1.8-
1995 07 19	327	0.1+	0.2+	1998 03 04	704	(2.2-	0.4+)	1998 03 31	704	0.5-	0.0
1995 07 19	327	0.5-	0.4-	1998 03 04	704	(2.4-	1.0+)	1998 03 31	704	0.1-	0.6-
1995 07 19	327	0.1-	0.6-	1998 03 04	704	(2.2-	0.1+)	1998 03 31	704	0.7-	0.4-
1995 07 21	327	0.4+	0.4+	1998 03 04	704	1.8-	1.0+	1998 03 31	704	1.9-	0.2-
1995 07 21	327	0.0	0.2+	1998 03 04	704	(2.6-	0.5+)	1998 04 01	704	0.3-	0.0

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1995 07 21	327	0.3−	0.1+	1998 03 22	557	0.3+	0.5+	1998 04 01	704	0.5+	0.2+
1995 07 21	327	0.0	0.6+	1998 03 22	557	0.1+	0.4+	1998 04 01	704	0.2−	0.3+
1998 02 26	566	0.8+	0.3−	1998 03 22	557	0.1+	0.4+	1998 04 01	704	0.2+	0.3−
1998 02 26	566	0.5+	0.7−	1998 03 22	557	0.1+	0.1+	1998 04 01	704	0.1−	0.1+
1998 02 26	566	0.4+	0.7−	1998 03 23	557	0.1−	0.3+				
1998 03 03	704	0.7+	0.4+	1998 03 23	557	0.2+	0.4+				

1998 FB₆ = 1992 SM₂₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams			
<i>M</i>	264.05888	(2000.0)	
<i>n</i>	0.29368801	<i>ω</i> 120.62275	<i>P</i> +0.07246547 <i>Q</i> +0.99691443
<i>a</i>	2.2415335	<i>Ω</i> 153.48240	−0.93664582 +0.07841696
<i>e</i>	0.1863120	<i>i</i> 3.87499	−0.34270009 −0.00352218
<i>P</i>	3.36	<i>H</i> 16.0	<i>G</i> 0.15 <i>U</i> 7

Residuals in seconds of arc

1992 09 22	809	0.1+	0.8+	1998 03 18	691	0.2+	0.6+	1998 03 22	704	1.1+	0.4+
1992 09 22	809	0.9−	0.1+	1998 03 18	691	0.0	0.6+	1998 03 22	704	1.3+	1.0−
1992 09 22	809	0.0	0.2+	1998 03 20	704	0.7+	0.4−	1998 03 22	704	0.1+	0.5−
1992 09 23	809	0.3+	0.0	1998 03 20	704	0.5+	1.0−	1998 03 25	691	0.8−	0.4+
1992 09 23	809	0.1+	0.4−	1998 03 20	704	0.0	1.2−	1998 03 25	691	1.1−	0.2−
1992 09 23	809	0.4+	0.6−	1998 03 20	704	1.4−	1.6+	1998 03 25	691	0.9−	0.3−
1998 03 18	691	0.1−	0.6+	1998 03 22	704	0.6+	0.7+				

1998 FN₈ = 1996 VL₃₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams			
<i>M</i>	12.64050	(2000.0)	
<i>n</i>	0.22526290	<i>ω</i> 106.12849	<i>P</i> −0.70463996 <i>Q</i> −0.70775469
<i>a</i>	2.6751180	<i>Ω</i> 28.87897	+0.60433903 −0.63602191
<i>e</i>	0.2041353	<i>i</i> 6.02039	+0.37182909 −0.30750518
<i>P</i>	4.38	<i>H</i> 17.0	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1996 11 06	691	0.3+	0.0	1998 03 21	691	0.3+	0.0	1998 03 25	691	0.4−	0.0
1996 11 06	691	0.7+	0.3−	1998 03 21	691	0.5−	0.1−	1998 03 25	691	0.1+	0.3−
1996 11 06	691	0.9+	0.2−	1998 03 22	704	0.6−	0.3+	1998 04 04	691	1.0−	0.4+
1996 11 19	691	0.2−	0.1+	1998 03 22	704	0.2+	1.2−	1998 04 04	691	1.5−	0.6+
1996 11 19	691	0.9−	0.2+	1998 03 22	704	1.3+	0.2+	1998 04 04	691	3.6+	0.9−
1996 11 19	691	0.8−	0.2+	1998 03 22	704	1.3−	1.2+				
1998 03 21	691	0.4+	0.2−	1998 03 25	691	0.5−	0.0				

1998 FW₉ = 1991 GX₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams			
<i>M</i>	278.34798	(2000.0)	
<i>n</i>	0.27851897	<i>ω</i> 62.36726	<i>P</i> −0.22637682 <i>Q</i> +0.97240570
<i>a</i>	2.3221995	<i>Ω</i> 194.87550	−0.95306069 −0.23308182
<i>e</i>	0.1802142	<i>i</i> 12.69059	−0.20106926 +0.01000155
<i>P</i>	3.54	<i>H</i> 16.0	<i>G</i> 0.15 <i>U</i> 6

Residuals in seconds of arc

1991 04 08	809	0.8+	1.1+	1998 03 20	704	1.1−	2.3−	1998 03 25	910	0.9+	0.5−
1991 04 08	809	0.5−	0.0	1998 03 20	704	0.1+	1.9+	1998 03 25	910	0.6+	0.6−
1991 04 08	809	1.7−	1.4+	1998 03 22	704	0.6+	0.8−	1998 03 25	910	0.7+	0.5−
1991 04 10	809	1.6+	0.2+	1998 03 22	704	0.7+	0.1−	1998 03 26	910	0.6+	0.6−
1991 04 10	809	0.5+	0.2+	1998 03 22	704	0.3−	0.4+	1998 04 01	704	0.6−	1.4+
1991 04 10	809	0.8−	3.0−	1998 03 22	704	0.2−	0.3+	1998 04 01	704	0.6−	1.3+
1998 03 20	704	0.6−	0.5+	1998 03 22	704	0.8−	1.8+	1998 04 01	704	0.3−	0.3+
1998 03 20	704	0.4−	0.9−	1998 03 24	910	0.8+	1.0−	1998 04 01	704	0.3+	0.3+
1998 03 20	704	0.4−	1.3+	1998 03 24	910	0.6+	0.6−	1998 04 01	704	0.7−	1.7−

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1998 FB₁₀ = 1994 HJ

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams			
<i>M</i>	261.68664	(2000.0)	
<i>n</i>	0.23870682	<i>ω</i> 73.41519	<i>P</i> +0.20093724 <i>Q</i> +0.97822659
<i>a</i>	2.5737093	<i>Ω</i> 208.33637	−0.93531638 +0.17582319
<i>e</i>	0.1936733	<i>i</i> 6.28146	−0.29121726 +0.11026763
<i>P</i>	4.13	<i>H</i> 14.5	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1994 04 16	691	0.0	0.2+	1998 03 20	704	0.1+	0.8+	1998 03 25	910	1.1+	0.6−
1994 04 16	691	0.2−	0.1+	1998 03 20	704	(6.5−	2.0+)	1998 03 25	910	1.1+	0.6−
1994 04 16	691	0.2−	0.1−	1998 03 22	704	0.2−	0.1−	1998 03 26	910	1.2+	0.4−
1994 04 19	691	0.2+	0.2−	1998 03 22	704	1.3−	0.4+	1998 04 01	704	0.3−	0.4+
1994 04 19	691	0.0	0.1+	1998 03 22	704	0.8−	0.0	1998 04 01	704	0.5+	0.1+
1994 04 19	691	0.2+	0.1−	1998 03 22	704	0.9−	0.5+	1998 04 01	704	0.3+	1.2+
1998 03 20	704	0.2+	0.1+	1998 03 24	910	0.7+	0.8−	1998 04 01	704	0.6−	1.1−
1998 03 20	704	0.3−	0.2+	1998 03 24	910	0.9+	0.7−	1998 04 01	704	1.8−	0.6+
1998 03 20	704	0.6−	0.8+	1998 03 25	910	0.8+	0.8−				

1998 FH₁₁ = 1987 DG₅ = 1991 JM₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Nakano			
<i>M</i>	305.00763	(2000.0)	
<i>n</i>	0.27422817	<i>ω</i> 97.49339	<i>P</i> −0.66637147 <i>Q</i> +0.73641395
<i>a</i>	2.3463602	<i>Ω</i> 130.03251	−0.73003383 −0.61252324
<i>e</i>	0.1286245	<i>i</i> 8.77482	−0.15165639 −0.28724515
<i>P</i>	3.59	<i>H</i> 15.4	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1987 02 23	010	0.9−	0.1−	1991 05 18	413	0.7−	0.8+	1998 03 25	411	0.1−	0.6+
1987 02 23	010	0.2+	0.4−	1998 03 22	411	0.1−	0.8−	1998 03 28	411	0.3−	0.1+
1987 02 23	010	0.7+	0.7+	1998 03 22	411	0.5−	0.0	1998 03 28	411	0.2+	0.4+
1991 05 08	413	0.8+	0.7−	1998 03 24	411	0.6+	0.3−				
1991 05 08	413	(4.1+	2.5−)	1998 03 25	411	0.2+	0.2−				

1998 FN₁₁ = 1951 YO₁ = 1966 TR = 1981 TD₁ = 1985 VB

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Urata			
<i>M</i>	87.34691	(2000.0)	
<i>n</i>	0.26001637	<i>ω</i> 156.15663	<i>P</i> +0.90721641 <i>Q</i> −0.38208462
<i>a</i>	2.4310968	<i>Ω</i> 227.51975	+0.33729986 +0.91070090
<i>e</i>	0.2765183	<i>i</i> 13.80491	+0.25137062 +0.15695610
<i>P</i>	3.79	<i>H</i> 12.0	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1951 12 27	711	0.6−	1.0+	Y 1985 11 16	675	0.3−	0.0	1998 03 25	888	0.4+	0.1+
1966 10 13	095	1.1+	0.9−	1998 03 22	905	0.2+	0.3−	1998 04 03	385	0.3−	0.1+
1966 10 17	095	(0.3+	3.5+)	1998 03 22	905	1.5+	0.3+	1998 04 03	385	0.3−	0.2−
1981 10 03	095	0.5−	0.5−	1998 03 25	699	0.0	0.0	1998 04 03	385	0.2−	0.4−
1985 11 07	675	0.2−	0.5+	1998 03 25	699	0.4−	0.2−	1998 04 03	888	0.5−	0.3−
1985 11 07	675	0.2−	0.3−	1998 03 25	699	0.2+	0.0	1998 04 03	888	0.4−	0.4−
1985 11 16	675	0.5+	0.1−	1998 03 25	888	0.0	0.1+	1998 04 03	888	0.4−	0.6−

1998 FP₁₁ = 1983 HO₁

Id. T. Urata

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams			
<i>M</i>	330.81624	(2000.0)	
<i>n</i>	0.26499119	<i>ω</i> 25.91877	<i>P</i> −0.96918571 <i>Q</i> +0.24541620
<i>a</i>	2.4005739	<i>Ω</i> 168.22889	−0.24020280 −0.92247497
<i>e</i>	0.1144331	<i>i</i> 5.96829	−0.05460465 −0.29801145
<i>P</i>	3.72	<i>H</i> 14.0	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1983 04 09	095	0.3+	0.8+	1998 03 22	704	0.2−	0.0	1998 03 29	888	0.1−	0.5+
1983 04 16	033	0.1+	0.2−	1998 03 22	704	0.3+	0.0	1998 03 29	888	0.1−	0.3+
1983 04 16	033	0.4−	0.6−	1998 03 22	704	0.0	0.3−	1998 03 29	888	0.2−	0.4+

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1998 03 20	704	0.2−	0.8−	1998 03 22	905	0.4+	0.4+	1998 03 30	886	0.8−	0.6+
1998 03 20	704	0.9−	0.1−	1998 03 22	905	0.2+	0.0	1998 03 30	886	0.5+	1.6−
1998 03 20	704	0.4+	0.4+	1998 03 24	699	0.5+	0.3−	1998 03 30	888	0.2−	0.2+
1998 03 20	704	0.2−	0.4−	1998 03 24	699	0.2+	0.1+	1998 03 30	888	0.1+	0.2+
1998 03 20	704	0.3−	0.3+	1998 03 24	699	0.7+	0.1+	1998 03 30	888	0.1+	0.3+
1998 03 22	704	0.2+	0.5−	1998 03 25	888	0.3−	0.1+				
1998 03 22	704	0.3+	0.1+	1998 03 25	888	0.3−	0.0				

1998 FQ₁₁ = 1952 DB₁ = 1973 GD₁ = 1977 CU₂ = 1977 EC = 1981 AA₄
 Id. T. Urata

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5											
				Williams							
<i>M</i>	333.39098		(2000.0)		P		Q				
<i>n</i>	0.23655084	ω	212.47177	−0.98928667			+0.11378224				
<i>a</i>	2.5893240	Ω	333.59920	−0.04366935			−0.82848091				
<i>e</i>	0.2093953	<i>i</i>	11.87035	−0.13930137			−0.54833656				
<i>P</i>	4.17	<i>H</i>	14.0	<i>G</i>	0.15		<i>U</i>	3			

Residuals in seconds of arc												
1952 02 17	711	(1.8−	7.9−)	Y	1998 03 03	704	0.0	0.3+	1998 03 25	888	0.3+	0.2−
1973 04 05	095	0.6+	1.3+		1998 03 03	704	0.3−	0.6−	1998 03 29	888	0.3+	0.0
1977 02 11	675	0.7−	0.3+		1998 03 04	704	0.9−	0.6+	1998 03 29	888	0.3+	0.1−
1977 02 12	675	0.2+	0.7+		1998 03 04	704	1.3−	1.0+	1998 03 29	888	0.2+	0.0
1977 03 09	095	1.8+	0.1−		1998 03 04	704	0.8−	0.5+	1998 03 30	886	0.5+	0.7+
1977 03 13	095	(3.2+	0.1+)		1998 03 04	704	0.7−	0.7+	1998 03 30	886	0.7+	0.3+
1981 01 08	381	0.5−	0.7−		1998 03 04	704	1.9−	0.4+	1998 04 01	704	0.4−	0.5−
1981 01 08	381	(3.4+	2.6+)		1998 03 24	888	0.0	0.1−	1998 04 01	704	0.1−	0.4−
1998 03 03	704	0.3+	0.2+		1998 03 24	888	0.0	0.1−	1998 04 01	704	0.2+	1.4−
1998 03 03	704	(2.3+	0.6+)		1998 03 25	888	0.3+	0.3−	1998 04 01	704	0.7+	1.5−
1998 03 03	704	0.4−	0.2+		1998 03 25	888	0.4+	0.1−	1998 04 01	704	1.2+	1.4−

1998 FY₁₁ = 1982 SP₃ = 1986 PJ₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5											
				Williams							
<i>M</i>	289.33470		(2000.0)		P		Q				
<i>n</i>	0.22835701	ω	86.72894	−0.39754681			+0.91618821				
<i>a</i>	2.6508988	Ω	159.61603	−0.88894070			−0.37089507				
<i>e</i>	0.1510042	<i>i</i>	8.34541	−0.22746641			−0.15177617				
<i>P</i>	4.32	<i>H</i>	13.5	<i>G</i>	0.15		<i>U</i>	4			

Residuals in seconds of arc												
1982 09 24	033	0.3+	0.4+		1998 03 20	704	0.6+	0.9+	1998 03 25	566	0.3+	0.7−
1982 09 24	033	0.3−	0.3−		1998 03 20	704	0.4+	1.8+	1998 03 25	566	0.1+	0.7−
1986 08 12	095	0.0	0.2+		1998 03 24	566	0.1+	0.4−	1998 03 26	566	0.2−	0.3+
1998 02 23	566	(1.4+	2.3−)		1998 03 24	566	0.0	0.4−	1998 03 26	566	0.1−	0.3+
1998 02 23	566	(1.1+	2.1−)		1998 03 24	566	0.1−	0.5−	1998 03 26	566	0.2−	0.5+
1998 02 23	566	(1.4+	2.3−)		1998 03 25	566	0.3+	0.8−	1998 03 26	557	0.2−	0.1−
1998 03 20	704	0.5−	0.6+		1998 03 25	566	0.1+	0.6−	1998 03 26	557	0.1−	0.1+
1998 03 20	704	0.1+	0.6+		1998 03 25	566	0.1+	0.6−	1998 03 28	557	0.3−	0.6+
1998 03 20	704	0.1+	1.2+		1998 03 25	566	0.1+	0.8−	1998 03 28	557	0.7−	0.9−

1998 FY₁₃ = 1993 FX₃₄ = 1993 HP₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5											
				Williams							
<i>M</i>	330.74918		(2000.0)		P		Q				
<i>n</i>	0.18990423	ω	6.80651	−0.98848258			+0.15120988				
<i>a</i>	2.9976410	Ω	181.92319	−0.14604454			−0.96378462				
<i>e</i>	0.0480596	<i>i</i>	10.55149	−0.03966342			−0.21966970				
<i>P</i>	5.19	<i>H</i>	12.5	<i>G</i>	0.15		<i>U</i>	4			

Residuals in seconds of arc											
1993 03 19	809	0.8+	0.5−	1998 03 20	704	1.2−	1.3+	1998 03 26	566	0.2−	0.2+
1993 03 20	809	0.0	0.6−	1998 03 22	704	1.3+	1.5−	1998 03 26	566	0.4+	0.1+
1993 03 24	809	0.5−	0.4+	1998 03 22	704	0.4−	0.4−	1998 03 26	566	0.1−	0.1+
1993 04 18	413	0.3−	0.7+	1998 03 22	704	0.5+	0.5−	1998 04 01	704	0.3+	0.2+
1998 03 20	704	0.1−	0.3+	1998 03 22	704	0.3+	0.3−	1998 04 01	704	0.1−	0.1−
1998 03 20	704	0.2−	0.2+	1998 03 24	566	0.0	0.7+	1998 04 01	704	0.2−	0.1−

1998 03 20	704	0.6−	0.3+	1998 03 24	566	0.0	0.5+	1998 04 01	704	1.5+	0.4−
1998 03 20	704	1.1−	0.6+	1998 03 24	566	0.2−	0.6+	1998 04 01	704	0.0	2.0−

1998 FY₁₅ = 1977 EB₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5											
				Williams							
<i>M</i>	7.95391		(2000.0)		P		Q				
<i>n</i>	0.23319214	ω	259.12999	−0.65632230			−0.75353042				
<i>a</i>	2.6141276	Ω	231.95792	+0.70964259			−0.59950180				
<i>e</i>	0.0836635	<i>i</i>	2.75500	+0.25621949			−0.26979528				
<i>P</i>	4.23	<i>H</i>	13.5	<i>G</i>	0.15		<i>U</i>	5			

Residuals in seconds of arc												
1977 03 12	381	1.9+	0.7+	1998 03 20	704	0.0	0.4−	1998 04 01	758	0.1−	0.2−	
1977 03 12	381	1.5−	0.4+	1998 03 29	758	0.7−	0.5+	1998 04 01	758	1.1+	0.3+	
1977 03 14	381	1.2−	0.1+	1998 03 29	758	0.9−	0.3+	1998 04 01	758	2.1+	0.6−	
1977 03 14	381	0.3+	1.1−	1998 03 30	758	0.0	0.4−	1998 04 04	758	0.8−	0.0	
1977 03 15	381	1.1+	0.5−	1998 03 30	758	0.0	0.6+	1998 04 04	758	0.6−	0.2−	
1977 03 15	381	0.5−	0.3+	1998 03 31	758	0.5+	0.5+	1998 04 04	758	3.3−	0.6+	
1998 03 20	704	0.4−	0.4−	1998 03 31	758	1.1−	0.4+	1998 04 05	758	1.4−	1.1−	
1998 03 20	704	0.8−	0.3+	1998 03 31	758	0.5+	0.4+	1998 04 05	758	2.2+	0.1+	
1998 03 20	704	0.8+	0.2−	1998 03 31	758	1.5+	0.1+	1998 04 05	758	1.1+	0.1+	
1998 03 20	704	0.0	0.0	1998 03 31	758	0.6+	0.5−					

1998 FF₁₆ = 1995 SS₂₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5											
				Williams							
<i>M</i>	275.63219		(2000.0)		P		Q				
<i>n</i>	0.26585222	ω	106.30217	−0.04309240			+0.99897385				
<i>a</i>	2.3953879	Ω	161.21144	−0.93236049			−0.03519826				
<i>e</i>	0.1852505	<i>i</i>	2.48049	−0.35895258			−0.02850156				
<i>P</i>	3.71	<i>H</i>	15.0	<i>G</i>	0.15		<i>U</i>	5			

Residuals in seconds of arc											
1995 09 20	691	0.0	0.1+	1998 03 20	704	0.1−	0.8+	1998 03 25	699	1.4+	0.2+
1995 09 20	691	0.0	0.0	1998 03 20	704	0.4−	0.6+	1998 03 25	699	0.8−	0.3+
1995 09 20	691	0.0	0.1−	1998 03 20	704	1.1−	0.9+	1998 03 25	699	0.1+	0.2−
1995 09 25	691	0.0	0.2−	1998 03 22	704	0.1−	0.5+	1998 03 25	888	0.0	0.2−
1995 09 25	691	0.0	0.0	1998 03 22	704	0.5+	0.2+	1998 03 25	888	0.0	0.2−
1995 09 25	691	0.0	0.1+	1998 03 22	704	0.8+	0.8−	1998 03 29	888	0.4−	0.3+
1998 03 20	704	0.5+	0.0	1998 03 22	704	0.1−	0.8−	1998 03 29	888	0.4−	0.1−
1998 03 20	704	0.1+	0.5−	1998 03 22	704	0.0	0.8−				

1998 FT₄₁ = 1977 EB₇

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	313.60283	(2000.0)	P		Q	
<i>n</i>	0.18776585	ω	20.99254	-0.86116216	+0.50747262	
<i>a</i>	3.0203572	Ω	189.66557	-0.48784309	-0.84137924	
<i>e</i>	0.0529075	<i>i</i>	10.12556	-0.14285952	-0.18588305	
<i>P</i>	5.25	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1977 03 12	381	0.6-	1.0+	1998 03 04	704	1.5-	0.4+	1998 03 22	704	1.0+	0.3-
1977 03 12	381	0.1-	0.4+	1998 03 04	704	2.3-	1.7+	1998 03 22	704	0.1+	0.9-
1977 03 14	381	0.1+	0.2-	1998 03 04	704	2.4-	0.4+	1998 03 22	704	0.3+	0.9-
1977 03 14	381	0.0	0.6-	1998 03 04	704	2.0-	0.0	1998 03 22	704	0.6+	0.6-
1977 03 15	381	0.3+	0.5-	1998 03 04	704	0.8-	0.3+	1998 04 01	704	0.3+	0.4+
1977 03 15	381	0.2+	0.4-	1998 03 20	704	0.6+	0.5-	1998 04 01	704	0.1-	0.5+
1998 03 03	704	0.1+	0.1+	1998 03 20	704	0.6+	0.3+	1998 04 01	704	0.7+	0.0
1998 03 03	704	0.4+	0.3+	1998 03 20	704	0.6+	0.1+	1998 04 01	704	0.8+	0.4-
1998 03 03	704	0.4+	0.4-	1998 03 20	704	1.7+	0.7-	1998 04 01	704	0.8+	0.3-
1998 03 03	704	0.9+	0.0	1998 03 20	704	0.9-	2.0+				
1998 03 03	704	0.4-	0.9-	1998 03 22	704	0.4+	0.3-				

1998 FW₄₂ = 1992 SF₁₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	43.37819	(2000.0)	P		Q	
<i>n</i>	0.26403553	ω	267.43802	-0.17758436	-0.98384522	
<i>a</i>	2.4063630	Ω	192.85820	+0.93849265	-0.16238716	
<i>e</i>	0.1078775	<i>i</i>	5.83794	+0.29613398	-0.07535904	
<i>P</i>	3.73	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1992 09 22	809	0.3-	0.6+	1998 03 20	704	0.4+	0.4+	1998 03 22	704	0.8-	0.6+
1992 09 22	809	0.8+	0.1+	1998 03 20	704	0.7+	0.0	1998 03 22	704	0.0	0.6+
1992 09 22	809	0.3-	0.1-	1998 03 20	704	0.1-	0.2-	1998 04 01	704	0.5+	0.6-
1992 09 23	809	0.1-	0.3-	1998 03 20	704	0.0	0.7-	1998 04 01	704	0.4+	0.1+
1992 09 23	809	0.3-	0.5-	1998 03 22	704	0.1-	0.8-	1998 04 01	704	0.2-	0.3-
1992 09 23	809	0.1+	0.2+	1998 03 22	704	0.2-	0.3+	1998 04 01	704	0.1+	0.3-
1998 03 20	704	0.2+	0.2+	1998 03 22	704	0.1-	0.5-	1998 04 01	704	0.6-	1.1+

1998 FA₄₃ = 1993 FT₇₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	276.59435	(2000.0)	P		Q	
<i>n</i>	0.19220838	ω	25.44937	-0.19335003	+0.98100598	
<i>a</i>	2.9736362	Ω	233.40608	-0.90345544	-0.18421661	
<i>e</i>	0.1185849	<i>i</i>	1.11259	-0.38260166	-0.06075782	
<i>P</i>	5.13	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i> 6

Residuals in seconds of arc

1993 03 21	809	1.4-	0.3+	1998 03 20	704	1.0-	1.0-	1998 04 01	704	0.4-	0.8-
1993 03 21	809	1.9+	0.0	1998 03 20	704	(5.0-	1.3+)	1998 04 01	704	0.8-	0.1-
1993 03 22	809	0.4-	0.2-	1998 03 22	704	0.0	1.6+	1998 04 01	704	2.0+	1.0+
1998 03 20	704	0.3-	0.3-	1998 03 22	704	1.5-	0.0	1998 04 01	704	0.7-	0.4-
1998 03 20	704	0.9+	0.1+	1998 03 22	704	0.8+	1.8-				
1998 03 20	704	2.1+	0.6+	1998 03 22	704	1.1-	0.9+				

1998 FZ₄₇ = 1977 EB₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	325.68311	(2000.0)	P		Q	
<i>n</i>	0.28220663	ω	209.43014	-0.98119023	+0.19055530	
<i>a</i>	2.3019254	Ω	341.47852	-0.15259302	-0.86361844	
<i>e</i>	0.0850968	<i>i</i>	5.58103	-0.11824173	-0.46674604	
<i>P</i>	3.49	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1977 03 12	381	0.9-	0.6+	1998 03 20	704	0.2-	0.2+	1998 04 01	704	0.1-	0.1+
1977 03 12	381	0.2-	0.3+	1998 03 20	704	0.6-	0.3+	1998 04 01	704	0.6+	0.2+
1977 03 14	381	0.2-	0.3-	1998 03 22	704	0.1-	0.3-	1998 04 01	704	0.2+	0.2-
1977 03 14	381	1.4+	0.6-	1998 03 22	704	0.5+	0.0	1998 04 01	704	0.3-	0.0
1998 03 20	704	0.1-	0.3-	1998 03 22	704	3.4+	0.3-	1998 04 01	704	0.6-	0.1+
1998 03 20	704	0.3-	0.2+	1998 03 22	704	2.1-	1.2+				
1998 03 20	704	0.1-	0.3-	1998 03 22	704	0.3-	1.0-				

1998 FK₄₉ = 1994 JN₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	333.17084	(2000.0)	P		Q	
<i>n</i>	0.23310173	ω	351.20652	-0.98649984	+0.16330941	
<i>a</i>	2.6148035	Ω	198.20612	-0.14778096	-0.91978716	
<i>e</i>	0.1237549	<i>i</i>	2.23228	-0.07056097	-0.35682154	
<i>P</i>	4.23	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1994 05 09	033	0.0	1.1+	1998 03 20	704	0.0	0.1-	1998 03 22	704	0.2-	0.2+
1994 05 09	033	0.2-	1.2+	1998 03 20	704	0.3+	0.1+	1998 03 22	704	0.1-	0.7+
1994 05 11	033	0.1-	0.5-	1998 03 20	704	0.5+	0.3+	1998 04 01	704	0.3+	0.5+
1994 05 11	033	0.5-	0.2-	1998 03 20	704	0.2+	0.0	1998 04 01	704	0.2+	0.1+
1994 05 13	033	0.8+	1.6-	1998 03 22	704	0.1+	0.3-	1998 04 01	704	0.5-	0.3+
1994 05 15	033	0.0	0.1+	1998 03 22	704	1.5-	0.6-	1998 04 01	704	0.2+	1.0-
1998 03 20	704	0.5+	0.0	1998 03 22	704	0.2+	0.1-	1998 04 01	704	0.3-	0.3-

1998 FZ₅₂ = 1995 UH₇

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	184.62338	(2000.0)	P		Q	
<i>n</i>	0.18062202	ω	147.76129	+0.96656384	+0.25566801	
<i>a</i>	3.0994806	Ω	197.45800	-0.24699595	+0.90762020	
<i>e</i>	0.0627661	<i>i</i>	3.76559	-0.06890091	+0.33295561	
<i>P</i>	5.46	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i> 6

Residuals in seconds of arc

1995 10 27	399	1.5+	3.3-	1998 03 20	704	2.1-	0.3+	1998 04 01	704	0.2+	0.5-
1995 10 27	399	0.8-	0.1+	1998 03 20	704	0.0	2.7+	1998 04 01	704	0.7+	0.3+
1995 10 28	399	1.1-	0.8+	1998 03 22	704	0.5+	0.4+	1998 04 01	704	0.3-	1.1+
1995 10 28	399	0.3+	2.2+	1998 03 22	704	0.1-	0.3-	1998 04 01	704	0.2+	0.9-
1998 03 20	704	1.0+	0.2-	1998 03 22	704	0.6+	0.1-	1998 04 01	704	0.8-	0.4-
1998 03 20	704	2.7+	2.8-	1998 03 22	704	1.1-	0.5+				
1998 03 20	704	0.6-	0.1+	1998 03 22	704	0.8-	0.3-				

1998 FG₅₃ = 1978 RU₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	243.88089	(2000.0)	P		Q	
<i>n</i>	0.28191837	ω	297.81321	+0.12936125	+0.99134086	
<i>a</i>	2.3034942	Ω	339.58215	-0.88550655	+0.10525200	
<i>e</i>	0.0362989	<i>i</i>	3.70778	-0.44625533	+0.07851952	
<i>P</i>	3.50	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i> 6

Residuals in seconds of arc

1978 09 02	809	0.3-	0.2-	1998 03 20	704	0.0	0.1-	1998 03 22	704	0.2+	0.7+
1978 09 02	809	0.3-	0.6-	1998 03 20	704	0.3+	0.1-	1998 03 22	704	1.4-	1.2+
1978 09 02	809	0.1+	0.1-	1998 03 20	704	0.2-	0.3-	1998 04 01	704	0.1+	0.1-
1978 09 02	809	0.4-	0.4+	1998 03 20	704	0.2-	0.0	1998 04 01	704	0.4+	0.3-
1978 09 02	809	0.1-	0.3-	1998 03 22	704	0.2+	0.8-	1998 04 01	704	0.6-	0.2+
1978 09 06	809	1.0+	0.8+	1998 03 22	704	0.2+	0.7-	1998 04 01	704	0.6+	0.2+
1998 03 20	704	0.1-	0.3+	1998 03 22	704	0.5+	0.5+	1998 04 01	704	0.1+	0.7-

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1998 FN₅₇ = 1996 TY₁₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	3.47297		(2000.0)	P	Q
<i>n</i>	0.28288729	ω	312.37518	-0.84706383	-0.53084793
<i>a</i>	2.2982314	Ω	195.62000	+0.51170257	-0.80124285
<i>e</i>	0.1152539	<i>i</i>	5.57137	+0.14367793	-0.27606226
<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 10 12	566	0.1-	0.3+	1998 03 20	704	0.5+	0.9-	1998 03 22	704	0.0	1.1+
1996 10 12	566	0.2+	0.0	1998 03 20	704	0.6+	0.8+	1998 03 22	704	0.9-	0.2+
1996 10 12	566	0.1+	0.0	1998 03 20	704	0.3+	0.2-	1998 04 01	704	0.3-	0.6-
1996 10 18	566	0.7-	0.1+	1998 03 20	704	0.2-	0.7-	1998 04 01	704	0.7+	0.1+
1996 10 18	566	0.2+	0.1-	1998 03 22	704	0.5-	0.6+	1998 04 01	704	0.1-	0.5+
1996 10 18	566	0.2+	0.3-	1998 03 22	704	1.3-	0.7-	1998 04 01	704	0.2+	0.8-
1998 03 20	704	0.4-	0.4+	1998 03 22	704	1.4+	0.5-	1998 04 01	704	0.3-	0.5+

1998 FO₅₈ = 1987 SF₁₂ = 1989 EC₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	84.07825		(2000.0)	P	Q
<i>n</i>	0.22636552	ω	242.15667	+0.42497470	-0.90515071
<i>a</i>	2.6664240	Ω	182.75240	+0.88614172	+0.41824033
<i>e</i>	0.1644329	<i>i</i>	11.94032	+0.18479547	+0.07600807
<i>P</i>	4.35	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1987 09 21	071	0.6+	0.8-	1998 03 20	704	0.3-	0.2+	1998 03 22	704	0.6+	1.2+
1987 09 21	071	0.6-	0.7+	1998 03 20	704	0.2-	0.1-	1998 03 22	704	0.8-	0.1-
1989 03 02	413	0.1-	0.3+	1998 03 20	704	0.2+	0.2+	1998 03 22	704	0.3-	0.2+
1989 03 02	413	1.1+	0.1-	1998 03 20	704	1.4-	0.5-	1998 03 25	699	1.0+	0.7-
1989 03 04	413	1.0-	0.2-	1998 03 22	704	0.1+	0.3-	1998 03 25	699	1.5+	0.1-
1998 03 20	704	0.6-	0.2-	1998 03 22	704	0.2-	0.1-	1998 03 25	699	0.2+	0.3+

1998 FA₅₉ = 1984 SY₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	169.19650		(2000.0)	P	Q
<i>n</i>	0.25751647	ω	281.34042	+0.99674123	+0.06900223
<i>a</i>	2.4468051	Ω	74.71312	-0.04602987	+0.91187403
<i>e</i>	0.1447498	<i>i</i>	2.48243	-0.06624324	+0.40462877
<i>P</i>	3.83	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1984 09 28	809	0.3+	0.0	1984 09 30	809	0.1-	0.1-	1998 03 22	704	0.6-	1.1-
1984 09 28	809	0.5+	0.4-	1998 03 20	704	0.1-	0.3-	1998 03 22	704	0.9-	0.5-
1984 09 28	809	0.6+	0.5-	1998 03 20	704	0.4-	0.1+	1998 03 22	704	(6.5-	1.8+)
1984 09 29	809	0.5-	0.5+	1998 03 20	704	1.8+	0.3+	1998 04 04	691	0.0	0.1-
1984 09 29	809	0.3-	0.4+	1998 03 20	704	0.0	0.5+	1998 04 04	691	0.1+	0.3+
1984 09 29	809	0.1-	0.4+	1998 03 20	704	(6.3-	1.4-)	1998 04 04	691	0.2+	0.1+
1984 09 30	809	0.3-	0.0	1998 03 22	704	0.8-	0.1+				
1984 09 30	809	0.2-	0.2-	1998 03 22	704	0.7+	0.7+				

1998 FT₅₉ = 1996 VO₂₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	303.28339		(2000.0)	P	Q
<i>n</i>	0.27228078	ω	52.98712	-0.74400273	+0.66777635
<i>a</i>	2.3575345	Ω	168.84433	-0.64471618	-0.70836027
<i>e</i>	0.0689611	<i>i</i>	6.86416	-0.17550208	-0.22869297
<i>P</i>	3.62	<i>H</i>	15.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 11 14	691	0.5-	0.2+	1998 03 20	704	0.3-	1.3+	1998 03 22	704	0.6-	0.4-
1996 11 14	691	0.2-	0.0	1998 03 20	704	0.6-	0.7-	1998 03 22	704	0.1-	1.3-
1996 11 14	691	0.4-	0.1+	1998 03 20	704	0.2+	1.4+	1998 04 04	691	0.1-	0.1+
1996 11 18	691	0.4+	0.3-	1998 03 20	704	0.8-	0.3+	1998 04 04	691	0.0	0.0

1996 11 18	691	0.4+	0.2-	1998 03 22	704	0.2+	0.2+	1998 04 04	691	0.1-	0.2+
1996 11 18	691	0.3+	0.2+	1998 03 22	704	0.2+	0.2+				
1998 03 20	704	1.6+	0.9-	1998 03 22	704	0.5+	0.5-				

**1998 FL₆₁ = 1937 UH = 1963 TQ = 1979 WJ₅ = 1982 FT₂ = 1990 WT₁₃
= 1992 CG₄**

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	208.71709		(2000.0)	P	Q
<i>n</i>	0.18734135	ω	328.05266	+0.88075224	+0.47342095
<i>a</i>	3.0249181	Ω	3.75371	-0.38589975	+0.73234893
<i>e</i>	0.1092995	<i>i</i>	10.71259	-0.27451206	+0.48942583
<i>P</i>	5.26	<i>H</i>	11.5	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1937 10 28	024(89.3-	67.4+)	X	1990 11 20	095	1.8+	2.0-	1998 03 22	704	0.1+	1.2-
1963 10 14	760(62.5+	9.5+)	X	1992 02 08	033	0.2+	1.3+	1998 03 22	704	0.1+	0.7-
1963 10 14	760	0.1+	0.0	1992 02 08	033	0.2-	1.2+	1998 03 22	704	1.2-	0.6-
1979 11 17	095	1.2-	0.5+	1998 03 20	704	0.2-	0.4-	1998 04 01	704	0.2-	0.6-
1982 03 23	675	0.1+	0.4+	1998 03 20	704	0.3+	0.1-	1998 04 01	704	0.4-	0.2+
1982 03 23	675	1.2+	0.7+	1998 03 20	704	0.4+	0.5-	1998 04 01	704	0.1-	1.0+
1982 03 24	675	1.9+	1.1+	1998 03 20	704	0.1-	0.5-	1998 04 01	704	1.1-	0.1+
1982 03 31	675	0.2-	0.2-	1998 03 20	704	1.3-	0.4-	1998 04 01	704	0.2+	0.2-
1982 03 31	675	0.6-	0.4+	1998 03 22	704	0.0	0.4-				
1990 11 20	095	0.1-	1.0-	1998 03 22	704	0.4+	0.6-				

1998 FT₆₁ = 1991 NE₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	284.22712		(2000.0)	P	Q
<i>n</i>	0.26405473	ω	2.64422	-0.21672903	+0.97591701
<i>a</i>	2.4062463	Ω	254.83966	-0.89614582	-0.20895779
<i>e</i>	0.1807694	<i>i</i>	1.47170	-0.38723533	-0.06263091
<i>P</i>	3.73	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1991 07 08	809	1.8-	1.0+	1991 07 11	809	0.2+	0.2-	1998 03 22	704	0.2+	0.9-
1991 07 08	809	1.0-	0.9+	1991 07 11	809	0.2+	0.4-	1998 03 22	704	0.1-	0.5+
1991 07 08	809	0.5-	0.7+	1991 07 11	809	0.3+	0.5-	1998 03 22	704	0.6-	0.2-
1991 07 08	809	0.3+	0.7+	1998 03 20	704	0.2-	0.2-	1998 03 22	704	0.8+	0.4+
1991 07 08	809	0.2+	0.7+	1998 03 20	704	0.1-	0.2-	1998 04 01	704	0.1+	0.2-
1991 07 08	809	0.6+	0.5+	1998 03 20	704	0.3-	0.2+	1998 04 01	704	0.0	0.1-
1991 07 10	809	0.1+	1.3-	1998 03 20	704	0.1+	0.5+	1998 04 01	704	0.0	0.1+
1991 07 10	809	0.4+	1.2-	1998 03 20	704	0.1-	0.2+	1998 04 01	704	0.1+	0.5-
1991 07 10	809	1.1+	1.0-	1998 03 22	704	0.3+	0.3-	1998 04 01	704	0.3-	0.6+

1998 FH₆₄ = 1992 DR₁₃ = 1994 PM₂₄ = 1994 RL₂₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

Williams

<i>M</i>	342.14911		(2000.0)	P	Q
<i>n</i>	0.17642698	ω	52.57090	-0.97973888	+0.19788337
<i>a</i>	3.1484204	Ω	138.81657	-0.19536289	-0.91029865
<i>e</i>	0.1512156	<i>i</i>	2.68842	-0.04410298	-0.36359118
<i>P</i>	5.59	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1992 02 27	033	1.0+	0.1-	1994 09 06	809	0.6+	1.2+	1998 03 22	704	0.3-	1.3+
1992 02 27	033	0.5-	0.2-	1994 09 06	809	0.3+	0.8+	1998 03 22	704	0.0	0.5+
1992 02 28	033	1.1-	1.4-	1994 09 06	809	0.1-	1.4-	1998 03 22	704	0.9-	1.2+
1994 08 12	809	0.3+	0.6-	1998 03 20	704	0.3+	0.9-	1998 03 22	704	0.4-	1.0+
1994 08 12	809	0.1-	0.5+	1998 03 20	704	0.3-	0.4+	1998 03 31	704	0.4+	0.5-
1994 08 12	809	1.7-	0.3-	1998 03 20	704	0.0	0.5+	1998 03 31	704	1.2+	0.8-
1994 08 13	809	1.7+	0.4-	1998 03 20	704	0.3-	0.3+	1998 03 31	704	0.5-	0.7-
1994 08 13	809	0.5+	1.8-	1998 03 20	704	0.4+	0.5+	1998 03 31	704	0.4+	0.6-
1994 08 13	809	0.3-	0.1+	1998 03 22	704	0.0	0.2-	1998 03 31	704	0.0	1.7-

1998 FY₆₅ = 1996 VO₃₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	39.03885	(2000.0)	P		Q	
<i>n</i>	0.23809473	ω	201.59925	-0.53704380	-0.84316830	
<i>a</i>	2.5781184	Ω	280.89166	+0.77770130	-0.48317473	
<i>e</i>	0.0771480	<i>i</i>	1.48907	+0.32674858	-0.23581646	
<i>P</i>	4.14	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1996 11 09	327	0.2+	0.1+	1998 03 20	704	0.7-	0.7+	1998 03 24	699	0.9+	0.1-
1996 11 09	327	0.0	1.2-	1998 03 20	704	0.5-	0.2+	1998 03 24	699	0.7+	0.1-
1996 11 09	327	0.0	0.3+	1998 03 22	704	0.1+	0.8-	1998 03 24	699	1.3+	0.3-
1996 11 20	327	0.2-	0.2+	1998 03 22	704	0.3+	0.6-	1998 04 01	704	0.3-	0.4+
1996 11 20	327	0.3-	0.1+	1998 03 22	704	0.3+	1.6-	1998 04 01	704	0.2-	0.7+
1996 11 20	327	0.0	0.1+	1998 03 22	704	(0.4-	5.2-)	1998 04 01	704	0.7+	0.4+
1996 11 20	327	0.4+	0.4+	1998 03 22	704	(4.4-	2.6-)	1998 04 01	704	0.0	0.2+
1998 03 20	704	0.5-	0.3-	1998 03 22	699	0.2+	0.2-	1998 04 01	704	0.3-	0.5+
1998 03 20	704	0.4-	0.6-	1998 03 22	699	1.1-	1.4+				
1998 03 20	704	0.3+	0.8-	1998 03 22	699	0.7-	1.1+				

1998 FY₆₆ = 1979 HM₃ = 1994 GG₁₀

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	139.79233	(2000.0)	P		Q	
<i>n</i>	0.25752026	ω	215.69017	+0.90428976	-0.42616931	
<i>a</i>	2.4467811	Ω	169.44431	+0.41669668	+0.86819877	
<i>e</i>	0.0606769	<i>i</i>	7.93619	+0.09286501	+0.25418619	
<i>P</i>	3.83	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1979 04 25	095	0.0	0.1+	1998 03 20	704	0.4+	0.0	1998 03 22	704	0.6+	0.7-
1994 04 03	033	0.5+	0.4-	1998 03 20	704	0.1-	0.7-	1998 03 22	704	0.5-	0.2+
1994 04 03	033	0.8+	0.1+	1998 03 20	704	0.3+	0.8-	1998 03 24	699	0.5-	0.1+
1994 04 04	033	1.3-	0.5+	1998 03 22	704	0.0	0.3-	1998 03 24	699	0.2+	0.4+
1998 03 20	704	0.1+	0.4+	1998 03 22	704	0.6-	0.3+	1998 03 24	699	0.2-	0.1+
1998 03 20	704	0.7+	0.4+	1998 03 22	704	0.5-	0.5+				

1998 FL₆₈ = 1975 EH₄ = 1978 SG₃ = 1979 YF₉ = 1986 AP₂ = 1990 VY₁₁ = 1992 EN

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	61.92809	(2000.0)	P		Q	
<i>n</i>	0.17457208	ω	100.90263	-0.13234222	-0.99119222	
<i>a</i>	3.1706833	Ω	356.69075	+0.87344538	-0.11430529	
<i>e</i>	0.1589536	<i>i</i>	4.81879	+0.46859225	-0.06687510	
<i>P</i>	5.65	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1975 03 15	095	(1.2-	7.7+)	1992 03 07	372	(2.3+	0.2+)	1998 03 22	704	0.1+	1.1-
1978 09 26	095	0.9+	1.7-	1998 03 03	704	0.1+	0.4+	1998 03 22	704	(3.1-	0.5-)
1979 12 25	095	(4.8-	3.1+)	1998 03 03	704	0.8+	0.4-	1998 03 22	699	1.1-	0.5-
1986 01 12	688	0.1+	0.3+	1998 03 03	704	(1.6-	2.8-)	1998 03 22	699	0.1+	0.4-
1986 01 12	688	0.5+	1.6+	1998 03 03	704	(1.1-	2.2-)	1998 03 22	699	1.8-	0.1+
1990 11 14	809	0.3+	0.7-	1998 03 03	704	1.7-	1.2-	1998 03 24	699	0.2-	0.6-
1990 11 14	809	0.1-	0.5-	1998 03 20	704	0.7+	0.3+	1998 03 24	699	1.0+	0.0
1990 11 14	809	0.5+	0.9-	1998 03 20	704	0.3-	0.2-	1998 03 24	699	0.0	0.2-
1992 03 01	809	1.2-	0.1-	1998 03 20	704	0.2-	0.6+	1998 04 01	704	1.1+	0.0
1992 03 03	809	1.0-	1.3-	1998 03 20	704	0.6-	0.7+	1998 04 01	704	1.0+	0.2-
1992 03 06	809	0.8+	0.3-	1998 03 22	704	0.7+	0.1-	1998 04 01	704	0.9-	0.1+
1992 03 06	372	0.9+	0.2-	1998 03 22	704	0.0	0.4-	1998 04 01	704	0.2+	0.0
1992 03 06	372	0.1+	0.1+	1998 03 22	704	0.5-	1.6+	1998 04 01	704	0.2+	0.7-

1998 FS₆₈ = 1994 BK₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	252.26984	(2000.0)	P		Q	
<i>n</i>	0.29031586	ω	36.15933	+0.27954733	+0.95875534	
<i>a</i>	2.2588577	Ω	250.12335	-0.89323358	+0.24006528	
<i>e</i>	0.1158452	<i>i</i>	3.13284	-0.35211797	+0.15217379	
<i>P</i>	3.39	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i> 7

Residuals in seconds of arc

1994 01 16	010	1.5+	1.2+	1998 03 20	704	1.2+	0.0	1998 03 24	699	0.7+	0.0
1994 01 17	010	0.6-	1.1-	1998 03 22	704	0.2-	0.3-	1998 04 01	704	0.0	0.9-
1994 01 17	010	0.2+	0.1+	1998 03 22	704	0.2-	0.4-	1998 04 01	704	0.6-	0.0
1994 01 17	010	1.1-	0.2-	1998 03 22	704	0.1-	0.3+	1998 04 01	704	0.2+	0.1-
1998 03 20	704	2.6-	1.3-	1998 03 22	704	0.0	0.2-	1998 04 01	704	0.4+	0.2-
1998 03 20	704	0.2+	0.7+	1998 03 22	704	0.6-	0.8+	1998 04 01	704	0.3-	0.1-
1998 03 20	704	1.2+	0.0	1998 03 24	699	0.5+	0.6+				
1998 03 20	704	0.3+	0.5+	1998 03 24	699	0.0	0.6+				

1998 FD₇₁ = 1982 BG₁₃ = 1986 CA₁ = 1990 EJ₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	39.06221	(2000.0)	P		Q	
<i>n</i>	0.25278882	ω	122.29413	-0.37476968	-0.92709809	
<i>a</i>	2.4772175	Ω	349.71056	+0.83878401	-0.33626712	
<i>e</i>	0.1777333	<i>i</i>	1.94666	+0.39495452	-0.16557039	
<i>P</i>	3.90	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1982 01 30	675	0.6-	0.3-	1990 03 08	809	0.4-	0.4-	1998 03 22	704	1.6+	0.2+
1982 01 31	675	0.7+	0.3+	1990 03 08	809	0.1+	0.4-	1998 03 22	704	(3.0-	0.9-)
1986 02 09	801	0.8+	1.7+	1998 03 20	704	1.3-	0.1+	1998 03 24	699	0.5-	0.6+
1990 03 05	809	0.5-	0.5-	1998 03 20	704	0.4-	1.1-	1998 03 24	699	0.3+	1.1+
1990 03 05	809	0.5-	0.5-	1998 03 20	704	1.0+	1.4-	1998 03 24	699	0.2+	0.5+
1990 03 05	809	0.5-	0.4-	1998 03 20	704	1.8+	0.8-	1998 04 01	704	0.3+	0.7-
1990 03 07	809	0.2-	0.1-	1998 03 20	704	0.5+	1.0-	1998 04 01	704	0.4-	0.7+
1990 03 07	809	0.2+	0.1-	1998 03 22	704	0.2-	0.8+	1998 04 01	704	0.3-	0.6+
1990 03 07	809	0.4+	0.0	1998 03 22	704	0.9-	0.4+	1998 04 01	704	0.8-	1.1+
1990 03 08	809	0.4-	0.2-	1998 03 22	704	0.4+	0.3-	1998 04 01	704	0.5-	0.5+

1998 FP₇₃ = 1992 AC₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	56.62240	(2000.0)	P		Q	
<i>n</i>	0.18435175	ω	341.97181	-0.20445710	-0.97714903	
<i>a</i>	3.0575333	Ω	119.79062	+0.90614284	-0.21138792	
<i>e</i>	0.1341715	<i>i</i>	3.83950	+0.37027348	-0.02224682	
<i>P</i>	5.35	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i> 6

Residuals in seconds of arc

1992 01 11	303	0.2-	0.3+	1998 03 31	557	0.2-	0.6+	1998 04 05	557	0.1+	0.2-
1992 01 12	303	0.2+	0.3-	1998 04 01	557	0.0	0.3+	1998 04 05	557	0.1+	0.4-
1998 03 31	557	0.2-	0.1+	1998 04 01	557	0.0	0.1+				
1998 03 31	557	0.4+	0.4-	1998 04 05	557	0.1-	0.1-				

4053 P-L = 1998 FV₆₈

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<i>M</i>	266.39250	(2000.0)	P		Q	
<i>n</i>	0.25207194	ω	60.68634	+0.09408914	+0.99355282	
<i>a</i>	2.4819120	Ω	214.88859	-0.94746991	+0.06985653	
<i>e</i>	0.1106071	<i>i</i>	6.34834	-0.30569267	+0.08929087	
<i>P</i>	3.91	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1960 09 24	675	0.8-	0.2-	1998 03 20	704	0.6+	0.8-	1998 03 24	699	1.4+	0.5-
1960 09 25	675	0.4+	0.2+	1998 03 20	704	(2.2+	2.3+)	1998 03 24	699	0.5-	0.6+

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1960 09 26	675	0.1−	0.4−	1998 03 20	704	0.7−	0.8+	1998 03 24	699	0.7−	0.4−
1960 09 28	675	0.5+	0.5+	1998 03 20	704	(0.5−	2.1−)	1998 04 01	704	0.1+	0.4−
1960 10 17	675	0.2−	0.2−	1998 03 22	704	0.2+	0.3−	1998 04 01	704	0.8−	0.2−
1960 10 22	675	0.1+	0.5−	1998 03 22	704	1.0+	0.3+	1998 04 01	704	0.3+	0.3+
1960 10 24	675	0.3+	1.0+	1998 03 22	704	0.8+	0.6+	1998 04 01	704	1.1−	0.5+
1960 10 26	675	0.1−	0.7−	1998 03 22	704	0.1+	0.4−	1998 04 01	704	0.4−	0.2+
1998 03 20	704	0.3+	0.9−	1998 03 22	704	0.7−	0.1+				

4071 P-L = 1998 FY₁₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	199.52947	(2000.0)	P		Q	
<i>n</i>	0.27575886	ω	109.12236	+0.62035489	+0.78369652	
<i>a</i>	2.3376693	Ω	199.32217	−0.75046364	+0.58150462	
<i>e</i>	0.1007192	<i>i</i>	5.42777	−0.22795642	+0.21833951	
<i>P</i>	3.57	<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+	0.5+	1998 03 03	704	0.3−	1.1−	1998 03 20	704	(3.1+	3.1−)
1960 09 25	675	0.5−	0.4+	1998 03 03	704	0.0	0.6+	1998 03 20	704	0.5−	1.0−
1960 09 26	675	0.1+	0.3+	1998 03 03	704	(2.6+	1.0+)	1998 03 20	704	0.2+	0.1+
1960 09 28	675	0.1−	0.1−	1998 03 03	704	1.1+	0.6+	1998 03 20	704	0.0	1.7−
1960 10 17	675	0.3−	0.3+	1998 03 04	704	(2.3−	0.4−)	1998 03 22	704	0.7+	1.2+
1960 10 17	675	0.8+	1.1−	1998 03 04	704	0.2−	0.7−	1998 03 22	704	0.5−	1.4+
1960 10 22	675	0.5−	0.4+	1998 03 04	704	0.6−	0.3−	1998 03 22	704	(2.6−	1.8+)
1960 10 26	675	0.2−	0.3−	1998 03 04	704	0.2−	0.0	1998 03 22	704	0.8+	0.6+
1998 03 03	704	(0.6+	2.4−)	1998 03 20	704	0.3−	0.9+				

4134 P-L = 1998 FS₁₀

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	17.97722	(2000.0)	P		Q	
<i>n</i>	0.30122844	ω	140.79646	−0.66802211	−0.74399080	
<i>a</i>	2.2039686	Ω	351.08287	+0.65615009	−0.57942179	
<i>e</i>	0.0757556	<i>i</i>	5.54273	+0.35101785	−0.33278833	
<i>P</i>	3.27	<i>H</i>	17.0	<i>G</i>	0.15	<i>U</i> 6

Residuals in seconds of arc

1960 09 24	675	0.2−	0.5−	1998 03 20	704	0.1+	0.5+	1998 03 26	910	0.8+	0.0
1960 09 25	675	0.4−	0.4+	1998 03 20	704	1.1−	0.6+	1998 04 01	704	0.5−	0.6+
1960 09 25	675	1.1+	2.2−	1998 03 20	704	0.4−	1.1−	1998 04 01	704	1.1−	0.7−
1960 09 26	675	0.5+	0.3+	1998 03 24	910	0.7+	0.2−	1998 04 01	704	(3.7−	0.0)
1960 09 26	675	1.6−	0.5−	1998 03 25	910	1.0+	0.0	1998 04 01	704	1.7−	0.6+
1960 09 28	675	0.9+	1.5+	1998 03 25	910	0.7+	0.3−	1998 04 01	704	(5.0−	1.1+)
1960 09 28	675	0.0	0.4+	1998 03 25	910	0.9+	0.2+				
1998 03 20	704	0.8−	1.0−	1998 03 25	910	1.1+	0.0				

4584 P-L = 1998 FJ₁₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	124.01615	(2000.0)	P		Q	
<i>n</i>	0.27481388	ω	218.71096	+0.90198348	−0.43113255	
<i>a</i>	2.3430251	Ω	166.76876	+0.41725237	+0.85639310	
<i>e</i>	0.2112993	<i>i</i>	5.88393	+0.11102373	+0.28410489	
<i>P</i>	3.59	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1960 09 24	675	0.2−	0.4−	1998 03 20	704	0.2+	1.2+	1998 03 22	704	(0.6+	2.7−)
1960 09 26	675	0.2+	0.5+	1998 03 20	704	0.9−	1.3+	1998 03 22	704	(4.8−	2.7−)
1960 09 27	675	0.4+	0.1+	1998 03 20	704	0.6−	0.5+	1998 03 28	595	1.2+	1.6−
1960 09 28	675	0.1+	0.0	1998 03 20	704	0.2−	0.7+	1998 03 28	595	1.0+	0.8−
1960 10 17	675	0.3−	0.4−	1998 03 20	704	1.6−	1.4+	1998 03 28	595	0.1+	0.4−
1960 10 22	675	0.0	0.1+	1998 03 22	704	(2.2+	0.9+)	1998 03 28	595	0.1+	0.2−
1960 10 25	675	0.1−	0.5−	1998 03 22	704	0.2−	1.0−				
1960 10 26	675	0.1−	0.2+	1998 03 22	704	1.0+	1.3−				

4651 P-L = 1994 PW₉

Id. B. G. Marsden (*MPC* 24402)

M.P.C. 31573

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	316.27904	(2000.0)	P		Q	
<i>n</i>	0.17142692	ω	9.27127	−0.83135875	+0.55572963	
<i>a</i>	3.2093472	Ω	204.49030	−0.51029198	−0.76528019	
<i>e</i>	0.1235254	<i>i</i>	0.37100	−0.22010162	−0.32482428	
<i>P</i>	5.75	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1960 09 24	675	0.5+	0.8+	1994 08 10	809	0.8−	1.5−	1998 03 20	704	0.1+	0.3+
1960 09 25	675	0.3−	1.0+	1994 08 11	809	1.0+	0.1+	1998 03 20	704	0.8+	0.4−
1960 09 26	675	0.3+	1.2+	1994 08 11	809	1.0+	0.3+	1998 03 20	704	0.2+	0.1+
1960 09 26	675	0.2−	0.2+	1994 08 11	809	0.4+	0.2−	1998 03 20	704	0.5−	0.6+
1960 09 28	675	0.2−	0.6+	1994 09 03	809	0.3+	0.9+	1998 03 20	704	0.5+	0.1+
1960 10 22	675	0.2−	1.5−	1994 09 03	809	0.2−	0.3+	1998 03 22	704	0.1+	0.4−
1960 10 25	675	0.2−	1.4−	1994 09 03	809	0.6−	0.8+	1998 03 22	704	0.1+	0.2−
1960 10 26	675	0.5+	1.4−	1994 09 04	809	0.5+	0.2+	1998 03 22	704	0.6−	0.0
1994 08 10	809	0.8−	1.4−	1994 09 04	809	0.1+	0.7+	1998 03 22	704	0.1+	0.2+
1994 08 10	809	1.0−	1.5−	1994 09 04	809	0.1+	1.1+	1998 03 22	704	1.0−	0.4−

5016 P-L = 2198 T-2

Id. D. W. E. Green (*MPC* 14960)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	294.59167	(2000.0)	P		Q	
<i>n</i>	0.30217323	ω	205.22702	−0.76945206	+0.63834212	
<i>a</i>	2.1993722	Ω	14.50365	−0.57047247	−0.67171405	
<i>e</i>	0.1081195	<i>i</i>	4.92807	−0.28723629	−0.37592495	
<i>P</i>	3.26	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1960 10 22	675	1.0−	1.5−	1973 10 05	675	2.2+	0.5+	1998 03 20	704	0.1−	0.3+
1960 10 25	675	1.4+	0.7+	1996 10 08	691	1.2−	0.4+	1998 03 20	704	0.3−	0.3−
1960 10 26	675	0.4−	0.2+	1996 10 08	691	0.9−	0.5+	1998 03 20	704	0.1−	0.8+
1973 09 19	675	0.4−	2.1−	1996 10 08	691	1.1−	0.5+	1998 03 20	704	0.7−	0.2+
1973 09 19	675	0.1−	1.5−	1996 10 11	566	0.9+	0.1−	1998 03 22	704	0.2+	0.0
1973 09 20	675	0.5−	1.2−	1996 10 11	566	0.6+	0.2+	1998 03 22	704	0.5+	0.3−
1973 09 24	675	2.0−	0.1+	1996 10 11	566	0.7+	0.3+	1998 03 22	704	1.2+	0.5−
1973 09 24	675	(3.0−	0.6+)	1998 02 26	566	0.5+	1.3−	1998 03 22	704	0.6−	0.6+
1973 09 25	675	(1.4−	3.3−)	1998 02 26	566	0.1+	0.7−	1998 03 22	704	0.3+	1.4−
1973 09 25	675	0.0	0.8−	1998 02 26	566	0.4+	1.0−	1998 03 26	704	0.7−	0.2−
1973 09 29	675	0.3+	0.8+	1998 02 27	809	0.3−	0.7+	1998 03 26	704	0.9−	0.2+
1973 09 29	675	1.2−	0.6+	1998 02 27	809	0.1+	0.2+	1998 03 26	704	0.7−	0.3+
1973 09 30	675	1.9+	0.4+	1998 02 27	809	0.0	0.2−	1998 03 26	566	1.0−	0.9−
1973 09 30	675	0.6+	1.1−	1998 02 28	809	(2.2+	2.0+)	1998 03 26	566	1.1−	1.1−
1973 10 04	675	1.3+	0.6−	1998 02 28	809	1.0+	1.4+	1998 03 26	566	1.3−	1.0−
1973 10 04	675	1.0+	0.2−	1998 02 28	809	1.8+	1.2+				
1973 10 05	675	(2.7+	1.5−)	1998 03 20	704	0.1−	0.3−				

6044 P-L = 1998 GB₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	284.26448	(2000.0)	P		Q	
<i>n</i>	0.19906074	ω	303.09885	−0.16188646	+0.98669154	
<i>a</i>	2.9049967	Ω	317.57635	−0.89768003	−0.15366553	
<i>e</i>	0.0239148	<i>i</i>	1.29536	−0.40983330	−0.05316681	
<i>P</i>	4.95	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1960 09 24	675	0.7−	0.0	1960 10 22	675	0.2−	0.7−	1998 04 04	888	0.3−	0.1+
1960 09 25	675	0.5+	0.9+	1960 10 24	675	0.1+	0.2−	1998 04 04	888	0.1+	0.2−
1960 09 26	675	0.5+	0.7−	1960 10 26	675	0.7+	0.3+	1998 04 04	888	0.1−	0.1−
1960 09 28	675	0.3+	0.3+	1998 04 03	385	0.2+	0.1−				
1960 10 17	675	1.2−	0.2−	1998 04 03	385	0.1+	0.2+				

1081 T-1 = 1221 T-2

Id. S. Nakano (*MPC* 19877), T. Kobayashi (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	279.37866		(2000.0)		P		Q				
<i>n</i>	0.18217671	ω	342.35239		-0.31985430		+0.94702141				
<i>a</i>	3.0818214	Ω	268.98576		-0.86574293		-0.30458331				
<i>e</i>	0.0621309	<i>i</i>	1.66472		-0.38494467		-0.10187963				
<i>P</i>	5.41	<i>H</i>	13.0		<i>G</i>	0.15	<i>U</i>	1			
Residuals in seconds of arc											
1971 03 24	675	0.6+	1.2-	1973 09 29	675	1.7+	0.2-	1998 03 20	704	0.5+	0.6+
1971 03 25	675	0.5-	0.6+	1973 09 29	675	0.6+	0.5-	1998 03 20	704	0.2-	0.3-
1971 03 25	675	1.0-	0.1+	1973 09 30	675	0.7+	0.2+	1998 03 20	704	0.3-	0.5+
1971 03 26	675	0.4+	0.5-	1973 09 30	675	0.2+	1.2+	1998 03 22	704	0.2+	0.5+
1971 03 27	675	0.6+	2.0-	1973 10 04	675	0.8+	0.5-	1998 03 22	704	(1.7-	2.6-)
1971 04 02	675	1.0-	1.1+	1973 10 04	675	1.5+	1.5-	1998 03 22	704	0.8+	0.3+
1973 09 19	675	0.2+	0.3-	1973 10 05	675	0.8+	0.9-	1998 03 22	704	1.3+	0.7-
1973 09 19	675	1.1+	0.5+	1973 10 05	675	0.3+	0.0	1998 04 01	704	0.3-	0.9-
1973 09 20	675	2.5-	0.1+	1996 12 20	327	0.8+	0.1+	1998 04 01	704	0.6-	0.4-
1973 09 24	675	2.1-	0.3+	1996 12 20	327	0.5-	0.4+	1998 04 01	704	1.3-	0.9-
1973 09 24	675	0.4-	1.0-	1996 12 20	327	0.3-	0.2-	1998 04 01	704	(0.5+	2.6-)
1973 09 25	675	(1.7-	3.7-)	1998 03 20	704	0.0	0.4+	1998 04 01	704	(1.8-	2.7-)
1973 09 25	675	1.5-	0.6-	1998 03 20	704	0.7-	0.4-				

1145 T-1 = 1998 FN₁₄

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	3.09596		(2000.0)			P		Q			
<i>n</i>	0.25547508	ω	191.94159			-0.84987408		-0.52514735			
<i>a</i>	2.4598220	Ω	316.28792			+0.48858736		-0.75392626			
<i>e</i>	0.1296256	<i>i</i>	3.64904			+0.19747514		-0.39473466			
<i>P</i>	3.86	<i>H</i>	15.5			<i>G</i> 0.15		<i>U</i> 5			
Residuals in seconds of arc											
1971 03 24	675	0.0	1.5-	1998 03 20	704	0.2+	0.0	1998 03 28	910	0.4+	0.6-
1971 03 25	675	0.5+	1.3+	1998 03 20	704	0.4-	0.0	1998 03 28	910	0.6+	0.6-
1971 03 25	675	(0.3-	2.9+)	1998 03 20	704	0.1-	0.3+	1998 03 28	910	0.6+	0.1-
1971 03 26	675	0.5-	1.1+	1998 03 22	704	0.1+	0.1+	1998 03 28	910	0.7+	0.3-
1971 03 27	675	0.1-	0.1+	1998 03 22	704	0.1+	0.6-	1998 03 29	910	0.0	0.1-
1971 04 02	675	0.5-	0.1+	1998 03 22	704	0.0	0.0	1998 04 01	704	0.2+	0.9+
1971 04 16	675	0.1-	0.6-	1998 03 22	704	0.2-	0.4+	1998 04 01	704	0.9-	0.5+
1971 04 16	675	0.7+	1.1-	1998 03 22	704	0.8-	0.2-	1998 04 01	704	0.1-	0.5+
1971 05 13	675	0.3+	0.1-	1998 03 26	910	0.6+	0.1+	1998 04 01	704	1.3-	0.8+
1971 05 14	675	0.3-	0.5+	1998 03 27	910	0.3+	0.3-	1998 04 01	704	0.4-	0.3+
1998 03 20	704	0.2-	0.1+	1998 03 27	910	0.5+	0.4-				
1998 03 20	704	0.1+	0.3-	1998 03 28	910	0.2+	0.5-				

1230 T-1 = 1984 BF₃Id. E. Bowell (*MPC* 25076)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	272.54223		(2000.0)		P		Q			
<i>n</i>	0.29312840	ω	301.77702		+0.01570148		+0.99968179			
<i>a</i>	2.2443855	Ω	329.10415		-0.90387702		+0.00574897			
<i>e</i>	0.1394853	<i>i</i>	2.20352		-0.42750414		+0.02456145			
<i>P</i>	3.36	<i>H</i>	15.5		<i>G</i> 0.15		<i>U</i> 5			
Residuals in seconds of arc										
1971 03 24	675	0.4+	0.9+	1971 04 16	675	(0.2+	2.8-)	1998 04 01	704	0.2- 0.0
1971 03 25	675	1.5+	0.6+	1984 01 25	675	0.7-	0.2-	1998 04 01	704	1.0+ 0.7-
1971 03 25	675	0.4-	0.1-	1984 01 26	675	0.7+	0.4+	1998 04 01	704	0.2- 0.1+
1971 03 26	675	1.1+	1.6-	1998 03 25	704	0.4+	0.2+	1998 04 01	704	1.9- 0.4-
1971 03 27	675	1.2-	0.7-	1998 03 25	704	1.7+	0.6+	1998 04 01	704	0.1- 0.1+
1971 04 02	675	2.0-	0.5-	1998 03 25	704	(2.5-	0.0)			
1971 04 16	675	(0.1+	4.4-)	1998 03 25	704	0.1-	1.3+			

1274 T-1 = 1986 RV₁₂ = 1996 BN₄ = 1997 XB₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	195.27893		(2000.0)			P		Q			
<i>n</i>	0.21862689	ω	326.88643			+0.88619358		+0.46323748			
<i>a</i>	2.7289799	Ω	5.53759			-0.40368848		+0.78100084			
<i>e</i>	0.1054508	<i>i</i>	5.04374			-0.22736875		+0.41886599			
<i>P</i>	4.51	<i>H</i>	14.0			<i>G</i> 0.15		<i>U</i> 3			
Residuals in seconds of arc											
1971 03 24	675	0.6-	0.5-	1971 05 13	675	1.6+	1.0+	1998 03 04	704	1.7-	0.2+
1971 03 24	675	0.1+	2.0+	1971 05 14	675	1.2+	1.3+	1998 03 04	704	1.7-	0.2+
1971 03 25	675	0.1+	1.5-	1986 09 09	095	0.8+	0.9+	1998 03 04	704	2.0-	1.6-
1971 03 25	675	0.7-	1.0+	1996 01 22	704	2.3-	0.4-	1998 03 20	704	1.5+	0.7-
1971 03 25	675	1.9-	0.9+	1996 01 24	704	(10.6-	2.2-)	1998 03 20	704	0.3-	1.3+
1971 03 26	675	(2.6+	0.8-)	1997 12 07	910	1.1+	0.1+	1998 03 20	704	0.3-	0.7-
1971 03 27	675	1.6-	0.8-	1997 12 07	910	0.6+	0.0	1998 03 20	704	0.5+	0.1+
1971 04 02	675	1.2-	1.4+	1997 12 07	910	0.9+	0.3+	1998 03 22	704	0.9+	0.2-
1971 04 02	675	1.2+	0.9-	1997 12 08	910	0.9+	0.2+	1998 03 22	704	0.3+	0.3-
1971 04 16	675	1.4+	1.6-	1997 12 08	910	0.9+	0.3+	1998 03 22	704	0.2+	0.2-
1971 04 16	675	1.0+	0.5+	1997 12 08	910	0.8+	0.1+	1998 03 22	704	0.2-	0.1-
1971 04 16	675	0.8-	0.9-	1998 03 04	704	0.4+	0.1+	1998 03 22	704	0.7+	0.7+
1971 04 16	675	1.2+	0.2+	1998 03 04	704	1.5-	0.4-				

2301 T-1 = 1998 FK₃₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	119.99930		(2000.0)		P		Q				
<i>n</i>	0.29089523	ω	356.83319		+0.94473713		−0.32528198				
<i>a</i>	2.2558574	Ω	22.28261		+0.30309129		+0.81925284				
<i>e</i>	0.1829119	<i>i</i>	6.17477		+0.12492969		+0.47224615				
<i>P</i>	3.39	<i>H</i>	14.5		<i>G</i> 0.15		<i>U</i> 7				
Residuals in seconds of arc											
1971 03 24	675	0.7+	0.9−	1998 03 20	704	0.9+	0.8+	1998 03 22	704	0.1+	0.2−
1971 03 25	675	0.5−	0.3+	1998 03 20	704	1.0−	0.3+	1998 03 22	704	0.3−	0.1−
1971 03 25	675	0.2−	0.2−	1998 03 20	704	0.1−	0.2−	1998 03 22	704	0.3+	1.0−
1971 03 26	675	0.6+	1.7+	1998 03 20	704	0.4−	0.5−	1998 03 22	704	0.6−	0.8+
1971 03 27	675	0.2−	1.2−	1998 03 20	704	0.4−	0.1+				
1971 04 02	675	0.4−	0.4+	1998 03 22	704	1.5+	0.0				

3274 T-1 = 1998 FS₅₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	154.06137		(2000.0)		P		Q				
<i>n</i>	0.21896178	ω	189.68568		+0.97838869		−0.20657065				
<i>a</i>	2.7261966	Ω	182.29719		+0.20170915		+0.96324160				
<i>e</i>	0.1772452	<i>i</i>	13.22940		+0.04548623		+0.17173872				
<i>P</i>	4.50	<i>H</i>	13.5		<i>G</i> 0.15		<i>U</i> 5				
Residuals in seconds of arc											
1971 03 24	675	0.1−	0.3−	1971 04 16	675	0.3−	0.1−	1998 03 20	704	1.1−	1.6−
1971 03 25	675	0.2+	0.3+	1971 04 16	675	0.8−	1.8+	1998 03 22	704	0.2−	0.0
1971 03 26	675	0.4+	0.1−	1971 05 13	675	0.4+	0.3+	1998 03 22	704	0.0	1.0+
1971 03 26	675	2.1−	1.4−	1971 05 14	675	0.4−	0.7−	1998 03 22	704	0.3−	0.2+
1971 03 26	675	0.6−	0.1−	1971 05 16	675	0.1−	0.4−	1998 03 22	704	0.2−	0.5−
1971 03 26	675	0.6−	1.0−	1998 03 20	704	0.3−	0.6+	1998 03 22	704	0.1−	0.4+
1971 03 27	675	0.3+	0.2+	1998 03 20	704	0.6−	1.0+	1998 03 25	699	0.2+	0.5+
1971 03 27	675	1.5+	0.0	1998 03 20	704	1.0+	0.6+	1998 03 25	699	1.1+	0.3−
1971 04 02	675	2.1+	0.4+	1998 03 20	704	0.5+	0.4−	1998 03 25	699	0.2+	0.5−

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4111 T-1 = 1998 FQ₅₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	301.77310	(2000.0)	P		Q		Williams	
<i>n</i>	0.18204720	ω	185.25378	-0.61816541	+0.78392998			
<i>a</i>	3.0832830	Ω	46.57923	-0.71826236	-0.53353256			
<i>e</i>	0.1009636	<i>i</i>	4.55370	-0.31932853	-0.31748509			
<i>P</i>	5.41	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5	
Residuals in seconds of arc								
1971 03 24	675	0.4+	2.2-	1971 04 16	675	0.7-	1.3-	1998 03 22 704 1.8+ 0.9+
1971 03 26	675	0.2+	0.0	1971 05 13	675	0.7+	0.5+	1998 03 22 704 1.1- 1.0-
1971 03 26	675	1.5+	0.8+	1971 05 14	675	0.1-	0.4+	1998 03 22 704 0.2+ 1.3-
1971 03 27	675	0.1-	2.1-	1998 03 20	704	0.5+	0.0	1998 03 22 704 0.6+ 0.2-
1971 04 02	675	(5.2+ 0.3-)		1998 03 20	704	0.0	2.4+	1998 03 22 704 1.9- 0.6+
1971 04 02	675	2.2-	3.0+	1998 03 20	704	0.7+	0.2-	
1971 04 16	675	0.1-	0.3-	1998 03 20	704	(5.3- 0.1+)		

4265 T-1 = 1998 FT₆₇

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	43.36676	(2000.0)	P		Q		Williams	
<i>n</i>	0.29256312	ω	8.18670	-0.30972716	-0.94984891			
<i>a</i>	2.2472756	Ω	99.86418	+0.86986965	-0.30136065			
<i>e</i>	0.1057161	<i>i</i>	2.50630	+0.38392171	-0.08347932			
<i>P</i>	3.37	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	6	
Residuals in seconds of arc								
1971 03 24	675	0.2+	1.0+	1971 05 14	675	0.0	1.2+	1998 03 22 704 0.3+ 0.5+
1971 03 26	675	(3.1- 0.3-)		1971 05 14	675	0.4-	0.5-	1998 03 22 704 0.4+ 0.7+
1971 03 26	675	0.1+	1.1+	1971 05 16	675	1.0+	0.8+	1998 03 22 704 0.2- 0.6-
1971 03 27	675	1.5-	1.5-	1998 03 20	704	1.5-	0.5-	1998 03 22 704 0.3- 1.4+
1971 04 02	675	0.8+	0.6+	1998 03 20	704	1.0+	0.2-	1998 03 24 699 0.7+ 0.6-
1971 04 16	675	0.0	1.7-	1998 03 20	704	0.6+	0.6+	1998 03 24 699 0.9- 0.0
1971 04 16	675	0.0	0.9-	1998 03 20	704	0.0	0.3-	1998 03 24 699 0.0 0.7-
1971 05 13	675	0.4+	0.5-	1998 03 20	704	0.7+	0.0	
1971 05 13	675	0.9-	0.1+	1998 03 22	704	0.4-	0.2+	

4623 T-1 = 1998 FH₁₈

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	70.89979	(2000.0)	P		Q		Williams	
<i>n</i>	0.21717123	ω	252.44837	+0.55573115	-0.83116209			
<i>a</i>	2.7411609	Ω	163.75145	+0.78534164	+0.51764612			
<i>e</i>	0.1609906	<i>i</i>	3.73642	+0.27276621	+0.20300758			
<i>P</i>	4.54	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	7	
Residuals in seconds of arc								
1971 05 13	675	0.3-	0.1+	1998 03 20	704	0.8+	0.6-	1998 03 22 704 0.4- 0.8+
1971 05 14	675	0.3+	0.9+	1998 03 20	704	0.5+	0.6-	1998 03 22 704 0.6- 0.6+
1971 05 16	675	0.0	1.0-	1998 03 20	704	0.5-	0.2-	1998 03 22 704 0.7- 0.2-
1998 03 20	704	1.5+	0.5-	1998 03 22	704	0.1-	1.0+	
1998 03 20	704	0.7+	0.6-	1998 03 22	704	1.4-	0.2+	

1059 T-2 = 1998 FQ₆₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	268.55700	(2000.0)	P		Q		Williams	
<i>n</i>	0.26353903	ω	52.03849	-0.14907366	+0.98827316			
<i>a</i>	2.4093844	Ω	209.43912	-0.92702152	-0.15131386			
<i>e</i>	0.0438252	<i>i</i>	3.85725	-0.34410486	-0.02050042			
<i>P</i>	3.74	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	6	
Residuals in seconds of arc								
1973 09 19	675	0.6+	0.7+	1973 09 30	675	2.7-	0.3-	1998 03 22 704 0.2- 0.3+
1973 09 19	675	0.8-	0.2-	1973 10 04	675	2.1+	2.0-	1998 03 22 704 0.5- 0.0
1973 09 20	675	0.5-	0.4-	1973 10 04	675	1.6+	1.3-	1998 03 22 704 0.3+ 0.3-
1973 09 24	675	0.5+	0.5-	1973 10 05	675	0.2-	0.2+	1998 03 22 704 0.8- 0.8-

1973 09 24	675	1.1+	0.6-	1973 10 05	675	1.3+	1.3+	1998 03 22 704 0.2- 0.3-
1973 09 25	675	1.8-	0.7-	1998 03 20	704	0.0	0.2+	1998 04 01 704 0.5- 0.5+
1973 09 25	675	0.5-	0.9+	1998 03 20	704	0.3+	0.4-	1998 04 01 704 0.1+ 0.3+
1973 09 29	675	1.3+	1.6+	1998 03 20	704	0.9+	0.1+	1998 04 01 704 0.3- 0.5-
1973 09 29	675	0.1+	0.1-	1998 03 20	704	0.7+	0.3+	1998 04 01 704 0.2+ 0.2+
1973 09 30	675	1.9-	0.9+	1998 03 20	704	0.1-	0.1-	

1364 T-2 = 1998 FA₄₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	193.49633	(2000.0)	P		Q		Williams	
<i>n</i>	0.22175796	ω	131.57138	+0.88012804	+0.47340840			
<i>a</i>	2.7032315	Ω	200.25153	-0.46034761	+0.83280221			
<i>e</i>	0.0467454	<i>i</i>	5.88390	-0.11599441	+0.28692328			
<i>P</i>	4.44	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5	
Residuals in seconds of arc								
1973 09 19	675	0.1-	1.3+	1973 10 04	675	0.2+	0.3-	1998 03 20 704 (4.1- 0.3+)
1973 09 19	675	0.0	2.1+	1973 10 05	675	0.1-	0.8-	1998 03 22 704 0.5+ 0.1+
1973 09 20	675	0.7+	1.2-	1973 10 05	675	0.1-	0.5-	1998 03 22 704 0.6- 0.5-
1973 09 24	675	1.4+	0.6-	1998 03 04	704	1.5-	0.0	1998 03 22 704 0.4+ 0.7+
1973 09 24	675	2.3+	0.5-	1998 03 04	704	(2.8- 0.3+)		1998 03 22 704 0.6- 0.3+
1973 09 25	675	0.9-	1.4-	1998 03 04	704	(3.2- 0.5-)		1998 03 22 704 1.3- 0.7-
1973 09 25	675	0.3-	1.3-	1998 03 04	704	0.9-	1.3+	1998 04 01 704 1.1+ 0.5-
1973 09 29	675	1.1+	0.6+	1998 03 04	704	(5.8- 0.6+)		1998 04 01 704 (2.1+ 0.1+)
1973 09 29	675	0.2-	0.8+	1998 03 20	704	0.6+	0.6-	1998 04 01 704 0.9+ 0.2-
1973 09 30	675	1.9-	1.3+	1998 03 20	704	0.6+	0.1+	1998 04 01 704 0.0- 0.9-
1973 09 30	675	1.9-	0.8+	1998 03 20	704	0.2-	0.3+	1998 04 01 704 1.3+ 0.9-
1973 10 04	675	0.2+	0.8-	1998 03 20	704	0.6-	0.8+	

1474 T-2 = 1998 FN₄₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	237.97866	(2000.0)	P		Q		Williams	
<i>n</i>	0.30535784	ω	67.56083	+0.37790787	+0.92528037			
<i>a</i>	2.1840538	Ω	224.68572	-0.86542801	+0.34064547			
<i>e</i>	0.1664688	<i>i</i>	2.63083	-0.32896809	+0.16678399			
<i>P</i>	3.23	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5	
Residuals in seconds of arc								
1973 09 19	675	0.9-	0.3+	1973 10 04	675	0.6+	0.6-	1998 03 22 704 1.1+ 0.1-
1973 09 19	675	1.1-	1.7+	1973 10 04	675	0.2-	0.3-	1998 03 22 704 1.2+ 0.1+
1973 09 20	675	1.7+	1.3-	1973 10 05	675	0.2+	0.7-	1998 03 22 704 0.2- 1.0-
1973 09 24	675	1.7+	0.4-	1973 10 05	675	0.4-	1.4-	1998 03 22 704 0.2- 0.4+
1973 09 24	675	0.4+	0.2-	1998 03 20	704	0.2+	1.0-	1998 04 01 704 1.4+ 0.1-
1973 09 25	675	0.3+	0.8-	1998 03 20	704	0.4+	0.9+	1998 04 01 704 0.8+ 0.0
1973 09 25	675	1.2-	0.5-	1998 03 20	704	0.4-	1.4+	1998 04 01 704 0.8- 0.7-
1973 09 29	675	(2.8- 0.4-)		1998 03 20	704	0.3+	0.2+	1998 04 01 704 1.7- 0.8-
1973 09 30	675	1.3-	2.4+	1998 03 20	704	1.8-	0.7+	1998 04 01 704 0.2+ 0.1+
1973 09 30	675	0.2+	1.7+	1998 03 22	704	0.4-	0.2-	

2115 T-2 = 1998 FO₂₁

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	21.72485	(2000.0)	P		Q		Williams	
<i>n</i>	0.29818262	ω	97.03005	-0.37925710	-0.92524243			
<i>a</i>	2.2189516	Ω	15.26819	+0.83403909	-0.34628870			
<i>e</i>	0.0806986	<i>i</i>	2.07025	+0.40067799	-0.15495348			
<i>P</i>	3.31	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	6	
Residuals in seconds of arc								
1973 09 19	675	0.9-	0.1-	1973 09 30	675	0.1-	0.0	1998 03 20 704 0.5+ 0.3-
1973 09 19	675	(2.9+ 0.1+)		1973 10 04	675	0.0	0.1-	1998 03 20 704 0.1+ 0.3-
1973 09 20	675	1.7-	0.5-	1973 10 04	675	2.0+	0.1-	1998 03 20 704 0.0 0.3-
1973 09 24	675	1.5-	1.6+	1973 10 05	675	0.5+	0.1-	1998 03 20 704 0.8+ 0.3+
1973 09 24	675	2.3-	2.3+	1973 10 05	675	1.6+	0.0	1998 03 20 704 0.7+ 0.6+
1973 09 25	675	1.2+	1.3-	1998 03 03	704	0.2+	0.4-	1998 03 22 704 0.2+ 0.1-
1973 09 25	675	0.4+	0.1-	1998 03 03	704	0.5-	0.6-	1998 03 22 704 0.2- 1.4+

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1973 09 29	675	0.2−	0.3−	1998 03 03	704	0.3−	0.3−	1998 03 22	704	0.8−	0.3−
1973 09 29	675	0.2+	0.5−	1998 03 03	704	0.3−	0.0	1998 03 22	704	0.3−	0.1+
1973 09 30	675	0.4+	0.1+	1998 03 03	704	0.3−	0.5+	1998 03 22	704	0.5+	0.5+

2231 T-2 = 1996 TF₆₃

Id. G. V. Williams, A. Gnädig

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	128.86237		(2000.0)	<i>P</i>	Gnädig	<i>Q</i>	
<i>n</i>	0.21356143	ω	301.01377	+0.69127499		+0.72169818	
<i>a</i>	2.7719635	Ω	12.91517	−0.59601002		+0.59758381	
<i>e</i>	0.1628988	<i>i</i>	9.24948	−0.40854735		+0.34934985	
<i>P</i>	4.62	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1973 09 19	675	0.9+	0.8+	1973 09 29	675	0.4−	0.1+	1996 10 06	809	1.7+	0.0
1973 09 19	675	0.4+	0.3−	1973 09 30	675	1.9−	1.0−	1996 10 06	809	0.9+	0.5+
1973 09 20	675	0.6+	0.8−	1973 09 30	675	1.9−	0.7−	1996 10 07	809	0.6−	1.4+
1973 09 24	675	0.3−	0.6+	1973 10 04	675	0.7+	1.2+	1996 10 07	809	0.8+	0.1−
1973 09 24	675	0.6−	1.7+	1973 10 04	675	0.0	0.0	1996 10 07	809	0.5−	0.6−
1973 09 25	675	0.8+	1.5−	1973 10 05	675	0.9+	0.8−	1996 10 11	566	1.6−	0.5−
1973 09 25	675	1.2+	1.4−	1973 10 05	675	0.1+	0.1−	1996 10 11	566	1.8−	1.0−
1973 09 29	675	0.3−	1.5+	1996 10 06	809	2.5+	1.4+	1996 10 11	566	2.1−	0.6−

2275 T-2 = 1995 SL₃₈Id. G. V. Williams (*MPC* 25970)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	17.21837		(2000.0)	<i>P</i>	Williams	<i>Q</i>	
<i>n</i>	0.17726541	ω	328.04881	−0.77946159		−0.62641985	
<i>a</i>	3.1384849	Ω	173.15481	+0.58506995		−0.73144732	
<i>e</i>	0.2298992	<i>i</i>	2.95707	+0.22390352		−0.26941231	
<i>P</i>	5.56	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1973 09 19	675	1.5+	2.4−	1995 09 01	809	1.8−	1.5−	1998 03 22	704	0.8−	0.4+
1973 09 19	675	1.6−	1.2−	1995 09 20	809	(2.4+	0.9+)	1998 03 22	699	0.5+	0.1+
1973 09 20	675	1.8+	1.6−	1995 09 24	691	0.4+	1.2+	1998 03 22	699	0.6−	0.5+
1973 09 24	675	0.7−	1.2+	1995 09 24	691	0.1+	1.3+	1998 03 22	699	0.5+	0.7+
1973 09 24	675	0.2+	0.2+	1995 09 24	691	0.0	1.0+	1998 03 24	699	0.1+	0.4−
1973 09 25	675	1.9+	0.3−	1995 09 29	691	0.2+	0.9+	1998 03 24	699	0.6−	0.4−
1973 09 25	675	2.3+	1.5−	1995 09 29	691	0.1+	0.9+	1998 03 24	699	(2.5+	1.0−)
1973 09 29	675	0.2−	0.4−	1995 09 29	691	0.2−	1.2+	1998 03 25	704	0.1+	0.4−
1973 09 29	675	0.9−	0.3−	1998 03 20	704	0.4−	0.0	1998 03 25	704	0.6+	0.4−
1973 09 30	675	0.3+	1.4−	1998 03 20	704	0.6−	1.0−	1998 03 25	704	0.0	0.5−
1973 09 30	675	0.0	0.5−	1998 03 20	704	0.1+	0.3−	1998 03 25	704	0.4−	0.5−
1973 10 04	675	0.2+	0.3−	1998 03 20	704	0.8−	0.6−	1998 03 25	704	0.2−	1.1−
1973 10 04	675	0.9+	1.6+	1998 03 20	704	0.5−	0.6+	1998 03 26	566	0.1+	0.3−
1973 10 05	675	1.8−	1.4−	1998 03 22	704	0.4+	1.0−	1998 03 26	566	0.2−	0.5−
1973 10 05	675	0.2−	1.1−	1998 03 22	704	0.3+	0.2−	1998 03 26	566	0.5+	0.1−
1995 08 25	809	0.1−	0.9−	1998 03 22	704	0.1−	0.3+				
1995 08 26	809	0.1+	0.8−	1998 03 22	704	0.2+	0.5−				

3089 T-2 = 1998 FJ₄₅

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	337.98057		(2000.0)	<i>P</i>	Williams	<i>Q</i>	
<i>n</i>	0.18131932	ω	83.32106	−0.99234236		+0.11404084	
<i>a</i>	3.0915290	Ω	103.21949	−0.12351530		−0.91373651	
<i>e</i>	0.1033199	<i>i</i>	2.79369	−0.00078752		−0.38997470	
<i>P</i>	5.44	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1973 09 19	675	1.4+	0.4+	1973 09 30	675	0.0	1.4−	1998 03 20	704	0.5+	0.0
1973 09 19	675	0.0	0.8+	1973 09 30	675	1.1−	0.2+	1998 03 20	704	0.2−	0.2+
1973 09 20	675	0.4+	0.1−	1973 10 04	675	2.6+	1.6+	1998 03 22	704	0.1−	0.5+
1973 09 24	675	1.9−	0.8−	1973 10 04	675	1.2+	1.2−	1998 03 22	704	0.2−	0.4−
1973 09 24	675	0.6−	0.1−	1973 10 05	675	0.5−	0.9+	1998 03 22	704	0.4−	0.0

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1973 09 25	675	1.1+	1.1−	1973 10 05	675	0.9+	0.5+	1998 03 22	704	0.1−	0.3+
1973 09 25	675	1.4−	0.8−	1998 03 20	704	0.0	0.1−	1998 03 22	704	0.4+	0.0
1973 09 29	675	1.2−	1.0+	1998 03 20	704	0.1−	0.5−				
1973 09 29	675	0.9−	0.0	1998 03 20	704	0.1+	0.2−				

3260 T-2 = 1998 ES₁₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	83.95646		(2000.0)	<i>P</i>	Marsden	<i>Q</i>	
<i>n</i>	0.21963792	ω	326.02311	+0.38974251		−0.91790039	
<i>a</i>	2.7205988	Ω	100.93979	+0.86091563		+0.33440180	
<i>e</i>	0.0408584	<i>i</i>	4.35542	+0.32699396		+0.21362189	
<i>P</i>	4.49	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	7

Residuals in seconds of arc

1973 09 19	675	(4.8+	0.4−)	1973 09 29	675	0.1−	0.6+	1973 10 05	675	(3.0−	1.3−)
1973 09 19	675	0.8+	0.6+	1973 09 29	675	0.3−	0.7+	1998 03 01	809	0.8+	0.1−
1973 09 20	675	1.3+	0.4+	1973 09 30	675	0.8−	0.3+	1998 03 01	809	0.7+	0.3−
1973 09 24	675	0.5+	0.4−	1973 09 30	675	1.9−	1.1−	1998 03 01	809	0.7+	0.9−
1973 09 24	675	0.2−	0.7+	1973 10 04	675	1.1−	1.0−	1998 03 02	809	1.3−	1.0+
1973 09 25	675	1.0+	0.1−	1973 10 04	675	(2.7−	0.3−)	1998 03 02	809	0.6−	0.1+
1973 09 25	675	0.9+	0.7−	1973 10 05	675	(2.9−	2.9−)	1998 03 02	809	0.4−	0.3+

3305 T-2 = 1998 FB₅₉

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	284.25111		(2000.0)	<i>P</i>	Williams	<i>Q</i>	
<i>n</i>	0.26495875	ω	201.56035	−0.33756109		+0.94035591	
<i>a</i>	2.4007699	Ω	48.73784	−0.85520965		−0.28763464	
<i>e</i>	0.1418943	<i>i</i>	3.22044	−0.39327975		−0.18165097	
<i>P</i>	3.72	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1973 09 19	675	1.0−	0.2−	1973 09 30	675	0.1+	2.1−	1998 03 20	704	0.2−	0.4−
1973 09 19	675	1.0−	0.0	1973 10 04	675	0.5+	0.2+	1998 03 20	704	(0.7−	4.1−)
1973 09 20	675	0.0	0.2+	1973 10 04	675	1.1−	1.7+	1998 03 22	704	0.1+	0.5+
1973 09 24	675	0.5+	0.4−	1973 10 04	675	1.1+	0.6−	1998 03 22	704	0.1−	0.2−
1973 09 24	675	1.3+	0.5−	1973 10 04	675	1.4−	1.4+	1998 03 22	704	0.8−	0.1−
1973 09 25	675	1.1+	0.4−	1973 10 05	675	0.5+	0.8+	1998 03 22	704	1.4+	0.9−
1973 09 25	675	0.7+	0.3+	1973 10 05	675	1.2−	0.6−	1998 03 22	704	0.1+	0.3+
1973 09 29	675	0.6−	0.4+	1973 10 05	675	1.0+	0.9−	1998 03 25	699	0.5−	0.6+
1973 09 29	675	0.6−	0.5+	1973 10 05	675	1.3−	1.3−	1998 03 25	699	0.5+	0.6+
1973 09 30	675	1.8+	1.3+	1998 03 20	704	0.8−	0.5−	1998 03 25	699	0.4+	0.0
1973 09 30	675	0.2+	0.2+	1998 03 20	704	0.3−	0.2−				
1973 09 30	675	0.8−	0.1−	1998 03 20	704	0.2+	0.3+				

4072 T-2 = 1998 FF₆

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>	214.87514		(2000.0)	<i>P</i>	Williams	<i>Q</i>	
<i>n</i>	0.30547726	ω	284.47612	+0.75150919		+0.65812320	
<i>a</i>	2.1834846	Ω	34.40252	−0.56966768		+0.68245038	
<i>e</i>	0.1887518	<i>i</i>	4.66085	−0.33273514		+0.31801781	
<i>P</i>	3.23	<i>H</i>	17.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1973 09 19	675	0.3+	0.9−	1973 09 29	675	1.1−	0.1+	1973 10 05	675	0.1−	1.0−
1973 09 19	675	0.9−	0.7−	1973 09 29	675	0.2+	0.3+	1998 03 18	691	0.4+	0.3−
1973 09 20	675	1.3−	0.6+	1973 09 30	675	0.5−	0.4−	1998 03 18	691	0.1−	0.3−
1973 09 24	675	0.9+	1.5+	1973 09 30	675	0.7+	1.0−	1998 03 18	691	0.1+	0.1−
1973 09 24	675	0.3−	0.6+	1973 10 04	675	1.4−	0.8+	1998 03 25	691	0.2−	0.4+
1973 09 25	675	2.4+	0.7−	1973 10 04	675	0.9+	1.0+	1998 03 25	691	0.1−	0.2+
1973 09 25	675	0.5+	0.3+	1973 10 05	675	0.2−	0.6−	1998 03 25	691	0.1−	0.2+

3446 T-3 = 1998 FE₁₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	277.22252	ω	56.07076	-0.62855588	+0.77773952		
<i>a</i>	2.7753599	Ω	174.97205	-0.73497638	-0.59133921		
<i>e</i>	0.0321909	<i>i</i>	4.07312	-0.25441548	-0.21316467		
<i>P</i>	4.62	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1977 10 07	675	0.1-	0.3+	1998 02 26	566	0.3+	0.4-	1998 03 20	704	0.7+	1.4+
1977 10 11	675	1.0-	1.3-	1998 02 26	566	1.0+	0.6-	1998 03 20	704	0.1-	0.6+
1977 10 11	675	0.8-	0.6+	1998 03 03	704	0.2+	0.2-	1998 03 22	704	0.7-	0.7+
1977 10 12	675	1.1+	1.8-	1998 03 03	704	0.3-	0.4+	1998 03 22	704	1.2+	1.4-
1977 10 12	675	1.4+	0.7-	1998 03 03	704	0.1+	0.2+	1998 03 22	704	0.7+	0.2+
1977 10 16	675	0.4-	0.4-	1998 03 03	704	0.3-	0.3+	1998 03 22	704	1.1+	0.2-
1977 10 16	675	0.4-	0.2+	1998 03 03	704	1.3+	0.1-	1998 03 22	704	2.0+	1.8-
1977 10 17	675	0.1+	0.4+	1998 03 04	704	0.3-	0.5+	1998 03 26	566	0.2-	0.3+
1977 10 17	675	2.1-	0.7+	1998 03 04	704	1.9-	0.5+	1998 03 26	566	0.5-	0.1+
1977 10 21	675	0.2+	0.6+	1998 03 04	704	0.7-	0.1-	1998 03 26	566	0.6-	0.3+
1977 10 21	675	0.4-	2.2+	1998 03 04	704	1.7-	0.8+	1998 03 27	566	0.9-	0.4+
1977 10 22	675	1.2+	0.1-	1998 03 20	704	0.1+	0.4-	1998 03 27	566	0.6-	0.3+
1977 10 22	675	1.2+	0.7-	1998 03 20	704	0.4-	1.0-	1998 03 27	566	0.4-	0.2-
1998 02 26	566	0.5+	0.3-	1998 03 20	704	0.2+	0.4-				

3468 T-3 = 1996 XS₂₂ = 1998 DP₃₃

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	279.17800	ω	192.93519	-0.45658624	+0.88926293		
<i>a</i>	2.3995232	Ω	49.90475	-0.81306465	-0.40465545		
<i>e</i>	0.1416456	<i>i</i>	2.03851	-0.36118538	-0.21322619		
<i>P</i>	3.72	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1977 10 07	675	1.0-	0.5-	1996 12 12	691	0.6-	0.0	1998 03 03	704	1.0+	1.8+
1977 10 11	675	0.9-	0.5+	1996 12 13	691	0.4+	0.3+	1998 03 03	704	1.0-	0.8+
1977 10 11	675	0.7-	0.7+	1996 12 13	691	0.4+	0.2-	1998 03 20	704	0.1-	0.7-
1977 10 12	675	1.8+	0.0	1996 12 13	691	0.9+	0.2+	1998 03 20	704	1.4-	0.7+
1977 10 12	675	1.9+	0.3+	1998 02 27	809	(2.9+	1.1-)	1998 03 20	704	1.2-	0.4+
1977 10 16	675	0.0	0.9-	1998 02 27	809	1.1+	0.7-	1998 03 20	704	1.1-	0.1+
1977 10 16	675	0.4+	1.8-	1998 02 27	809	1.5+	0.6-	1998 03 20	704	1.1-	0.1+
1977 10 17	675	0.7-	0.5+	1998 02 28	809	(1.2-	5.3-)	1998 03 22	704	0.8+	0.2-
1977 10 17	675	1.7-	0.0	1998 02 28	809	(1.5-	5.1-)	1998 03 22	704	1.4+	0.7+
1977 10 21	675	0.5+	0.4+	1998 02 28	809	(0.7-	4.7-)	1998 03 22	704	(2.8+	1.2+)
1977 10 21	675	0.3+	1.1+	1998 03 03	704	0.3-	0.7-	1998 03 22	704	0.8+	0.7-
1996 12 12	691	0.5-	0.0	1998 03 03	704	0.4-	0.4-	1998 03 22	704	1.4+	0.7-
1996 12 12	691	0.6-	0.4-	1998 03 03	704	1.5-	0.1+				

4039 T-3 = 1998 FD₁₂

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	251.59648	ω	148.33911	-0.02539732	+0.99888969		
<i>a</i>	2.1459003	Ω	120.17817	-0.92650301	-0.00861371		
<i>e</i>	0.0987076	<i>i</i>	2.63076	-0.37542930	-0.04631629		
<i>P</i>	3.14	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1977 10 07	675	0.2-	0.3-	1977 10 21	675	1.1+	2.0+	1998 03 22	704	0.4+	0.4+
1977 10 07	675	(3.1+	2.2-)	1998 03 04	691	0.3-	0.2-	1998 03 22	704	0.2-	1.2+
1977 10 11	675	0.4+	0.1-	1998 03 04	691	0.4-	0.4-	1998 03 22	704	0.2-	0.7+
1977 10 11	675	1.7+	0.5+	1998 03 04	691	0.2-	0.5-	1998 03 25	566	0.0	2.0-
1977 10 12	675	0.6-	1.5-	1998 03 20	704	0.5+	0.3+	1998 03 25	566	(1.2-	3.7-)
1977 10 12	675	0.5-	1.2-	1998 03 20	704	0.3+	0.4+	1998 03 25	566	(1.5-	3.4-)
1977 10 16	675	1.3-	0.8+	1998 03 20	704	0.5-	0.4+	1998 03 26	566	0.1-	0.2-
1977 10 16	675	0.6-	0.8-	1998 03 20	704	0.4+	0.3-	1998 03 26	566	0.1-	0.0
1977 10 17	675	0.1+	0.1-	1998 03 20	704	0.6+	0.0	1998 03 26	566	0.1-	0.2-
1977 10 17	675	0.5-	0.2+	1998 03 22	704	0.2-	0.1-				
1977 10 21	675	0.5+	0.5+	1998 03 22	704	0.1+	0.5+				

4310 T-3 = 1991 VR₇Id. G. V. Williams (*MPC* 20347)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	84.15988	ω	167.51192	-0.59698198	+0.79717281		
<i>a</i>	2.2868283	Ω	65.76500	-0.74429695	-0.50840774		
<i>e</i>	0.0948240	<i>i</i>	5.67404	-0.29939033	-0.32563334		
<i>P</i>	3.46	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1977 10 07	675	0.3+	0.8+	1977 10 17	675	1.6-	0.3+	1991 11 03	691	0.5-	0.0
1977 10 11	675	(2.9+	0.4-)	1977 10 21	675	0.1+	0.8+	1991 11 08	691	0.4+	0.6+
1977 10 11	675	0.7+	1.1+	1977 10 21	675	1.2-	1.7-	1991 11 08	691	0.0	0.4-
1977 10 12	675	1.4+	1.5-	1977 10 22	675	0.5-	0.4-	1991 11 08	691	0.1+	0.3-
1977 10 12	675	0.9+	1.6-	1977 10 22	675	0.5-	2.4+	1993 03 24	675	0.4+	0.2+
1977 10 16	675	1.0+	1.0+	1991 10 17	675	0.9+	0.3-	1993 04 15	675	0.1+	0.0
1977 10 16	675	0.6+	0.3-	1991 11 03	691	0.2-	0.1-	1993 04 15	675	0.5-	0.2-
1977 10 17	675	1.6-	0.2-	1991 11 03	691	0.6-	0.1-				

5090 T-3

Id. T. Kobayashi (1998 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	6.99100	ω	76.71369	-0.91184334	-0.37300844		
<i>a</i>	0.21399066	Ω	81.17210	+0.27612861	-0.86634294		
<i>e</i>	2.7682555	<i>i</i>	9.99364	+0.30380045	-0.33213643		
<i>P</i>	0.0971332	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1977 10 12	675	0.4-	0.1-	1977 10 17	675	0.7-	0.0	1998 03 22	411	0.3+	0.1+
1977 10 12	675	1.2-	0.2-	1977 10 17	675	1.2+	0.9-	1998 03 22	411	0.3-	0.5-
1977 10 16	675	1.4+	0.8+	1977 10 21	675	0.8-	0.9+	1998 03 25	411	0.3+	0.2-
1977 10 16	675	1.0+	0.2+	1977 10 21	675	0.6-	0.6-	1998 03 25	411	0.3-	0.6+

Object	<i>H</i>	<i>G</i>	Epoch	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	<i>a</i>	Obs.	Opp. & Arc	rms Perts	<i>U</i>	Computer	<i>MPC</i>	Object
(227)	8.7	0.15	19971218	319.34312	261.63846	328.14723	9.13847	0.2058384	3.1435436	74	24 1912-1998	0.89	M-v 1	Bowell	23535	(227)
(663)	9.21	0.15	19971218	325.09973	311.29942	233.14668	17.85885	0.1552487	3.0608123	77	24 1913-1998	0.84	M-v 1	Bowell	26916	(663)
(1856)	12.6	0.15	19971218	291.69255	55.02914	186.06905	4.73751	0.0792359	2.2371283	43	12 1969-1998	0.83	M-v 1	Bowell	22698	(1856)
(2060)	6.5	0.15	19971218	13.17743	339.48271	209.38100	6.93686	0.3806441	13.6480957	560	29 1895-1998	0.51	M-v 0	Goffin	15560	(2060)
(2177)	11.3	0.15	19971218	223.46762	265.04932	52.29292	1.54211	0.0920586	3.1958971	43	13 1953-1998	0.83	M-v 1	Bowell	30469	(2177)

(2444)	11.8	0.15	19971218	105.46079	141.66978	286.35444	15.11826	0.1323559	2.7283495	49	8	1934-1998	0.92	M-v	1	Williams	28614	(2444)
(2586)	12.9	0.15	19971218	213.45999	153.98672	166.70496	4.36131	0.0885888	2.3873812	77	13	1972-1998	0.94	M-v	1	Bowell	31228	(2586)
(3417)	13.7	0.15	19971218	39.35286	111.44272	88.97187	7.93744	0.2236530	2.4247662	24	10	1937-1994	1.20	M-v	2	Williams	29943	(3417)
(3531)	12.9	0.15	19971218	17.83654	299.25418	193.14983	13.13222	0.1458581	2.6240964	80	7	1981-1998	0.78	M-v	1	Williams	22407	(3531)
(3783)	13.0	0.15	19971218	135.01532	256.04499	63.72716	6.18060	0.1731808	2.2717764	28	9	1968-1998	0.92	M-v	2	Sicoli	28887	(3783)
(4076)	11.9	0.15	19971218	15.10271	63.40783	347.01128	1.36285	0.0681100	2.8509205	78	13	1960-1998	0.89	M-v	1	Sicoli	28888	(4076)
(4147)	13.0	0.15	19971218	295.42928	301.28305	288.98604	5.73139	0.0799047	2.3623528	34	7	1971-1998	0.78	M-v	1	Williams	29662	(4147)
(4175)	12.3	0.15	19971218	22.87492	315.85454	163.76605	13.56265	0.1842777	2.6865611	35	7	1951-1998	0.89	M-v	1	Bowell	31139	(4175)
(4377)	13.5	0.15	19971218	327.61067	332.63530	228.05699	2.59220	0.0745716	2.3764535	48	6	1987-1998	0.67	M-v	1	Bowell	31008	(4377)
(4629)	12.8	0.15	19971218	253.83228	291.42342	32.46700	11.92039	0.2028062	2.6616166	12	4	1976-1993	0.60	M-v	1	Bowell	29138	(4629)
(4712)	10.9	0.15	19971218	193.66680	342.82881	334.77867	12.15357	0.1310001	3.1530521	42	8	1931-1998	0.96	M-v	1	Sicoli	29663	(4712)
(4724)	13.2	0.15	19971218	206.98226	193.31514	94.77146	8.48156	0.1920322	2.2237449	47	8	1961-1998	0.82	M-v	2	Sicoli	29138	(4724)
(4750)	13.6	0.15	19971218	85.76430	140.15022	295.18806	4.90479	0.0902551	2.1842038	30	8	1951-1998	0.88	M-v	1	Bowell	30783	(4750)
(4758)	12.1	0.15	19971218	148.34021	279.86881	61.19777	1.62962	0.1710035	3.2104389	59	9	1950-1998	0.71	M-v	1	Sicoli	30663	(4758)
(5036)	11.4	0.15	19971218	303.96779	59.01099	105.17129	2.93075	0.1831493	3.1444858	66	10	1965-1998	0.88	M-v	1	Sicoli	25335	(5036)
(5170)	12.0	0.15	19971218	68.63137	295.21738	169.98543	10.34497	0.0605088	3.0239439	69	7	1977-1998	0.56	M-v	1	Bowell	29623	(5170)
(5366)	14.1	0.15	19971218	219.68131	171.10128	158.52310	4.04190	0.2060372	2.2417366	48	8	1971-1998	0.88	M-v	1	Bowell	29319	(5366)
(5433)	12.4	0.15	19971218	77.74701	159.98791	269.99486	7.77761	0.2228081	2.5416418	92	7	1955-1998	0.76	M-v	1	Williams	29305	(5433)
(5595)	12.5	0.15	19971218	95.08262	262.51635	129.83907	9.82983	0.1616711	2.7257039	31	6	1955-1998	0.87	M-v	1	Bowell	31387	(5595)
(5862)	13.7	0.15	19971218	0.20777	63.76675	90.07418	3.39328	0.1528845	2.3850762	38	5	1983-1998	0.74	M-v	1	Bowell	31278	(5862)
(5988)	12.9	0.15	19971218	280.07080	93.35932	178.31560	12.91373	0.1546108	2.6836246	25	5	1982-1998	0.58	M-v	1	Bowell	31421	(5988)
(6678)	12.6	0.15	19971218	210.02021	301.59813	28.91552	10.87839	0.0292798	2.7371237	27	6	1952-1998	0.74	M-v	1	Bowell	30903	(6678)
(6761)	14.4	0.15	19971218	109.40577	216.81888	188.96323	4.40698	0.1444553	3.1614944	38	8	1951-1998	0.92	M-v	1	Williams	30768	(6761)
(7235)	14.1	0.15	19971218	117.79813	45.40536	352.22043	4.97452	0.1645407	2.2423030	35	6	1954-1998	0.77	M-v	1	Bowell	31282	(7235)
(7273)	13.6	0.15	19971218	92.30595	67.77948	321.67242	12.06382	0.1904343	2.6560176	28	5	1981-1998	0.78	M-v	1	Bowell	31252	(7273)
(7392)	12.4	0.15	19971218	348.18957	204.92975	347.26590	4.95557	0.1291607	2.7546354	104	6	1984-1998	0.68	M-v	1	Williams	31425	(7392)
(7413)	13.0	0.15	19971218	123.34692	342.27299	25.32966	0.54471	0.1907131	3.0904519	108	6	1974-1998	0.68	M-v	1	Nakano	31286	(7413)
(7418)	13.1	0.15	19971218	312.34485	34.25742	141.29878	7.28436	0.0529124	2.3573805	36	7	1969-1998	0.90	M-v	1	Williams	31396	(7418)
(7662)	11.6	0.15	19971218	255.09150	97.93542	199.50265	16.71917	0.0956636	3.2350785	45	5	1988-1998	0.62	M-v	1	Bowell	28619	(7662)
(8050)	15.7	0.15	19971218	134.44019	142.77195	213.81761	1.85037	0.1598841	2.1342845	42	5	1971-1998	0.63	M-v	2	Williams	30914	(8050)
1929 PK	15.0	0.15	19971218	165.69035	226.35054	152.73352	4.40568	0.2184292	2.2265927	18	6	1929-1998	0.82	M-v	2	Williams	28881	1929 PK
1968 OH	13.0	0.15	19971218	204.56998	56.66824	267.45156	11.33998	0.1687899	2.7088050	40	6	1968-1998	0.66	M-v	1	Williams	31414	1968 OH
1969 QR	14.5	0.15	19971218	217.40979	55.44825	239.69489	7.34496	0.1414483	2.2253840	30	6	1969-1998	0.72	M-v	1	Williams	28881	1969 QR
1970 JB	14.5	0.15	19971218	315.75614	281.22677	289.20070	20.64413	0.2817041	2.3168908	21	3	1970-1998	0.55	M-v	3	Williams	31271	1970 JB
1971 SB	14.5	0.15	19971218	48.32691	76.48943	355.72818	22.89438	0.0982359	1.8628192	28	3	1971-1998	0.65	M-v	3	Marsden	31414	1971 SB
1971 UG	12.0	0.15	19971218	160.71907	170.61712	216.97962	11.86942	0.0474926	2.8510560	25	4	1971-1998	0.76	M-v	2	Williams	31414	1971 UG
1971 UT	14.5	0.15	19971218	104.12091	167.09687	227.64140	5.28278	0.1317845	2.3429420	20	4	1971-1998	0.86	M-v	2	Williams	31414	1971 UT
1973 QR ₁	13.5	0.15	19971218	197.81860	104.77935	203.10466	2.83310	0.1926145	2.1929880	39	4	1973-1998	0.67	M-v	3	Williams	31414	1973 QR ₁
1974 RY ₁	14.0	0.15	19971218	178.98105	134.94326	183.67909	2.73334	0.2277298	2.3546076	37	7	1949-1998	1.06	M-v	2	Williams	29652	1974 RY ₁
1974 ST ₁	14.5	0.15	19971218	74.65119	328.47937	356.93328	2.77026	0.2040748	2.4273649	24	5	1955-1997	0.83	M-v	2	Williams	31134	1974 ST ₁
1974 WB	14.0	0.15	19971218	98.23813	155.40535	261.24874	11.68173	0.2104839	2.6728935	17	3	1974-1998	0.85	M-v	3	Williams	28881	1974 WB
1975 TQ ₃	13.0	0.15	19971218	116.15534	303.14830	35.41777	13.16513	0.1818792	2.6186410	40	5	1954-1998	0.68	M-v	2	Williams	31271	1975 TQ ₃
1975 XF	15.0	0.15	19971218	133.22009	199.80156	157.31834	6.42443	0.1998101	2.3175269	25	4	1975-1998	0.97	M-v	4	Williams	27930	1975 XF
1976 UP ₂	15.0	0.15	19971218	140.11937	349.10617	26.46104	5.03434	0.2018974	2.2282895	24	4	1976-1998	0.71	M-v	4	Williams	28313	1976 UP ₂
1977 EU ₁	14.0	0.15	19971218	333.62536	15.40991	155.21216	2.01659	0.1045027	2.6213101	24	2	1977-1998	0.49	M-v	4	Williams	31375	1977 EU ₁
1977 PP ₁	13.5	0.15	19971218	141.36184	164.08238	199.09615	5.02607	0.1031697	2.7499376	28	3	1977-1998	0.67	M-v	4	Williams	31414	1977 PP ₁
1977 QD ₂	14.0	0.15	19971218	291.54538	0.33929	350.30679	5.61162	0.1917782	2.2998141	36	5	1977-1997	0.79	M-v	3	Williams	31134	1977 QD ₂
1977 QN ₂	14.5	0.15	19971218	213.84412	6.80003	314.55110	2.43547	0.2539189	2.3718209	21	4	1977-1998	0.71	M-v	2	Williams	25077	1977 QN ₂
1977 RR ₆	14.0	0.15	19971218	118.77304	12.21080	355.63624	4.72878	0.1727875	2.4356830	42	7	1954-1998	0.84	M-v	2	Williams	31414	1977 RR ₆
1977 RQ ₁₉	15.0	0.15	19971218	167.57412	207.00555	159.18086	3.20160	0.0816196	2.3877628	15	5	1977-1998	0.74	M-v	2	Williams	23347	1977 RQ ₁₉
1977 UD	14.0	0.15	19971218	75.91294	20.18549	62.86443	3.99229	0.1670029	2.4258688	38	6	1977-1998	0.83	M-v	1	Williams	28881	1977 UD
1977 UM ₄	14.0	0.15	19971218	210.77123	314.50406	20.08153	2.57194	0.2216376	2.3816283	42	5	1977-1998	0.73	M-v	2	Williams	29939	1977 UM ₄
1978 EU ₉	13.0	0.15	19971218	294.66066	79.28153	157.20875	2.43541	0.0044546	2.9053007	33	5	1978-1998	0.67	M-v	3	Williams	26187	1978 EU ₉

1978 PE	15.0	0.15	19971218	176.82356	213.97957	133.41745	5.23426	0.2304848	2.2995323	33	4	1978-1998	0.70	M-v	2	Williams	31003	1978 PE
1978 QA ₂	14.5	0.15	19971218	192.26369	154.78268	188.17751	3.67281	0.2211908	2.3002515	35	6	1978-1998	1.08	M-v	2	Williams	29652	1978 QA ₂
1978 RK	12.5	0.15	19971218	126.47791	23.72287	1.79796	18.07646	0.1749764	3.1659903	28	4	1978-1998	0.77	M-v	2	Williams	30892	1978 RK
1978 RN ₅	13.5	0.15	19971218	102.15519	14.36590	356.39571	11.16120	0.3321969	2.7224729	34	5	1960-1998	0.88	M-v	2	Williams	29652	1978 RN ₅
1978 RX ₇	13.5	0.15	19971218	271.79957	281.80574	321.85142	5.85127	0.2103358	2.6172657	28	3	1978-1998	0.60	M-v	3	Williams	31414	1978 RX ₇
1978 RA ₈	13.5	0.15	19971218	91.23054	255.92864	147.38435	1.55116	0.1410514	3.1777859	26	4	1978-1998	0.88	M-v	1	Williams	25728	1978 RA ₈
1978 RQ ₉	14.5	0.15	19971218	288.08682	231.94881	350.02635	6.74787	0.0592237	2.3114498	47	4	1978-1998	0.62	M-v	3	Marsden	25438	1978 RQ ₉
1978 SQ ₄	14.5	0.15	19971218	110.19261	37.99606	354.56304	4.50158	0.2212558	2.3500329	24	5	1978-1998	0.71	M-v	2	Marsden	25077	1978 SQ ₄
1978 SS ₇	14.5	0.15	19971218	66.85567	86.00518	351.68757	4.74839	0.2027845	2.3570201	26	4	1978-1998	0.83	M-v	2	Williams	28314	1978 SS ₇
1978 UP ₂	13.5	0.15	19971218	46.28035	272.77479	34.13652	9.09197	0.1471900	2.1858482	17	5	1978-1996	0.90	M-v	2	Williams	29939	1978 UP ₂
1978 UN ₄	12.5	0.15	19971218	314.77651	25.44427	213.43187	13.99376	0.0888362	3.1044035	14	3	1978-1998	0.64	M-v	4	Williams	24893	1978 UN ₄
1978 UR ₄	15.0	0.15	19971218	54.28631	136.07261	312.16327	2.46240	0.1941201	2.3602269	20	4	1978-1998	0.77	M-v	2	Williams	23245	1978 UR ₄
1978 VX ₄	15.5	0.15	19971218	202.98981	269.54891	66.06747	4.27141	0.1467656	2.3312850	16	3	1978-1998	0.56	M-v	4	Williams	29652	1978 VX ₄
1978 VC ₆	14.0	0.15	19971218	219.01192	89.83783	243.88676	9.56005	0.3373945	2.6370889	26	5	1978-1998	0.56	M-v	2	Williams	26187	1978 VC ₆
1978 VD ₉	15.5	0.15	19971218	161.17673	341.54314	34.45113	1.28749	0.0805003	2.3414436	17	3	1978-1998	0.59	M-v	5	Williams	29092	1978 VD ₉
1978 VE ₁₀	14.0	0.15	19971218	223.23618	267.01872	59.62472	1.82229	0.2118337	3.1556433	25	5	1978-1998	0.80	M-v	1	Williams	29939	1978 VE ₁₀
1978 VP ₁₁	12.5	0.15	19971218	192.94791	259.37843	93.96685	3.11111	0.1801536	3.1662475	39	7	1978-1998	0.75	M-v	1	Williams	29132	1978 VP ₁₁
1978 VE ₁₅	14.0	0.15	19971218	79.90075	320.83439	74.14190	3.17693	0.2063606	2.3814446	44	5	1978-1998	0.99	M-v	2	Williams	31414	1978 VE ₁₅
1978 XU	13.5	0.15	19971218	58.76012	148.59802	215.80672	6.94374	0.1453730	2.4235682	21	8	1954-1997	0.68	M-v	1	Williams	31134	1978 XU
1979 MB ₂	13.5	0.15	19971218	70.76344	298.00148	141.23174	5.74203	0.2764736	2.5452751	24	5	1951-1998	0.74	M-v	2	Williams	22696	1979 MB ₂
1979 MB ₆	15.5	0.15	19971218	145.17587	210.55411	150.26616	3.51820	0.1945729	2.2319158	22	4	1978-1998	1.00	M-v	2	Williams	22270	1979 MB ₆
1979 SO	13.5	0.15	19971218	339.76506	350.36203	8.68702	8.17556	0.2302753	2.7765278	19	2	1979-1993	0.74	M-v	4	Williams	22967	1979 SO
1979 TY ₁	14.5	0.15	19971218	54.47602	31.35285	33.20796	8.50217	0.1492458	2.2936144	20	4	1951-1998	0.91	M-v	3	Williams	30892	1979 TY ₁
1979 TH ₂	13.5	0.15	19971218	49.24490	49.37585	25.41323	1.14645	0.1634094	3.1536366	55	3	1979-1998	0.72	M-v	3	Williams	31414	1979 TH ₂
1980 FJ ₁	12.0	0.15	19971218	221.02106	344.84702	352.62334	16.67878	0.1473562	3.2300623	57	5	1976-1998	0.85	M-v	2	Williams	24116	1980 FJ ₁
1980 FY ₄	14.5	0.15	19971218	186.39632	163.18500	186.50331	5.24086	0.1744278	2.3314301	35	7	1974-1998	0.74	M-v	2	Williams	27930	1980 FY ₄
1980 PW	14.0	0.15	19971218	188.29352	54.18122	311.23534	4.02978	0.2143315	2.4227636	46	6	1950-1998	0.62	M-v	1	Marsden	28882	1980 PW
1980 RV ₂	14.5	0.15	19971218	94.39477	11.58911	339.46108	2.69242	0.1879334	2.2117437	19	5	1980-1998	0.74	M-v	2	Williams	31271	1980 RV ₂
1980 TE ₇	13.5	0.15	19971218	278.86150	133.01822	188.85260	7.90685	0.2116291	2.3888526	18	4	1954-1991	0.81	M-v	3	Williams	27118	1980 TE ₇
1980 VO	13.5	0.15	19971218	78.76045	348.05962	38.70027	9.92703	0.3205317	2.5521569	35	6	1980-1998	0.85	M-v	2	Williams	30287	1980 VO
1981 DK	12.5	0.15	19971218	125.14891	118.87400	281.09060	9.58155	0.1692037	3.1554013	27	4	1981-1998	0.87	M-v	2	Williams	29608	1981 DK
1981 DV	14.0	0.15	19971218	31.85914	268.70381	209.72716	14.09922	0.0486667	2.6308145	30	3	1977-1998	0.69	M-v	4	Williams	31414	1981 DV
1981 DX	13.0	0.15	19971218	85.05111	165.05364	266.14474	7.10875	0.0088418	3.2010739	48	8	1952-1998	0.75	M-v	1	Williams	31414	1981 DX
1981 DK ₂	15.5	0.15	19971218	330.87308	223.54119	313.62961	6.49567	0.2672268	2.6395154	40	2	1981-1998	0.75	M-v	3	Williams	31414	1981 DK ₂
1981 DO ₃	13.0	0.15	19971218	222.74065	18.84457	289.55353	6.13791	0.1166902	3.2048621	24	4	1981-1998	0.86	M-v	2	Williams	28882	1981 DO ₃
1981 EH ₁	12.0	0.15	19971218	21.53183	355.78397	152.61885	6.91031	0.1708210	3.1248454	58	6	1981-1998	0.58	M-v	1	Williams	28611	1981 EH ₁
1981 EM ₁	13.0	0.15	19971218	40.31058	332.56829	120.09674	2.34172	0.1521161	3.1743709	64	4	1975-1998	0.62	M-v	2	Williams	31415	1981 EM ₁
1981 EW ₂	14.5	0.15	19971218	252.48100	299.31130	320.14411	13.16356	0.1115949	2.6465116	42	3	1981-1998	0.83	M-v	2	Williams	31271	1981 EW ₂
1981 EM ₃	15.0	0.15	19971218	78.58333	171.02577	252.20252	5.83113	0.0716107	2.2631692	23	5	1981-1998	0.79	M-v	2	Williams	29653	1981 EM ₃
1981 EK ₅	13.5	0.15	19971218	298.14644	316.67717	295.55313	6.70366	0.1314737	3.1602922	33	4	1981-1998	0.85	M-v	2	Williams	29315	1981 EK ₅
1981 EA ₇	14.5	0.15	19971218	156.58909	89.27710	272.64403	5.67864	0.2165335	2.2610978	24	6	1979-1998	0.87	M-v	2	Williams	28611	1981 EA ₇
1981 EK ₇	13.5	0.15	19971218	254.50080	74.82711	221.84346	4.33211	0.1463079	3.1504862	45	7	1978-1998	0.97	M-v	1	Williams	24238	1981 EK ₇
1981 EO ₇	13.5	0.15	19971218	115.82009	210.71485	200.00734	13.32139	0.1060556	2.5976225	35	4	1954-1998	1.06	M-v	3	Williams	25423	1981 EO ₇
1981 EF ₈	13.0	0.15	19971218	79.61380	211.63024	214.42359	7.43784	0.1600234	3.1724391	53	3	1981-1998	0.78	M-v	3	Williams	25972	1981 EF ₈
1981 EM ₈	13.0	0.15	19971218	214.52239	92.32884	254.63318	3.86422	0.1657930	3.1057890	21	4	1978-1998	0.99	M-v	2	Williams	29653	1981 EM ₈
1981 EQ ₈	14.5	0.15	19971218	33.13915	190.24003	235.70400	3.56201	0.2222947	2.6631111	24	2	1981-1998	1.03	M-v	5	Williams	31375	1981 EQ ₈
1981 EB ₉	13.0	0.15	19971218	257.36950	307.25805	342.74565	12.65196	0.1655940	2.6078943	40	8	1955-1998	0.91	M-v	2	Williams	31415	1981 EB ₉
1981 EO ₉	12.5	0.15	19971218	174.08432	18.60336	324.33670	10.62283	0.1561620	3.2072647	39	8	1949-1998	0.79	M-v	1	Williams	29653	1981 EO ₉
1981 EQ ₉	13.5	0.15	19971218	355.45037	338.21546	209.29493	4.82439	0.1157508	3.1441944	36	5	1978-1998	0.86	M-v	2	Williams	25647	1981 EQ ₉
1981 ES ₉	13.5	0.15	19971218	303.23646	30.00528	200.79457	9.07037	0.0381959	3.1648996	38	5	1981-1998	0.82	M-v	2	Williams	26187	1981 ES ₉
1981 EH ₁₁	13.5	0.15	19971218	168.25016	359.08318	344.47043	13.74768	0.1835202	2.6424782	53	3	1981-1998	0.91	M-v	3	Williams	21966	1981 EH ₁₁
1981 EP ₁₁	15.0	0.15	19971218	146.04174	22.35316	325.60198	5.54598	0.2278315	2.2797793	16	4	1981-1998	0.62	M-v	3	Williams	28580	1981 EP ₁₁
1981 ER ₁₁	15.0	0.15	19971218	19.99640	213.87746	290.14683	2.40046	0.0652681	2.6098559	23	3	1979-1998	0.98	M-v	4	Williams	22429	1981 ER ₁₁

1981 EP ₁₂	14.5	0.15	19971218	114.07527	155.63038	259.42246	5.11026	0.0726938	2.2431010	28	3	1981–1998	0.83	M-v	3	Williams	27708	1981 EP ₁₂
1981 EF ₁₄	15.5	0.15	19971218	290.83923	338.65589	267.24402	2.52373	0.1092958	2.2521191	41	5	1979–1998	0.81	M-v	2	Williams	29132	1981 EF ₁₄
1981 EX ₁₅	14.5	0.15	19971218	148.54067	57.83645	326.96548	3.62457	0.0801390	2.6055603	23	6	1953–1998	0.80	M-v	2	Williams	25536	1981 EX ₁₅
1981 EQ ₁₆	14.0	0.15	19971218	74.27498	87.01943	340.09128	13.33967	0.1118855	3.2052941	25	3	1981–1998	0.84	M-v	4	Williams	31415	1981 EQ ₁₆
1981 ET ₁₇	14.5	0.15	19971218	47.25630	151.41687	278.53175	1.18481	0.2430612	2.6336648	26	3	1981–1998	0.85	M-v	4	Williams	31415	1981 ET ₁₇
1981 EC ₁₈	14.5	0.15	19971218	250.78552	107.35889	176.82670	6.15094	0.0952388	3.1722675	28	4	1981–1998	1.00	M-v	2	Williams	31415	1981 EC ₁₈
1981 EE ₁₈	14.5	0.15	19971218	46.82877	106.07672	356.80971	4.77880	0.1727482	3.1612490	30	4	1979–1998	0.89	M-v	2	Williams	21967	1981 EE ₁₈
1981 EG ₁₈	15.0	0.15	19971218	201.99686	324.90761	345.83522	4.71258	0.0620611	2.2624447	21	3	1981–1998	0.89	M-v	4	Williams	29609	1981 EG ₁₈
1981 EM ₁₈	14.0	0.15	19971218	307.95583	201.28696	337.79783	5.86602	0.1002065	2.2809348	44	5	1979–1998	0.75	M-v	2	Williams	31271	1981 EM ₁₈
1981 EU ₁₈	14.0	0.15	19971218	299.15242	199.67718	88.92390	0.21467	0.1586042	3.0831354	38	6	1951–1998	0.96	M-v	1	Williams	26578	1981 EU ₁₈
1981 EC ₁₉	14.5	0.15	19971218	94.30902	32.00840	351.13089	5.58830	0.1177377	2.2826232	19	3	1981–1998	0.60	M-v	4	Williams	31415	1981 EC ₁₉
1981 EJ ₁₉	14.0	0.15	19971218	347.87926	16.02246	142.83962	0.66570	0.1236252	3.1999013	36	3	1978–1998	0.91	M-v	4	Williams	31415	1981 EJ ₁₉
1981 ES ₁₉	16.5	0.15	19971218	281.42385	227.09239	352.15335	5.14149	0.0364203	2.2711788	19	2	1981–1998	0.63	M-v	5	Williams	31375	1981 ES ₁₉
1981 ES ₂₀	14.5	0.15	19971218	136.97543	353.64395	341.67160	2.08636	0.0537179	2.6817772	23	5	1977–1998	0.52	M-v	2	Williams	31271	1981 ES ₂₀
1981 ET ₂₀	15.0	0.15	19971218	327.52872	191.35316	356.87665	8.99491	0.1445800	2.6273734	35	3	1981–1998	0.88	M-v	4	Williams	31415	1981 ET ₂₀
1981 EU ₂₀	14.0	0.15	19971218	235.17911	3.05708	308.55139	1.03208	0.0992841	2.5965731	22	5	1953–1998	0.84	M-v	2	Williams	28882	1981 EU ₂₀
1981 EH ₂₁	12.5	0.15	19971218	221.23281	111.94761	178.27687	21.99269	0.0409310	3.2109808	28	4	1981–1998	0.82	M-v	1	Williams	28838	1981 EH ₂₁
1981 ER ₂₁	13.5	0.15	19971218	112.78310	220.72528	155.98611	5.70714	0.1258929	3.2328905	34	7	1981–1998	0.96	M-v	1	Williams	26188	1981 ER ₂₁
1981 EX ₂₁	13.5	0.15	19971218	126.59115	188.20425	176.46385	12.33420	0.1959365	2.6523616	36	4	1981–1998	0.90	M-v	2	Williams	22074	1981 EX ₂₁
1981 ET ₂₃	15.0	0.15	19971218	171.02169	356.53902	6.42800	6.23398	0.1977110	2.2396719	16	3	1981–1998	1.00	M-v	5	Williams	15703	1981 ET ₂₃
1981 EB ₂₆	14.5	0.15	19971218	58.59823	103.57008	349.34867	4.19002	0.1574839	3.1696492	22	3	1981–1998	0.92	M-v	3	Williams	31376	1981 EB ₂₆
1981 EU ₂₆	13.5	0.15	19971218	160.57051	191.46681	176.56609	5.40490	0.1599997	3.1663263	28	5	1981–1998	0.73	M-v	2	Williams	29315	1981 EU ₂₆
1981 EF ₂₇	15.0	0.15	19971218	298.91591	50.63834	186.35112	3.97850	0.1135801	2.6163313	26	4	1977–1998	0.86	M-v	3	Williams	23535	1981 EF ₂₇
1981 ET ₂₉	14.0	0.15	19971218	6.01132	278.61723	226.39642	4.58780	0.1015630	3.2019182	22	3	1978–1998	0.88	M-v	4	Williams	31415	1981 ET ₂₉
1981 EL ₃₂	14.5	0.15	19971218	258.19818	289.87794	340.85955	13.07063	0.0688724	2.6165113	16	3	1981–1998	0.84	M-v	5	Williams	22430	1981 EL ₃₂
1981 EB ₃₃	14.5	0.15	19971218	214.43771	340.07152	328.88333	12.13459	0.1849476	2.6377115	26	4	1981–1998	0.88	M-v	3	Williams	25536	1981 EB ₃₃
1981 EG ₃₉	14.0	0.15	19971218	189.79523	358.07767	350.06548	4.98131	0.1587849	3.1468698	20	7	1981–1998	0.92	M-v	2	Williams	29132	1981 EG ₃₉
1981 ED ₄₀	14.5	0.15	19971218	53.48939	279.69331	178.61570	11.05428	0.2630556	3.1421291	23	3	1981–1998	1.05	M-v	4	Williams	25647	1981 ED ₄₀
1981 EO ₄₀	14.0	0.15	19971218	177.72103	153.29326	173.22270	14.54024	0.1530758	2.6536140	24	5	1978–1998	0.92	M-v	2	Williams	25647	1981 EO ₄₀
1981 EK ₄₁	14.5	0.15	19971218	204.20634	125.21419	192.26395	5.97167	0.0333796	2.2567708	57	7	1981–1998	0.86	M-v	1	Williams	28314	1981 EK ₄₁
1981 EJ ₄₂	15.0	0.15	19971218	356.80626	351.06314	184.39059	11.32958	0.1243544	3.1661369	16	3	1981–1998	0.95	M-v	3	Williams	24100	1981 EJ ₄₂
1981 EN ₄₂	15.0	0.15	19971218	295.57061	79.93745	207.52329	1.08713	0.1652996	2.2198333	21	3	1981–1997	0.94	M-v	4	Williams	31376	1981 EN ₄₂
1981 EP ₄₂	14.0	0.15	19971218	90.56646	205.73994	191.13429	3.30626	0.1016200	2.6570940	25	5	1977–1998	0.92	M-v	2	Williams	29940	1981 EP ₄₂
1981 EO ₄₄	17.0	0.15	19971218	60.88843	85.85860	328.85992	1.76879	0.0448350	2.2860609	17	2	1981–1998	0.80	M-v	5	Williams	31415	1981 EO ₄₄
1981 ET ₄₇	14.5	0.15	19971218	146.03705	351.41225	358.61036	5.18162	0.1973202	2.6639383	14	3	1981–1998	0.68	M-v	4	Williams	18807	1981 ET ₄₇
1981 FR	13.5	0.15	19971218	251.52928	104.66024	178.53170	12.17943	0.1550831	2.6223560	38	4	1981–1998	0.77	M-v	2	Williams	25647	1981 FR
1981 FC ₁	13.0	0.15	19971218	28.51869	140.12591	358.52083	8.89025	0.1723590	3.1425452	31	6	1953–1998	0.64	M-v	1	Williams	28882	1981 FC ₁
1981 JB ₂	11.5	0.15	19971218	322.56114	203.39925	44.36382	13.00650	0.0371179	3.1562063	24	6	1981–1997	0.71	M-v	1	Williams	29653	1981 JB ₂
1981 SL	14.5	0.15	19971218	183.26471	140.32327	196.17521	6.93744	0.2567823	3.2658846	30	5	1981–1998	0.62	M-v	1	Marsden	29653	1981 SL
1981 SD ₂	13.5	0.15	19971218	131.20604	345.63536	35.16733	6.39804	0.1301335	2.3853281	34	3	1981–1998	0.69	M-v	3	Williams	31415	1981 SD ₂
1981 UK ₁₁	14.5	0.15	19971218	149.01756	215.87986	141.99507	3.00716	0.2065375	2.3981278	19	4	1981–1998	0.81	M-v	2	Williams	28882	1981 UK ₁₁
1981 UV ₂₃	13.0	0.15	19971218	109.11731	318.54339	58.88322	7.11272	0.2339344	2.4313480	24	4	1977–1998	0.46	M-v	3	Williams	31415	1981 UV ₂₃
1981 UE ₂₆	13.0	0.15	19971218	106.18932	277.75413	100.99431	3.13499	0.0730637	2.9132950	38	4	1981–1998	0.51	M-v	3	Williams	31415	1981 UE ₂₆
1982 QK ₃	14.0	0.15	19971218	86.78918	22.98263	326.82995	2.48612	0.1867100	2.3472749	24	5	1982–1996	0.63	M-v	1	Williams	27931	1982 QK ₃
1982 SM ₂	14.5	0.15	19971218	169.93900	355.09866	348.76512	5.41174	0.1956154	2.2764673	26	3	1982–1998	0.70	M-v	4	Williams	31415	1982 SM ₂
1982 SP ₆	12.5	0.15	19971218	311.38899	36.38287	0.41697	10.28518	0.1148033	3.0134477	26	6	1956–1995	0.73	M-v	2	Williams	29654	1982 SP ₆
1982 SJ ₇	13.0	0.15	19971218	202.18567	153.74444	177.30591	6.76979	0.2789381	2.6613833	18	3	1982–1998	0.73	M-v	2	Williams	27324	1982 SJ ₇
1982 SG ₁₂	14.5	0.15	19971218	75.08622	236.39045	184.19435	6.43275	0.1167200	2.3067058	35	5	1977–1998	0.94	M-v	4	Williams	28314	1982 SG ₁₂
1982 TT ₂	12.5	0.15	19971218	162.73896	329.87502	12.41789	12.32847	0.2209630	2.7409565	20	4	1955–1998	1.01	M-v	4	Williams	27726	1982 TT ₂
1983 BD	12.0	0.15	19971218	168.74673	258.75767	115.42346	15.18905	0.1554875	2.7636403	24	5	1974–1998	0.74	M-v	2	Williams	31415	1983 BD
1983 CH	13.5	0.15	19971218	242.48166	342.92196	98.08290	5.96959	0.0945400	2.2062752	36	6	1983–1996	0.67	M-v	1	Williams	31415	1983 CH
1983 CZ ₂	14.0	0.15	19971218	352.67598	192.92616	319.57082	6.48748	0.1755778	2.4101161	24	3	1979–1998	0.83	M-v	3	Williams	31415	1983 CZ ₂
1983 RF ₂	14.0	0.15	19971218	109.76752	298.08369	78.86218	7.35351	0.2632963	2.6351531	19	4	1949–1998	0.98	M-v	2	Williams	28883	1983 RF ₂

1983 RL ₄	13.5	0.15	19971218	112.33017	213.07098	166.54051	17.63789	0.2720224	2.6354733	23	4	1981–1998	0.72	M-v	2	Williams	18424	1983 RL ₄
1983 WQ	13.0	0.15	19971218	142.92123	295.24560	56.54657	9.81294	0.1157851	2.6730751	34	4	1983–1998	0.66	M-v	3	Williams	31415	1983 WQ
1984 BQ	13.0	0.15	19971218	225.94949	133.32990	52.74945	7.79235	0.0653173	2.3877187	40	4	1984–1998	0.82	M-v	3	Williams	31272	1984 BQ
1984 DR	14.0	0.15	19971218	91.60871	291.56443	141.44421	5.79506	0.1378140	2.2527245	66	5	1969–1998	0.70	M-v	2	Williams	28612	1984 DR
1984 DZ	14.5	0.15	19971218	274.30560	259.59178	345.81905	7.78637	0.2086607	2.3174984	63	4	1953–1998	0.78	M-v	4	Williams	31415	1984 DZ
1984 HR	13.5	0.15	19971218	237.38237	217.54291	16.48185	2.46611	0.1582333	2.3855246	49	4	1980–1998	0.55	M-v	1	Marsden	31272	1984 HR
1984 SC ₆	14.5	0.15	19971218	238.44658	209.59202	96.46468	3.31653	0.2079356	2.4017441	59	4	1984–1998	0.84	M-v	2	Williams	31415	1984 SC ₆
1985 QM ₅	13.5	0.15	19971218	167.90125	188.61714	149.42270	2.54184	0.1400926	2.9420320	38	4	1978–1998	0.79	M-v	3	Williams	31415	1985 QM ₅
1985 TZ ₃	14.0	0.15	19971218	262.22547	344.05063	306.93431	5.33942	0.1730951	2.2769633	21	5	1971–1998	0.78	M-v	2	Williams	30469	1985 TZ ₃
1985 UT	12.5	0.15	19971218	190.83045	254.08357	58.09954	8.11209	0.1034865	2.9868510	34	3	1975–1998	0.56	M-v	4	Marsden	31376	1985 UT
1985 UH ₂	13.5	0.15	19971218	165.14458	292.79537	65.88101	3.18068	0.1043131	2.3423651	32	4	1985–1998	0.56	M-v	2	Williams	31415	1985 UH ₂
1985 UJ ₃	14.0	0.15	19971218	196.79754	222.13042	107.86415	1.26900	0.2412516	2.3180062	45	4	1978–1998	0.75	M-v	4	Williams	31135	1985 UJ ₃
1985 UF ₅	14.0	0.15	19971218	66.43308	224.72879	205.25901	4.11559	0.1986594	2.4171642	39	5	1981–1998	0.86	M-v	3	Williams	31416	1985 UF ₅
1986 AT ₂	11.5	0.15	19971218	82.08354	291.19293	147.98253	19.19363	0.1499282	3.1688022	27	4	1986–1998	0.54	M-v	2	Williams	27709	1986 AT ₂
1986 CS ₁	15.0	0.15	19971218	78.27205	285.27429	169.99426	3.07707	0.1429706	2.4335197	55	5	1986–1998	0.65	M-v	1	Williams	29655	1986 CS ₁
1986 QU	13.5	0.15	19971218	26.33895	322.18962	15.69192	3.53885	0.1552633	3.0943673	38	2	1986–1997	0.63	M-v	4	Williams	31376	1986 QU
1986 QY	13.5	0.15	19971218	97.64576	59.53180	14.50553	5.07364	0.1483836	2.7369339	57	4	1986–1998	0.77	M-v	1	Williams	28883	1986 QY
1986 QZ	14.0	0.15	19971218	154.61532	230.44386	119.13114	3.97755	0.1895244	2.2046363	58	4	1986–1998	0.62	M-v	3	Williams	30651	1986 QZ
1986 QC ₁	13.5	0.15	19971218	224.93798	176.68577	103.98139	4.27055	0.0778071	2.7446673	59	2	1986–1998	0.76	M-v	5	Williams	31416	1986 QC ₁
1986 QO ₄	14.0	0.15	19971218	98.70129	1.16995	3.14834	6.66565	0.1845235	2.2686353	16	4	1986–1998	0.79	M-v	3	Williams	31416	1986 QO ₄
1986 RE ₁	14.5	0.15	19971218	146.27405	153.53569	199.52840	3.20527	0.2432799	2.2137817	79	4	1992–1998	0.60	M-v	3	Williams	31416	1986 RE ₁
1986 VB ₁	14.5	0.15	19971218	113.78881	156.50135	260.11350	5.12574	0.1385804	2.2286276	39	4	1986–1998	0.71	M-v	2	Marsden	28883	1986 VB ₁
1986 VX ₅	13.0	0.15	19971218	171.87834	266.93631	111.89715	5.51740	0.1383833	2.7487348	20	4	1986–1998	0.59	M-v	2	Williams	29655	1986 VX ₅
1987 BM ₁	12.5	0.15	19971218	29.50769	48.39337	93.49396	14.48509	0.1164832	3.0074872	18	5	1987–1996	0.94	M-v	1	Williams	29316	1987 BM ₁
1987 DP ₆	13.5	0.15	19971218	82.54092	325.54919	144.32138	6.12725	0.1055030	2.9781640	54	5	1987–1998	0.71	M-v	1	Williams	29095	1987 DP ₆
1987 DQ ₆	11.5	0.15	19971218	139.78533	14.68251	352.87515	16.02871	0.0741898	3.1102913	57	3	1932–1998	0.59	M-v	3	Williams	31226	1987 DQ ₆
1987 RO ₅	11.5	0.15	19971218	101.48001	216.86928	158.54808	6.81544	0.2910882	3.9480973	36	3	1987–1998	0.70	M-v	4	Williams	31416	1987 RO ₅
1987 RT ₅	14.5	0.15	19971218	136.17305	194.79192	119.52214	3.00467	0.1833897	2.1311400	40	6	1981–1998	0.68	M-v	2	Williams	31416	1987 RT ₅
1987 RU ₅	13.5	0.15	19971218	171.38102	309.94462	4.21017	8.72735	0.2100901	2.6374480	30	3	1987–1998	0.54	M-v	4	Williams	31377	1987 RU ₅
1987 SH ₄	13.5	0.15	19971218	182.87846	313.73615	18.20251	13.88495	0.1950116	2.5992117	40	4	1987–1998	0.68	M-v	3	Williams	31416	1987 SH ₄
1987 SN ₁₂	14.0	0.15	19971218	192.00132	183.74674	145.02765	1.54345	0.2118891	2.5679320	43	5	1979–1998	0.57	M-v	3	Williams	25648	1987 SN ₁₂
1987 UW	13.5	0.15	19971218	159.24341	159.11997	206.24325	32.25002	0.1643343	2.6297993	42	4	1979–1998	0.80	M-v	2	Williams	22969	1987 UW
1987 UN ₁	13.5	0.15	19971218	106.11043	170.44940	228.34782	12.79836	0.1625820	2.6863293	15	2	1987–1998	0.76	M-v	4	Williams	31227	1987 UN ₁
1987 UF ₅	12.5	0.15	19971218	92.71732	318.68585	55.39439	5.74266	0.1627753	2.7634742	13	5	1978–1998	0.39	M-v	1	Williams	21257	1987 UF ₅
1988 BH	13.0	0.15	19971218	35.73514	193.83755	291.09455	7.03219	0.1719078	2.8018019	38	5	1979–1998	0.93	M-v	1	Williams	28315	1988 BH
1988 CP ₁	13.5	0.15	19971218	45.36325	290.29180	135.42486	2.98098	0.0806924	2.9056955	42	4	1988–1998	0.79	M-v	2	Williams	31416	1988 CP ₁
1988 EA ₂	14.5	0.15	19971218	316.61634	24.54024	156.60783	3.69194	0.0636769	2.2585918	48	4	1971–1998	0.68	M-v	2	Marsden	31416	1988 EA ₂
1988 FM ₁	11.5	0.15	19971218	52.20502	83.22004	327.45977	9.95492	0.1012615	3.0341854	26	3	1981–1998	0.47	M-v	4	Williams	31416	1988 FM ₁
1988 PK	14.5	0.15	19971218	167.28490	175.46729	163.80402	4.10577	0.2390206	2.4182058	41	4	1988–1998	0.76	M-v	3	Williams	29656	1988 PK
1988 PC ₁	13.0	0.15	19971218	211.85659	128.78818	243.59925	19.05643	0.2174770	3.1491671	16	3	1955–1994	0.63	M-v	2	Williams	24912	1988 PC ₁
1988 RK	14.5	0.15	19971218	150.24259	193.27120	176.46087	12.67176	0.1859099	2.4271026	25	4	1954–1998	0.90	M-v	2	Williams	20502	1988 RK
1988 RC ₅	14.0	0.15	19971218	171.04881	289.54346	49.68299	5.76368	0.1178383	2.4097069	43	3	1988–1998	0.81	M-v	3	Williams	31416	1988 RC ₅
1988 RD ₆	14.5	0.15	19971218	145.69046	312.95033	49.43953	2.08561	0.1961410	2.4262839	37	5	1988–1998	0.78	M-v	2	Williams	29316	1988 RD ₆
1988 RZ ₁₁	13.0	0.15	19971218	228.61097	340.11282	7.03316	5.26808	0.3054974	3.1674797	37	5	1988–1998	0.69	M-v	2	Williams	29656	1988 RZ ₁₁
1988 SD	13.5	0.15	19971218	219.56107	296.41614	13.34060	5.31356	0.1718012	2.3762718	40	4	1980–1998	0.86	M-v	2	Williams	29656	1988 SD
1988 SN ₁	14.5	0.15	19971218	226.22574	210.48600	114.80349	7.55126	0.1651261	2.3434635	25	4	1988–1998	0.84	M-v	2	Williams	31416	1988 SN ₁
1988 TE	14.0	0.15	19971218	178.80877	97.58908	261.70602	1.17409	0.2241872	2.4036066	34	4	1976–1998	1.01	M-v	2	Williams	29134	1988 TE
1988 TN	13.0	0.15	19971218	143.52562	18.30281	12.78942	5.29299	0.0604018	2.4311599	74	5	1988–1998	0.89	M-v	2	Williams	29941	1988 TN
1988 TB ₁	14.5	0.15	19971218	172.80347	144.67803	208.92862	4.96862	0.1494847	2.4315683	41	6	1954–1998	0.91	M-v	2	Williams	29941	1988 TB ₁
1988 VP	12.5	0.15	19971218	101.47103	346.18772	54.50848	14.39842	0.0662566	2.5378427	68	7	1984–1998	0.70	M-v	2	Williams	29656	1988 VP
1988 VB ₁	13.0	0.15	19971218	118.23733	3.85870	2.02078	13.27075	0.1764020	2.5387769	40	4	1988–1998	0.59	M-v	3	Williams	31416	1988 VB ₁
1988 VH ₁	14.0	0.15	19971218	73.62405	182.07727	239.17362	4.52700	0.2950936	2.5576767	47	5	1984–1998	0.69	M-v	3	Williams	28315	1988 VH ₁
1988 VK ₂	13.5	0.15	19971218	110.29029	305.52128	75.66408	7.48654	0.1343063	2.5525921	47	5	1988–1998	0.72	M-v	3	Williams	29656	1988 VK ₂

1988 VM ₃	14.5	0.15	19971218	356.70901	340.97541	357.79530	2.21476	0.1699035	2.1717789	33	4	1950–1994	0.64	M-v	2	Williams	24581	1988 VM ₃
1988 VO ₃	14.5	0.15	19971218	101.41036	0.22033	15.33374	4.90758	0.2471219	2.5650143	30	5	1951–1998	0.83	M-v	2	Williams	28315	1988 VO ₃
1988 VE ₇	14.0	0.15	19971218	93.14251	292.27222	138.69810	6.69469	0.2182757	2.5255341	29	5	1976–1998	0.68	M-v	3	Williams	28884	1988 VE ₇
1988 XQ	14.0	0.15	19971218	93.05170	164.77315	257.14428	9.66185	0.2706859	2.5346353	26	4	1988–1998	0.93	M-v	3	Williams	28884	1988 XQ
1988 XX ₁	13.5	0.15	19971218	115.90895	349.96720	25.48396	14.43041	0.1861885	2.5841757	56	5	1988–1998	0.68	M-v	2	Williams	31416	1988 XX ₁
1989 AW ₅	14.0	0.15	19971218	70.44598	354.50460	95.63802	3.11347	0.1075847	2.6083100	22	3	1989–1998	0.82	M-v	6	Williams	22226	1989 AW ₅
1989 AC ₇	13.5	0.15	19971218	307.56074	246.01493	137.08612	1.98563	0.1779260	3.1590349	30	5	1981–1997	0.64	M-v	2	Williams	30686	1989 AC ₇
1989 CV ₁	14.5	0.15	19971218	186.32656	358.48113	99.72450	5.50581	0.1713262	2.3725327	29	5	1989–1997	0.87	M-v	1	Williams	30288	1989 CV ₁
1989 CE ₆	13.5	0.15	19971218	231.80946	313.94703	326.11944	12.09054	0.1576245	2.6997044	39	2	1989–1998	0.53	M-v	4	Williams	31416	1989 CE ₆
1989 CJ ₈	13.0	0.15	19971218	57.51229	65.36172	145.18861	8.66783	0.1925085	2.4672202	61	3	1989–1997	0.77	M-v	3	Williams	30469	1989 CJ ₈
1989 EF ₆	14.0	0.15	19971218	9.72221	146.81316	330.91266	8.92191	0.0351888	2.7219978	35	2	1989–1998	0.64	M-v	4	Williams	31416	1989 EF ₆
1989 GS ₄	14.0	0.15	19971218	269.63691	95.21718	176.31922	2.34491	0.1502723	2.7575506	41	3	1989–1998	0.51	M-v	4	Williams	17961	1989 GS ₄
1989 NH ₁	14.5	0.15	19971218	206.91069	184.21059	120.48225	5.87924	0.2026538	2.1916419	35	4	1986–1998	0.97	M-v	2	Williams	31273	1989 NH ₁
1989 OM	13.5	0.15	19971218	229.67949	288.99023	26.11067	17.08922	0.2850451	2.9402376	26	4	1989–1998	0.49	M-v	2	Williams	29657	1989 OM
1989 RG	14.0	0.15	19971218	99.20498	100.24918	313.30870	3.91467	0.1647826	2.2768112	25	4	1979–1998	0.95	M-v	2	Williams	23133	1989 RG
1989 RJ	14.0	0.15	19971218	107.90298	215.93687	206.51119	3.68362	0.2409366	2.2612386	29	5	1988–1998	0.96	M-v	2	Williams	29657	1989 RJ
1989 RV ₂	14.5	0.15	19971218	152.02059	305.36462	44.74473	5.59904	0.1833762	2.2708143	48	3	1989–1998	0.73	M-v	3	Williams	31273	1989 RV ₂
1989 SS ₂	15.0	0.15	19971218	264.18682	135.36211	145.22959	5.89731	0.1121486	2.2065689	31	5	1988–1998	1.07	M-v	2	Williams	29941	1989 SS ₂
1989 SD ₃	15.0	0.15	19971218	148.54384	340.84241	41.95926	4.95773	0.1556029	2.2536419	31	3	1989–1998	0.71	M-v	4	Williams	24582	1989 SD ₃
1989 SR ₃	13.0	0.15	19971218	55.55568	335.57230	103.37148	3.56262	0.0541157	3.4077579	31	2	1989–1998	0.72	M-v	5	Williams	31416	1989 SR ₃
1989 SV ₃	15.5	0.15	19971218	67.81417	260.43383	159.67914	4.32201	0.2181924	2.3588014	50	4	1989–1998	0.91	M-v	1	Williams	27911	1989 SV ₃
1989 SM ₄	14.0	0.15	19971218	211.72736	248.76932	109.12820	2.51678	0.1313050	3.0465650	24	4	1989–1998	0.81	M-v	2	Williams	29941	1989 SM ₄
1989 SJ ₅	13.5	0.15	19971218	250.00493	182.98831	47.97548	7.13870	0.0719539	2.3414595	34	5	1984–1998	0.69	M-v	2	Williams	31416	1989 SJ ₅
1989 SC ₈	14.5	0.15	19971218	127.13167	96.63997	295.55113	3.80566	0.2018175	2.2825715	21	4	1989–1998	0.52	M-v	2	Williams	29316	1989 SC ₈
1989 TJ ₂	13.5	0.15	19971218	93.75010	109.25648	324.07049	4.96100	0.1304946	2.2759944	48	4	1989–1998	0.74	M-v	1	Marsden	28613	1989 TJ ₂
1989 TT ₂	13.0	0.15	19971218	192.63391	234.69658	125.58690	6.28086	0.1651652	3.1229609	17	3	1989–1998	0.72	M-v	4	Williams	28884	1989 TT ₂
1989 TR ₃	13.5	0.15	19971218	311.61419	60.82995	169.16704	9.51152	0.0372748	3.1632035	21	4	1989–1998	0.69	M-v	2	Williams	25062	1989 TR ₃
1989 TY ₄	15.0	0.15	19971218	248.34845	115.94529	164.04018	5.92652	0.1570561	2.2291962	50	4	1989–1998	0.83	M-v	2	Williams	31416	1989 TY ₄
1989 TY ₁₀	14.5	0.15	19971218	142.28243	180.21137	197.87822	4.91496	0.2225640	2.2720279	19	6	1955–1998	0.89	M-v	2	Williams	28085	1989 TY ₁₀
1989 UE	14.5	0.15	19971218	90.96678	324.46555	68.29998	3.23048	0.2257452	2.3593808	30	3	1989–1998	0.70	M-v	3	Williams	31416	1989 UE
1989 UO	14.5	0.15	19971218	74.13022	334.43763	72.89787	3.26976	0.2036398	2.3736311	26	4	1989–1998	0.73	M-v	3	Williams	31378	1989 UO
1989 UM ₁	14.5	0.15	19971218	165.24321	306.86013	55.66463	3.06178	0.1932354	2.2655478	30	3	1989–1998	0.85	M-v	4	Williams	28583	1989 UM ₁
1989 VD ₁	14.5	0.15	19971218	48.39432	352.10066	101.55926	7.53115	0.0665413	2.3448482	26	2	1989–1998	0.45	M-v	5	Williams	31378	1989 VD ₁
1989 WR	14.0	0.15	19971218	167.78226	327.49566	25.90919	6.83934	0.1813486	2.2707193	35	4	1955–1998	0.80	M-v	2	Marsden	31416	1989 WR
1989 YU ₅	15.0	0.15	19971218	158.93480	105.42764	272.01705	2.03377	0.2777460	2.2943919	25	6	1975–1998	0.80	M-v	2	Williams	29657	1989 YU ₅
1989 YX ₆	14.0	0.15	19971218	72.92732	326.14078	113.12194	5.17875	0.2050114	2.3819309	23	4	1989–1998	0.76	M-v	3	Williams	29657	1989 YX ₆
1990 DZ ₁	13.5	0.15	19971218	16.82581	181.11322	316.05501	5.93718	0.0917112	2.4641913	34	4	1986–1998	0.82	M-v	4	Williams	31416	1990 DZ ₁
1990 EM ₁	14.5	0.15	19971218	229.56376	92.45438	234.37607	5.38717	0.1560962	2.4311997	44	3	1990–1998	0.55	M-v	2	Williams	26757	1990 EM ₁
1990 EA ₅	14.0	0.15	19971218	259.69634	350.29443	303.09823	1.85070	0.1682771	2.4681135	31	5	1949–1998	0.78	M-v	1	Williams	29657	1990 EA ₅
1990 EA ₇	13.5	0.15	19971218	217.99565	286.27070	351.50960	9.30415	0.0466263	2.5469001	54	6	1953–1998	0.69	M-v	2	Williams	31416	1990 EA ₇
1990 FG	14.0	0.15	19971218	158.63855	2.47575	357.07549	25.73961	0.0304263	1.9109774	42	4	1982–1998	0.87	M-v	3	Williams	31273	1990 FG
1990 GS	13.5	0.15	19971218	203.92569	308.28131	359.33144	11.42580	0.0625386	2.5352932	37	5	1954–1998	0.74	M-v	3	Williams	31416	1990 GS
1990 HP	14.5	0.15	19971218	299.12667	187.60631	32.23406	21.55396	0.0507858	1.9407078	24	4	1980–1998	0.75	M-v	3	Williams	29657	1990 HP
1990 HH ₁	13.0	0.15	19971218	238.59519	112.04690	162.00920	12.75124	0.1755638	2.6559788	42	4	1990–1998	0.56	M-v	2	Williams	26189	1990 HH ₁
1990 HU ₁	14.0	0.15	19971218	235.39149	118.86671	141.83867	14.32784	0.0302610	2.5885091	25	4	1954–1998	0.72	M-v	3	Williams	24582	1990 HU ₁
1990 HW ₁	13.5	0.15	19971218	56.28724	306.84864	135.79500	15.25233	0.0580331	2.5589650	26	2	1990–1998	0.48	M-v	4	Williams	31416	1990 HW ₁
1990 KE	13.0	0.15	19971218	164.00939	178.51068	190.04899	14.94663	0.1060196	2.6119242	35	4	1953–1998	0.68	M-v	2	Williams	23514	1990 KE
1990 KF	13.0	0.15	19971218	225.17272	207.96686	143.09485	11.25142	0.0221037	2.5384158	36	4	1990–1998	0.66	M-v	2	Williams	29942	1990 KF
1990 QR ₁	14.0	0.15	19971218	224.34752	193.83163	129.46229	1.13176	0.0655273	2.7841570	54	3	1990–1998	0.73	M-v	4	Williams	29316	1990 QR ₁
1990 QO ₄	13.0	0.15	19971218	184.83913	302.88011	354.27715	9.63243	0.0764565	2.9995119	26	2	1990–1998	0.65	M-v	4	Williams	31378	1990 QO ₄
1990 QK ₇	13.0	0.15	19971218	77.66469	272.95854	156.44991	10.39016	0.1027736	2.9817762	35	3	1990–1998	0.54	M-v	3	Williams	23515	1990 QK ₇
1990 QY ₈	13.0	0.15	19971218	77.97849	317.00186	124.15411	3.97277	0.1217743	2.9198758	41	5	1951–1998	0.57	M-v	1	Williams	28885	1990 QY ₈
1990 QE ₉	13.5	0.15	19971218	115.38897	58.42076	352.99008	1.72213	0.0607028	2.8699185	54	4	1990–1998	0.74	M-v	1	Williams	30091	1990 QE ₉

1990 RD	13.0	0.15	19971218	152.11564	206.38771	176.98048	7.81932	0.2262910	2.8750571	26	6	1990–1998	0.62	M-v	1	Williams	29658	1990 RD
1990 RK ₂	14.5	0.15	19971218	136.85816	162.14641	176.88529	2.35893	0.0686229	2.1298412	23	5	1990–1998	0.81	M-v	2	Williams	31274	1990 RK ₂
1990 RG ₃	13.0	0.15	19971218	153.48508	196.24581	183.24006	1.79388	0.0544542	2.8780601	45	4	1990–1998	0.66	M-v	1	Williams	28844	1990 RG ₃
1990 RW ₇	13.0	0.15	19971218	69.08376	227.15958	164.61920	3.59373	0.1752508	3.1718106	28	3	1990–1998	0.61	M-v	3	Williams	31417	1990 RW ₇
1990 SB ₆	14.0	0.15	19971218	133.87596	265.92563	125.20712	3.26976	0.1071134	2.9431998	18	4	1990–1998	0.70	M-v	2	Williams	23515	1990 SB ₆
1990 SS ₆	15.0	0.15	19971218	90.92633	227.10847	144.60760	3.37302	0.1494314	2.1670108	23	2	1990–1998	0.38	M-v	4	Williams	31379	1990 SS ₆
1990 SE ₁₁	13.0	0.15	19971218	237.05240	1.06240	312.74245	8.30806	0.1475833	2.7845425	21	4	1990–1998	0.48	M-v	1	Williams	29134	1990 SE ₁₁
1990 SX ₁₆	13.0	0.15	19971218	138.61749	339.16081	11.70075	10.19348	0.1191517	2.9765968	27	7	1954–1998	0.76	M-v	2	Williams	31417	1990 SX ₁₆
1990 TS ₁	13.5	0.15	19971218	113.76058	52.24103	346.33069	5.64356	0.1909002	3.0383571	24	3	1990–1998	0.66	M-v	4	Williams	31005	1990 TS ₁
1990 TC ₄	13.5	0.15	19971218	128.69822	160.28072	227.69829	1.43164	0.0945724	3.0386820	26	3	1990–1998	0.77	M-v	5	Williams	28844	1990 TC ₄
1990 TE ₇	13.5	0.15	19971218	156.93250	166.71188	211.38056	9.08737	0.0925233	2.9741984	16	4	1980–1998	0.66	M-v	3	Williams	26189	1990 TE ₇
1990 TK ₁₃	13.5	0.15	19971218	136.39543	260.80399	99.21527	10.80697	0.1012626	3.0638300	27	3	1990–1998	0.49	M-v	3	Williams	31417	1990 TK ₁₃
1990 UZ	11.5	0.15	19971218	171.54993	262.51866	85.98138	11.35668	0.1143388	3.0189748	41	3	1978–1998	0.69	M-v	3	Williams	31379	1990 UZ
1990 UB ₁	11.5	0.15	19971218	96.47066	15.46775	32.90855	14.76029	0.1499059	3.1486750	29	3	1990–1998	0.71	M-v	3	Williams	31417	1990 UB ₁
1990 UY ₃	13.0	0.15	19971218	128.64172	294.33515	68.06783	9.97800	0.2239962	3.1254895	22	3	1990–1998	0.77	M-v	4	Williams	29658	1990 UY ₃
1990 UJ ₅	12.0	0.15	19971218	178.51381	154.02684	175.30323	9.46310	0.0818428	3.0777977	36	4	1990–1998	0.65	M-v	2	Williams	31417	1990 UJ ₅
1990 UT ₁₀	13.0	0.15	19971218	118.76789	269.81787	139.98073	1.30316	0.1572379	2.9986564	44	6	1990–1998	0.77	M-v	1	Williams	29942	1990 UT ₁₀
1990 VK ₆	12.5	0.15	19971218	186.84027	144.90943	193.41775	12.12876	0.1888415	3.0317005	33	4	1979–1998	0.97	M-v	4	Williams	23516	1990 VK ₆
1990 VQ ₆	13.0	0.15	19971218	191.79290	237.38569	118.55593	10.62538	0.0839196	2.9915029	47	5	1990–1998	0.63	M-v	1	Williams	30895	1990 VQ ₆
1990 VX ₆	13.5	0.15	19971218	181.41557	249.69143	101.85353	11.23547	0.1125830	2.9840072	15	3	1990–1998	0.62	M-v	3	Williams	28844	1990 VX ₆
1990 WN ₅	12.0	0.15	19971218	309.50442	162.51900	57.99168	11.17118	0.0432212	3.0136480	32	4	1990–1998	1.02	M-v	2	Williams	28885	1990 WN ₅
1990 WC ₉	12.5	0.15	19971218	125.05965	339.33237	65.95258	12.32940	0.0614096	3.0430833	32	3	1990–1998	0.46	M-v	3	Williams	29942	1990 WC ₉
1991 AB ₂	13.5	0.15	19971218	342.68778	332.62259	175.68326	4.02752	0.1251339	2.2674061	24	3	1990–1998	0.65	M-v	4	Williams	31274	1991 AB ₂
1991 DJ ₁	13.5	0.15	19971218	15.73370	41.60161	98.95780	5.81129	0.1129954	2.2480065	36	5	1991–1998	0.61	M-v	1	Williams	25538	1991 DJ ₁
1991 ED	14.5	0.15	19971218	243.75842	242.09660	35.25722	7.30055	0.1074564	2.2902025	23	3	1981–1998	0.69	M-v	5	Williams	31417	1991 ED
1991 EB ₅	13.5	0.15	19971218	197.05134	129.62484	146.23282	6.57716	0.1034580	2.3739378	19	3	1989–1998	0.74	M-v	3	Williams	31380	1991 EB ₅
1991 FY	14.0	0.15	19971218	9.79569	342.10078	137.91925	8.36415	0.0570112	2.3360322	19	3	1987–1998	0.41	M-v	3	Williams	31380	1991 FY
1991 GW	14.5	0.15	19971218	293.58514	171.35042	38.45484	7.95828	0.1890494	2.3571984	36	3	1991–1998	0.65	M-v	4	Williams	31417	1991 GW
1991 GO ₁	13.5	0.15	19971218	38.73109	251.34608	192.04258	22.70086	0.3135626	2.3406839	38	3	1975–1998	0.88	M-v	4	Williams	31417	1991 GO ₁
1991 GR ₁	14.0	0.15	19971218	284.37407	98.00377	142.81310	7.07154	0.0956296	2.3664602	28	5	1988–1998	0.59	M-v	2	Williams	31417	1991 GR ₁
1991 GR ₂	14.0	0.15	19971218	234.43485	295.04041	18.57035	2.21340	0.1877814	2.3009808	51	4	1971–1998	0.71	M-v	3	Williams	31417	1991 GR ₂
1991 GY ₂	15.5	0.15	19971218	324.98938	346.75705	197.02740	5.26921	0.0942833	2.3403226	32	3	1991–1998	0.77	M-v	4	Williams	31417	1991 GY ₂
1991 GK ₅	14.5	0.15	19971218	34.34550	56.96537	22.77472	2.65372	0.1671579	2.3937880	32	3	1982–1998	0.68	M-v	5	Williams	31417	1991 GK ₅
1991 GG ₇	14.0	0.15	19971218	0.27857	94.30916	18.86504	4.21658	0.1580963	2.4000331	42	3	1982–1998	0.47	M-v	3	Williams	31417	1991 GG ₇
1991 GX ₇	13.5	0.15	19971218	314.25909	47.11028	3.87603	9.09694	0.1296714	2.7606740	15	4	1984–1997	0.83	M-v	2	Williams	30687	1991 GX ₇
1991 GG ₁₀	14.5	0.15	19971218	59.08784	345.79953	115.85045	4.03585	0.1446181	2.2793612	31	6	1977–1998	0.67	M-v	1	Williams	29135	1991 GG ₁₀
1991 GM ₁₀	11.5	0.15	19971218	175.63458	234.96981	105.80783	4.64618	0.2267553	3.9969580	40	4	1978–1998	0.65	M-v	2	Williams	31417	1991 GM ₁₀
1991 GN ₁₀	14.0	0.15	19971218	209.09847	243.14098	101.50838	4.77288	0.1826952	2.2714276	23	4	1991–1998	0.65	M-v	2	Williams	24104	1991 GN ₁₀
1991 LM	11.5	0.15	19971218	181.23255	191.03597	103.51959	16.54770	0.0872788	2.5691712	24	2	1991–1998	0.46	M-v	3	Williams	31417	1991 LM
1991 NS ₁	14.0	0.15	19971218	254.02045	126.74700	173.13869	6.62871	0.1744130	2.4327336	45	4	1991–1998	0.79	M-v	2	Marsden	30091	1991 NS ₁
1991 NV ₁	13.5	0.15	19971218	201.90353	135.47546	253.29886	6.17630	0.1213412	2.3818405	35	4	1988–1996	0.60	M-v	1	Marsden	28886	1991 NV ₁
1991 OM ₁	13.5	0.15	19971218	285.85537	333.31531	295.86435	1.53701	0.2018115	2.3920744	32	5	1969–1998	0.54	M-v	1	Williams	25974	1991 OM ₁
1991 PW	15.0	0.15	19971218	235.00316	53.74279	268.76134	3.45512	0.2150004	2.4488375	23	4	1976–1998	0.65	M-v	2	Williams	28845	1991 PW
1991 PH ₂	14.5	0.15	19971218	189.24833	244.42558	32.18256	1.33191	0.0864723	2.5531344	30	3	1991–1998	0.67	M-v	4	Williams	31417	1991 PH ₂
1991 PE ₁₀	14.0	0.15	19971218	101.98703	37.97913	338.43791	8.67605	0.1738222	2.7907854	32	6	1954–1998	0.76	M-v	1	Williams	31417	1991 PE ₁₀
1991 PH ₁₀	13.5	0.15	19971218	137.22236	275.94755	116.18932	1.67322	0.1499196	2.6191360	35	3	1991–1998	0.64	M-v	4	Williams	28584	1991 PH ₁₀
1991 PQ ₁₁	13.5	0.15	19971218	212.09436	31.25484	308.33193	5.23404	0.0858698	2.5298117	27	6	1975–1998	0.79	M-v	2	Williams	29659	1991 PQ ₁₁
1991 PJ ₁₂	12.5	0.15	19971218	16.45421	144.20870	263.30711	8.40797	0.1423111	3.0539720	30	4	1986–1998	0.80	M-v	2	Williams	31274	1991 PJ ₁₂
1991 PY ₁₂	13.5	0.15	19971218	76.97897	103.84198	328.30111	12.26405	0.1797989	2.6892686	17	4	1989–1998	0.63	M-v	1	Williams	28316	1991 PY ₁₂
1991 PY ₁₄	13.0	0.15	19971218	138.31052	76.35993	304.27011	10.06029	0.1790660	2.6328669	32	5	1987–1998	0.79	M-v	2	Williams	27120	1991 PY ₁₄
1991 PW ₁₆	14.5	0.15	19971218	262.16564	147.11577	136.86276	3.39720	0.1584641	2.4574243	52	6	1971–1998	0.75	M-v	1	Williams	31417	1991 PW ₁₆
1991 PZ ₁₇	14.0	0.15	19971218	234.06901	306.81701	109.84587	6.01212	0.1558562	2.2948699	26	4	1989–1996	0.56	M-v	1	Williams	31417	1991 PZ ₁₇
1991 RP ₁	13.5	0.15	19971218	226.72575	337.49417	349.28192	15.19694	0.1284001	2.5400219	31	4	1987–1998	0.70	M-v	3	Williams	25734	1991 RP ₁

1991 RN ₅	13.5	0.15	19971218	147.13015	192.67884	162.49624	5.69162	0.0670883	2.7291400	32	4	1982–1998	0.59	M-v	2	Williams	31417	1991 RN ₅
1991 RD ₇	13.5	0.15	19971218	189.83058	354.59633	3.97726	16.36392	0.1822426	2.5641466	27	6	1954–1998	0.68	M-v	2	Williams	28615	1991 RD ₇
1991 RB ₉	13.5	0.15	19971218	63.86441	232.73502	178.21211	1.95256	0.0622398	2.8654564	32	3	1991–1998	0.48	M-v	3	Williams	31381	1991 RB ₉
1991 RE ₁₀	13.0	0.15	19971218	74.39663	129.39324	307.56259	6.84889	0.2061063	2.7788365	22	4	1991–1998	0.60	M-v	3	Williams	28615	1991 RE ₁₀
1991 RB ₁₂	13.5	0.15	19971218	59.80605	83.18986	320.06734	12.75094	0.1699277	2.8099860	42	3	1991–1998	0.67	M-v	2	Williams	31274	1991 RB ₁₂
1991 RP ₁₇	14.0	0.15	19971218	223.66974	301.09337	349.89142	12.02142	0.2647871	2.5762886	27	3	1991–1998	1.04	M-v	4	Williams	31274	1991 RP ₁₇
1991 RE ₂₀	13.5	0.15	19971218	42.88217	107.03492	344.26365	11.27397	0.0764907	2.7679204	37	2	1991–1998	0.59	M-v	4	Williams	31417	1991 RE ₂₀
1991 RT ₂₆	13.0	0.15	19971218	184.57470	161.50414	194.70082	13.20135	0.1667668	2.6189137	28	3	1991–1998	0.60	M-v	3	Williams	30656	1991 RT ₂₆
1991 TR ₁	15.0	0.15	19971218	134.27812	145.61369	223.77416	19.62542	0.0991995	1.9207742	21	4	1991–1998	0.65	M-v	2	Williams	28086	1991 TR ₁
1991 TQ ₆	14.0	0.15	19971218	338.25973	242.14451	285.09965	3.94017	0.0990593	2.7347702	30	5	1980–1998	0.63	M-v	2	Williams	31418	1991 TQ ₆
1991 UC	13.5	0.15	19971218	113.72622	55.72739	313.11701	1.06785	0.0328031	2.8717604	26	3	1990–1998	0.87	M-v	5	Williams	31418	1991 UC
1991 UV ₂	13.0	0.15	19971218	169.07181	318.72020	59.49962	13.08692	0.2838157	2.6437997	35	5	1978–1998	0.99	M-v	2	Williams	28615	1991 UV ₂
1991 UC ₃	14.0	0.15	19971218	145.78746	182.14362	190.50651	3.10093	0.1913508	2.7366194	21	6	1955–1998	0.89	M-v	1	Williams	30290	1991 UC ₃
1991 VH	16.5	0.15	19971218	53.24617	207.05753	139.48568	13.91652	0.1438461	1.1365704	202	2	1991–1998	0.54	M-v	2	Marsden	31418	1991 VH
1991 VN	14.5	0.15	19971218	165.13987	208.78088	153.72885	2.18646	0.3353106	2.6751329	19	4	1978–1998	0.91	M-v	2	Williams	28886	1991 VN
1991 VD ₁	13.5	0.15	19971218	192.35427	4.02334	32.45494	16.03513	0.0933324	2.5307591	50	5	1987–1997	0.60	M-v	3	Williams	29135	1991 VD ₁
1991 VN ₄	12.0	0.15	19971218	90.45893	278.81385	93.38041	11.64850	0.1038734	3.0077483	13	2	1991–1998	0.57	M-v	4	Williams	31230	1991 VN ₄
1991 VD ₆	14.0	0.15	19971218	85.62814	278.52771	118.77758	7.94572	0.1368359	2.9531603	18	3	1991–1998	0.64	M-v	4	Williams	31418	1991 VD ₆
1991 XH	13.0	0.15	19971218	201.02386	238.24846	134.17081	13.88939	0.1631326	2.6101506	19	5	1984–1995	0.57	M-v	2	Williams	25974	1991 XH
1991 XS	13.0	0.15	19971218	6.61481	244.19929	236.56594	9.95152	0.1379593	3.0266659	25	4	1991–1998	0.79	M-v	1	Williams	31275	1991 XS
1991 YZ	12.0	0.15	19971218	352.93956	213.20560	317.56617	10.03821	0.0444719	3.0157722	27	4	1987–1998	0.74	M-v	2	Williams	31418	1991 YZ
1991 YK ₁	13.5	0.15	19971218	13.74667	8.80839	94.84930	8.45272	0.1583580	3.1860557	35	2	1991–1998	0.20	M-v	4	Williams	31381	1991 YK ₁
1992 BD ₂	13.0	0.15	19971218	87.06212	234.97936	145.60711	10.88137	0.2209025	3.1682313	31	2	1992–1998	0.72	M-v	4	Williams	31231	1992 BD ₂
1992 BK ₂	12.5	0.15	19971218	180.58982	184.88840	158.55953	10.31003	0.0778116	2.9819905	28	4	1992–1998	0.65	M-v	2	Williams	28615	1992 BK ₂
1992 CQ ₂	12.5	0.15	19971218	179.49176	172.74096	157.74124	10.22950	0.0849370	3.0714906	37	4	1990–1998	0.78	M-v	1	Williams	31418	1992 CQ ₂
1992 CT ₂	13.0	0.15	19971218	82.10278	195.99167	230.04649	3.43086	0.1333923	3.0496265	35	4	1990–1998	0.56	M-v	1	Williams	25650	1992 CT ₂
1992 CU ₂	13.0	0.15	19971218	111.95096	98.75546	277.13447	8.11085	0.0804798	3.1736012	33	4	1988–1998	0.64	M-v	1	Williams	31418	1992 CU ₂
1992 DO ₆	13.5	0.15	19971218	212.11559	213.81990	123.14550	3.08248	0.0733442	3.0918569	24	4	1992–1998	0.73	M-v	1	Williams	29099	1992 DO ₆
1992 DA ₁₀	14.0	0.15	19971218	156.90204	125.12010	234.08719	4.20154	0.1685969	3.1824740	14	3	1992–1998	0.67	M-v	5	Williams	29616	1992 DA ₁₀
1992 EB ₂	14.5	0.15	19971218	309.31688	65.70534	156.32175	5.96260	0.1134721	3.2253605	23	3	1992–1998	0.85	M-v	4	Williams	31418	1992 EB ₂
1992 EW ₂	17.5	0.15	19971218	148.84532	200.30566	39.10898	1.92757	0.1564029	2.3755946	18	2	1992–1996	0.56	M-v	5	Williams	31382	1992 EW ₂
1992 EB ₅	12.0	0.15	19971218	339.85323	28.42059	151.50627	22.49398	0.0412830	3.2162783	29	3	1987–1998	0.66	M-v	2	Williams	31382	1992 EB ₅
1992 ES ₅	12.5	0.15	19971218	198.62909	222.61543	137.75216	10.63070	0.0923650	2.9829441	24	5	1992–1998	0.61	M-v	1	Williams	30687	1992 ES ₅
1992 ER ₆	13.0	0.15	19971218	277.05429	210.65230	58.21947	5.83082	0.1108700	3.1587994	30	4	1992–1998	0.62	M-v	1	Williams	29943	1992 ER ₆
1992 EG ₈	13.0	0.15	19971218	138.93091	214.95486	180.32260	0.77742	0.1752167	3.0361934	29	5	1979–1998	0.86	M-v	2	Williams	30687	1992 EG ₈
1992 EJ ₉	13.0	0.15	19971218	119.59386	2.12095	37.02854	5.90580	0.1548883	3.1417790	33	4	1992–1998	0.80	M-v	2	Williams	25975	1992 EJ ₉
1992 EN ₉	12.5	0.15	19971218	138.18208	239.69922	151.59351	2.56314	0.1679250	3.0542593	38	4	1990–1998	0.61	M-v	1	Williams	29660	1992 EN ₉
1992 ER ₉	12.5	0.15	19971218	246.48870	153.97607	141.27624	0.96844	0.1415036	3.1470662	42	5	1992–1998	0.72	M-v	1	Williams	29943	1992 ER ₉
1992 EH ₁₁	13.0	0.15	19971218	62.64888	309.04199	155.32977	2.15951	0.1401960	3.1231049	18	3	1992–1998	0.74	M-v	5	Williams	28585	1992 EH ₁₁
1992 EY ₁₁	13.5	0.15	19971218	20.09975	70.46532	70.67181	2.53568	0.1262418	3.1988352	27	3	1992–1998	0.49	M-v	3	Williams	31275	1992 EY ₁₁
1992 EE ₁₃	13.5	0.15	19971218	31.50861	299.70596	183.39962	8.07841	0.1535521	3.2107125	38	4	1990–1998	0.57	M-v	1	Williams	25975	1992 EE ₁₃
1992 ER ₂₈	14.0	0.15	19971218	217.86476	220.37499	108.93441	2.50885	0.1492193	3.1079693	18	4	1989–1998	0.72	M-v	2	Williams	27913	1992 ER ₂₈
1992 GF ₂	14.5	0.15	19971218	144.01335	300.26594	36.52076	2.13351	0.1172023	2.2065946	25	3	1992–1998	0.76	M-v	5	Williams	31418	1992 GF ₂
1992 GM ₄	14.0	0.15	19971218	80.25259	127.11019	213.04324	5.70703	0.1353168	2.3868994	31	3	1992–1997	0.61	M-v	4	Williams	31138	1992 GM ₄
1992 OX ₁	14.0	0.15	19971218	122.40568	268.32300	136.83305	7.70032	0.0936121	2.2781925	35	4	1989–1998	0.59	M-v	2	Williams	29660	1992 OX ₁
1992 OV ₂	14.5	0.15	19971218	95.09604	289.92086	128.77184	8.58664	0.0874023	2.3164481	28	6	1987–1998	0.83	M-v	1	Williams	29136	1992 OV ₂
1992 OY ₂	14.0	0.15	19971218	109.36002	227.58923	134.27253	4.56809	0.1940576	2.4614877	30	3	1989–1998	0.93	M-v	4	Williams	31418	1992 OY ₂
1992 OJ ₈	14.0	0.15	19971218	185.20048	18.51588	301.00184	6.75427	0.1322141	2.2961104	51	3	1992–1998	0.80	M-v	4	Williams	31418	1992 OJ ₈
1992 PV	15.0	0.15	19971218	134.94483	174.42475	202.42476	2.51465	0.0710279	2.3190975	59	4	1992–1998	0.70	M-v	1	Williams	28886	1992 PV
1992 PV ₁	14.5	0.15	19971218	197.04100	176.10553	151.93598	4.44145	0.1736406	2.2730097	38	4	1992–1998	0.56	M-v	2	Williams	31418	1992 PV ₁
1992 PU ₃	15.0	0.15	19971218	204.14951	247.74680	85.05391	2.11578	0.1624994	2.2500050	55	5	1972–1998	0.66	M-v	1	Williams	29660	1992 PU ₃
1992 QS ₁	13.0	0.15	19971218	133.58257	310.35426	80.50967	8.88788	0.1228232	2.3670190	20	4	1983–1998	0.56	M-v	1	Williams	29100	1992 QS ₁
1992 RZ ₃	15.0	0.15	19971218	270.96148	46.86358	205.47339	0.65726	0.1195460	2.2781554	31	3	1992–1998	0.67	M-v	5	Williams	28586	1992 RZ ₃

1992 RG ₄	15.5	0.15	19971218	150.59496	198.21522	164.99318	6.96032	0.1944038	2.3636527	18	4	1985–1998	0.53	M-v	2	Williams	25650	1992 RG ₄
1992 SW ₃	15.5	0.15	19971218	99.83104	13.43154	44.45502	1.90541	0.1699536	2.3903250	39	5	1989–1998	0.60	M-v	1	Williams	31418	1992 SW ₃
1992 TW	14.0	0.15	19971218	359.70769	189.42293	188.51947	10.67811	0.1116617	2.9752068	38	5	1990–1997	0.49	M-v	1	Williams	31006	1992 TW
1992 UJ	14.5	0.15	19971218	86.38165	95.21589	308.02851	2.36193	0.1882486	2.5435998	25	4	1988–1998	0.80	M-v	3	Williams	31418	1992 UJ
1992 UR	13.5	0.15	19971218	160.73841	313.71404	39.15029	14.83289	0.1966152	2.4087902	39	5	1977–1998	0.78	M-v	2	Williams	31418	1992 UR
1992 UX	14.0	0.15	19971218	175.17991	305.33797	66.99522	7.62812	0.1268196	2.3398832	21	3	1992–1998	0.79	M-v	3	Williams	29317	1992 UX
1992 UA ₁	13.5	0.15	19971218	48.89727	64.19455	10.49695	14.79936	0.1784815	2.6069820	21	4	1975–1998	0.87	M-v	2	Williams	30658	1992 UA ₁
1992 UZ ₁	14.0	0.15	19971218	133.63748	74.89755	308.63062	5.50093	0.1536169	2.4446920	41	4	1931–1998	0.57	M-v	2	Williams	29661	1992 UZ ₁
1992 UK ₂	13.5	0.15	19971218	75.26729	20.43965	32.56937	15.62961	0.2135504	2.5862644	30	2	1992–1998	0.59	M-v	4	Williams	31382	1992 UK ₂
1992 WH	14.0	0.15	19971218	234.86696	76.26062	234.38400	5.20172	0.1269930	2.3544552	22	4	1981–1998	0.55	M-v	1	Williams	29943	1992 WH
1992 WH ₁	13.0	0.15	19971218	166.25756	238.53691	128.01200	6.93357	0.1576929	2.4066247	40	8	1955–1998	0.58	M-v	1	Williams	29661	1992 WH ₁
1992 WU ₁	14.5	0.15	19971218	90.37239	164.96657	231.37697	5.22241	0.3435995	2.5899035	17	5	1946–1998	0.89	M-v	2	Williams	29661	1992 WU ₁
1992 YU ₁	13.5	0.15	19971218	111.77830	85.37557	286.58098	5.12286	0.0829213	2.7239997	33	3	1987–1998	0.80	M-v	4	Williams	31418	1992 YU ₁
1992 YC ₂	14.5	0.15	19971218	103.95501	105.34837	287.14919	1.62652	0.2199275	2.6205904	22	4	1989–1998	0.86	M-v	3	Williams	29661	1992 YC ₂
1992 YE ₄	14.0	0.15	19971218	125.36293	240.24479	150.65740	4.08247	0.2359655	2.5797352	14	3	1979–1998	0.89	M-v	5	Williams	23341	1992 YE ₄
1993 BW ₂	17.5	0.15	19971218	104.19325	287.40521	121.17855	21.91713	0.3060483	1.3352754	119	3	1993–1998	0.62	M-v	2	Williams	27326	1993 BW ₂
1993 BN ₃	15.0	0.15	19971218	339.24962	276.36565	32.31633	7.09581	0.1501527	2.3029451	31	5	1977–1997	0.62	M-v	2	Williams	30290	1993 BN ₃
1993 CO	12.0	0.15	19971218	40.22478	37.54028	43.31348	2.55957	0.0737735	2.9229600	62	10	1976–1998	0.81	M-v	1	Williams	31418	1993 CO
1993 DG ₂	14.0	0.15	19971218	146.52582	47.10552	129.67173	6.49507	0.1125549	2.2391779	28	4	1993–1997	0.89	M-v	2	Williams	30291	1993 DG ₂
1993 FF ₄	14.0	0.15	19971218	25.28892	58.57452	41.87833	2.34938	0.1416824	3.0598147	29	3	1982–1998	0.63	M-v	4	Williams	31418	1993 FF ₄
1993 FH ₅	13.5	0.15	19971218	100.82435	24.08989	45.68634	2.85274	0.0333137	2.8751998	23	3	1993–1998	0.68	M-v	6	Williams	28587	1993 FH ₅
1993 FG ₆	13.0	0.15	19971218	156.43824	320.05689	38.84934	2.06718	0.2059650	2.9857261	27	4	1990–1998	0.77	M-v	2	Williams	26190	1993 FG ₆
1993 FM ₇	14.0	0.15	19971218	103.59309	313.00115	109.18484	3.42444	0.0159763	2.9071775	28	3	1990–1998	0.77	M-v	2	Williams	31419	1993 FM ₇
1993 FW ₈	14.0	0.15	19971218	170.68568	304.96110	58.08157	2.87272	0.0444615	2.8882947	30	5	1990–1998	0.80	M-v	1	Williams	28887	1993 FW ₈
1993 FQ ₁₀	12.5	0.15	19971218	69.79965	58.02101	21.47547	10.31596	0.1041644	2.9658142	14	3	1975–1998	0.50	M-v	4	Williams	23522	1993 FQ ₁₀
1993 FS ₁₄	12.5	0.15	19971218	78.93875	295.18072	105.04570	6.44294	0.1595291	3.1623703	35	4	1992–1998	0.64	M-v	2	Williams	31419	1993 FS ₁₄
1993 FL ₁₅	13.0	0.15	19971218	96.72872	317.50523	87.18153	4.11859	0.1201713	3.0436320	21	4	1980–1998	0.80	M-v	2	Williams	23523	1993 FL ₁₅
1993 FD ₂₂	14.0	0.15	19971218	25.10038	243.73287	211.26178	1.10028	0.2500550	3.0828724	26	4	1991–1998	0.62	M-v	1	Williams	31383	1993 FD ₂₂
1993 FY ₂₂	14.0	0.15	19971218	49.44240	87.57482	358.20098	8.43221	0.1013523	3.0979720	24	3	1971–1998	0.83	M-v	5	Williams	31419	1993 FY ₂₂
1993 FA ₂₃	13.0	0.15	19971218	120.04819	185.00206	211.07898	5.50343	0.0383352	3.0218377	20	3	1977–1998	0.81	M-v	6	Williams	23524	1993 FA ₂₃
1993 FZ ₂₅	13.0	0.15	19971218	54.82148	190.36274	253.16077	1.85458	0.1094871	3.0352058	26	3	1993–1998	0.51	M-v	4	Williams	28616	1993 FZ ₂₅
1993 FS ₂₉	14.5	0.15	19971218	267.05839	350.84620	289.64617	3.72662	0.0599389	2.8486721	16	4	1993–1998	0.77	M-v	1	Williams	28887	1993 FS ₂₉
1993 FW ₃₁	12.0	0.15	19971218	160.48828	306.45375	32.37387	10.94061	0.0890514	3.1776414	22	4	1989–1998	0.59	M-v	2	Williams	30897	1993 FW ₃₁
1993 FU ₃₂	14.5	0.15	19971218	205.97246	183.19231	126.39024	3.26445	0.1591612	3.1301046	33	5	1992–1998	0.57	M-v	1	Williams	26927	1993 FU ₃₂
1993 FO ₃₃	14.0	0.15	19930314	291.79599	223.95039	62.00061	3.16742	0.2597900	2.4221650	3	1	5 days	0.00			Williams		1993 FO ₃₃
1993 FT ₃₃	13.0	0.15	19971218	259.76357	258.43120	46.83032	4.49251	0.0813356	2.7975697	19	7	1976–1997	0.50	M-v	1	Williams	29137	1993 FT ₃₃
1993 FZ ₃₅	13.0	0.15	19971218	182.22448	212.20352	116.60174	2.64449	0.1366461	3.1417593	29	4	1989–1998	0.66	M-v	2	Williams	27730	1993 FZ ₃₅
1993 FM ₄₀	15.0	0.15	19971218	240.68489	144.73769	137.16883	2.27358	0.1688099	3.0855216	23	3	1973–1998	0.66	M-v	5	Williams	23527	1993 FM ₄₀
1993 FT ₄₁	13.0	0.15	19971218	80.93870	93.30348	1.69207	1.64118	0.0601838	2.8461050	32	5	1988–1998	0.75	M-v	1	Williams	31419	1993 FT ₄₁
1993 FH ₄₉	14.0	0.15	19971218	106.75576	227.74072	190.55175	1.64275	0.0761681	2.8957989	27	4	1990–1998	0.92	M-v	3	Williams	31419	1993 FH ₄₉
1993 FC ₅₁	14.5	0.15	19971218	170.22994	47.34358	320.94084	1.21778	0.0703147	2.8605721	25	3	1993–1998	0.56	M-v	5	Williams	28850	1993 FC ₅₁
1993 FR ₅₈	14.0	0.15	19971218	104.04241	190.57630	237.01719	1.01227	0.0900112	2.8331219	51	5	1986–1998	0.75	M-v	2	Williams	31419	1993 FR ₅₈
1993 FK ₈₁	13.0	0.15	19971218	319.47114	14.07742	172.33815	9.97355	0.0421920	3.0522568	24	3	1993–1998	0.65	M-v	4	Williams	31419	1993 FK ₈₁
1993 FX ₈₁	12.0	0.15	19971218	7.46252	69.79999	83.63004	6.62310	0.1257056	2.9402036	20	5	1982–1998	0.93	M-v	2	Williams	28887	1993 FX ₈₁
1993 GL	12.5	0.15	19971218	302.29739	206.04301	48.86543	2.75014	0.0294635	2.8666792	23	3	1993–1998	0.60	M-v	5	Williams	29944	1993 GL
1993 GG ₁	12.5	0.15	19971218	288.31696	154.38725	69.26909	6.34955	0.1003882	3.1361963	59	2	1993–1998	0.41	M-v	5	Williams	31383	1993 GG ₁
1993 HG	13.5	0.15	19971218	279.14075	183.59016	41.98304	1.37674	0.1456499	3.1409160	54	2	1993–1998	0.85	M-v	4	Williams	31234	1993 HG
1993 HJ ₃	13.0	0.15	19971218	68.19705	0.35704	104.68316	3.20192	0.0327297	2.8994541	24	3	1993–1998	0.57	M-v	5	Williams	26903	1993 HJ ₃
1993 JL ₁	13.0	0.15	19971218	16.59996	341.85865	160.16890	1.04542	0.1582058	3.1884895	43	6	1975–1998	0.75	M-v	1	Williams	28589	1993 JL ₁
1993 KT ₁	14.0	0.15	19971218	202.77508	211.09158	77.58070	25.09388	0.0499840	1.9514555	27	5	1990–1998	0.68	M-v	2	Williams	25651	1993 KT ₁
1993 KB ₂	11.5	0.15	19971218	281.69603	97.74578	176.03773	18.20264	0.1601557	3.1066214	30	3	1992–1998	0.42	M-v	3	Williams	23790	1993 KB ₂
1993 LD ₁	13.5	0.15	19971218	235.98446	337.13573	336.08565	11.16953	0.1119464	3.0576689	19	5	1973–1998	0.82	M-v	1	Williams	28888	1993 LD ₁
1993 LG ₂	13.0	0.15	19971218	231.67850	118.92630	200.27283	6.72018	0.1310421	3.1713325	32	4	1988–1998	0.63	M-v	1	Williams	28317	1993 LG ₂

1993 PZ ₂	12.0	0.15	19971218	187.55194	120.05330	220.92461	4.84922	0.2638049	3.9421066	36	7	1978–1998	0.89	M-v	1	Williams	30897	1993 PZ ₂
1993 QB ₃	14.0	0.15	19971218	66.37543	250.28990	146.72514	20.13855	0.2990466	2.2307580	13	2	1993–1998	0.83	M-v	4	Williams	31384	1993 QB ₃
1993 TL	14.0	0.15	19930930	18.47666	319.60507	17.93301	4.64243	0.3020314	2.5955259	12	1	25 days	1.36			Williams		1993 TL
1993 TO	14.0	0.15	19930930	9.65374	335.27711	23.14203	12.87363	0.2522033	2.5936554	16	1	5 days	1.49			Williams		1993 TO
1993 TE ₂	12.5	0.15	19931020	45.65738	315.56240	19.34742	9.86956	0.1698491	2.7569707	8	1	28 days	1.01			Williams		1993 TE ₂
1993 UU	13.5	0.15	19971218	91.37567	322.38393	59.14156	7.83914	0.1971344	2.2625666	23	3	1993–1998	0.52	M-v	3	Williams	31419	1993 UU
1993 UQ ₅	15.0	0.15	19971218	57.06956	335.73435	69.56743	6.77088	0.1167163	2.3040392	31	2	1993–1998	0.81	M-v	4	Williams	31384	1993 UQ ₅
1993 UF ₇	14.5	0.15	19971218	73.63212	267.07306	145.71856	4.52991	0.1099006	2.2285512	34	4	1986–1998	0.81	M-v	1	Williams	31419	1993 UF ₇
1993 VX ₃	13.5	0.15	19971218	75.27634	196.93986	239.69400	4.54828	0.0991012	2.2100367	20	4	1953–1998	0.92	M-v	2	Williams	29662	1993 VX ₃
1993 XN	13.0	0.15	19971218	256.28185	280.58357	268.50772	12.16717	0.1250329	2.6471916	26	2	1993–1998	0.48	M-v	4	Williams	31104	1993 XN
1993 XV	13.5	0.15	19971218	27.23824	136.84166	289.01980	6.37579	0.2105068	2.4759703	37	2	1993–1998	0.52	M-v	4	Williams	31419	1993 XV
1993 XP ₁	14.5	0.15	19971218	342.01825	16.55362	151.82047	5.01326	0.0430726	2.3267720	49	5	1953–1998	0.77	M-v	2	Williams	31419	1993 XP ₁
1993 YJ	14.5	0.15	19971218	139.82373	91.50914	296.72075	3.48905	0.1803576	2.1791752	44	4	1986–1998	0.84	M-v	2	Williams	29137	1993 YJ
1993 YK	14.5	0.15	19971218	7.33678	15.59383	90.02187	8.19224	0.2043046	2.4664909	36	2	1993–1998	0.68	M-v	4	Williams	31384	1993 YK
1993 YN ₂	15.5	0.15	19971218	23.30728	203.13055	254.37614	2.82999	0.1731599	2.3803444	27	2	1993–1998	0.46	M-v	3	Williams	31385	1993 YN ₂
1994 AF	14.5	0.15	19971218	50.67689	165.39842	240.58547	3.46644	0.1869633	2.4552246	25	2	1994–1998	0.62	M-v	4	Williams	31419	1994 AF
1994 AG	15.0	0.15	19971218	73.32789	246.58448	192.90985	1.48417	0.1531475	2.2710811	24	3	1994–1998	0.76	M-v	5	Williams	28851	1994 AG
1994 AV ₁	14.0	0.15	19971218	359.08900	207.46912	302.10370	6.01097	0.1803391	2.4044905	40	3	1989–1998	0.66	M-v	3	Williams	31419	1994 AV ₁
1994 AP ₂	12.5	0.15	19971218	62.96546	291.34135	148.04532	23.09154	0.2083978	2.3649690	40	5	1987–1998	0.76	M-v	2	Williams	27730	1994 AP ₂
1994 AR ₂	14.5	0.15	19971218	266.76923	199.46550	57.37184	0.95010	0.1739448	2.3676365	28	4	1980–1998	0.55	M-v	2	Williams	31237	1994 AR ₂
1994 AS ₂	14.5	0.15	19971218	78.35470	35.55731	355.02496	1.85638	0.2123998	2.4296576	35	3	1994–1998	0.61	M-v	3	Williams	31385	1994 AS ₂
1994 AD ₃	15.5	0.15	19971218	49.67916	312.83847	111.99551	3.81898	0.2197301	2.3588376	40	3	1994–1998	0.61	M-v	3	Williams	31385	1994 AD ₃
1994 AL ₃	14.0	0.15	19971218	50.07426	275.07834	187.94577	6.35924	0.0556808	2.3369905	56	4	1994–1998	0.61	M-v	1	Williams	28318	1994 AL ₃
1994 AE ₁₁	14.5	0.15	19971218	49.03004	347.36905	77.76447	4.73370	0.1486371	2.4819218	28	6	1951–1998	0.74	M-v	1	Williams	31419	1994 AE ₁₁
1994 BM	14.0	0.15	19971218	71.43416	112.22443	316.76235	6.02848	0.1141011	2.4046479	57	3	1993–1998	0.87	M-v	3	Williams	31419	1994 BM
1994 BW	14.5	0.15	19971218	301.28258	123.32681	104.98439	7.30702	0.0917986	2.3228973	22	3	1991–1998	0.50	M-v	4	Williams	31419	1994 BW
1994 BN ₄	14.0	0.15	19971218	197.38775	75.00603	254.36835	5.69626	0.1497530	2.3074211	54	3	1994–1998	0.55	M-v	3	Williams	31419	1994 BN ₄
1994 CA ₁	15.0	0.15	19971218	254.54882	66.91034	196.01107	4.48387	0.0672986	2.3991560	56	3	1994–1998	0.68	M-v	3	Williams	31140	1994 CA ₁
1994 CE ₁	14.0	0.15	19971218	50.04265	108.69140	320.84703	13.35856	0.1418780	2.5446910	41	2	1994–1998	0.72	M-v	4	Williams	31419	1994 CE ₁
1994 CE ₂	14.0	0.15	19971218	226.61575	270.90771	39.49259	0.57579	0.0546543	2.3717904	50	4	1991–1998	0.78	M-v	1	Williams	28888	1994 CE ₂
1994 CG ₂	13.5	0.15	19971218	232.86426	268.94338	0.54666	14.83083	0.1204981	2.6149021	41	3	1991–1998	0.69	M-v	2	Williams	31385	1994 CG ₂
1994 CN ₂	16.5	0.15	19971218	124.99724	248.13155	99.37471	1.43822	0.3950352	1.5733044	105	3	1994–1998	0.53	M-v	4	Williams	31420	1994 CN ₂
1994 CS ₂	13.5	0.15	19971218	18.25691	337.90848	132.80817	14.86285	0.0885697	2.5816006	34	2	1994–1998	0.46	M-v	4	Williams	31420	1994 CS ₂
1994 CD ₉	14.0	0.15	19971218	71.87778	59.67092	6.17891	23.74910	0.2422476	2.3310659	25	3	1989–1998	0.59	M-v	4	Williams	31385	1994 CD ₉
1994 CT ₁₂	14.0	0.15	19971218	61.09560	292.58931	125.86240	7.63486	0.1305308	2.5519668	38	2	1994–1998	0.63	M-v	4	Williams	31420	1994 CT ₁₂
1994 CM ₁₃	14.0	0.15	19971218	162.54599	325.54101	22.73123	6.74058	0.1459869	2.4855429	21	4	1976–1998	0.81	M-v	3	Williams	30453	1994 CM ₁₃
1994 CO ₁₇	14.0	0.15	19971218	250.58825	206.00390	75.75121	4.02131	0.1415647	2.4538573	23	5	1975–1998	0.86	M-v	2	Williams	29137	1994 CO ₁₇
1994 CC ₁₈	14.5	0.15	19971218	59.66282	56.31482	358.48212	12.91419	0.1737656	2.5643341	30	4	1990–1998	0.54	M-v	3	Williams	31420	1994 CC ₁₈
1994 EB	14.0	0.15	19971218	27.93497	321.00242	172.56151	6.56914	0.0789642	2.4691651	44	4	1990–1998	0.68	M-v	3	Williams	31420	1994 EB
1994 ED	13.5	0.15	19971218	247.98313	109.97068	118.40594	1.40832	0.0446852	2.7359481	24	2	1994–1996	0.44	M-v	4	Williams	31386	1994 ED
1994 EQ	14.0	0.15	19971218	269.32399	230.23015	22.82982	12.90516	0.1480389	2.5739928	30	3	1990–1998	0.66	M-v	4	Williams	31420	1994 EQ
1994 EJ ₁	12.5	0.15	19971218	44.96618	263.49402	179.82679	21.82171	0.0689563	2.6639103	36	4	1990–1998	0.76	M-v	2	Williams	31420	1994 EJ ₁
1994 GQ	12.5	0.15	19971218	307.73130	111.43860	41.21047	13.54738	0.0970456	2.9113331	19	5	1951–1998	0.63	M-v	2	Williams	31420	1994 GQ
1994 GV ₉	7.0	0.15	19971218	55.00398	300.95857	176.82849	0.55897	0.0573694	43.4916277	26	4	1994–1997	0.79	M-v	5	Marsden	30092	1994 GV ₉
1994 HA	13.5	0.15	19971218	275.39502	69.76417	201.36535	14.37459	0.1407479	2.5887912	42	5	1990–1998	0.56	M-v	2	Williams	29318	1994 HA
1994 JN	13.5	0.15	19971218	271.35394	87.20619	201.64746	13.61985	0.1959967	2.5898106	32	4	1990–1998	0.77	M-v	3	Williams	26581	1994 JN
1994 JF ₁	17.0	0.15	19971218	306.25054	153.32145	119.62692	3.49304	0.4810847	2.5403678	78	3	1990–1998	0.68	M-v	1	Williams	31420	1994 JF ₁
1994 JS ₁	14.5	0.15	19971218	334.73957	22.23007	168.82086	19.44842	0.3511235	2.6036717	48	3	1994–1998	0.64	M-v	2	Williams	31420	1994 JS ₁
1994 JK ₉	13.0	0.15	19971218	321.03410	132.31990	78.62131	15.15680	0.1616848	2.6100013	22	6	1954–1998	0.47	M-v	2	Williams	29318	1994 JK ₉
1994 LL	13.0	0.15	19971218	7.31138	19.14341	148.93519	27.18254	0.0619607	2.7009183	32	4	1994–1998	0.63	M-v	1	Williams	29663	1994 LL
1994 OC	11.5	0.15	19971218	173.87941	62.68985	322.92519	11.97477	0.1376224	3.0390797	46	4	1994–1998	0.55	M-v	1	Williams	29138	1994 OC
1994 PV	13.0	0.15	19971218	224.32291	182.24011	148.58617	6.19542	0.1503340	3.1355998	26	3	1994–1998	0.55	M-v	4	Williams	29945	1994 PV
1994 PL ₉	12.5	0.15	19971218	171.42420	48.29056	332.63238	10.15163	0.0822032	3.1716612	24	3	1994–1998	0.79	M-v	3	Williams	29663	1994 PL ₉

1994 PW ₁₇	14.0	0.15	19971218	237.80632	174.86866	136.72602	0.79732	0.1822583	3.0921418	20	3	1992–1998	0.87	M-v	4	Williams	29945	1994 PW ₁₇
1994 PC ₃₄	13.0	0.15	19971218	263.51973	135.58592	155.89006	10.42232	0.0671836	2.9942810	20	3	1993–1998	0.74	M-v	3	Williams	30472	1994 PC ₃₄
1994 SH ₃	14.0	0.15	19971218	222.18088	112.24228	209.85384	1.21787	0.1434690	3.3387655	22	3	1994–1998	0.33	M-v	4	Williams	28854	1994 SH ₃
1994 TH ₂	12.5	0.15	19971218	274.73463	187.88048	105.90101	2.52992	0.1284039	3.1387814	32	7	1978–1998	0.83	M-v	1	Williams	29663	1994 TH ₂
1994 TH ₁₅	14.2	0.15	19941015	353.98358	183.21320	210.16388	10.35902	0.3601077	2.7397175	14	1	39 days	0.88			Nakano		1994 TH ₁₅
1995 AW ₂	13.0	0.15	19971218	243.17999	305.52758	248.16568	5.38998	0.1154731	2.2716546	53	4	1986–1998	0.60	M-v	2	Williams	31420	1995 AW ₂
1995 FA ₁	15.5	0.15	19971218	272.16181	29.47053	217.49936	1.63365	0.1282342	2.1609321	36	3	1995–1998	0.64	M-v	3	Williams	29302	1995 FA ₁
1995 FM ₁₁	16.0	0.15	19971218	224.87094	104.43901	184.66611	3.75686	0.1381725	2.1550407	20	3	1992–1998	0.60	M-v	4	Williams	25223	1995 FM ₁₁
1995 GB	14.0	0.15	19971218	238.28446	120.09395	121.00978	2.92458	0.1712416	2.3769564	32	3	1995–1998	0.57	M-v	3	Williams	31386	1995 GB
1995 HK	14.5	0.15	19971218	295.04850	76.71511	132.30744	2.59217	0.0938869	2.2152587	26	2	1995–1998	0.87	M-v	5	Williams	31386	1995 HK
1995 HL	13.5	0.15	19971218	199.57956	248.69199	54.25915	9.97843	0.2208196	2.3786245	28	5	1981–1998	0.65	M-v	1	Marsden	28617	1995 HL
1995 HP	14.0	0.15	19971218	198.44598	214.50564	100.26925	3.59149	0.2393941	2.3275512	25	3	1995–1998	0.45	M-v	3	Williams	31420	1995 HP
1995 KZ	14.5	0.15	19971218	220.45212	154.53764	138.73820	24.39244	0.1930166	2.3488613	50	4	1988–1998	0.45	M-v	2	Williams	31420	1995 KZ
1995 KL ₁	13.5	0.15	19971218	287.40397	284.48994	306.57818	22.06296	0.2079000	2.3114861	32	3	1974–1998	0.39	M-v	1	Williams	31420	1995 KL ₁
1995 MG ₁	13.5	0.15	19971218	53.02593	244.13249	159.30313	9.00284	0.2922717	2.17171403	25	4	1971–1998	0.52	M-v	1	Williams	31277	1995 MG ₁
1995 OE	13.0	0.15	19971218	349.54127	217.28055	255.80771	8.89761	0.0571070	3.0614028	56	3	1995–1998	0.45	M-v	3	Marsden	31420	1995 OE
1995 OJ	15.5	0.15	19971218	328.24298	72.45207	125.53353	3.08400	0.1739748	2.3445736	54	3	1980–1998	0.48	M-v	3	Williams	31420	1995 OJ
1995 OT	14.5	0.15	19971218	251.46125	268.80946	33.28759	4.14965	0.2047447	2.2822665	24	5	1985–1998	0.74	M-v	2	Williams	31420	1995 OT
1995 OB ₁	15.5	0.15	19971218	202.07871	30.98473	285.24986	6.36380	0.1972242	2.6530063	33	3	1995–1998	0.58	M-v	3	Williams	29318	1995 OB ₁
1995 OD ₁	14.0	0.15	19971218	335.97379	5.75163	154.65023	12.25395	0.0875039	3.0068986	58	3	1995–1998	0.58	M-v	3	Williams	31420	1995 OD ₁
1995 OE ₁	14.5	0.15	19971218	106.19622	255.55157	153.83186	2.49225	0.0639057	2.8627293	51	3	1995–1998	0.59	M-v	3	Williams	31420	1995 OE ₁
1995 OX ₁	14.0	0.15	19971218	231.28648	249.93563	70.10109	6.02017	0.2207062	2.3426495	31	5	1981–1998	0.65	M-v	2	Williams	29318	1995 OX ₁
1995 OH ₁₀	14.5	0.15	19971218	180.80285	42.34880	291.59272	2.87872	0.2221481	2.6714796	15	3	1982–1998	0.63	M-v	5	Williams	31386	1995 OH ₁₀
1995 QC ₂	13.5	0.15	19971218	219.62997	328.42272	338.92722	15.61993	0.1708092	2.5967688	21	4	1977–1998	0.76	M-v	2	Williams	30455	1995 QC ₂
1995 QC ₃	15.0	0.15	19971218	232.16408	344.98789	337.02473	5.66246	0.3700872	2.4146162	26	3	1980–1998	0.74	M-v	3	Williams	26192	1995 QC ₃
1995 QJ ₃	13.5	0.15	19971218	142.42356	184.09063	188.37566	13.35866	0.0716518	2.9387643	40	3	1995–1998	0.63	M-v	3	Williams	29139	1995 QJ ₃
1995 QS ₃	12.5	0.15	19971218	119.26984	67.67584	305.62049	12.40359	0.1180946	3.1749702	22	4	1984–1998	0.75	M-v	3	Williams	31277	1995 QS ₃
1995 SB ₂	13.0	0.15	19971218	42.50581	279.68559	213.13093	12.84402	0.1176741	3.1504718	57	5	1990–1998	0.67	M-v	1	Williams	29664	1995 SB ₂
1995 SQ ₂	15.0	0.15	19971218	253.99545	26.54294	258.41860	10.59839	0.1511993	2.6460058	38	3	1995–1998	0.58	M-v	4	Williams	29109	1995 SQ ₂
1995 SZ ₄	14.0	0.15	19971218	159.06564	167.46583	203.31637	2.73073	0.1159267	2.5861425	60	3	1995–1998	0.67	M-v	2	Williams	28889	1995 SZ ₄
1995 SG ₅	13.0	0.15	19971218	183.21474	326.13557	20.74153	16.59831	0.2352068	2.7920340	22	5	1981–1998	0.67	M-v	1	Williams	26177	1995 SG ₅
1995 SH ₅	14.0	0.15	19971218	133.95945	94.70994	297.34901	0.67555	0.1025766	2.9898865	54	3	1995–1998	0.34	M-v	2	Marsden	28889	1995 SH ₅
1995 SL ₅	15.0	0.15	19971218	246.60243	132.61392	183.70292	2.98892	0.1937829	2.4344872	30	4	1976–1998	0.49	M-v	1	Williams	25966	1995 SL ₅
1995 SR ₉	14.5	0.15	19971218	62.41485	94.79737	355.83399	12.96180	0.1253003	3.1533047	39	2	1995–1998	0.78	M-v	4	Williams	31420	1995 SR ₉
1995 SX ₁₉	12.5	0.15	19971218	185.93583	164.81341	184.61228	1.89671	0.0798702	2.8909746	28	3	1993–1998	0.64	M-v	5	Williams	26422	1995 SX ₁₉
1995 SD ₂₄	15.0	0.15	19971218	209.17090	161.38484	163.90689	5.10863	0.1052211	2.7536972	18	2	1995–1998	0.36	M-v	4	Williams	31387	1995 SD ₂₄
1995 SO ₂₆	14.0	0.15	19971218	62.77116	277.53697	197.15452	9.90830	0.0585258	2.9962372	20	2	1995–1998	0.35	M-v	4	Williams	31387	1995 SO ₂₆
1995 SN ₂₉	12.5	0.15	19971218	129.39178	251.14723	143.65239	1.71360	0.1898600	3.1939373	36	6	1978–1998	0.97	M-v	1	Williams	29139	1995 SN ₂₉
1995 SX ₂₉	13.0	0.15	19971218	165.81611	293.32466	88.48440	12.47866	0.2764672	2.6751144	15	4	1982–1998	0.70	M-v	1	Williams	26582	1995 SX ₂₉
1995 ST ₄₈	14.5	0.15	19971218	304.28529	115.79315	98.08805	2.44832	0.1583492	2.9777280	29	2	1995–1998	0.61	M-v	4	Williams	31387	1995 ST ₄₈
1995 SV ₅₂	13.0	0.15	19971218	112.43851	258.86568	141.77594	7.09315	0.1453030	3.1567793	23	3	1992–1998	0.56	M-v	3	Williams	31420	1995 SV ₅₂
1995 SM ₅₄	13.5	0.15	19971218	197.81108	231.53479	102.28779	3.25893	0.0778540	2.8619542	35	3	1995–1998	0.65	M-v	4	Williams	28858	1995 SM ₅₄
1995 TC	14.0	0.15	19971218	231.25873	341.29227	313.64396	0.89287	0.0169029	2.9067937	74	3	1995–1998	0.58	M-v	4	Marsden	28889	1995 TC
1995 TF	14.0	0.15	19971218	228.04438	328.76246	9.80818	15.26394	0.1037036	2.5827872	54	3	1995–1998	0.50	M-v	3	Marsden	29319	1995 TF
1995 TG	12.5	0.15	19971218	155.79832	301.29952	60.82114	12.18482	0.1705743	3.1065673	106	3	1995–1998	0.57	M-v	3	Williams	31420	1995 TG
1995 TN	13.5	0.15	19971218	124.79493	47.74994	1.85867	10.38980	0.0334355	3.0556746	68	3	1995–1998	0.58	M-v	3	Williams	28889	1995 TN
1995 TQ	13.0	0.15	19971218	189.44729	110.57278	242.03307	11.50273	0.1092373	2.9417201	39	4	1990–1998	0.54	M-v	1	Williams	30901	1995 TQ
1995 UL	13.0	0.15	19971218	220.52148	329.66203	357.21133	4.65453	0.0688799	2.7549859	35	3	1995–1998	0.50	M-v	4	Williams	29139	1995 UL
1995 UP ₂	13.5	0.15	19971218	68.87769	101.51651	25.22992	10.59463	0.0613977	2.9912892	54	3	1995–1998	0.28	M-v	2	Marsden	29319	1995 UP ₂
1995 UJ ₄	11.5	0.15	19971218	18.33571	136.17263	49.24771	11.44324	0.0542616	3.0021673	17	5	1984–1998	0.59	M-v	1	Williams	26180	1995 UJ ₄
1995 UU ₄	12.5	0.15	19971218	184.68571	137.94412	230.43705	9.64499	0.1107665	3.0000454	34	3	1989–1998	0.57	M-v	3	Williams	29946	1995 UU ₄
1995 UF ₆	13.5	0.15	19971218	229.02948	274.39697	48.95859	12.50849	0.1876288	2.6763717	33	3	1995–1998	0.64	M-v	4	Williams	29319	1995 UF ₆
1995 UJ ₆	13.0	0.15	19971218	191.66572	110.22332	239.48560	9.46678	0.1114359	3.0205005	19	3	1989–1998	0.46	M-v	3	Williams	29923	1995 UJ ₆

1995 UP ₆	14.5	0.15	19971218	229.47049	92.13195	229.97021	13.42146	0.1628316	2.5646725	48	3	1995–1998	0.54	M-v	3	Williams	29139	1995 UP ₆
1995 UW ₆	13.0	0.15	19971218	81.12791	58.92513	29.90864	8.43448	0.0142734	3.0797062	34	3	1995–1998	0.61	M-v	3	Williams	29139	1995 UW ₆
1995 UC ₈	13.0	0.15	19971218	162.79564	180.46059	205.01460	7.03443	0.1709363	3.0615409	31	4	1979–1998	0.51	M-v	2	Williams	29319	1995 UC ₈
1995 VK	14.0	0.15	19971218	266.40045	141.60832	180.45948	2.40152	0.2075731	2.4416420	32	5	1987–1996	0.52	M-v	1	Williams	26760	1995 VK
1995 VR	13.5	0.15	19971218	218.33285	110.01462	225.09989	11.87126	0.2017151	2.6452747	72	4	1994–1998	0.62	M-v	1	Williams	28890	1995 VR
1995 VA ₂	14.0	0.15	19971218	37.80160	137.81167	59.96109	10.09329	0.0585032	2.5525878	35	4	1989–1997	0.57	M-v	3	Williams	30093	1995 VA ₂
1995 WE ₁	13.5	0.15	19971218	325.19577	180.25300	62.65303	4.56996	0.1224273	3.0784318	36	4	1991–1998	0.41	M-v	1	Williams	29319	1995 WE ₁
1995 WV ₂	14.0	0.15	19971218	305.26476	106.01552	213.54705	2.81876	0.1676830	2.2722934	20	4	1974–1995	0.93	M-v	2	Marsden	26184	1995 WV ₂
1995 WV ₅	13.0	0.15	19971218	252.46113	61.50829	239.17421	9.88702	0.0291517	3.0902308	33	3	1995–1998	0.54	M-v	4	Williams	29112	1995 WV ₅
1995 WC ₇	14.0	0.15	19971218	128.93818	30.09449	39.36519	6.06954	0.1499667	3.0956672	26	3	1995–1998	0.34	M-v	3	Williams	29665	1995 WC ₇
1995 WV ₄₂	12.0	0.15	19971218	195.58798	234.38491	108.39342	14.80151	0.2294923	3.1310503	19	7	1988–1998	0.93	M-v	1	Williams	28890	1995 WV ₄₂
1995 XD	14.0	0.15	19971218	215.61923	351.31033	64.09208	7.33473	0.1236519	2.4690494	19	6	1983–1995	0.64	M-v	2	Williams	26761	1995 XD
1995 YD ₁	14.0	0.15	19971218	353.40782	201.72081	109.85490	8.79492	0.0711280	2.3023706	23	4	1990–1997	0.61	M-v	2	Williams	30473	1995 YD ₁
1995 YY ₁	14.0	0.15	19971218	79.10602	138.23979	105.46325	6.21664	0.1299018	2.2763339	19	4	1976–1996	0.88	M-v	2	Williams	30667	1995 YY ₁
1995 YP ₂	12.5	0.15	19971218	185.63654	292.49320	86.42631	11.16824	0.0998904	2.9979124	35	4	1976–1998	0.58	M-v	2	Williams	29306	1995 YP ₂
1996 AD ₂	13.5	0.15	19971218	221.45171	277.94977	94.29478	12.00929	0.1324984	2.9849017	52	3	1996–1998	0.41	M-v	3	Marsden	29946	1996 AD ₂
1996 AO ₃	11.0	0.15	19971218	196.15022	78.53633	266.21177	5.38909	0.0480915	3.8947185	39	7	1981–1998	0.78	M-v	1	Williams	30689	1996 AO ₃
1996 FG ₃	18.5	0.15	19971218	108.32224	23.38266	300.47844	1.98148	0.3497329	1.0543528	246	3	1996–1998	0.61	M-v	4	Williams	31420	1996 FG ₃
1996 HR ₂₁	13.5	0.15	19971218	60.52035	107.96629	175.44574	1.20998	0.1642615	3.1757334	27	5	1990–1997	0.93	M-v	1	Williams	30785	1996 HR ₂₁
1996 LP ₁	15.0	0.15	19971218	72.39774	246.61278	138.01696	7.14034	0.1824422	2.1932555	35	2	1996–1998	0.57	M-v	4	Williams	31421	1996 LP ₁
1996 OF	16.0	0.15	19971218	74.89478	287.39352	106.05854	6.91734	0.1101735	2.2694593	32	2	1996–1998	0.31	M-v	3	Marsden	31421	1996 OF
1996 OJ ₂	14.5	0.15	19971218	90.17798	78.78453	295.78293	9.96990	0.2557695	2.4304130	69	3	1994–1998	0.52	M-v	2	Williams	31421	1996 OJ ₂
1996 OP ₂	14.5	0.15	19971218	124.39361	152.85029	175.73822	13.54423	0.2419035	2.4026022	36	3	1985–1998	0.72	M-v	3	Williams	27938	1996 OP ₂
1996 PK	14.5	0.15	19971218	284.49581	203.37056	7.65398	3.04075	0.0830106	2.3138758	90	3	1991–1998	0.55	M-v	3	Marsden	31421	1996 PK
1996 PQ	14.5	0.15	19971218	50.28607	273.20363	147.83946	7.15602	0.1066063	2.3297900	37	2	1996–1998	0.58	M-v	4	Williams	31388	1996 PQ
1996 PB ₅	14.5	0.15	19971218	94.83114	85.33176	305.71697	3.32883	0.1708514	2.2578404	34	3	1986–1998	0.64	M-v	3	Williams	31388	1996 PB ₅
1996 PX ₈	15.5	0.15	19971218	91.41337	253.26232	150.83854	5.86791	0.3025094	2.2908213	25	3	1994–1998	0.88	M-v	4	Williams	28596	1996 PX ₈
1996 QU	14.5	0.15	19971218	75.18037	82.85246	326.81712	22.50848	0.2581526	2.3168648	58	3	1982–1998	0.73	M-v	2	Williams	31421	1996 QU
1996 QU ₁	14.0	0.15	19971218	117.11729	47.86917	324.75520	5.87021	0.3015273	2.3866141	66	4	1948–1998	0.63	M-v	2	Williams	29140	1996 QU ₁
1996 QX ₁	13.5	0.15	19971218	59.95503	84.92766	312.46484	12.17629	0.1748670	2.6959612	23	3	1979–1998	0.59	M-v	2	Williams	31243	1996 QX ₁
1996 RE ₁	14.5	0.15	19971218	53.55130	330.36972	76.73409	4.64806	0.2676864	2.5900898	40	2	1996–1998	0.55	M-v	4	Williams	31421	1996 RE ₁
1996 RG ₁	14.5	0.15	19971218	144.50810	18.15449	9.13452	5.75511	0.1649875	2.1812769	33	4	1991–1998	0.66	M-v	3	Williams	31278	1996 RG ₁
1996 RQ ₂	14.0	0.15	19971218	290.92596	240.08235	314.23385	1.55940	0.1502767	2.4083031	48	4	1991–1998	0.50	M-v	2	Marsden	31421	1996 RQ ₂
1996 RB ₄	13.0	0.15	19971218	70.52096	137.26352	288.59231	12.23734	0.1362522	2.6115306	33	3	1992–1998	0.54	M-v	3	Williams	31421	1996 RB ₄
1996 RK ₁₁	16.5	0.15	19971218	78.38509	12.19906	29.96689	1.71541	0.1711029	2.4339079	18	2	1996–1998	0.23	M-v	4	Williams	31388	1996 RK ₁₁
1996 SS ₄	15.0	0.15	19971218	291.13162	8.32614	202.19957	3.74173	0.0612568	2.3533936	59	3	1995–1998	0.48	M-v	3	Williams	31421	1996 SS ₄
1996 SY ₄	15.5	0.15	19971218	131.09485	276.82030	69.56502	2.97806	0.2054287	2.4005819	30	3	1981–1998	0.53	M-v	3	Williams	31142	1996 SY ₄
1996 SL ₇	15.0	0.15	19971218	64.23992	73.80722	24.24368	6.18728	0.1308621	2.2813392	24	4	1989–1998	0.89	M-v	2	Williams	28890	1996 SL ₇
1996 SK ₈	14.0	0.15	19971218	97.44459	21.80412	13.52546	2.11517	0.2037132	2.3945495	34	5	1985–1998	0.75	M-v	1	Williams	29307	1996 SK ₈
1996 TR	15.5	0.15	19971218	118.31445	205.81250	175.17366	7.01986	0.1280742	2.3577571	26	2	1996–1998	0.68	M-v	4	Williams	31389	1996 TR
1996 TP ₁	14.5	0.15	19971218	101.26400	18.97421	17.49820	3.82789	0.2091623	2.4201513	35	5	1985–1998	0.62	M-v	2	Williams	29666	1996 TP ₁
1996 TY ₄	14.5	0.15	19971218	353.51463	121.35593	16.76921	13.93899	0.1312190	2.6137128	35	3	1994–1998	0.50	M-v	3	Williams	31244	1996 TY ₄
1996 TF ₅	16.0	0.15	19971218	101.51012	211.33917	195.22798	4.11987	0.1414744	2.2852780	33	2	1996–1998	0.41	M-v	4	Marsden	31389	1996 TF ₅
1996 TG ₅	14.5	0.15	19971218	127.97412	308.15376	85.18219	2.46695	0.1092241	2.1547783	40	4	1992–1998	0.58	M-v	2	Williams	28890	1996 TG ₅
1996 TH ₅	16.0	0.15	19971218	68.10709	52.51528	16.98242	2.64092	0.1819067	2.4048558	37	2	1996–1998	0.40	M-v	4	Marsden	31389	1996 TH ₅
1996 TB ₆	13.0	0.15	19971218	101.77302	345.70454	31.80018	12.21689	0.3079626	2.7310194	51	4	1978–1998	0.59	M-v	3	Williams	31278	1996 TB ₆
1996 TL ₉	14.5	0.15	19971218	199.44486	215.47938	89.33289	4.87511	0.1854918	2.3135006	66	3	1992–1998	0.43	M-v	3	Williams	31421	1996 TL ₉
1996 TM ₉	15.5	0.15	19971218	158.77067	355.14176	0.48978	0.88229	0.0270632	2.1913233	51	2	1996–1998	0.46	M-v	4	Marsden	31390	1996 TM ₉
1996 TR ₉	15.0	0.15	19971218	161.76413	188.56480	136.09350	4.33180	0.1958522	2.2779668	58	3	1971–1998	0.49	M-v	3	Williams	31421	1996 TR ₉
1996 TK ₁₀	14.5	0.15	19971218	133.35135	27.24124	334.48952	5.63495	0.1491102	2.3571277	28	5	1985–1998	0.80	M-v	2	Williams	28890	1996 TK ₁₀
1996 TL ₁₀	14.5	0.15	19971218	137.54892	44.84224	320.81070	4.77299	0.1817672	2.2559340	39	5	1971–1998	0.87	M-v	2	Williams	31421	1996 TL ₁₀
1996 TF ₁₁	14.0	0.15	19971218	164.88625	36.26883	274.61766	2.31859	0.2093919	2.4127513	19	3	1992–1998	0.59	M-v	4	Williams	31278	1996 TF ₁₁
1996 TU ₁₁	15.0	0.15	19971218	104.06943	342.39692	70.98822	7.97314	0.0967832	2.2725508	27	2	1996–1998	0.45	M-v	4	Marsden	31390	1996 TU ₁₁

1996 TC ₁₅	14.0	0.15	19971218	184.90701	268.30781	85.04517	9.87126	0.1405539	2.6994382	38	3	1994–1998	0.46	M-v	2	Williams	31421	1996 TC ₁₅
1996 TN ₁₉	15.5	0.15	19971218	168.89091	282.16113	36.83500	0.66478	0.2022398	2.3702998	24	4	1978–1998	0.47	M-v	1	Williams	31421	1996 TN ₁₉
1996 TD ₂₁	15.0	0.15	19971218	288.39791	193.31433	31.20751	1.86870	0.0992420	2.3170222	34	3	1992–1998	0.39	M-v	4	Williams	31390	1996 TD ₂₁
1996 TR ₄₁	14.5	0.15	19971218	13.30829	344.98374	124.04847	3.72642	0.1117586	2.5721817	30	4	1980–1998	0.77	M-v	2	Williams	31421	1996 TR ₄₁
1996 TH ₄₂	14.5	0.15	19971218	141.16669	277.61515	66.37727	3.27272	0.1263129	2.3015838	31	3	1989–1998	0.77	M-v	5	Williams	31246	1996 TH ₄₂
1996 TC ₅₄	15.5	0.15	19971218	56.52061	48.23392	18.89577	3.84836	0.1661983	2.5371290	17	3	1976–1998	0.93	M-v	4	Williams	28598	1996 TC ₅₄
1996 UB	13.5	0.15	19971218	146.87248	90.10372	247.81293	1.00638	0.0123682	2.8689944	32	4	1991–1998	0.64	M-v	2	Williams	31279	1996 UB
1996 UD	14.0	0.15	19971218	105.22841	7.35004	47.07661	6.43201	0.1693877	2.3294183	35	4	1983–1998	0.66	M-v	3	Williams	28619	1996 UD
1996 UU	13.5	0.15	19971218	91.40064	199.97336	210.04977	12.77173	0.1527003	2.5588340	46	3	1992–1998	0.62	M-v	3	Williams	31421	1996 UU
1996 UK ₁	14.5	0.15	19971218	141.82135	301.29734	50.30156	3.23713	0.1823646	2.3725187	14	3	1985–1998	0.80	M-v	4	Williams	28866	1996 UK ₁
1996 UD ₃	13.5	0.15	19971218	214.23478	288.66387	348.22485	4.80848	0.0067923	2.7495017	52	2	1996–1998	0.74	M-v	4	Williams	31421	1996 UD ₃
1996 UG ₃	12.5	0.15	19971218	153.11942	286.45693	27.85531	13.32795	0.1997632	2.6708966	27	4	1961–1998	0.70	M-v	2	Williams	31144	1996 UG ₃
1996 VO ₁	13.0	0.15	19971218	136.37142	329.72605	34.56842	14.12678	0.1768475	2.5936573	39	3	1979–1998	0.55	M-v	3	Williams	31422	1996 VO ₁
1996 VQ ₁	13.5	0.15	19971218	246.09625	292.84446	312.88667	11.41783	0.0673140	2.6606635	31	3	1991–1998	0.66	M-v	4	Williams	31390	1996 VQ ₁
1996 VG ₂	14.5	0.15	19971218	115.37847	209.55152	192.43665	1.89982	0.2047919	2.4080889	23	4	1981–1998	0.60	M-v	2	Williams	31422	1996 VG ₂
1996 VM ₂	14.5	0.15	19971218	139.04166	274.52631	69.13125	12.29293	0.2157107	2.6689544	33	2	1996–1998	0.28	M-v	3	Marsden	31422	1996 VM ₂
1996 VU ₂	14.0	0.15	19971218	63.34710	234.23735	169.09146	2.35662	0.2243559	3.1086560	42	2	1996–1998	0.83	M-v	4	Williams	31422	1996 VU ₂
1996 VK ₃	14.0	0.15	19971218	75.37970	205.24305	226.65525	2.55345	0.0769755	2.7436045	42	4	1991–1998	0.77	M-v	3	Williams	31144	1996 VK ₃
1996 VN ₃	13.0	0.15	19971218	57.44071	5.68338	72.80815	2.12373	0.2216929	3.1947735	41	3	1984–1998	0.60	M-v	3	Williams	31391	1996 VN ₃
1996 VS ₄	13.0	0.15	19971218	261.21571	195.40638	59.24660	4.11792	0.0505820	2.6924045	42	4	1982–1998	0.69	M-v	2	Williams	31422	1996 VS ₄
1996 VB ₅	13.5	0.15	19971218	176.47914	287.20306	51.36281	6.42317	0.0462428	2.2289619	64	3	1986–1998	0.60	M-v	3	Williams	31422	1996 VB ₅
1996 VM ₅	14.5	0.15	19971218	2.09350	73.37340	88.73992	5.03977	0.0704382	2.4432223	60	3	1992–1998	0.55	M-v	2	Williams	31279	1996 VM ₅
1996 VP ₅	12.5	0.15	19971218	59.93499	205.53431	232.16178	8.69888	0.0693300	3.1733935	24	4	1979–1998	0.44	M-v	1	Williams	30903	1996 VP ₅
1996 VU ₅	13.0	0.15	19971218	77.22032	279.96563	137.04723	2.21045	0.1696500	3.1368669	33	4	1990–1998	0.59	M-v	1	Williams	30670	1996 VU ₅
1996 VV ₅	13.5	0.15	19971218	158.19605	147.63776	207.56344	5.69616	0.0996414	2.5325160	29	3	1979–1998	0.80	M-v	5	Williams	28601	1996 VV ₅
1996 VX ₅	14.5	0.15	19971218	95.12599	180.38299	233.74278	5.17792	0.1902783	2.6244917	27	3	1989–1998	0.84	M-v	4	Williams	28601	1996 VX ₅
1996 VB ₆	13.5	0.15	19971218	89.10403	296.26755	126.20196	3.07898	0.0568696	2.8887568	57	4	1981–1998	0.55	M-v	3	Williams	29320	1996 VB ₆
1996 VD ₆	13.0	0.15	19971218	82.39204	207.46077	208.11517	3.90655	0.1309362	3.2156909	40	2	1996–1998	0.73	M-v	4	Williams	31422	1996 VD ₆
1996 VP ₆	14.0	0.15	19971218	103.51118	65.25874	326.37152	4.96928	0.1936805	2.5179185	37	4	1984–1998	0.86	M-v	3	Williams	31422	1996 VP ₆
1996 VQ ₆	13.5	0.15	19971218	184.68867	229.59074	71.42047	13.85843	0.1854331	2.6504758	35	3	1990–1998	0.37	M-v	3	Marsden	31422	1996 VQ ₆
1996 VA ₇	14.0	0.15	19971218	330.61343	325.06312	209.82793	3.89748	0.0909544	2.5798446	60	3	1994–1998	0.62	M-v	3	Williams	31422	1996 VA ₇
1996 VR ₇	14.5	0.15	19971218	107.65762	345.91049	71.22442	5.09094	0.1079284	2.4337325	25	3	1992–1998	0.60	M-v	4	Williams	29666	1996 VR ₇
1996 VU ₇	14.0	0.15	19971218	131.33752	313.34628	68.09563	3.61466	0.1872738	2.4427746	27	3	1992–1998	0.79	M-v	4	Williams	28891	1996 VU ₇
1996 VZ ₇	14.5	0.15	19971218	135.90456	262.56323	109.33062	4.16690	0.1269172	2.3145742	24	5	1982–1998	0.66	M-v	1	Williams	29666	1996 VZ ₇
1996 VE ₈	13.5	0.15	19971218	102.22121	153.02719	255.24751	5.49113	0.0693712	2.4854556	20	4	1980–1998	0.84	M-v	4	Williams	31422	1996 VE ₈
1996 VH ₈	14.0	0.15	19971218	124.26435	11.32096	24.26936	7.15983	0.1454944	2.2838429	33	4	1982–1998	0.63	M-v	4	Williams	29117	1996 VH ₈
1996 VJ ₈	14.0	0.15	19971218	87.60439	79.09377	344.66257	4.42904	0.1696908	2.5358900	23	4	1976–1998	0.62	M-v	3	Williams	29140	1996 VJ ₈
1996 VD ₉	13.5	0.15	19971218	116.65943	270.63369	115.46442	4.06215	0.1200217	2.6219346	33	4	1987–1998	0.82	M-v	2	Williams	31422	1996 VD ₉
1996 VF ₉	14.5	0.15	19971218	129.05332	270.13919	113.71068	3.02053	0.2199568	2.3690122	31	6	1985–1998	0.83	M-v	2	Williams	29666	1996 VF ₉
1996 VX ₁₅	14.0	0.15	19971218	327.79585	356.02491	202.86973	1.73582	0.1592074	2.3894666	44	3	1987–1998	0.73	M-v	3	Williams	31279	1996 VX ₁₅
1996 VY ₂₉	14.0	0.15	19971218	182.69162	135.87373	185.60785	2.95980	0.1627588	2.2901777	21	4	1982–1998	0.69	M-v	4	Williams	31422	1996 VY ₂₉
1996 VJ ₃₀	13.5	0.15	19971218	160.31306	104.33360	243.70975	5.43761	0.1439703	2.3995807	28	3	1992–1998	0.68	M-v	3	Williams	31422	1996 VJ ₃₀
1996 VK ₃₀	13.5	0.15	19971218	84.77252	304.17149	125.33284	5.06046	0.2578967	2.6447856	12	3	1991–1998	0.71	M-v	4	Williams	28868	1996 VK ₃₀
1996 VO ₃₀	14.0	0.15	19971218	141.37830	129.33412	248.35459	3.42739	0.1918447	2.2638173	29	4	1962–1998	0.63	M-v	4	Williams	29320	1996 VO ₃₀
1996 VT ₃₀	14.0	0.15	19971218	130.55567	128.84049	255.09811	1.23637	0.2227080	2.3666563	30	4	1963–1998	0.75	M-v	2	Williams	29140	1996 VT ₃₀
1996 WY	14.0	0.15	19971218	167.00272	301.84124	63.15285	7.30914	0.1222034	2.3109703	25	4	1991–1998	0.78	M-v	2	Williams	29118	1996 WY
1996 WZ ₁	11.5	0.15	19971218	13.26723	347.40566	99.40955	10.60003	0.0896561	3.2238805	15	2	1993–1996	0.71	M-v	5	Williams	28605	1996 WZ ₁
1996 WC ₂	14.0	0.15	19971218	334.54916	119.60818	69.90791	8.02513	0.0331183	2.3838826	42	3	1991–1998	0.86	M-v	3	Williams	29140	1996 WC ₂
1996 XC	14.0	0.15	19971218	265.93239	167.40499	96.10748	6.70519	0.1904431	2.4373927	56	3	1991–1998	0.41	M-v	3	Williams	31422	1996 XC
1996 XR	14.5	0.15	19971218	179.38964	270.53108	51.96920	1.66775	0.1093754	2.6366401	42	2	1996–1998	0.53	M-v	4	Williams	31422	1996 XR
1996 XR ₁	12.0	0.15	19971218	108.73075	285.78478	87.84216	4.62438	0.2161840	3.9690872	39	4	1987–1998	0.56	M-v	1	Williams	31422	1996 XR ₁
1996 XT ₁	13.5	0.15	19971218	173.41932	271.34898	79.84005	3.23136	0.0772559	2.8776137	38	3	1994–1998	0.71	M-v	4	Williams	31422	1996 XT ₁
1996 XV ₁	14.0	0.15	19971218	217.01916	45.18024	283.84148	5.80819	0.1296162	2.3505906	18	3	1989–1998	0.52	M-v	3	Williams	28891	1996 XV ₁

1996 XE ₂	14.0	0.15	19971218	41.78752	51.12502	75.27543	7.34978	0.0586386	2.3815570	38	3	1985–1998	0.64	M-v	2	Marsden	31422	1996 XE ₂
1996 XB ₃	14.0	0.15	19971218	213.51014	182.23871	139.48488	3.20252	0.2051448	2.4208126	22	3	1988–1998	0.42	M-v	3	Williams	29926	1996 XB ₃
1996 XF ₃	13.5	0.15	19971218	290.69549	119.39727	128.14017	1.66193	0.1043606	2.9140226	27	3	1993–1998	0.70	M-v	6	Williams	31112	1996 XF ₃
1996 XT ₅	13.0	0.15	19971218	59.68777	179.94187	290.14115	8.77190	0.0640117	2.9757717	26	4	1994–1998	0.53	M-v	1	Williams	28871	1996 XT ₅
1996 XF ₆	13.5	0.15	19971218	37.10618	91.94754	41.81571	2.18234	0.1675233	3.1701480	24	4	1987–1998	0.55	M-v	1	Williams	31144	1996 XF ₆
1996 XG ₉	13.5	0.15	19971218	298.24616	168.78080	60.81084	9.11002	0.1635678	2.7912040	48	3	1993–1998	0.48	M-v	3	Williams	31422	1996 XG ₉
1996 XE ₁₂	14.0	0.15	19971218	189.64941	302.50266	42.41287	2.58524	0.1050012	2.9028518	21	3	1993–1998	0.44	M-v	4	Williams	28891	1996 XE ₁₂
1996 XW ₁₂	14.0	0.15	19971218	157.07957	266.26522	88.21904	7.52343	0.1512544	2.3734880	31	3	1994–1998	0.61	M-v	4	Williams	31422	1996 XW ₁₂
1996 XQ ₁₃	13.5	0.15	19971218	178.63217	90.51561	241.19188	11.53906	0.1162517	2.6316044	53	2	1996–1998	0.34	M-v	3	Marsden	31249	1996 XQ ₁₃
1996 XA ₁₈	15.0	0.15	19971218	356.17492	112.76987	56.28253	5.94241	0.1247563	2.6043916	29	3	1994–1998	0.46	M-v	3	Williams	28872	1996 XA ₁₈
1996 XW ₁₈	14.0	0.15	19971218	267.55509	192.12699	115.44936	7.77450	0.1309546	2.2959044	38	3	1995–1998	0.42	M-v	4	Marsden	29140	1996 XW ₁₈
1996 XJ ₁₉	13.5	0.15	19971218	5.09828	324.57608	211.98175	2.97154	0.0418541	2.7056636	19	3	1991–1998	0.61	M-v	4	Williams	30280	1996 XJ ₁₉
1996 XD ₂₀	15.5	0.15	19971218	125.68521	300.21035	101.22315	6.56073	0.1123092	2.4268763	28	2	1996–1998	0.27	M-v	4	Marsden	31392	1996 XD ₂₀
1996 XR ₂₅	13.5	0.15	19971218	131.86312	267.74578	134.56651	4.67321	0.0931040	2.2899595	28	7	1975–1998	0.84	M-v	2	Williams	29140	1996 XR ₂₅
1996 XS ₂₅	13.0	0.15	19971218	275.48262	155.76653	101.73386	20.27418	0.1861649	3.1136335	27	2	1996–1998	0.36	M-v	3	Williams	31249	1996 XS ₂₅
1996 XN ₂₆	13.0	0.15	19971218	212.99715	227.27161	64.84936	2.95421	0.0486579	2.8675291	36	3	1986–1998	0.82	M-v	3	Williams	31422	1996 XN ₂₆
1996 XT ₃₀	12.0	0.15	19971218	279.22467	148.81033	80.73856	18.18516	0.0935183	3.1788902	18	3	1982–1998	0.56	M-v	4	Williams	31422	1996 XT ₃₀
1996 XQ ₃₂	14.5	0.15	19971218	80.08697	248.05422	221.55420	3.98517	0.0979099	2.2480487	15	5	1974–1998	0.86	M-v	2	Williams	29119	1996 XQ ₃₂
1996 YK	12.5	0.15	19971218	175.56645	156.41186	187.84011	0.45912	0.1187638	3.2566772	24	4	1989–1998	0.87	M-v	2	Williams	29140	1996 YK
1996 YB ₁	13.5	0.15	19971218	113.71498	87.99837	335.59176	2.72894	0.0806216	2.7907858	29	4	1991–1998	0.51	M-v	1	Williams	31422	1996 YB ₁
1996 YG ₁	15.0	0.15	19971218	297.28587	188.98294	77.22359	12.85175	0.1194159	2.4849398	51	2	1996–1998	0.57	M-v	3	Marsden	31422	1996 YG ₁
1996 YD ₂	12.5	0.15	19971218	54.44075	110.56819	4.27955	12.21611	0.1061557	3.0326522	27	3	1972–1998	0.67	M-v	3	Williams	31144	1996 YD ₂
1996 YF ₂	13.0	0.15	19971218	164.27622	83.76550	288.20035	4.71285	0.2254768	2.5213537	25	3	1991–1998	0.57	M-v	4	Williams	29141	1996 YF ₂
1997 AA	13.5	0.15	19971218	138.43611	297.18656	93.06790	3.33162	0.0500617	2.8696416	51	4	1990–1998	0.52	M-v	1	Marsden	31422	1997 AA
1997 AU	13.5	0.15	19971218	180.26015	339.68313	20.65936	2.17397	0.0867344	2.8821425	32	3	1993–1998	0.66	M-v	4	Williams	31422	1997 AU
1997 AA ₁	12.5	0.15	19971218	119.49905	341.33072	51.38677	1.94234	0.1981215	3.2131985	33	5	1972–1998	0.75	M-v	1	Williams	31010	1997 AA ₁
1997 AL ₁	11.5	0.15	19971218	138.68065	92.68444	301.05635	18.37214	0.0872242	3.1645823	20	3	1992–1998	0.57	M-v	4	Williams	29947	1997 AL ₁
1997 AO ₁	11.0	0.15	19971218	226.94967	187.44497	112.84734	5.17741	0.0712674	3.9511327	33	4	1986–1998	0.63	M-v	1	Williams	31422	1997 AO ₁
1997 AT ₁	12.0	0.15	19971218	55.94354	175.64114	296.87108	12.63028	0.1060023	3.1736055	36	4	1979–1998	0.52	M-v	1	Williams	29667	1997 AT ₁
1997 AY ₂	12.0	0.15	19971218	146.97938	279.95117	88.67856	10.46285	0.2292872	3.1682738	23	4	1984–1998	0.75	M-v	2	Williams	29120	1997 AY ₂
1997 AU ₃	13.0	0.15	19971218	125.95125	23.88229	336.72554	10.28781	0.1451213	2.9347275	34	2	1997–1998	0.59	M-v	4	Williams	31422	1997 AU ₃
1997 AD ₇	13.0	0.15	19971218	197.43164	185.27854	166.26518	2.78482	0.2639383	2.4770568	54	8	1929–1998	0.66	M-v	1	Williams	29667	1997 AD ₇
1997 AQ ₁₂	12.0	0.15	19971218	115.27266	302.47030	115.09821	12.50745	0.1113821	3.1433585	15	3	1978–1998	0.49	M-v	3	Williams	29124	1997 AQ ₁₂
1997 AL ₁₃	12.0	0.15	19971218	283.40794	281.81490	349.70135	11.51786	0.1103700	3.1201253	28	4	1983–1998	0.56	M-v	2	Williams	29667	1997 AL ₁₃
1997 AX ₁₄	14.0	0.15	19971218	203.03584	210.56621	113.83280	13.01201	0.3224835	2.6031281	42	3	1982–1998	0.48	M-v	2	Marsden	31422	1997 AX ₁₄
1997 AQ ₁₆	15.5	0.15	19971218	171.85255	258.75616	110.60367	0.33314	0.2310591	2.2241402	30	4	1979–1998	0.44	M-v	1	Williams	29947	1997 AQ ₁₆
1997 AP ₁₇	13.5	0.15	19971218	256.16096	193.63277	95.35666	10.74331	0.0538167	2.9916028	39	3	1989–1998	0.69	M-v	4	Williams	31392	1997 AP ₁₇
1997 BB ₁	11.5	0.15	19971218	218.48530	357.33603	254.43960	11.45558	0.0881479	3.1890258	20	4	1973–1998	0.40	M-v	1	Williams	31279	1997 BB ₁
1997 BE ₃	12.0	0.15	19971218	225.87424	265.51488	63.62537	4.74598	0.2401117	3.1309821	31	6	1972–1998	0.64	M-v	1	Williams	29947	1997 BE ₃
1997 CB	14.5	0.15	19971218	251.55350	191.27262	156.59216	1.34344	0.2792458	2.3483097	23	2	1997–1998	0.31	M-v	3	Williams	31393	1997 CB
1997 CV ₁	14.5	0.15	19971218	266.35027	197.72429	110.51806	2.62880	0.1581105	2.1315435	40	3	1992–1998	0.51	M-v	4	Marsden	29947	1997 CV ₁
1997 CH ₂₆	13.5	0.15	19971218	179.25211	270.98378	115.89795	8.81789	0.2117159	2.7550809	26	5	1986–1998	0.65	M-v	2	Williams	29667	1997 CH ₂₆
1997 CU ₂₆	6.5	0.15	19971218	324.94182	242.12856	300.47771	23.42517	0.1681123	15.7087503	277	2	1997–1998	0.49	M-v	3	Williams	31423	1997 CU ₂₆
1997 EP	14.5	0.15	19970221	253.49817	294.67582	330.93082	11.29100	0.0940489	3.1741464	10	1	7 days	0.33		D	Williams		1997 EP
1997 ET ₁	13.5	0.15	19971218	130.83647	305.13092	84.87988	3.19266	0.0853301	2.8445273	66	5	1981–1998	0.57	M-v	3	Marsden	31423	1997 ET ₁
1997 EG ₆	16.0	0.15	19970221	325.11095	224.72822	334.11997	15.57569	0.1747566	2.6720632	11	1	3 days	0.24		D	Williams		1997 EG ₆
1997 GA ₄₅	8.0	0.15	19970402	359.99642	0.33339	177.10312	8.32364	0.0910162	43.8885546	4	1	5 days	0.35		E	Marsden		1997 GA ₄₅
1997 RX ₆	13.5	0.15	19971218	279.24618	101.11675	15.79357	1.86470	0.0166419	2.8981820	36	4	1977–1997	0.72	M-v	2	Williams	31011	1997 RX ₆
1997 SE ₅	15.0	0.15	19971218	11.64864	56.38819	288.05861	2.61437	0.6674925	3.7224935	419	1	264 days	0.55	M-v	3	Williams	31423	1997 SE ₅
1997 SP ₁₇	15.0	0.15	19971218	14.80487	183.64936	198.28121	7.05383	0.3000789	2.6348560	31	1	87 days	0.84	M-v	4	Nakano	31145	1997 SP ₁₇
1997 UF ₉	16.5	0.15	19971218	280.09161	157.75630	37.28330	25.87977	0.6042399	1.4423949	144	1	152 days	0.58	M-v	4	Williams	31423	1997 UF ₉
1997 US ₉	17.5	0.15	19971218	232.65975	357.19427	212.31466	20.01607	0.2818387	1.0523769	132	1	143 days	0.58	M-v	4	Williams	31423	1997 US ₉
1997 UE ₂₅	13.5	0.15	19971019	3.64405	283.35925	104.22059	3.30672	0.1677748	3.1229597	12	1	10 days	0.97			Williams		1997 UE ₂₅

1997 UF ₂₅	9.0	0.15	19971019	0.00000	185.98006	239.35585	1.21468	0.0000000	44.8910731	4	1	1 days	0.15	E	Marsden	1997 UF ₂₅	
1997 UG ₂₅	8.5	0.15	19971019	0.00000	5.42193	59.94153	0.55289	0.0000000	43.3068842	4	1	1 days	0.12	E	Marsden	1997 UG ₂₅	
1997 VK ₅	12.5	0.15	19971218	175.24425	348.15869	269.61596	6.11952	0.1292587	2.4848058	31	5	1950–1998	0.62	M-v	2	Williams	31281 1997 VK ₅
1997 WU ₃	14.0	0.15	19971218	263.60106	275.17208	241.81016	4.85767	0.0928289	2.2426038	33	4	1982–1998	0.62	M-v	2	Marsden	31281 1997 WU ₃
1997 WL ₇	14.0	0.15	19971218	326.25288	213.69799	250.61135	3.48488	0.0902638	2.6449103	29	2	1991–1998	0.79	M-v	4	Williams	31423 1997 WL ₇
1997 WJ ₁₃	13.5	0.15	19971218	44.02719	121.87292	263.01342	7.99798	0.0442353	2.9949725	17	1	119 days	0.82	M-v	5	Williams	31281 1997 WJ ₁₃
1997 WQ ₂₂	16.0	0.15	19971218	83.12923	67.15162	310.53102	1.82706	0.1771654	2.2623364	24	2	1993–1998	0.36	M-v	4	Williams	31424 1997 WQ ₂₂
1997 WS ₂₂	17.0	0.15	19971218	176.97325	196.96155	59.29797	23.98310	0.1207433	1.2696681	92	1	115 days	0.50	M-v	4	Williams	31424 1997 WS ₂₂
1997 WT ₂₂	19.0	0.15	19971218	319.96386	74.56794	72.08569	8.16102	0.3061086	1.4852770	126	1	119 days	0.50	M-v	4	Williams	31424 1997 WT ₂₂
1997 WU ₂₂	15.5	0.15	19971218	216.24186	334.10203	260.93959	15.97499	0.4420614	1.4675926	79	2	1990–1998	0.51	M-v	4	Williams	31424 1997 WU ₂₂
1997 WT ₂₃	14.5	0.15	19971218	51.63628	94.34910	254.68753	1.49915	0.1919479	2.4094166	37	5	1982–1998	0.59	M-v	1	Williams	31424 1997 WT ₂₃
1997 WB ₃₇	11.5	0.15	19971218	195.62398	144.69472	86.68945	11.87033	0.0984414	3.2144212	34	1	105 days	0.46	M-v	4	Williams	31424 1997 WB ₃₇
1997 WQ ₃₇	13.0	0.15	19971218	30.35334	283.14143	106.87157	4.20492	0.0591192	2.9675260	44	3	1994–1998	0.61	M-v	2	Williams	31394 1997 WQ ₃₇
1997 WX ₄₅	15.5	0.15	19971128	53.69113	122.84825	219.95764	5.73623	0.2706326	2.2724544	16	1	8 days	0.59		D	Williams	1997 WX ₄₅
1997 XP ₂	15.3	0.15	19971218	21.46499	186.68221	243.74429	4.58365	0.2590681	2.6135780	14	1	108 days	0.18	M-v	4	Nakano	1997 XP ₂
1997 XQ ₂	12.5	0.15	19971218	98.44925	139.78724	182.81285	2.56974	0.0888199	2.7234618	76	3	1991–1998	0.67	M-v	2	Marsden	31424 1997 XQ ₂
1997 XX ₃	12.5	0.15	19971218	250.94299	137.67935	159.08383	5.36940	0.1890154	3.9478622	35	2	1997–1998	0.75	M-v	4	Williams	31424 1997 XX ₃
1997 XD ₅	15.0	0.15	19971218	264.72437	116.74167	124.35728	6.21362	0.0466263	2.4301892	24	1	109 days	0.60	M-v	5	Williams	31424 1997 XD ₅
1997 XF ₅	13.5	0.15	19971218	8.28282	166.10427	328.32973	15.35720	0.0808836	3.1757083	16	1	87 days	0.29	M-v	4	Williams	31283 1997 XF ₅
1997 XG ₅	14.5	0.15	19971218	84.67961	17.45884	31.90519	2.14532	0.0864419	2.8315488	27	3	1991–1998	0.38	M-v	3	Williams	31395 1997 XG ₅
1997 XH ₅	15.5	0.15	19971218	9.37365	141.40423	346.02683	3.56664	0.0819850	2.3130248	13	1	106 days	0.55	M-v	6	Williams	1997 XH ₅
1997 XN ₈	14.5	0.15	19971218	41.01444	117.05811	311.66042	3.60541	0.0852649	2.2298325	39	3	1995–1998	0.65	M-v	3	Williams	31424 1997 XN ₈
1997 XY ₈	15.5	0.15	19971218	57.12898	20.08988	72.81112	1.28601	0.0914027	2.4423612	28	1	108 days	0.46	M-v	5	Williams	31424 1997 XY ₈
1997 XH ₉	13.5	0.15	19971218	122.16478	337.48492	54.55368	3.56201	0.1807621	3.0500601	14	1	105 days	0.39	M-v	6	Williams	1997 XH ₉
1997 XE ₁₁	14.5	0.15	19971218	44.68596	260.46136	178.10019	8.53175	0.2142312	2.3200695	23	1	101 days	0.76	M-v	6	Williams	1997 XE ₁₁
1997 YX ₃	14.0	0.15	19971218	41.65190	85.99698	298.94007	27.98093	0.4202042	2.7834588	75	2	1984–1998	0.59	M-v	3	Williams	31424 1997 YX ₃
1997 YH ₄	13.5	0.15	19971218	62.99316	336.17588	59.53769	2.93025	0.0754913	2.8448597	30	2	1996–1998	0.52	M-v	3	Williams	31284 1997 YH ₄
1997 YH ₅	14.0	0.15	19971218	51.97058	60.58194	323.59504	3.59028	0.2394374	2.1886666	28	3	1974–1998	0.48	M-v	3	Williams	31425 1997 YH ₅
1997 YJ ₅	11.5	0.15	19971218	98.94162	54.43933	304.35754	13.82529	0.0860628	3.3391747	23	2	1977–1998	0.62	M-v	4	Williams	31425 1997 YJ ₅
1997 YS ₅	12.0	0.15	19971218	7.65476	143.26569	307.40869	9.47425	0.2429447	3.0290102	17	2	1991–1998	0.45	M-v	3	Williams	31256 1997 YS ₅
1997 YZ ₅	14.0	0.15	19971218	329.74516	65.68647	79.42118	5.66146	0.1505762	2.4542635	22	1	114 days	0.33	M-v	4	Williams	1997 YZ ₅
1997 YV ₆	13.5	0.15	19971218	311.25354	241.98418	293.73011	15.32123	0.1707569	2.9340232	19	1	115 days	0.38	M-v	4	Williams	31284 1997 YV ₆
1997 YN ₇	13.5	0.15	19971218	87.49534	274.80167	110.67683	15.57705	0.1253327	2.6025503	14	1	62 days	0.53	M-v	5	Williams	31425 1997 YN ₇
1997 YP ₇	12.0	0.15	19971218	165.27688	278.27694	45.00616	5.75324	0.1460249	3.1519006	25	4	1979–1998	0.54	M-v	2	Williams	31425 1997 YP ₇
1997 YB ₈	12.0	0.15	19971218	131.68987	190.31866	132.12622	10.53126	0.0674030	2.9888165	47	5	1954–1998	0.38	M-v	1	Marsden	31396 1997 YB ₈
1997 YD ₁₀	13.5	0.15	19971218	181.04688	318.47936	329.81113	5.15290	0.1080398	2.3170604	23	3	1984–1998	0.43	M-v	3	Williams	31285 1997 YD ₁₀
1997 YG ₁₀	13.0	0.15	19971218	355.55350	78.70697	34.36047	3.64364	0.1362728	2.5781606	24	3	1976–1998	0.68	M-v	3	Williams	31257 1997 YG ₁₀
1997 YM ₁₀	14.0	0.15	19971218	57.59946	313.57521	103.44048	8.78919	0.1118511	2.3241935	14	1	65 days	0.46	M-v	5	Williams	1997 YM ₁₀
1997 YT ₁₀	13.0	0.15	19971218	252.57925	136.29900	105.86840	8.56227	0.0490870	2.7793434	42	3	1976–1998	0.44	M-v	4	Williams	31425 1997 YT ₁₀
1997 YL ₁₁	17.5	0.15	19971218	350.87789	91.15422	36.80065	5.45778	0.4209666	2.6707802	59	1	79 days	0.44	M-v	4	Williams	31425 1997 YL ₁₁
1997 YP ₁₁	14.0	0.15	19971218	25.73934	247.20946	197.30772	3.11568	0.0275936	2.2251495	24	3	1993–1998	0.52	M-v	3	Williams	31285 1997 YP ₁₁
1997 YR ₁₁	15.0	0.15	19971218	109.49150	10.77294	12.47185	6.48560	0.0232078	2.1980815	22	3	1980–1998	0.70	M-v	3	Williams	31257 1997 YR ₁₁
1997 YS ₁₁	14.5	0.15	19971218	233.28564	171.56399	108.80096	6.27894	0.1599119	2.2846033	33	4	1950–1998	0.51	M-v	1	Williams	31425 1997 YS ₁₁
1997 YT ₁₁	13.5	0.15	19971218	8.42374	7.69225	121.27193	14.54890	0.0815982	2.6229006	15	2	1994–1998	0.70	M-v	4	Williams	31425 1997 YT ₁₁
1997 YV ₁₁	11.5	0.15	19971218	54.53759	315.11593	125.42928	17.62036	0.0959245	3.1924514	11	1	84 days	0.32	M-v	4	Williams	1997 YV ₁₁
1997 YC ₁₄	14.0	0.15	19971218	205.04278	329.47337	312.28543	6.23123	0.1716301	2.2667603	22	3	1971–1998	0.57	M-v	4	Williams	31425 1997 YC ₁₄
1997 YE ₁₄	12.5	0.15	19971218	214.45852	338.10524	298.47445	8.18609	0.1320453	2.7925032	37	4	1986–1998	0.57	M-v	2	Williams	31425 1997 YE ₁₄
1997 YJ ₁₄	15.5	0.15	19971218	9.65653	148.67339	309.24873	3.03729	0.2371278	2.5772619	19	1	90 days	0.35	M-v	5	Williams	1997 YJ ₁₄
1997 YP ₁₄	14.0	0.15	19971218	93.84078	47.78559	331.12719	1.14236	0.0736237	2.8959813	15	1	85 days	0.27	M-v	5	Williams	1997 YP ₁₄
1997 YU ₁₆	13.5	0.15	19971218	248.14388	146.57076	73.28344	3.01711	0.0219392	2.6279166	24	3	1988–1998	0.48	M-v	4	Williams	31396 1997 YU ₁₆
1997 YB ₁₇	13.0	0.15	19971218	225.02375	309.30685	306.79793	0.94787	0.0217456	2.8849746	30	3	1976–1998	0.37	M-v	3	Williams	31425 1997 YB ₁₇
1998 AK	14.5	0.15	19971218	344.06683	210.68446	275.16274	1.26566	0.1459178	2.3924786	40	1	75 days	0.72	M-v	5	Nakano	1998 AK
1998 AR	13.5	0.15	19971218	3.62131	134.03996	341.53971	4.03101	0.0990609	2.3901419	20	3	1985–1998	0.40	M-v	3	Williams	31260 1998 AR

1998 AX	13.5	0.15	19971218	23.81184	101.12526	346.60619	6.00617	0.1064976	2.3979805	43	3	1982–1998	0.46	M-v	3	Williams	31426	1998 AX
1998 AA ₁	16.5	0.15	19980127	357.21040	34.79825	103.38061	5.58357	0.2410879	2.4063363	20	1	57 days	0.47			Williams		1998 AA ₁
1998 AB ₁	14.0	0.15	19980127	36.78628	326.76639	121.15468	20.64566	0.1330454	2.8370154	17	1	53 days	0.58			Williams		1998 AB ₁
1998 AB ₂	14.5	0.15	19971218	351.83334	5.71228	108.02562	7.41578	0.0914734	2.5429869	23	1	69 days	0.44	M-v	5	Williams		1998 AB ₂
1998 AW ₄	15.0	0.15	19980127	333.12139	53.02638	125.61661	17.23844	0.1838805	3.1557310	26	1	56 days	0.93			Williams		1998 AW ₄
1998 AX ₄	14.5	0.15	19971218	38.19739	331.36986	93.45904	24.33778	0.0799626	1.9621139	28	1	70 days	0.50	M-v	5	Williams		1998 AX ₄
1998 AK ₅	14.0	0.15	19980127	262.74066	286.76682	322.89190	9.47858	0.0548362	2.9816033	27	1	57 days	0.67			Williams		1998 AK ₅
1998 AC ₆	15.5	0.15	19980127	358.01096	175.45944	333.64363	6.17081	0.0690638	2.4591103	17	1	54 days	0.63			Williams		1998 AC ₆
1998 AG ₆	14.0	0.15	19980127	123.15281	229.10485	163.22567	10.89945	0.1490319	2.8927360	12	1	53 days	0.24			Marsden		1998 AG ₆
1998 AH ₆	14.0	0.15	19971218	297.83848	224.12164	2.17879	1.27357	0.0514321	2.9029412	16	1	73 days	0.26	M-v	6	Williams		1998 AH ₆
1998 AK ₈	16.5	0.15	19971218	342.93378	11.63479	126.86017	48.23370	0.1819879	1.7980788	145	1	67 days	0.41	M-v	4	Williams	31426	1998 AK ₈
1998 AL ₈	14.5	0.15	19971218	337.27023	59.55644	74.85508	2.01305	0.1600464	2.6579072	56	1	79 days	0.33	M-v	4	Marsden		1998 AL ₈
1998 AQ ₈	14.0	0.15	19971218	160.81425	93.64830	238.03935	4.25356	0.0197996	2.8180536	18	1	79 days	0.46	M-v	4	Williams	31426	1998 AQ ₈
1998 AS ₈	13.0	0.15	19971218	55.07644	253.77308	180.43276	1.86460	0.0060996	2.8909127	55	4	1991–1998	0.64	M-v	2	Marsden	31426	1998 AS ₈
1998 AV ₈	15.0	0.15	19971218	37.79062	208.25671	202.82060	4.23894	0.1147136	2.2233808	32	3	1990–1998	0.39	M-v	4	Marsden	31426	1998 AV ₈
1998 AL ₁₀	14.5	0.15	19971218	45.52874	264.81028	141.80455	4.92239	0.1589713	2.5227333	10	1	68 days	0.26	M-v	5	Williams		1998 AL ₁₀
1998 AM ₁₀	14.0	0.15	19971218	154.81092	174.18939	145.94793	7.88875	0.0899498	2.4534627	21	1	92 days	0.50	M-v	4	Williams	31426	1998 AM ₁₀
1998 AN ₁₀	15.5	0.15	19971218	20.99342	216.75230	232.74305	2.97177	0.0816477	2.2392158	8	1	60 days	0.44	M-v	5	Williams		1998 AN ₁₀
1998 BJ	14.4	0.15	19971218	42.40808	119.79695	284.33686	6.34982	0.1880984	2.2329221	33	1	75 days	0.53	M-v	6	Nakano		1998 BJ
1998 BU	14.0	0.15	19971218	304.62357	187.46037	357.91604	4.44768	0.1798148	2.5874460	18	2	1994–1998	0.58	M-v	5	Williams	31426	1998 BU
1998 BV	14.5	0.15	19980127	10.65921	346.08557	133.54757	5.68183	0.1657224	2.3237566	27	1	44 days	0.56			Williams		1998 BV
1998 BC ₁	12.5	0.15	19971218	17.65751	282.60583	182.14026	0.29166	0.1426816	3.1856102	35	5	1979–1998	0.60	M-v	3	Williams	31427	1998 BC ₁
1998 BD ₁	13.5	0.15	19980127	301.84214	254.14837	314.23679	11.91413	0.1260195	2.6848649	23	1	44 days	0.50			Marsden		1998 BD ₁
1998 BE ₁	14.5	0.15	19971218	5.79467	12.76804	91.48666	6.16960	0.0501884	2.2790152	26	3	1991–1998	0.63	M-v	4	Williams	31427	1998 BE ₁
1998 BL ₁	14.0	0.15	19980127	112.72324	242.88274	136.39972	11.78489	0.0560835	2.6936202	27	1	43 days	0.66			Williams		1998 BL ₁
1998 BO ₁	14.0	0.15	19971218	32.52791	84.40548	347.39739	5.30492	0.0966034	2.3427606	38	5	1950–1998	0.52	M-v	1	Williams	31427	1998 BO ₁
1998 BS ₁	13.5	0.15	19971218	352.13542	127.96087	353.16177	4.41887	0.1220117	2.4537101	24	4	1981–1998	0.39	M-v	1	Williams	31427	1998 BS ₁
1998 BT ₁	14.0	0.15	19971218	49.20821	50.76289	357.87893	4.25264	0.1295764	2.1586905	26	3	1984–1998	0.60	M-v	2	Williams	31262	1998 BT ₁
1998 BB ₂	12.5	0.15	19971218	221.22794	157.59679	102.39833	17.76763	0.1381896	3.1197696	46	3	1988–1998	0.64	M-v	3	Williams	31397	1998 BB ₂
1998 BW ₂	12.5	0.15	19971218	90.92026	267.38414	108.94282	8.58117	0.1074018	3.0383194	25	4	1977–1998	0.72	M-v	3	Williams	31427	1998 BW ₂
1998 BW ₃	16.0	0.15	19971218	21.16978	218.77139	222.45114	2.10168	0.0996749	2.4092405	19	2	1978–1998	0.38	M-v	4	Marsden	31397	1998 BW ₃
1998 BZ ₃	15.0	0.15	19971218	286.18667	286.20947	286.42174	3.42500	0.1537415	2.6011751	14	1	62 days	0.26	M-v	6	Marsden		1998 BZ ₃
1998 BG ₄	14.6	0.15	19971218	289.32252	184.61005	26.28777	1.13210	0.1482803	2.3921687	28	1	127 days	0.69	M-v	5	Nakano	31427	1998 BG ₄
1998 BH ₄	15.0	0.15	19971218	320.77251	204.08095	334.28641	2.25326	0.2235370	2.3622519	24	1	73 days	0.44	M-v	5	Williams		1998 BH ₄
1998 BJ ₄	13.5	0.15	19971218	13.27194	140.47143	314.83498	10.56483	0.2820555	2.7387294	29	2	1996–1998	0.56	M-v	4	Marsden	31427	1998 BJ ₄
1998 BK ₄	16.5	0.15	19971218	314.44155	74.52916	110.56265	3.81737	0.2133874	2.2580833	27	1	111 days	0.50	M-v	4	Williams	31427	1998 BK ₄
1998 BE ₅	16.0	0.15	19971218	331.67236	282.41620	216.41737	4.82187	0.0709570	2.3162960	20	1	81 days	0.35	M-v	4	Williams		1998 BE ₅
1998 BP ₆	13.0	0.15	19980127	5.91470	340.88365	96.57015	11.98618	0.2343034	3.0569215	17	1	32 days	0.53			Williams		1998 BP ₆
1998 BA ₇	15.0	0.15	19980127	311.35089	103.93109	97.24169	3.27332	0.1138057	2.102924	34	1	39 days	0.57			Williams		1998 BA ₇
1998 BE ₇	14.5	0.15	19971218	5.16563	298.44437	103.27698	14.44646	0.5064663	3.1026325	59	1	53 days	0.60	M-v	6	Williams	31427	1998 BE ₇
1998 BH ₇	14.0	0.15	19971218	241.68335	61.92827	183.44846	1.36844	0.0845947	2.2318969	37	4	1949–1998	0.67	M-v	2	Williams	31398	1998 BH ₇
1998 BR ₇	14.0	0.15	19980127	64.86894	70.83860	333.96344	22.98465	0.2789217	2.3194444	27	1	39 days	0.51			Williams		1998 BR ₇
1998 BW ₇	16.5	0.15	19980216	22.12810	38.22549	53.40518	6.85888	0.1822864	2.3276549	27	1	59 days	0.62			Williams		1998 BW ₇
1998 BX ₇	16.5	0.15	19971218	18.23191	271.41665	145.17057	8.95230	0.5033049	2.6023993	84	1	63 days	0.35	M-v	4	Williams	31427	1998 BX ₇
1998 BZ ₇	17.5	0.15	19971218	321.54157	102.75353	112.54937	6.48316	0.5553461	2.0399346	213	1	69 days	0.45	M-v	5	Williams	31427	1998 BZ ₇
1998 BA ₈	14.5	0.15	19971218	328.62275	78.78896	78.55813	3.03317	0.0135222	2.3416234	33	4	1982–1998	0.86	M-v	4	Williams	31427	1998 BA ₈
1998 BB ₈	14.5	0.15	19980127	11.80816	350.63543	140.09580	15.85263	0.0598842	2.6046890	31	1	54 days	0.48			Williams		1998 BB ₈
1998 BE ₈	14.5	0.15	19971218	59.42100	64.94959	343.09219	4.06134	0.1531133	2.2058337	24	3	1990–1998	0.66	M-v	2	Williams	31398	1998 BE ₈
1998 BF ₈	14.0	0.15	19980127	50.34564	317.27574	135.61401	10.44393	0.0267352	2.9766016	24	1	38 days	0.62			Williams		1998 BF ₈
1998 BG ₈	13.5	0.15	19971218	79.36349	306.51362	84.88757	3.53615	0.1535571	2.5250396	30	3	1988–1998	0.47	M-v	4	Williams	31427	1998 BG ₈
1998 BH ₈	12.5	0.15	19971218	212.57044	163.63634	122.61206	11.03371	0.1277222	2.6740282	34	2	1982–1998	0.72	M-v	5	Williams	31427	1998 BH ₈
1998 BJ ₈	14.5	0.15	19980127	29.66675	333.45010	129.14069	9.38200	0.1714166	2.9814083	25	1	56 days	0.49			Williams		1998 BJ ₈
1998 BM ₈	15.0	0.15	19980127	356.11670	171.99844	334.32335	12.05630	0.1216855	2.4124518	27	1	39 days	0.56			Williams		1998 BM ₈

1998 BP ₈	14.5	0.15	19980127	207.63737	301.22824	2.15368	5.15387	0.1641900	2.2413127	29	1	38 days	0.62		Williams		1998 BP ₈
1998 BR ₈	13.0	0.15	19971218	2.99337	155.20206	338.93737	9.47486	0.0463078	3.0159326	27	4	1977–1998	0.56	M-v 2	Williams	31399	1998 BR ₈
1998 BS ₈	15.0	0.15	19980127	296.99083	133.32293	87.74939	3.15339	0.1358077	2.4366924	21	1	38 days	0.44		Williams		1998 BS ₈
1998 BT ₈	13.5	0.15	19980216	300.79983	237.13648	329.93397	21.23051	0.0463794	3.1097518	26	1	53 days	0.62		Williams		1998 BT ₈
1998 BW ₈	14.0	0.15	19980127	285.97600	207.38790	15.66317	5.07884	0.0990183	3.1815384	28	1	44 days	0.68		Williams		1998 BW ₈
1998 BX ₈	14.5	0.15	19971218	10.32041	136.39157	340.09025	10.67101	0.0683094	3.0121363	30	2	1990–1998	0.69	M-v 4	Williams	31399	1998 BX ₈
1998 BY ₈	15.0	0.15	19971218	13.43154	135.71904	331.77880	12.20638	0.1007768	2.5362256	18	1	66 days	0.68	M-v 5	Williams		1998 BY ₈
1998 BZ ₈	13.5	0.15	19971218	44.35204	355.42099	77.76008	4.79004	0.1032554	2.6423460	29	1	60 days	0.63	M-v 5	Williams		1998 BZ ₈
1998 BG ₉	19.5	0.15	19971218	354.23934	1.02781	115.58574	13.01250	0.5359091	2.5204611	103	1	64 days	0.51	M-v 4	Williams	31428	1998 BG ₉
1998 BL ₁₀	16.5	0.15	19980127	69.39982	58.34760	337.17226	25.75094	0.0753985	2.6436545	9	1	47 days	0.54		Marsden		1998 BL ₁₀
1998 BN ₁₀	13.5	0.15	19980216	123.01899	237.41552	104.37599	10.66088	0.1332918	2.9275161	31	1	59 days	0.44		Marsden		1998 BN ₁₀
1998 BP ₁₀	15.5	0.15	19980216	53.02656	303.28192	120.99126	6.74471	0.1685255	2.3334311	34	1	59 days	0.31		Marsden		1998 BP ₁₀
1998 BS ₁₃	13.5	0.15	19971218	324.91074	254.29542	257.46752	3.07975	0.0451230	2.7853243	38	1	90 days	0.54	M-v 4	Williams		1998 BS ₁₃
1998 BB ₁₅	15.0	0.15	19971218	333.79069	322.82002	179.30279	3.73236	0.1314065	2.2217110	26	3	1993–1998	0.68	M-v 3	Williams	31400	1998 BB ₁₅
1998 BP ₁₇	17.0	0.15	19980127	319.80836	72.14201	125.43064	3.99005	0.1729817	2.3361724	18	1	41 days	0.56		Williams		1998 BP ₁₇
1998 BB ₁₉	12.5	0.15	19980216	139.24848	331.61326	6.40882	9.40000	0.1772849	3.1404088	21	1	49 days	0.64		Williams		1998 BB ₁₉
1998 BJ ₁₉	14.5	0.15	19980216	287.64351	63.88945	157.62530	2.32854	0.0875953	2.2245462	17	1	59 days	0.27		Williams		1998 BJ ₁₉
1998 BK ₁₉	15.0	0.15	19971218	287.64947	59.60249	135.83648	6.67391	0.0383051	2.2865033	27	1	64 days	0.44	M-v 5	Williams		1998 BK ₁₉
1998 BF ₂₃	15.5	0.15	19980127	13.58989	144.54552	331.45743	6.17435	0.2690755	2.7256936	20	1	38 days	0.57		Williams		1998 BF ₂₃
1998 BP ₂₄	14.0	0.15	19971218	277.68260	279.47277	307.85849	12.23183	0.1996162	2.5302557	47	1	63 days	0.45	M-v 5	Williams		1998 BP ₂₄
1998 BR ₂₄	15.0	0.15	19980127	5.19380	341.93704	146.20811	3.77586	0.2220717	2.6162209	26	1	38 days	0.72		Williams		1998 BR ₂₄
1998 BS ₂₄	15.0	0.15	19980127	8.30609	348.38745	136.45278	3.40570	0.1568013	2.3615602	18	1	38 days	0.73		Williams		1998 BS ₂₄
1998 BT ₂₄	14.5	0.15	19980127	250.73206	261.82682	357.95205	5.40757	0.0981307	2.2539236	26	1	35 days	0.83		Williams		1998 BT ₂₄
1998 BX ₂₄	15.0	0.15	19971218	311.98433	44.88995	149.73142	5.47003	0.2074014	2.5706060	23	2	1996–1998	0.61	M-v 4	Williams	31400	1998 BX ₂₄
1998 BZ ₂₄	13.0	0.15	19971218	351.64902	354.35061	146.21630	2.72316	0.1531263	3.0916746	20	2	1993–1998	0.62	M-v 5	Williams	31428	1998 BZ ₂₄
1998 BB ₂₅	14.5	0.15	19980216	299.47331	223.96542	349.19505	5.31390	0.0573481	2.5347847	19	1	38 days	0.64		Williams		1998 BB ₂₅
1998 BC ₂₅	15.0	0.15	19980216	90.63246	52.72467	349.45465	6.56207	0.1174659	2.3631198	19	1	38 days	0.71		Williams		1998 BC ₂₅
1998 BG ₂₅	14.0	0.15	19980216	262.25162	134.13210	120.78583	7.62793	0.0893522	2.6981858	20	1	37 days	0.94		Williams		1998 BG ₂₅
1998 BH ₂₅	14.5	0.15	19971218	288.62013	140.82690	69.47370	2.88391	0.0750202	2.4434707	23	3	1983–1998	0.57	M-v 3	Williams	31400	1998 BH ₂₅
1998 BJ ₂₅	16.0	0.15	19980127	7.74479	71.60217	58.35976	2.58106	0.1039626	2.2525218	18	1	35 days	0.81		Williams		1998 BJ ₂₅
1998 BK ₂₅	13.5	0.15	19980127	151.67580	256.02112	87.29515	6.59645	0.1449858	2.3895822	15	1	35 days	0.67		Williams		1998 BK ₂₅
1998 BL ₂₅	13.5	0.15	19971218	15.71832	322.55801	151.28492	4.24808	0.0502223	2.7934948	19	2	1991–1998	0.57	M-v 4	Williams	31400	1998 BL ₂₅
1998 BN ₂₅	14.0	0.15	19971218	177.64484	347.82992	321.80076	1.00454	0.0373659	2.1534964	37	2	1992–1998	0.55	M-v 5	Williams	31429	1998 BN ₂₅
1998 BV ₂₅	14.5	0.15	19980216	351.13482	9.89914	140.50234	7.19186	0.0516088	2.2736181	30	1	51 days	0.29		Williams		1998 BV ₂₅
1998 BY ₂₅	15.0	0.15	19980127	292.42261	121.25621	91.90622	7.11693	0.0580517	2.2182962	18	1	37 days	0.58		Williams		1998 BY ₂₅
1998 BA ₂₆	14.0	0.15	19980216	318.08639	215.17367	351.46685	13.21304	0.2011139	2.6836845	18	1	54 days	0.36		Williams		1998 BA ₂₆
1998 BC ₂₆	12.5	0.15	19971218	87.83011	319.29829	64.54553	8.69915	0.1804323	2.4145502	19	3	1974–1998	0.52	M-v 5	Williams	31401	1998 BC ₂₆
1998 BJ ₂₆	16.5	0.15	19980216	31.93287	107.77750	26.26280	1.65335	0.1284384	2.3946429	18	1	56 days	0.48		Williams		1998 BJ ₂₆
1998 BK ₂₆	16.0	0.15	19980216	273.21334	120.45210	159.93705	5.82690	0.1532646	2.2288446	19	1	56 days	0.56		Williams		1998 BK ₂₆
1998 BL ₂₆	15.0	0.15	19971218	297.85974	88.68877	143.13180	3.02196	0.0345165	2.7406226	26	2	1991–1998	0.56	M-v 5	Williams	31401	1998 BL ₂₆
1998 BM ₂₆	13.5	0.15	19980216	167.65917	252.46225	66.11672	13.76243	0.1760130	2.5821181	15	1	51 days	0.54		Williams		1998 BM ₂₆
1998 BO ₂₆	17.0	0.15	19971218	341.07184	197.94839	327.09181	4.43322	0.3947613	2.3771731	37	1	63 days	0.63	M-v 4	Williams		1998 BO ₂₆
1998 BP ₂₆	17.5	0.15	19971218	334.84235	186.43237	331.16791	20.23600	0.2574455	1.7231469	123	1	67 days	0.51	M-v 4	Williams	31429	1998 BP ₂₆
1998 BT ₂₆	13.5	0.15	19980216	316.64259	138.85779	335.39358	15.54784	0.0715556	3.1728898	30	1	53 days	0.40		Marsden		1998 BT ₂₆
1998 BD ₃₀	14.1	0.15	19980216	333.14589	37.64132	139.73559	2.15713	0.1560812	2.8902984	27	1	50 days	0.59		Nakano		1998 BD ₃₀
1998 BE ₃₀	13.0	0.15	19971218	296.20014	208.99873	3.64520	10.83022	0.0496629	2.9921979	24	2	1995–1998	0.46	M-v 4	Williams	31401	1998 BE ₃₀
1998 BG ₃₀	15.5	0.15	19980216	54.54992	278.16403	145.08918	6.25982	0.2422238	2.4572084	21	1	50 days	0.51		Williams		1998 BG ₃₀
1998 BH ₃₀	14.5	0.15	19980127	311.11849	262.30142	289.95835	2.98186	0.1270103	2.6144827	20	1	31 days	1.62		Williams		1998 BH ₃₀
1998 BJ ₃₀	13.5	0.15	19971218	105.13175	80.81110	284.49793	2.24063	0.1259596	2.6312961	15	1	62 days	0.51	M-v 6	Williams		1998 BJ ₃₀
1998 BK ₃₀	13.5	0.15	19971218	36.22980	137.65410	303.14591	2.47031	0.0595421	2.6203269	38	4	1979–1998	0.82	M-v 2	Williams	31401	1998 BK ₃₀
1998 BM ₃₀	14.0	0.15	19980216	293.89194	256.84782	317.00536	8.61740	0.1398284	2.9978078	35	1	55 days	0.33		Marsden		1998 BM ₃₀
1998 BJ ₃₃	13.5	0.15	19971218	290.19424	239.79338	307.37636	13.96354	0.0317817	2.5683542	18	1	86 days	0.27	M-v 4	Williams		1998 BJ ₃₃
1998 BK ₃₃	14.5	0.15	19980127	322.10604	93.90970	91.07965	7.37400	0.0524648	2.3962841	22	1	41 days	0.59		Williams		1998 BK ₃₃

1998 BM ₃₃	16.0	0.15	19980127	332.69608	105.74012	77.89973	5.79126	0.1965948	2.5700912	24	1	40 days	0.70		Williams		1998 BM ₃₃
1998 BN ₃₃	13.5	0.15	19980127	79.95436	356.52399	43.99074	7.49659	0.2119335	2.5213892	29	1	38 days	0.67		Williams		1998 BN ₃₃
1998 BR ₃₃	14.0	0.15	19971218	339.72218	144.23592	10.77316	9.35508	0.0515426	2.4531092	29	4	1983–1998	0.50	M-v	3	Williams	31429 1998 BR ₃₃
1998 BS ₃₃	14.5	0.15	19971218	329.17572	62.49321	116.77733	6.41888	0.1374352	2.4642442	31	2	1994–1998	0.51	M-v	4	Williams	31401 1998 BS ₃₃
1998 BW ₃₃	15.0	0.15	19980216	15.93195	141.10825	353.15875	13.39867	0.1884869	2.6603303	23	1	49 days	0.66		Williams		1998 BW ₃₃
1998 BX ₃₃	14.0	0.15	19980216	198.70171	340.89300	345.95962	24.63391	0.1741888	2.3818456	30	1	49 days	1.12		Williams		1998 BX ₃₃
1998 BB ₃₄	14.0	0.15	19980216	141.78255	348.28988	25.93194	5.38246	0.0807898	2.7582825	20	1	49 days	0.64		Williams		1998 BB ₃₄
1998 BC ₄₁	12.0	0.15	19971218	233.43632	340.78182	296.05310	12.74473	0.1453148	2.6296652	17	1	60 days	0.46	M-v	5	Williams	1998 BC ₄₁
1998 BD ₄₁	15.2	0.15	19971218	347.90133	36.83101	36.77905	5.36769	0.3154036	2.5776528	16	1	109 days	0.67	M-v	5	Nakano	1998 BD ₄₁
1998 BG ₄₁	15.0	0.15	19971218	74.53755	247.75736	140.00488	7.31608	0.1493419	2.3223002	15	1	60 days	0.23	M-v	5	Williams	1998 BG ₄₁
1998 BC ₄₂	14.0	0.15	19980127	10.45969	9.15475	118.27066	11.76006	0.0173855	3.0925173	19	1	43 days	0.88		Williams		1998 BC ₄₂
1998 BD ₄₂	16.5	0.15	19971218	309.56706	88.67071	89.78065	6.86812	0.2154458	2.3100959	19	1	65 days	0.56	M-v	5	Williams	1998 BD ₄₂
1998 BU ₄₅	15.5	0.15	19971218	332.33220	191.68801	320.91388	1.65459	0.1539769	2.3793951	32	2	1996–1998	0.50	M-v	4	Williams	31403 1998 BU ₄₅
1998 CB	14.5	0.15	19980216	205.43355	195.33769	109.03759	8.79110	0.1426100	2.8329844	20	1	43 days	0.35		Williams		1998 CB
1998 CH	12.5	0.15	19971218	53.25810	293.40499	106.49745	22.76562	0.0684787	2.6907442	42	2	1997–1998	0.27	M-v	3	Marsden	31403 1998 CH
1998 CL	15.5	0.15	19980216	70.81572	277.06109	126.28874	3.77849	0.2074352	2.3592724	27	1	58 days	0.52		Nakano		1998 CL
1998 CN	13.5	0.15	19980216	80.87619	85.70094	310.62126	11.71543	0.2114542	3.1586701	30	1	51 days	0.36		Marsden		1998 CN
1998 CO	15.5	0.15	19980216	327.76788	33.99510	147.39866	7.34532	0.0964836	2.2485855	28	1	51 days	0.22		Marsden		1998 CO
1998 CQ	15.0	0.15	19980216	358.85578	144.09981	0.85753	6.13744	0.0687575	2.7253418	36	1	49 days	0.80		Williams		1998 CQ
1998 CR	13.0	0.15	19971218	94.43602	228.57651	162.99599	10.64676	0.1405619	2.30496876	45	2	1990–1998	0.50	M-v	5	Marsden	31403 1998 CR
1998 CS	15.1	0.15	19980216	227.06544	306.90424	326.11309	12.85416	0.0379435	2.6030449	23	1	55 days	0.25		Nakano		1998 CS
1998 CU	15.0	0.15	19971218	324.82644	218.88398	301.53686	12.41096	0.1969018	2.6755354	26	1	85 days	0.55	M-v	4	Marsden	1998 CU
1998 CV	15.5	0.15	19980216	347.55467	0.33519	150.67033	6.47108	0.2328261	2.5883406	22	1	49 days	0.29		Marsden		1998 CV
1998 CY	14.5	0.15	19980216	298.23290	338.05187	244.39106	4.19914	0.1435754	2.4370094	32	1	48 days	0.38		Williams		1998 CY
1998 CA ₁	14.0	0.15	19971218	121.48710	28.36970	327.58096	7.48643	0.2282603	2.2017335	26	2	1983–1998	0.42	M-v	4	Williams	31403 1998 CA ₁
1998 CK ₁	15.0	0.15	19980216	288.55273	142.53949	94.18089	6.32096	0.2322824	2.3530575	37	1	56 days	0.32		Williams		1998 CK ₁
1998 CN ₁	13.0	0.15	19971218	287.78148	181.53888	24.22581	5.25321	0.0513260	2.7411386	33	3	1989–1998	0.51	M-v	5	Williams	31430 1998 CN ₁
1998 CO ₁	15.0	0.15	19980216	4.01043	193.16045	355.72130	8.68667	0.2119424	2.6202764	9	1	27 days	0.34		Williams		1998 CO ₁
1998 CQ ₁	16.0	0.15	19980216	345.76970	111.92625	48.29368	10.91703	0.1098151	2.4344078	13	1	39 days	0.84		Williams		1998 CQ ₁
1998 CR ₁	14.5	0.15	19980216	261.33684	115.64862	157.66861	5.41203	0.1754918	2.5269429	32	1	52 days	0.74		Williams		1998 CR ₁
1998 CA ₂	13.5	0.15	19980216	23.36739	88.20229	64.58641	15.14581	0.1642534	2.6079266	9	1	14 days	0.15		Williams		1998 CA ₂
1998 CB ₂	14.5	0.15	19971218	34.32865	334.03465	110.27386	2.84967	0.0761168	2.1921020	28	4	1980–1998	0.68	M-v	2	Williams	31404 1998 CB ₂
1998 CC ₂	14.5	0.15	19971218	17.74420	138.70226	319.82475	5.57158	0.2122424	2.5493236	36	2	1990–1998	0.63	M-v	5	Williams	31404 1998 CC ₂
1998 CD ₂	14.0	0.15	19971218	107.29982	220.49047	143.38408	14.10761	0.1144715	2.5996748	37	1	65 days	0.46	M-v	5	Williams	1998 CD ₂
1998 CH ₂	16.0	0.15	19971218	355.13305	141.52879	348.57918	7.51915	0.1762284	2.5520267	38	4	1990–1998	0.73	M-v	3	Williams	31405 1998 CH ₂
1998 CJ ₂	13.5	0.15	19980216	10.69789	142.05613	344.20425	9.97877	0.1729480	3.1426097	20	1	30 days	0.42		Williams		1998 CJ ₂
1998 CQ ₂	15.0	0.15	19980216	318.85353	256.97421	311.31421	1.90575	0.1153813	2.3985842	34	1	56 days	0.76		Williams		1998 CQ ₂
1998 CR ₂	12.5	0.15	19971218	150.77939	186.19317	165.71797	10.20181	0.0965596	3.0565815	32	2	1995–1998	0.45	M-v	4	Williams	31405 1998 CR ₂
1998 CW ₂	14.5	0.15	19980216	285.27641	100.16082	133.96888	3.39784	0.0581241	2.3924957	22	1	26 days	0.71		Williams		1998 CW ₂
1998 CC ₃	15.0	0.15	19971218	157.66947	0.80573	335.38500	3.66603	0.0666872	2.1499344	12	2	1993–1998	0.29	M-v	5	Williams	31405 1998 CC ₃
1998 CK ₃	14.5	0.15	19980216	289.34146	239.02715	1.39555	2.35996	0.1407154	2.4600540	25	1	46 days	1.24		Williams		1998 CK ₃
1998 CU ₃	15.5	0.15	19980216	5.35796	119.13638	27.63401	1.66052	0.1300074	2.3868123	32	1	50 days	1.26		Williams		1998 CU ₃
1998 CY ₃	13.0	0.15	19980216	102.61287	244.40316	151.00027	13.18361	0.1730692	2.6785256	29	1	53 days	0.94		Williams		1998 CY ₃
1998 CZ ₃	14.0	0.15	19980216	0.22389	5.24106	151.39030	1.87794	0.1112906	3.1960325	31	1	49 days	0.97		Williams		1998 CZ ₃
1998 CB ₄	15.5	0.15	19980216	292.20662	185.41456	46.79722	1.95969	0.1309244	2.1780120	27	1	39 days	0.61		Williams		1998 CB ₄
1998 CC ₄	13.5	0.15	19971218	73.91007	89.00637	312.01097	9.44641	0.0989535	2.9879528	18	1	106 days	0.63	M-v	5	Williams	1998 CC ₄
1998 CY ₄	14.0	0.15	19980216	171.11483	138.66029	202.32986	1.25589	0.0514611	2.8969737	21	1	26 days	1.83		Williams		1998 CY ₄
1998 CH ₅	11.8	0.15	19980216	234.55292	139.64907	136.07861	15.38304	0.1509220	2.6034570	14	1	1 days	0.32		Nakano		1998 CH ₅
1998 DA	13.5	0.15	19971218	218.16332	179.18753	97.38793	6.32669	0.0530254	2.6931576	33	3	1987–1998	0.55	M-v	3	Williams	31405 1998 DA
1998 DC	15.5	0.15	19980216	337.49426	341.79166	200.47428	4.09198	0.0701237	2.3598229	34	1	31 days	0.73		Williams		1998 DC
1998 DD	14.0	0.15	19980216	3.25892	91.49504	59.24053	7.30361	0.2116852	2.3399681	21	1	34 days	0.14		Williams		1998 DD
1998 DF	14.5	0.15	19971218	44.33920	301.50545	132.38751	4.69103	0.1151992	2.3135021	30	2	1996–1998	0.64	M-v	4	Williams	31405 1998 DF
1998 DG	17.0	0.15	19980216	343.01161	114.23469	53.58703	2.83307	0.1580405	2.3681979	20	1	31 days	0.40		Marsden		1998 DG

1998 DH	15.0	0.15	19980216	181.63855	330.71008	351.51203	7.99549	0.2085062	2.4364160	22	1	31 days	0.38	Marsden	1998 DH
1998 DL	15.0	0.15	19980216	341.56796	33.17821	132.14546	22.55931	0.0624345	3.1733325	24	1	34 days	1.07	Marsden	1998 DL
1998 DO	14.5	0.15	19980216	76.13549	254.55535	160.94063	12.88456	0.1550908	2.7740525	23	1	26 days	0.68	Williams	1998 DO
1998 DP	12.0	0.15	19980216	159.99077	219.30901	112.98127	13.99159	0.1235701	3.1591078	26	1	29 days	0.23	Marsden	1998 DP
1998 DQ	15.0	0.15	19980308	16.69027	86.80047	37.27001	14.06828	0.1131400	2.6459798	28	1	41 days	0.30	Marsden	1998 DQ
1998 DR	14.0	0.15	19980308	199.40915	218.45634	101.52339	6.28060	0.1669618	2.7505359	27	1	41 days	0.35	Marsden	1998 DR
1998 DS	16.0	0.15	19980216	260.51156	184.86244	74.50851	3.74585	0.1486939	2.3502198	23	1	31 days	0.27	Marsden	1998 DS
1998 DU	15.0	0.15	19980216	81.04731	110.61779	309.71632	18.07723	0.0921034	1.9524989	24	1	53 days	0.98	Williams	1998 DU
1998 DV	15.0	0.15	19980216	356.44997	145.17964	338.64489	4.37976	0.2092451	2.5825115	24	1	33 days	0.33	Marsden	1998 DV
1998 DW	16.0	0.15	19980216	345.27108	193.98471	308.23694	17.89810	0.0671237	1.9647618	20	1	33 days	0.37	Marsden	1998 DW
1998 DX	14.0	0.15	19971218	136.89754	229.45416	89.85338	7.33346	0.1284996	2.3261228	32	1	91 days	0.59	M-v 6 Williams	1998 DX
1998 DC ₁	14.5	0.15	19980216	16.16787	135.40693	345.35417	13.05157	0.1597241	3.1412786	28	1	24 days	0.73	Williams	1998 DC ₁
1998 DM ₁	17.0	0.15	19980308	358.72973	337.46023	184.20139	1.20590	0.0667960	2.1839364	23	1	35 days	0.92	Williams	1998 DM ₁
1998 DO ₁	15.0	0.15	19980216	298.27093	117.65769	74.09242	4.81730	0.0649700	2.5557243	22	1	29 days	0.28	Marsden	1998 DO ₁
1998 DP ₁	14.0	0.15	19971218	356.57536	344.21404	123.01568	7.22956	0.0909692	2.4567280	24	3	1992–1998	0.78	M-v 3 Williams	31406 1998 DP ₁
1998 DQ ₁	16.0	0.15	19980308	337.97510	50.62326	120.95565	2.08759	0.1341266	2.2805703	20	1	34 days	0.33	Marsden	1998 DQ ₁
1998 DW ₁	14.5	0.15	19980216	127.85767	260.82065	95.44803	7.31742	0.2826813	2.3970156	11	1	29 days	0.39	Williams	1998 DW ₁
1998 DB ₂	14.5	0.15	19980308	44.89305	97.31648	2.52396	7.64873	0.2012176	2.8286051	14	1	29 days	1.34	Williams	1998 DB ₂
1998 DC ₂	13.5	0.15	19980308	85.06694	6.96183	29.34276	4.53170	0.2072413	3.9932958	23	1	30 days	0.36	Marsden	1998 DC ₂
1998 DR ₂	12.5	0.15	19971218	24.59690	120.91161	347.48130	9.24533	0.0489300	2.9974835	23	2	1990–1998	0.71	M-v 4 Williams	31406 1998 DR ₂
1998 DW ₂	13.0	0.15	19971218	110.25854	135.11482	253.20334	3.36206	0.0814529	2.7977865	43	3	1990–1998	0.40	M-v 4 Williams	31406 1998 DW ₂
1998 DA ₃	15.5	0.15	19971218	40.56119	307.30199	130.02812	5.35164	0.1484100	2.3854624	33	1	68 days	0.54	M-v 5 Williams	1998 DA ₃
1998 DB ₃	15.5	0.15	19980216	330.13313	50.83926	131.53217	5.18743	0.0457740	2.3237236	20	1	26 days	0.65	Williams	1998 DB ₃
1998 DC ₃	14.5	0.15	19980216	313.47949	65.89366	139.83014	10.27215	0.1001965	2.9642168	11	1	26 days	0.75	Marsden	1998 DC ₃
1998 DD ₃	14.5	0.15	19980308	36.09546	131.65518	320.09810	7.83975	0.2168525	3.0383972	24	1	38 days	0.30	Marsden	1998 DD ₃
1998 DQ ₃	14.5	0.15	19971218	10.28685	287.91278	158.02656	20.51075	0.3407976	2.2931524	62	2	1993–1998	0.35	M-v 4 Williams	31406 1998 DQ ₃
1998 DS ₃	12.5	0.15	19971218	20.66770	311.70741	149.00539	10.68857	0.0775125	3.0172205	26	2	1988–1998	0.59	M-v 5 Marsden	31407 1998 DS ₃
1998 DL ₄	14.0	0.15	19980216	13.21654	173.77677	314.25277	12.97410	0.1601596	2.8635261	24	1	31 days	0.29	Williams	1998 DL ₄
1998 DU ₄	15.5	0.15	19980216	20.84672	321.79906	149.56251	10.49270	0.2453024	2.7126214	22	1	33 days	0.48	Williams	1998 DU ₄
1998 DX ₄	18.5	0.15	19980216	329.12676	21.07970	176.61488	0.50173	0.2551007	1.9400414	10	1	9 days	0.57	Williams	1998 DX ₄
1998 DZ ₅	14.5	0.15	19971218	344.17727	348.65133	165.18292	4.53374	0.1745697	2.5530343	27	4	1990–1998	0.66	M-v 4 Williams	31407 1998 DZ ₅
1998 DM ₇	15.0	0.15	19980216	325.18940	205.53786	352.46363	4.39025	0.1341610	2.7259975	19	1	10 days	0.80	Williams	1998 DM ₇
1998 DR ₇	16.0	0.15	19980216	50.90490	34.52785	58.11161	3.92842	0.2057072	2.3247384	15	1	8 days	0.35	Marsden	1998 DR ₇
1998 DU ₇	12.5	0.15	19980308	63.96852	347.87955	90.85554	12.22373	0.0839111	2.9977971	25	1	34 days	0.90	Williams	1998 DU ₇
1998 DY ₇	15.5	0.15	19980216	351.65703	29.64399	122.66438	5.62731	0.1120376	2.3180598	9	1	12 days	0.24	Williams	1998 DY ₇
1998 DE ₈	14.5	0.15	19980216	343.84798	128.67710	34.55872	3.59769	0.1280813	2.7235406	16	1	30 days	0.64	Williams	1998 DE ₈
1998 DJ ₈	16.5	0.15	19980216	10.02462	202.59850	298.61181	1.25619	0.1362929	2.3541182	16	1	10 days	0.81	Williams	1998 DJ ₈
1998 DK ₈	15.0	0.15	19980308	47.43066	251.90269	217.35618	3.73129	0.0631072	2.7529836	20	1	29 days	0.93	Williams	1998 DK ₈
1998 DL ₈	14.0	0.15	19971218	203.03503	94.46412	211.76792	4.15492	0.0540066	2.8162901	20	2	1994–1998	0.38	M-v 5 Williams	31408 1998 DL ₈
1998 DN ₈	12.5	0.15	19980308	188.80493	20.38786	315.35348	8.34927	0.1329635	3.0469819	35	1	29 days	0.73	Williams	1998 DN ₈
1998 DR ₈	13.5	0.15	19971218	40.28446	114.77375	246.42444	5.41337	0.2010522	2.2674309	51	4	1966–1998	0.70	M-v 2 Williams	31408 1998 DR ₈
1998 DW ₈	15.0	0.15	19980216	344.59699	42.98094	137.48123	4.09488	0.2883951	3.0538673	22	1	9 days	0.71	Williams	1998 DW ₈
1998 DD ₉	15.0	0.15	19980216	306.43235	86.11628	149.12627	10.34849	0.1410269	2.7476187	12	1	8 days	0.40	Marsden	1998 DD ₉
1998 DS ₉	12.5	0.15	19980216	269.58553	144.27614	158.74516	24.32155	0.1946131	2.3626653	26	1	20 days	0.41	Williams	1998 DS ₉
1998 DU ₉	18.5	0.15	19971218	334.22216	278.22912	250.21864	4.94408	0.3382018	2.0614738	30	1	38 days	0.57	M-v 6 Williams	1998 DU ₉
1998 DV ₉	18.0	0.15	19971218	330.96144	0.60127	130.51384	8.69050	0.4340743	1.7457663	65	1	35 days	0.54	M-v 6 Marsden	1998 DV ₉
1998 DD ₁₀	14.5	0.15	19980216	55.08906	193.17417	265.23196	5.57531	0.0521229	2.2275058	13	1	9 days	0.71	Williams	1998 DD ₁₀
1998 DE ₁₀	14.0	0.15	19980308	352.57562	301.05638	232.03162	3.10820	0.0380758	2.7766985	26	1	28 days	0.96	Williams	1998 DE ₁₀
1998 DF ₁₀	14.0	0.15	19980308	141.12871	200.49273	173.20420	14.47408	0.1573345	2.5665210	21	1	28 days	0.58	Williams	1998 DF ₁₀
1998 DK ₁₀	14.0	0.15	19980308	56.05038	296.03497	167.87903	9.27541	0.1196549	2.7544041	16	1	28 days	0.39	Williams	1998 DK ₁₀
1998 DN ₁₀	14.0	0.15	19980216	170.55632	178.72676	153.72216	14.71937	0.2187657	2.5830211	13	1	8 days	0.70	Williams	1998 DN ₁₀
1998 DQ ₁₀	15.5	0.15	19980308	252.68439	139.43856	163.31687	6.18349	0.1579583	2.3023817	19	1	27 days	0.57	Williams	1998 DQ ₁₀
1998 DS ₁₀	16.5	0.15	19980308	41.35643	347.44190	104.04759	3.01138	0.3300668	2.2838080	30	1	28 days	0.35	Williams	1998 DS ₁₀

1998 DT ₁₀	13.5	0.15	19971218	309.25509	307.26579	258.91953	2.19163	0.1791532	2.4614898	93	3	1971–1998	0.70	M-v	3	Williams	31408	1998 DT ₁₀
1998 DU ₁₀	13.5	0.15	19980216	93.69639	325.07531	45.01372	8.88986	0.1090808	3.1097767	19	1	25 days	0.43			Williams		1998 DU ₁₀
1998 DY ₁₀	13.5	0.15	19980216	117.14619	341.65329	26.38501	5.23316	0.1692772	2.7428222	15	1	45 days	0.36			Williams		1998 DY ₁₀
1998 DD ₁₁	15.0	0.15	19980308	311.47066	81.15429	144.98008	9.55604	0.1797407	2.7098622	36	1	36 days	0.93			Williams		1998 DD ₁₁
1998 DG ₁₁	14.5	0.15	19980216	278.11507	199.52478	58.66982	3.36581	0.1629974	3.2001892	15	1	25 days	0.62			Williams		1998 DG ₁₁
1998 DR ₁₁	14.0	0.15	19980308	67.02620	320.90539	133.96875	2.77269	0.0467462	2.8799521	24	1	26 days	0.64			Williams		1998 DR ₁₁
1998 DS ₁₁	16.0	0.15	19980308	22.53206	346.68168	150.14019	7.97655	0.1334268	2.3947854	16	1	26 days	0.48			Williams		1998 DS ₁₁
1998 DT ₁₁	14.5	0.15	19980308	330.79225	60.32346	147.95277	5.29763	0.1812588	2.5577293	24	1	26 days	0.40			Williams		1998 DT ₁₁
1998 DV ₁₁	15.0	0.15	19980308	338.61389	35.50531	166.46282	4.90147	0.1807620	2.6790557	21	1	26 days	0.61			Williams		1998 DV ₁₁
1998 DY ₁₁	14.0	0.15	19980308	44.29268	340.97160	115.63314	13.37629	0.1228922	2.6723901	12	1	27 days	0.31			Williams		1998 DY ₁₁
1998 DZ ₁₁	16.0	0.15	19980216	296.80422	236.69577	19.82552	3.71690	0.2321705	2.4199252	11	1	7 days	0.51		E	Marsden		1998 DZ ₁₁
1998 DJ ₁₂	16.0	0.15	19980308	350.79656	170.69958	16.82962	7.14831	0.1325224	2.5291724	21	1	27 days	0.72			Williams		1998 DJ ₁₂
1998 DV ₁₂	14.0	0.15	19980308	82.56403	271.19852	122.31563	14.18132	0.2285246	2.5551467	10	1	22 days	0.15			Marsden		1998 DV ₁₂
1998 DW ₁₂	14.0	0.15	19971218	22.06435	300.08426	132.51014	4.14233	0.3105111	3.0711068	21	1	90 days	0.37	M-v	5	Williams		1998 DW ₁₂
1998 DB ₁₃	14.5	0.15	19980308	94.64354	196.33472	206.62634	3.98804	0.1650521	3.0771491	19	1	35 days	0.34			Marsden		1998 DB ₁₃
1998 DC ₁₃	14.5	0.15	19980308	126.65120	239.41289	146.02145	3.50968	0.1794932	2.2147266	21	1	26 days	0.51			Williams		1998 DC ₁₃
1998 DH ₁₃	14.5	0.15	19980308	15.31701	332.94140	177.73010	23.92906	0.0902778	3.0581650	16	1	26 days	0.82			Williams		1998 DH ₁₃
1998 DN ₁₃	14.0	0.15	19980308	98.82832	0.58380	69.30584	3.56065	0.1335104	2.8150030	19	1	28 days	0.49			Williams		1998 DN ₁₃
1998 DP ₁₃	15.0	0.15	19980308	298.07236	283.50612	342.56503	28.21425	0.3203698	2.6592555	25	1	23 days	1.10			Williams		1998 DP ₁₃
1998 DR ₁₃	14.0	0.15	19980308	16.93195	102.25726	60.21373	2.64503	0.0328508	2.8492474	17	1	23 days	0.92			Williams		1998 DR ₁₃
1998 DT ₁₃	16.5	0.15	19980308	40.46687	111.90870	13.65671	2.62131	0.1506746	2.3893395	16	1	23 days	0.75			Williams		1998 DT ₁₃
1998 DV ₁₃	14.5	0.15	19980308	311.04641	58.86032	177.79576	19.03710	0.0572013	3.1139933	20	1	33 days	0.49			Marsden		1998 DV ₁₃
1998 DX ₁₃	17.0	0.15	19980308	18.91209	126.83955	27.30770	2.63810	0.1562847	2.4453948	15	1	23 days	0.70			Williams		1998 DX ₁₃
1998 DJ ₁₄	14.0	0.15	19971218	71.70280	259.33287	138.44715	14.32711	0.1029523	2.6444319	32	2	1994–1998	0.53	M-v	5	Williams	31408	1998 DJ ₁₄
1998 DN ₁₄	14.5	0.15	19980216	72.16154	304.12849	111.27954	4.56619	0.1611940	2.9378849	16	1	10 days	0.99			Williams		1998 DN ₁₄
1998 DR ₁₄	14.0	0.15	19980216	357.00049	216.69374	300.24960	11.10759	0.1038643	3.0737140	16	1	10 days	0.32			Williams		1998 DR ₁₄
1998 DE ₁₅	15.5	0.15	19980308	67.21317	255.87451	189.55961	2.43952	0.1081996	2.4191615	23	1	28 days	1.02			Williams		1998 DE ₁₅
1998 DH ₁₅	14.0	0.15	19980308	190.74917	314.81121	20.06281	2.01193	0.0790552	2.8271569	21	1	28 days	0.60			Williams		1998 DH ₁₅
1998 DJ ₁₅	15.5	0.15	19980308	336.23425	203.14329	348.67403	6.64565	0.0664811	2.3144954	15	1	28 days	0.98			Williams		1998 DJ ₁₅
1998 DK ₁₅	16.0	0.15	19980308	41.89307	57.87054	49.94964	2.86112	0.1667663	2.3483541	15	1	28 days	0.94			Williams		1998 DK ₁₅
1998 DL ₁₅	14.5	0.15	19980308	76.14372	65.34936	11.83958	7.10309	0.0961772	2.3042312	16	1	28 days	0.35			Williams		1998 DL ₁₅
1998 DC ₁₆	13.0	0.15	19980216	112.74722	217.60091	180.55860	16.93161	0.0467069	3.0857033	16	1	7 days	1.03			Williams		1998 DC ₁₆
1998 DR ₁₇	16.0	0.15	19980216	68.17415	297.86410	140.59166	6.18365	0.0597541	2.3865791	10	1	8 days	0.87			Williams		1998 DR ₁₇
1998 DC ₁₈	14.0	0.15	19980308	232.69792	263.87375	48.04348	4.27098	0.0870234	2.7846653	15	1	27 days	0.51			Williams		1998 DC ₁₈
1998 DE ₁₈	16.0	0.15	19980308	294.52141	225.61885	24.72965	6.17899	0.0813182	2.4331808	14	1	27 days	1.00			Williams		1998 DE ₁₈
1998 DS ₁₉	13.5	0.15	19980216	170.46585	355.69626	5.20886	14.80870	0.0855948	3.3386437	11	1	4 days	1.25		E	Marsden		1998 DS ₁₉
1998 DV ₁₉	15.5	0.15	19980308	340.97912	167.21644	35.99028	4.80431	0.1724755	2.6922377	16	1	24 days	0.42			Williams		1998 DV ₁₉
1998 DF ₂₀	14.0	0.15	19980308	105.72010	241.57764	169.20269	13.02538	0.1732262	2.6678773	33	1	28 days	0.66			Williams		1998 DF ₂₀
1998 DG ₂₀	14.0	0.15	19980308	304.30525	157.82646	95.75473	8.53197	0.0975743	2.4813051	20	1	28 days	0.29			Williams		1998 DG ₂₀
1998 DJ ₂₀	15.0	0.15	19980308	250.69852	285.02701	356.90571	5.93127	0.1198756	2.2340187	28	1	24 days	0.75			Williams		1998 DJ ₂₀
1998 DK ₂₀	15.0	0.15	19971218	22.32027	74.18978	27.43206	2.35561	0.1747671	2.4155229	27	1	114 days	0.65	M-v	6	Williams		1998 DK ₂₀
1998 DO ₂₀	13.5	0.15	19980216	68.24961	103.30013	332.93126	13.84177	0.0270443	2.6348733	24	1	8 days	0.87			Williams		1998 DO ₂₀
1998 DQ ₂₀	14.0	0.15	19980308	13.87956	183.08886	253.23034	4.55443	0.1885904	2.2038737	15	1	28 days	0.38			Williams		1998 DQ ₂₀
1998 DC ₂₁	14.0	0.15	19980216	16.55586	153.44612	340.74179	9.51599	0.0630393	2.9795769	15	1	10 days	0.71			Williams		1998 DC ₂₁
1998 DX ₂₁	16.0	0.15	19980216	333.28781	129.52457	55.81657	1.73954	0.0743894	2.6217618	15	1	10 days	1.40		E	Williams		1998 DX ₂₁
1998 DY ₂₁	17.0	0.15	19980216	346.62926	186.62110	346.84771	8.25290	0.1823424	2.7417205	12	1	26 days	0.15			Williams		1998 DY ₂₁
1998 DB ₂₂	15.0	0.15	19980216	146.59727	241.16427	125.27378	3.41069	0.0399768	2.8606258	13	1	10 days	1.05		E	Williams		1998 DB ₂₂
1998 DF ₂₂	15.5	0.15	19980216	12.87276	135.13423	2.76509	2.73428	0.0783533	2.6747763	17	1	9 days	1.24			Williams		1998 DF ₂₂
1998 DZ ₂₂	14.5	0.15	19980216	54.91670	118.64630	322.28853	8.48959	0.0485000	2.9752876	15	1	51 days	0.16			Williams		1998 DZ ₂₂
1998 DK ₂₃	14.0	0.15	19980216	296.40202	263.12315	320.36900	9.03105	0.2095185	2.7492829	29	1	53 days	0.38			Williams		1998 DK ₂₃
1998 DL ₂₃	14.5	0.15	19980308	29.17812	178.89075	308.46031	7.27369	0.0160408	2.7379600	16	1	17 days	0.84			Williams		1998 DL ₂₃
1998 DM ₂₃	15.5	0.15	19980308	291.91669	283.92103	297.99826	5.40476	0.1071002	2.4678179	18	1	21 days	0.49			Williams		1998 DM ₂₃
1998 DQ ₂₃	17.0	0.15	19980308	76.71211	95.96635	10.18609	21.21906	0.0772089	1.9217576	14	1	25 days	0.59			Williams		1998 DQ ₂₃

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1998 DR ₂₃	14.5	0.15	19980216	287.30655	66.45417	216.46370	1.76158	0.3752496	3.1858472	7	1	15 days	0.34	Williams	1998 DR ₂₃
1998 DS ₂₃	16.0	0.15	19980216	33.22600	78.41095	8.65187	8.09063	0.2892941	2.6839433	23	1	54 days	0.81	Williams	1998 DS ₂₃
1998 DU ₂₃	14.0	0.15	19980308	146.77226	315.86769	29.70383	5.30869	0.2677712	2.6751862	17	1	25 days	0.54	Marsden	1998 DU ₂₃
1998 DV ₂₃	15.5	0.15	19980308	5.21858	165.91826	25.70011	8.43657	0.0779115	2.3685409	14	1	33 days	0.51	Williams	1998 DV ₂₃
1998 DZ ₂₃	13.5	0.15	19971218	7.04647	275.17513	207.42317	8.03329	0.1877370	2.7921528	19	1	67 days	0.49	M-v 4 Williams	1998 DZ ₂₃
1998 DA ₂₄	13.5	0.15	19980308	354.36220	337.03189	189.95339	11.23995	0.1495442	2.6141944	24	1	45 days	0.85	Williams	1998 DA ₂₄
1998 DB ₂₄	14.6	0.15	19980308	274.52380	298.54062	314.17007	17.21473	0.0556508	1.9623954	17	1	45 days	0.44	Nakano	1998 DB ₂₄
1998 DC ₂₄	13.0	0.15	19971218	26.39560	268.04544	182.85397	13.67982	0.2437227	2.6763365	20	3	1994–1998	0.62	M-v 3 Williams	31408 1998 DC ₂₄
1998 DF ₂₄	15.5	0.15	19980308	340.46733	178.89900	22.25973	4.33922	0.1422141	2.6837772	14	1	29 days	0.46	Williams	1998 DF ₂₄
1998 DH ₂₄	15.5	0.15	19980216	9.69580	357.12303	145.62542	7.83257	0.0552267	2.7221081	13	1	10 days	0.96	E Williams	1998 DH ₂₄
1998 DJ ₂₄	14.5	0.15	19980216	72.86227	269.40199	150.36007	14.39395	0.1868990	2.5914663	19	1	10 days	0.93	E Williams	1998 DJ ₂₄
1998 DM ₂₄	15.5	0.15	19980216	27.94736	339.68012	140.20809	5.49064	0.0999395	2.4520907	19	1	10 days	1.06	E Williams	1998 DM ₂₄
1998 DY ₂₆	13.5	0.15	19980216	287.92959	249.42413	342.70554	10.68448	0.0660666	3.0064012	16	1	8 days	1.17	E Williams	1998 DY ₂₆
1998 DD ₂₇	17.5	0.15	19980308	11.55742	154.80162	351.18535	8.76971	0.1006022	2.5773066	9	1	25 days	0.40	Williams	1998 DD ₂₇
1998 DL ₂₇	13.5	0.15	19980308	351.98755	167.95141	4.59859	5.05440	0.0857371	3.1338859	15	1	22 days	0.62	Williams	1998 DL ₂₇
1998 DM ₂₇	16.0	0.15	19980216	3.91567	358.55973	153.75889	5.12949	0.1091441	2.3326815	14	1	4 days	0.88	E Williams	1998 DM ₂₇
1998 DN ₂₇	15.0	0.15	19980216	80.09955	277.37153	156.96930	3.55929	0.0346087	2.3718174	9	1	4 days	0.75	E Williams	1998 DN ₂₇
1998 DO ₂₇	14.5	0.15	19980216	157.20507	227.38579	124.25810	4.32805	0.1767652	2.5907867	20	1	4 days	1.06	E Williams	1998 DO ₂₇
1998 DQ ₂₇	15.5	0.15	19980308	241.64684	292.43833	15.98285	4.89021	0.1793083	2.2177289	15	1	29 days	0.76	Williams	1998 DQ ₂₇
1998 DV ₂₇	14.5	0.15	19980308	102.04325	327.28204	88.65684	2.36842	0.1631884	2.4049904	16	1	29 days	0.86	Williams	1998 DV ₂₇
1998 DN ₂₈	15.0	0.15	19980308	264.61684	140.79733	139.63495	4.67939	0.0953280	2.6498164	15	1	24 days	0.71	Williams	1998 DN ₂₈
1998 DQ ₂₈	14.0	0.15	19980308	242.54326	299.35402	9.73874	10.78694	0.1827084	2.6555733	20	1	24 days	1.03	Williams	1998 DQ ₂₈
1998 DR ₂₈	14.0	0.15	19980308	64.15539	348.20323	101.68797	3.34163	0.1925392	2.7554091	14	1	24 days	0.46	Williams	1998 DR ₂₈
1998 DX ₂₉	14.0	0.15	19980308	319.98691	122.91473	102.09921	2.30381	0.1182548	3.1988242	25	1	33 days	1.06	Williams	1998 DX ₂₉
1998 DV ₃₁	14.0	0.15	19980127	6.30884	156.42114	336.91681	11.52126	0.2364326	2.6137145	22	1	38 days	0.77	Williams	1998 DV ₃₁
1998 DW ₃₁	15.0	0.15	19980308	12.32163	194.82041	316.92850	6.65355	0.0595727	2.2923866	26	1	28 days	0.92	Williams	1998 DW ₃₁
1998 DX ₃₂	14.0	0.15	19980216	75.25748	14.89220	21.94422	6.34159	0.1730005	2.2830455	6	1	6 days	0.63	Williams	1998 DX ₃₂
1998 DZ ₃₂	12.5	0.15	19980216	81.42322	299.94507	94.65361	13.95090	0.1927654	3.1610537	6	1	4 days	1.12	E Williams	1998 DZ ₃₂
1998 DB ₃₃	13.5	0.15	19980216	340.53683	87.03025	76.61226	8.32012	0.1247573	2.5298818	6	1	4 days	0.67	Williams	1998 DB ₃₃
1998 DE ₃₃	14.5	0.15	19980216	334.20100	133.85526	34.49778	7.99780	0.0801541	2.3500967	6	1	4 days	0.92	Williams	1998 DE ₃₃
1998 DF ₃₃	15.0	0.15	19980216	90.18400	0.95246	37.49143	7.27202	0.0924371	2.3958948	9	1	8 days	0.56	Williams	1998 DF ₃₃
1998 DG ₃₃	12.5	0.15	19980216	282.27911	188.25107	44.15382	10.50967	0.1532541	3.1480399	6	1	4 days	1.65	E Williams	1998 DG ₃₃
1998 DH ₃₃	14.0	0.15	19980216	291.65113	164.00463	52.95895	8.86397	0.0869081	2.3912478	6	1	4 days	0.89	E Williams	1998 DH ₃₃
1998 DR ₃₃	15.5	0.15	19980308	357.83864	8.33276	163.89985	13.72292	0.2007186	2.5623230	21	1	23 days	0.56	Williams	1998 DR ₃₃
1998 DU ₃₃	14.5	0.15	19980308	41.48984	69.46116	46.07037	2.13195	0.1317151	2.4108508	20	1	23 days	0.93	Williams	1998 DU ₃₃
1998 DW ₃₃	15.5	0.15	19980308	10.92476	13.18024	141.96717	1.97348	0.1143959	2.4038703	22	1	27 days	1.00	Williams	1998 DW ₃₃
1998 DY ₃₃	14.0	0.15	19980308	62.68966	298.38795	130.85341	4.15005	0.3167320	2.6231718	16	1	23 days	0.99	Williams	1998 DY ₃₃
1998 DZ ₃₃	14.5	0.15	19980308	352.49547	14.11326	165.66663	12.04380	0.1478390	2.5699133	24	1	24 days	1.30	Williams	1998 DZ ₃₃
1998 DC ₃₄	16.0	0.15	19980216	20.26726	121.26201	11.46500	1.66510	0.1697284	2.2875550	11	1	4 days	0.88	E Williams	1998 DC ₃₄
1998 DH ₃₄	11.5	0.15	19980308	217.88853	239.69181	76.24254	3.22349	0.0575667	3.9246933	16	1	23 days	0.41	Williams	1998 DH ₃₄
1998 DJ ₃₄	14.5	0.15	19980308	5.98238	169.24555	352.62229	13.14035	0.1051557	2.5415087	29	1	33 days	0.78	Williams	1998 DJ ₃₄
1998 DK ₃₄	14.0	0.15	19980308	17.84300	24.39527	122.68297	0.92691	0.1322177	3.1794145	20	1	23 days	0.92	Williams	1998 DK ₃₄
1998 DL ₃₄	14.0	0.15	19980308	34.13284	132.78696	357.23961	12.38870	0.0765332	2.8047507	16	1	23 days	0.47	Williams	1998 DL ₃₄
1998 DQ ₃₄	16.0	0.15	19980308	351.03182	161.85035	22.27330	3.98368	0.2365653	2.6077188	15	1	23 days	0.74	Williams	1998 DQ ₃₄
1998 DS ₃₄	14.5	0.15	19980308	309.83417	231.84938	359.31779	11.14106	0.1168486	2.5985399	19	1	23 days	1.06	Williams	1998 DS ₃₄
1998 DW ₃₄	13.0	0.15	19980308	103.73530	248.82606	164.09004	17.71645	0.1386831	2.8063368	19	1	23 days	0.54	Williams	1998 DW ₃₄
1998 DY ₃₄	13.5	0.15	19980308	52.21164	92.05824	21.06318	1.97468	0.0645386	2.8889329	19	1	23 days	0.61	Williams	1998 DY ₃₄
1998 DB ₃₅	15.0	0.15	19980308	283.21789	240.91538	25.31920	3.37887	0.1648794	2.4445132	20	1	23 days	0.72	Williams	1998 DB ₃₅
1998 DC ₃₅	15.0	0.15	19980308	13.25846	359.01558	156.40128	4.87109	0.0718286	2.3286115	19	1	23 days	0.46	Williams	1998 DC ₃₅
1998 DD ₃₅	15.5	0.15	19980308	15.06128	21.80391	128.23204	2.86407	0.1476719	2.3699458	16	1	23 days	0.38	Williams	1998 DD ₃₅
1998 DE ₃₅	14.0	0.15	19980308	64.21840	325.98431	132.73348	3.48963	0.0765574	2.6518768	16	1	23 days	0.66	Williams	1998 DE ₃₅
1998 DF ₃₅	16.0	0.15	19980308	351.87349	152.98968	28.90975	1.37856	0.1531793	2.2468473	15	1	23 days	0.56	Williams	1998 DF ₃₅
1998 DG ₃₅	13.5	0.15	19980308	246.61654	283.70459	9.85928	9.59163	0.0896242	2.9808012	16	1	23 days	0.70	Williams	1998 DG ₃₅

1998 DH ₃₅	14.0	0.15	19980308	10.68634	161.13457	356.82396	13.67258	0.0920941	2.5724122	20	1	33 days	0.69		Williams	1998 DH ₃₅
1998 DL ₃₅	15.5	0.15	19980308	31.76355	166.70925	327.66053	2.48907	0.1170516	2.4453354	27	1	34 days	1.05		Williams	1998 DL ₃₅
1998 DM ₃₅	15.0	0.15	19980308	47.55041	137.13814	332.46180	5.15755	0.1746660	2.4313776	30	1	34 days	0.82		Williams	1998 DM ₃₅
1998 DN ₃₅	15.0	0.15	19980216	354.81624	164.69433	348.65097	0.92045	0.1077672	2.1953303	14	1	4 days	0.78	E	Williams	1998 DN ₃₅
1998 DO ₃₅	14.0	0.15	19980216	5.11834	168.18141	331.92738	11.28019	0.1379594	2.7002559	14	1	4 days	0.43		Williams	1998 DO ₃₅
1998 DR ₃₅	14.0	0.15	19980216	174.47473	186.18080	146.41087	12.54286	0.1184604	2.1978042	14	1	4 days	1.49	E	Williams	1998 DR ₃₅
1998 ED	14.3	0.15	19980308	252.92816	266.55707	33.26072	13.43184	0.1845686	2.5549131	14	1	38 days	0.37		Nakano	1998 ED
1998 EE	13.2	0.15	19980308	260.92519	228.62049	52.86051	10.74051	0.0667575	3.0010131	13	1	31 days	0.56		Nakano	1998 EE
1998 EF	14.5	0.15	19971218	309.08819	81.70530	125.62351	10.09807	0.0509872	2.3789315	32	2	1991–1998	0.59	M-v 5	Williams	1998 EF
1998 EG	15.0	0.15	19980308	268.06247	99.54658	137.99972	6.79486	0.0508114	2.6357427	12	1	24 days	0.16		Williams	1998 EG
1998 ES	15.5	0.15	19980308	84.43101	227.99937	190.05426	4.91986	0.2129934	2.3359078	16	1	20 days	0.79		Williams	1998 ES
1998 EY	15.5	0.15	19980216	270.79534	80.60992	183.03317	6.51260	0.1060299	2.4829203	15	1	2 days	1.12	E	Williams	1998 EY
1998 EJ ₁	16.0	0.15	19980216	275.29430	39.10023	228.39570	1.78982	0.1638248	2.6337391	10	1	2 days	0.56	E	Williams	1998 EJ ₁
1998 EQ ₁	14.5	0.15	19980308	46.54026	307.43789	188.78162	14.40889	0.0897128	2.6660128	22	1	23 days	0.45		Williams	1998 EQ ₁
1998 EY ₂	14.0	0.15	19980216	200.50987	295.11950	21.85885	7.60861	0.1767240	2.2383362	13	1	7 days	1.17		Williams	1998 EY ₂
1998 EZ ₂	14.0	0.15	19980216	241.09726	241.81976	43.99286	6.35657	0.1635838	2.5187103	25	1	48 days	0.77		Williams	1998 EZ ₂
1998 EA ₃	16.0	0.15	19980216	20.38546	64.56825	56.91851	5.06846	0.1871240	2.5598219	15	1	9 days	0.45		Williams	1998 EA ₃
1998 EB ₃	13.0	0.15	19980216	153.76154	275.08489	73.91048	7.08427	0.2491390	2.7385794	8	1	4 days	0.22		Williams	1998 EB ₃
1998 EC ₃	16.5	0.15	19971218	296.12718	128.35403	128.37098	8.36001	0.5130835	2.1315019	190	1	30 days	0.59	M-v 5	Williams	1998 EC ₃
1998 ED ₃	14.5	0.15	19980308	47.57144	29.81551	103.57758	7.04539	0.0850283	2.4813906	13	1	21 days	0.15		Marsden	1998 ED ₃
1998 EL ₃	16.0	0.15	19980216	276.09547	107.59577	139.83709	4.05759	0.0903619	2.2559229	15	1	3 days	0.58	E	Williams	1998 EL ₃
1998 ES ₃	13.6	0.15	19980308	327.83072	195.66748	21.01420	13.66865	0.1028885	2.6124318	13	1	29 days	0.34		Nakano	1998 ES ₃
1998 ET ₃	15.7	0.15	19980308	307.54808	133.33620	115.12615	7.21971	0.1866084	2.2816658	13	1	29 days	0.49		Nakano	1998 ET ₃
1998 EU ₃	17.4	0.15	19980308	12.86996	103.15378	48.59969	4.65042	0.2404762	1.9323200	24	1	26 days	0.42		Nakano	1998 EU ₃
1998 ED ₄	16.0	0.15	19980308	324.98447	90.03982	131.96559	2.48579	0.1696634	2.3089087	16	1	20 days	0.49		Williams	1998 ED ₄
1998 EF ₄	16.0	0.15	19980308	62.11251	92.47056	10.74218	5.70536	0.0828080	2.2774929	14	1	20 days	0.96		Williams	1998 EF ₄
1998 EO ₄	17.0	0.15	19980308	283.34635	114.87017	139.37212	5.13064	0.1249895	2.1487435	37	1	33 days	0.72		Williams	1998 EO ₄
1998 EP ₄	22.0	0.15	19971218	279.00533	265.99383	353.13760	7.19000	0.4397341	1.5574322	68	1	34 days	0.49	M-v 6	Williams	1998 EP ₄
1998 ET ₅	17.0	0.15	19980216	313.78764	220.36791	1.81863	4.50795	0.2253203	2.1648576	15	1	2 days	1.17	E	Williams	1998 ET ₅
1998 EU ₅	15.5	0.15	19980216	119.03813	254.43228	129.14631	4.77065	0.1446885	2.5095288	10	1	2 days	0.80	E	Williams	1998 EU ₅
1998 EZ ₅	15.0	0.15	19980308	82.59372	327.30633	104.75603	3.00669	0.1877801	2.3675739	16	1	19 days	0.54		Williams	1998 EZ ₅
1998 ED ₆	11.5	0.15	19971218	146.90579	53.31070	293.64153	13.44063	0.2017440	3.1097603	16	2	1992–1998	0.58	M-v 5	Williams	1998 ED ₆
1998 EE ₆	14.0	0.15	19971218	30.71129	208.32088	239.77029	5.47040	0.1940803	2.7270900	13	2	1996–1998	0.46	M-v 5	Williams	1998 EE ₆
1998 EH ₆	18.5	0.15	19980216	6.36187	328.40177	178.09045	5.26125	0.2372664	2.1955541	10	1	4 days	0.76	E	Williams	1998 EH ₆
1998 EO ₆	14.0	0.15	19980308	168.79176	174.97705	182.98897	4.13370	0.0925146	2.6111024	25	1	20 days	1.23		Williams	1998 EO ₆
1998 EQ ₆	16.5	0.15	19980216	73.66869	128.92736	316.34147	1.52736	0.0383677	2.3447694	10	1	4 days	1.26	E	Williams	1998 EQ ₆
1998 EW ₆	15.5	0.15	19980308	32.39852	141.23578	12.64994	20.87481	0.0882554	1.9366917	16	1	29 days	0.51		Williams	1998 EW ₆
1998 EM ₇	16.0	0.15	19980308	37.96505	114.73377	354.89219	4.39555	0.1639979	2.2823310	27	1	24 days	0.76		Williams	1998 EM ₇
1998 EW ₇	15.5	0.15	19980308	31.19200	282.81227	198.56600	4.47538	0.1502692	2.9110716	25	1	20 days	0.84		Williams	1998 EW ₇
1998 EZ ₇	16.0	0.15	19980308	1.65395	349.52920	171.15332	13.94954	0.1420884	2.5721347	22	1	26 days	1.06		Williams	1998 EZ ₇
1998 EA ₈	13.5	0.15	19980308	222.98274	138.18952	173.87873	14.56666	0.1985165	2.5716487	25	1	20 days	1.11		Williams	1998 EA ₈
1998 EC ₈	14.0	0.15	19980308	264.66783	138.53148	137.06788	3.38961	0.0141053	2.9109031	18	1	20 days	0.61		Williams	1998 EC ₈
1998 ED ₈	14.5	0.15	19980308	55.33192	351.74245	127.86076	2.63662	0.0323857	2.6898597	21	1	20 days	0.60		Williams	1998 ED ₈
1998 EF ₈	13.5	0.15	19980308	135.52946	207.22663	173.88237	8.78204	0.2462905	2.7923734	21	1	20 days	1.20		Williams	1998 EF ₈
1998 EH ₈	15.0	0.15	19980308	53.81203	106.41443	353.05364	1.66203	0.1761283	2.4506537	29	1	22 days	0.85		Williams	1998 EH ₈
1998 EJ ₈	14.0	0.15	19980308	248.48489	127.59511	171.10181	6.64513	0.1497428	2.5357693	32	1	26 days	0.81		Williams	1998 EJ ₈
1998 EK ₈	14.2	0.15	19980308	310.03346	301.05548	276.67611	5.80640	0.0680688	2.3599816	21	1	37 days	0.71		Nakano	1998 EK ₈
1998 EL ₈	15.0	0.15	19980308	67.28605	214.79860	224.68820	5.59550	0.1340740	2.2585682	25	1	37 days	0.94		Williams	1998 EL ₈
1998 EM ₈	14.0	0.15	19980308	137.55528	260.06734	107.59084	3.87895	0.2621040	2.3161236	18	1	27 days	0.65		Williams	1998 EM ₈
1998 EQ ₈	13.5	0.15	19980308	311.88294	20.82222	190.21419	3.20264	0.0348655	2.7981496	27	1	24 days	0.89		Williams	1998 EQ ₈
1998 ES ₈	14.0	0.15	19980308	52.27794	265.59194	192.49840	4.59764	0.1221550	2.7633348	29	1	24 days	0.76		Williams	1998 ES ₈
1998 ET ₈	14.5	0.15	19980308	305.20112	252.67696	331.66114	11.63819	0.0653995	2.5397564	24	1	19 days	1.06		Williams	1998 ET ₈
1998 EV ₈	13.5	0.15	19980308	326.97563	209.32988	41.62265	35.65806	0.1521985	2.7909477	12	1	17 days	0.11		Williams	1998 EV ₈

1998 EW ₈	17.0	0.15	19980308	295.87537	233.90222	7.34305	4.82878	0.1280699	2.2422115	37	1	30 days	0.40	Williams	1998 EW ₈
1998 EX ₈	14.4	0.15	19980328	34.26051	99.43047	38.22483	11.42382	0.2115329	2.6797939	11	1	23 days	0.24	Nakano	1998 EX ₈
1998 EY ₈	15.0	0.15	19980308	323.60256	177.99636	31.50915	12.20679	0.0611492	2.7716135	12	1	15 days	0.50	Williams	1998 EY ₈
1998 EZ ₈	14.0	0.15	19980308	296.73776	200.41415	47.72597	9.51587	0.1438555	2.5630862	18	1	35 days	0.43	Williams	1998 EZ ₈
1998 EA ₉	15.0	0.15	19980308	303.17704	157.95935	111.77446	9.03176	0.2351516	2.5668878	16	1	15 days	0.42	Williams	1998 EA ₉
1998 EC ₉	14.0	0.15	19980308	284.77262	175.61748	86.39475	6.29269	0.2580919	2.5539319	22	1	20 days	0.49	Williams	1998 EC ₉
1998 EE ₉	12.0	0.15	19980308	14.40510	117.06420	2.38744	8.98012	0.0397776	3.0836828	9	1	9 days	0.27	Williams	1998 EE ₉
1998 EF ₉	12.5	0.15	19980308	317.34974	257.38948	262.70988	20.36873	0.2922756	2.4014350	11	1	14 days	0.31	Williams	1998 EF ₉
1998 EH ₉	14.0	0.15	19980308	311.15118	121.26903	139.32342	32.78041	0.2578032	2.7934168	10	1	11 days	0.40	Williams	1998 EH ₉
1998 EJ ₉	12.5	0.15	19980308	35.42498	321.72163	122.11287	22.73177	0.1066481	2.6564477	11	1	8 days	0.25	Williams	1998 EJ ₉
1998 EK ₉	12.0	0.15	19980308	53.37090	296.49154	125.57468	25.89405	0.1322578	2.3852164	14	1	8 days	0.21	Williams	1998 EK ₉
1998 EM ₉	14.0	0.15	19980216	40.98705	77.48333	28.04670	7.66322	0.0626447	2.3915124	22	1	57 days	0.37	Williams	1998 EM ₉
1998 EN ₉	14.0	0.15	19980308	209.48619	242.67845	67.78398	2.77224	0.0677581	2.6308063	14	1	24 days	0.39	Nakano	1998 EN ₉
1998 EP ₉	15.0	0.15	19971218	310.67263	83.96910	112.01320	3.29822	0.1419476	2.4366300	23	1	72 days	0.59	M-v 5 Williams	1998 EP ₉
1998 EQ ₉	16.0	0.15	19980308	324.00207	77.41813	139.57771	5.03835	0.2103111	2.4394591	24	1	28 days	0.65	Williams	1998 EQ ₉
1998 ER ₉	15.5	0.15	19980308	66.82563	304.68420	120.68033	5.60236	0.1696927	2.2487895	19	1	9 days	0.49	Marsden	1998 ER ₉
1998 ES ₉	15.5	0.15	19980308	272.59158	111.88452	170.95955	6.44848	0.2089954	2.2523218	25	1	24 days	0.84	Williams	1998 ES ₉
1998 EV ₉	15.5	0.15	19980308	34.03735	321.83357	164.64168	3.44114	0.1486788	2.3651880	23	1	21 days	0.74	Williams	1998 EV ₉
1998 EW ₉	17.0	0.15	19980308	19.17188	347.10893	156.63581	4.84749	0.2377373	2.3085702	16	1	17 days	0.76	Williams	1998 EW ₉
1998 EX ₉	16.0	0.15	19980308	319.98940	45.03464	176.80190	4.44134	0.1249910	2.1965786	16	1	16 days	0.64	Williams	1998 EX ₉
1998 EZ ₉	14.5	0.15	19980308	326.96017	210.64880	13.55104	10.26541	0.1715547	3.1505633	18	1	23 days	0.52	Williams	1998 EZ ₉
1998 EA ₁₀	14.5	0.15	19980216	84.31873	39.98791	7.48141	13.03840	0.1730065	2.6932478	16	1	57 days	0.34	Williams	1998 EA ₁₀
1998 EC ₁₀	15.5	0.15	19980308	0.65917	202.15950	320.19126	7.15953	0.2328957	2.8885266	26	1	22 days	1.17	Williams	1998 EC ₁₀
1998 ED ₁₀	13.5	0.15	19980216	276.90414	290.15792	323.35300	4.20596	0.1203987	3.1306298	15	1	6 days	1.15	E Williams	1998 ED ₁₀
1998 EE ₁₀	14.0	0.15	19980308	261.87583	268.43545	22.80315	4.48921	0.1478577	2.2617567	16	1	20 days	0.45	Williams	1998 EE ₁₀
1998 EM ₁₀	15.0	0.15	19980308	312.73884	217.24845	13.28986	6.45243	0.1635292	2.2671860	16	1	21 days	0.45	Williams	1998 EM ₁₀
1998 EX ₁₀	16.0	0.15	19980308	353.86136	157.97058	18.10480	5.61120	0.1123928	2.3615763	15	1	21 days	1.11	Williams	1998 EX ₁₀
1998 ED ₁₁	15.0	0.15	19980308	20.22032	140.18190	1.86193	13.87104	0.1305148	2.7304221	15	1	21 days	1.00	Williams	1998 ED ₁₁
1998 EM ₁₁	15.5	0.15	19980308	32.25220	89.57521	45.48222	5.37913	0.0160294	2.3663016	17	1	34 days	1.03	Williams	1998 EM ₁₁
1998 EF ₁₂	15.0	0.15	19980308	8.21866	121.14102	36.83313	4.95997	0.1556233	2.2989649	15	1	30 days	0.36	Marsden	1998 EF ₁₂
1998 ER ₁₂	16.0	0.15	19980308	12.46398	25.95580	127.90866	3.11671	0.1515793	2.3222119	16	1	21 days	0.88	Williams	1998 ER ₁₂
1998 ES ₁₂	14.5	0.15	19980308	342.27594	143.29585	52.37216	3.07693	0.1410538	3.1875294	16	1	21 days	1.10	Williams	1998 ES ₁₂
1998 EU ₁₂	15.0	0.15	19980308	278.50356	255.06888	18.09382	6.37435	0.1788691	2.3003810	16	1	21 days	0.57	Williams	1998 EU ₁₂
1998 EV ₁₂	14.5	0.15	19980308	307.22730	126.52764	113.74626	3.14638	0.1568548	2.4245893	16	1	21 days	0.71	Williams	1998 EV ₁₂
1998 EW ₁₂	14.5	0.15	19980308	256.05500	290.75473	3.57602	5.60250	0.1744474	2.2159790	25	1	23 days	0.47	Williams	1998 EW ₁₂
1998 EX ₁₂	13.5	0.15	19980308	356.75501	101.62865	75.67501	2.03435	0.1392915	3.3099090	16	1	21 days	0.41	Williams	1998 EX ₁₂
1998 EY ₁₂	14.5	0.15	19980308	78.37969	83.71012	4.32941	11.34870	0.0541754	2.9380693	14	1	21 days	1.07	Williams	1998 EY ₁₂
1998 EZ ₁₂	13.5	0.15	19980308	285.79027	244.61191	13.24278	9.16762	0.1025345	2.7589198	16	1	21 days	0.82	Williams	1998 EZ ₁₂
1998 EC ₁₃	14.0	0.15	19980308	330.02335	192.38845	16.51565	4.84734	0.0866978	3.0195435	22	1	23 days	0.70	Williams	1998 EC ₁₃
1998 ED ₁₃	14.5	0.15	19980308	126.08371	340.75914	51.09231	3.58464	0.1782985	2.2712786	16	1	21 days	1.02	Williams	1998 ED ₁₃
1998 EF ₁₃	13.0	0.15	19980308	219.99978	185.66311	131.90344	3.12656	0.0514114	2.8780563	21	1	21 days	0.58	Williams	1998 EF ₁₃
1998 EJ ₁₃	16.0	0.15	19980308	323.10100	177.43738	42.08715	2.88397	0.1308519	2.4025750	15	1	21 days	0.92	Williams	1998 EJ ₁₃
1998 EO ₁₃	14.0	0.15	19980308	256.71144	277.61701	1.91299	13.93028	0.0202052	3.1302635	14	1	21 days	1.06	Williams	1998 EO ₁₃
1998 ER ₁₃	13.0	0.15	19980308	176.16720	197.53769	160.35649	11.00886	0.1022252	3.0418530	15	1	21 days	0.72	Williams	1998 ER ₁₃
1998 ET ₁₃	14.0	0.15	19980308	63.38865	300.97306	156.46208	15.41774	0.1220260	3.2385547	9	1	25 days	1.28	Williams	1998 ET ₁₃
1998 EY ₁₃	15.0	0.15	19980308	84.17248	66.88438	13.22056	7.26117	0.0736990	2.2754195	18	1	23 days	0.55	Williams	1998 EY ₁₃
1998 EZ ₁₃	13.5	0.15	19980308	324.42189	129.91793	84.42745	3.22763	0.0655058	3.0557750	16	1	21 days	0.42	Williams	1998 EZ ₁₃
1998 EA ₁₄	15.0	0.15	19980308	106.27357	313.50189	96.88158	2.54412	0.1613389	2.2170501	15	1	21 days	0.98	Williams	1998 EA ₁₄
1998 EF ₁₄	13.5	0.15	19980308	142.12220	281.85307	103.89411	3.70483	0.1078583	2.8358715	16	1	21 days	1.00	Williams	1998 EF ₁₄
1998 EG ₁₄	15.0	0.15	19980308	62.36874	317.27802	121.83711	3.32279	0.2735463	2.2494159	16	1	21 days	0.51	Williams	1998 EG ₁₄
1998 EK ₁₄	14.0	0.15	19980308	313.96499	84.30816	146.31840	11.38358	0.1131322	3.0435304	9	1	23 days	0.26	Williams	1998 EK ₁₄
1998 EL ₁₄	15.0	0.15	19980308	333.21585	212.89215	3.90466	12.68228	0.2458932	2.6343195	16	1	21 days	0.45	Williams	1998 EL ₁₄
1998 EM ₁₄	14.5	0.15	19980308	329.41938	127.30496	79.71028	3.36756	0.0279834	2.9420816	12	1	25 days	0.50	Williams	1998 EM ₁₄

1998 ET ₁₄	16.0	0.15	19980308	308.43746	207.54213	33.65372	4.21137	0.1586880	2.3058424	21	1	25 days	0.83		Williams	1998 ET ₁₄
1998 EV ₁₄	15.0	0.15	19980308	48.22686	278.90484	197.56109	15.59634	0.1793362	2.6772615	17	1	27 days	1.08		Williams	1998 EV ₁₄
1998 FA	13.0	0.15	19971218	19.23026	21.96370	92.32417	10.30393	0.1264095	2.6386963	37	1	71 days	0.64	M-v 5	Williams	1998 FA
1998 FB	15.5	0.15	19980308	321.70505	158.60573	46.05032	5.36987	0.0495001	2.5868450	22	1	31 days	0.87		Williams	1998 FB
1998 FC	14.5	0.15	19980308	300.73513	204.12176	22.82171	9.61384	0.1156211	2.7408559	10	1	24 days	0.27		Williams	1998 FC
1998 FD	13.5	0.15	19980308	41.04748	114.99005	331.67500	2.52484	0.3342818	3.1860447	24	1	10 days	0.69		Williams	1998 FD
1998 FG	16.0	0.15	19980308	50.73062	225.76239	248.97917	7.24646	0.0512102	2.4100916	15	1	19 days	0.49		Williams	1998 FG
1998 FJ	15.5	0.15	19980308	278.46320	2.32851	277.94123	1.16868	0.1451911	2.1511331	26	1	15 days	0.48		Williams	1998 FJ
1998 FM	16.0	0.15	19980308	317.21533	189.78717	50.82438	2.66714	0.1862503	2.9955836	9	1	7 days	0.34		Williams	1998 FM
1998 FO	14.5	0.15	19980308	39.29050	109.28687	18.84709	7.33997	0.1503602	2.7058885	19	1	7 days	0.31		Williams	1998 FO
1998 FP	17.0	0.15	19980308	243.32025	231.96356	82.45232	2.23361	0.1774081	2.3941164	9	1	7 days	0.19		Williams	1998 FP
1998 FQ	16.0	0.15	19980308	245.27362	166.36998	145.87917	3.86102	0.1586117	2.6721957	9	1	7 days	0.17		Williams	1998 FQ
1998 FR	16.5	0.15	19980308	227.69741	194.71805	123.67409	2.93001	0.0426489	2.8723243	9	1	7 days	0.22		Williams	1998 FR
1998 FT	18.0	0.15	19980308	249.60352	261.91871	42.03305	3.82888	0.1236177	2.2294792	9	1	7 days	0.24		Williams	1998 FT
1998 FV	17.0	0.15	19980308	326.63354	148.77430	70.33275	2.76500	0.0757815	2.2339921	10	1	3 days	0.56	E	Williams	1998 FV
1998 FW	17.5	0.15	19980308	347.95695	130.82069	65.22960	3.28191	0.0648461	2.6502090	8	1	7 days	0.18		Williams	1998 FW
1998 FY	17.5	0.15	19980308	271.68432	214.86962	71.16741	3.20804	0.1350381	2.2861556	9	1	7 days	0.19		Williams	1998 FY
1998 FA ₁	14.5	0.15	19980308	74.89763	31.61654	75.64915	3.50999	0.0138300	2.6366033	19	1	7 days	0.67	E	Williams	1998 FA ₁
1998 FJ ₁	16.0	0.15	19980308	19.28591	266.52789	236.94917	6.06484	0.0509128	2.2836186	26	1	42 days	0.97		Williams	1998 FJ ₁
1998 FK ₁	16.0	0.15	19980328	16.53149	183.32615	345.32350	5.03791	0.0819678	2.2295955	33	1	16 days	0.74		Williams	1998 FK ₁
1998 FL ₁	14.0	0.15	19980308	292.45206	197.46081	54.35604	11.91033	0.0561335	2.9918973	6	1	12 days	0.27		Williams	1998 FL ₁
1998 FM ₁	15.0	0.15	19980308	313.64492	197.29993	39.92937	5.21418	0.2720653	2.8458687	14	1	9 days	1.44		Williams	1998 FM ₁
1998 FQ ₁	16.5	0.15	19980308	324.04505	150.51731	72.61483	2.64584	0.1030791	2.2864954	15	1	2 days	1.29	E	Williams	1998 FQ ₁
1998 FS ₁	16.5	0.15	19980308	251.94649	143.70826	146.73479	4.33925	0.0180494	2.2053074	16	1	2 days	1.25	E	Williams	1998 FS ₁
1998 FV ₁	14.5	0.15	19980308	68.44175	297.87717	155.91977	7.35696	0.1919002	3.2434551	11	1	2 days	1.30	E	Williams	1998 FV ₁
1998 FD ₂	15.0	0.15	19980308	353.95621	38.33354	141.61022	3.72747	0.0445432	2.5396949	27	1	22 days	1.06		Williams	1998 FD ₂
1998 FF ₂	18.7	0.15	19980328	305.34815	264.77441	4.89845	10.96153	0.2917066	1.5607031	93	1	13 days	0.56		Nakano	1998 FF ₂
1998 FG ₂	20.8	0.15	19980328	51.08009	95.00636	2.64467	4.10210	0.3563977	1.2986723	91	1	12 days	0.65		Nakano	1998 FG ₂
1998 FH ₂	16.0	0.15	19980308	326.10014	235.62552	347.33033	22.74249	0.2502143	2.3849622	13	1	6 days	0.73		Williams	1998 FH ₂
1998 FJ ₂	15.5	0.15	19980308	27.19724	129.27130	357.53168	30.04264	0.2094916	2.5330434	14	1	9 days	0.60		Williams	1998 FJ ₂
1998 FL ₂	16.5	0.15	19980308	190.09348	174.18360	174.49372	23.08988	0.0813388	1.9232067	20	1	4 days	0.65		Williams	1998 FL ₂
1998 FM ₂	16.0	0.15	19980308	323.94028	235.39888	1.26331	30.97947	0.2555420	2.6104838	25	1	12 days	0.92		Williams	1998 FM ₂
1998 FN ₂	17.5	0.15	19980308	311.24803	53.68725	177.42331	21.52099	0.0597379	1.9410641	12	1	4 days	1.00		Williams	1998 FN ₂
1998 FO ₂	16.5	0.15	19980308	27.01057	136.80765	4.74673	24.39016	0.1185242	1.8965855	25	1	12 days	0.58		Williams	1998 FO ₂
1998 FP ₂	16.5	0.15	19980308	259.95460	104.81352	184.65433	23.37758	0.0817537	1.7874782	14	1	9 days	0.71		Williams	1998 FP ₂
1998 FQ ₂	15.0	0.15	19980308	264.51911	274.68515	24.25381	3.65096	0.1616979	2.2549742	25	1	12 days	0.56		Williams	1998 FQ ₂
1998 FX ₂	18.5	0.15	19971218	325.13539	16.96923	181.27486	9.98404	0.4934430	2.1451090	277	1	14 days	0.57	M-v 6	Williams	1998 FX ₂
1998 FA ₃	16.0	0.15	19980308	325.96878	85.34518	162.37500	5.46094	0.2015802	2.5887079	8	1	7 days	0.29		Williams	1998 FA ₃
1998 FC ₃	16.0	0.15	19980308	343.26529	156.55577	60.02825	5.24087	0.1347788	2.2381624	8	1	7 days	0.32	E	Williams	1998 FC ₃
1998 FD ₃	15.0	0.15	19980308	136.36683	265.92117	149.52089	5.05356	0.1345595	2.2938814	9	1	7 days	0.22		Williams	1998 FD ₃
1998 FE ₃	15.0	0.15	19980308	107.52600	350.02787	93.57334	4.74305	0.1098156	2.6522126	11	1	8 days	0.62		Williams	1998 FE ₃
1998 FG ₃	16.0	0.15	19980308	82.12816	267.39154	181.37951	22.94559	0.1289958	2.0004912	14	1	5 days	0.72		Williams	1998 FG ₃
1998 FK ₃	13.7	0.15	19980328	69.75096	316.08977	151.36808	14.46659	0.1407979	2.5979651	6	1	6 days	0.21		Nakano	1998 FK ₃
1998 FL ₃	22.0	0.15	19980308	258.24191	121.63572	180.18534	26.04697	0.2462549	1.2551621	17	1	7 days	0.64		Williams	1998 FL ₃
1998 FM ₃	15.5	0.15	19980308	235.99620	296.80469	358.87444	2.04910	0.1475508	3.0521731	9	1	4 days	0.19	E	Williams	1998 FM ₃
1998 FO ₃	16.0	0.15	19980308	94.65692	266.39467	152.71071	3.97443	0.0576258	2.6730597	9	1	5 days	0.25	E	Williams	1998 FO ₃
1998 FQ ₃	15.5	0.15	19980308	197.13966	269.24513	60.17140	0.92149	0.2003409	2.2279313	9	1	14 days	0.11		Williams	1998 FQ ₃
1998 FR ₃	15.5	0.15	19980308	326.15600	53.97139	155.64305	5.28573	0.1821779	2.7211982	14	1	4 days	1.42	E	Williams	1998 FR ₃
1998 FS ₃	16.0	0.15	19980308	314.13562	165.06590	47.44900	1.23173	0.0654665	2.8478927	12	1	14 days	0.38		Williams	1998 FS ₃
1998 FP ₄	15.0	0.15	19980308	96.76123	246.27061	191.17442	21.26447	0.0577295	2.6584883	26	1	12 days	1.08		Williams	1998 FP ₄
1998 FT ₄	15.0	0.15	19980308	25.44413	160.64260	351.46966	7.74150	0.0855558	2.7990937	28	1	12 days	0.99		Williams	1998 FT ₄
1998 FU ₄	16.0	0.15	19980308	316.53131	39.79741	199.19022	7.78588	0.1584158	2.6053706	21	1	12 days	1.38		Williams	1998 FU ₄
1998 FW ₄	19.0	0.15	19980308	18.05005	75.45944	3.19212	3.49153	0.7171897	2.4185824	32	1	12 days	1.01		Williams	1998 FW ₄

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1998 FX ₄	17.0	0.15	19980308	37.24318	319.59339	164.15300	1.78064	0.1922563	2.2779467	10	1	4 days	1.11	E	Williams	1998 FX ₄
1998 FZ ₄	16.0	0.15	19980328	353.46441	98.38329	106.83626	5.43551	0.1201461	2.3438227	8	1	13 days	0.12		Marsden	1998 FZ ₄
1998 FA ₅	15.5	0.15	19980328	17.70694	155.47555	6.18325	11.62883	0.1226738	2.5458785	20	1	15 days	0.57		Marsden	1998 FA ₅
1998 FB ₅	15.5	0.15	19980308	62.60010	276.11672	196.06074	22.37250	0.0946533	1.9570906	31	1	35 days	0.86		Williams	1998 FB ₅
1998 FC ₅	16.5	0.15	19980308	254.79351	99.09318	185.76640	23.15459	0.0439114	1.9058441	27	1	10 days	0.80		Williams	1998 FC ₅
1998 FD ₅	15.0	0.15	19980308	354.35433	186.82603	9.68980	24.42575	0.1552826	2.3427708	21	1	10 days	0.71		Williams	1998 FD ₅
1998 FL ₅	20.9	0.15	19980328	32.25412	297.47801	186.02050	14.55687	0.3659241	1.5473051	57	1	12 days	0.61		Nakano	1998 FL ₅
1998 FM ₅	16.0	0.15	19980328	11.91742	311.46527	177.06701	11.51611	0.5555925	2.2704762	191	1	12 days	0.57		Williams	1998 FM ₅
1998 FN ₅	15.0	0.15	19980328	27.06854	258.61677	263.31413	11.62368	0.1132205	2.6406928	12	1	12 days	0.15		Williams	1998 FN ₅
1998 FO ₅	14.5	0.15	19980328	346.36624	71.51798	133.96696	4.77548	0.0591911	2.6150439	32	1	13 days	0.73		Williams	1998 FO ₅
1998 FP ₅	14.0	0.15	19980308	292.45686	201.74463	85.61716	6.98169	0.2224980	3.2013064	12	1	3 days	0.26	E	Marsden	1998 FP ₅
1998 FQ ₅	15.0	0.15	19980308	295.88217	241.20677	40.08212	11.88593	0.2652581	2.5101594	12	1	3 days	0.23	E	Williams	1998 FQ ₅
1998 FR ₅	15.0	0.15	19980308	289.19358	291.05922	331.97877	1.18253	0.0866900	2.5749744	13	1	10 days	0.89		Williams	1998 FR ₅
1998 FU ₅	14.5	0.15	19980308	201.19813	321.88927	21.36524	7.50206	0.0696579	2.6268645	16	1	7 days	0.52		Williams	1998 FU ₅
1998 FA ₆	16.0	0.15	19980308	16.96048	137.49387	18.77553	8.83549	0.1781595	2.9590781	14	1	7 days	0.90		Williams	1998 FA ₆
1998 FH ₆	15.5	0.15	19980308	65.95214	75.02813	22.66980	7.33927	0.1544213	2.3409363	14	1	7 days	0.64		Williams	1998 FH ₆
1998 FK ₆	16.0	0.15	19980308	43.43801	69.83474	54.29661	3.11524	0.1473129	2.4085497	19	1	17 days	0.94		Williams	1998 FK ₆
1998 FN ₆	17.5	0.15	19980308	350.08287	166.76813	26.15052	7.01128	0.0726228	2.4262503	9	1	17 days	0.40		Williams	1998 FN ₆
1998 FB ₇	15.5	0.15	19980308	115.79162	30.73288	354.12030	5.74455	0.2181813	2.6175108	9	1	14 days	0.17		Williams	1998 FB ₇
1998 FD ₇	16.0	0.15	19980308	357.28765	148.79524	15.91985	2.09608	0.1550656	3.0267925	9	1	14 days	0.13		Williams	1998 FD ₇
1998 FL ₇	15.0	0.15	19980308	287.25855	94.40920	145.33476	4.01253	0.0379596	2.3029202	16	1	5 days	0.55	E	Williams	1998 FL ₇
1998 FP ₇	14.5	0.15	19980308	332.50197	56.06137	145.59665	3.57452	0.1655827	2.4536865	16	1	5 days	0.32	E	Williams	1998 FP ₇
1998 FY ₇	16.0	0.15	19980308	24.90655	131.20554	355.79853	7.03901	0.1587303	3.0367759	9	1	14 days	0.14		Williams	1998 FY ₇
1998 FA ₈	15.0	0.15	19980308	0.96807	145.85380	15.00198	3.12568	0.1834544	2.7193702	19	1	14 days	0.37		Williams	1998 FA ₈
1998 FM ₈	15.5	0.15	19980308	198.85461	317.46359	30.03671	5.48566	0.1520011	2.2778041	11	1	4 days	0.85		Williams	1998 FM ₈
1998 FO ₈	14.0	0.15	19980308	12.11938	137.43858	19.65546	8.37974	0.2781360	2.7091340	19	1	5 days	0.54	E	Williams	1998 FO ₈
1998 FP ₈	15.0	0.15	19980328	192.97777	338.24725	19.37920	13.70292	0.1794669	2.6688794	13	1	14 days	1.01		Williams	1998 FP ₈
1998 FQ ₈	16.5	0.15	19980328	238.80932	293.85736	18.51639	13.34402	0.0409445	2.5187271	9	1	14 days	0.13		Williams	1998 FQ ₈
1998 FT ₈	14.0	0.15	19980328	326.30925	210.16373	21.84788	11.00222	0.1435333	2.6779861	22	1	15 days	0.64		Williams	1998 FT ₈
1998 FM ₉	19.5	0.15	19980328	355.81754	31.46227	162.80033	10.40641	0.4447162	2.2890112	73	1	10 days	0.70		Williams	1998 FM ₉
1998 FN ₉	21.0	0.15	19980328	23.17566	329.13275	183.95270	14.61081	0.2356713	1.3961522	51	1	12 days	0.64		Williams	1998 FN ₉
1998 FY ₉	16.5	0.15	19980328	333.75728	22.57357	198.68269	9.90177	0.1646620	2.7336092	10	1	7 days	0.96		Williams	1998 FY ₉
1998 FA ₁₀	14.5	0.15	19980308	62.35948	118.63701	355.32082	15.98342	0.0416899	2.6731547	21	1	12 days	0.47		Williams	1998 FA ₁₀
1998 FC ₁₀	17.0	0.15	19980328	323.93589	334.55708	257.71735	2.39470	0.1381620	2.5532916	11	1	7 days	1.17	E	Williams	1998 FC ₁₀
1998 FD ₁₀	16.5	0.15	19980308	13.02173	167.10831	355.12224	12.74016	0.1368070	2.5548657	20	1	12 days	1.27		Williams	1998 FD ₁₀
1998 FF ₁₀	15.5	0.15	19980308	334.72518	7.56403	204.43688	5.22524	0.1455569	2.2439329	20	1	12 days	0.78		Williams	1998 FF ₁₀
1998 FG ₁₀	14.0	0.15	19980308	80.92783	164.08746	292.66326	2.37726	0.0340033	2.7919492	20	1	12 days	1.22		Williams	1998 FG ₁₀
1998 FH ₁₀	13.5	0.15	19980308	79.68553	93.13694	359.67293	21.77888	0.0899594	3.2080277	16	1	10 days	0.25		Williams	1998 FH ₁₀
1998 FJ ₁₀	15.5	0.15	19980308	291.78401	11.12959	259.05522	2.16168	0.1857528	2.5292200	20	1	12 days	0.74		Williams	1998 FJ ₁₀
1998 FM ₁₀	15.0	0.15	19980328	192.74462	165.38002	193.23329	17.96749	0.3130207	2.7807389	10	1	7 days	1.39		Williams	1998 FM ₁₀
1998 FN ₁₀	17.5	0.15	19980328	15.43027	225.87973	299.81830	1.78744	0.1409661	2.3485895	11	1	7 days	1.10		Williams	1998 FN ₁₀
1998 FP ₁₀	15.5	0.15	19980308	293.12804	275.46614	357.63580	12.78871	0.2144714	2.6871834	16	1	10 days	0.89		Williams	1998 FP ₁₀
1998 FQ ₁₀	15.0	0.15	19980328	45.42783	304.09515	193.12747	15.96696	0.0455872	3.1513692	11	1	7 days	1.39	E	Williams	1998 FQ ₁₀
1998 FR ₁₀	12.5	0.15	19980308	307.70371	263.49303	349.88989	7.67293	0.1657400	3.9566243	21	1	12 days	0.50		Williams	1998 FR ₁₀
1998 FU ₁₀	14.0	0.15	19980308	264.37614	298.00048	357.45616	8.73250	0.1461666	2.7880203	21	1	12 days	0.59		Williams	1998 FU ₁₀
1998 FV ₁₀	15.0	0.15	19980308	231.93447	43.34504	277.29714	1.44276	0.1197295	2.3177769	20	1	12 days	0.72		Williams	1998 FV ₁₀
1998 FW ₁₀	17.5	0.15	19980328	41.31214	164.49290	332.16341	2.14711	0.1132684	2.2034187	11	1	7 days	1.19		Williams	1998 FW ₁₀
1998 FX ₁₀	14.0	0.15	19980308	176.29537	14.95149	352.58735	5.35900	0.0225616	2.7405354	15	1	12 days	0.31		Williams	1998 FX ₁₀
1998 FF ₁₁	16.0	0.15	19980308	316.83367	176.49152	46.73100	3.29872	0.1544831	2.3605539	17	1	6 days	1.05		Williams	1998 FF ₁₁
1998 FG ₁₁	15.0	0.15	19980328	41.64426	98.00207	38.85807	10.49816	0.2049238	2.6769821	6	1	8 days	0.23	E	Williams	1998 FG ₁₁
1998 FJ ₁₁	13.9	0.15	19980328	323.46353	157.55047	86.40036	7.51371	0.1819344	2.5277043	6	1	6 days	0.25		Nakano	1998 FJ ₁₁
1998 FK ₁₁	13.8	0.15	19980328	52.33383	15.64232	120.96195	7.41698	0.0427098	2.2925464	8	1	9 days	0.37		Nakano	1998 FK ₁₁
1998 FL ₁₁	12.3	0.15	19980328	235.08241	263.63812	71.13714	11.48950	0.2131428	2.5544053	6	1	6 days	0.37		Nakano	1998 FL ₁₁

1998 FM ₁₁	12.4	0.15	19980328	236.76632	247.05043	79.52058	11.70818	0.1172326	2.9649770	7	1	6 days	0.42	Nakano	1998 FM ₁₁
1998 FO ₁₁	13.5	0.15	19980308	340.38239	26.83634	179.66388	13.20788	0.0475497	2.6246163	18	1	9 days	0.56	Williams	1998 FO ₁₁
1998 FR ₁₁	16.0	0.15	19980328	328.94637	157.64737	130.18126	6.53448	0.7091026	2.8060539	36	1	10 days	0.52	Nakano	1998 FR ₁₁
1998 FS ₁₁	19.5	0.15	19980328	357.69478	166.33387	25.57928	4.41263	0.4206618	2.3358674	41	1	7 days	0.41	Williams	1998 FS ₁₁
1998 FT ₁₁	13.5	0.15	19980328	150.27470	45.20526	338.87782	16.50825	0.0810234	2.6068052	15	1	8 days	0.84	E Williams	1998 FT ₁₁
1998 FU ₁₁	15.0	0.15	19980308	274.36920	96.20855	167.22069	2.23119	0.0399357	2.2547534	15	1	5 days	1.15	E Williams	1998 FU ₁₁
1998 FW ₁₁	15.5	0.15	19980308	149.51434	14.22729	5.84668	6.35222	0.0773137	2.5535430	10	1	3 days	0.91	Williams	1998 FW ₁₁
1998 FB ₁₂	14.0	0.15	19980308	194.45479	8.43627	335.73216	1.67443	0.2072095	2.1309766	21	1	12 days	0.42	Williams	1998 FB ₁₂
1998 FC ₁₂	15.0	0.15	19980308	260.32364	143.43603	156.69073	4.13091	0.2423897	2.0955970	16	1	6 days	0.63	E Williams	1998 FC ₁₂
1998 FG ₁₂	20.6	0.15	19980328	17.73639	97.49251	22.61789	8.71260	0.5850324	2.2606543	37	1	9 days	0.52	Nakano	1998 FG ₁₂
1998 FH ₁₂	18.6	0.15	19980328	94.30825	284.27361	108.77224	3.53942	0.5417243	1.0933645	36	1	10 days	0.46	Nakano	1998 FH ₁₂
1998 FL ₁₂	16.0	0.15	19980328	18.80834	156.65540	21.30140	21.86538	0.0994613	1.9524719	11	1	6 days	0.40	Williams	1998 FL ₁₂
1998 FM ₁₂	14.5	0.15	19980308	275.43882	125.58296	157.12212	3.50560	0.1807024	2.5636192	16	1	7 days	0.68	Williams	1998 FM ₁₂
1998 FN ₁₂	13.5	0.15	19980308	148.26490	14.98681	5.62576	2.12056	0.0605513	2.8242812	9	1	4 days	0.22	E Williams	1998 FN ₁₂
1998 FS ₁₂	15.0	0.15	19980308	338.56852	17.62580	184.40690	4.29691	0.1746313	2.6227473	22	1	12 days	0.70	Williams	1998 FS ₁₂
1998 FU ₁₂	15.5	0.15	19980308	259.11613	101.62273	175.85884	3.96909	0.0424172	2.2237314	16	1	5 days	2.32	E Williams	1998 FU ₁₂
1998 FF ₁₃	15.0	0.15	19980308	322.99328	237.73758	342.75898	11.08360	0.2329003	2.7075341	16	1	7 days	0.53	Williams	1998 FF ₁₃
1998 FG ₁₃	14.5	0.15	19980308	312.70264	258.92711	338.47237	0.77535	0.2682871	3.1693028	16	1	7 days	0.90	E Williams	1998 FG ₁₃
1998 FB ₁₄	14.5	0.15	19980308	295.20828	99.31388	165.55373	9.37252	0.2234501	2.7711060	15	1	6 days	0.88	E Williams	1998 FB ₁₄
1998 FC ₁₄	15.0	0.15	19980308	329.94692	200.70850	7.67132	12.24502	0.0679136	2.5176135	16	1	6 days	0.55	Williams	1998 FC ₁₄
1998 FD ₁₄	15.0	0.15	19980308	74.80891	50.53090	42.81405	2.77846	0.0623436	2.6818826	15	1	6 days	0.61	E Williams	1998 FD ₁₄
1998 FE ₁₄	13.0	0.15	19980308	139.83157	218.92040	173.92173	28.08498	0.0535335	3.2294363	16	1	6 days	0.53	E Williams	1998 FE ₁₄
1998 FF ₁₄	20.5	0.15	19980308	262.80598	302.22947	359.91741	38.04104	0.3094960	1.2413582	23	1	6 days	0.87	Marsden	1998 FF ₁₄
1998 FH ₁₄	15.5	0.15	19980308	40.13370	116.46347	6.75636	31.05466	0.2334337	2.6156894	19	1	12 days	1.32	Williams	1998 FH ₁₄
1998 FJ ₁₄	17.0	0.15	19980308	277.84049	92.68902	176.26730	18.64547	0.1043171	1.8375060	13	1	7 days	1.26	Williams	1998 FJ ₁₄
1998 FK ₁₄	16.5	0.15	19980308	26.87770	320.74737	183.18455	21.57356	0.1962422	2.3528207	13	1	8 days	1.44	Williams	1998 FK ₁₄
1998 FL ₁₄	17.0	0.15	19980308	350.73702	222.53652	329.69684	4.68839	0.2150771	2.6039079	19	1	9 days	0.87	Williams	1998 FL ₁₄
1998 FM ₁₄	16.5	0.15	19980308	351.54281	236.97204	314.70272	3.25327	0.2496283	2.6318486	15	1	12 days	0.44	Williams	1998 FM ₁₄
1998 FP ₁₄	13.5	0.15	19980308	104.86692	227.68166	203.94653	9.01169	0.0521637	2.9979751	23	1	12 days	0.63	Williams	1998 FP ₁₄
1998 FQ ₁₄	16.0	0.15	19980328	315.88118	44.91104	212.56657	4.92530	0.2699271	2.5701527	10	1	5 days	0.69	E Williams	1998 FQ ₁₄
1998 FR ₁₄	15.5	0.15	19980308	313.59466	301.36232	291.67605	2.59801	0.0575306	2.7614632	18	1	12 days	0.67	Williams	1998 FR ₁₄
1998 FS ₁₄	14.5	0.15	19980308	283.93441	277.75594	350.98434	9.92937	0.0886989	3.0143867	23	1	12 days	1.02	Williams	1998 FS ₁₄
1998 FT ₁₄	15.5	0.15	19980308	27.55913	162.41192	348.59790	7.10441	0.0360477	2.3188897	24	1	12 days	1.10	Williams	1998 FT ₁₄
1998 FU ₁₄	14.5	0.15	19980308	185.15597	151.67028	207.99491	7.02360	0.1968858	2.5318238	18	1	9 days	0.63	Williams	1998 FU ₁₄
1998 FV ₁₄	14.5	0.15	19980308	301.71617	62.29201	199.53595	10.57815	0.1888187	3.1701626	18	1	10 days	0.79	Williams	1998 FV ₁₄
1998 FW ₁₄	15.0	0.15	19980308	256.97863	93.39598	204.74706	6.45057	0.1208260	2.3656703	21	1	12 days	0.54	Williams	1998 FW ₁₄
1998 FX ₁₄	15.0	0.15	19980308	4.98035	189.77079	348.00533	5.74216	0.0820546	3.0581012	23	1	12 days	0.86	Williams	1998 FX ₁₄
1998 FY ₁₄	14.0	0.15	19980308	287.18618	286.09684	0.93377	13.43675	0.2640112	2.6893921	19	1	10 days	0.37	Williams	1998 FY ₁₄
1998 FZ ₁₄	15.0	0.15	19980328	297.49488	6.06376	267.22092	5.94884	0.1622021	2.8314752	15	1	12 days	0.98	Williams	1998 FZ ₁₄
1998 FA ₁₅	15.0	0.15	19980308	138.47969	49.22627	326.77020	14.74919	0.1563561	2.6297854	16	1	34 days	0.65	Williams	1998 FA ₁₅
1998 FD ₁₅	14.0	0.15	19980308	310.28319	31.63144	214.39703	2.44138	0.1711576	2.3428873	19	1	12 days	0.47	Williams	1998 FD ₁₅
1998 FF ₁₅	14.5	0.15	19980328	203.98004	309.43762	14.70310	10.11708	0.0363335	2.5293196	17	1	3 days	0.29	E Williams	1998 FF ₁₅
1998 FG ₁₅	16.5	0.15	19980308	301.22135	228.92247	14.90539	18.82459	0.0365067	1.8844682	39	1	10 days	0.63	Williams	1998 FG ₁₅
1998 FH ₁₅	13.5	0.15	19980308	210.42102	346.91054	354.36948	12.22582	0.1158244	2.7432636	18	1	12 days	1.07	Williams	1998 FH ₁₅
1998 FK ₁₅	15.5	0.15	19980308	355.47869	14.10120	171.34640	5.81238	0.1573748	2.4034255	14	1	9 days	0.34	Williams	1998 FK ₁₅
1998 FL ₁₅	14.0	0.15	19980328	41.28037	326.53708	144.68486	12.23872	0.1758922	2.5607665	11	1	8 days	0.18	Williams	1998 FL ₁₅
1998 FM ₁₅	14.0	0.15	19980328	147.17335	191.18224	188.33710	1.66406	0.0653400	2.7485941	22	1	15 days	0.35	Williams	1998 FM ₁₅
1998 FN ₁₅	16.0	0.15	19980328	8.17645	317.73029	219.19799	14.14032	0.1811230	2.7340754	19	1	8 days	0.75	Williams	1998 FN ₁₅
1998 FO ₁₅	14.5	0.15	19980308	26.12402	148.66715	358.88167	2.39753	0.1228528	2.4140701	24	1	12 days	0.71	Williams	1998 FO ₁₅
1998 FR ₁₅	15.0	0.15	19980328	80.58184	246.56266	200.70729	11.91348	0.1508080	3.0659172	11	1	4 days	1.17	E Williams	1998 FR ₁₅
1998 FS ₁₅	15.5	0.15	19980328	303.22747	62.27220	198.11395	11.87470	0.1656844	2.5715277	11	1	4 days	0.30	Williams	1998 FS ₁₅
1998 FU ₁₅	14.5	0.15	19980308	271.10839	328.45783	318.20344	2.17686	0.1215477	2.6490088	20	1	12 days	1.26	Williams	1998 FU ₁₅
1998 FV ₁₅	16.0	0.15	19980308	1.92791	173.65583	4.74840	3.07721	0.0267038	2.1502893	25	1	12 days	1.09	E Williams	1998 FV ₁₅

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1998 FW ₁₅	15.5	0.15	19980328	330.52083	182.76261	55.91547	10.70421	0.2706899	2.4460447	9	1	3 days	1.27	E	Williams	1998 FW ₁₅
1998 FZ ₁₅	15.5	0.15	19980328	166.03575	207.03962	213.47396	21.39365	0.0728510	2.5651436	9	1	3 days	0.20	E	Williams	1998 FZ ₁₅
1998 FA ₁₆	16.5	0.15	19980328	295.94675	148.08126	154.37210	5.17370	0.1536420	2.1789960	9	1	3 days	0.18	E	Williams	1998 FA ₁₆
1998 FC ₁₆	15.0	0.15	19980328	150.14634	222.19849	208.00592	15.73603	0.1172014	2.6879004	9	1	2 days	0.17		Williams	1998 FC ₁₆
1998 FG ₁₆	14.0	0.15	19980308	94.41350	319.73062	81.39705	3.24680	0.1653398	2.8664351	6	1	8 days	0.22		Marsden	1998 FG ₁₆
1998 FH ₁₆	13.0	0.15	19980308	67.95947	309.08793	143.54463	1.95099	0.1295655	3.1351474	19	1	10 days	0.83	E	Marsden	1998 FH ₁₆
1998 FY ₂₃	13.5	0.15	19980308	44.60120	311.71214	162.27500	10.80909	0.0904177	3.0629238	14	1	19 days	0.74		Williams	1998 FY ₂₃
1998 FK ₂₆	14.5	0.15	19980308	32.67242	341.49574	147.89611	4.05157	0.0800716	2.2920567	15	1	19 days	0.38		Williams	1998 FK ₂₆
1998 FW ₂₇	15.5	0.15	19980308	45.42824	205.39990	265.75478	1.37525	0.1403813	2.3245279	15	1	12 days	0.79		Williams	1998 FW ₂₇
1998 FY ₂₇	13.5	0.15	19980308	18.11220	210.65174	296.43782	2.59747	0.1147345	3.0153273	15	1	12 days	0.48		Williams	1998 FY ₂₇
1998 FD ₂₈	15.0	0.15	19980308	5.56026	241.87652	280.34908	1.36626	0.1199211	2.4794371	15	1	12 days	0.66		Williams	1998 FD ₂₈
1998 FE ₂₈	15.5	0.15	19980308	31.98711	303.20381	188.40838	4.00178	0.0868953	2.3273584	15	1	12 days	1.11		Williams	1998 FE ₂₈
1998 FK ₂₈	13.5	0.15	19980308	333.16409	338.09740	219.86229	1.28732	0.0245228	3.0775303	15	1	12 days	0.98		Williams	1998 FK ₂₈
1998 FM ₂₉	14.5	0.15	19980308	283.92199	91.66270	177.86356	15.00565	0.2033738	2.5638686	15	1	12 days	0.54		Williams	1998 FM ₂₉
1998 FT ₂₉	15.0	0.15	19980308	20.72792	311.87401	191.47873	8.09001	0.1311571	2.6092498	14	1	12 days	0.92		Williams	1998 FT ₂₉
1998 FU ₂₉	16.0	0.15	19980308	330.35963	345.46796	224.51528	3.10872	0.1484086	2.3035487	15	1	12 days	0.70		Williams	1998 FU ₂₉
1998 FV ₂₉	12.5	0.15	19980308	81.57943	82.77968	342.59815	18.26435	0.2184634	3.1067972	15	1	12 days	0.54		Williams	1998 FV ₂₉
1998 FX ₂₉	15.0	0.15	19980308	343.37820	316.26703	237.44337	3.39560	0.1596612	2.4754518	15	1	12 days	0.52		Williams	1998 FX ₂₉
1998 FM ₃₀	14.5	0.15	19980308	341.09764	14.75796	183.48551	11.22499	0.1727182	2.6567917	15	1	12 days	0.36		Williams	1998 FM ₃₀
1998 FK ₃₁	15.5	0.15	19980308	6.01629	155.71936	8.27230	12.54362	0.0999416	2.4112027	18	1	13 days	0.57		Williams	1998 FK ₃₁
1998 FU ₃₁	16.5	0.15	19980308	337.34952	239.37042	325.94897	0.55945	0.1991168	2.2968152	14	1	12 days	0.55		Williams	1998 FU ₃₁
1998 FX ₃₁	14.5	0.15	19980308	61.05595	223.40113	226.42853	1.53723	0.1950687	2.3952608	15	1	12 days	0.67		Williams	1998 FX ₃₁
1998 FY ₃₁	15.0	0.15	19980308	356.98771	341.36220	194.29791	3.83088	0.0510672	2.2392454	14	1	12 days	0.88		Williams	1998 FY ₃₁
1998 FF ₃₂	12.0	0.15	19980308	129.81876	166.21788	217.94695	5.44840	0.3015252	3.2605844	15	1	12 days	1.09		Williams	1998 FF ₃₂
1998 FZ ₃₃	14.0	0.15	19980308	355.43027	185.28397	354.27578	13.13562	0.0913903	2.5327480	14	1	12 days	0.41		Williams	1998 FZ ₃₃
1998 FA ₃₄	14.5	0.15	19980308	84.54308	93.95966	352.31333	6.76378	0.0366389	2.5789781	15	1	12 days	1.28	E	Williams	1998 FA ₃₄
1998 FD ₃₄	13.5	0.15	19980308	161.83578	27.87697	340.56760	4.36636	0.1670103	2.6313379	14	1	12 days	0.90		Williams	1998 FD ₃₄
1998 FH ₃₄	16.0	0.15	19980308	335.15613	7.36526	197.50423	2.43676	0.1141931	2.1979539	15	1	12 days	0.93		Williams	1998 FH ₃₄
1998 FP ₃₄	13.5	0.15	19980308	324.31357	44.84657	183.06289	24.05978	0.2082309	3.1504246	15	1	12 days	0.36		Williams	1998 FP ₃₄
1998 FU ₃₄	16.0	0.15	19980308	343.20912	210.67688	346.24782	3.94994	0.1484889	2.3462322	15	1	12 days	0.70		Williams	1998 FU ₃₄
1998 FW ₃₄	14.0	0.15	19980308	117.14946	215.05011	194.85079	3.30422	0.0914069	2.3321521	15	1	12 days	0.50		Williams	1998 FW ₃₄
1998 FY ₃₄	13.0	0.15	19980308	112.35882	200.37899	219.00676	1.19159	0.0464822	2.8609991	15	1	12 days	0.55		Williams	1998 FY ₃₄
1998 FN ₃₅	12.5	0.15	19980308	130.36092	33.64828	1.01341	3.35802	0.1360869	2.9388239	15	1	12 days	0.56		Williams	1998 FN ₃₅
1998 FU ₃₈	13.5	0.15	19980308	42.79479	289.72510	185.79201	5.45549	0.1340841	3.0846854	14	1	12 days	0.43		Williams	1998 FU ₃₈
1998 FW ₃₈	15.0	0.15	19980308	58.03737	105.71356	347.59967	4.78166	0.1737890	2.6171220	13	1	12 days	1.01		Williams	1998 FW ₃₈
1998 FA ₃₉	13.5	0.15	19980308	51.47916	141.27417	335.34969	9.46010	0.0432195	3.0149138	13	1	12 days	1.36		Williams	1998 FA ₃₉
1998 FB ₄₀	12.5	0.15	19980308	139.90557	202.01708	176.43458	16.62637	0.2672094	2.9161241	13	1	12 days	1.53		Williams	1998 FB ₄₀
1998 FD ₄₀	15.5	0.15	19980308	9.28468	165.20117	354.93799	4.41335	0.1436928	2.5316852	13	1	12 days	0.92		Williams	1998 FD ₄₀
1998 FG ₄₀	15.5	0.15	19980308	341.30272	198.56904	0.01095	0.89236	0.1699384	2.3437601	14	1	12 days	0.64		Williams	1998 FG ₄₀
1998 FR ₄₀	15.5	0.15	19980308	338.23835	218.56510	341.48891	3.19032	0.0722684	2.2805671	13	1	12 days	0.63		Williams	1998 FR ₄₀
1998 FP ₄₁	13.5	0.15	19980308	134.52632	56.13102	335.35173	1.70174	0.1672242	2.5866644	15	1	12 days	0.49		Williams	1998 FP ₄₁
1998 FD ₄₂	16.0	0.15	19980308	342.17104	228.26075	333.21857	4.18486	0.1918343	2.3717473	15	1	12 days	0.64		Williams	1998 FD ₄₂
1998 FJ ₄₂	15.5	0.15	19980308	344.10069	303.26470	254.86990	2.19236	0.1820827	2.3410596	15	1	12 days	0.89		Williams	1998 FJ ₄₂
1998 FL ₄₂	14.5	0.15	19980308	332.26265	23.90938	196.55992	7.53769	0.2310472	3.0959003	14	1	12 days	0.99		Williams	1998 FL ₄₂
1998 FM ₄₂	14.5	0.15	19980308	187.46889	131.93845	219.55059	3.34189	0.1427054	2.2144937	15	1	12 days	0.80		Williams	1998 FM ₄₂
1998 FO ₄₂	16.0	0.15	19980308	347.61443	338.28408	212.66714	3.19127	0.1065688	2.2063606	13	1	12 days	1.10		Williams	1998 FO ₄₂
1998 FS ₄₂	13.5	0.15	19980308	65.37559	208.20383	244.76729	1.73998	0.1781848	3.1841328	15	1	12 days	1.04		Williams	1998 FS ₄₂
1998 FT ₄₂	14.0	0.15	19980308	355.72163	196.24670	345.88013	6.76105	0.1122213	3.0768237	15	1	12 days	0.78		Williams	1998 FT ₄₂
1998 FU ₄₂	14.5	0.15	19980308	150.14772	174.35223	203.94012	3.81683	0.1859870	2.2018706	15	1	12 days	0.85		Williams	1998 FU ₄₂
1998 FV ₄₂	13.5	0.15	19980308	196.81322	98.62643	242.74787	1.27087	0.0208910	2.8303478	15	1	12 days	0.58		Williams	1998 FV ₄₂
1998 FC ₄₃	14.0	0.15	19980308	43.25288	129.86589	349.40804	5.64925	0.1671515	3.1033962	15	1	12 days	0.65		Williams	1998 FC ₄₃
1998 FD ₄₃	16.0	0.15	19980308	324.26904	29.63041	192.26536	2.68628	0.1282521	2.3980490	15	1	12 days	0.71		Williams	1998 FD ₄₃
1998 FF ₄₃	13.5	0.15	19980308	156.62817	188.30045	184.87824	15.67032	0.2636678	2.5509440	13	1	12 days	0.64		Williams	1998 FF ₄₃

1998 FJ ₄₃	15.5	0.15	19980308	86.27509	254.04069	191.45414	4.82823	0.0487620	2.2978122	14	1	12 days	0.52	Williams	1998 FJ ₄₃
1998 FK ₄₃	14.5	0.15	19980308	27.00592	302.92175	197.05357	2.21842	0.1671951	2.9111402	14	1	12 days	0.77	Williams	1998 FK ₄₃
1998 FL ₄₃	13.5	0.15	19980308	144.28013	21.28276	357.53650	9.05845	0.3181175	2.3011912	15	1	12 days	0.41	Williams	1998 FL ₄₃
1998 FN ₄₃	16.0	0.15	19980308	275.48206	275.66261	354.38091	4.01476	0.0740093	2.1866479	15	1	12 days	1.20	E Williams	1998 FN ₄₃
1998 FS ₄₃	14.5	0.15	19980308	83.10596	63.69153	0.91415	5.45755	0.2641197	2.6662063	14	1	12 days	0.87	Williams	1998 FS ₄₃
1998 FV ₄₃	17.5	0.15	19980308	339.31775	212.80380	357.26194	2.43441	0.2624804	2.2663341	14	1	12 days	1.18	Williams	1998 FV ₄₃
1998 FV ₄₆	16.0	0.15	19980308	353.53442	348.83615	196.89967	2.16736	0.1395139	2.4631663	15	1	12 days	0.59	Williams	1998 FV ₄₆
1998 FW ₄₆	16.0	0.15	19980308	51.92382	289.10713	186.93990	4.06100	0.0969692	2.2815380	15	1	12 days	0.75	Williams	1998 FW ₄₆
1998 FD ₄₇	14.0	0.15	19980308	347.84401	200.06792	354.47160	13.24466	0.1373138	3.1936229	13	1	12 days	0.58	Williams	1998 FD ₄₇
1998 FE ₄₇	15.0	0.15	19980308	45.27058	134.67151	350.00620	7.32259	0.0851635	2.4053982	15	1	12 days	0.51	Williams	1998 FE ₄₇
1998 FJ ₄₇	14.0	0.15	19980308	353.60959	222.19231	324.28941	2.95201	0.0723230	3.1979837	15	1	12 days	0.97	Williams	1998 FJ ₄₇
1998 FM ₄₇	15.0	0.15	19980308	114.94167	52.63265	353.01911	9.22586	0.1989611	2.4372492	14	1	12 days	1.14	Williams	1998 FM ₄₇
1998 FO ₄₇	14.0	0.15	19980308	203.85280	51.59660	286.38891	1.60272	0.0625671	2.6562829	15	1	12 days	0.41	Williams	1998 FO ₄₇
1998 FB ₄₈	14.0	0.15	19980308	68.76115	119.57173	337.58360	4.99268	0.1159112	2.6776409	14	1	12 days	0.59	Williams	1998 FB ₄₈
1998 FC ₄₈	13.5	0.15	19980308	158.11335	182.30889	194.38843	10.28190	0.1326012	2.7948876	13	1	12 days	0.92	Williams	1998 FC ₄₈
1998 FE ₄₈	13.0	0.15	19980308	230.80380	327.70564	355.71608	19.07517	0.1697195	3.1504360	13	1	12 days	0.89	Williams	1998 FE ₄₈
1998 FF ₄₈	15.0	0.15	19980308	339.97260	3.30031	199.31158	8.64784	0.1101027	2.5673506	15	1	12 days	0.76	Williams	1998 FF ₄₈
1998 FL ₄₈	15.0	0.15	19980308	245.47774	31.39576	267.83155	3.33059	0.0498726	2.5220062	13	1	12 days	1.08	Williams	1998 FL ₄₈
1998 FN ₄₈	12.5	0.15	19980308	286.28079	300.49866	332.66243	7.95018	0.1498432	3.9434901	20	1	12 days	0.97	Williams	1998 FN ₄₈
1998 FO ₄₈	14.0	0.15	19980308	348.50300	244.20301	308.60703	3.24891	0.0948934	2.5283419	15	1	12 days	0.29	Williams	1998 FO ₄₈
1998 FQ ₄₈	14.5	0.15	19980308	326.24834	0.65349	223.48357	3.18032	0.1513964	2.6859769	15	1	12 days	0.63	Williams	1998 FQ ₄₈
1998 FW ₄₈	15.0	0.15	19980308	307.89440	38.53475	209.63027	4.16785	0.1586044	3.0192703	14	1	12 days	1.35	Williams	1998 FW ₄₈
1998 FX ₄₈	14.5	0.15	19980308	65.15527	247.79360	210.91169	4.41008	0.1495608	3.1200443	15	1	12 days	0.88	Williams	1998 FX ₄₈
1998 FC ₄₉	15.0	0.15	19980308	339.05099	213.82325	353.41204	7.76969	0.1667110	2.7211826	15	1	12 days	0.51	Williams	1998 FC ₄₉
1998 FD ₄₉	14.5	0.15	19980308	63.80034	106.03803	357.24403	11.92862	0.1059076	2.5327552	15	1	12 days	0.99	Williams	1998 FD ₄₉
1998 FG ₄₉	14.0	0.15	19980308	222.28386	337.26848	0.32675	21.91381	0.3107304	2.7824481	12	1	12 days	1.19	Williams	1998 FG ₄₉
1998 FJ ₄₉	15.8	0.15	19980328	11.86882	341.84372	186.13472	6.00687	0.1805548	2.1604613	13	1	4 days	0.69	E Nakano	1998 FJ ₄₉
1998 FN ₄₉	13.5	0.15	19980308	100.30338	246.76238	188.70140	10.99898	0.0482514	2.9892534	15	1	12 days	0.31	E Williams	1998 FN ₄₉
1998 FO ₄₉	14.5	0.15	19980308	153.18819	23.83917	358.17444	7.98163	0.1107604	2.3061025	15	1	12 days	0.37	E Williams	1998 FO ₄₉
1998 FP ₄₉	14.5	0.15	19980308	173.98114	168.61307	197.96217	1.77539	0.0561459	2.9114918	15	1	12 days	1.10	Williams	1998 FP ₄₉
1998 FQ ₄₉	14.0	0.15	19980308	220.95004	0.61652	335.17748	1.81982	0.2563306	2.4243463	15	1	12 days	0.74	E Williams	1998 FQ ₄₉
1998 FS ₄₉	14.5	0.15	19980308	251.67286	293.59584	1.81224	4.25135	0.0748708	2.5215079	15	1	12 days	0.73	E Williams	1998 FS ₄₉
1998 FU ₄₉	17.0	0.15	19980308	355.49074	184.81841	359.18394	2.52141	0.2164375	2.4830173	13	1	12 days	0.86	Williams	1998 FU ₄₉
1998 FV ₄₉	16.5	0.15	19980308	82.00115	213.23341	238.77956	0.18821	0.0393324	2.2471569	12	1	12 days	1.37	E Williams	1998 FV ₄₉
1998 FY ₄₉	15.5	0.15	19980308	83.56512	86.34224	2.70387	7.86675	0.0600010	2.4348266	15	1	12 days	1.09	E Williams	1998 FY ₄₉
1998 FT ₅₂	15.0	0.15	19980308	349.60186	190.37039	3.81052	8.82236	0.1499004	2.9261979	15	1	12 days	0.66	E Williams	1998 FT ₅₂
1998 FA ₅₃	13.4	0.15	19980308	66.93252	93.79086	4.87791	4.96611	0.1481913	3.2250758	17	1	12 days	0.42	Nakano	1998 FA ₅₃
1998 FD ₅₃	14.0	0.15	19980308	131.44340	205.71622	194.58982	8.82884	0.1256716	3.0581733	14	1	12 days	1.13	Williams	1998 FD ₅₃
1998 FH ₅₃	15.0	0.15	19980308	17.32459	321.58258	197.77518	4.65684	0.0880010	2.7169913	15	1	12 days	1.09	E Williams	1998 FH ₅₃
1998 FJ ₅₃	16.5	0.15	19980308	322.38104	31.67453	194.07708	6.19700	0.1207771	2.2372300	14	1	12 days	0.70	E Williams	1998 FJ ₅₃
1998 FK ₅₃	17.0	0.15	19980308	6.98655	334.54899	193.33799	4.36653	0.1748368	2.3702986	13	1	12 days	1.23	E Williams	1998 FK ₅₃
1998 FL ₅₃	14.5	0.15	19980308	204.70301	84.27553	256.98075	0.99368	0.0939422	2.8943560	13	1	12 days	1.47	E Williams	1998 FL ₅₃
1998 FM ₅₃	16.0	0.15	19980308	79.08863	259.60388	193.27696	5.95958	0.0694343	2.2976615	14	1	12 days	0.79	E Williams	1998 FM ₅₃
1998 FN ₅₃	15.0	0.15	19980308	116.34790	191.59961	224.55968	2.93155	0.0724300	2.1402791	14	1	12 days	1.11	E Williams	1998 FN ₅₃
1998 FQ ₅₃	15.5	0.15	19980308	80.51082	133.65330	319.49680	2.42788	0.0590554	2.3477123	15	1	12 days	1.52	E Williams	1998 FQ ₅₃
1998 FS ₅₃	14.0	0.15	19980308	345.13095	210.05831	353.39899	15.71946	0.2169564	3.0591253	23	1	12 days	0.97	E Williams	1998 FS ₅₃
1998 FU ₅₃	13.5	0.15	19980308	125.21170	69.80609	335.19776	7.19234	0.1521914	3.2088276	14	1	12 days	1.30	E Williams	1998 FU ₅₃
1998 FV ₅₃	15.0	0.15	19980308	112.33010	79.92045	340.44011	5.68835	0.0857108	2.5234399	14	1	12 days	1.81	E Williams	1998 FV ₅₃
1998 FW ₅₃	15.0	0.15	19980308	303.18582	335.64305	274.85062	2.31470	0.1239952	2.4185566	15	1	12 days	0.79	E Williams	1998 FW ₅₃
1998 FX ₅₃	16.0	0.15	19980308	18.87566	257.48606	252.16559	2.97111	0.2201394	2.5424291	18	1	12 days	0.95	E Williams	1998 FX ₅₃
1998 FY ₅₃	13.5	0.15	19980308	334.70561	301.90882	271.15331	3.66866	0.0934090	3.1080931	19	1	12 days	1.10	E Williams	1998 FY ₅₃
1998 FZ ₅₃	14.0	0.15	19980308	156.15244	156.32162	222.72281	5.20532	0.2123242	2.2923637	17	1	12 days	0.74	E Williams	1998 FZ ₅₃
1998 FB ₅₄	14.0	0.15	19980308	336.65062	258.31353	308.79259	2.22806	0.0255766	2.6431064	15	1	12 days	0.39	E Williams	1998 FB ₅₄

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1998 FD ₅₄	14.0	0.15	19980308	42.81245	299.99858	192.86020	10.12174	0.0773115	2.9783632	15	1	12 days	0.49	E Williams	1998 FD ₅₄
1998 FE ₅₄	15.5	0.15	19980308	61.72688	276.74893	192.11403	8.94689	0.0936289	2.3589067	15	1	12 days	0.78	E Williams	1998 FE ₅₄
1998 FH ₅₄	14.5	0.15	19980308	211.92013	142.90038	193.87209	6.60844	0.1289094	2.6180403	13	1	12 days	1.01	E Williams	1998 FH ₅₄
1998 FK ₅₄	14.0	0.15	19980308	100.51817	77.21947	357.87160	11.41194	0.0622465	2.9787963	15	1	12 days	1.56	Williams	1998 FK ₅₄
1998 FL ₅₄	14.5	0.15	19980308	120.68076	114.27126	300.26612	1.06451	0.0713222	2.7580082	14	1	12 days	0.87	E Williams	1998 FL ₅₄
1998 FM ₅₄	14.0	0.15	19980308	237.55660	331.16082	351.77417	5.55702	0.2232408	2.4187502	13	1	12 days	0.57	E Williams	1998 FM ₅₄
1998 FV ₅₄	13.5	0.15	19980308	17.58772	336.97594	183.59647	18.49663	0.1101685	3.0895007	12	1	14 days	0.83	Williams	1998 FV ₅₄
1998 FD ₅₇	15.5	0.15	19980308	336.59862	41.68528	177.04673	2.79346	0.2286349	2.8733747	13	1	5 days	0.52	Williams	1998 FD ₅₇
1998 FF ₅₇	16.0	0.15	19980308	304.28026	77.46525	169.69239	1.60559	0.1064863	2.1710519	13	1	5 days	0.52	E Williams	1998 FF ₅₇
1998 FG ₅₇	15.5	0.15	19980308	59.80136	294.95189	178.26744	5.40530	0.0804713	2.2599641	13	1	5 days	0.45	Williams	1998 FG ₅₇
1998 FJ ₅₇	14.5	0.15	19980308	59.02914	105.76210	9.15662	11.07609	0.0865825	2.6230964	18	1	12 days	1.41	Williams	1998 FJ ₅₇
1998 FP ₅₇	15.5	0.15	19980308	18.72906	311.46742	196.04742	7.87880	0.2862893	3.0614224	15	1	12 days	1.12	E Williams	1998 FP ₅₇
1998 FR ₅₇	13.0	0.15	19980308	178.80143	42.19608	324.60585	4.03915	0.1508692	3.2084921	20	1	12 days	0.99	E Williams	1998 FR ₅₇
1998 FS ₅₇	15.0	0.15	19980308	267.13566	319.39729	349.36770	7.88392	0.2857860	2.5711449	13	1	12 days	1.54	Williams	1998 FS ₅₇
1998 FU ₅₇	14.5	0.15	19980308	0.99006	340.86057	201.37404	7.71744	0.1226146	2.7713365	14	1	12 days	0.73	Williams	1998 FU ₅₇
1998 FW ₅₇	15.5	0.15	19980308	355.50295	282.00649	266.25398	1.52896	0.1374851	2.4477674	14	1	12 days	0.78	E Williams	1998 FW ₅₇
1998 FX ₅₇	15.5	0.15	19980308	250.58963	94.69340	208.50737	3.55011	0.1117660	2.0913817	15	1	12 days	1.00	E Williams	1998 FX ₅₇
1998 FA ₅₈	15.5	0.15	19980308	14.97966	318.42753	198.29726	4.75459	0.2404369	2.8877141	15	1	12 days	0.79	Williams	1998 FA ₅₈
1998 FD ₅₈	15.5	0.15	19980308	288.97776	330.75394	293.76493	0.93396	0.0994326	2.3231051	14	1	12 days	1.02	E Williams	1998 FD ₅₈
1998 FH ₅₈	13.5	0.15	19980308	276.02499	273.10715	6.82055	0.61345	0.1011025	3.0924757	15	1	12 days	0.57	E Williams	1998 FH ₅₈
1998 FJ ₅₈	15.5	0.15	19980308	273.38571	94.08348	186.42242	1.51010	0.0982882	2.3814003	15	1	12 days	1.18	E Williams	1998 FJ ₅₈
1998 FK ₅₈	13.5	0.15	19980308	15.03384	163.30235	5.67603	9.19964	0.0182137	2.9965186	18	1	12 days	0.34	E Williams	1998 FK ₅₈
1998 FM ₅₈	15.5	0.15	19980308	297.94254	244.43114	10.94084	3.42178	0.0981815	2.5500379	14	1	12 days	1.26	Williams	1998 FM ₅₈
1998 FR ₅₈	13.0	0.15	19980308	168.59030	334.36719	42.13597	2.05006	0.0142041	3.0676559	13	1	5 days	0.38	E Williams	1998 FR ₅₈
1998 FV ₅₈	14.0	0.15	19980308	206.15864	168.43476	175.25314	9.69855	0.1043820	3.0698973	11	1	14 days	0.76	Williams	1998 FV ₅₈
1998 FW ₅₈	14.5	0.15	19980308	198.69713	336.34450	12.79874	12.31847	0.1371972	2.3659113	13	1	5 days	1.21	E Williams	1998 FW ₅₈
1998 FX ₅₈	15.0	0.15	19980308	76.99387	283.63871	174.94899	6.64018	0.0577896	2.2775615	13	1	14 days	0.46	Williams	1998 FX ₅₈
1998 FQ ₅₉	16.0	0.15	19980308	357.58756	50.08645	133.19173	3.39832	0.1251561	2.2054462	13	1	5 days	0.92	Williams	1998 FQ ₅₉
1998 FR ₅₉	14.0	0.15	19980308	219.82394	291.88044	42.12593	6.52205	0.1375887	2.6960453	13	1	5 days	0.63	E Williams	1998 FR ₅₉
1998 FZ ₅₉	13.5	0.15	19980308	261.81262	284.07851	15.74151	12.27299	0.1477490	3.0159662	13	1	5 days	0.96	E Williams	1998 FZ ₅₉
1998 FF ₆₀	15.6	0.15	19980328	348.00915	37.84370	167.21656	2.83641	0.1511752	2.3994241	21	1	11 days	0.74	Nakano	1998 FF ₆₀
1998 FQ ₆₀	14.0	0.15	19980308	70.95021	97.52417	357.30232	0.79662	0.1698243	3.1361434	18	1	12 days	0.84	E Williams	1998 FQ ₆₀
1998 FR ₆₀	14.0	0.15	19980308	75.31301	95.03082	6.80363	1.25109	0.0666318	2.9009536	15	1	12 days	0.80	E Williams	1998 FR ₆₀
1998 FS ₆₀	15.5	0.15	19980308	343.39451	21.83240	180.98492	1.26316	0.1124250	2.4317799	18	1	12 days	0.71	Williams	1998 FS ₆₀
1998 FX ₆₀	14.5	0.15	19980308	259.44390	281.57407	9.58322	3.74556	0.0470241	2.7914528	15	1	12 days	1.39	E Williams	1998 FX ₆₀
1998 FZ ₆₀	15.5	0.15	19980308	0.57868	177.38424	4.00403	6.14410	0.1484937	2.5558261	13	1	12 days	0.88	Williams	1998 FZ ₆₀
1998 FD ₆₁	15.3	0.15	19980328	332.62247	37.43693	185.85266	4.60419	0.1158622	2.1421026	17	1	8 days	0.81	Nakano	1998 FD ₆₁
1998 FE ₆₁	14.5	0.15	19980308	34.57125	311.40800	189.55773	8.02428	0.1356178	3.1593751	14	1	12 days	1.43	Williams	1998 FE ₆₁
1998 FK ₆₁	15.0	0.15	19980308	294.67031	28.19872	255.56913	0.63549	0.2883244	2.7248262	13	1	12 days	1.98	E Williams	1998 FK ₆₁
1998 FO ₆₁	15.0	0.15	19980308	314.59870	19.82576	220.04968	2.61733	0.1227607	2.3673743	14	1	12 days	0.46	Williams	1998 FO ₆₁
1998 FR ₆₁	15.0	0.15	19980308	327.56583	282.78649	301.20675	1.42807	0.1045610	2.5760758	15	1	12 days	0.71	Williams	1998 FR ₆₁
1998 FS ₆₁	14.0	0.15	19980308	17.30357	165.92206	1.22026	11.20037	0.0607430	3.0605293	15	1	12 days	0.82	Williams	1998 FS ₆₁
1998 FU ₆₁	15.5	0.15	19980308	323.68907	345.74504	241.66932	1.57864	0.1015754	2.3042930	15	1	12 days	0.71	Williams	1998 FU ₆₁
1998 FC ₆₂	15.5	0.15	19980308	320.43288	28.34814	205.36640	8.87959	0.1213545	2.3910156	15	1	12 days	1.02	Williams	1998 FC ₆₂
1998 FF ₆₂	14.0	0.15	19980308	303.63154	251.76159	357.13773	10.49017	0.0624343	2.7010996	15	1	12 days	0.57	Williams	1998 FF ₆₂
1998 FG ₆₂	14.5	0.15	19980308	22.00406	226.91500	286.14382	2.55720	0.2044759	3.2717878	14	1	12 days	0.81	Williams	1998 FG ₆₂
1998 FR ₆₂	15.0	0.15	19980308	276.59676	61.46803	230.20644	1.81318	0.1870183	2.4174592	14	1	12 days	1.45	Williams	1998 FR ₆₂
1998 FS ₆₂	15.0	0.15	19980308	289.32151	78.74753	199.51320	7.27650	0.1818540	2.5157574	15	1	12 days	1.32	Williams	1998 FS ₆₂
1998 FV ₆₂	14.5	0.15	19980308	21.77595	321.05315	201.39791	7.87708	0.0695681	2.9938240	15	1	12 days	1.00	Williams	1998 FV ₆₂
1998 FX ₆₂	14.5	0.15	19980308	56.71154	109.58899	7.50573	13.10437	0.1174133	2.6343352	15	1	12 days	0.59	Williams	1998 FX ₆₂
1998 FZ ₆₂	14.5	0.15	19980308	49.74632	281.75923	186.68425	8.74663	0.2567657	2.8610336	13	1	5 days	1.15	E Williams	1998 FZ ₆₂
1998 FA ₆₃	15.5	0.15	19980308	7.24554	167.54035	6.73103	5.46660	0.1008794	2.3291840	15	1	12 days	0.87	Williams	1998 FA ₆₃
1998 FB ₆₃	13.5	0.15	19980308	103.21700	233.66629	188.06492	16.48575	0.2250171	2.9691831	13	1	5 days	0.73	E Williams	1998 FB ₆₃

1998 FC ₆₃	14.0	0.15	19980308	359.84863	14.35143	171.53210	1.22533	0.1201099	3.2346694	13	1	5 days	0.51	E	Williams	1998 FC ₆₃
1998 FD ₆₃	14.5	0.15	19980308	344.60249	195.14748	10.55029	15.69199	0.1381143	3.1913616	15	1	12 days	1.03		Williams	1998 FD ₆₃
1998 FE ₆₃	16.0	0.15	19980308	348.60879	186.96500	11.59719	11.05837	0.1343663	2.6332380	14	1	12 days	1.27		Williams	1998 FE ₆₃
1998 FG ₆₃	13.5	0.15	19980308	259.93258	149.68838	146.14248	2.35991	0.0796256	3.0706935	13	1	5 days	0.77	E	Williams	1998 FG ₆₃
1998 FK ₆₃	14.5	0.15	19980308	300.21655	218.63831	45.27474	2.96745	0.1809683	2.4626078	15	1	11 days	0.47		Williams	1998 FK ₆₃
1998 FS ₆₃	15.0	0.15	19980308	186.52428	329.90502	29.69022	7.55627	0.1445810	2.2005935	13	1	14 days	0.82		Williams	1998 FS ₆₃
1998 FT ₆₃	16.0	0.15	19980328	5.90203	51.05531	129.85555	2.90787	0.1538934	2.3385774	16	1	15 days	0.38		Williams	1998 FT ₆₃
1998 FV ₆₃	14.5	0.15	19980308	158.94656	332.79137	46.67654	5.61318	0.1660047	2.2389833	13	1	5 days	0.35		Williams	1998 FV ₆₃
1998 FW ₆₃	15.5	0.15	19980308	330.35001	101.17909	119.55707	3.31505	0.1392553	2.3922536	13	1	5 days	0.73		Williams	1998 FW ₆₃
1998 FX ₆₃	16.0	0.15	19980328	342.37573	142.14305	69.76177	3.38964	0.1265753	2.4074071	16	1	15 days	0.66		Williams	1998 FX ₆₃
1998 FZ ₆₃	15.0	0.15	19980308	62.18293	76.37690	42.32193	5.58749	0.0305320	2.3265439	12	1	5 days	0.57	E	Williams	1998 FZ ₆₃
1998 FG ₆₄	14.0	0.15	19980308	322.59850	53.01445	178.67354	9.35161	0.0964582	3.0339569	15	1	11 days	1.03		Williams	1998 FG ₆₄
1998 FQ ₆₄	14.0	0.15	19980308	256.45556	297.92420	15.22313	7.77281	0.2276456	2.3826704	13	1	5 days	0.47	E	Williams	1998 FQ ₆₄
1998 FU ₆₄	14.0	0.15	19980308	356.79126	4.60315	186.19419	10.38166	0.1398701	3.0308512	16	1	5 days	0.58	E	Williams	1998 FU ₆₄
1998 FW ₆₄	13.5	0.15	19980308	260.73963	289.97550	12.04217	17.30971	0.1234945	3.1802719	15	1	12 days	0.99		Williams	1998 FW ₆₄
1998 FX ₆₄	14.0	0.15	19980308	165.07506	8.65443	10.89917	5.73383	0.1332631	2.4516851	14	1	12 days	0.64		Williams	1998 FX ₆₄
1998 FY ₆₄	13.5	0.15	19980308	323.05397	224.64634	7.32100	14.71484	0.0993446	2.8441017	15	1	12 days	0.42		Williams	1998 FY ₆₄
1998 FZ ₆₄	14.5	0.15	19980308	304.62508	245.07100	5.45710	6.83969	0.0986275	2.2512888	13	1	4 days	0.34		Williams	1998 FZ ₆₄
1998 FA ₆₅	15.0	0.15	19980308	61.00424	268.20092	201.84833	3.34056	0.1474755	2.5377663	14	1	12 days	1.25	E	Williams	1998 FA ₆₅
1998 FC ₆₅	15.5	0.15	19980308	14.67598	329.04769	193.75179	4.32085	0.1615769	2.2307924	13	1	4 days	0.85	E	Williams	1998 FC ₆₅
1998 FF ₆₅	15.0	0.15	19980308	319.07923	39.90252	197.84429	8.77864	0.1187344	2.5819583	14	1	12 days	0.56		Williams	1998 FF ₆₅
1998 FH ₆₅	15.0	0.15	19980308	318.95503	10.40409	223.29918	1.55947	0.0892599	2.2301677	18	1	12 days	0.89		Williams	1998 FH ₆₅
1998 FN ₆₅	14.0	0.15	19980308	274.19177	88.87585	207.09110	12.13756	0.1855124	2.9800656	14	1	12 days	1.45		Williams	1998 FN ₆₅
1998 FR ₆₅	14.5	0.15	19980308	36.59475	213.10807	291.95234	2.61116	0.0624432	2.1882983	18	1	12 days	0.42		Williams	1998 FR ₆₅
1998 FS ₆₅	15.0	0.15	19980308	342.78215	312.83122	254.24382	2.35045	0.1091840	2.2885498	18	1	12 days	0.62		Williams	1998 FS ₆₅
1998 FV ₆₅	15.0	0.15	19980308	290.46985	84.18716	203.45598	7.39864	0.2663844	2.4515167	14	1	12 days	0.73	E	Williams	1998 FV ₆₅
1998 FC ₆₆	13.5	0.15	19980308	253.46120	121.54651	196.71090	10.40831	0.2278972	2.3624538	21	1	12 days	0.47		Williams	1998 FC ₆₆
1998 FD ₆₆	14.0	0.15	19980308	274.44746	89.31292	198.91061	6.72542	0.1227755	2.4418340	21	1	12 days	0.77		Williams	1998 FD ₆₆
1998 FE ₆₆	14.0	0.15	19980308	348.10929	8.92702	194.55611	3.69862	0.1022783	3.1091245	18	1	12 days	0.73		Williams	1998 FE ₆₆
1998 FF ₆₆	14.5	0.15	19980308	296.96877	255.54318	9.64407	3.97468	0.1305359	2.5880547	21	1	12 days	0.48		Williams	1998 FF ₆₆
1998 FG ₆₆	12.5	0.15	19980308	212.65567	150.90481	195.73010	11.35789	0.1372283	3.0457859	18	1	12 days	0.52		Williams	1998 FG ₆₆
1998 FH ₆₆	14.0	0.15	19980308	297.18532	6.42197	255.65157	0.21804	0.0894477	3.2469892	13	1	12 days	0.94	E	Williams	1998 FH ₆₆
1998 FJ ₆₆	13.5	0.15	19980308	283.05635	263.11657	12.49631	10.94470	0.0996025	2.5700681	13	1	4 days	0.46	E	Williams	1998 FJ ₆₆
1998 FL ₆₆	14.5	0.15	19980308	288.45522	250.45493	20.68518	0.67682	0.1212513	2.2617412	13	1	4 days	0.39	E	Williams	1998 FL ₆₆
1998 FS ₆₆	14.5	0.15	19980308	208.13725	156.37784	185.79918	15.07453	0.0399747	2.6988656	13	1	4 days	0.99	E	Williams	1998 FS ₆₆
1998 FT ₆₆	14.0	0.15	19980308	38.16126	115.22909	25.68187	6.76327	0.1145641	3.1972526	13	1	4 days	0.60	E	Williams	1998 FT ₆₆
1998 FX ₆₆	15.0	0.15	19980308	275.96563	165.48935	127.75631	2.37456	0.1924978	2.4576519	13	1	4 days	1.17	E	Williams	1998 FX ₆₆
1998 FE ₆₇	15.0	0.15	19980308	60.44783	62.90995	39.36319	5.44408	0.2111213	2.5347765	12	1	4 days	0.47	E	Williams	1998 FE ₆₇
1998 FF ₆₇	15.0	0.15	19980308	310.52991	119.47602	129.86224	3.31214	0.1512653	2.4015589	17	1	13 days	0.32		Williams	1998 FF ₆₇
1998 FV ₆₇	13.5	0.15	19980308	312.12395	111.19360	147.93062	4.13711	0.2170320	3.0802044	12	1	4 days	0.62	E	Williams	1998 FV ₆₇
1998 FC ₆₈	16.0	0.15	19980308	88.73645	72.66068	11.95709	7.48245	0.1178630	2.1465492	11	1	4 days	1.29	E	Williams	1998 FC ₆₈
1998 FE ₆₈	14.0	0.15	19980308	20.06195	337.38719	192.12096	2.42572	0.0293631	3.0815899	13	1	12 days	0.93		Williams	1998 FE ₆₈
1998 FF ₆₈	13.0	0.15	19980308	299.47740	337.87293	288.92989	0.03949	0.1448252	3.1208359	17	1	12 days	0.34	E	Williams	1998 FF ₆₈
1998 FJ ₆₈	15.0	0.15	19980308	66.36772	88.94918	26.32003	0.43918	0.0569702	2.2888749	18	1	12 days	1.24	E	Williams	1998 FJ ₆₈
1998 FM ₆₈	15.0	0.15	19980308	302.30783	52.72537	205.82058	5.87969	0.1193043	2.4535580	20	1	12 days	0.54		Williams	1998 FM ₆₈
1998 FN ₆₈	16.5	0.15	19980308	336.94292	12.95154	212.29556	2.95562	0.2653495	2.5585312	14	1	12 days	1.30	E	Williams	1998 FN ₆₈
1998 FO ₆₈	14.5	0.15	19980308	278.18205	327.23282	326.30653	1.83191	0.1962563	2.3927699	21	1	12 days	0.47		Williams	1998 FO ₆₈
1998 FU ₆₈	14.0	0.15	19980308	324.81790	28.54961	205.43515	11.66996	0.1293399	2.6598521	18	1	12 days	0.37		Williams	1998 FU ₆₈
1998 FX ₆₈	12.0	0.15	19980308	268.05358	91.22357	207.88614	12.55947	0.1086848	3.9564528	18	1	12 days	0.54	E	Williams	1998 FX ₆₈
1998 FZ ₆₈	14.0	0.15	19980308	281.95259	87.24198	199.26554	9.76834	0.1594114	2.6062089	17	1	12 days	1.05		Williams	1998 FZ ₆₈
1998 FA ₆₉	14.5	0.15	19980308	272.79945	300.75718	354.93845	2.91428	0.1767283	2.2161559	20	1	12 days	0.65		Williams	1998 FA ₆₉
1998 FE ₆₉	14.5	0.15	19980308	331.88344	222.93877	359.33490	1.81874	0.0982197	2.4026910	21	1	12 days	0.50		Williams	1998 FE ₆₉
1998 FG ₆₉	12.5	0.15	19980308	238.90863	131.22469	196.66072	10.59806	0.1407705	2.9937137	18	1	12 days	0.61		Williams	1998 FG ₆₉

1998 FO ₆₉	14.5	0.15	19980308	32.75201	342.49342	163.05224	3.58232	0.1116455	2.3844124	16	1	4 days	0.46	E Williams	1998 FO ₆₉
1998 FU ₆₉	14.5	0.15	19980308	311.59067	234.90976	25.81709	8.61828	0.2345777	2.8268607	13	1	4 days	0.79	E Williams	1998 FU ₆₉
1998 FW ₆₉	15.0	0.15	19980308	301.08645	227.08537	42.79713	5.64979	0.2183439	2.3873192	16	1	4 days	0.46	E Williams	1998 FW ₆₉
1998 FX ₆₉	14.5	0.15	19980308	291.60239	135.55870	133.94399	3.93633	0.1171851	2.4461647	16	1	4 days	0.35	E Williams	1998 FX ₆₉
1998 FF ₇₀	13.0	0.15	19980308	276.06357	168.15909	137.42917	5.07674	0.2634434	3.1459236	16	1	4 days	0.81	E Williams	1998 FF ₇₀
1998 FL ₇₀	14.5	0.15	19980308	278.29926	272.05740	24.95970	7.98803	0.2328469	2.3842946	16	1	4 days	0.54	E Williams	1998 FL ₇₀
1998 FO ₇₀	15.0	0.15	19980308	88.66059	286.65263	162.64296	3.53397	0.0919227	2.3024385	12	1	4 days	0.80	E Williams	1998 FO ₇₀
1998 FP ₇₀	14.0	0.15	19980308	347.83875	131.67970	77.52279	1.76066	0.2235821	3.2348664	16	1	4 days	0.95	E Williams	1998 FP ₇₀
1998 FR ₇₀	15.5	0.15	19980308	34.10596	112.72380	23.12858	6.25042	0.2089595	2.4373830	15	1	4 days	1.15	E Williams	1998 FR ₇₀
1998 FS ₇₀	13.5	0.15	19980308	268.74290	271.47690	21.29820	15.10055	0.0766704	3.1981823	16	1	4 days	1.17	E Williams	1998 FS ₇₀
1998 FT ₇₀	15.0	0.15	19980308	5.86629	140.30608	36.13527	2.70189	0.2379787	2.5721345	16	1	5 days	0.41	E Williams	1998 FT ₇₀
1998 FV ₇₀	14.5	0.15	19980308	289.06950	106.27346	172.71587	3.19987	0.1625203	2.3797423	16	1	5 days	0.73	E Williams	1998 FV ₇₀
1998 FY ₇₀	15.0	0.15	19980308	63.66621	277.61265	193.90318	4.33110	0.1435872	2.4863625	13	1	12 days	1.34	Williams	1998 FY ₇₀
1998 FA ₇₁	12.5	0.15	19980308	156.46485	17.81237	18.96297	15.78881	0.0390097	3.1582832	18	1	12 days	0.46	Williams	1998 FA ₇₁
1998 FB ₇₁	14.0	0.15	19980308	202.61570	162.47434	194.48789	13.42254	0.1506132	2.5144718	12	1	4 days	1.15	E Williams	1998 FB ₇₁
1998 FC ₇₁	15.0	0.15	19980308	292.18639	75.13260	199.70147	2.64810	0.1581175	2.2738293	14	1	12 days	0.94	Williams	1998 FC ₇₁
1998 FE ₇₁	15.0	0.15	19980308	276.70048	293.63472	352.19787	4.14406	0.1105040	2.3051108	11	1	4 days	0.97	E Williams	1998 FE ₇₁
1998 FF ₇₁	15.5	0.15	19980308	310.48960	306.97849	301.45205	2.39636	0.1016155	2.2444819	14	1	12 days	1.25	Williams	1998 FF ₇₁
1998 FG ₇₁	15.0	0.15	19980308	339.76562	219.29927	354.49812	6.14292	0.1290403	2.2593034	18	1	12 days	0.59	Williams	1998 FG ₇₁
1998 FM ₇₁	13.0	0.15	19980308	44.56808	114.16270	18.72504	15.78074	0.1788801	3.1821484	17	1	12 days	0.43	Williams	1998 FM ₇₁
1998 FO ₇₁	14.5	0.15	19980308	49.53247	287.44975	191.06019	11.23626	0.2382748	2.8375402	13	1	5 days	0.72	E Williams	1998 FO ₇₁
1998 FP ₇₁	14.0	0.15	19980308	299.68912	256.18311	22.55163	10.01897	0.2095853	3.2078691	12	1	12 days	0.91	Williams	1998 FP ₇₁
1998 FV ₇₁	14.5	0.15	19980308	250.42977	316.62336	341.72592	4.02733	0.0882175	2.6927022	13	1	12 days	0.80	Williams	1998 FV ₇₁
1998 FC ₇₂	15.5	0.15	19980308	354.18562	319.85955	230.75481	3.24617	0.1547723	2.7731372	13	1	12 days	1.10	Williams	1998 FC ₇₂
1998 FM ₇₂	15.0	0.15	19980308	59.85801	265.95957	203.68777	2.19924	0.1643185	2.5924768	12	1	12 days	1.85	E Williams	1998 FM ₇₂
1998 FO ₇₂	14.0	0.15	19980308	7.57736	165.92813	13.49590	5.26395	0.0944004	2.9107073	14	1	12 days	0.64	Williams	1998 FO ₇₂
1998 FP ₇₂	16.0	0.15	19980308	8.91764	195.01444	339.26391	2.35469	0.1191613	2.2661656	17	1	12 days	0.91	Williams	1998 FP ₇₂
1998 FS ₇₂	16.5	0.15	19980328	18.11554	103.49127	69.48627	7.04854	0.0865841	2.4613437	8	1	5 days	0.32	Williams	1998 FS ₇₂
1998 FA ₇₃	15.5	0.15	19980328	221.39270	325.86140	22.17430	7.86334	0.0918848	2.2784650	10	1	5 days	0.82	E Williams	1998 FA ₇₃
1998 FB ₇₃	17.0	0.15	19980328	299.06488	264.10128	25.64052	7.35549	0.2417165	2.1539293	9	1	3 days	1.36	E Williams	1998 FB ₇₃
1998 FD ₇₃	15.0	0.15	19980328	341.10726	144.66921	92.90261	4.12706	0.2693539	3.0272638	7	1	7 days	0.31	Williams	1998 FD ₇₃
1998 FE ₇₃	14.5	0.15	19980328	82.29032	341.17024	82.05072	4.90057	0.1828593	2.5319961	6	1	2 days	0.53	E Williams	1998 FE ₇₃
1998 FZ ₇₃	14.5	0.15	19980308	318.84493	354.11522	248.83265	1.38078	0.1518075	2.3924679	11	1	10 days	0.55	Williams	1998 FZ ₇₃
1998 FD ₇₄	14.5	0.15	19980328	0.57287	122.32651	66.35568	3.49914	0.1445094	2.2034993	9	1	13 days	0.19	Williams	1998 FD ₇₄
1998 FE ₇₄	14.5	0.15	19980328	299.26509	127.61380	141.68346	3.72121	0.2076216	2.9950819	6	1	2 days	0.89	E Marsden	1998 FE ₇₄
1998 FG ₇₄	15.0	0.15	19980328	248.09242	78.31585	253.03320	9.89907	0.1802185	3.1592878	9	1	5 days	0.23	Williams	1998 FG ₇₄
1998 FH ₇₄	15.5	0.15	19980328	50.51337	192.86441	198.88050	19.79205	0.8702841	2.1270529	49	1	4 days	0.92	Williams	1998 FH ₇₄
1998 FJ ₇₄	18.5	0.15	19980328	22.76742	282.66192	197.24075	27.58159	0.5253950	2.3228572	48	1	6 days	1.26	Williams	1998 FJ ₇₄
1998 FK ₇₄	17.5	0.15	19980308	305.01731	216.82557	15.92828	1.24307	0.1652519	2.3620633	15	1	4 days	0.62	E Williams	1998 FK ₇₄
1998 FL ₇₄	16.0	0.15	19980308	248.15355	299.93588	349.55486	5.78364	0.1838871	2.2800481	21	1	10 days	0.32	Williams	1998 FL ₇₄
1998 FN ₇₄	15.5	0.15	19980308	145.25198	8.03710	356.25877	2.52649	0.1699427	2.6108382	15	1	4 days	0.41	Williams	1998 FN ₇₄
1998 FO ₇₄	14.5	0.15	19980328	317.38192	58.57372	159.57788	9.23799	0.1291634	2.8179290	17	1	7 days	0.19	Williams	1998 FO ₇₄
1998 FP ₇₄	16.0	0.15	19980328	270.33884	251.22646	25.71091	11.13914	0.0338840	2.6506470	8	1	7 days	0.32	E Williams	1998 FP ₇₄
1998 FQ ₇₄	15.5	0.15	19980328	41.96119	341.60531	155.32375	9.63009	0.0637135	3.0670232	9	1	7 days	0.20	E Williams	1998 FQ ₇₄
1998 GA	13.5	0.15	19980328	30.39803	115.23708	28.75301	4.14034	0.1155640	2.4420566	12	1	3 days	0.74	E Williams	1998 GA
1998 GX	16.0	0.15	19980328	318.35395	179.59406	53.34918	3.65935	0.2480664	3.0034137	11	1	2 days	0.39	E Williams	1998 GX
1998 GC ₁	21.0	0.15	19980328	26.81665	117.09026	19.16057	18.80607	0.2946329	1.4451774	46	1	4 days	0.95	Williams	1998 GC ₁
2043 P-L	15.0	0.15	19971218	271.25753	294.88133	354.00528	5.85839	0.2612537	2.4650954	21	3	1960–1998	0.60	M-v Williams	23984 2043 P-L
2197 P-L	14.0	0.15	19971218	259.87374	90.26640	194.00630	4.20470	0.1764462	2.4777575	34	6	1960–1998	0.60	M-v Williams	25652 2197 P-L
2559 P-L	14.0	0.15	19971218	119.65157	93.36022	74.63043	2.74305	0.0935001	2.2875181	19	5	1960–1995	0.56	M-v Williams	26423 2559 P-L
2583 P-L	14.0	0.15	19971218	220.61438	244.64831	56.91015	2.94601	0.0763257	2.9248117	18	4	1960–1998	0.63	M-v Williams	27925 2583 P-L
2594 P-L	14.5	0.15	19971218	266.00092	145.30842	149.15591	2.50734	0.0424378	2.8976639	24	5	1960–1998	0.41	M-v Williams	29948 2594 P-L
2604 P-L	14.5	0.15	19971218	278.59860	226.40552	8.12543	3.04121	0.1899590	2.3327154	42	6	1950–1998	0.81	M-v Williams	31436 2604 P-L

2636 P-L	15.0	0.15	19971218	291.12799	80.28806	166.99037	2.84207	0.1885362	2.3210619	37	5	1960-1998	0.71	M-v	1	Williams	29668	2636 P-L
2727 P-L	15.5	0.15	19971218	314.10042	189.11798	21.13645	4.93702	0.1459565	2.3330618	24	2	1960-1998	0.53	M-v	5	Williams	31409	2727 P-L
4004 P-L	14.0	0.15	19971218	276.08791	327.04812	342.36127	5.33280	0.0231852	2.6512201	34	6	1960-1997	0.66	M-v	2	Williams	29948	4004 P-L
4014 P-L	15.0	0.15	19971218	75.89251	68.30427	344.41239	5.95256	0.1413587	2.2126213	32	4	1960-1998	0.62	M-v	2	Williams	31436	4014 P-L
4017 P-L	14.5	0.15	19971218	96.18332	23.02254	359.62362	13.19117	0.2558386	2.7222436	16	4	1951-1998	0.86	M-v	3	Williams	22601	4017 P-L
4049 P-L	13.0	0.15	19971218	90.63766	216.53446	194.56351	7.95364	0.1141536	3.2411040	22	3	1960-1998	0.64	M-v	4	Williams	23866	4049 P-L
4119 P-L	15.0	0.15	19971218	213.96018	138.67959	191.49549	4.44457	0.2167432	2.1845643	34	4	1951-1998	0.71	M-v	2	Williams	29141	4119 P-L
4521 P-L	13.0	0.15	19971218	209.85423	7.80381	333.04278	1.23864	0.0781896	2.9033286	27	6	1953-1998	0.67	M-v	1	Williams	30914	4521 P-L
4586 P-L	12.5	0.15	19971218	109.02858	334.53047	65.72151	1.38969	0.1262028	3.2301380	62	5	1960-1998	0.55	M-v	1	Williams	28892	4586 P-L
4604 P-L	15.5	0.15	19971218	320.83754	305.30961	27.88812	2.32785	0.1144923	2.2788152	20	5	1953-1997	0.61	M-v	2	Williams	29948	4604 P-L
4631 P-L	14.5	0.15	19971218	336.76292	180.37566	13.88260	7.21708	0.0477495	2.3296410	29	5	1955-1998	0.72	M-v	2	Williams	25085	4631 P-L
4801 P-L	14.5	0.15	19971218	258.83855	180.29449	98.83532	2.15177	0.1283991	3.2009266	15	4	1960-1998	0.73	M-v	2	Williams	23791	4801 P-L
6114 P-L	14.0	0.15	19971218	295.57409	222.79523	348.51662	12.82584	0.1429050	2.6919722	51	3	1960-1998	0.56	M-v	3	Williams	31436	6114 P-L
6531 P-L	14.5	0.15	19971218	130.84743	19.75215	16.50088	4.70988	0.0684718	2.1953003	32	4	1960-1998	0.81	M-v	2	Williams	28088	6531 P-L
6584 P-L	13.5	0.15	19971218	318.05849	167.24104	29.97456	3.40267	0.0317007	2.6909504	35	3	1960-1998	0.60	M-v	4	Williams	31436	6584 P-L
6588 P-L	13.5	0.15	19971218	108.66541	330.01480	89.64248	0.66138	0.1416012	3.2146710	35	6	1960-1998	0.74	M-v	1	Williams	29141	6588 P-L
6600 P-L	15.0	0.15	19971218	325.58871	137.10347	64.40819	1.96037	0.0643538	2.1922811	37	5	1960-1998	0.86	M-v	2	Williams	29141	6600 P-L
6683 P-L	14.0	0.15	19971218	29.02495	353.18598	149.87906	5.46571	0.1172074	3.2124416	26	4	1960-1998	0.81	M-v	1	Williams	29129	6683 P-L
6792 P-L	13.5	0.15	19971218	211.65834	208.68724	103.01135	3.31121	0.0530041	2.9198795	33	4	1960-1998	0.62	M-v	3	Williams	26192	6792 P-L
6833 P-L	14.5	0.15	19971218	323.50570	216.81454	352.67285	1.87229	0.0833780	2.9112300	14	3	1960-1998	0.71	M-v	5	Williams	23532	6833 P-L
7081 P-L	16.0	0.15	19971218	41.44725	106.22988	348.83643	4.96614	0.1149261	2.2113174	21	3	1960-1998	0.76	M-v	4	Williams	22822	7081 P-L
7603 P-L	13.5	0.15	19971218	222.01491	304.88701	22.19570	13.76007	0.1892035	2.6678872	31	4	1960-1998	0.61	M-v	2	Williams	26192	7603 P-L
7607 P-L	15.5	0.15	19971218	39.49252	340.58131	99.41057	3.40672	0.2060388	2.3617391	24	3	1960-1998	0.84	M-v	4	Williams	31436	7607 P-L
9057 P-L	14.5	0.15	19971218	291.83265	270.45523	312.91943	3.28018	0.1086259	2.3321829	39	4	1960-1998	0.58	M-v	3	Williams	31436	9057 P-L
9058 P-L	12.5	0.15	19971218	300.13625	85.68190	266.30166	3.19662	0.1710395	3.0908255	25	4	1960-1997	0.62	M-v	2	Williams	30095	9058 P-L
9509 P-L	15.0	0.15	19971218	254.35518	124.76028	187.93350	10.89565	0.2550703	2.6509883	20	3	1960-1998	0.87	M-v	3	Williams	16036	9509 P-L
1162 T-1	14.0	0.15	19971218	319.45997	240.32537	345.72977	10.68245	0.0996347	3.0683123	19	3	1971-1998	0.75	M-v	4	Williams	24909	1162 T-1
1163 T-1	13.5	0.15	19971218	286.02523	4.56183	250.55335	3.15707	0.0903800	2.2421852	27	4	1971-1998	0.70	M-v	2	Williams	29321	1163 T-1
1198 T-1	14.0	0.15	19971218	355.84666	198.04630	314.32925	4.05922	0.1138766	3.0920479	38	3	1971-1998	0.85	M-v	4	Williams	31436	1198 T-1
2149 T-1	13.0	0.15	19971218	20.75047	99.85206	4.18941	7.30157	0.1002429	3.1090481	39	3	1971-1998	0.68	M-v	4	Williams	31436	2149 T-1
2258 T-1	13.5	0.15	19971218	160.68233	331.98782	27.41274	8.21171	0.2430089	2.4602810	40	6	1956-1998	0.80	M-v	2	Williams	23540	2258 T-1
3182 T-1	14.0	0.15	19971218	160.44933	107.73765	260.99621	2.43029	0.0395116	3.0810687	25	3	1971-1998	0.81	M-v	6	Williams	28880	3182 T-1
3216 T-1	14.0	0.15	19971218	213.31764	70.23658	207.25450	2.13051	0.0295287	2.7597304	24	3	1971-1998	0.78	M-v	3	Williams	31268	3216 T-1
3219 T-1	15.5	0.15	19971218	267.07067	272.14022	331.26118	3.63962	0.1280367	2.2611550	21	3	1971-1998	0.86	M-v	2	Williams	31023	3219 T-1
3243 T-1	15.0	0.15	19971218	179.89071	347.90147	357.79546	3.92163	0.1419111	2.2508549	22	3	1971-1998	1.10	M-v	6	Williams	26415	3243 T-1
3271 T-1	13.5	0.15	19971218	258.02979	287.84765	347.04663	2.03808	0.0239376	2.7235384	34	6	1954-1998	0.83	M-v	1	Williams	30095	3271 T-1
3286 T-1	14.5	0.15	19971218	11.29573	128.84919	6.97356	13.20007	0.1244212	2.7341898	49	3	1971-1998	1.01	M-v	4	Williams	31436	3286 T-1
3297 T-1	13.5	0.15	19971218	305.54705	24.16151	179.20190	2.06707	0.1302636	3.1099625	40	3	1971-1998	0.98	M-v	4	Williams	31436	3297 T-1
3308 T-1	13.5	0.15	19971218	251.13008	85.53494	168.95310	1.40295	0.1139363	3.1261692	21	6	1971-1998	0.85	M-v	1	Williams	26193	3308 T-1
4155 T-1	14.0	0.15	19971218	68.27961	20.45675	72.53522	3.04890	0.0398620	2.7245326	41	4	1971-1998	0.76	M-v	4	Williams	31436	4155 T-1
4262 T-1	14.0	0.15	19971218	337.71195	89.93219	74.80837	3.28378	0.0832135	2.7421801	26	4	1971-1998	1.04	M-v	4	Williams	21808	4262 T-1
4283 T-1	14.5	0.15	19971218	61.74370	46.94094	28.27289	7.80359	0.1073622	2.2549560	28	4	1971-1998	0.95	M-v	2	Williams	31436	4283 T-1
4878 T-1	12.0	0.15	19971218	210.62945	173.08753	171.08147	9.72860	0.1065190	3.0615141	15	4	1971-1998	0.76	M-v	2	Williams	30466	4878 T-1
1070 T-2	14.5	0.15	19971218	249.30349	81.49583	187.65574	5.82524	0.0940283	2.4132981	27	3	1973-1998	0.91	M-v	5	Williams	22274	1070 T-2
1079 T-2	13.5	0.15	19971218	177.95732	311.00585	7.07808	1.87384	0.1306520	2.7210666	41	5	1951-1998	0.67	M-v	2	Williams	31436	1079 T-2
1109 T-2	15.5	0.15	19971218	260.38489	291.76924	333.78937	2.23778	0.1569362	2.4038139	37	4	1973-1998	0.84	M-v	1	Williams	27927	1109 T-2
1175 T-2	15.5	0.15	19971218	312.02915	337.05379	226.38971	0.80712	0.1359164	2.4198526	37	3	1973-1998	0.88	M-v	5	Williams	31436	1175 T-2
1274 T-2	14.0	0.15	19971218	64.54290	69.30014	10.46700	1.90145	0.0361037	2.7279390	44	5	1973-1998	0.77	M-v	1	Williams	29142	1274 T-2
1304 T-2	13.0	0.15	19971218	176.38610	144.99719	228.35065	1.08145	0.1458340	3.0639351	44	4	1973-1998	0.93	M-v	2	Williams	31436	1304 T-2
1325 T-2	14.0	0.15	19971218	126.65539	357.15705	18.10767	5.19207	0.0661634	2.7279502	36	3	1973-1998	0.73	M-v	4	Williams	25540	1325 T-2
1331 T-2	14.5	0.15	19971218	175.83688	71.14048	267.05322	1.63028	0.0823541	2.7127521	20	4	1951-1998	0.78	M-v	2	Williams	25229	1331 T-2
1335 T-2	14.0	0.15	19971218	56.44451	283.71518	177.84566	0.65408	0.1492283	3.1242794	47	6	1973-1998	1.08	M-v	1	Williams	31436	1335 T-2
2024 T-2	14.0	0.15	19971218	46.11947	77.36943	353.77330	8.61265	0.1461123	2.7653590	31	2	1973-1998	0.69	M-v	5	Williams	31410	2024 T-2

2075 T-2	15.0	0.15	19971218	3.79389	75.46983	186.14081	4.75622	0.1983389	2.3357119	31	4	1973–1997	0.81	M-v	4	Williams	29949	2075 T-2
2080 T-2	13.5	0.15	19971218	30.14579	282.37456	217.16412	4.42933	0.1091758	2.4223467	39	4	1973–1998	0.97	M-v	1	Williams	30294	2080 T-2
2181 T-2	13.5	0.15	19971218	263.49314	92.94124	188.35984	3.08105	0.0469564	2.6845319	36	4	1973–1998	0.75	M-v	2	Williams	29949	2181 T-2
3076 T-2	12.5	0.15	19971218	15.79969	67.92345	74.21205	2.10707	0.1264595	3.1125407	66	5	1973–1998	0.62	M-v	1	Williams	29669	3076 T-2
3160 T-2	13.5	0.15	19971218	119.53322	217.00905	161.33007	10.86549	0.1015782	3.1319345	36	5	1973–1998	0.69	M-v	1	Williams	25971	3160 T-2
3176 T-2	15.0	0.15	19971218	26.10352	104.35479	25.92731	4.16526	0.0587272	2.4260654	42	4	1973–1998	0.80	M-v	3	Williams	31436	3176 T-2
3187 T-2	14.0	0.15	19971218	102.75883	31.00090	16.96045	7.00121	0.0979828	2.4316433	38	6	1973–1998	1.17	M-v	2	Williams	29142	3187 T-2
3198 T-2	14.5	0.15	19971218	68.24393	69.38332	34.80699	5.63680	0.1530860	3.1029939	26	3	1973–1998	0.74	M-v	4	Williams	25971	3198 T-2
4095 T-2	13.5	0.15	19971218	238.14530	103.57228	178.94089	15.50516	0.1336652	3.0879308	23	3	1973–1998	0.80	M-v	4	Williams	30467	4095 T-2
4096 T-2	14.0	0.15	19971218	188.07847	190.01222	170.76737	10.15479	0.1221880	3.0631376	22	3	1973–1998	0.80	M-v	4	Williams	23867	4096 T-2
4188 T-2	15.0	0.15	19971218	40.36672	333.52966	125.02874	3.15165	0.0313337	2.7345419	28	3	1973–1998	0.77	M-v	4	Williams	31410	4188 T-2
4223 T-2	15.5	0.15	19971218	326.08778	13.54562	171.85327	11.32077	0.1258867	2.4291709	28	2	1973–1998	0.66	M-v	4	Williams	31410	4223 T-2
4254 T-2	14.0	0.15	19971218	212.00228	262.44989	68.30722	3.36190	0.2350988	2.3965898	32	4	1951–1998	0.84	M-v	2	Williams	22495	4254 T-2
4272 T-2	15.5	0.15	19971218	50.02971	2.79106	119.06826	2.58377	0.1175068	2.2001724	25	5	1954–1998	0.97	M-v	2	Williams	28620	4272 T-2
4306 T-2	14.5	0.15	19971218	234.63058	296.78169	18.48769	9.60302	0.2170667	2.3896493	35	3	1973–1998	0.86	M-v	4	Williams	26416	4306 T-2
5006 T-2	12.5	0.15	19971218	70.80499	125.82220	307.76327	8.90350	0.2149974	3.1437758	34	6	1973–1998	0.64	M-v	1	Williams	28088	5006 T-2
5056 T-2	15.5	0.15	19971218	36.80369	129.95538	334.70677	13.35790	0.2044260	2.4506281	25	3	1973–1998	0.81	M-v	4	Williams	25085	5056 T-2
5069 T-2	13.5	0.15	19971218	59.07795	163.81754	238.69403	7.26440	0.2187000	2.7794933	32	6	1973–1998	0.79	M-v	1	Williams	28088	5069 T-2
5125 T-2	14.0	0.15	19971218	258.38099	338.58760	296.49746	9.40400	0.2135974	3.0647360	25	3	1973–1998	0.86	M-v	3	Williams	27928	5125 T-2
5162 T-2	12.5	0.15	19971218	235.39525	353.33115	316.59571	8.69472	0.0742709	3.0673413	32	4	1973–1998	1.02	M-v	2	Williams	29321	5162 T-2
5490 T-2	15.0	0.15	19971218	216.43740	76.09537	243.59245	6.95309	0.1246316	2.4054329	26	4	1973–1998	0.69	M-v	1	Williams	22274	5490 T-2
1120 T-3	14.0	0.15	19971218	103.60019	108.01792	297.88611	7.44713	0.1557213	2.7867946	30	4	1977–1998	1.06	M-v	2	Williams	28609	1120 T-3
1148 T-3	13.5	0.15	19971218	131.62736	80.91217	272.89968	6.18543	0.2400467	2.7964648	30	3	1977–1998	0.76	M-v	4	Williams	31269	1148 T-3
2029 T-3	14.5	0.15	19971218	65.85853	137.06899	356.07318	9.13370	0.1525347	2.7397842	22	2	1977–1995	0.83	M-v	5	Williams	31411	2029 T-3
2206 T-3	14.5	0.15	19971218	94.03330	141.61358	258.81488	2.65436	0.0994901	2.7996800	21	4	1977–1998	0.86	M-v	2	Williams	24120	2206 T-3
2282 T-3	15.5	0.15	19971218	15.95970	268.42947	207.09398	7.41083	0.1559599	2.4499100	36	2	1977–1998	0.84	M-v	5	Williams	31411	2282 T-3
2287 T-3	14.0	0.15	19971218	286.04215	337.05199	300.88712	3.43178	0.2037546	2.6903342	35	6	1977–1998	0.69	M-v	1	Williams	29142	2287 T-3
3105 T-3	14.5	0.15	19971218	189.88567	172.39611	170.89408	2.71251	0.1807380	2.3924509	31	4	1977–1998	0.85	M-v	2	Williams	29669	3105 T-3
3224 T-3	15.5	0.15	19971218	79.17874	245.30281	165.00240	3.36981	0.0290855	2.1734735	39	4	1977–1998	0.80	M-v	2	Williams	31411	3224 T-3
3474 T-3	15.0	0.15	19971218	308.65614	140.64343	59.73613	3.21538	0.1618123	2.4191089	26	6	1953–1998	0.91	M-v	3	Williams	31436	3474 T-3
3502 T-3	16.0	0.15	19971218	342.73576	108.86444	45.95418	1.64745	0.0414089	2.1684420	37	4	1977–1998	0.68	M-v	2	Williams	31437	3502 T-3
4250 T-3	15.0	0.15	19971218	96.91079	229.62362	143.53471	3.56584	0.1874225	2.4530160	22	3	1977–1998	0.86	M-v	4	Williams	16884	4250 T-3
4326 T-3	14.5	0.15	19971218	135.45165	309.73681	70.63155	5.71094	0.1566921	2.4160428	22	3	1977–1998	0.77	M-v	4	Williams	28609	4326 T-3

1997 EP = 1997 EA₈ (A. Doppler)
 1997 EG₆ = 1997 EB₈ (A. Doppler)
 1997 WX₄₅ = 1997 WA₅₄ (A. Doppler)

NEW NAMES OF MINOR PLANETS

(3081) Martinůboh = 1971 UP

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

Named in memory of the Czech composer Bohuslav Martinů (1890–1959), known in the musical world as the author of remarkable orchestral and scenic works (six symphonies and twelve operas), as well as chamber and vocal music.

(3753) Cruithne = 1986 TO

Discovered 1986 Oct. 10 by J. D. Waldron at Siding Spring.

Named for the most common term used by the Irish for the Picts—one of the ancient peoples of Scotland. ‘Cruithne’ was the eponymous ancestor of the Picts, and it was his seven sons who gave their names to the seven divisions of the Pictish Kingdom.

(4390) Madreteresa = 1976 GO₈

Discovered 1976 Apr. 5 at the Carlos U. Cesco Station of the Felix Aguilar Observatory.

Named in memory of Albanian-born Ines Gonxha Bojaxhiu (1910–1997), better known as Mother Theresa of Calcutta, who devoted her life to helping sick, destitute and homeless people, first in India and then in the rest of the world. Among her many awards, in 1979 she received the Nobel Peace Prize.

(4620) Bickley = 1978 OK

Discovered 1978 July 28 at Perth.

Named for the present site (since 1966) of the Perth Observatory. In 1915 the locality, in the Darling Range 23 km east-southeast of the center of the city, was officially named for Samuel Wallace Alexander Walsh Bickley (1810–1876), a pioneer in the area who was also a successful merchant and a nominated member of the Legislative Council of the colony (as it was at that time) of Western Australia.

(5380) Sprigg = 1991 JT

Discovered 1991 May 7 by R. H. McNaught at Siding Spring.

Named for Reginald C. Sprigg (1919–1994), Australian exploration geologist, oceanographer, biologist, author and conservationist who in 1946 discovered the diverse pre-Cambrian Ediacaran soft-body fauna fossils representing the earliest known multicellular life on the earth. Sprigg's recognition of hydrocarbons in central Australia led to the discovery of the vast Cooper Basin gas and oil fields. His work on the formation of Australian deserts and dunes has resulted in greater understanding of present-day climate patterns. In 1968 he founded the Arkaroola Wilderness Sanctuary in the northern Flinders Ranges, and this includes an astronomical observatory. Name suggested by D. I. Steel and citation prepared by the Sprigg family.

(5382) McKay = 1991 JR₂

Discovered 1991 May 8 by R. H. McNaught at Siding Spring.

Named for Christopher P. McKay (b. 1954), space scientist and exobiologist at NASA-Ames Research Center. McKay has made numerous seminal contributions to planetary science and the search for zones of life in the solar system, with a special interest in Mars, Titan, comets and microbial life in hostile environments on the earth. Name suggested and citation prepared by D. I. Steel.

(5705) Ericsterken = 1965 UA

Discovered 1965 Oct. 21 by H. Debehogne at Uccle.

Named in memory of Eric Sterken (1948–1998), professional gardener and landscaper who took care of the gardens of the Brussels Planetarium. He is remembered by hundreds of people for his friendliness and modesty, and at the same time he was respected for his great efforts to preserve plantlife and wildlife. He was proud to have been the brother of a professional astronomer, Chris Sterken.

(6084) Bascom = 1985 CT

Discovered 1985 Feb. 12 by C. S. Shoemaker and E. M. Shoemaker at Palomar.

Named in memory of Florence Bascom (1862–1945), the first woman geologist in the United States. She was an expert in crystallography, mineralogy and petrography and worked in the fields of metamorphism and crystallography in their infancy. Bascom was also an educator who trained a generation of young women as professionals at Bryn Mawr, where she founded the geology department. She was the first woman hired by the U.S. Geological Survey and the first woman elected to the Council of the Geological Society of America. Her pioneering work earned her a position among the country's hundred leading geologists in the early twentieth century.

(6376) Schamp = 1987 KD₁

Discovered 1987 May 29 by C. S. Shoemaker and E. M. Shoemaker at Palomar.

Named in honor of Americans Larry and Becky Schamp of Alice Springs. Larry, an electrical engineer by training, is currently the manager of a TRW high-tech aerospace group located in this remote outpost of Northern Territory. Becky is renowned for her outback hospitality. This couple took in members of the Shoemaker family on their arrival from the United States after the car collision in which Eugene died, and then they hosted Carolyn when she left the hospital. Larry's 6 feet, 8 inches of gentleness and know-how and Becky's warmth, understanding and enthusiasm for life helped to sustain this family in a time of great need.

(6457) Kremsmünster = 1992 RT

Discovered 1992 Sept. 2 by L. D. Schmadel and F. Börngen at Tautenburg.

Named as a celestial tribute to the famous Benedictine monastery, educational center and observatory in Austria. A place of scientific effort in many disciplines, the Kremsmünster Observatory remains one of the most outstanding cultural institutions

in Austria—even a quarter of a millennium after its founding. This planet is also named in memory of Abbot Augustin Reslhuber (1808–1875), an ardent observer to whom it was not granted to discover a minor planet himself. Named by the first discoverer and citation prepared with the support of Father Amand Kraml.

(6510) Tarry = 1987 DF

Discovered 1987 Feb. 23 by C. S. Shoemaker and E. M. Shoemaker at Palomar.

Named in honor of Americans William and Nancy Tarry, whose kindness, thoughtfulness and friendship have left a lasting impression on Carolyn Shoemaker and her family and good friends. When Eugene Shoemaker was killed in an outback car collision far from Alice Springs, the Tarrys unhesitatingly provided their hospitality and assistance to them for several weeks. Bill is general manager for Boeing Constructors with the Boeing Defence and Space Group in Alice Springs.

(6530) Adry = 1994 GW

Discovered 1994 Apr. 12 by V. S. Casulli at Colleverde di Guidonia.

Named in honor of Adriano Casulli (b. 1974), son of the discoverer.

(6658) Akiraabe = 1992 WT₂

Discovered 1992 Nov. 18 by K. Endate and K. Watanabe at Kitami.

Named in honor of Akira Abe (b. 1934), managing editor of *Hoshino Techo* ("Star Handbook"), a quarterly journal that existed from 1978 to 1993 and popularized astronomy with the help of high-quality articles by professional astronomers. He has played a pivotal role in introducing many amateurs and professionals to astronomy. Name proposed by the discoverers following a suggestion by A. Fujii and A. Tanno.

(6669) Obi = 1994 JA₁

Discovered 1994 May 5 by K. Endate and K. Watanabe at Kitami.

Named in honor of Shinya Obi (b. 1925), professor emeritus of the University of Tokyo. In addition to his numerous research papers, he has published many popular astronomy books. He has just retired as president of the University of the Air, which educates via communication satellites. Name proposed by the discoverers following a suggestion by A. Fujii and A. Abe.

(6707) Shigeru = 1988 VZ₃

Discovered 1988 Nov. 13 by M. Yanai and K. Watanabe at Kitami.

Named in honor of Shigeru Nakano (b. 1918), doctor of medicine specializing in obstetrics and gynecology and in medical jurisprudence. An amateur astronomer, he has published many observational guidebooks and star atlases, including the most detailed one in Japan. Name proposed by the discoverers following a suggestion by A. Fujii and T. Sato.

(6722) Bunichi = 1991 BG₂

Discovered 1991 Jan. 23 by K. Endate and K. Watanabe at Kitami.

Named in honor of Bunichi Saito (b. 1925), professor emeritus at Niigata University and an expert on the earth's upper atmosphere, particularly the airglow. He is also an authority on the poet and novelist Kenji Miyazawa and currently directs the museum at the Kenji Miyazawa Iihatobu Center. Name proposed by the discoverers following a suggestion by A. Fujii and Y. Yoneda.

(6737) Okabayashi = 1993 ER

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

Named in memory of Shigeki Okabayashi (1913–1944), a self-taught Japanese astronomer. The first in Japan to discover more than one kind of new celestial object, he discovered Nova V630 Sgr in 1936 and comet C/1940 S1 (Okabayashi-Honda),

and also independently discovered C/1939 H1 and C/1939 V1. He was employed by Kurashiki Observatory from 1939 to 1941. Tragically, he was killed on his way home from a geological survey in Sumatra when his hospital ship was torpedoed. Name proposed by the discoverers following a suggestion by T. Sato and A. Fujii.

(6741) Liyuan = 1994 FX

Discovered 1994 Mar. 31 by K. Endate and K. Watanabe at Kitami.

Named in honor of Li Yuan (b. 1925), popularizer of astronomy in the People's Republic of China. He played an important role in the opening of Beijing Planetarium in 1957 and served as a leader of planetarium activities in China. He has published more than 50 books on science, including astronomy, and has frequently contributed to domestic and foreign publications. Name proposed by the discoverers following a suggestion by A. Fujii, H. Tomioka and Y. Shiono.

(6742) BIANDEPEI = 1994 GR

Discovered 1994 Apr. 8 by K. Endate and K. Watanabe at Kitami.

Named in honor of Bian Depei (b. 1926), popularizer of science and astronomy in the People's Republic of China. He has published more than 60 books, many winning national prizes, and nearly 800 articles. He played an important role in establishing the Beijing Planetarium in 1954 and launching *Amateur Astronomer* magazine in 1958, both the first of their kind in China. Name proposed by the discoverers following a suggestion by A. Fujii and T. Sato.

(6743) Liu = 1994 GS

Discovered 1994 Apr. 8 by K. Endate and K. Watanabe at Kitami.

Named in honor of Joseph H. C. Liu (b. 1931), who played a leading role in establishing the Hong Kong Space Museum and who became its first chief curator. In 1982 he received the Chiro Astronomical Award in Japan, and in 1984 he became a member of the Most Excellent Order of the British Empire, both for his promotion of popular astronomy in Hong Kong. Well known as an astrophotographer, he now lives in California. Name proposed by the discoverers following a suggestion by A. Fujii and T. Sato.

(6744) Komoda = 1994 JL

Discovered 1994 May 6 by K. Endate and K. Watanabe at Kitami.

Named in memory of Kazuyoshi Komoda (1915–1967), amateur astronomer in Japan. Though handicapped by poliomyelitis, he enthusiastically observed Jupiter from 1944 to 1961. Name proposed by the discoverers following a suggestion by T. Sato, I. Hirabayashi and A. Fujii.

(6792) Akiyamatahashi = 1991 WC

Discovered 1991 Nov. 30 by M. Akiyama and T. Furuta at Susono

Named in honor of Takashi Akiyama (b. 1923), a leader in youth education for many years in Kanaya, Shizuoka. Long interested in science, he taught the young people of this small town to appreciate the wonders of animals, plants, and especially the cosmos. He introduced the first discoverer to astronomy and taught him a great deal.

(6929) Misto = 1994 UE

Discovered 1994 Oct. 31 by V. S. Casulli at Colleverde di Guidonia.

Named in memory of Angela Misto (1902–1993), mother of the discoverer.

(7529) Vagnozzi = 1994 BC

Discovered 1994 Jan. 16 at Colleverde di Guidonia.

Named in honor of Antonio Vagnozzi (b. 1950), who in 1993 became the first amateur astronomer in Italy to discover a minor planet with a CCD camera and, after Spacewatch, the first person to have a CCD discovery numbered. In addition to

his work on minor planets, he has more recently been engaged in a systematic search for supernovae and was a codiscoverer of SN 1996ae.

(7548) Engström = 1980 FW₂

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

Named in memory of Albert Engström (1869–1940), Swedish artist and writer. Born in Lönneberga in the Swedish province of Småland, he went as a student to Uppsala in 1889, where he studied Greek and Latin before his artistic ambitions made him move to an art school in Gothenburg. Probably Sweden's best painter of caricatures, he is best known for his black and white drawings illustrating very short stories. He was also an outstanding writer, specializing in short stories. Appointed professor of drawing at the Swedish academy of art, in 1922 he became a member of the prestigious Swedish academy.

(7645) Pons = 1989 AC₂

Discovered 1989 Jan. 4 by A. Mrkos at Kleť.

Named in memory of Jean-Louis Pons (1761–1831), whose name appears on 26 different comets and who claimed to discover as many as 37. Initially hired as the doorkeeper of the Marseilles Observatory, he soon showed his proficiency for both constructing and using telescopes, and at the end of his career he was directing observatories in Tuscany. He discovered comet 2P/Encke in both 1805 and 1818, and although it is named for the person who recognized this and other apparitions of it as being one and the same body, Encke himself always referred to it as “Pons' comet”. Name suggested by J. Tichá, citation prepared by B. G. Marsden.

(7700) Rote Kapelle = 1990 TE₈

Discovered 1990 Oct. 13 by F. Börngen and L. D. Schmadel at Tautenburg.

Named for the members of Rote Kapelle, a left-wing and communist resistance group who fought against the fascist regime, operating mainly in Berlin and Hamburg. Faced with the genocide of the European Jews, the group worked to accelerate both the breakdown of the fascist regime and the end of the war. Members of the group were, among others, Arvid Harnack, Harro Schulze-Boysen and Erika Gräfin Brockdorf. In 1942, the group was suppressed by the Geheime Staatspolizei, with the arrest of about 600 people, almost 60 of whom were executed. Name proposed by the first discoverer.

(7782) Mony = 1994 CY

Discovered 1994 Feb. 7 at Santa Lucia Stroncone.

Named in memory of Monica De Magistris (1977–1998), a student of physics at Perugia University and a great lover of astronomy who sometimes visited the Santa Lucia observatory. She organized an astronomy exposition as part of Italy's “Scientific and Technological Culture Week” in 1995, giving lectures on the subject to visitors. In her struggle with illness, she was an example of strength, intelligence and passion throughout her short life.

(7847) Mattiaorsi = 1996 CS₈

Discovered 1996 Feb. 14 by U. Munari and M. Tombelli at the Asiago Observatory, Cima Eckar.

Named for Mattia Orsi (b. 1995), nephew of Arcetri astronomer Giuseppe Forti.

(7857) Lagerros = 1978 QC₃

Discovered 1978 Aug. 22 by C.-I. Lagerkvist at Mount Stromlo.

Named in honor of Johan S. V. Lagerros (b. 1968) to celebrate the completion of his Ph.D. thesis titled “Thermal Physics of Asteroids”. In a series of papers, he extended and improved the Standard Thermal Model of minor planets. As a result,

his model was used for the official calibration of ISO data. The discoverer has also benefited from his experience with computers on numerous occasions.

(7873) Böll = 1991 AE₃

Discovered 1991 Jan. 15 by F. Börngen at Tautenburg.

Named in honor of Heinrich Böll (1917–1985), outstanding German writer. In his work he described the reality of World War II and the postwar era, mostly through the fate of ordinary people. A democrat with great historical farsightedness, he defended the liberty of the mind whenever it was endangered. In 1971–1974, he was president of the International PEN club. His receipt of the Nobel Prize in literature in 1972 was the visible sign of his appreciation worldwide.

(7945) Kreisau = 1991 RK₇

Discovered 1991 Sept. 13 by F. Börngen and L. D. Schmadel at Tautenburg.

Named in memory of an anti-Nazi resistance group formed in 1942 in Silesia at the Kreisau farm, the family estate of H. J. Graf von Moltke. The members of the group, called Kreisauer Kreis, were mainly conservative people from a variety of social backgrounds and political attitudes. They considered the possibility of eliminating the fascist regime and revising Germany's ethical and political character. Most of the members were executed following the assassination attempt on the fascist leader in July 1944. Name proposed by the first discoverer.

(7957) Antonella = 1994 BT

Discovered 1994 Jan. 17 by A. Boattini and M. Tombelli at Cima Ekar.

Named in honor of Antonella Bartolini (b. 1956), amateur astronomer and friend of the discoverers.

(7958) Leakey = 1994 LE₃

Discovered 1994 June 5 by C. S. Shoemaker and E. M. Shoemaker at Palomar.

Named for Mary Leakey (1913–1996), her husband Louis Leakey (1903–1972) and her son Richard Leakey (b. 1944), all major figures in the paleoanthropology of Africa. Mary and Louis worked together for 30 years and proved that human evolution was centered in Africa, rather than in Asia. Many of their most important discoveries were made at Olduvai Gorge in Tanzania. With his team in Kenya, Richard Leakey discovered that the Koobi Fora site contained one of the richest and most varied assemblages of early human remains anywhere in the world.

(7983) Festin = 1980 FY

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

Named in honor of Leif Festin (b. 1967) to celebrate the completion of his Ph.D. thesis on the faint end of the luminosity function. He assisted with photometric observations of minor planets while he was working at the Nordic Optical Telescope on La Palma. He is co-author of several publications on lightcurves of minor planets.

(8060) Anius = 1973 SD₁

Discovered 1973 Sept. 19 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named after Anius, son and priest to Apollo on the isle of Delos. His three daughters could change anything into wine, grain or oil. So it was easy for Anius to supply the Greek army with these things. As a result, Agamemnon kidnapped the three daughters. But after they prayed to Dionysos, the god transformed the girls into birds.

(8108) Wieland = 1995 BC₁₆

Discovered 1995 Jan. 30 by F. Börngen at Tautenburg.

Named for the author Christoph Martin Wieland (1733–1813), a representative of the Rococo period, as well as of the German Enlightenment. Founder of modern German storytelling prose, he translated the works of Shakespeare and other writers and paved the way to the German classical period. The complete edition of his works contains 42 volumes. From 1773 to 1810 he was editor of the journal *Der Teutsche Merkur*. In 1772, he was appointed educator of the young Prince Carl August at the court in Weimar, where he was a highly respected member of Goethe's sphere.

(8125) Tyndareus = 5493 T-2

Discovered 1973 Sept. 30 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for a king of Sparta, father of Clytemnestra and Helena. Often it is said, however, that Tyndareus was the foster-father of Helena, because Helena is generally considered to have been the daughter of Zeus and Leda.

(8128) Nicomachus = 1967 JP

Discovered 1967 May 6 by C. U. Cesco and A. R. Klemola at El Leoncito.

Named for Nicomachus of Gerasa, first-century arithmetician and numerologist who has been credited with the discovery that 496 and 8128 are the third and fourth perfect numbers, i.e., numbers that are the sums of their factors (including unity but excluding the numbers themselves). The perfection of 6 and 28 was known to even earlier Greek and Hindu mathematicians. In 1644, Mersenne showed that the sequence of perfect numbers is given by the product of $2^n - 1$ and 2^{n-1} , where $2^n - 1$ is prime—as then is n , which takes the values 2, 3, 5 and 7 for the first four cases. Name proposed by the second discoverer, following a suggestion by B. G. Marsden, who wrote the citation.

(8130) Seeberg = 1976 DJ₁

Discovered 1976 Feb. 27 by F. Börngen at Tautenburg.

Named for the Seeberg Observatory, situated upon a well-marked hill close to the town of Gotha. In the time of the duke Ernst II von Sachsen-Gotha-Altenburg (1745–1804) and the astronomer F. X. von Zach, it was an important center for astronomy. The first meeting of European astronomers took place at the Seeberg Observatory in August 1798. This naming honors the 200th anniversary of that conference, as well as the 1998 International Spring Meeting of the Astronomische Gesellschaft in Gotha, held on the occasion of this anniversary. Name endorsed by P. Brosche.

(8158) Herder = 1989 UH₇

Discovered 1989 Oct. 23 by F. Börngen at Tautenburg.

Named for Johann Gottfried Herder (1744–1803), German philosopher, theologian, writer, translator, poet and collector of folk songs. Through his study of history, language, culture, and literature, he became a great authority on the history of the European mind. Through Goethe, he was appointed head clergyman at the court of Weimar in 1776. With Goethe, Schiller and Wieland, Herder is one of the four "Greats" of the Weimar classical period.

(8171) Stauffenberg = 1991 RV₃

Discovered 1991 Sept. 5 by F. Börngen and L. D. Schmadel at Tautenburg.

Named in honor of the German count Claus Graf Schenk von Stauffenberg (1907–1944), the driving force behind a conspiracy of German military and politicians to overthrow the fascist regime. An unsuccessful attempt on the fascist leader's life was carried out personally by Stauffenberg on 1944 July 20. This had far-ranging consequences that can not always be fully appreciated, even though the immediate outcome was the arrest of approximately 1000 and the execution of more than 200, including Stauffenberg, the very same day. Name proposed by the first discoverer.

(8191) Mersenne = 1993 OX₉

Discovered 1993 July 20 by E. W. Elst at the European Southern Observatory.

Named for Marin Mersenne (1588–1648), French mathematician and philosopher, best known for his discovery of prime numbers of the form $2^n - 1$ and that n is then necessarily also prime. The number $8191 = 2^{13} - 1$ is the fifth Mersenne prime. Mersenne correctly verified that the numbers are prime also for $n = 17, 19$ and 31 —and that they are *not* prime for $n = 11, 23$ and 29 . The largest prime Mersenne correctly established was for $n = 127$. Name proposed by the discoverer, following a suggestion by B. G. Marsden, who wrote the citation.

(8217) Dominikhašek = 1995 HC

Discovered 1995 Apr. 21 by P. Pravec and L. Šarounová at Ondřejov.

Named in honor of Dominik Hašek (b. 1965), goalkeeper, and the Czech Olympic hockey team, winners of the gold medal at the 1998 Winter Olympic Games in Nagano. Although the success was basically due to teamwork, Hašek's contribution was the most significant. This great win in “the hockey tournament of the century” was widely appreciated by the Czech people and recognized as one of the greatest achievements in the history of Czech sport.

(8223) Bradshaw = 1996 PD

Discovered 1996 Aug. 6 by P. G. Comba at Prescott.

Named for the Bradshaw mountains, which lie to the south of Prescott, Arizona. This area of sparsely populated pine-covered mountains provides a dark southern sky for the Prescott Observatory. The mountains themselves were named for William D. Bradshaw, a Western adventurer and miner.

(8224) Fultonwright = 1996 PE

Discovered 1996 Aug. 6 by P. G. Comba at Prescott.

Named in honor of Fulton Wright, Jr. (b. 1937), a friend of the discoverer, professor at Yavapai College, active amateur astronomer and telescope maker, and accomplished double bassist.

(8225) Emerson = 1996 QC

Discovered 1996 Aug. 16 by C. F. Durman and B. M. Ewen-Smith at Portimão.

Named in memory of David Emerson (d. 1996), lecturer in astrophysics at the Royal Observatory, Edinburgh. His research interests were in the interaction of matter and radiation and star formation. He was director of studies of the first discoverer. Emerson was also an ordained lay-preacher in the Scottish Episcopal Church. He died at a relatively young age on 1996 Sept. 26, just a few weeks after the discovery was made.

(8268) Goerdeler = 1987 SQ₁₀

Discovered 1987 Sept. 29 by F. Börngen at Tautenburg.

Named in memory of Carl Friedrich Goerdeler (1884–1945), mayor of the towns of Königsberg and Leipzig, respectively (1920–1937). Early on he opposed the fascist dictatorship. After the outbreak of World War II, he became the leading force behind a Resistance group of conservative-minded Germans, planning a coup d'état against the fascist leader through contacts with a military opposition. Goerdeler's main goal was to restore and institutionalize a state of law. In September 1944, he was condemned to death by the Volksgerichtshof.

EPHEMERIDES**1998 DV₉**

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 04 07		07 46.89	+40 24.7	0.377	1.094	94.0	65.9	18.4
1998 04 12		08 25.75	+39 51.3	0.391	1.118	96.7	63.0	18.4
1998 04 17		09 01.87	+38 32.3	0.410	1.143	99.1	60.1	18.5
1998 04 22		09 34.46	+36 38.5	0.434	1.170	101.3	57.4	18.6
1998 04 27		10 03.37	+34 21.0	0.461	1.198	103.0	54.9	18.7
1998 05 02		10 28.84	+31 49.7	0.492	1.227	104.4	52.7	18.8
1998 05 07		10 51.27	+29 12.0	0.527	1.256	105.4	50.7	19.0
1998 05 12		11 11.13	+26 33.1	0.566	1.287	106.0	49.0	19.1
1998 05 17		11 28.86	+23 56.5	0.608	1.317	106.2	47.5	19.3
1998 05 22		11 44.86	+21 24.2	0.653	1.348	106.1	46.1	19.5
1998 05 27		11 59.47	+18 57.3	0.701	1.380	105.8	45.0	19.6
1998 06 01		12 12.97	+16 36.5	0.751	1.411	105.2	43.9	19.8
1998 06 06		12 25.58	+14 21.9	0.804	1.442	104.3	43.0	20.0
1998 06 11		12 37.46	+12 13.7	0.860	1.474	103.3	42.1	20.2
1998 06 16		12 48.75	+10 11.5	0.918	1.505	102.0	41.3	20.3
1998 06 21		12 59.57	+08 15.2	0.979	1.536	100.7	40.6	20.5
1998 06 26		13 10.03	+06 24.3	1.041	1.567	99.2	39.8	20.6
1998 07 01		13 20.19	+04 38.6	1.105	1.597	97.5	39.1	20.8
1998 07 06		13 30.12	+02 58.0	1.171	1.627	95.8	38.4	20.9
1998 07 11		13 39.87	+01 22.0	1.239	1.657	94.0	37.7	21.1
1998 07 16		13 49.46	−00 09.5	1.308	1.686	92.1	37.0	21.2

1998 FM₅

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 04 07		09 26.80	+20 29.0	0.317	1.193	120.4	46.3	15.6
1998 04 12		09 56.73	+20 42.8	0.352	1.226	121.9	44.0	15.9
1998 04 17		10 22.53	+20 28.5	0.392	1.259	122.6	42.2	16.1
1998 04 22		10 44.73	+19 54.8	0.436	1.294	122.7	40.8	16.4
1998 04 27		11 03.97	+19 07.8	0.484	1.330	122.2	39.8	16.6
1998 05 02		11 20.85	+18 12.0	0.536	1.366	121.4	39.0	16.9
1998 05 07		11 35.83	+17 10.3	0.590	1.403	120.3	38.4	17.1
1998 05 12		11 49.30	+16 04.9	0.648	1.440	119.0	37.8	17.4
1998 05 17		12 01.58	+14 57.2	0.708	1.478	117.5	37.4	17.6
1998 05 22		12 12.91	+13 48.2	0.771	1.516	115.8	37.0	17.8
1998 05 27		12 23.51	+12 38.3	0.837	1.554	113.9	36.6	18.1
1998 06 01		12 33.52	+11 28.3	0.905	1.592	112.0	36.2	18.3
1998 06 06		12 43.08	+10 18.4	0.976	1.631	110.0	35.8	18.5
1998 06 11		12 52.26	+09 09.0	1.048	1.669	107.9	35.4	18.7
1998 06 16		13 01.14	+08 00.4	1.123	1.706	105.8	35.0	18.9
1998 06 21		13 09.80	+06 52.7	1.199	1.744	103.5	34.5	19.0
1998 06 26		13 18.27	+05 46.0	1.277	1.781	101.3	34.0	19.2
1998 07 01		13 26.61	+04 40.4	1.357	1.818	99.0	33.5	19.4
1998 07 06		13 34.84	+03 36.1	1.439	1.855	96.6	33.0	19.5
1998 07 11		13 42.98	+02 33.2	1.521	1.892	94.3	32.4	19.7
1998 07 16		13 51.06	+01 31.7	1.605	1.928	91.9	31.8	19.8
1998 07 21		13 59.09	+00 31.7	1.690	1.964	89.4	31.2	19.9
1998 07 26		14 07.10	−00 26.8	1.776	1.999	87.0	30.5	20.1
1998 07 31		14 15.09	−01 23.7	1.863	2.034	84.5	29.8	20.2
1998 08 05		14 23.08	−02 18.9	1.950	2.069	82.0	29.1	20.3
1998 08 10		14 31.06	−03 12.4	2.037	2.103	79.5	28.3	20.4

1998 08 15	14 39.05	−04 04.2	2.125	2.136	76.9	27.5	20.5
1998 08 20	14 47.04	−04 54.3	2.212	2.170	74.3	26.7	20.6
1998 08 25	14 55.06	−05 42.6	2.299	2.203	71.7	25.8	20.7
1998 08 30	15 03.10	−06 29.0	2.386	2.235	69.1	25.0	20.8
1998 09 04	15 11.16	−07 13.5	2.472	2.267	66.5	24.1	20.9
1998 09 09	15 19.23	−07 56.1	2.558	2.299	63.8	23.2	20.9
1998 09 14	15 27.33	−08 36.8	2.642	2.330	61.1	22.2	21.0

1998 EC ₃		$a, e, i = 2.13, 0.51, 8$			Elements <i>MPC</i> 31598		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 04 07	09 44.09	+27 46.6	0.669	1.463	121.0	35.9	17.9
1998 04 12	09 42.43	+28 11.7	0.671	1.428	115.7	39.2	18.0
1998 04 17	09 42.27	+28 26.8	0.673	1.394	110.9	42.3	18.0
1998 04 22	09 43.60	+28 32.4	0.675	1.360	106.4	45.2	18.0
1998 04 27	09 46.39	+28 29.2	0.677	1.326	102.2	47.9	18.1
1998 05 02	09 50.60	+28 17.6	0.677	1.294	98.4	50.4	18.1
1998 05 07	09 56.16	+27 58.0	0.676	1.263	95.0	52.8	18.1
1998 05 12	10 02.96	+27 30.4	0.673	1.232	91.9	55.0	18.1
1998 05 17	10 10.93	+26 55.0	0.668	1.203	89.1	57.2	18.1
1998 05 22	10 20.00	+26 11.4	0.661	1.176	86.6	59.3	18.1
1998 05 27	10 30.13	+25 19.3	0.652	1.150	84.4	61.3	18.1
1998 06 01	10 41.25	+24 18.4	0.641	1.126	82.5	63.2	18.0
1998 06 06	10 53.33	+23 07.9	0.628	1.105	80.9	65.0	18.0
1998 06 11	11 06.33	+21 47.4	0.613	1.086	79.5	66.8	18.0
1998 06 16	11 20.22	+20 15.7	0.596	1.070	78.5	68.4	17.9
1998 06 21	11 35.03	+18 32.0	0.578	1.057	77.7	69.9	17.9
1998 06 26	11 50.79	+16 34.9	0.560	1.047	77.3	71.2	17.8
1998 07 01	12 07.56	+14 23.3	0.541	1.041	77.3	72.3	17.8
1998 07 06	12 25.38	+11 56.2	0.522	1.038	77.6	73.0	17.7
1998 07 11	12 44.34	+09 12.6	0.503	1.039	78.3	73.4	17.7
1998 07 16	13 04.52	+06 12.1	0.487	1.043	79.4	73.3	17.6
1998 07 21	13 26.04	+02 55.0	0.472	1.050	80.9	72.8	17.5
1998 07 26	13 48.99	−00 36.8	0.460	1.061	82.8	71.7	17.5
1998 07 31	14 13.39	−04 19.6	0.453	1.075	85.0	70.2	17.4
1998 08 05	14 39.21	−08 07.6	0.449	1.092	87.6	68.1	17.4
1998 08 10	15 06.29	−11 53.1	0.451	1.112	90.3	65.8	17.3
1998 08 15	15 34.38	−15 27.4	0.459	1.134	93.0	63.1	17.3
1998 08 20	16 03.11	−18 42.3	0.473	1.158	95.6	60.4	17.4
1998 08 25	16 32.06	−21 31.4	0.493	1.184	98.0	57.7	17.4
1998 08 30	17 00.71	−23 50.6	0.518	1.212	100.0	55.1	17.5
1998 09 04	17 28.60	−25 39.0	0.550	1.242	101.6	52.7	17.6
1998 09 09	17 55.33	−26 57.8	0.586	1.273	102.8	50.5	17.7
1998 09 14	18 20.64	−27 49.8	0.628	1.305	103.5	48.6	17.9
1998 09 19	18 44.41	−28 18.8	0.674	1.337	103.9	46.8	18.0
1998 09 24	19 06.61	−28 28.5	0.725	1.371	103.8	45.3	18.2
1998 09 29	19 27.28	−28 22.6	0.779	1.405	103.4	43.9	18.4
1998 10 04	19 46.50	−28 04.0	0.837	1.439	102.8	42.7	18.6
1998 10 09	20 04.39	−27 35.5	0.898	1.474	101.9	41.5	18.7
1998 10 14	20 21.09	−26 59.1	0.962	1.509	100.7	40.5	18.9
1998 10 19	20 36.74	−26 16.4	1.029	1.544	99.3	39.5	19.1
1998 10 24	20 51.46	−25 28.8	1.099	1.579	97.8	38.6	19.2
1998 10 29	21 05.37	−24 37.3	1.171	1.615	96.1	37.7	19.4
1998 11 03	21 18.57	−23 42.8	1.246	1.650	94.3	36.8	19.6

1998 11 08	21 31.13	−22 46.0	1.322	1.685	92.4	36.0	19.7
1998 11 13	21 43.15	−21 47.4	1.400	1.720	90.4	35.1	19.9
1998 11 18	21 54.70	−20 47.3	1.480	1.754	88.2	34.3	20.0
1998 11 23	22 05.83	−19 46.1	1.561	1.789	86.0	33.4	20.1
1998 11 28	22 16.60	−18 44.1	1.643	1.823	83.8	32.6	20.3
1998 12 03	22 27.05	−17 41.6	1.727	1.856	81.4	31.7	20.4
1998 12 08	22 37.20	−16 38.7	1.811	1.890	79.0	30.8	20.5
1998 12 13	22 47.11	−15 35.5	1.895	1.923	76.6	29.9	20.6
1998 12 18	22 56.79	−14 32.3	1.981	1.956	74.1	28.9	20.7
1998 12 23	23 06.28	−13 29.1	2.066	1.988	71.6	28.0	20.8
1998 12 28	23 15.59	−12 26.1	2.151	2.020	69.0	27.0	20.9
1999 01 02	23 24.74	−11 23.4	2.236	2.051	66.4	26.1	21.0

1998 FR ₁₁		$a, e, i = 2.81, 0.71, 7$			Elements <i>MPC</i> 31602		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 04 07	10 24.78	+18 00.6	1.172	2.000	133.9	21.1	18.9
1998 04 12	10 19.40	+18 32.4	1.172	1.953	127.7	24.0	18.9
1998 04 17	10 14.93	+18 56.9	1.176	1.906	121.7	26.6	19.0
1998 04 22	10 11.46	+19 14.1	1.182	1.857	116.0	29.1	19.0
1998 04 27	10 09.04	+19 24.3	1.190	1.809	110.6	31.4	19.0
1998 05 02	10 07.72	+19 27.7	1.199	1.760	105.5	33.5	19.0
1998 05 07	10 07.47	+19 24.8	1.207	1.710	100.6	35.4	19.0
1998 05 12	10 08.27	+19 15.9	1.215	1.660	96.1	37.2	19.0
1998 05 17	10 10.09	+19 01.3	1.221	1.609	91.8	38.9	19.0
1998 05 22	10 12.88	+18 41.3	1.226	1.559	87.7	40.5	19.0
1998 05 27	10 16.61	+18 16.0	1.228	1.507	83.9	41.9	19.0
1998 06 01	10 21.23	+17 45.4	1.228	1.456	80.4	43.4	18.9
1998 06 06	10 26.71	+17 09.8	1.224	1.404	77.1	44.8	18.9
1998 06 11	10 32.99	+16 29.0	1.217	1.353	74.0	46.2	18.8
1998 06 16	10 40.05	+15 43.0	1.207	1.301	71.1	47.6	18.8
1998 06 21	10 47.86	+14 51.7	1.192	1.250	68.4	49.1	18.7
1998 06 26	10 56.42	+13 54.7	1.174	1.199	65.9	50.7	18.6
1998 07 01	11 05.69	+12 51.8	1.151	1.150	63.7	52.4	18.5
1998 07 06	11 15.68	+11 42.9	1.125	1.101	61.6	54.4	18.4
1998 07 11	11 26.36	+10 27.5	1.094	1.054	59.8	56.5	18.4
1998 07 16	11 37.74	+09 05.2	1.058	1.009	58.2	58.8	18.3
1998 07 21	11 49.84	+07 35.6	1.019	0.967	56.8	61.5	18.2
1998 07 26	12 02.66	+05 58.0	0.975	0.929	55.6	64.4	18.1
1998 07 31	12 16.23	+04 12.0	0.928	0.895	54.6	67.7	18.0
1998 08 05	12 30.56	+02 16.8	0.878	0.866	53.9	71.2	17.9
1998 08 10	12 45.73	+00 11.4	0.825	0.843	53.4	74.9	17.8
1998 08 15	13 01.82	−02 05.2	0.770	0.827	53.1	78.7	17.8
1998 08 20	13 19.03	−04 34.8	0.713	0.818	53.2	82.4	17.7
1998 08 25	13 37.64	−07 19.2	0.657	0.817	53.7	85.9	17.7
1998 08 30	13 58.08	−10 20.8	0.602	0.824	54.6	88.8	17.6
1998 09 04	14 21.01	−13 41.7	0.550	0.838	56.2	90.8	17.5
1998 09 09	14 47.37	−17 23.2	0.502	0.860	58.5	91.6	17.4
1998 09 14	15 18.39	−21 23.0	0.459	0.887	61.8	91.0	17.3
1998 09 19	15 55.52	−25 31.8	0.425	0.920	66.3	88.7	17.1
1998 09 24	16 39.94	−29 28.5	0.400	0.958	71.9	84.7	16.9
1998 09 29	17 31.55	−32 39.1	0.387	0.999	78.4	79.3	16.7
1998 10 04	18 27.79	−34 27.8	0.388	1.043	85.3	72.9	16.6
1998 10 09	19 23.77	−34 37.4	0.402	1.090	92.0	66.4	16.5

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1998 10 14	20 14.65	-33 20.9	0.429	1.138	97.7	60.3	16.6
1998 10 19	20 57.92	-31 08.9	0.468	1.187	102.3	55.1	16.7
1998 10 24	21 33.51	-28 31.7	0.516	1.238	105.6	50.7	16.9
1998 10 29	22 02.58	-25 49.3	0.572	1.289	107.8	47.2	17.1
1998 11 03	22 26.53	-23 12.3	0.635	1.340	108.9	44.4	17.4
1998 11 08	22 46.59	-20 45.3	0.703	1.392	109.3	42.2	17.6
1998 11 13	23 03.73	-18 29.2	0.777	1.443	109.0	40.4	17.8
1998 11 18	23 18.69	-16 23.7	0.854	1.495	108.2	38.9	18.1
1998 11 23	23 32.01	-14 27.6	0.935	1.546	107.0	37.6	18.3
1998 11 28	23 44.08	-12 40.0	1.020	1.597	105.5	36.5	18.5
1998 12 03	23 55.19	-10 59.6	1.108	1.648	103.7	35.5	18.8
1998 12 08	00 05.54	-09 25.6	1.199	1.698	101.6	34.6	19.0
1998 12 13	00 15.31	-07 57.0	1.292	1.748	99.4	33.8	19.2
1998 12 18	00 24.62	-06 33.2	1.387	1.797	97.1	32.9	19.4
1998 12 23	00 33.58	-05 13.6	1.484	1.846	94.6	32.1	19.5
1998 12 28	00 42.25	-03 57.6	1.583	1.894	92.1	31.3	19.7
1999 01 02	00 50.69	-02 45.1	1.684	1.942	89.4	30.4	19.9
1999 01 07	00 58.94	-01 35.5	1.786	1.989	86.7	29.6	20.0
1999 01 12	01 07.04	-00 28.7	1.888	2.035	84.0	28.7	20.2
1999 01 17	01 15.03	+00 35.5	1.991	2.081	81.2	27.8	20.3
1999 01 22	01 22.92	+01 37.4	2.095	2.127	78.3	26.9	20.5
1999 01 27	01 30.74	+02 37.1	2.199	2.172	75.4	26.0	20.6
1999 02 01	01 38.48	+03 34.6	2.302	2.216	72.5	25.1	20.7
1999 02 06	01 46.17	+04 30.1	2.405	2.260	69.6	24.1	20.8
1999 02 11	01 53.82	+05 23.7	2.508	2.303	66.7	23.2	20.9

1998 BP ₂₆		$a, e, i = 1.72, 0.26, 20$				Elements <i>MPC</i> 31593	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 04 07		10 45.23	-44 40.3	0.446	1.340	131.7	33.9
1998 04 12		10 39.42	-45 01.6	0.470	1.351	129.6	34.9
1998 04 17		10 35.95	-45 07.2	0.495	1.363	127.6	35.7
1998 04 22		10 34.74	-45 01.6	0.521	1.376	125.7	36.4
1998 04 27		10 35.65	-44 48.2	0.548	1.389	124.0	36.9
1998 05 02		10 38.50	-44 30.0	0.577	1.403	122.3	37.3
1998 05 07		10 43.07	-44 09.1	0.606	1.418	120.8	37.7
1998 05 12		10 49.13	-43 47.0	0.636	1.433	119.3	37.9
1998 05 17		10 56.49	-43 24.5	0.668	1.449	117.8	38.1
1998 05 22		11 04.97	-43 02.3	0.700	1.465	116.4	38.2
1998 05 27		11 14.45	-42 40.7	0.734	1.481	115.0	38.3
1998 06 01		11 24.77	-42 20.3	0.769	1.498	113.6	38.4
1998 06 06		11 35.82	-42 01.3	0.805	1.514	112.2	38.4
1998 06 11		11 47.47	-41 43.6	0.842	1.531	110.7	38.3
1998 06 16		11 59.62	-41 27.1	0.880	1.549	109.3	38.3
1998 06 21		12 12.19	-41 11.7	0.921	1.566	107.8	38.2
1998 06 26		12 25.12	-40 57.3	0.962	1.583	106.3	38.1
1998 07 01		12 38.34	-40 44.0	1.005	1.601	104.7	37.9
1998 07 06		12 51.79	-40 31.6	1.050	1.618	103.1	37.7
1998 07 11		13 05.41	-40 19.9	1.096	1.636	101.4	37.5
1998 07 16		13 19.16	-40 08.6	1.143	1.653	99.7	37.3
1998 07 21		13 33.00	-39 57.6	1.192	1.670	98.0	37.0
1998 07 26		13 46.91	-39 46.7	1.243	1.687	96.2	36.8
1998 07 31		14 00.86	-39 35.9	1.294	1.705	94.4	36.4
1998 08 05		14 14.83	-39 25.0	1.348	1.722	92.5	36.1

1998 08 10	14 28.77	-39 13.7	1.402	1.738	90.6	35.7	20.9
1998 08 15	14 42.68	-39 01.9	1.458	1.755	88.6	35.2	21.0

C/1998 G1 (LINEAR)

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 04 07		10 56.32	+29 00.5	2.491	3.258	133.1	13.0		18.3
1998 04 17		10 34.11	+27 24.1	2.558	3.197	121.3	15.6		18.4
1998 04 27		10 15.88	+25 25.7	2.655	3.137	109.5	17.6		18.5
1998 05 07		10 01.78	+23 15.3	2.774	3.080	98.0	18.9		18.6
1998 05 17		09 51.49	+21 00.5	2.904	3.025	87.0	19.5		18.7
1998 05 27		09 44.45	+18 45.3	3.038	2.971	76.6	19.4		18.8
1998 06 06		09 40.11	+16 31.7	3.169	2.921	66.7	18.6		18.8
1998 06 16		09 37.91	+14 20.0	3.290	2.873	57.4	17.3		18.8
1998 06 26		09 37.40	+12 09.6	3.398	2.828	48.4	15.6		18.8
1998 07 06		09 38.21	+09 59.5	3.488	2.785	39.9	13.5		18.7
1998 07 16		09 40.00	+07 48.5	3.557	2.746	31.8	11.3		18.6

1998 FF₂

		$a, e, i = 1.56, 0.29, 11$				Elements <i>MPC</i> 31600	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 04 07		11 08.66	+02 56.4	0.405	1.366	150.0	21.5
1998 04 17		10 50.24	+00 32.1	0.403	1.325	136.5	31.4
1998 04 27		10 38.16	-02 15.7	0.410	1.285	124.8	40.0
1998 05 07		10 33.18	-05 21.8	0.423	1.248	115.0	47.1
1998 05 17		10 34.75	-08 43.6	0.436	1.213	107.0	52.9
1998 05 27		10 42.02	-12 20.5	0.447	1.181	100.7	57.4
1998 06 06		10 54.38	-16 13.1	0.456	1.154	95.9	61.0
1998 06 16		11 11.39	-20 21.1	0.460	1.133	92.4	63.6
1998 06 26		11 33.16	-24 42.0	0.461	1.117	90.1	65.5
1998 07 06		12 00.30	-29 11.9	0.459	1.108	88.9	66.6
1998 07 16		12 33.76	-33 41.3	0.456	1.106	88.8	66.8
1998 07 26		13 14.93	-37 53.1	0.454	1.110	89.7	66.2
1998 08 05		14 04.94	-41 21.6	0.455	1.122	91.4	64.7
1998 08 15		15 03.25	-43 32.0	0.463	1.140	93.7	62.4
1998 08 25		16 06.57	-43 53.6	0.479	1.164	96.1	59.7
1998 09 04		17 09.25	-42 19.2	0.508	1.193	98.3	56.8
1998 09 14		18 06.19	-39 10.4	0.549	1.226	99.8	54.0
1998 09 24		18 55.35	-35 04.7	0.603	1.262	100.5	51.4
1998 10 04		19 37.21	-30 36.6	0.671	1.300	100.3	49.2
1998 10 14		20 13.10	-26 08.7	0.750	1.341	99.2	47.3
1998 10 24		20 44.56	-21 52.3	0.841	1.382	97.3	45.6
1998 11 03		21 12.81	-17 51.6	0.941	1.424	94.8	44.0

1998 FM₉

		$a, e, i = 2.29, 0.44, 10$				Elements <i>MPC</i> 31601	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 04 07		11 40.74	+23 25.2	0.318	1.272	143.8	27.7
1998 04 12		11 50.23	+24 43.1	0.328	1.271	140.0	30.4
1998 04 17		12 00.36	+25 34.4	0.339	1.272	136.7	32.7
1998 04 22		12 10.95	+25 59.6	0.353	1.275	133.9	34.6
1998 04 27		12 21.86	+25 59.9	0.369	1.281	131.4	36.1
1998 05 02		12 32.97	+25 37.5	0.386	1.288	129.3	37.3
1998 05 07		12 44.16	+24 54.8	0.406	1.297	127.5	38.1
1998 05 12		12 55.32	+23 54.8	0.427	1.308	126.0	38.7
1998 05 17		13 06.37	+22 40.1	0.450	1.320	124.7	39.1
1998 05 22		13 17.26	+21 13.3	0.475	1.334	123.4	39.3

1998 05 27	13 27.98	+19 36.6	0.502	1.350	122.3	39.4	20.2
1998 06 01	13 38.55	+17 52.4	0.532	1.367	121.2	39.3	20.4
1998 06 06	13 48.97	+16 02.9	0.563	1.386	120.2	39.2	20.5
1998 06 11	13 59.25	+14 09.9	0.597	1.406	119.1	39.1	20.7
1998 06 16	14 09.38	+12 15.1	0.633	1.427	118.0	38.9	20.8

1998 FH₇₄

		$a, e, i = 2.13, 0.87, 20$			Elements <i>MPC</i> 31607		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 04 07		12 00.97	-06 44.5	1.545	2.524	164.7	6.0
1998 04 12		11 54.37	-05 33.2	1.608	2.566	158.3	8.3
1998 04 17		11 48.65	-04 28.1	1.678	2.607	151.9	10.4
1998 04 22		11 43.84	-03 29.8	1.755	2.647	145.7	12.4
1998 04 27		11 39.92	-02 38.6	1.839	2.686	139.7	14.0
1998 05 02		11 36.86	-01 54.4	1.927	2.724	133.9	15.5
1998 05 07		11 34.62	-01 17.0	2.021	2.762	128.3	16.7
1998 05 12		11 33.13	-00 46.1	2.118	2.799	123.0	17.6
1998 05 17		11 32.33	-00 21.1	2.218	2.835	117.8	18.4
1998 05 22		11 32.16	-00 01.6	2.321	2.870	112.8	19.0
1998 05 27		11 32.56	+00 12.8	2.426	2.904	108.0	19.4
1998 06 01		11 33.48	+00 22.6	2.533	2.938	103.4	19.6
1998 06 06		11 34.86	+00 28.2	2.640	2.971	98.9	19.7

1998 GC₁

		$a, e, i = 1.45, 0.29, 19$			Elements <i>MPC</i> 31607		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 04 07		12 03.06	+13 28.2	0.152	1.140	155.0	21.8
1998 04 12		11 50.77	+03 09.4	0.171	1.159	154.6	21.7
1998 04 17		11 42.66	-04 56.1	0.197	1.179	150.6	24.7
1998 04 22		11 37.79	-11 05.5	0.227	1.200	145.6	28.2
1998 04 27		11 35.53	-15 45.3	0.261	1.221	141.0	31.3
1998 05 02		11 35.41	-19 19.6	0.298	1.242	136.8	33.7
1998 05 07		11 37.03	-22 06.6	0.337	1.264	133.1	35.6
1998 05 12		11 40.09	-24 19.3	0.378	1.286	129.9	37.1
1998 05 17		11 44.34	-26 07.0	0.421	1.308	126.9	38.2

1998 FS₁₁

		$a, e, i = 2.34, 0.42, 4$			Elements <i>MPC</i> 31602		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 04 07		12 14.82	+02 16.2	0.361	1.353	165.1	11.0
1998 04 17		12 16.16	-00 14.4	0.376	1.358	156.9	16.8
1998 04 27		12 20.79	-02 55.3	0.403	1.369	149.3	22.0
1998 05 07		12 29.09	-05 38.5	0.442	1.387	142.6	26.3
1998 05 17		12 40.75	-08 17.8	0.492	1.410	136.6	29.5
1998 05 27		12 55.15	-10 49.4	0.553	1.439	131.2	32.0
1998 06 06		13 11.77	-13 11.4	0.624	1.473	126.2	33.8

1998 FJ₇₄

		$a, e, i = 2.32, 0.53, 28$			Elements <i>MPC</i> 31607		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 04 07		13 01.64	-07 01.6	0.503	1.504	179.6	0.3
1998 04 12		12 59.39	-02 49.4	0.539	1.538	172.1	5.1
1998 04 17		12 57.65	+00 45.6	0.582	1.573	164.8	9.6
1998 04 22		12 56.51	+03 43.8	0.631	1.608	158.0	13.5
1998 04 27		12 56.00	+06 07.7	0.685	1.642	151.8	16.9
1998 05 02		12 56.17	+08 01.0	0.744	1.677	146.0	19.6
1998 05 07		12 56.99	+09 27.9	0.807	1.712	140.8	21.9
1998 05 12		12 58.42	+10 32.2	0.874	1.747	135.9	23.7
1998 05 17		13 00.42	+11 17.7	0.944	1.781	131.3	25.2

1998 FX₂

		$a, e, i = 2.15, 0.49, 10$			Elements <i>MPC</i> 31600		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 04 07		13 43.46	+22 56.3	0.099	1.087	148.7	28.5
1998 04 12		14 28.70	+27 06.9	0.107	1.087	140.8	35.7
1998 04 17		15 07.25	+29 26.4	0.119	1.091	135.0	40.6
1998 04 22		15 37.74	+30 23.2	0.134	1.098	131.3	43.5
1998 04 27		16 00.78	+30 25.6	0.151	1.108	129.3	44.7
1998 05 02		16 17.78	+29 52.6	0.169	1.121	128.6	44.6
1998 05 07		16 30.15	+28 56.0	0.187	1.136	128.9	43.7
1998 05 12		16 39.01	+27 42.6	0.207	1.154	129.9	42.2
1998 05 17		16 45.24	+26 16.2	0.227	1.174	131.4	40.3
1998 05 22		16 49.51	+24 38.9	0.249	1.196	133.1	38.2
1998 05 27		16 52.38	+22 51.8	0.271	1.220	135.0	36.0
1998 06 01		16 54.35	+20 56.3	0.295	1.245	136.8	33.9
1998 06 06		16 55.81	+18 54.2	0.320	1.272	138.5	31.9
1998 06 11		16 57.03	+16 47.6	0.348	1.301	139.9	30.2
1998 06 16		16 58.22	+14 38.3	0.377	1.330	140.9	28.8
1998 06 21		16 59.54	+12 28.1	0.409	1.360	141.4	27.8
1998 06 26		17 01.14	+10 18.5	0.444	1.391	141.4	27.1
1998 07 01		17 03.13	+08 11.3	0.481	1.423	140.8	26.8
1998 07 06		17 05.58	+06 07.8	0.522	1.455	139.8	26.8
1998 07 11		17 08.49	+04 09.2	0.565	1.487	138.4	27.0
1998 07 16		17 11.87	+02 16.3	0.612	1.520	136.6	27.3
1998 07 21		17 15.72	+00 29.5	0.662	1.553	134.5	27.8
1998 07 26		17 20.03	-01 10.9	0.715	1.587	132.2	28.3
1998 07 31		17 24.80	-02 44.6	0.771	1.620	129.7	28.8
1998 08 05		17 30.00	-04 11.6	0.830	1.653	127.1	29.3
1998 08 10		17 35.59	-05 32.0	0.892	1.687	124.4	29.7
1998 08 15		17 41.53	-06 45.9	0.956	1.720	121.7	30.1

1998 FN₉

		$a, e, i = 1.40, 0.24, 15$			Elements <i>MPC</i> 31601		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 04 07		14 48.69	+14 42.7	0.157	1.135	146.1	29.5
1998 04 12		14 51.54	+19 54.9	0.174	1.148	143.9	31.0
1998 04 17		14 52.78	+23 47.6	0.194	1.162	141.5	32.6
1998 04 22		14 52.86	+26 33.6	0.216	1.177	139.2	34.0
1998 04 27		14 52.19	+28 24.3	0.239	1.192	137.0	35.1
1998 05 02		14 51.19	+29 29.5	0.263	1.208	135.1	36.1
1998 05 07		14 50.21	+29 57.7	0.288	1.225	133.3	36.8
1998 05 12		14 49.46	+29 55.8	0.315	1.242	131.6	37.4
1998 05 17		14 49.10	+29 29.6	0.342	1.259	130.1	37.9
1998 05 22		14 49.23	+28 43.5	0.370	1.276	128.5	38.4
1998 05 27		14 49.94	+27 41.0	0.400	1.294	127.0	38.7

1987 WC

		$a, e, i = 1.36, 0.23, 16$			Elements <i>MPC</i> 25528		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 04 07		15 49.37	-07 56.1	0.710	1.604	138.7	24.3
1998 04 12		15 45.46	-08 27.4	0.669	1.594	144.3	21.5
1998 04 17		15 39.89	-09 03.3	0.632	1.584	150.3	18.3
1998 04 22		15 32.58	-09 44.2	0.599	1.573	156.7	14.6
1998 04 27		15 23.56	-10 30.5	0.570	1.562	163.4	10.6
1998 05 02		15 13.00	-11 22.2	0.547	1.550	170.2	6.4
1998 05 07		15 01.20	-12 18.6	0.529	1.537	175.4	3.0
1998 05 12		14 48.58	-13 19.0	0.517	1.524	172.1	5.2

1998 APR. 11

M.P.C. 31617

1998 05 17	14 35.64	-14 21.9	0.511	1.511	165.1	9.9	20.6
1998 05 22	14 22.94	-15 26.3	0.510	1.497	157.7	14.9	20.7
1998 05 27	14 11.02	-16 31.1	0.514	1.482	150.4	19.7	20.9

1996 RR₂₀ $a, e, i = 39.94, 0.18, 5$ Elements *MPC* 30785

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 04 07	23 05.42	-05 55.8	44.318	43.471	31.9	0.7	23.5	
1998 04 17	23 06.21	-05 51.0	44.222	43.475	41.5	0.9	23.6	
1998 04 27	23 06.91	-05 46.9	44.105	43.479	51.0	1.0	23.6	
1998 05 07	23 07.51	-05 43.3	43.970	43.483	60.6	1.2	23.6	
1998 05 17	23 07.99	-05 40.6	43.820	43.487	70.1	1.3	23.6	
1998 05 27	23 08.33	-05 38.6	43.662	43.491	79.6	1.3	23.6	
1998 06 06	23 08.55	-05 37.5	43.497	43.494	89.2	1.3	23.6	
1998 06 16	23 08.62	-05 37.3	43.333	43.498	98.7	1.3	23.6	
1998 06 26	23 08.55	-05 37.9	43.173	43.502	108.3	1.3	23.5	
1998 07 06	23 08.35	-05 39.4	43.022	43.506	117.9	1.2	23.5	
1998 07 16	23 08.03	-05 41.6	42.884	43.510	127.5	1.1	23.5	
1998 07 26	23 07.59	-05 44.6	42.764	43.514	137.1	0.9	23.5	
1998 08 05	23 07.05	-05 48.2	42.665	43.518	146.9	0.7	23.5	
1998 08 15	23 06.43	-05 52.3	42.590	43.522	156.6	0.5	23.4	
1998 08 25	23 05.75	-05 56.8	42.542	43.525	166.4	0.3	23.4	
1998 09 04	23 05.03	-06 01.5	42.523	43.529	176.3	0.1	23.4	
1998 09 14	23 04.31	-06 06.2	42.533	43.533	173.8	0.1	23.4	
1998 09 24	23 03.60	-06 10.8	42.572	43.537	163.9	0.4	23.4	
1998 10 04	23 02.93	-06 15.1	42.641	43.541	153.9	0.6	23.5	
1998 10 14	23 02.33	-06 19.1	42.736	43.545	143.8	0.8	23.5	
1998 10 24	23 01.82	-06 22.4	42.855	43.549	133.7	0.9	23.5	
1998 11 03	23 01.42	-06 25.1	42.995	43.552	123.7	1.1	23.5	
1998 11 13	23 01.15	-06 26.9	43.151	43.556	113.5	1.2	23.5	
1998 11 23	23 01.01	-06 27.9	43.320	43.560	103.4	1.3	23.6	
1998 12 03	23 01.02	-06 28.0	43.496	43.564	93.3	1.3	23.6	
1998 12 13	23 01.17	-06 27.2	43.674	43.568	83.2	1.3	23.6	
1998 12 23	23 01.47	-06 25.5	43.848	43.572	73.1	1.2	23.6	
1999 01 02	23 01.91	-06 22.9	44.013	43.575	63.0	1.2	23.6	
1999 01 12	23 02.48	-06 19.5	44.164	43.579	53.0	1.0	23.6	
1999 01 22	23 03.16	-06 15.4	44.298	43.583	43.0	0.9	23.6	
1999 02 01	23 03.94	-06 10.8	44.410	43.587	33.0	0.7	23.6	

1997 RT₅ $a, e, i = 42.24, 0.00, 12$ Elements *MPC* 31145

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 04 07	23 06.07	-05 57.9	43.084	42.236	31.7	0.7	23.4	
1998 04 17	23 06.90	-05 53.3	42.984	42.236	41.3	0.9	23.4	
1998 04 27	23 07.63	-05 49.2	42.864	42.236	50.9	1.1	23.4	
1998 05 07	23 08.26	-05 45.8	42.725	42.236	60.4	1.2	23.5	
1998 05 17	23 08.77	-05 43.1	42.572	42.236	69.9	1.3	23.5	
1998 05 27	23 09.14	-05 41.3	42.409	42.236	79.5	1.4	23.5	
1998 06 06	23 09.38	-05 40.4	42.242	42.236	89.0	1.4	23.4	
1998 06 16	23 09.47	-05 40.4	42.073	42.236	98.5	1.4	23.4	
1998 06 26	23 09.43	-05 41.3	41.909	42.236	108.1	1.3	23.4	
1998 07 06	23 09.24	-05 43.0	41.754	42.236	117.7	1.2	23.4	
1998 07 16	23 08.92	-05 45.6	41.612	42.236	127.3	1.1	23.4	
1998 07 26	23 08.48	-05 48.9	41.488	42.236	137.0	0.9	23.4	
1998 08 05	23 07.94	-05 52.8	41.384	42.236	146.7	0.8	23.3	
1998 08 15	23 07.32	-05 57.3	41.305	42.236	156.4	0.5	23.3	

1998 08 25	23 06.63	-06 02.1	41.253	42.236	166.2	0.3	23.3
1998 09 04	23 05.91	-06 07.2	41.230	42.236	176.1	0.1	23.2
1998 09 14	23 05.18	-06 12.3	41.235	42.236	174.0	0.1	23.3
1998 09 24	23 04.46	-06 17.3	41.270	42.236	164.0	0.4	23.3
1998 10 04	23 03.79	-06 22.0	41.334	42.236	154.0	0.6	23.3
1998 10 14	23 03.18	-06 26.2	41.425	42.236	144.0	0.8	23.3
1998 10 24	23 02.67	-06 29.9	41.540	42.236	133.9	1.0	23.4
1998 11 03	23 02.26	-06 32.8	41.676	42.236	123.8	1.1	23.4
1998 11 13	23 01.99	-06 34.9	41.828	42.236	113.7	1.2	23.4
1998 11 23	23 01.86	-06 36.1	41.993	42.236	103.6	1.3	23.4
1998 12 03	23 01.88	-06 36.4	42.165	42.236	93.4	1.3	23.4
1998 12 13	23 02.05	-06 35.8	42.339	42.236	83.3	1.3	23.4
1998 12 23	23 02.37	-06 34.2	42.509	42.236	73.2	1.3	23.5
1999 01 02	23 02.84	-06 31.7	42.670	42.236	63.2	1.2	23.5
1999 01 12	23 03.43	-06 28.4	42.818	42.236	53.1	1.1	23.4
1999 01 22	23 04.15	-06 24.4	42.948	42.236	43.1	0.9	23.4
1999 02 01	23 04.96	-06 19.7	43.057	42.236	33.2	0.7	23.4

1997 RX₉ $a, e, i = 42.14, 0.00, 30$ Elements *MPC* 30791

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 04 07	23 06.26	-06 08.7	42.983	42.135	31.8	0.7	24.4	
1998 04 17	23 07.09	-06 04.7	42.883	42.135	41.3	0.9	24.4	
1998 04 27	23 07.84	-06 01.2	42.762	42.135	50.9	1.1	24.4	
1998 05 07	23 08.47	-05 58.5	42.623	42.135	60.5	1.2	24.4	
1998 05 17	23 08.98	-05 56.5	42.471	42.135	70.0	1.3	24.4	
1998 05 27	23 09.36	-05 55.4	42.308	42.135	79.5	1.4	24.4	
1998 06 06	23 09.60	-05 55.2	42.140	42.135	89.0	1.4	24.4	
1998 06 16	23 09.69	-05 55.9	41.972	42.135	98.6	1.4	24.4	
1998 06 26	23 09.65	-05 57.5	41.807	42.135	108.1	1.3	24.4	
1998 07 06	23 09.46	-06 00.0	41.652	42.135	117.7	1.2	24.4	
1998 07 16	23 09.14	-06 03.3	41.511	42.135	127.4	1.1	24.4	
1998 07 26	23 08.71	-06 07.3	41.386	42.135	137.0	0.9	24.4	
1998 08 05	23 08.17	-06 12.0	41.283	42.135	146.7	0.8	24.3	
1998 08 15	23 07.54	-06 17.2	41.204	42.135	156.5	0.5	24.3	
1998 08 25	23 06.86	-06 22.7	41.152	42.135	166.3	0.3	24.3	
1998 09 04	23 06.14	-06 28.4	41.129	42.135	176.1	0.1	24.2	
1998 09 14	23 05.40	-06 34.2	41.135	42.135	173.8	0.1	24.2	
1998 09 24	23 04.68	-06 39.9	41.170	42.135	163.9	0.4	24.3	
1998 10 04	23 04.01	-06 45.2	41.234	42.135	153.9	0.6	24.3	
1998 10 14	23 03.40	-06 50.1	41.325	42.135	143.9	0.8	24.3	
1998 10 24	23 02.88	-06 54.3	41.441	42.135	133.8	1.0	24.4	
1998 11 03	23 02.48	-06 57.9	41.577	42.135	123.7	1.1	24.4	
1998 11 13	23 02.21	-07 00.6	41.729	42.135	113.6	1.2	24.4	
1998 11 23	23 02.08	-07 02.3	41.894	42.135	103.4	1.3	24.4	
1998 12 03	23 02.10	-07 03.2	42.066	42.135	93.3	1.3	24.4	
1998 12 13	23 02.27	-07 03.1	42.240	42.135	83.2	1.3	24.4	
1998 12 23	23 02.59	-07 02.0	42.410	42.135	73.1	1.3	24.4	
1999 01 02	23 03.06	-07 00.0	42.572	42.135	63.0	1.2	24.4	
1999 01 12	23 03.66	-06 57.3	42.719	42.135	53.0	1.1	24.4	
1999 01 22	23 04.38	-06 53.8	42.849	42.135	43.0	0.9	24.4	
1999 02 01	23 05.19	-06 49.7	42.957	42.135	33.1	0.7	24.4	

(7474) 1992 TC				$a, e, i = 1.57, 0.29, 7$				Elements MPC 29082			1998 12 28		08 23.08		+24 59.6		0.577		1.521		153.4		16.8		18.6			
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	1999 01 02	08 14.90	+26 16.4	0.580	1.542	160.1	12.5	18.5												
1998 04 17	20	56.99	-17 27.0	1.352	1.462	75.1	41.6	21.1	1999 01 07	08 05.89	+27 28.9	0.589	1.562	166.5	8.5	18.4												
1998 04 22	21	12.87	-16 43.0	1.301	1.441	76.1	42.6	21.0	1999 01 12	07 56.46	+28 33.9	0.603	1.582	171.3	5.4	18.3												
1998 04 27	21	29.02	-15 54.5	1.252	1.420	77.1	43.7	20.9	1999 01 17	07 47.12	+29 29.5	0.622	1.602	171.2	5.4	18.4												
1998 05 02	21	45.46	-15 01.6	1.204	1.399	77.9	44.8	20.8	1999 01 22	07 38.35	+30 14.2	0.647	1.621	166.7	8.0	18.7												
1998 05 07	22	02.22	-14 04.1	1.159	1.378	78.6	45.9	20.8	1999 01 27	07 30.54	+30 48.1	0.678	1.640	160.8	11.4	18.9												
1998 05 12	22	19.29	-13 02.2	1.115	1.357	79.2	47.0	20.7	1999 02 01	07 24.00	+31 12.0	0.713	1.659	154.8	14.6	19.2												
1998 05 17	22	36.71	-11 55.9	1.074	1.336	79.6	48.1	20.6	1999 02 06	07 18.88	+31 27.1	0.754	1.677	148.9	17.7	19.4												
1998 05 22	22	54.47	-10 45.3	1.036	1.316	80.0	49.2	20.5	1999 02 11	07 15.24	+31 34.7	0.798	1.695	143.3	20.3	19.7												
1998 05 27	23	12.58	-09 30.7	1.000	1.296	80.2	50.4	20.4	1999 02 16	07 13.07	+31 36.1	0.846	1.713	138.0	22.7	19.9												
1998 06 01	23	31.03	-08 12.4	0.966	1.277	80.3	51.5	20.4	1999 02 21	07 12.32	+31 32.6	0.898	1.730	132.9	24.7	20.1												
1998 06 06	23	49.81	-06 50.7	0.935	1.258	80.2	52.6	20.3	1999 02 26	07 12.89	+31 25.0	0.952	1.747	128.2	26.5	20.3												
1998 06 11	00	08.91	-05 26.2	0.908	1.240	80.1	53.8	20.2	1999 03 03	07 14.64	+31 14.2	1.009	1.763	123.6	27.9	20.5												
1998 06 16	00	28.32	-03 59.3	0.882	1.223	79.8	54.9	20.2	1999 03 08	07 17.44	+31 00.6	1.068	1.779	119.3	29.1	20.7												
1998 06 21	00	48.00	-02 30.8	0.860	1.206	79.5	56.0	20.1	1999 03 13	07 21.18	+30 44.5	1.129	1.794	115.3	30.1	20.8												
1998 06 26	01	07.90	-01 01.7	0.841	1.190	79.1	57.0	20.1	1999 03 18	07 25.73	+30 26.2	1.191	1.809	111.4	30.8	21.0												
1998 07 01	01	27.96	+00 27.4	0.824	1.176	78.6	58.0	20.0	1999 03 23	07 31.00	+30 05.8	1.255	1.824	107.6	31.4	21.1												
1998 07 06	01	48.15	+01 55.3	0.810	1.162	78.1	58.9	20.0																				
1998 07 11	02	08.40	+03 21.3	0.799	1.150	77.6	59.7	20.0																				
1998 07 16	02	28.67	+04 44.5	0.790	1.139	77.1	60.4	19.9																				
1998 07 21	02	48.88	+06 04.0	0.783	1.130	76.6	61.0	19.9																				
1998 07 26	03	08.96	+07 19.0	0.778	1.122	76.2	61.5	19.9																				
1998 07 31	03	28.85	+08 28.9	0.774	1.116	75.9	61.9	19.9																				
1998 08 05	03	48.49	+09 33.4	0.772	1.112	75.6	62.1	19.9																				
1998 08 10	04	07.84	+10 32.1	0.771	1.109	75.5	62.2	19.9																				
1998 08 15	04	26.86	+11 24.9	0.771	1.108	75.4	62.2	19.9																				
1998 08 20	04	45.49	+12 11.6	0.772	1.109	75.5	62.1	19.9																				
1998 08 25	05	03.69	+12 52.3	0.772	1.111	75.8	61.9	19.9																				
1998 08 30	05	21.40	+13 27.3	0.773	1.115	76.2	61.5	19.9																				
1998 09 04	05	38.62	+13 56.8	0.773	1.121	76.7	61.1	19.9																				
1998 09 09	05	55.31	+14 21.3	0.773	1.129	77.5	60.6	19.9																				
1998 09 14	06	11.45	+14 41.1	0.773	1.138	78.3	60.0	19.9																				
1998 09 19	06	26.99	+14 56.9	0.771	1.149	79.4	59.3	19.9																				
1998 09 24	06	41.91	+15 09.2	0.769	1.161	80.7	58.5	19.9																				
1998 09 29	06	56.17	+15 18.6	0.765	1.174	82.1	57.7	19.8																				
1998 10 04	07	09.75	+15 25.8	0.760	1.188	83.7	56.8	19.8																				
1998 10 09	07	22.63	+15 31.7	0.754	1.204	85.5	55.8	19.8																				
1998 10 14	07	34.76	+15 36.9	0.746	1.220	87.6	54.8	19.8																				
1998 10 19	07	46.10	+15 42.3	0.737	1.238	89.8	53.6	19.8																				
1998 10 24	07	56.60	+15 48.9	0.727	1.256	92.3	52.3	19.7																				
1998 10 29	08	06.19	+15 57.4	0.715	1.274	95.1	50.9	19.7																				
1998 11 03	08	14.84	+16 08.9	0.703	1.294	98.1	49.4	19.6																				
1998 11 08	08	22.47	+16 24.3	0.689	1.314	101.4	47.7	19.6																				
1998 11 13	08	29.00	+16 44.6	0.674	1.334	105.0	45.8	19.5																				
1998 11 18	08	34.32	+17 10.8	0.659	1.354	108.9	43.7	19.4																				
1998 11 23	08	38.33	+17 43.9	0.644	1.375	113.1	41.3	19.4																				
1998 11 28	08	40.93	+18 24.5	0.629	1.396	117.8	38.7	19.3																				
1998 12 03	08	42.04	+19 13.1	0.615	1.417	122.8	35.8	19.2																				
1998 12 08	08	41.55	+20 09.9	0.602	1.438	128.2	32.6	19.1																				
1998 12 13	08	39.40	+21 14.4	0.591	1.459	134.0	29.0	19.0																				
1998 12 18	08	35.55	+22 25.6	0.583	1.480	140.2	25.2	18.8																				
1998 12 23	08	30.05	+23 41.6	0.578	1.500	146.7	21.1	18.7																				
									1995 QY ₉								$a, e, i = 40.11, 0.27, 5$								Elements MPC 31008			
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	1998 04 17	23 14.64	-04 28.1	30.388	29.615	39.0	1.2	22.4												
1998 04 17	23	14.64	-04 28.1	30.388	29.615	39.0	1.2	22.4	1998 04 27	23 15.75	-04 20.6	30.270	29.612	48.4	1.5	22.5												
1998 04 27	23	15.75	-04 20.6	30.270	29.612	48.4	1.5	22.5	1998 05 07	23 16.71	-04 14.0	30.134	29.609	57.9	1.7	22.5												
1998 05 07	23	16.71	-04 14.0	30.134	29.609	57.9	1.7	22.5	1998 05 17	23 17.51	-04 08.4	29.982	29.607	67.3	1.8	22.5												
1998 05 17	23	17.51	-04 08.4	29.982	29.607	67.3	1.8	22.5	1998 05 27	23 18.14	-04 03.9	29.820	29.604	76.8	1.9	22.5												
1998 05 27	23	18.14	-04 03.9	29.820	29.604	76.8	1.9	22.5	1998 06 06	23 18.56	-04 00.7	29.651	29.602	86.2	2.0	22.5												
1998 06 06	23	18.56	-04 00.7	29.651	29.602	86.2	2.0	22.5	1998 06 16	23 18.79	-03 58.7	29.480	29.599	95.7	2.0	22.4												
1998 06 16	23	18.79	-03 58.7	29.480	29.599	95.7	2.0	22.4	1998 06 26	23 18.82	-03 58.0	29.313	29.597	105.3	1.9	22.4												
1998 06 26	23	18.82	-03 58.0	29.313	29.597	105.3	1.9	22.4	1998 07 06	23 18.64	-03 58.6	29.152	29.594	114.8	1.8	22.4												
1998 07 06	23	18.64	-03 58.6	29.152	29.594	114.8	1.8	22.4	1998 07 16	23 18.28	-04 00.4	29.004	29.591	124.5	1.6	22.4												
1998 07 16	23	18.28	-04 00.4	29.004	29.591	124.5	1.6	22.4	1998 07 26	23 17.74	-04 03.3	28.872	29.589	134.2	1.4	22.3												
1998 07 26	23	17.74	-04 03.3	28.872	29.589	134.2	1.4	22.3	1998 08 05	23 17.04	-04 07.2	28.761	29.586	143.9	1.2	22.3												
1998 08 05	23	17.04	-04 07.2	28.761	29.586	143.9	1.2	22.3	1998 08 15	23 16.21	-04 12.0	28.672	29.584	153.7	0.9	22.3												
1998 08 15	23	16.21	-04 12.0	28.672	29.584	153.7	0.9	22.3	1998 08 25	23 15.29	-04 17.4	28.610	29.581	163.6	0.6	22.2												
1998 08 25	23	15.29	-04 17.4	28.610	29.581	163.6	0.6	22.2	1998 09 04	23 14.31	-04 23.2	28.576	29.579	173.5	0.2	22.2												
1998 09 04	23	14.31	-04 23.2	28.576	29.579	173.5	0.2	22.2	1998 09 14	23 13.29	-04 29.2	28.572	29.576	176.5	0.1	22.2												
1998 09 14	23	13.29	-04 29.2	28.572	29.576	176.5	0.1	22.2	1998 09 24	23 12.30	-04 35.2	28.597	29.574	166.5	0.5	22.2												
1998 09 24	23	12.30	-04 35.2	28.597	29.574	166.5	0.5	22.2	1998 10 04	23 11.36	-04 40.8	28.652	29.571	156.4	0.8	22.3												
1998 10 04	23	11.36	-04 40.8	28.652	29.571	156.4	0.8	22.3	1998 10 14	23 10.50	-04 45.9	28.734	29.569	146.3	1.1	22.3												
1998 10 14	23	10.50	-04 45.9	28.734	29.569	146.3	1.1	22.3	1998 10 24	23 09.78	-04 50.2	28.841	29.566	136.2	1.3	22.3												
1998 10 24	23	09.78	-04 50.2	28.841	29.566	136.2	1.3	22.3	1998 11 03	23 09.22	-04 53.5	28.969	29.564	126.0	1.6	22.4												
1998 11 03	23	09.22	-04 53.5	28.969	29.564	126.0	1.6	22.4	1998 11 13	23 08.83	-04 55.7	29.116	29.561	115.9	1.7	22.4												
1998 11 13	23	08.83	-04 55.7	29.116	29.561	115.9	1.7	22.4	1998 11 23	23 08.65	-04 56.7	29.275	29.559	105.8	1.8	22.4												
1998 11 23	23	08.65	-04 56.7	29.275	29.559	105.8	1.8	22.4	1998 12 03	23 08.68	-04 56.3	29.443	29.556	95.6	1.9	22.4												
1998 12 03	23	08.68	-04 56.3	29.443	29.556	95.6	1.9	22.4	1998 12 13	23 08.92	-04 54.6	29.614	29.554	85.6	1.9	22.4												
1998 12 13	23	08.92	-04 54.6	29.614	29.554	85.6	1.9	22.4	1998 12 23	23 09.38	-04 51.5	29.782	29.551	75.5	1.8	22.4												
1998 12 23	23	09.38	-04 51.5	29.782	29.551	75.5	1.8	22.4	1999 01 02	23 10.04	-04 47.2	29.943	29.549	65.5	1.7	22.5												
1999 01 02	23	10.04	-04 47.2	29.943	29.549	65.5	1.7	22.5	1999 01 12	23 10.89	-04 41.6	30.092	29.547	55.5	1.6	22.4												

P/1988 V1 (Ge-Wang)

Date TT		Elements <i>MPC</i> 27081							
		α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 04 27		18 14.08	−08 54.6	3.241	3.867	121.8	12.8	19.9	
1998 05 07		18 13.36	−08 18.2	3.084	3.823	131.0	11.5	19.7	
1998 05 17		18 10.95	−07 44.6	2.944	3.779	140.4	9.8	19.5	
1998 05 27		18 06.94	−07 15.6	2.826	3.734	149.5	7.9	19.3	
1998 06 06		18 01.57	−06 53.2	2.731	3.690	157.6	6.0	19.2	
1998 06 16		17 55.26	−06 39.2	2.663	3.645	162.7	4.7	19.1	
1998 06 26		17 48.49	−06 34.8	2.622	3.601	161.7	5.1	18.9	
1998 07 06		17 41.88	−06 40.7	2.608	3.557	155.3	6.9	18.8	
1998 07 16		17 36.02	−06 56.6	2.619	3.512	146.6	9.2	18.8	
1998 07 26		17 31.41	−07 21.6	2.653	3.468	137.2	11.5	18.7	
1998 08 05		17 28.46	−07 54.3	2.708	3.425	127.8	13.5	18.7	
1998 08 15		17 27.41	−08 32.7	2.777	3.381	118.6	15.2	18.7	
1998 08 25		17 28.37	−09 15.1	2.859	3.338	109.7	16.6	18.6	
1998 09 04		17 31.34	−09 59.4	2.948	3.295	101.1	17.5	18.6	
1998 09 14		17 36.26	−10 43.9	3.042	3.252	92.9	18.0	18.6	
1998 09 24		17 43.00	−11 27.0	3.137	3.210	85.1	18.1	18.6	
1998 10 04		17 51.45	−12 07.2	3.230	3.168	77.5	18.0	18.6	
1998 10 14		18 01.43	−12 43.2	3.320	3.127	70.3	17.5	18.5	
1998 10 24		18 12.81	−13 13.9	3.404	3.087	63.2	16.7	18.5	
1998 11 03		18 25.45	−13 38.2	3.481	3.047	56.4	15.7	18.5	
1998 11 13		18 39.18	−13 55.3	3.549	3.008	49.8	14.6	18.4	
1998 11 23		18 53.89	−14 04.5	3.608	2.969	43.4	13.2	18.4	
1998 12 03		19 09.43	−14 05.0	3.656	2.932	37.2	11.7	18.3	
1998 12 13		19 25.67	−13 56.7	3.693	2.895	31.1	10.1	18.3	

102P/Shoemaker 1

Date TT		Elements <i>MPC</i> 27081							
		α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 04 27		19 01.29	−54 22.3	2.601	3.122	112.1	17.4	18.5	22.5
1998 05 07		19 05.04	−55 38.0	2.454	3.075	119.2	16.7	18.2	22.3
1998 05 17		19 05.24	−56 54.2	2.320	3.027	126.0	15.7	17.9	22.1
1998 05 27		19 01.35	−58 06.0	2.201	2.980	132.5	14.5	17.7	21.9
1998 06 06		18 53.13	−59 06.0	2.099	2.933	138.0	13.4	17.5	21.7
1998 06 16		18 40.93	−59 45.2	2.017	2.885	141.9	12.6	17.2	21.6
1998 06 26		18 25.86	−59 54.7	1.956	2.838	143.4	12.3	17.0	21.5
1998 07 06		18 09.96	−59 28.5	1.916	2.790	142.2	12.9	16.8	21.4
1998 07 16		17 55.52	−58 26.3	1.898	2.743	138.4	14.2	16.7	21.4
1998 07 26		17 44.44	−56 53.2	1.901	2.696	132.8	16.0	16.5	21.4
1998 08 05		17 37.82	−54 57.8	1.921	2.649	126.2	18.0	16.4	21.5
1998 08 15		17 35.87	−52 49.5	1.957	2.603	119.0	19.9	16.3	21.5
1998 08 25		17 38.28	−50 35.6	2.006	2.558	111.6	21.6	16.2	21.6
1998 09 04		17 44.52	−48 21.0	2.065	2.512	104.4	22.9	16.1	21.7
1998 09 14		17 53.96	−46 08.6	2.130	2.468	97.2	23.9	16.0	21.7
1998 09 24		18 06.05	−43 58.7	2.201	2.425	90.4	24.4	15.9	21.8
1998 10 04		18 20.28	−41 50.9	2.274	2.382	83.7	24.7	15.8	21.8
1998 10 14		18 36.20	−39 43.8	2.348	2.341	77.3	24.6	15.7	21.8
1998 10 24		18 53.46	−37 35.8	2.421	2.301	71.2	24.2	15.7	21.9
1998 11 03		19 11.75	−35 25.3	2.491	2.263	65.2	23.5	15.6	21.9
1998 11 13		19 30.79	−33 10.6	2.559	2.226	59.5	22.5	15.5	21.9
1998 11 23		19 50.37	−30 50.5	2.622	2.191	53.9	21.4	15.4	21.8
1998 12 03		20 10.32	−28 24.0	2.681	2.158	48.5	20.0	15.3	21.8
1998 12 13		20 30.46	−25 50.4	2.735	2.127	43.2	18.5	15.2	21.8

1998 12 23	20 50.70	−23 09.3	2.783	2.099	38.1	16.8	15.2	21.7
1999 01 02	21 10.95	−20 20.7	2.826	2.073	33.1	15.0	15.1	21.7

1994 TB

Date TT		$a, e, i = 39.84, 0.32, 12$				Elements <i>MPC</i> 30900		
		α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 04 27		23 48.52	+07 25.1	31.033	30.235	37.0	1.1	22.0
1998 05 07		23 49.58	+07 34.5	30.917	30.227	46.2	1.4	22.0
1998 05 17		23 50.50	+07 43.3	30.782	30.220	55.4	1.6	22.0
1998 05 27		23 51.26	+07 51.3	30.632	30.212	64.7	1.7	22.0
1998 06 06		23 51.84	+07 58.5	30.469	30.205	74.0	1.9	22.0
1998 06 16		23 52.23	+08 04.6	30.298	30.197	83.3	1.9	22.0
1998 06 26		23 52.42	+08 09.5	30.125	30.189	92.7	1.9	22.0
1998 07 06		23 52.42	+08 13.1	29.952	30.182	102.1	1.9	22.0
1998 07 16		23 52.22	+08 15.3	29.786	30.174	111.5	1.8	22.0
1998 07 26		23 51.83	+08 16.2	29.630	30.167	121.0	1.7	22.0
1998 08 05		23 51.27	+08 15.8	29.489	30.159	130.6	1.5	21.9
1998 08 15		23 50.56	+08 14.0	29.367	30.151	140.1	1.2	21.9
1998 08 25		23 49.72	+08 11.0	29.268	30.144	149.6	1.0	21.9
1998 09 04		23 48.78	+08 06.8	29.193	30.136	158.9	0.7	21.8
1998 09 14		23 47.79	+08 01.8	29.147	30.129	167.3	0.4	21.8
1998 09 24		23 46.77	+07 56.0	29.129	30.121	171.4	0.3	21.8
1998 10 04		23 45.77	+07 49.8	29.141	30.114	166.3	0.5	21.8
1998 10 14		23 44.82	+07 43.4	29.182	30.106	157.5	0.7	21.8
1998 10 24		23 43.97	+07 37.0	29.251	30.099	147.9	1.0	21.9
1998 11 03		23 43.25	+07 31.0	29.346	30.091	138.1	1.3	21.9
1998 11 13		23 42.68	+07 25.6	29.463	30.084	128.1	1.5	21.9
1998 11 23		23 42.30	+07 21.1	29.599	30.076	118.0	1.7	22.0
1998 12 03		23 42.12	+07 17.6	29.749	30.068	108.0	1.8	22.0
1998 12 13		23 42.14	+07 15.3	29.909	30.061	97.9	1.9	22.0
1998 12 23		23 42.39	+07 14.3	30.073	30.053	87.9	1.9	22.0
1999 01 02		23 42.84	+07 14.8	30.236	30.046	77.9	1.8	22.0
1999 01 12		23 43.49	+07 16.7	30.392	30.038	68.0	1.7	22.0
1999 01 22		23 44.32	+07 20.0	30.538	30.031	58.2	1.6	22.0
1999 02 01		23 45.32	+07 24.7	30.668	30.023	48.5	1.4	22.0
1999 02 11		23 46.46	+07 30.7	30.778	30.016	38.8	1.2	22.0

1997 QJ₄

Date TT		$a, e, i = 39.57, 0.12, 16$				Elements <i>MPC</i> 30790		
		α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 04 27		23 48.63	+02 00.6	35.576	34.794	38.5	1.0	23.1
1998 05 07		23 49.52	+02 07.8	35.462	34.794	47.9	1.2	23.1
1998 05 17		23 50.28	+02 14.4	35.330	34.794	57.3	1.4	23.1
1998 05 27		23 50.90	+02 20.2	35.182	34.794	66.7	1.5	23.1
1998 06 06		23 51.37	+02 25.0	35.022	34.794	76.2	1.6	23.1
1998 06 16		23 51.67	+02 28.8	34.857	34.794	85.6	1.7	23.1
1998 06 26		23 51.80	+02 31.6	34.689	34.794	95.1	1.7	23.1
1998 07 06		23 51.76	+02 33.2	34.523	34.794	104.6	1.6	23.1
1998 07 16		23 51.55	+02 33.7	34.365	34.794	114.2	1.5	23.1
1998 07 26		23 51.18	+02 33.1	34.219	34.794	123.8	1.4	23.1
1998 08 05		23 50.67	+02 31.5	34.089	34.794	133.5	1.2	23.0
1998 08 15		23 50.02	+02 28.9	33.978	34.794	143.2	1.0	23.0
1998 08 25		23 49.27	+02 25.5	33.891	34.794	152.9	0.8	23.0
1998 09 04		23 48.43	+02 21.4	33.830	34.794	162.7	0.5	23.0
1998 09 14		23 47.55	+02 16.7	33.797	34.794	172.2	0.2	22.9
1998 09 24		23 46.65	+02 11.8	33.794	34.794	175.5	0.1	22.9

1998 10 04	23 45.76	+02 06.8	33.821	34.794	166.6	0.4	22.9
1998 10 14	23 44.92	+02 01.9	33.876	34.795	156.7	0.7	23.0
1998 10 24	23 44.16	+01 57.4	33.960	34.795	146.6	0.9	23.0
1998 11 03	23 43.51	+01 53.4	34.069	34.795	136.5	1.1	23.0
1998 11 13	23 42.99	+01 50.1	34.199	34.795	126.3	1.3	23.1
1998 11 23	23 42.63	+01 47.7	34.348	34.795	116.2	1.5	23.1
1998 12 03	23 42.45	+01 46.3	34.510	34.795	106.0	1.6	23.1
1998 12 13	23 42.44	+01 46.1	34.680	34.795	95.9	1.6	23.1
1998 12 23	23 42.61	+01 47.0	34.854	34.795	85.8	1.6	23.1
1999 01 02	23 42.97	+01 49.1	35.025	34.795	75.7	1.6	23.1
1999 01 12	23 43.49	+01 52.4	35.189	34.795	65.7	1.5	23.1
1999 01 22	23 44.18	+01 56.8	35.341	34.795	55.7	1.3	23.1
1999 02 01	23 45.01	+02 02.3	35.475	34.795	45.8	1.2	23.1
1999 02 11	23 45.95	+02 08.6	35.590	34.795	35.9	1.0	23.1

1997 TX ₈		$a, e, i = 39.31, 0.19, 9$				Elements <i>MPC</i> 30908		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 04 27		23 49.17	+07 10.3	32.788	31.989	36.9	1.1	23.8
1998 05 07		23 50.20	+07 18.3	32.680	31.989	46.1	1.3	23.8
1998 05 17		23 51.09	+07 25.8	32.553	31.989	55.4	1.5	23.8
1998 05 27		23 51.82	+07 32.5	32.410	31.989	64.7	1.6	23.8
1998 06 06		23 52.39	+07 38.4	32.254	31.989	74.0	1.7	23.8
1998 06 16		23 52.78	+07 43.2	32.092	31.989	83.3	1.8	23.8
1998 06 26		23 52.98	+07 46.9	31.925	31.990	92.7	1.8	23.8
1998 07 06		23 53.00	+07 49.4	31.761	31.990	102.1	1.8	23.8
1998 07 16		23 52.83	+07 50.6	31.602	31.990	111.6	1.7	23.7
1998 07 26		23 52.48	+07 50.5	31.454	31.990	121.1	1.6	23.7
1998 08 05		23 51.98	+07 49.1	31.320	31.990	130.6	1.4	23.7
1998 08 15		23 51.33	+07 46.5	31.206	31.991	140.2	1.2	23.7
1998 08 25		23 50.56	+07 42.8	31.114	31.991	149.7	0.9	23.6
1998 09 04		23 49.70	+07 38.0	31.047	31.991	159.1	0.6	23.6
1998 09 14		23 48.78	+07 32.4	31.008	31.991	167.6	0.4	23.6
1998 09 24		23 47.85	+07 26.2	30.998	31.992	172.0	0.3	23.5
1998 10 04		23 46.93	+07 19.5	31.017	31.992	166.7	0.4	23.6
1998 10 14		23 46.06	+07 12.7	31.066	31.992	157.8	0.7	23.6
1998 10 24		23 45.27	+07 06.0	31.143	31.992	148.2	0.9	23.6
1998 11 03		23 44.61	+06 59.6	31.245	31.993	138.3	1.2	23.7
1998 11 13		23 44.09	+06 53.9	31.371	31.993	128.3	1.4	23.7
1998 11 23		23 43.75	+06 48.9	31.515	31.993	118.2	1.6	23.7
1998 12 03		23 43.59	+06 45.0	31.673	31.993	108.1	1.7	23.7
1998 12 13		23 43.62	+06 42.2	31.841	31.994	98.1	1.7	23.8
1998 12 23		23 43.86	+06 40.7	32.013	31.994	88.0	1.8	23.8
1999 01 02		23 44.30	+06 40.5	32.184	31.994	78.0	1.7	23.8
1999 01 12		23 44.92	+06 41.7	32.348	31.994	68.1	1.6	23.8
1999 01 22		23 45.72	+06 44.2	32.502	31.995	58.2	1.5	23.8
1999 02 01		23 46.67	+06 48.0	32.640	31.995	48.4	1.3	23.8
1999 02 11		23 47.75	+06 52.9	32.759	31.995	38.7	1.1	23.8

1997 QH ₄		$a, e, i = 44.36, 0.07, 13$				Elements <i>MPC</i> 30790		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 04 27		23 49.70	−00 57.6	42.048	41.275	39.3	0.9	23.3
1998 05 07		23 50.44	−00 52.2	41.932	41.275	48.8	1.1	23.4
1998 05 17		23 51.08	−00 47.5	41.797	41.274	58.3	1.2	23.4
1998 05 27		23 51.60	−00 43.5	41.647	41.274	67.8	1.3	23.4

1998 06 06	23 51.99	-00 40.4	41.486	41.274	77.2	1.4	23.4
1998 06 16	23 52.23	-00 38.2	41.320	41.274	86.7	1.4	23.3
1998 06 26	23 52.34	-00 36.9	41.151	41.274	96.2	1.4	23.3
1998 07 06	23 52.30	-00 36.6	40.986	41.274	105.8	1.4	23.3
1998 07 16	23 52.11	-00 37.2	40.828	41.274	115.4	1.3	23.3
1998 07 26	23 51.80	-00 38.6	40.683	41.274	125.0	1.2	23.3
1998 08 05	23 51.35	-00 40.9	40.554	41.274	134.7	1.0	23.3
1998 08 15	23 50.81	-00 43.8	40.446	41.274	144.4	0.8	23.2
1998 08 25	23 50.17	-00 47.4	40.361	41.273	154.2	0.6	23.2
1998 09 04	23 49.46	-00 51.4	40.303	41.273	164.1	0.4	23.2
1998 09 14	23 48.71	-00 55.7	40.273	41.273	174.0	0.1	23.1
1998 09 24	23 47.94	-01 00.1	40.272	41.273	176.1	0.1	23.1
1998 10 04	23 47.19	-01 04.4	40.302	41.273	166.0	0.3	23.2
1998 10 14	23 46.47	-01 08.5	40.360	41.273	156.0	0.6	23.2
1998 10 24	23 45.82	-01 12.2	40.446	41.273	145.9	0.8	23.2
1998 11 03	23 45.26	-01 15.3	40.557	41.273	135.7	1.0	23.3
1998 11 13	23 44.82	-01 17.7	40.689	41.273	125.6	1.1	23.3
1998 11 23	23 44.50	-01 19.3	40.839	41.273	115.4	1.2	23.3
1998 12 03	23 44.32	-01 20.0	41.002	41.273	105.2	1.3	23.3
1998 12 13	23 44.30	-01 19.7	41.173	41.273	95.1	1.4	23.3
1998 12 23	23 44.43	-01 18.3	41.347	41.272	85.0	1.4	23.3
1999 01 02	23 44.71	-01 16.1	41.519	41.272	74.8	1.3	23.4
1999 01 12	23 45.14	-01 12.8	41.682	41.272	64.8	1.2	23.4
1999 01 22	23 45.71	-01 08.7	41.832	41.272	54.7	1.1	23.4
1999 02 01	23 46.39	-01 03.8	41.966	41.272	44.8	1.0	23.3
1999 02 11	23 47.18	-00 58.2	42.078	41.272	34.9	0.8	23.3

1996 TO ₆₆		$a, e, i = 43.72, 0.13, 27$				Elements <i>MPC</i> 31421		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 04 27		23 59.13	+02 36.9	46.644	45.831	35.8	0.7	21.3
1998 05 07		23 59.79	+02 42.5	46.538	45.834	45.3	0.9	21.3
1998 05 17		00 00.35	+02 47.6	46.413	45.837	54.8	1.0	21.3
1998 05 27		00 00.82	+02 52.0	46.271	45.840	64.3	1.1	21.3
1998 06 06		00 01.16	+02 55.8	46.117	45.843	73.7	1.2	21.3
1998 06 16		00 01.39	+02 58.7	45.955	45.846	83.2	1.3	21.3
1998 06 26		00 01.48	+03 00.9	45.790	45.849	92.7	1.3	21.3
1998 07 06		00 01.44	+03 02.2	45.626	45.852	102.2	1.2	21.3
1998 07 16		00 01.28	+03 02.6	45.468	45.855	111.8	1.2	21.3
1998 07 26		00 00.99	+03 02.3	45.321	45.858	121.4	1.1	21.3
1998 08 05		00 00.58	+03 01.1	45.189	45.861	131.0	1.0	21.2
1998 08 15		00 00.08	+02 59.2	45.075	45.864	140.7	0.8	21.2
1998 08 25		23 59.49	+02 56.7	44.985	45.867	150.5	0.6	21.2
1998 09 04		23 58.83	+02 53.6	44.919	45.870	160.2	0.4	21.2
1998 09 14		23 58.13	+02 50.2	44.882	45.873	169.9	0.2	21.1
1998 09 24		23 57.41	+02 46.4	44.873	45.876	177.2	0.1	21.1
1998 10 04		23 56.69	+02 42.6	44.895	45.879	169.4	0.2	21.1
1998 10 14		23 56.00	+02 38.9	44.946	45.881	159.5	0.4	21.2
1998 10 24		23 55.36	+02 35.4	45.025	45.884	149.4	0.6	21.2
1998 11 03		23 54.80	+02 32.2	45.130	45.887	139.4	0.8	21.2
1998 11 13		23 54.34	+02 29.6	45.258	45.890	129.2	1.0	21.2
1998 11 23		23 53.99	+02 27.7	45.405	45.893	119.1	1.1	21.3
1998 12 03		23 53.76	+02 26.5	45.567	45.896	108.9	1.2	21.3
1998 12 13		23 53.67	+02 26.1	45.739	45.899	98.7	1.2	21.3

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1998 12 23	23 53.72	+02 26.6	45.916	45.902	88.6	1.2	21.3
1999 01 02	23 53.91	+02 28.1	46.092	45.905	78.5	1.2	21.3
1999 01 12	23 54.23	+02 30.4	46.261	45.908	68.4	1.1	21.3
1999 01 22	23 54.67	+02 33.6	46.420	45.911	58.3	1.0	21.3
1999 02 01	23 55.23	+02 37.5	46.563	45.914	48.3	0.9	21.3
1999 02 11	23 55.89	+02 42.2	46.686	45.916	38.4	0.8	21.3

1993 RO		$a, e, i = 39.61, 0.21, 4$				Elements <i>MPC</i> 30688		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 04 27		00 05.33	−00 05.8	32.302	31.487	35.4	1.1	23.2
1998 05 07		00 06.42	+00 00.9	32.195	31.487	44.8	1.3	23.2
1998 05 17		00 07.39	+00 06.8	32.068	31.487	54.2	1.5	23.2
1998 05 27		00 08.20	+00 11.7	31.925	31.487	63.6	1.7	23.2
1998 06 06		00 08.86	+00 15.5	31.769	31.487	73.0	1.8	23.2
1998 06 16		00 09.34	+00 18.1	31.605	31.488	82.4	1.8	23.2
1998 06 26		00 09.64	+00 19.6	31.438	31.488	91.9	1.8	23.2
1998 07 06		00 09.74	+00 19.8	31.271	31.488	101.4	1.8	23.2
1998 07 16		00 09.66	+00 18.8	31.110	31.488	111.0	1.7	23.2
1998 07 26		00 09.40	+00 16.6	30.959	31.488	120.6	1.6	23.2
1998 08 05		00 08.96	+00 13.3	30.823	31.489	130.3	1.4	23.1
1998 08 15		00 08.37	+00 09.0	30.706	31.489	140.0	1.2	23.1
1998 08 25		00 07.65	+00 03.9	30.611	31.489	149.8	0.9	23.1
1998 09 04		00 06.83	−00 01.8	30.541	31.489	159.7	0.6	23.0
1998 09 14		00 05.93	−00 08.0	30.499	31.489	169.7	0.3	23.0
1998 09 24		00 04.99	−00 14.3	30.486	31.490	179.2	0.0	22.9
1998 10 04		00 04.05	−00 20.7	30.504	31.490	170.2	0.3	23.0
1998 10 14		00 03.15	−00 26.7	30.550	31.490	160.1	0.6	23.0
1998 10 24		00 02.32	−00 32.3	30.626	31.490	149.9	0.9	23.1
1998 11 03		00 01.59	−00 37.1	30.727	31.491	139.7	1.2	23.1
1998 11 13		00 01.00	−00 41.0	30.852	31.491	129.5	1.4	23.1
1998 11 23		00 00.58	−00 43.8	30.996	31.491	119.3	1.6	23.2
1998 12 03		00 00.33	−00 45.5	31.154	31.491	109.1	1.7	23.2
1998 12 13		00 00.28	−00 45.8	31.323	31.492	99.0	1.8	23.2
1998 12 23		00 00.43	−00 44.8	31.496	31.492	88.8	1.8	23.2
1999 01 02		00 00.78	−00 42.5	31.669	31.492	78.8	1.8	23.2
1999 01 12		00 01.33	−00 39.0	31.836	31.493	68.7	1.7	23.2
1999 01 22		00 02.05	−00 34.2	31.992	31.493	58.7	1.5	23.2
1999 02 01		00 02.95	−00 28.5	32.133	31.493	48.8	1.3	23.2
1999 02 11		00 03.98	−00 21.8	32.255	31.493	39.0	1.1	23.2

C/1997 P2 (Spacewatch)					Elements <i>MPC</i> 30738				
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 04 27		00 12.72	+12 59.6	5.552	4.709	30.2	6.2	20.5	
1998 05 07		00 21.88	+14 18.1	5.512	4.745	37.0	7.3	20.5	
1998 05 17		00 30.56	+15 34.9	5.458	4.781	43.9	8.4	20.5	
1998 05 27		00 38.68	+16 49.8	5.392	4.819	51.0	9.4	20.5	
1998 06 06		00 46.15	+18 02.0	5.314	4.857	58.2	10.2	20.5	
1998 06 16		00 52.89	+19 11.2	5.228	4.897	65.6	10.9	20.5	
1998 06 26		00 58.78	+20 16.8	5.133	4.937	73.3	11.4	20.5	
1998 07 06		01 03.73	+21 18.1	5.034	4.979	81.1	11.6	20.5	
1998 07 16		01 07.65	+22 14.4	4.932	5.021	89.2	11.7	20.5	
1998 07 26		01 10.44	+23 05.1	4.831	5.064	97.5	11.5	20.5	
1998 08 05		01 12.02	+23 49.0	4.733	5.108	106.1	11.0	20.5	
1998 08 15		01 12.37	+24 25.4	4.643	5.153	114.9	10.3	20.5	

1998 08 25	01 11.50	+24 53.3	4.565	5.198	124.0	9.3	20.5
1998 09 04	01 09.49	+25 11.6	4.502	5.244	133.2	8.1	20.5
1998 09 14	01 06.51	+25 20.0	4.459	5.291	142.3	6.7	20.5
1998 09 24	01 02.78	+25 18.3	4.438	5.338	151.1	5.2	20.5
1998 10 04	00 58.62	+25 06.9	4.443	5.386	158.6	3.9	20.6
1998 10 14	00 54.37	+24 47.2	4.476	5.435	162.5	3.2	20.6
1998 10 24	00 50.38	+24 21.1	4.537	5.484	160.4	3.5	20.7
1998 11 03	00 46.98	+23 51.0	4.627	5.534	153.8	4.5	20.8
1998 11 13	00 44.42	+23 19.5	4.744	5.585	145.1	5.8	20.9
1998 11 23	00 42.88	+22 49.1	4.885	5.635	135.8	7.0	21.0
1998 12 03	00 42.48	+22 22.1	5.048	5.687	126.3	8.0	21.1
1998 12 13	00 43.23	+22 00.0	5.227	5.739	116.8	8.8	21.2
1998 12 23	00 45.10	+21 44.0	5.420	5.791	107.4	9.3	21.3
1999 01 02	00 48.05	+21 34.8	5.622	5.844	98.2	9.6	21.4
1999 01 12	00 51.97	+21 32.5	5.829	5.897	89.1	9.6	21.5
1999 01 22	00 56.75	+21 36.9	6.036	5.950	80.3	9.4	21.6
1999 02 01	01 02.29	+21 47.6	6.240	6.004	71.7	9.0	21.8
1999 02 11	01 08.48	+22 04.1	6.437	6.058	63.3	8.4	21.9
1999 02 21	01 15.20	+22 25.8	6.624	6.113	55.1	7.6	22.0

1996 TR ₆₆		$a, e, i = 42.64, 0.22, 12$				Elements <i>MPC</i> 30765		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 04 27	00 14.78	+06 39.1	36.379	35.518	30.9	0.8	23.2	
1998 05 07	00 15.74	+06 46.7	36.278	35.514	40.2	1.1	23.2	
1998 05 17	00 16.60	+06 53.9	36.157	35.509	49.5	1.2	23.2	
1998 05 27	00 17.32	+07 00.3	36.017	35.504	58.9	1.4	23.2	
1998 06 06	00 17.91	+07 06.0	35.863	35.500	68.3	1.5	23.2	
1998 06 16	00 18.34	+07 10.9	35.698	35.495	77.7	1.6	23.2	
1998 06 26	00 18.61	+07 14.7	35.527	35.491	87.1	1.6	23.2	
1998 07 06	00 18.71	+07 17.5	35.355	35.486	96.6	1.6	23.2	
1998 07 16	00 18.63	+07 19.1	35.187	35.481	106.1	1.6	23.2	
1998 07 26	00 18.40	+07 19.7	35.026	35.477	115.6	1.5	23.2	
1998 08 05	00 18.01	+07 19.1	34.877	35.472	125.2	1.3	23.1	
1998 08 15	00 17.47	+07 17.5	34.745	35.467	134.9	1.2	23.1	
1998 08 25	00 16.81	+07 14.9	34.634	35.463	144.6	0.9	23.1	
1998 09 04	00 16.06	+07 11.5	34.547	35.458	154.3	0.7	23.1	
1998 09 14	00 15.23	+07 07.3	34.486	35.454	163.9	0.5	23.0	
1998 09 24	00 14.35	+07 02.6	34.454	35.449	172.7	0.2	23.0	
1998 10 04	00 13.47	+06 57.5	34.451	35.444	173.1	0.2	23.0	
1998 10 14	00 12.61	+06 52.3	34.478	35.440	164.3	0.4	23.0	
1998 10 24	00 11.80	+06 47.2	34.534	35.435	154.5	0.7	23.1	
1998 11 03	00 11.09	+06 42.3	34.618	35.431	144.5	0.9	23.1	
1998 11 13	00 10.48	+06 38.0	34.726	35.426	134.4	1.1	23.1	
1998 11 23	00 10.02	+06 34.4	34.856	35.421	124.3	1.3	23.1	
1998 12 03	00 09.71	+06 31.6	35.003	35.417	114.1	1.5	23.2	
1998 12 13	00 09.58	+06 29.9	35.162	35.412	104.0	1.5	23.2	
1998 12 23	00 09.63	+06 29.2	35.328	35.408	93.8	1.6	23.2	
1999 01 02	00 09.86	+06 29.7	35.497	35.403	83.7	1.6	23.2	
1999 01 12	00 10.26	+06 31.4	35.662	35.398	73.7	1.5	23.2	
1999 01 22	00 10.84	+06 34.3	35.819	35.394	63.7	1.4	23.2	
1999 02 01	00 11.56	+06 38.3	35.963	35.389	53.8	1.3	23.2	
1999 02 11	00 12.42	+06 43.3	36.089	35.385	43.9	1.1	23.2	
1999 02 21	00 13.39	+06 49.3	36.194	35.380	34.2	0.9	23.2	

1993 SC								1992 QB ₁							
$a, e, i = 39.88, 0.19, 5$								$a, e, i = 44.30, 0.08, 2$							
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 05 07		00 29.71	+04 26.1	35.370	34.577	37.7	1.0	1998 05 07		00 31.61	+03 45.3	41.701	40.906	37.5	0.9
1998 05 17		00 30.64	+04 32.6	35.262	34.581	47.1	1.2	1998 05 17		00 32.39	+03 50.4	41.589	40.906	47.0	1.0
1998 05 27		00 31.45	+04 38.4	35.135	34.586	56.5	1.4	1998 05 27		00 33.07	+03 55.0	41.458	40.906	56.4	1.2
1998 06 06		00 32.12	+04 43.3	34.992	34.590	65.9	1.5	1998 06 06		00 33.63	+03 58.7	41.311	40.906	65.8	1.3
1998 06 16		00 32.64	+04 47.2	34.838	34.594	75.3	1.6	1998 06 16		00 34.07	+04 01.7	41.153	40.907	75.3	1.4
1998 06 26		00 32.99	+04 50.1	34.677	34.599	84.8	1.7	1998 06 26		00 34.36	+04 03.7	40.987	40.907	84.8	1.4
1998 07 06		00 33.17	+04 51.9	34.513	34.603	94.2	1.7	1998 07 06		00 34.51	+04 04.9	40.819	40.907	94.2	1.4
1998 07 16		00 33.18	+04 52.7	34.351	34.607	103.8	1.6	1998 07 16		00 34.51	+04 05.1	40.653	40.907	103.8	1.4
1998 07 26		00 33.01	+04 52.3	34.197	34.612	113.4	1.5	1998 07 26		00 34.36	+04 04.3	40.494	40.907	113.4	1.3
1998 08 05		00 32.69	+04 50.8	34.053	34.616	123.0	1.4	1998 08 05		00 34.08	+04 02.7	40.346	40.908	123.0	1.2
1998 08 15		00 32.21	+04 48.3	33.925	34.620	132.7	1.2	1998 08 15		00 33.67	+04 00.3	40.214	40.908	132.7	1.0
1998 08 25		00 31.59	+04 45.0	33.817	34.625	142.5	1.0	1998 08 25		00 33.15	+03 57.1	40.102	40.908	142.5	0.9
1998 09 04		00 30.87	+04 40.8	33.733	34.629	152.3	0.8	1998 09 04		00 32.53	+03 53.3	40.013	40.908	152.3	0.7
1998 09 14		00 30.06	+04 36.1	33.674	34.633	162.3	0.5	1998 09 14		00 31.84	+03 49.0	39.950	40.909	162.2	0.4
1998 09 24		00 29.19	+04 30.9	33.643	34.638	172.2	0.2	1998 09 24		00 31.10	+03 44.3	39.915	40.909	172.2	0.2
1998 10 04		00 28.30	+04 25.5	33.643	34.642	177.3	0.1	1998 10 04		00 30.34	+03 39.5	39.909	40.909	177.8	0.1
1998 10 14		00 27.42	+04 20.0	33.672	34.646	167.5	0.4	1998 10 14		00 29.58	+03 34.8	39.934	40.909	167.7	0.3
1998 10 24		00 26.58	+04 14.8	33.730	34.651	157.3	0.6	1998 10 24		00 28.86	+03 30.2	39.988	40.909	157.6	0.5
1998 11 03		00 25.82	+04 10.0	33.817	34.655	147.2	0.9	1998 11 03		00 28.21	+03 26.0	40.070	40.910	147.4	0.7
1998 11 13		00 25.17	+04 05.9	33.929	34.659	137.0	1.1	1998 11 13		00 27.64	+03 22.4	40.177	40.910	137.3	0.9
1998 11 23		00 24.65	+04 02.5	34.064	34.664	126.7	1.3	1998 11 23		00 27.18	+03 19.5	40.307	40.910	127.0	1.1
1998 12 03		00 24.29	+04 00.1	34.217	34.668	116.5	1.5	1998 12 03		00 26.86	+03 17.4	40.456	40.910	116.8	1.2
1998 12 13		00 24.09	+03 58.7	34.383	34.672	106.3	1.6	1998 12 13		00 26.67	+03 16.2	40.618	40.910	106.6	1.3
1998 12 23		00 24.08	+03 58.6	34.558	34.677	96.1	1.6	1998 12 23		00 26.64	+03 16.0	40.789	40.911	96.4	1.4
1999 01 02		00 24.25	+03 59.5	34.736	34.681	86.0	1.6	1999 01 02		00 26.76	+03 16.8	40.963	40.911	86.3	1.4
1999 01 12		00 24.61	+04 01.7	34.912	34.685	75.9	1.6	1999 01 12		00 27.04	+03 18.6	41.135	40.911	76.2	1.3
1999 01 22		00 25.14	+04 05.0	35.080	34.690	65.9	1.5	1999 01 22		00 27.47	+03 21.4	41.300	40.911	66.1	1.3
1999 02 01		00 25.83	+04 09.4	35.237	34.694	55.9	1.3	1999 02 01		00 28.04	+03 25.0	41.453	40.912	56.1	1.1
1999 02 11		00 26.66	+04 14.7	35.377	34.698	46.0	1.2	1999 02 11		00 28.73	+03 29.5	41.589	40.912	46.2	1.0
1999 02 21		00 27.62	+04 20.9	35.496	34.703	36.2	1.0	1999 02 21		00 29.52	+03 34.6	41.705	40.912	36.3	0.8
1996 TK ₆₆								1993 SB							
$a, e, i = 43.04, 0.00, 3$								$a, e, i = 39.63, 0.32, 2$							
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 05 07		00 30.61	+01 07.4	43.655	42.874	38.9	0.8	1998 05 07		00 33.04	+04 02.1	32.036	31.238	37.1	1.1
1998 05 17		00 31.34	+01 11.9	43.540	42.874	48.3	1.0	1998 05 17		00 34.10	+04 09.1	31.917	31.229	46.5	1.3
1998 05 27		00 31.98	+01 15.7	43.407	42.874	57.7	1.1	1998 05 27		00 35.03	+04 15.3	31.778	31.221	55.8	1.5
1998 06 06		00 32.51	+01 18.7	43.258	42.874	67.2	1.2	1998 06 06		00 35.81	+04 20.5	31.624	31.212	65.2	1.7
1998 06 16		00 32.90	+01 20.9	43.098	42.874	76.6	1.3	1998 06 16		00 36.42	+04 24.7	31.458	31.204	74.6	1.8
1998 06 26		00 33.17	+01 22.2	42.932	42.874	86.1	1.4	1998 06 26		00 36.85	+04 27.7	31.285	31.196	84.0	1.9
1998 07 06		00 33.30	+01 22.6	42.763	42.874	95.6	1.4								
1998 07 16		00 33.29	+01 22.1	42.598	42.874	105.1	1.3								
1998 07 26		00 33.14	+01 20.8	42.440	42.874	114.7	1.2								
1998 08 05		00 32.86	+01 18.6	42.294	42.874	124.3	1.1								
1998 08 15		00 32.46	+01 15.7	42.164	42.874	134.0	1.0								
1998 08 25		00 31.95	+01 12.2	42.054	42.874	143.8	0.8								
1998 09 04		00 31.35	+01 08.2	41.968	42.874	153.6	0.6								
1998 09 14		00 30.68	+01 03.8	41.909	42.874	163.4	0.4								
1998 09 24		00 29.97	+00 59.2	41.877	42.874	173.2	0.2								
1998 10 04		00 29.23	+00 54.6	41.876	42.874	175.9	0.1								
1998 10 14		00 28.51	+00 50.1	41.904	42.874	166.3	0.3								
1998 10 24		00 27.82	+00 45.9	41.961	42.874	156.2	0.5								

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1998 07 06	00 37.10	+04 29.6	31.109	31.187	93.5	1.9	23.2
1998 07 16	00 37.15	+04 30.2	30.934	31.179	103.0	1.8	23.1
1998 07 26	00 37.01	+04 29.6	30.766	31.170	112.6	1.7	23.1
1998 08 05	00 36.69	+04 27.8	30.609	31.162	122.2	1.6	23.1
1998 08 15	00 36.20	+04 24.9	30.467	31.154	132.0	1.4	23.1
1998 08 25	00 35.55	+04 21.0	30.345	31.145	141.8	1.2	23.0
1998 09 04	00 34.77	+04 16.3	30.246	31.137	151.6	0.9	23.0
1998 09 14	00 33.90	+04 10.9	30.173	31.129	161.6	0.6	23.0
1998 09 24	00 32.95	+04 05.0	30.127	31.120	171.6	0.3	22.9
1998 10 04	00 31.98	+03 58.9	30.112	31.112	178.3	0.1	22.9
1998 10 14	00 31.01	+03 52.9	30.127	31.104	168.2	0.4	22.9
1998 10 24	00 30.09	+03 47.0	30.171	31.095	158.0	0.7	23.0
1998 11 03	00 29.25	+03 41.7	30.243	31.087	147.8	1.0	23.0
1998 11 13	00 28.53	+03 37.1	30.341	31.079	137.6	1.2	23.0
1998 11 23	00 27.96	+03 33.3	30.462	31.070	127.3	1.4	23.1
1998 12 03	00 27.55	+03 30.7	30.601	31.062	117.1	1.6	23.1
1998 12 13	00 27.34	+03 29.3	30.754	31.054	106.9	1.7	23.1
1998 12 23	00 27.33	+03 29.2	30.915	31.045	96.7	1.8	23.1
1999 01 02	00 27.52	+03 30.4	31.081	31.037	86.6	1.8	23.1
1999 01 12	00 27.92	+03 32.9	31.244	31.029	76.5	1.8	23.2
1999 01 22	00 28.51	+03 36.6	31.400	31.020	66.4	1.7	23.2
1999 02 01	00 29.28	+03 41.6	31.545	31.012	56.5	1.5	23.2
1999 02 11	00 30.21	+03 47.6	31.673	31.004	46.6	1.3	23.1
1999 02 21	00 31.29	+03 54.5	31.781	30.995	36.8	1.1	23.1

1996 RQ₂₀ $a, e, i = 44.29, 0.11, 32$

Elements MPC 30785

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 05 07		00 50.24	+06 33.1	40.357	39.506	32.2	0.8	23.1
1998 05 17		00 51.06	+06 39.8	40.258	39.507	41.6	1.0	23.2
1998 05 27		00 51.78	+06 45.9	40.138	39.509	51.0	1.1	23.2
1998 06 06		00 52.38	+06 51.3	40.000	39.510	60.4	1.3	23.2
1998 06 16		00 52.85	+06 56.0	39.849	39.511	69.9	1.4	23.2
1998 06 26		00 53.19	+06 59.8	39.688	39.512	79.3	1.4	23.2
1998 07 06		00 53.37	+07 02.7	39.522	39.513	88.8	1.5	23.2
1998 07 16		00 53.41	+07 04.7	39.355	39.514	98.3	1.5	23.2
1998 07 26		00 53.29	+07 05.7	39.192	39.515	107.8	1.4	23.1
1998 08 05		00 53.02	+07 05.8	39.038	39.516	117.5	1.3	23.1
1998 08 15		00 52.60	+07 05.0	38.898	39.517	127.1	1.2	23.1
1998 08 25		00 52.07	+07 03.4	38.774	39.519	136.9	1.0	23.1
1998 09 04		00 51.42	+07 01.0	38.673	39.520	146.7	0.8	23.1
1998 09 14		00 50.68	+06 58.0	38.595	39.521	156.6	0.6	23.0
1998 09 24		00 49.88	+06 54.5	38.545	39.522	166.5	0.3	23.0
1998 10 04		00 49.04	+06 50.8	38.525	39.523	176.3	0.1	22.9
1998 10 14		00 48.19	+06 46.9	38.534	39.524	173.1	0.2	23.0
1998 10 24		00 47.36	+06 43.1	38.573	39.525	163.0	0.4	23.0
1998 11 03		00 46.59	+06 39.5	38.641	39.526	152.9	0.7	23.0
1998 11 13		00 45.90	+06 36.3	38.736	39.528	142.7	0.9	23.1
1998 11 23		00 45.31	+06 33.7	38.855	39.529	132.5	1.1	23.1
1998 12 03		00 44.85	+06 31.9	38.995	39.530	122.2	1.2	23.1
1998 12 13		00 44.53	+06 30.9	39.152	39.531	112.0	1.3	23.1
1998 12 23		00 44.37	+06 30.9	39.319	39.532	101.8	1.4	23.1
1999 01 02		00 44.37	+06 31.9	39.493	39.533	91.6	1.4	23.2
1999 01 12		00 44.54	+06 33.9	39.668	39.534	81.5	1.4	23.2

1999 01 22	00 44.86	+06 36.9	39.839	39.535	71.4	1.4	23.2
1999 02 01	00 45.34	+06 40.8	39.999	39.537	61.4	1.3	23.2
1999 02 11	00 45.95	+06 45.7	40.146	39.538	51.4	1.1	23.2
1999 02 21	00 46.68	+06 51.3	40.274	39.539	41.5	0.9	23.2
1999 03 03	00 47.51	+06 57.7	40.380	39.540	31.7	0.8	23.1

1997 SZ₁₀ $a, e, i = 39.59, 0.20, 13$

Elements MPC 31280

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 05 07	00 52.90	+06 39.0	32.466	31.610	31.5	1.0	23.7	
1998 05 17	00 54.00	+06 46.9	32.368	31.610	40.9	1.2	23.7	
1998 05 27	00 54.98	+06 54.2	32.249	31.610	50.2	1.4	23.7	
1998 06 06	00 55.82	+07 00.5	32.112	31.611	59.6	1.6	23.7	
1998 06 16	00 56.51	+07 06.0	31.961	31.611	69.0	1.7	23.7	
1998 06 26	00 57.02	+07 10.3	31.801	31.611	78.3	1.8	23.7	
1998 07 06	00 57.35	+07 13.6	31.634	31.611	87.8	1.8	23.7	
1998 07 16	00 57.49	+07 15.7	31.467	31.611	97.3	1.8	23.7	
1998 07 26	00 57.44	+07 16.6	31.303	31.612	106.8	1.8	23.7	
1998 08 05	00 57.20	+07 16.3	31.147	31.612	116.4	1.6	23.7	
1998 08 15	00 56.78	+07 15.0	31.004	31.612	126.1	1.5	23.7	
1998 08 25	00 56.20	+07 12.5	30.879	31.612	135.9	1.3	23.6	
1998 09 04	00 55.47	+07 09.2	30.774	31.613	145.8	1.0	23.6	
1998 09 14	00 54.63	+07 05.0	30.694	31.613	155.7	0.8	23.6	
1998 09 24	00 53.71	+07 00.3	30.640	31.613	165.7	0.5	23.5	
1998 10 04	00 52.73	+06 55.1	30.616	31.613	175.6	0.1	23.5	
1998 10 14	00 51.75	+06 49.8	30.621	31.614	174.0	0.2	23.5	
1998 10 24	00 50.78	+06 44.6	30.657	31.614	163.9	0.5	23.5	
1998 11 03	00 49.88	+06 39.7	30.722	31.614	153.7	0.8	23.6	
1998 11 13	00 49.08	+06 35.3	30.814	31.615	143.4	1.1	23.6	
1998 11 23	00 48.40	+06 31.7	30.931	31.615	133.2	1.3	23.6	
1998 12 03	00 47.89	+06 29.0	31.069	31.615	122.9	1.5	23.7	
1998 12 13	00 47.55	+06 27.3	31.223	31.615	112.7	1.6	23.7	
1998 12 23	00 47.41	+06 26.9	31.389	31.616	102.5	1.7	23.7	
1999 01 02	00 47.48	+06 27.7	31.562	31.616	92.3	1.8	23.7	
1999 01 12	00 47.74	+06 29.8	31.735	31.616	82.2	1.8	23.7	
1999 01 22	00 48.20	+06 33.1	31.905	31.617	72.1	1.7	23.7	
1999 02 01	00 48.85	+06 37.7	32.065	31.617	62.1	1.6	23.7	
1999 02 11	00 49.67	+06 43.3	32.212	31.617	52.2	1.4	23.7	
1999 02 21	00 50.64	+06 49.9	32.341	31.618	42.4	1.2	23.7	
1999 03 03	00 51.74	+06 57.4	32.448	31.618	32.7	1.0	23.7	

77P/Longmore

Elements MPC 20123

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 05 07	00 54.98	+02 16.5	5.486	4.671	32.9	6.7			22.5
1998 05 17	01 02.23	+03 16.8	5.408	4.685	40.4	8.0			22.6
1998 05 27	01 09.01	+04 13.5	5.314	4.698	48.1	9.2			22.6
1998 06 06	01 15.22	+05 06.3	5.204	4.711	55.9	10.3			22.6
1998 06 16	01 20.75	+05 54.9	5.082	4.724	63.9	11.1			22.6
1998 06 26	01 25.50	+06 38.8	4.950	4.736	72.0	11.8			22.6
1998 07 06	01 29.33	+07 17.7	4.809	4.747	80.4	12.2			22.5
1998 07 16	01 32.13	+07 51.3	4.665	4.759	89.1	12.3			22.5
1998 07 26	01 33.76	+08 19.1	4.519	4.769	98.1	12.2			22.4
1998 08 05	01 34.12	+08 40.7	4.377	4.780	107.4	11.7			22.3
1998 08 15	01 33.12	+08 55.8	4.242	4.790	117.2	10.8			22.2
1998 08 25	01 30.72	+09 04.2	4.119	4.799	127.3	9.6			22.1

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1998 APR. 11

1998 09 04	01 26.95	+09 05.9	4.013	4.808	137.8	8.1	22.0
1998 09 14	01 21.95	+09 01.3	3.929	4.817	148.7	6.2	21.9
1998 09 24	01 15.93	+08 51.1	3.871	4.825	159.9	4.1	21.7
1998 10 04	01 09.23	+08 36.6	3.842	4.833	171.3	1.8	21.6
1998 10 14	01 02.27	+08 19.5	3.844	4.840	176.7	0.7	21.5
1998 10 24	00 55.48	+08 02.1	3.878	4.847	165.3	3.0	21.7
1998 11 03	00 49.29	+07 46.4	3.943	4.854	153.9	5.2	21.8
1998 11 13	00 44.07	+07 34.5	4.036	4.860	142.6	7.1	22.0
1998 11 23	00 40.06	+07 28.1	4.154	4.866	131.6	8.7	22.1
1998 12 03	00 37.43	+07 28.2	4.291	4.871	120.9	10.0	22.2
1998 12 13	00 36.22	+07 35.6	4.443	4.876	110.5	10.9	22.4
1998 12 23	00 36.41	+07 50.3	4.604	4.880	100.5	11.4	22.5
1999 01 02	00 37.92	+08 12.3	4.770	4.884	90.8	11.6	22.5

1996 SZ ₄		$a, e, i = 39.82, 0.26, 5$				Elements <i>MPC</i> 30785		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 05 07		00 56.40	+05 52.9	31.186	30.326	31.0	1.0	23.0
1998 05 17		00 57.58	+06 00.5	31.086	30.323	40.4	1.2	23.0
1998 05 27		00 58.64	+06 07.5	30.965	30.319	49.7	1.5	23.1
1998 06 06		00 59.56	+06 13.5	30.825	30.316	59.0	1.6	23.1
1998 06 16		01 00.32	+06 18.5	30.672	30.312	68.4	1.8	23.1
1998 06 26		01 00.90	+06 22.4	30.508	30.309	77.8	1.9	23.1
1998 07 06		01 01.29	+06 25.1	30.338	30.305	87.2	1.9	23.0
1998 07 16		01 01.48	+06 26.6	30.167	30.302	96.7	1.9	23.0
1998 07 26		01 01.48	+06 26.9	29.999	30.298	106.2	1.8	23.0
1998 08 05		01 01.27	+06 26.0	29.839	30.295	115.8	1.7	23.0
1998 08 15		01 00.89	+06 23.9	29.692	30.291	125.5	1.6	23.0
1998 08 25		01 00.32	+06 20.8	29.561	30.288	135.3	1.3	22.9
1998 09 04		00 59.61	+06 16.7	29.451	30.285	145.2	1.1	22.9
1998 09 14		00 58.77	+06 11.8	29.366	30.281	155.1	0.8	22.9
1998 09 24		00 57.84	+06 06.4	29.307	30.278	165.1	0.5	22.8
1998 10 04		00 56.86	+06 00.6	29.277	30.274	175.2	0.2	22.8
1998 10 14		00 55.85	+05 54.7	29.278	30.271	174.7	0.2	22.8
1998 10 24		00 54.86	+05 48.9	29.308	30.268	164.5	0.5	22.8
1998 11 03		00 53.94	+05 43.5	29.368	30.264	154.2	0.8	22.9
1998 11 13		00 53.12	+05 38.7	29.455	30.261	144.0	1.1	22.9
1998 11 23		00 52.42	+05 34.7	29.566	30.257	133.7	1.4	22.9
1998 12 03		00 51.89	+05 31.8	29.699	30.254	123.5	1.6	23.0
1998 12 13		00 51.55	+05 30.0	29.849	30.251	113.2	1.7	23.0
1998 12 23		00 51.41	+05 29.4	30.011	30.247	103.0	1.8	23.0
1999 01 02		00 51.47	+05 30.2	30.179	30.244	92.8	1.9	23.0
1999 01 12		00 51.75	+05 32.3	30.350	30.241	82.7	1.8	23.0
1999 01 22		00 52.24	+05 35.7	30.516	30.237	72.7	1.8	23.0
1999 02 01		00 52.92	+05 40.4	30.673	30.234	62.7	1.7	23.0
1999 02 11		00 53.79	+05 46.1	30.817	30.231	52.8	1.5	23.0
1999 02 21		00 54.81	+05 52.9	30.943	30.227	43.0	1.3	23.0
1999 03 03		00 55.96	+06 00.4	31.048	30.224	33.2	1.0	23.0

1995 QZ ₉		$a, e, i = 39.77, 0.15, 20$				Elements <i>MPC</i> 30783		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 05 07		00 59.71	+03 58.0	35.802	34.942	31.1	0.9	23.1
1998 05 17		01 00.74	+04 03.0	35.708	34.945	40.4	1.1	23.1
1998 05 27		01 01.67	+04 07.3	35.593	34.947	49.8	1.3	23.2
1998 06 06		01 02.48	+04 10.6	35.459	34.950	59.2	1.4	23.2

1998 06 16	01 03.14	+04 13.1	35.312	34.953	68.5	1.6	23.2
1998 06 26	01 03.66	+04 14.5	35.154	34.956	78.0	1.6	23.2
1998 07 06	01 04.01	+04 14.8	34.990	34.959	87.4	1.7	23.1
1998 07 16	01 04.19	+04 14.1	34.825	34.962	96.9	1.7	23.1
1998 07 26	01 04.19	+04 12.3	34.664	34.965	106.4	1.6	23.1
1998 08 05	01 04.03	+04 09.5	34.510	34.968	116.0	1.5	23.1
1998 08 15	01 03.70	+04 05.7	34.369	34.970	125.7	1.3	23.1
1998 08 25	01 03.23	+04 01.1	34.245	34.973	135.5	1.2	23.1
1998 09 04	01 02.62	+03 55.7	34.142	34.976	145.3	0.9	23.0
1998 09 14	01 01.91	+03 49.8	34.064	34.979	155.2	0.7	23.0
1998 09 24	01 01.11	+03 43.4	34.012	34.982	165.0	0.4	23.0
1998 10 04	01 00.27	+03 36.9	33.989	34.985	174.7	0.2	22.9
1998 10 14	00 59.40	+03 30.4	33.996	34.988	174.0	0.2	22.9
1998 10 24	00 58.55	+03 24.1	34.033	34.991	164.2	0.4	23.0
1998 11 03	00 57.75	+03 18.3	34.099	34.994	154.1	0.7	23.0
1998 11 13	00 57.03	+03 13.2	34.192	34.996	143.9	1.0	23.0
1998 11 23	00 56.42	+03 08.9	34.311	34.999	133.6	1.2	23.1
1998 12 03	00 55.95	+03 05.5	34.450	35.002	123.4	1.3	23.1
1998 12 13	00 55.63	+03 03.2	34.606	35.005	113.2	1.5	23.1
1998 12 23	00 55.49	+03 02.0	34.774	35.008	103.0	1.6	23.1
1999 01 02	00 55.53	+03 02.0	34.949	35.011	92.8	1.6	23.1
1999 01 12	00 55.75	+03 03.2	35.126	35.014	82.7	1.6	23.2
1999 01 22	00 56.15	+03 05.5	35.298	35.017	72.6	1.5	23.2
1999 02 01	00 56.72	+03 08.8	35.462	35.020	62.6	1.4	23.2
1999 02 11	00 57.45	+03 13.0	35.612	35.023	52.7	1.3	23.2
1999 02 21	00 58.32	+03 18.0	35.744	35.026	42.8	1.1	23.2
1999 03 03	00 59.30	+03 23.7	35.855	35.028	33.1	0.9	23.1

55P/Tempel-Tuttle		Elements <i>MPC</i> 31070							
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 05 07	01 09.08	-03 54.2	2.184	1.451	33.4	22.5	15.7	19.6	
1998 05 17	01 07.12	-05 54.7	2.120	1.562	44.1	26.8	16.5	19.8	
1998 05 27	01 03.63	-08 18.8	2.027	1.674	55.4	29.9	17.1	20.0	
1998 06 06	00 57.83	-11 16.3	1.914	1.788	67.3	31.6	17.7	20.0	
1998 06 16	00 48.63	-14 57.5	1.791	1.902	80.2	31.7	18.2	20.0	
1998 06 26	00 34.57	-19 31.7	1.670	2.016	94.1	30.2	18.7	19.9	
1998 07 06	00 13.70	-25 00.6	1.565	2.130	109.3	26.8	19.2	19.8	
1998 07 16	23 43.92	-31 06.8	1.496	2.242	125.3	21.7	19.6	19.7	
1998 07 26	23 03.98	-37 02.7	1.481	2.354	140.4	16.0		19.6	
1998 08 05	22 15.84	-41 40.4	1.531	2.464	150.5	11.7		19.6	
1998 08 15	21 26.00	-44 14.0	1.647	2.574	149.8	11.4		19.8	
1998 08 25	20 42.18	-44 51.1	1.822	2.682	140.7	13.8		20.2	
1998 09 04	20 08.61	-44 13.6	2.042	2.789	128.9	16.3		20.7	
1998 09 14	19 45.22	-43 02.4	2.293	2.894	117.1	18.0		21.0	
1998 09 24	19 30.10	-41 42.0	2.564	2.999	105.9	18.8		21.4	
1998 10 04	19 21.20	-40 24.5	2.845	3.102	95.3	18.7		21.7	
1998 10 14	19 16.80	-39 14.2	3.129	3.203	85.2	18.1		21.9	
1998 10 24	19 15.68	-38 11.9	3.409	3.304	75.5	16.9		22.2	
1998 11 03	19 16.95	-37 17.4	3.680	3.403	66.2	15.5		22.3	
1998 11 13	19 19.96	-36 29.5	3.937	3.502	57.2	13.7		22.5	

1998 APR. 11

M.P.C. 31625

P/1990 UL₃ (Shoemaker-Levy 2)

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 05 17		16 18.82	-20 25.4	3.855	4.852	169.5	2.2	20.8	22.6
1998 05 27		16 12.14	-20 03.8	3.796	4.809	178.7	0.3	20.7	22.4
1998 06 06		16 05.35	-19 41.3	3.769	4.766	168.0	2.5	20.7	22.5
1998 06 16		15 58.93	-19 19.2	3.771	4.722	156.9	4.8	20.6	22.7

84P/Giclas

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 05 17		18 25.24	-19 07.7	2.943	3.773	139.8	10.0		22.4
1998 05 27		18 20.42	-19 12.4	2.814	3.729	150.5	7.7		22.2
1998 06 06		18 13.95	-19 19.8	2.710	3.686	161.4	5.0		21.9
1998 06 16		18 06.23	-19 29.3	2.633	3.642	172.2	2.2		21.7
1998 06 26		17 57.79	-19 40.5	2.584	3.597	173.9	1.7		21.6
1998 07 06		17 49.34	-19 53.0	2.566	3.552	163.3	4.7		21.7
1998 07 16		17 41.57	-20 06.5	2.575	3.506	152.2	7.8		21.8
1998 07 26		17 35.11	-20 21.2	2.609	3.459	141.2	10.6		21.9
1998 08 05		17 30.45	-20 37.1	2.664	3.413	130.6	13.0		22.1
1998 08 15		17 27.88	-20 54.3	2.737	3.365	120.5	15.0		22.2
1998 08 25		17 27.54	-21 12.9	2.821	3.318	110.8	16.6	22.2	22.2
1998 09 04		17 29.44	-21 32.5	2.914	3.269	101.6	17.6	22.1	22.3
1998 09 14		17 33.48	-21 52.4	3.010	3.221	92.8	18.2	22.1	22.4
1998 09 24		17 39.54	-22 12.1	3.107	3.172	84.5	18.4	22.0	22.4
1998 10 04		17 47.46	-22 30.4	3.200	3.122	76.5	18.2	21.9	22.4
1998 10 14		17 57.06	-22 46.5	3.288	3.072	68.9	17.6	21.8	22.4
1998 10 24		18 08.20	-22 59.4	3.368	3.022	61.5	16.8	21.7	22.4
1998 11 03		18 20.72	-23 08.0	3.438	2.972	54.4	15.7	21.6	22.4
1998 11 13		18 34.45	-23 11.4	3.497	2.921	47.5	14.5	21.5	22.4
1998 11 23		18 49.29	-23 08.6	3.544	2.870	40.8	13.0	21.4	22.3
1998 12 03		19 05.08	-22 59.0	3.578	2.819	34.3	11.4	21.3	22.2

C/1997 D1 (Mueller)

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 05 17		02 55.61	-13 05.6	4.080	3.287	33.7	9.8	15.7	
1998 05 27		02 59.33	-13 51.3	4.081	3.363	39.6	11.1	15.8	
1998 06 06		03 02.61	-14 50.4	4.058	3.440	46.5	12.4	15.9	
1998 06 16		03 05.25	-16 04.1	4.016	3.518	54.1	13.5	16.0	
1998 06 26		03 07.04	-17 33.7	3.957	3.596	62.1	14.5	16.0	
1998 07 06		03 07.74	-19 20.3	3.886	3.675	70.6	15.1	16.1	
1998 07 16		03 07.07	-21 24.3	3.808	3.754	79.3	15.4	16.1	
1998 07 26		03 04.72	-23 45.5	3.728	3.834	88.3	15.4	16.2	
1998 08 05		03 00.35	-26 22.4	3.654	3.914	97.3	14.9	16.2	
1998 08 15		02 53.62	-29 11.6	3.591	3.995	106.3	14.1	16.3	
1998 08 25		02 44.24	-32 07.6	3.546	4.075	114.8	13.0	16.3	
1998 09 04		02 32.00	-35 02.0	3.527	4.156	122.4	11.8	16.4	
1998 09 14		02 16.96	-37 44.8	3.539	4.237	128.3	10.7	16.5	
1998 09 24		01 59.49	-40 05.7	3.586	4.318	131.6	10.0	16.6	
1998 10 04		01 40.39	-41 55.4	3.669	4.399	131.8	9.8	16.8	
1998 10 14		01 20.79	-43 09.1	3.787	4.481	128.8	10.0	16.9	
1998 10 24		01 01.92	-43 46.1	3.938	4.562	123.4	10.5	17.1	
1998 11 03		00 44.87	-43 50.0	4.117	4.643	116.4	11.0	17.2	
1998 11 13		00 30.35	-43 27.3	4.318	4.724	108.4	11.5	17.4	
1998 11 23		00 18.67	-42 45.0	4.535	4.805	100.0	11.7	17.6	
1998 12 03		00 09.82	-41 49.6	4.762	4.886	91.4	11.6	17.8	

Elements MPC 29881

1998 12 13	00 03.57	-40 46.7	4.992	4.967	82.9	11.3	18.0
1998 12 23	23 59.62	-39 40.3	5.221	5.048	74.5	10.8	18.1
1999 01 02	23 57.60	-38 33.5	5.444	5.128	66.3	10.1	18.3
1999 01 12	23 57.18	-37 28.5	5.655	5.209	58.5	9.3	18.4
1999 01 22	23 58.06	-36 26.7	5.850	5.289	51.1	8.3	18.6
1999 02 01	23 59.97	-35 29.5	6.028	5.369	44.4	7.4	18.7

OPPOSITION DATA

Planet	Opposition	α_{2000}	δ_{2000}	V	$\dot{\alpha}$	$\dot{\delta}$	ϕ_{MIN}	MPC
1996 VZ ₈	1998 03 26.0	12 19.00	+00 11.8	18.3	-0.96	+ 6.8	0.8/25.3	31549
1995 SG ₅	1998 03 26.0	12 19.15	+05 56.0	17.8	-0.90	+ 2.4	2.2/23.7	31587
1998 DS ₂₀	1998 03 26.1	12 19.39	+01 54.6	18.8	-0.65	+10.1	1.3/24.6	31562
1996 WT ₁	1998 03 26.2	12 19.69	-02 20.2	20.2	-0.78	+ 5.2	0.1/26.3	28869
(8579)	1998 03 26.2	12 19.70	-02 12.1	17.3	-0.88	+ 6.3	0.0/26.2	31515
(8576)	1998 03 26.2	12 19.80	+01 04.8	18.6	-0.95	+ 5.3	1.1/25.2	31514
(8325)	1998 03 26.2	12 19.96	-01 53.2	18.8	-0.79	+ 3.1	0.1/26.2	31349
1991 AJ ₃	1998 03 26.3	12 20.20	-24 56.9	17.3	-0.81	+ 3.0	6.4/02.9	29658
1989 GS ₄	1998 03 26.3	12 20.22	-01 32.9	17.3	-0.82	+ 6.3	0.2/26.1	31582
1981 EV ₁₅	1998 03 26.4	12 20.42	-08 47.1	18.2	-1.01	+ 1.5	2.5/28.2	26918
1981 ER ₄₅	1998 03 26.4	12 20.43	-03 51.7	18.4	-0.86	+10.3	0.7/27.0	31523
(8447)	1998 03 26.4	12 20.45	+00 22.3	16.8	-1.06	+ 3.3	1.0/25.7	31483
5056 T-2	1998 03 26.4	12 20.52	-16 42.6	18.4	-1.16	+ 0.9	5.9/30.4	31609
2547 P-L	1998 03 26.4	12 20.71	+01 15.4	19.4	-0.71	+ 4.4	0.9/25.3	22700
3076 T-2	1998 03 26.4	12 20.73	+01 05.6	16.2	-0.77	+ 4.6	1.1/25.4	31609
4134 P-L	1998 03 26.5	12 20.81	-05 16.7	19.0	-1.09	+ 3.1	1.3/27.4	31573
1996 XC ₁₈	1998 03 26.5	12 21.00	+10 32.4	17.3	-0.98	+ 3.2	5.2/22.6	31392
1996 XJ ₁	1998 03 26.5	12 21.10	+03 37.7	18.3	-0.92	+ 5.7	1.9/24.7	31549
1981 EM ₂₃	1998 03 26.5	12 21.10	-02 57.2	18.9	-0.79	+ 3.0	0.2/26.8	31522
1996 YT ₂	1998 03 26.5	12 21.11	-02 05.8	19.4	-0.86	+ 6.3	0.1/26.5	31551
1992 UZ ₁	1998 03 26.5	12 21.19	-10 16.5	17.8	-0.94	+ 4.9	2.6/29.1	31585
1996 SO	1998 03 26.6	12 21.19	-00 49.0	19.8	-1.01	+ 4.4	0.5/26.2	31546
1998 DQ ₁₃	1998 03 26.6	12 21.30	+01 51.9	17.0	-0.76	+ 5.2	1.4/25.2	31561
1994 PT ₁₉	1998 03 26.6	12 21.57	-02 12.8	17.9	-0.74	+ 5.2	0.0/26.7	31541
2727 P-L	1998 03 26.7	12 21.57	+00 34.8	17.3	-1.00	+ 2.7	1.3/25.9	31608
1981 EE ₁₈	1998 03 26.7	12 21.91	-03 39.2	18.5	-0.80	+ 3.6	0.4/27.2	31580
1991 EX ₂	1998 03 26.8	12 21.98	-08 08.8	17.6	-1.10	+ 2.5	2.4/28.4	31530
1997 AF ₂₂	1998 03 26.8	12 22.24	-16 22.5	18.4	-0.81	+ 2.4	3.4/31.3	31552
1991 PK ₃	1998 03 26.9	12 22.27	+00 48.4	18.2	-0.89	+ 5.3	1.1/25.9	31531
1998 BE ₂₆	1998 03 26.9	12 22.30	+01 05.7	18.8	-0.71	+ 7.5	1.0/25.7	31556
1992 ED ₄	1998 03 26.9	12 22.42	+01 46.2	17.5	-0.74	+ 5.0	1.3/25.5	31533
1989 WR	1998 03 26.9	12 22.47	+01 49.3	17.5	-1.03	+ 4.3	1.5/25.7	31582
1995 SO ₅	1998 03 27.0	12 22.80	+16 38.7	17.6	-1.01	+ 3.1	6.2/21.0	31420
1981 EF ₂₄	1998 03 27.0	12 22.87	-00 08.2	18.1	-0.77	+ 3.7	0.6/26.3	29910
1997 AN ₁₂	1998 03 27.0	12 23.01	-06 47.8	17.5	-0.80	+ 8.5	1.6/28.6	31552
1981 EB ₂₆	1998 03 27.1	12 23.28	-04 32.2	18.7	-0.78	+ 3.9	0.6/27.8	31580
1991 PY ₁₂	1998 03 27.1	12 23.35	-16 14.2	17.5	-0.98	+ 2.7	4.4/31.3	31583
1990 BJ	1998 03 27.2	12 23.41	-38 25.3	17.6	-1.16	+ 3.0	10.7/08.9	29657
3182 T-1	1998 03 27.2	12 23.47	-06 13.5	18.4	-0.75	+ 4.9	1.1/28.5	31608
1981 EJ ₁₈	1998 03 27.2	12 23.53	-05 41.2	18.3	-0.78	+ 3.8	0.9/28.3	26918
1993 FP ₁₁	1998 03 27.2	12 23.61	+02 32.2	17.5	-0.79	+ 4.8	1.6/25.6	31535
(7521)	1998 03 27.2	12 23.61	+00 24.5	16.3	-0.77	+ 5.7	0.9/26.3	29291

1996 TG ₁₅	1998 03 27.2	12 23.73 +02 21.5 18.1	-0.96 + 5.5	1.7/25.8	31547
1981 ER ₃₄	1998 03 27.4	12 24.23 -13 43.4 18.8	-0.73 + 5.6	3.3/31.3	30780
(7607)	1998 03 27.4	12 24.36 -01 09.6 16.6	-0.78 + 6.4	0.4/27.0	29603
1997 XY ₈	1998 03 27.5	12 24.85 -00 30.5 18.4	-0.92 + 5.7	0.8/26.9	31591
1992 EE ₁₃	1998 03 27.6	12 24.87 -01 56.8 17.3	-0.69 + 7.3	0.2/27.4	31584
1996 VU ₇	1998 03 27.6	12 24.98 +02 39.3 17.9	-0.92 + 5.3	1.7/26.0	31589
1981 EY ₅	1998 03 27.6	12 25.11 -16 50.0 19.4	-0.78 + 3.1	3.5/01.2	30779
2655 P-L	1998 03 27.7	12 25.16 -00 49.5 20.2	-0.78 + 2.5	0.5/27.1	25969
(8585)	1998 03 27.7	12 25.27 -05 02.8 16.4	-0.87 + 1.5	0.8/28.4	31516
1994 AL ₃	1998 03 27.7	12 25.31 -02 57.3 16.5	-0.87 + 9.2	0.1/27.8	31586
1981 EP ₆	1998 03 27.7	12 25.32 -20 16.4 18.0	-0.97 - 0.4	5.9/01.6	25972
1981 EU ₂₆	1998 03 27.8	12 25.51 -01 21.2 18.5	-0.69 + 5.5	0.3/27.3	31580
(8465)	1998 03 27.8	12 25.55 +00 16.1 19.5	-0.71 + 6.2	0.8/26.8	31488
1992 PZ ₁	1998 03 27.8	12 25.67 -00 32.7 17.9	-0.97 + 8.5	0.8/27.1	31534
1988 TB ₁	1998 03 27.8	12 25.71 -05 49.9 18.1	-0.88 + 7.2	1.0/28.9	31581
1997 ET ₁	1998 03 27.8	12 25.80 +02 16.5 17.7	-0.80 + 5.0	1.5/26.2	31590
4584 P-L	1998 03 27.8	12 25.90 +00 31.1 18.7	-0.90 + 7.6	1.1/26.8	31573
1991 VN	1998 03 27.8	12 25.94 -01 00.8 19.4	-0.80 + 5.5	0.5/27.3	31584
1995 SO ₁	1998 03 27.9	12 25.99 -34 45.4 18.4	-0.86 + 2.9	8.0/08.5	29664
1996 XJ ₂	1998 03 27.9	12 26.13 +30 10.4 19.3	-0.84 + 2.0	9.4/16.3	31391
(7329)	1998 03 28.0	12 26.28 -08 54.1 16.1	-0.73 +11.0	2.2/30.3	28569
1998 DH ₁₁	1998 03 28.0	12 26.29 +33 15.7 16.5	-0.96 +14.8	14.8/11.2	31559
(8388)	1998 03 28.0	12 26.68 +01 29.5 17.0	-0.79 + 4.7	1.3/26.7	31363
1988 RL ₆	1998 03 28.1	12 26.99 +02 38.1 17.6	-0.88 + 8.1	1.9/26.3	31526
1998 FB ₆	1998 03 28.2	12 27.05 +01 22.1 18.2	-0.95 + 8.5	1.8/26.8	31568
1997 AT ₁₈	1998 03 28.2	12 27.11 -07 01.3 17.3	-0.82 + 2.6	1.2/29.5	31552
(8512)	1998 03 28.2	12 27.39 +04 25.3 16.9	-0.80 + 6.7	2.2/25.8	31499
1996 RN ₂	1998 03 28.2	12 27.44 -41 04.7 17.1	-1.34 + 1.2	17.0/10.1	28864
1995 VV ₁₃	1998 03 28.3	12 27.42 +01 01.1 19.7	-0.75 + 5.8	1.2/27.0	31544
1998 FN ₅₇	1998 03 28.3	12 27.45 -04 33.5 17.4	-0.85 + 9.6	0.7/28.9	31571
3237 T-2	1998 03 28.3	12 27.73 +01 28.2 18.3	-0.87 + 2.0	1.5/27.1	31410
1996 TF ₅	1998 03 28.4	12 27.82 -03 58.1 19.0	-0.93 + 7.8	0.3/28.7	31588
1994 SH ₃	1998 03 28.4	12 28.05 -03 43.0 19.0	-0.69 + 4.7	0.2/28.7	31587
1981 EZ ₁₂	1998 03 28.4	12 28.07 -11 20.6 18.1	-1.00 + 6.2	3.1/31.1	26917
(8501)	1998 03 28.5	12 28.36 +08 13.3 16.5	-0.86 + 2.3	3.7/25.1	31496
1981 EK ₄₁	1998 03 28.6	12 28.58 -03 57.1 17.0	-0.90 + 9.1	0.3/28.9	31580
3243 T-1	1998 03 28.6	12 28.58 -04 20.5 18.1	-1.03 + 4.9	0.5/29.0	31608
1981 EG ₃₉	1998 03 28.6	12 28.85 -05 29.5 19.0	-0.75 + 3.8	0.6/29.5	31580
4072 T-2	1998 03 28.7	12 28.85 +00 53.1 19.9	-1.08 + 5.1	1.5/27.5	31576
1981 EN ₂₀	1998 03 28.9	12 29.58 -00 02.1 18.4	-0.97 + 7.4	1.3/27.9	31522
(8561)	1998 03 28.9	12 29.66 -00 57.8 18.5	-0.71 + 4.8	0.5/28.2	31510
1988 RK	1998 03 28.9	12 29.74 +00 44.0 18.4	-0.83 + 9.3	1.2/27.6	31581
1995 UE ₁₁	1998 03 28.9	12 29.91 -05 53.4 19.4	-0.71 + 6.7	0.7/29.9	30784
1981 DA ₂	1998 03 29.0	12 30.07 -13 09.6 19.0	-0.75 + 4.1	2.6/01.3	26914
1996 VX ₅	1998 03 29.0	12 30.14 -09 12.0 18.5	-0.84 + 6.5	1.8/31.1	31589
1981 ES ₉	1998 03 29.0	12 30.21 -06 16.4 17.7	-0.69 + 7.1	0.9/30.1	31579
1988 VH ₁	1998 03 29.0	12 30.29 -09 01.6 17.9	-0.90 + 6.7	1.8/31.0	31581
1998 DZ ₁₃	1998 03 29.1	12 30.53 -00 13.4 18.5	-0.99 + 6.6	1.2/28.2	31561
(7447)	1998 03 29.1	12 30.56 -14 53.8 16.5	-0.98 + 4.5	4.3/01.7	28837
1998 FN ₈	1998 03 29.1	12 30.67 +00 58.8 19.6	-0.94 + 2.5	1.8/28.0	31568
1995 WC ₄	1998 03 29.2	12 30.79 +15 37.7 17.4	-0.78 + 3.1	4.7/22.9	31420

(7505)	1998 03 29.2	12 30.80 +06 08.2 17.1	-0.82 + 4.9	2.4/26.2	29091
1993 JL ₁	1998 03 29.2	12 31.01 -02 31.0 16.6	-0.74 + 5.1	0.3/29.0	31585
1995 SX ₅₁	1998 03 29.3	12 31.26 -01 24.7 21.0	-0.78 + 3.2	0.5/28.8	26405
1992 EJ ₉	1998 03 29.3	12 31.29 +01 05.2 17.9	-0.75 + 3.7	1.2/27.9	31584
1995 SD ₂₄	1998 03 29.3	12 31.29 +00 00.3 19.0	-0.79 + 6.6	1.0/28.2	31587
1995 SM ₅₄	1998 03 29.3	12 31.32 +01 52.4 17.7	-0.79 + 5.2	1.6/27.6	31587
1996 VY ₅	1998 03 29.4	12 31.40 +00 01.2 20.2	-0.92 + 5.5	1.1/28.3	31549
1998 FA ₅₉	1998 03 29.5	12 31.87 +00 25.9 18.7	-0.91 + 5.5	1.3/28.3	31571
3305 T-2	1998 03 29.5	12 32.01 +00 44.4 17.9	-0.96 + 4.7	1.8/28.3	31576
1981 DK	1998 03 29.6	12 32.34 -17 51.1 17.8	-0.75 + 4.3	3.6/03.5	31579
1995 UJ ₁	1998 03 29.7	12 32.46 -05 26.9 17.5	-0.71 + 7.1	0.5/30.4	31544
1981 EB ₉	1998 03 29.7	12 32.79 -14 25.0 16.5	-1.05 + 1.1	3.9/01.7	31579
1993 FM ₇	1998 03 29.8	12 32.88 +01 58.8 18.0	-0.78 + 5.2	1.7/28.0	31585
1991 LE ₂	1998 03 29.8	12 33.04 +08 39.0 17.5	-0.91 + 5.4	3.9/25.9	27728
5490 T-2	1998 03 29.9	12 33.25 -13 21.7 18.4	-0.91 + 7.0	3.5/02.2	31609
1996 VT ₃₀	1998 03 30.0	12 33.62 -05 30.2 17.8	-0.93 + 6.1	0.6/30.6	31589
3176 T-2	1998 03 30.0	12 33.74 -01 17.3 17.7	-0.97 + 4.0	0.9/29.3	31609
1981 ER ₈	1998 03 30.0	12 33.84 -10 00.9 18.7	-0.92 + 4.4	2.3/01.0	26916
1981 DN ₃	1998 03 30.0	12 33.95 -11 59.6 19.3	-0.99 + 6.7	3.0/01.7	30779
1998 FO ₅₈	1998 03 30.1	12 33.96 -01 33.9 17.8	-0.78 + 9.0	0.7/29.4	31571
1996 XF ₃	1998 03 30.1	12 34.01 -01 11.4 17.0	-0.79 + 5.4	0.8/29.3	31590
(8502)	1998 03 30.1	12 34.07 -14 53.7 17.1	-0.75 + 6.0	3.2/03.0	31496
1996 AO ₃	1998 03 30.1	12 34.10 -11 10.4 16.7	-0.62 + 4.0	1.7/01.7	31588
1994 PW ₁₇	1998 03 30.1	12 34.13 -02 41.9 18.5	-0.75 + 4.9	0.3/29.8	31587
1996 UG	1998 03 30.1	12 34.20 +03 30.0 18.1	-1.02 + 3.9	2.5/28.1	29631
(8516)	1998 03 30.1	12 34.26 +02 52.1 17.5	-0.85 + 4.2	1.9/28.1	31500
4155 T-1	1998 03 30.3	12 34.84 +00 57.1 17.6	-0.84 + 4.9	1.6/28.8	31608
1989 UG ₂	1998 03 30.3	12 34.86 +28 43.2 18.4	-1.26 - 0.7	10.4/21.5	25329
(7574)	1998 03 30.4	12 35.21 +09 49.3 16.9	-0.70 + 3.1	3.2/26.0	29595
(8489)	1998 03 30.4	12 35.22 +02 29.8 17.5	-0.72 + 6.3	2.0/28.3	31493
4326 T-3	1998 03 30.4	12 35.34 +04 50.1 18.3	-0.94 + 5.0	2.9/27.8	31609
(8584)	1998 03 30.5	12 35.43 -18 21.2 16.6	-0.81 + 3.8	4.4/04.2	31516
2197 P-L	1998 03 30.5	12 35.64 -04 24.7 16.8	-0.88 + 7.7	9.4/11.0	31607
1992 RS ₃	1998 03 30.6	12 35.74 -05 00.2 18.2	-0.96 + 7.3	0.4/31.0	31534
1996 VF ₉	1998 03 30.6	12 35.95 +00 59.6 18.4	-0.92 + 6.1	1.6/29.1	31589
1998 FT ₅₉	1998 03 30.7	12 36.27 +00 45.0 17.9	-0.84 + 9.5	1.9/29.1	31571
1976 UP ₂	1998 03 30.7	12 36.31 -01 19.0 18.4	-1.03 + 4.8	0.9/30.0	31578
1995 SH ₂	1998 03 30.8	12 36.50 -04 47.3 19.7	-0.78 + 5.3	0.3/31.1	30783
1984 SV ₅	1998 03 30.8	12 36.63 -06 11.5 17.5	-0.82 + 2.9	0.6/31.5	31524
(7596)	1998 03 30.8	12 36.65 +05 15.2 15.8	-0.85 + 2.5	2.8/28.0	29600
1994 CD ₉	1998 03 30.8	12 36.78 -07 37.4 17.2	-1.34 - 1.1	1.4/31.7	31586
1992 EY ₁₁	1998 03 30.9	12 36.80 -00 16.1 17.4	-0.75 + 4.4	1.2/29.7	31584
1978 VE ₁₀	1998 03 30.9	12 36.83 -01 51.2 18.9	-0.73 + 4.5	0.5/30.2	31579
1995 SH ₅	1998 03 30.9	12 36.96 -04 59.6 18.4	-0.76 + 4.8	0.3/31.3	31587
1992 YE ₁	1998 03 30.9	12 36.98 +04 08.1 17.9	-0.88 + 4.9	2.6/28.4	28587
1996 VM ₃₀	1998 03 30.9	12 37.14 +05 53.4 17.8	-1.03 + 3.9	3.3/28.1	31422
3274 T-1	1998 03 30.9	12 37.16 -01 23.2 17.9	-0.75 + 8.2	0.7/30.1	31574
(8539)	1998 03 31.1	12 37.77 +00 50.6 17.3	-0.77 + 4.8	1.4/29.5	31505
6833 P-L	1998 03 31.1	12 37.85 -05 04.3 17.9	-0.81 + 4.4	0.3/31.5	31608
1996 XE ₁₂	1998 03 31.2	12 37.98 -01 52.5 18.3	-0.79 + 4.5	0.6/30.5	31590
1996 XM ₂	1998 03 31.2	12 38.11 +04 26.3 17.4	-1.03 + 6.1	3.0/28.6	31549

1996 XV ₃₀	1998 03 31.2	12 38.26 +16 02.5 20.3	-0.82 + 4.9	5.3/24.4	29926	(8529)	1998 04 02.2	12 45.45 -09 37.7 17.7	-0.88 + 7.2	1.6/03.8	31502
1981 EO ₁₀	1998 03 31.2	12 38.28 -06 27.1 19.2	-0.78 + 9.9	0.7/01.1	26916	1978 UR ₄	1998 04 02.3	12 45.62 -08 55.3 17.8	-0.99 + 5.7	1.5/03.6	31579
1998 BL ₂₆	1998 03 31.2	12 38.30 -00 19.7 18.4	-0.81 + 6.1	1.3/30.0	31593	1990 QE ₉	1998 04 02.3	12 45.67 -05 51.0 17.5	-0.81 + 4.6	0.3/02.6	31582
3105 T-3	1998 03 31.3	12 38.51 -02 37.7 18.0	-0.91 + 6.7	0.5/30.9	31609	1992 ST	1998 04 02.3	12 45.96 -00 33.0 18.4	-0.95 + 4.1	1.3/01.1	31418
1996 VO ₃₀	1998 03 31.3	12 38.66 -09 06.5 17.5	-0.96 + 6.7	1.7/02.0	31589	1994 JQ ₆	1998 04 02.3	12 45.96 -04 29.7 19.7	-0.83 + 6.0	0.1/02.2	23679
1996 YY ₁	1998 03 31.4	12 38.63 +03 04.0 18.5	-0.83 + 5.2	2.1/29.1	30671	1994 LH	1998 04 02.3	12 45.98 +12 57.2 18.4	-0.76 + 8.8	7.0/26.5	31541
1996 PX ₈	1998 03 31.4	12 38.69 +02 00.3 19.2	-0.95 + 7.4	2.0/29.4	31588	1981 EO ₃	1998 04 02.4	12 46.09 -25 55.1 18.4	-1.08 + 0.9	7.3/08.1	26915
1998 FT ₆₁	1998 03 31.4	12 38.87 -06 50.6 17.2	-0.92 + 6.1	1.1/01.3	31571	1990 BC ₂	1998 04 02.4	12 46.13 -07 07.6 16.0	-0.84 + 8.7	0.9/03.2	31528
1984 SC ₆	1998 03 31.5	12 39.01 +01 44.2 17.7	-0.95 + 6.2	2.1/29.6	31581	1995 SN ₂₉	1998 04 02.5	12 46.34 -03 04.6 17.6	-0.70 + 4.7	0.5/01.9	31587
1990 FG	1998 03 31.5	12 39.10 -21 43.2 16.0	-1.93 - 8.7	8.7/02.8	31582	1995 QU ₃	1998 04 02.5	12 46.65 -38 24.4 19.8	-0.87 + 2.7	7.0/14.7	29623
1994 JS ₁	1998 03 31.5	12 39.11 +12 58.9 15.5	-0.17 +25.5	7.5/22.3	31586	1993 FH ₄₉	1998 04 02.6	12 46.70 -04 54.9 18.0	-0.78 + 5.4	0.0/02.6	31585
1981 DB ₃	1998 03 31.5	12 39.20 -12 22.6 18.4	-0.83 + 6.6	2.4/03.3	25647	1995 TT	1998 04 02.6	12 46.76 +00 04.0 17.1	-0.83 + 2.7	1.4/01.1	31544
1995 SM ₂₉	1998 03 31.5	12 39.25 -01 14.0 18.1	-0.72 + 4.2	0.8/30.6	31543	1993 VX ₃	1998 04 02.6	12 46.97 -11 17.8 16.2	-0.97 + 7.8	2.5/04.7	31586
1998 FL ₆₁	1998 03 31.5	12 39.31 -06 27.1 16.0	-0.84 + 2.5	0.6/01.2	31571	1995 PF	1998 04 02.7	12 47.28 -23 29.8 20.0	-0.91 + 4.9	5.4/08.8	26176
(8481)	1998 03 31.6	12 39.44 -12 02.8 16.5	-0.72 + 6.5	3.0/03.4	31491	1995 SX ₁₉	1998 04 02.7	12 47.32 -04 39.0 16.6	-0.77 + 5.4	0.1/02.6	31587
(7528)	1998 03 31.6	12 39.56 -03 16.8 16.8	-0.77 + 5.4	0.3/31.3	29293	(8462)	1998 04 02.7	12 47.36 -03 46.9 18.0	-0.83 + 6.4	0.5/02.3	31487
1978 QA ₂	1998 03 31.6	12 39.76 -04 00.1 17.9	-0.94 + 7.3	0.1/31.6	31579	1996 UH ₁	1998 04 02.7	12 47.43 +04 39.3 17.9	-1.00 + 5.5	3.5/30.8	31144
1996 VN	1998 03 31.7	12 39.86 -06 33.3 17.3	-0.95 + 3.3	0.9/01.4	31547	1995 UJ ₆	1998 04 02.8	12 47.39 -15 18.2 17.7	-0.74 + 5.9	2.8/06.3	31587
1995 WV ₄₂	1998 03 31.7	12 39.94 +16 52.3 17.6	-0.72 + 4.6	5.0/24.2	31588	1996 XS ₁₈	1998 04 02.8	12 47.47 -00 54.8 18.2	-0.76 + 4.5	1.3/01.5	31550
1998 EP ₃	1998 03 31.7	12 40.05 -05 31.7 17.1	-0.97 + 2.7	0.4/01.1	31564	1059 T-2	1998 04 02.8	12 47.49 -07 06.6 16.7	-0.88 + 7.5	0.8/03.5	31575
1985 UH ₂	1998 03 31.9	12 40.66 +00 17.8 16.8	-0.96 + 5.4	1.7/30.5	31581	1991 LV ₂	1998 04 02.8	12 47.68 +00 47.3 19.0	-0.93 + 6.0	2.0/32.0	31531
1995 RJ	1998 04 01.1	12 41.26 +10 44.3 19.2	-0.88 + 5.8	4.7/27.0	26422	(8518)	1998 04 02.8	12 47.74 -01 49.9 17.3	-0.72 + 4.7	0.8/01.8	31500
1990 WN ₅	1998 04 01.1	12 41.26 +09 51.4 16.2	-0.84 + 2.6	4.5/27.7	31583	1995 TW	1998 04 02.9	12 47.93 -30 03.9 20.7	-0.77 + 6.7	6.4/12.4	26568
1990 OZ	1998 04 01.1	12 41.41 -01 09.2 17.2	-0.76 +10.5	1.1/30.9	31528	1992 YE ₄	1998 04 02.9	12 48.03 -00 51.8 18.3	-0.84 + 6.1	1.3/01.6	31585
1981 VF	1998 04 01.1	12 41.42 -01 27.3 17.4	-0.96 + 4.8	1.0/31.2	29654	3271 T-1	1998 04 02.9	12 48.14 -06 43.4 16.9	-0.85 + 4.6	0.5/03.5	31608
2508 P-L	1998 04 01.1	12 41.57 -04 40.8 19.2	-0.99 + 4.4	0.1/01.2	31435	1995 SP ₁	1998 04 03.1	12 48.67 -41 44.0 18.5	-1.02 + 1.0	9.1/15.9	29664
2636 P-L	1998 04 01.1	12 41.58 -02 01.0 16.8	-0.88 + 7.9	1.1/31.4	31608	1995 SR ₂₆	1998 04 03.1	12 48.70 -05 36.3 18.0	-0.78 + 5.4	0.1/03.3	31543
1990 SB ₆	1998 04 01.2	12 41.71 +00 10.1 18.5	-0.76 + 5.2	1.3/30.7	31583	1993 LD ₁	1998 04 03.1	12 48.74 -16 42.6 18.1	-0.86 + 2.4	3.4/06.6	31585
1981 EO ₃₅	1998 04 01.3	12 42.14 -13 28.1 19.7	-0.99 + 6.4	3.3/04.2	22430	1991 RE ₁₀	1998 04 03.2	12 48.85 -15 40.0 17.2	-0.88 + 4.5	3.2/06.5	31584
1998 FF ₁₆	1998 04 01.4	12 42.43 -02 07.5 17.3	-0.91 + 7.3	1.0/31.6	31569	1989 TY ₁₀	1998 04 03.2	12 48.86 -05 53.4 18.0	-0.93 + 7.5	0.2/03.4	31582
1981 EH ₂₂	1998 04 01.5	12 42.66 -05 34.7 18.4	-0.84 + 6.3	0.4/01.8	31522	5162 T-2	1998 04 03.2	12 49.12 -17 14.3 17.0	-0.82 + 3.3	3.5/07.0	31609
1981 EF ₂₇	1998 04 01.5	12 42.90 -03 56.9 17.7	-0.81 + 7.3	0.3/01.3	31580	1996 XF ₂	1998 04 03.2	12 49.25 +16 55.9 18.9	-0.89 + 2.6	6.9/27.4	30786
(8513)	1998 04 01.5	12 42.97 -14 36.8 16.5	-0.90 + 4.2	3.3/05.0	31499	1996 VX ₁₅	1998 04 03.3	12 49.58 -05 55.5 15.6	-0.84 + 6.7	0.3/03.6	31589
1991 RK ₁₆	1998 04 01.6	12 43.07 -00 57.7 17.9	-0.87 + 5.0	1.2/31.5	31532	1981 ER ₁₁	1998 04 03.4	12 49.58 -09 38.5 18.1	-0.87 + 5.3	1.6/04.8	31579
1991 GN ₉	1998 04 01.6	12 43.21 -01 05.3 17.8	-0.96 + 5.7	1.5/31.5	31531	1997 AT ₁	1998 04 03.4	12 49.68 -25 10.4 16.6	-0.82 + 3.4	5.8/10.1	31590
1992 PA ₂	1998 04 01.7	12 43.58 -13 42.4 19.1	-1.02 + 5.1	3.1/04.5	29660	1997 AA	1998 04 03.4	12 49.84 +00 00.2 17.6	-0.79 + 4.8	1.6/01.7	31590
(7381)	1998 04 01.7	12 43.81 -02 51.9 16.3	-1.01 + 3.9	0.6/01.3	28821	1998 FH ₆₄	1998 04 03.4	12 49.97 -01 35.7 17.4	-0.73 + 5.3	1.3/02.2	31571
4254 T-2	1998 04 01.8	12 44.14 +00 05.1 17.7	-0.95 + 5.5	1.6/31.4	31609	1978 RU ₈	1998 04 03.5	12 50.00 +02 10.0 18.7	-0.68 + 6.2	1.9/31.9	24406
1993 FX ₈₁	1998 04 01.9	12 44.33 +06 23.4 15.5	-0.81 + 4.0	3.9/29.4	31585	1994 EC ₅	1998 04 03.7	12 50.76 -10 55.1 17.6	-1.00 + 3.5	2.1/05.3	31541
1995 UW ₆	1998 04 01.9	12 44.50 -00 20.4 17.2	-0.82 + 2.8	1.3/31.6	31588	1981 EO ₃₀	1998 04 03.7	12 50.79 +01 35.4 17.7	-0.74 +11.6	2.7/01.0	31523
1995 ST ₅₄	1998 04 02.0	12 44.67 -23 01.7 16.6	-0.96 + 2.2	7.2/07.6	26568	1996 XT ₅	1998 04 03.7	12 50.94 -19 46.3 17.2	-0.82 + 4.3	4.4/08.5	31590
1981 ET ₄₅	1998 04 02.0	12 44.78 -05 29.8 18.1	-0.71 + 9.3	0.2/02.3	26923	1998 FE ₂	1998 04 03.7	12 50.98 +01 52.5 17.4	-0.90 + 5.4	2.8/01.4	31567
1974 WB	1998 04 02.1	12 44.91 -21 50.0 18.4	-0.87 + 6.0	5.0/08.0	31578	1978 UL ₆	1998 04 03.7	12 51.10 -07 35.7 20.0	-0.94 + 6.3	0.7/04.5	28882
1981 EK ₇	1998 04 02.1	12 44.97 -08 07.8 17.9	-0.73 + 5.6	0.9/03.2	31579	1990 VX ₆	1998 04 03.8	12 51.12 +11 54.4 18.4	-0.76 + 4.5	4.8/28.9	31583
1990 HE	1998 04 02.1	12 45.21 +21 55.8 16.8	-1.76 - 6.1	12.8/28.0	31528	(8547)	1998 04 03.8	12 51.33 -08 16.8 17.1	-0.97 + 5.4	1.2/05.0	31506
1996 TO ₁₀	1998 04 02.1	12 45.24 +05 46.0 16.9	-1.00 + 5.6	3.8/29.9	31421	1992 PO ₂	1998 04 03.9	12 51.50 -08 11.9 17.8	-0.92 + 8.1	0.9/04.8	31534
(8580)	1998 04 02.1	12 45.25 +13 14.5 18.1	-0.73 + 4.6	4.8/27.0	31515	1981 EZ ₃₃	1998 04 03.9	12 51.60 -11 11.9 18.8	-0.73 + 4.9	1.5/05.8	25972
4068 T-2	1998 04 02.2	12 45.18 -00 50.5 19.7	-0.86 + 4.4	1.3/31.9	22701	1998 FP ₁₁	1998 04 03.9	12 51.65 -00 24.7 16.2	-0.81 + 9.0	2.2/02.2	31568
1993 FO ₄₈	1998 04 02.2	12 45.19 -05 11.2 17.6	-0.80 + 5.1	0.1/02.3	31537	1981 EU ₉	1998 04 03.9	12 51.75 -08 25.9 17.6	-0.96 + 8.2	1.1/04.9	31521
1978 EU ₉	1998 04 02.2	12 45.22 -02 34.2 16.8	-0.77 + 5.6	0.7/01.4	31578	1992 EG ₄	1998 04 04.0	12 52.00 -01 08.1 18.2	-0.76 + 4.3	1.3/02.6	31534
1996 VJ ₈	1998 04 02.2	12 45.42 -08 29.2 17.6	-0.94 + 4.5	1.2/03.4	31589	1997 BE ₃	1998 04 04.0	12 52.05 -00 00.8 17.0	-0.75 + 4.1	1.4/02.3	31590

1995 SZ ₄	1998 04 04.1	12 52.13	-06 17.5	17.7	-0.85	+	6.2	0.2/04.3	31587	1998 FL ₆₈	1998 04 06.0	12 59.16	-08 56.1	17.3	-0.79	+	3.6	0.8/06.8	31572
(8527)	1998 04 04.1	12 52.23	-07 39.8	16.6	-1.13	+	2.5	0.9/04.7	31502	1981 EP ₃₇	1998 04 06.0	12 59.22	-10 16.3	19.4	-0.86	+	5.6	1.2/07.3	21562
2100 T-2	1998 04 04.1	12 52.45	-03 34.2	19.2	-0.68	+	8.1	0.5/03.4	26186	(7399)	1998 04 06.0	12 59.33	-12 47.8	17.5	-0.98	+	6.2	2.2/08.1	29587
(8460)	1998 04 04.2	12 52.53	-03 03.9	17.9	-0.95	+	7.2	0.9/03.4	31487	1995 UG ₁₁	1998 04 06.0	12 59.44	-07 43.8	20.0	-0.79	+	6.5	0.4/06.6	30784
1990 SE ₁₁	1998 04 04.2	12 52.58	-18 00.9	17.1	-0.89	+	3.6	3.9/08.0	31583	(8562)	1998 04 06.1	12 59.63	-01 59.7	17.6	-0.85	+	2.7	1.3/04.9	31510
(7468)	1998 04 04.2	12 52.73	-00 44.7	16.8	-0.76	+	4.1	1.3/02.7	29081	1992 EN ₉	1998 04 06.2	13 00.05	-03 43.3	17.4	-0.73	+	4.9	0.7/05.4	31584
1993 FZ ₄₄	1998 04 04.2	12 52.79	-03 27.6	17.5	-0.79	+	5.6	0.7/03.5	31537	1993 FH ₅	1998 04 06.4	13 00.78	-04 09.0	17.4	-0.82	+	4.3	0.7/05.7	31585
1335 T-2	1998 04 04.2	12 52.84	-05 21.7	18.1	-0.75	+	4.9	0.1/04.2	31608	1993 LG ₂	1998 04 06.4	13 00.86	-07 08.9	17.5	-0.70	+	6.0	0.2/06.7	31585
(7424)	1998 04 04.3	12 52.96	-13 22.4	16.6	-0.93	+	7.2	2.8/06.9	28832	1991 PT ₁₀	1998 04 06.5	13 00.95	-11 25.6	19.8	-0.89	+	5.4	1.5/08.1	28886
1997 AZ ₁	1998 04 04.3	12 53.06	-07 19.6	18.2	-0.77	+	3.4	0.4/04.9	31551	4265 T-1	1998 04 06.5	13 00.97	-01 34.4	17.9	-0.98	+	5.8	2.1/05.0	31575
1992 OV ₂	1998 04 04.4	12 53.23	+08 13.8	17.7	-0.91	+	7.0	5.2/30.8	31584	1980 FY ₄	1998 04 06.6	13 01.38	-05 00.2	17.9	-0.91	+	7.6	0.5/06.1	31579
(7333)	1998 04 04.4	12 53.61	-19 56.8	17.6	-0.91	+	4.7	4.3/09.0	28570	(7538)	1998 04 06.7	13 01.63	-05 41.1	17.5	-0.92	+	6.5	0.3/06.4	29295
(7376)	1998 04 04.4	12 53.64	-08 49.5	16.6	-0.95	+	5.3	1.2/05.0	28820	1996 WC ₂	1998 04 06.7	13 01.84	+06 05.7	16.9	-0.98	+	3.3	5.1/03.0	31589
1995 TQ	1998 04 04.5	12 53.65	-18 22.1	17.7	-0.76	+	6.3	3.6/08.9	31587	7603 P-L	1998 04 06.7	13 01.88	-04 10.2	17.4	-0.98	+	1.9	0.8/06.1	31608
1981 EN ₂₄	1998 04 04.5	12 53.68	-08 43.0	17.5	-0.98	+	6.6	1.2/05.5	31522	4053 P-L	1998 04 06.7	13 01.89	-10 07.6	17.3	-0.85	+	8.2	1.3/08.0	31572
1992 ER ₂₈	1998 04 04.5	12 53.90	-01 56.0	18.7	-0.74	+	4.7	1.0/03.3	31584	(7568)	1998 04 06.7	13 01.92	-08 46.4	18.1	-0.87	+	6.7	0.6/07.5	29593
1992 ER ₆	1998 04 04.5	12 53.97	+00 56.0	17.2	-0.78	+	3.6	2.0/02.5	31584	1981 EJ ₄₂	1998 04 06.7	13 01.99	-02 46.1	18.7	-0.67	+	8.5	1.2/05.4	31580
1989 UM ₁	1998 04 04.6	12 54.35	-02 17.5	18.0	-0.99	+	5.4	1.2/03.6	31582	1996 TG ₁₃	1998 04 06.8	13 02.14	-08 54.2	17.8	-0.95	+	5.0	0.9/07.5	31546
1996 WS ₂	1998 04 04.7	12 54.35	-06 21.4	19.0	-0.95	+	6.5	8.5/25.0	30786	1995 OJ	1998 04 06.8	13 02.15	-00 08.3	17.1	-0.83	+	6.1	3.1/04.7	31587
1989 RG	1998 04 04.7	12 54.54	-12 03.1	17.3	-1.01	+	5.4	2.3/06.6	31582	1990 KE	1998 04 06.8	13 02.31	-03 55.7	16.8	-0.78	+	9.7	0.8/05.9	31582
(7452)	1998 04 04.7	12 54.55	-01 54.8	18.3	-0.71	+	4.6	1.0/03.5	29077	1993 FQ ₇₃	1998 04 06.8	13 02.31	-08 07.5	18.2	-0.80	+	4.8	0.5/07.3	26743
1993 FM ₁₉	1998 04 04.7	12 54.62	+04 38.2	16.8	-0.76	+	5.1	2.9/01.3	25975	1992 YH	1998 04 06.9	13 02.47	+12 35.7	17.3	-0.94	+	2.7	6.0/01.2	31418
1981 EK ₅	1998 04 04.8	12 54.75	-16 51.0	17.5	-0.79	+	3.9	3.5/08.3	31579	2506 P-L	1998 04 06.9	13 02.81	-10 19.1	18.4	-0.99	+	2.1	1.2/08.0	22086
1995 LK	1998 04 04.8	12 54.86	-51 07.0	17.9	-1.47	-	1.9	16.4/17.6	28318	1981 EE ₇	1998 04 07.0	13 02.80	-19 23.6	18.4	-1.03	+	2.6	6.1/10.0	26916
1998 FY ₆₅	1998 04 04.8	12 54.89	-08 33.0	17.5	-0.88	+	5.5	1.0/05.7	31572	1981 ED ₁₆	1998 04 07.0	13 03.16	-14 16.6	18.1	-0.89	+	6.2	3.6/09.5	26918
1981 ED ₇	1998 04 04.9	12 55.19	-13 59.4	19.2	-0.69	+	8.0	2.4/07.9	26916	4529 P-L	1998 04 07.1	13 03.32	-09 10.6	19.2	-0.76	+	3.6	0.7/07.9	22694
1978 SS ₇	1998 04 04.9	12 55.27	-09 25.4	17.6	-1.03	+	4.5	1.3/06.0	31579	1997 AE ₂	1998 04 07.1	13 03.41	-20 05.6	18.3	-0.80	+	3.8	3.7/11.4	31551
1995 TN	1998 04 05.1	12 55.89	-10 07.7	17.8	-0.85	+	2.3	1.2/06.3	31587	1988 TE	1998 04 07.2	13 03.51	-08 30.6	17.8	-0.92	+	5.8	0.6/07.8	31581
1993 FX ₂₀	1998 04 05.1	12 55.91	-05 10.3	17.6	-0.77	+	5.4	0.2/04.9	31536	1990 VH ₁₂	1998 04 07.3	13 03.91	-07 25.0	17.3	-0.71	+	6.9	0.2/07.5	31530
5016 T-3	1998 04 05.1	12 55.94	+08 33.6	16.6	-0.74	+	7.5	5.5/30.9	31437	1981 DL ₁	1998 04 07.3	13 04.04	-24 54.1	19.2	-0.84	+	2.5	4.7/12.9	28882
(8485)	1998 04 05.1	12 56.07	-14 58.8	16.2	-0.96	+	0.8	3.7/07.6	31492	1994 HA	1998 04 07.4	13 04.29	-08 31.2	16.3	-0.77	+	11.8	0.6/08.0	31586
1998 FP ₇₃	1998 04 05.1	12 56.07	-00 01.0	17.7	-0.76	+	5.0	1.8/03.2	31572	2665 P-L	1998 04 07.4	13 04.47	-03 59.6	20.2	-0.90	+	6.8	0.9/06.5	31436
1996 TS ₁₀	1998 04 05.1	12 56.10	-01 42.0	18.1	-1.06	+	4.3	1.6/03.9	31546	1996 YF ₂	1998 04 07.4	13 04.48	-14 24.4	17.3	-0.89	+	5.2	2.3/09.8	31590
1993 FW ₈	1998 04 05.2	12 56.36	-02 48.5	18.1	-0.80	+	4.4	1.0/04.2	31585	2043 P-L	1998 04 07.5	13 04.82	-11 34.4	17.6	-1.05	+	3.0	1.9/08.8	31607
1995 UR ₈	1998 04 05.2	12 56.40	-03 33.9	19.2	-0.94	+	4.4	0.8/04.5	26423	1996 VF ₁	1998 04 07.5	13 04.86	-05 16.3	19.7	-0.98	+	4.5	0.6/07.1	31548
1992 PY	1998 04 05.3	12 56.52	-38 37.1	18.7	-1.20	+	2.2	9.6/15.7	29660	1991 PW ₁₆	1998 04 07.6	13 05.13	-01 27.8	17.3	-0.90	+	6.6	2.1/05.9	31583
1990 QY ₈	1998 04 05.3	12 56.60	-00 00.9	17.2	-0.78	+	5.2	1.8/03.4	31582	4119 P-L	1998 04 07.6	13 05.32	-06 05.9	17.8	-0.99	+	8.2	0.3/07.4	31608
1998 FY ₆₆	1998 04 05.3	12 56.71	-00 13.1	17.3	-0.84	+	8.3	2.0/03.3	31572	1978 VP ₁₁	1998 04 07.7	13 05.32	-02 26.0	17.6	-0.72	+	4.3	1.1/06.2	31579
(7384)	1998 04 05.3	12 56.78	-10 05.4	17.6	-0.79	+	5.9	1.2/06.7	28822	1996 VH ₈	1998 04 07.7	13 05.33	-05 25.4	17.2	-1.05	+	3.6	0.6/07.3	31589
1990 TE ₇	1998 04 05.3	12 56.83	-09 47.0	18.0	-0.73	+	6.7	1.0/06.7	31583	(8534)	1998 04 07.7	13 05.59	-03 09.9	16.6	-0.81	+	4.4	1.2/06.6	31504
1990 RG ₃	1998 04 05.4	12 57.07	-05 29.5	17.0	-0.78	+	5.4	0.2/05.2	31583	1996 VG ₂	1998 04 07.8	13 05.80	-06 42.3	18.1	-0.91	+	6.2	0.1/07.7	31589
1992 VR	1998 04 05.5	12 57.31	-05 19.7	18.1	-0.89	+	6.1	0.3/05.3	29943	1983 RT ₃	1998 04 07.9	13 06.01	-21 51.9	18.4	-0.98	+	3.1	4.6/12.3	22076
1977 UM ₄	1998 04 05.5	12 57.67	-05 48.6	17.4	-0.97	+	5.1	0.1/05.5	31578	(7369)	1998 04 08.1	13 06.81	-39 34.3	17.8	-1.09	+	4.7	9.2/19.4	28818
1993 FX ₂	1998 04 05.6	12 57.99	-01 13.6	17.9	-0.78	+	5.0	1.4/04.1	31535	1994 BW	1998 04 08.1	13 06.83	+07 38.8	17.0	-0.92	+	5.4	6.3/03.3	31586
1989 SC ₈	1998 04 05.6	12 58.05	-12 39.0	18.1	-0.99	+	5.7	2.2/07.7	31582	1976 UB ₁₆	1998 04 08.1	13 06.98	+00 01.4	18.9	-0.89	+	2.5	2.1/06.1	26556
1997 AF	1998 04 05.7	12 58.04	+05 23.6	18.3	-0.85	+	5.0	3.2/02.0	30690	1981 EN ₄₅	1998 04 08.4	13 07.95	-12 44.4	18.8	-1.02	+	5.8	2.0/10.1	28882
1994 CJ ₁₇	1998 04 05.7	12 58.23	+06 04.4	18.4	-0.91	+	6.1	4.2/01.8	29104	1162 T-1	1998 04 08.4	13 08.28	-17 43.7	17.8	-0.89	+	1.5	3.5/11.5	31608
4306 T-2	1998 04 05.7	12 58.42	-05 22.1	17.6	-1.08	+	2.7	0.3/05.6	31609	1988 RZ ₅	1998 04 08.4	13 08.29	-04 31.3	17.1	-0.91	+	7.0	1.0/07.6	30780
1992 PU ₃	1998 04 05.8	12 58.46	-02 38.6	18.0	-1.00	+	6.0	1.3/04.7	31584	1981 EW ₁₀	1998 04 08.7	13 09.20	-19 45.1	19.0	-1.03	+	2.8	5.8/12.3	26916
1998 FS ₆₈	1998 04 05.9	12 58.70	-11 12.0	16.9	-0.97	+	6.8	2.0/07.5	31572	1981 ET ₂₃	1998 04 08.7	13 09.27	-09 46.5	18.4	-1.06	+	4.1	0.9/09.5	31580
(8459)	1998 04 05.9	12 59.02	-04 13.5	18.3	-0.72	+	4.7	0.5/05.3	31486	1978 VX ₄	1998 04 08.8	13 09.31	-01 40.3	18.8	-0.98	+	4.9	2.1/07.1	31579

1986 TR	1998 04 08.8	13 09.45	-19 10.2	18.0	-0.87	+	6.0	3.4/12.6	27119	1994 AP ₂	1998 04 10.7	13 16.48	+21 45.3	16.2	-0.88	+	8.8	10.5/30.6	31586
2275 T-2	1998 04 08.8	13 09.51	-05 11.4	16.8	-0.75	+	5.7	0.8/08.1	31576	1981 DT ₂	1998 04 10.7	13 16.58	-28 42.9	17.0	-1.06	+	1.9	6.9/16.8	28882
1991 RT ₂₆	1998 04 08.8	13 09.59	-05 57.4	17.0	-0.79	+	8.7	0.4/08.4	31584	1981 EF ₁₄	1998 04 10.8	13 16.88	-12 56.2	17.5	-0.95	+	6.1	2.2/12.3	31580
1994 EB	1998 04 08.8	13 09.71	-02 09.9	16.8	-0.83	+	8.2	2.0/07.1	31586	1997 AL ₁₃	1998 04 10.8	13 16.94	-18 38.2	16.2	-0.89	+	1.5	3.3/13.8	31590
1991 QF	1998 04 08.9	13 10.06	+04 34.4	19.2	-0.97	+	2.5	3.4/05.5	29135	1997 AD ₇	1998 04 10.9	13 17.18	-05 37.8	17.0	-0.89	+	6.1	0.8/10.1	31590
1991 GR ₂	1998 04 09.0	13 10.15	-07 28.4	16.7	-1.02	+	5.1	0.0/09.0	31583	1996 TG ₅	1998 04 10.9	13 17.23	-03 59.3	17.3	-1.03	+	5.7	1.6/09.7	31588
(8528)	1998 04 09.1	13 10.53	-13 50.1	16.9	-0.91	+	7.3	2.2/11.2	31502	1996 PZ ₆	1998 04 10.9	13 17.33	+35 40.9	18.2	-1.35	-	0.5	17.6/26.9	28319
1981 EX ₁₅	1998 04 09.1	13 10.66	-12 22.4	18.3	-0.90	+	4.5	1.6/10.6	31580	1992 WX	1998 04 10.9	13 17.41	+00 55.7	17.1	-0.93	+	6.5	3.1/08.1	30274
1998 FD ₇₁	1998 04 09.1	13 10.68	-09 18.1	17.2	-0.95	+	4.9	0.7/10.0	31572	(7662)	1998 04 11.0	13 17.57	-07 34.6	16.0	-0.67	+	8.5	0.2/10.8	31578
1995 VR	1998 04 09.2	13 11.04	-15 28.5	17.6	-0.83	+	7.9	2.4/12.0	31588	1994 RN	1998 04 11.0	13 17.71	-00 26.2	18.8	-0.69	+	6.7	2.3/08.4	30783
6588 P-L	1998 04 09.2	13 11.13	-06 36.1	18.3	-0.72	+	4.3	0.2/09.0	31608	1993 HJ ₃	1998 04 11.1	13 17.86	-02 58.3	16.9	-0.79	+	4.7	1.7/09.5	31585
1993 FC ₅₁	1998 04 09.3	13 11.16	-09 13.1	18.6	-0.81	+	4.7	0.5/09.8	31585	1989 TR ₃	1998 04 11.1	13 17.97	-00 34.0	17.8	-0.69	+	6.7	2.3/08.5	31582
(7519)	1998 04 09.3	13 11.19	-05 03.0	18.3	-0.69	+	4.5	0.6/08.5	29291	1998 DO ₂₃	1998 04 11.1	13 18.10	-17 44.0	18.0	-1.66	-	4.4	4.6/12.8	31562
1998 FH ₁₁	1998 04 09.3	13 11.58	+08 59.3	17.8	-0.84	+	7.5	7.2/03.5	31568	1978 VA ₅	1998 04 11.2	13 18.41	-04 15.6	19.7	-0.69	+	4.1	0.9/10.0	31223
1981 EY ₄₅	1998 04 09.4	13 11.63	-13 11.5	18.1	-0.75	+	4.0	1.4/11.2	22271	1992 WH ₁	1998 04 11.2	13 18.45	+02 44.0	16.8	-0.90	+	6.1	3.6/07.8	31585
1989 SB ₄	1998 04 09.4	13 11.69	+00 01.9	17.7	-0.95	+	6.0	3.1/07.1	31136	1992 EG ₈	1998 04 11.2	13 18.53	-07 52.4	17.8	-0.74	+	4.6	0.1/11.2	31584
5090 T-3	1998 04 09.4	13 11.73	+08 31.2	18.1	-0.87	+	2.8	5.9/04.6	31577	4125 T-3	1998 04 11.2	13 18.55	-04 34.9	19.8	-0.87	+	3.3	1.0/10.2	27124
1990 WC ₉	1998 04 09.5	13 12.22	+07 18.7	17.2	-0.81	+	2.5	4.3/05.0	31583	1995 OX ₁	1998 04 11.2	13 18.55	+00 04.5	17.2	-1.01	+	4.7	3.1/08.8	31587
1995 UP ₆	1998 04 09.6	13 12.34	-18 29.0	18.2	-0.85	+	8.7	3.6/13.4	31588	1990 RD	1998 04 11.4	13 18.89	-03 40.5	17.9	-0.74	+	5.9	1.2/09.9	31583
1980 FJ ₁	1998 04 09.7	13 12.63	-20 46.1	17.1	-0.86	+	1.3	3.5/13.4	31579	1989 TO ₁₅	1998 04 11.5	13 19.30	-08 13.3	18.6	-0.96	+	6.7	0.0/11.5	25080
1996 XA ₁₈	1998 04 09.7	13 12.86	-00 43.6	17.7	-0.92	+	2.8	2.8/07.8	31590	1992 SW ₃	1998 04 11.5	13 19.61	-07 06.1	18.9	-0.96	+	5.1	0.4/11.2	31585
1981 EY ₃	1998 04 09.7	13 12.91	-15 03.4	17.8	-0.75	+	6.4	2.2/12.3	26915	1986 AT ₂	1998 04 11.6	13 19.76	+13 39.2	16.5	-0.69	+	6.3	5.9/03.7	31581
1996 XJ ₁₅	1998 04 09.7	13 12.99	+03 43.8	17.2	-0.94	+	5.4	4.2/06.2	29119	1992 WH	1998 04 11.6	13 19.77	-13 27.8	16.9	-0.93	+	7.4	1.9/13.3	31585
1992 QW	1998 04 09.8	13 12.98	-10 24.2	17.7	-1.07	+	4.0	1.0/10.5	31534	(7409)	1998 04 11.7	13 20.11	-05 05.1	16.8	-0.95	+	4.9	1.1/10.7	30250
1995 QZ ₄	1998 04 09.8	13 13.00	-20 01.7	19.0	-0.97	+	4.5	5.7/13.5	25733	2395 T-3	1998 04 11.7	13 20.11	-12 37.8	18.1	-0.73	+	4.4	1.2/13.1	24757
1981 EO ₇	1998 04 09.8	13 13.07	-07 49.3	17.1	-0.79	+	9.4	8.3/21.0	31579	1990 HP	1998 04 11.7	13 20.18	+03 03.1	16.0	-1.73	-	9.7	6.1/10.4	31582
(7402)	1998 04 09.8	13 13.13	+02 02.3	17.2	-0.80	+	6.4	3.1/06.6	28827	1994 AG	1998 04 11.8	13 20.42	-08 03.7	17.7	-0.98	+	6.6	0.2/11.7	31586
(7372)	1998 04 09.8	13 13.23	-03 51.7	16.3	-0.79	+	5.4	1.3/08.6	28819	1991 NA	1998 04 11.8	13 20.78	-28 48.8	18.3	-1.10	+	4.9	7.7/17.8	30781
1997 AU	1998 04 09.8	13 13.25	-07 42.3	17.6	-0.81	+	4.3	7.3/21.0	31590	1994 AC ₁₃	1998 04 11.9	13 21.12	-06 11.2	18.0	-0.89	+	3.0	1.2/11.3	23529
1996 TU ₁₁	1998 04 09.8	13 13.27	+04 00.6	18.2	-1.02	+	3.7	4.5/06.5	31588	1994 CE ₂	1998 04 12.2	13 22.00	-08 18.9	16.7	-0.95	+	5.4	0.1/12.1	31586
1994 JK ₉	1998 04 09.8	13 13.42	+18 51.2	15.9	-0.97	+	0.2	11.1/01.7	31586	1995 UF ₆	1998 04 12.2	13 22.23	+01 32.3	17.5	-0.95	+	2.3	3.3/09.4	31587
1981 EB ₆	1998 04 09.9	13 13.43	-23 12.9	19.5	-0.80	+	3.0	3.8/14.7	30779	1991 RD ₇	1998 04 12.2	13 22.24	-18 14.7	17.6	-1.06	+	1.2	3.1/14.8	31584
1996 VM ₅	1998 04 09.9	13 13.45	+01 18.6	17.2	-0.92	+	4.5	3.7/07.2	31589	1995 VT ₁	1998 04 12.3	13 22.34	-16 55.8	16.7	-0.72	+	5.5	2.1/15.1	26407
1996 XD ₆	1998 04 10.0	13 14.12	+18 15.9	18.4	-0.80	+	1.9	7.4/01.8	28871	1230 T-1	1998 04 12.4	13 22.55	-12 22.4	17.5	-1.01	+	4.8	1.7/13.5	31574
1990 VV ₁₁	1998 04 10.1	13 14.24	-05 29.1	18.4	-0.74	+	4.2	0.6/09.4	29098	1992 QS ₁	1998 04 12.4	13 22.63	+04 47.2	16.6	-0.97	+	3.9	4.7/08.5	31584
1993 AJ	1998 04 10.2	13 14.62	+13 43.5	17.1	-0.84	+	4.9	6.4/03.1	22085	1996 XU ₁₈	1998 04 12.4	13 22.81	-04 59.4	17.4	-0.74	+	4.6	1.1/11.3	31550
1981 ER ₂₉	1998 04 10.3	13 15.07	-05 01.3	17.3	-0.75	+	11.5	1.1/09.3	26920	1996 XV ₁	1998 04 12.5	13 23.09	-18 59.4	17.2	-0.99	+	5.5	3.8/15.6	31589
1989 AW ₅	1998 04 10.3	13 15.10	-02 43.0	17.5	-0.87	+	5.0	1.8/08.8	31582	6602 P-L	1998 04 12.6	13 23.39	-11 06.7	19.5	-1.10	+	3.6	0.9/13.3	22701
1988 BH	1998 04 10.3	13 15.24	-20 10.5	16.6	-0.88	+	4.9	4.3/14.3	31581	1988 XQ	1998 04 12.6	13 23.41	-21 01.4	18.3	-0.91	+	6.6	3.7/16.6	31582
1991 SR ₁	1998 04 10.4	13 15.61	-10 40.2	17.6	-0.80	+	8.4	0.8/11.4	31532	1982 SO ₅	1998 04 12.6	13 23.41	-09 44.3	19.4	-0.87	+	4.7	0.3/12.9	28883
2765 P-L	1998 04 10.5	13 15.58	-08 10.9	20.2	-0.84	+	4.8	0.1/10.6	22694	1990 EA ₅	1998 04 12.6	13 23.46	-12 09.1	16.8	-0.95	+	5.2	1.3/13.6	31582
(8494)	1998 04 10.5	13 15.67	+06 36.5	17.2	-0.79	+	8.7	5.2/05.2	31494	1996 WY	1998 04 12.6	13 23.72	-00 05.2	17.4	-1.01	+	3.8	3.2/10.2	31589
1990 UT ₁₀	1998 04 10.5	13 15.81	-06 17.1	17.6	-0.76	+	4.7	0.5/10.0	31583	1981 EU ₂₀	1998 04 12.7	13 23.66	-10 31.1	17.3	-0.89	+	5.1	0.6/13.2	31580
(7530)	1998 04 10.5	13 15.90	+07 17.4	16.9	-0.79	+	8.0	4.6/05.1	29293	1987 RQ ₂	1998 04 12.8	13 24.39	-05 52.2	18.7	-0.89	+	4.7	0.9/12.0	29316
1992 DO ₇	1998 04 10.5	13 15.90	-02 22.7	19.1	-0.75	+	4.5	1.8/08.8	27713	1995 QO	1998 04 12.8	13 24.43	-16 40.4	21.1	-0.85	+	3.5	2.0/15.2	26176
1991 PH ₁₀	1998 04 10.5	13 15.96	-05 20.1	17.5	-0.85	+	5.2	0.8/09.8	31583	1991 PW	1998 04 12.9	13 24.39	-14 20.4	18.3	-0.95	+	5.8	2.0/14.6	31583
1996 TC ₁₅	1998 04 10.6	13 15.96	+06 41.5	18.4	-0.85	+	3.9	4.5/06.0	31589	1977 RQ ₁₉	1998 04 12.9	13 24.57	-05 03.1	18.2	-0.91	+	6.4	1.4/11.7	31578
1981 DE ₃	1998 04 10.6	13 16.22	-27 26.2	18.0	-1.02	+	1.7	7.8/16.3	26914	(8407)	1998 04 13.0	13 24.74	+04 47.2	16.4	-0.88	+	7.0	6.1/08.4	31367
1993 KB ₂	1998 04 10.6	13 16.25	+03 20.7	15.6	-0.68	+	9.9	3.5/06.4	31585	1981 FC ₁	1998 04 13.0	13 24.93	-15 25.7	16.9	-0.87	+	2.1	2.2/15.0	31580
(8454)	1998 04 10.6	13 16.34	-07 53.0	16.5	-0.91	+	3.7	0.1/10.6	31485	1997 AL ₆	1998 04 13.0	13 24.99	-43 17.4	19.2	-1.06	+	3.8	11.2/25.3	30786
1996 YD ₂	1998 04 10.7	13 16.38	-14 15.7	16.6	-0.90	+	1.5	2.0/12.4	31590	1993 FR ₅₈	1998 04 13.0	13 25.10	-09 51.1	18.0	-0.81	+	5.0	0.3/13.4	31585

1981 EQ ₃₀	1998 04 13.1	13 25.17	-17 39.5	18.1	-1.08	+	1.3	3.1/15.0	27304
6600 P-L	1998 04 13.1	13 25.18	-06 11.4	16.8	-1.00	+	4.8	1.3/12.3	31608
1995 UP ₁₁	1998 04 13.2	13 25.63	-08 39.9	19.7	-0.78	+	6.4	0.1/13.1	30784
1996 PA ₇	1998 04 13.2	13 25.84	+29 07.3	18.9	-1.08	+	1.3	11.1/01.5	31388
1994 EG ₇	1998 04 13.3	13 26.24	+03 30.7	17.7	-0.91	+	5.5	4.8/09.5	23992
1994 PV	1998 04 13.4	13 26.30	-01 30.9	17.8	-0.72	+	5.2	2.1/10.9	31586
1991 TE ₄	1998 04 13.4	13 26.31	-08 58.7	19.3	-0.95	+	1.9	0.0/13.4	31381
1993 FS ₂₉	1998 04 13.4	13 26.64	-15 18.7	18.3	-0.83	+	4.7	2.1/15.4	31585
(7624)	1998 04 13.5	13 26.88	-17 17.0	17.5	-0.83	+	2.8	2.3/16.0	29606
(8466)	1998 04 13.5	13 27.01	-06 14.5	18.7	-0.87	+	5.8	0.9/12.7	31488
1991 DJ ₁	1998 04 13.6	13 27.25	+02 28.6	15.8	-0.97	+	4.4	5.2/10.3	31583
1991 RP ₁	1998 04 13.6	13 27.31	-25 28.7	17.2	-1.12	+	0.4	5.8/17.7	31583
1997 AS ₁₆	1998 04 13.7	13 27.47	-07 30.8	17.5	-0.79	+	3.9	0.5/13.2	31552
1995 OT	1998 04 13.7	13 27.74	-07 48.8	16.9	-1.07	+	4.0	0.6/13.4	31587
1991 RA	1998 04 13.8	13 27.78	-35 03.5	16.4	-1.95	-	9.2	13.4/17.0	29943
4631 P-L	1998 04 13.8	13 27.93	-11 46.5	16.8	-1.07	+	1.8	1.1/14.5	31608
1993 YJ	1998 04 13.8	13 28.03	-15 22.3	17.8	-1.05	+	5.8	2.2/15.7	31586
1989 TO	1998 04 13.9	13 28.11	-38 02.0	17.0	-1.39	+	0.7	9.8/22.1	28613
1989 YU ₅	1998 04 13.9	13 28.37	-12 20.2	18.9	-0.97	+	5.8	1.0/14.9	31582
1982 UX ₅	1998 04 13.9	13 28.39	-15 26.3	17.6	-0.85	+	5.3	2.0/15.9	22697
1986 QJ ₁	1998 04 14.1	13 28.89	+07 09.9	18.3	-0.81	+	6.9	5.1/08.4	23236
6531 P-L	1998 04 14.1	13 29.03	-10 31.5	17.1	-1.08	+	3.9	0.5/14.5	31608
5491 T-2	1998 04 14.2	13 29.39	-26 09.0	17.8	-0.89	+	2.0	5.3/19.1	25652
1981 ED ₄₀	1998 04 14.4	13 30.10	-02 16.8	18.9	-0.72	+	6.9	2.1/12.0	31580
1991 RV ₄	1998 04 14.4	13 30.33	-11 29.3	18.8	-0.85	+	5.7	0.7/15.1	28846
1996 VR ₇	1998 04 14.5	13 30.36	-02 51.6	18.0	-0.95	+	4.2	2.3/12.6	31589
(7503)	1998 04 14.5	13 30.53	-12 40.8	16.8	-1.02	+	5.3	1.3/15.5	29091
(8583)	1998 04 14.6	13 30.76	-07 45.6	17.4	-0.76	+	4.0	0.6/14.1	31516
1997 AU ₁₉	1998 04 14.7	13 31.12	-15 06.8	20.5	-0.75	+	4.4	1.5/16.5	30786
1996 UD	1998 04 14.7	13 31.27	-05 05.7	17.4	-1.02	+	3.7	1.6/13.5	31589
1105 T-1	1998 04 14.8	13 31.81	-06 14.9	17.6	-0.80	+	7.2	1.1/13.8	21121
1992 EH ₁₁	1998 04 14.8	13 31.82	-07 01.8	17.3	-0.75	+	4.8	0.8/14.1	31584
(8591)	1998 04 14.9	13 31.96	-06 55.2	17.6	-0.74	+	4.1	0.7/14.1	31517
1990 SO ₇	1998 04 14.9	13 32.01	-00 34.7	19.4	-0.77	+	6.0	2.7/12.0	29316
1995 UL	1998 04 15.0	13 32.49	-13 21.9	16.8	-0.88	+	3.5	1.2/16.2	31587
1996 XD ₂₀	1998 04 15.2	13 33.01	+01 18.1	19.2	-0.92	+	4.7	3.8/12.0	31590
6683 P-L	1998 04 15.2	13 33.12	-02 37.6	18.1	-0.72	+	5.2	2.2/13.0	31608
(7378)	1998 04 15.3	13 33.38	-10 09.4	15.7	-0.76	+	4.8	0.1/15.5	28820
1996 VA ₆	1998 04 15.3	13 33.58	+11 41.7	18.2	-0.93	+	2.5	7.0/09.1	28891
(7597)	1998 04 15.4	13 33.64	-04 41.3	16.8	-0.78	+	4.8	1.6/13.8	29600
1992 DO ₆	1998 04 15.4	13 34.00	-05 04.3	18.0	-0.75	+	4.5	1.4/14.0	31584
1988 TN	1998 04 15.7	13 34.91	-12 02.2	16.2	-0.99	+	3.5	0.8/16.3	31581
1996 VW	1998 04 15.7	13 34.92	-11 30.5	17.9	-0.97	+	7.1	0.6/16.2	31548
1981 EA ₁₀	1998 04 15.7	13 35.05	-27 58.6	18.6	-0.95	+	0.8	5.5/20.7	26916
1981 EO ₁₃	1998 04 15.8	13 35.23	-18 57.2	18.7	-1.04	+	3.9	4.0/18.4	26917
1989 SD ₃	1998 04 15.9	13 35.65	-07 28.0	18.3	-1.03	+	4.2	0.9/15.3	31582
1981 DL	1998 04 16.0	13 35.95	-16 29.7	18.7	-0.73	+	6.6	2.0/18.2	26914
9509 P-L	1998 04 16.1	13 36.23	-04 34.9	18.5	-0.83	+	9.0	1.8/14.3	31608
1987 XC	1998 04 16.1	13 36.31	+04 50.0	17.8	-1.00	+	1.9	4.7/12.0	28315
6044 P-L	1998 04 16.1	13 36.39	-12 02.0	16.8	-0.81	+	4.5	0.7/16.7	31573
1991 NS ₁	1998 04 16.1	13 36.52	-03 38.5	16.9	-0.88	+	8.2	2.5/14.1	31583

1985 TZ ₃	1998 04 16.1	13 36.63	-20 35.2	16.4	-1.05	+	4.2	4.6/19.1	31581
1997 AP ₁₇	1998 04 16.2	13 36.62	+06 32.1	17.8	-0.80	+	3.3	5.2/11.1	31590
1978 NS	1998 04 16.3	13 37.10	-09 37.4	19.2	-0.77	+	4.4	0.1/16.2	29131
1981 EU ₃₈	1998 04 16.3	13 37.14	-09 53.4	16.1	-0.89	+	7.7	0.1/16.3	27304
1981 EB ₄₀	1998 04 16.4	13 37.59	-10 00.3	18.6	-0.77	+	4.2	0.0/16.4	28611
1988 RC ₇	1998 04 16.5	13 37.91	-01 59.9	17.1	-0.86	+	7.8	2.6/13.9	30686
4096 T-2	1998 04 16.6	13 38.14	-01 37.5	18.8	-0.71	+	6.1	2.3/13.8	31609
(7423)	1998 04 16.6	13 38.28	-13 50.3	17.3	-0.96	+	6.7	1.3/17.8	28832
1991 UQ ₂	1998 04 16.7	13 38.62	-05 39.7	19.4	-0.96	+	2.6	1.4/15.5	31533
1989 UP ₄	1998 04 16.7	13 38.81	-11 12.0	17.8	-0.73	+	3.9	0.2/17.1	26560
1990 QR ₁	1998 04 16.8	13 38.93	-08 27.6	17.7	-0.83	+	4.9	0.6/16.3	31582
1995 PQ	1998 04 16.8	13 39.10	+10 58.5	19.6	-0.77	+	4.4	5.2/09.9	29318
1992 PQ ₂	1998 04 16.9	13 39.40	-19 06.2	17.8	-1.00	+	6.3	3.2/19.6	28848
1993 FT ₄₁	1998 04 16.9	13 39.40	-11 28.7	16.8	-0.83	+	4.2	0.4/17.3	31585
(7425)	1998 04 16.9	13 39.48	-05 02.1	17.8	-0.95	+	4.8	1.9/15.4	28832
1981 EP ₁₂	1998 04 17.0	13 39.71	-17 42.3	17.4	-0.99	+	6.9	2.9/19.3	31580
1997 AQ ₁₂	1998 04 17.0	13 39.73	+08 30.3	17.1	-0.73	+	3.8	5.1/11.0	31590
2181 T-2	1998 04 17.0	13 39.95	-08 43.1	16.8	-0.83	+	6.0	0.6/16.6	31609
1992 UM ₂	1998 04 17.1	13 40.29	-04 40.9	18.1	-0.98	+	4.5	2.0/15.6	29661
(7395)	1998 04 17.2	13 40.42	-03 57.2	16.8	-0.93	+	8.5	2.7/15.1	28824
(7588)	1998 04 17.2	13 40.61	-43 43.4	15.3	-1.06	-	0.4	11.3/27.3	29598
1997 CQ ₁	1998 04 17.3	13 40.67	+13 35.0	19.0	-0.68	+	5.0	6.0/09.0	31552
1995 SW ₂₉	1998 04 17.3	13 40.78	-47 01.3	18.7	-1.05	+	1.4	8.9/29.6	29946
1304 T-2	1998 04 17.3	13 41.02	-11 03.8	17.7	-0.75	+	4.5	0.2/17.6	31608
1995 WM ₂	1998 04 17.3	13 41.03	-18 11.6	19.1	-0.75	+	6.8	2.0/20.0	29305
1997 AC ₈	1998 04 17.3	13 41.07	-23 09.2	19.1	-0.83	+	4.3	3.7/21.3	30786
1995 QB ₁₀	1998 04 17.3	13 41.11	-33 59.3	18.2	-1.06	+	2.1	8.5/24.3	27719
1997 AY ₅	1998 04 17.4	13 41.07	-19 54.3	18.0	-0.92	+	5.8	3.3/20.3	30786
1981 EF ₅	1998 04 17.4	13 41.23	-15 30.1	17.7	-0.86	+	8.4	1.7/19.1	28611
1989 YX ₆	1998 04 17.4	13 41.31	-01 28.7	17.4	-0.96	+	5.1	3.3/14.9	31582
1992 SC ₄	1998 04 17.4	13 41.38	-09 15.0	20.4	-0.97	+	4.8	0.4/17.1	29300
1097 T-3	1998 04 17.5	13 41.69	-18 05.2	18.1	-0.82	+	6.2	2.2/20.0	24405
1995 QP	1998 04 17.6	13 41.83	-17 58.0	18.8	-0.87	+	3.4	2.1/19.7	29664
1997 AQ ₁₆	1998 04 17.6	13 41.94	-10 00.1	18.9	-1.01	+	5.7	0.2/17.5	31590
1994 JN	1998 04 17.6	13 41.95	-08 13.5	16.3	-0.80	+	11.5	0.9/16.8	31586
1982 SC ₈	1998 04 17.6	13 41.97	-15 06.4	16.5	-1.08	+	4.3	1.9/18.9	23970
1996 VK ₃₀	1998 04 17.6	13 41.98	-02 35.5	17.7	-0.86	+	5.0	2.5/15.3	31589
4822 P-L	1998 04 17.6	13 42.10	-06 22.9	19.0	-0.79	+	4.8	1.3/16.4	20515
(7389)	1998 04 17.6	13 42.14	-04 23.1	17.5	-0.99	+	5.0	2.1/15.9	28823
1996 RG ₁	1998 04 17.7	13 42.20	-13 56.2	17.6	-1.10	+	3.9	1.2/18.6	31588
4521 P-L	1998 04 17.7	13 42.24	-12 12.8	17.1	-0.81	+	4.3	0.5/18.2	31608
(7339)	1998 04 17.7	13 42.35	-02 45.2	16.9	-0.85	+	4.8	2.7/15.4	28572
1996 YB ₁	1998 04 17.7	13 42.39	-14 07.7	17.5	-0.85	+	4.2	1.1/18.8	31590
1990 KC ₁	1998 04 17.7	13 42.39	+15 46.1	16.8	-0.87	+	3.1	10.2/09.4	28614
1995 SO ₂₆	1998 04 17.8	13 42.71	-07 53.3	18.0	-0.73	+	7.3	0.8/16.9	31587
1981 EW ₃₉	1998 04 17.8	13 42.88	-19 11.6	19.6	-0.88	+	1.5	2.8/20.2	21967
1976 UN ₁₄	1998 04 17.9	13 43.27	-06 07.1	17.6	-1.06	+	3.4	1.9/16.8	28580
1989 TT ₂	1998 04 17.9	13 43.30	-01 29.7	18.1	-0.72	+	4.4	2.4/15.1	31582
1994 PL ₉	1998 04 18.0	13 43.50	-23 50.1	17.5	-0.82	+	2.7	3.6/21.9	31586
(8313)	1998 04 18.0	13 43.56	+12 33.0	17.4	-0.86	+	4.2	7.0/10.6	31221
1995 VJ ₁₆	1998 04 18.2	13 43.99	-13 44.0	19.4	-0.83	+	5.7	0.9/19.1	30784

1996 XC ₁	1998 04 18.2	13 44.04	-10 05.3	17.4	-0.95	+	6.6	0.3/18.0	29320	4314 T-2	1998 04 20.8	13 53.73	-06 03.2	18.2	-0.94	+	4.7	1.9/19.2	29142
1981 EZ ₁₅	1998 04 18.2	13 44.38	-20 04.7	18.7	-1.05	+	5.3	3.6/21.0	25078	1991 RA ₁	1998 04 20.8	13 53.96	-29 30.8	17.9	-1.02	+	3.1	5.5/25.8	29943
1985 VG	1998 04 18.3	13 44.46	-04 09.2	16.6	-0.96	+	4.8	2.5/16.4	29655	1986 QY	1998 04 20.8	13 53.98	-14 01.2	17.5	-0.89	+	3.4	0.7/21.5	31581
(7491)	1998 04 18.3	13 44.64	-17 17.6	17.3	-0.84	+	5.0	2.0/20.3	29088	5184 T-2	1998 04 20.9	13 54.12	-15 38.7	19.2	-0.73	+	6.0	1.1/22.2	27928
1991 OM ₁	1998 04 18.3	13 44.81	-14 00.2	15.5	-0.94	+	5.0	1.4/19.3	31583	1981 EL ₃₇	1998 04 20.9	13 54.15	-10 58.2	19.3	-0.72	+	6.9	0.2/20.7	26922
1988 RZ ₁₁	1998 04 18.4	13 44.97	-13 44.8	18.2	-0.78	+	3.4	0.7/19.3	31581	1995 UF ₄₅	1998 04 20.9	13 54.27	-09 20.0	17.5	-0.75	+	3.8	0.6/20.3	29665
5585 P-L	1998 04 18.5	13 45.24	-11 15.6	19.5	-0.81	+	4.1	0.1/18.6	26415	1988 SN ₁	1998 04 20.9	13 54.34	+01 47.4	17.8	-0.96	+	5.3	5.1/16.9	31581
1981 EM ₈	1998 04 18.5	13 45.33	-15 02.1	17.8	-0.75	+	4.7	1.1/19.8	31579	1995 SX ₂	1998 04 20.9	13 54.47	-10 28.1	18.0	-1.00	+	4.0	0.5/20.7	31386
1989 SN ₃	1998 04 18.5	13 45.34	-06 26.5	18.9	-0.72	+	5.1	1.2/17.2	31377	1996 XF ₆	1998 04 21.0	13 54.72	-11 04.2	17.4	-0.79	+	3.6	0.2/20.9	31590
1979 MN ₇	1998 04 18.6	13 45.57	-02 21.4	19.3	-0.85	+	5.7	2.6/16.0	30779	1222 T-1	1998 04 21.1	13 54.81	-25 48.0	18.2	-1.12	+	1.9	5.0/24.5	29668
1977 UD	1998 04 18.7	13 46.29	-06 58.0	17.3	-0.97	+	4.1	1.5/17.7	31578	1991 GG ₆	1998 04 21.3	13 55.58	-12 20.1	17.3	-1.03	+	4.1	0.2/21.4	27934
1978 VD ₉	1998 04 18.8	13 46.35	-10 44.7	18.5	-0.98	+	4.9	0.1/18.8	31579	1995 WV ₅	1998 04 21.3	13 55.70	-18 51.9	17.3	-0.75	+	6.4	2.1/23.6	31588
1978 TL ₄	1998 04 18.8	13 46.43	-05 20.2	17.6	-0.78	+	2.4	1.5/17.3	28882	1990 EM ₁	1998 04 21.3	13 55.73	-15 30.1	17.7	-0.93	+	7.0	1.3/22.4	31582
1992 OX ₁	1998 04 19.0	13 47.33	+01 50.0	17.3	-0.94	+	6.3	4.8/15.2	31584	1996 XX ₁₉	1998 04 21.3	13 55.77	-05 01.5	17.5	-1.01	+	5.2	2.6/19.4	28873
1981 EA ₃₅	1998 04 19.1	13 47.70	-25 23.7	19.0	-0.86	+	2.0	3.5/23.2	26921	1998 CZ ₁	1998 04 21.3	13 55.89	+11 14.2	16.7	-0.92	+	1.6	9.2/14.7	31404
1981 EN ₃₀	1998 04 19.2	13 47.73	-09 36.5	17.6	-0.77	+	3.9	0.4/18.8	26920	(7526)	1998 04 21.4	13 55.94	-14 16.4	17.9	-0.90	+	5.8	0.7/22.1	29292
(7781)	1998 04 19.2	13 48.24	-42 43.8	16.2	-1.72	-	5.0	15.1/25.1	30265	1992 YU ₂	1998 04 21.6	13 57.12	-13 45.3	18.6	-0.89	+	5.8	0.5/22.2	29136
1996 TS ₅	1998 04 19.3	13 48.16	-56 59.9	16.9	-1.43	+	2.9	19.0/10.0	29631	1977 QH ₃	1998 04 21.7	13 57.14	+02 18.3	17.9	-0.90	+	5.0	4.4/17.6	31414
1981 EQ ₉	1998 04 19.3	13 48.18	-11 10.8	17.0	-0.73	+	5.9	0.0/19.3	31579	1983 BD	1998 04 21.7	13 57.24	+11 27.5	16.8	-0.81	+	3.7	6.8/14.4	31580
5122 T-3	1998 04 19.3	13 48.39	+01 55.7	17.8	-0.99	+	5.8	5.3/15.4	31437	1989 TJ ₂	1998 04 21.7	13 57.41	-20 16.9	16.7	-1.06	+	4.6	3.1/24.1	31582
(7650)	1998 04 19.4	13 48.59	-10 09.7	16.3	-0.74	+	7.7	0.3/19.1	29899	(7618)	1998 04 21.8	13 57.57	-13 06.3	17.2	-0.84	+	5.0	0.3/22.2	29605
1989 SY ₁	1998 04 19.5	13 48.97	-07 18.6	19.0	-0.72	+	4.0	1.0/18.3	26167	1981 EL ₃₅	1998 04 21.8	13 57.63	-19 06.4	18.9	-0.74	+	7.0	2.3/24.2	26921
1981 EM ₆	1998 04 19.6	13 49.55	-13 10.5	18.6	-0.83	+	9.0	0.6/20.3	26915	1980 PW	1998 04 21.8	13 57.86	-18 35.8	17.9	-0.98	+	4.7	2.2/23.7	31579
1163 T-1	1998 04 19.7	13 49.57	-15 29.1	15.5	-0.96	+	6.8	1.9/21.0	31608	1991 UL ₄	1998 04 21.9	13 57.85	-06 40.6	19.1	-0.85	+	3.9	1.5/20.4	29135
1981 EH ₁	1998 04 19.7	13 49.65	-01 52.1	15.8	-0.73	+	5.4	3.1/16.8	31579	1997 AQ ₂	1998 04 21.9	13 57.89	-26 14.4	17.8	-0.95	+	3.7	4.4/26.0	30786
(7569)	1998 04 19.7	13 49.81	+01 10.5	17.9	-0.88	+	3.9	3.6/16.2	29594	1978 UN ₄	1998 04 22.0	13 58.20	-12 43.0	16.2	-0.70	+	8.9	0.2/22.2	31579
1995 UC ₈	1998 04 19.7	13 49.81	-10 31.1	17.9	-0.72	+	5.5	0.2/19.5	31588	1991 UV ₂	1998 04 22.0	13 58.23	-01 56.6	17.8	-0.90	+	2.5	2.8/19.3	31584
1995 CG	1998 04 19.7	13 50.00	+33 23.3	16.4	-0.99	+	7.8	18.6/31.0	31542	1995 QQ ₃	1998 04 22.0	13 58.31	-03 11.6	18.5	-0.87	+	5.2	2.9/19.4	29139
1997 CB ₅	1998 04 19.8	13 50.06	-07 40.7	20.1	-0.85	+	4.1	1.1/18.8	29927	1989 XD ₁	1998 04 22.0	13 58.33	-04 43.2	17.9	-0.97	+	6.3	2.7/19.9	28885
1995 SB ₂	1998 04 19.8	13 50.34	-12 31.7	17.0	-0.71	+	7.9	0.4/20.3	31587	1981 EN ₁₈	1998 04 22.0	13 58.57	-10 16.2	18.9	-0.74	+	5.8	0.6/21.5	26918
1995 UR ₂	1998 04 20.0	13 50.74	-17 43.6	18.7	-0.85	+	4.9	1.8/21.9	29665	1981 EZ ₃₇	1998 04 22.2	13 58.91	-08 10.8	19.5	-0.72	+	5.7	1.1/21.0	22271
1996 WF	1998 04 20.0	13 50.92	-11 31.5	18.9	-1.05	+	5.1	0.0/20.1	28604	(7394)	1998 04 22.2	13 59.12	-05 12.3	16.8	-0.59	+	4.5	1.6/20.0	28824
1996 WE ₃	1998 04 20.0	13 51.02	-16 34.0	16.6	-0.91	+	8.0	2.2/21.7	30786	1996 SL ₇	1998 04 22.2	13 59.23	-13 45.9	17.7	-1.09	+	2.8	0.6/22.7	31588
1990 OF	1998 04 20.0	13 51.14	-23 46.0	17.6	-0.91	+	6.8	3.9/23.9	26579	(7449)	1998 04 22.3	13 59.38	-21 29.9	17.2	-1.11	+	3.9	3.5/24.7	29076
1979 MB ₂	1998 04 20.1	13 51.18	-02 43.7	17.4	-0.90	+	5.5	2.9/17.6	31579	1990 QZ ₅	1998 04 22.3	13 59.46	+02 46.7	17.8	-0.75	+	5.9	4.2/17.6	31378
1981 EX ₉	1998 04 20.1	13 51.24	-23 55.2	18.8	-0.82	+	3.2	3.5/23.8	24557	1038 T-2	1998 04 22.3	13 59.60	-12 08.6	20.3	-1.02	+	6.2	0.0/22.4	16242
1992 SG ₁₃	1998 04 20.1	13 51.51	-13 22.0	18.3	-1.01	+	3.9	0.6/20.7	22085	1996 YH ₁	1998 04 22.4	13 59.96	+00 54.8	18.1	-0.87	+	5.4	5.1/18.5	31551
1981 EX ₃₂	1998 04 20.2	13 51.50	-14 15.5	18.4	-0.86	+	7.8	1.1/21.1	26921	1991 PQ ₁₁	1998 04 22.4	13 59.98	-21 11.0	17.0	-0.96	+	4.4	3.2/25.0	31583
(7392)	1998 04 20.2	13 51.75	-17 47.0	15.3	-0.91	+	2.8	2.5/22.0	31578	1996 XJ ₁₉	1998 04 22.4	14 00.02	-12 13.1	16.6	-0.84	+	5.8	0.0/22.5	31590
1996 TQ	1998 04 20.3	13 52.03	-06 54.6	18.7	-0.99	+	4.7	1.7/19.1	30785	1995 SH ₄	1998 04 22.4	14 00.13	-42 59.1	21.2	-1.07	+	2.2	7.5/01.6	26746
1990 VQ ₆	1998 04 20.3	13 52.13	+04 55.4	17.7	-0.76	+	4.1	4.8/15.3	31583	1981 ET ₁₄	1998 04 22.5	14 00.39	-15 26.1	18.8	-0.78	+	4.5	0.9/23.5	26187
1996 XE ₂	1998 04 20.4	13 52.21	-01 29.0	16.9	-0.99	+	2.7	4.0/17.8	31590	1994 TX ₁₂	1998 04 22.5	14 00.40	-13 02.5	17.8	-0.78	+	4.0	0.2/22.8	29138
1995 UU ₄	1998 04 20.4	13 52.61	-16 25.7	17.1	-0.75	+	6.2	1.4/22.0	31587	1991 PL ₁₃	1998 04 22.6	14 00.61	-14 41.3	17.4	-0.96	+	5.4	0.9/23.3	26580
2287 T-3	1998 04 20.4	13 52.63	-17 53.3	16.9	-0.90	+	4.4	2.5/22.3	31609	1981 UH ₂₈	1998 04 22.6	14 00.70	-16 09.5	17.6	-0.89	+	3.3	1.3/23.7	28611
1994 FP	1998 04 20.5	13 52.62	-30 56.6	18.6	-1.42	-	1.1	7.2/25.0	29944	1978 QE	1998 04 22.6	14 00.78	-33 22.6	16.3	-0.86	+	4.5	6.0/29.2	29652
1996 YM	1998 04 20.5	13 52.62	-06 38.1	17.9	-0.94	+	4.7	1.6/19.1	29667	1992 EE ₁₁	1998 04 22.7	14 00.84	-09 27.6	16.5	-0.78	+	3.8	1.0/21.9	28886
4878 T-1	1998 04 20.5	13 52.90	-02 31.6	16.7	-0.72	+	6.0	2.6/17.6	31608	1990 QE ₆	1998 04 22.7	14 00.95	-35 39.7	18.0	-1.27	-	2.1	8.7/27.4	17963
1995 UD ₄₅	1998 04 20.5	13 52.94	-05 09.9	17.4	-0.83	+	2.0	1.8/18.8	29923	1987 BM ₁	1998 04 22.7	14 00.96	+09 24.6	16.7	-0.83	+	1.5	7.2/16.7	31581
1992 SJ ₁	1998 04 20.5	13 52.96	-03 47.3	17.7	-0.98	+	4.6	2.7/18.4	23674	3198 T-2	1998 04 22.7	14 01.00	-11 56.4	18.7	-0.82	+	2.8	0.1/22.6	31609
1981 EE ₁₃	1998 04 20.6	13 53.04	-24 14.4	18.0	-1.01	+	2.6	5.0/23.9	26917	1996 XY ₁₁	1998 04 22.7	14 01.06	-08 49.5	19.2	-0.84	+	3.7	1.2/21.8	28872
1990 TP ₇	1998 04 20.6	13 53.11	-12 23.3	17.8	-0.79	+	4.0	0.2/20.9	29913	(7581)	1998 04 22.7	14 01.15	-09 36.4	16.3	-0.78	+	3.4	0.8/22.0	29596

1050 T-2	1998 04 22.8	14 01.28	-03 35.5	18.2	-0.72	+	6.0	2.4/20.1	22432	(7420)	1998 04 25.5	14 11.45	-10 45.8	17.7	-0.95	+	5.0	0.9/24.9	28831
(8565)	1998 04 22.8	14 01.29	-07 02.4	17.0	-0.79	+	7.1	1.7/21.1	31511	1979 MO ₂	1998 04 25.5	14 11.59	-14 52.7	18.2	-0.99	+	8.0	0.7/26.0	30778
1993 FF ₇₆	1998 04 22.8	14 01.34	-13 06.5	18.2	-0.82	+	4.8	0.2/23.1	29137	1993 FF ₈₂	1998 04 25.6	14 11.84	-14 15.8	16.5	-0.89	+	2.8	0.3/25.9	25961
4094 T-2	1998 04 22.9	14 01.67	-09 44.0	19.9	-0.75	+	4.1	0.7/22.2	29130	1985 VF ₁	1998 04 25.6	14 12.04	-14 59.0	18.6	-0.98	+	5.3	0.6/26.1	29655
1989 TW	1998 04 22.9	14 01.70	-20 05.3	18.2	-1.05	+	5.7	2.9/25.0	25080	1997 BL ₂	1998 04 25.7	14 12.19	+02 20.8	16.3	-0.70	+	4.5	4.4/20.9	29947
1995 SL ₃	1998 04 22.9	14 01.93	-13 04.6	18.5	-0.96	+	5.4	0.3/23.2	28857	1981 EB ₂₂	1998 04 25.7	14 12.26	-09 50.2	17.9	-0.78	+	3.9	1.1/24.8	26919
1996 SG ₄	1998 04 23.0	14 02.28	-16 51.8	18.8	-0.92	+	5.3	1.5/24.4	29666	1988 VE ₇	1998 04 25.8	14 12.57	-02 53.7	18.1	-0.89	+	5.0	3.4/22.9	31582
1990 QM ₉	1998 04 23.1	14 02.28	-14 54.7	18.0	-0.90	+	3.1	0.9/23.8	30653	4076 T-2	1998 04 25.8	14 12.58	-13 50.5	16.4	-0.97	+	3.0	0.2/26.0	29321
1989 SS ₂	1998 04 23.2	14 02.87	-01 32.1	17.2	-0.95	+	7.0	4.9/19.9	31582	1995 UD ₂	1998 04 26.0	14 13.29	-17 30.3	16.9	-0.89	+	7.6	1.4/27.3	29319
6035 P-L	1998 04 23.3	14 03.04	-24 20.6	17.2	-1.08	+	0.3	4.6/26.0	22495	1135 T-3	1998 04 26.0	14 13.36	-25 05.6	17.1	-1.03	+	3.5	5.0/29.1	28620
1988 TG	1998 04 23.3	14 03.32	-07 05.9	18.3	-0.86	+	10.7	1.6/21.5	29941	(7520)	1998 04 26.0	14 13.42	+02 35.5	17.2	-0.97	+	3.3	5.4/21.9	29291
1988 CG ₇	1998 04 23.3	14 03.37	-14 53.8	18.4	-0.80	+	6.3	0.7/24.1	23513	1995 WL	1998 04 26.0	14 13.65	-08 20.6	16.3	-0.80	+	3.9	1.6/24.7	29627
1988 PD ₁	1998 04 23.3	14 03.45	+13 03.6	18.5	-0.88	+	11.2	8.4/13.8	25648	2151 T-2	1998 04 26.1	14 13.67	-17 14.6	19.7	-0.76	+	3.4	0.9/27.2	15082
1996 VV ₄	1998 04 23.4	14 03.70	-14 49.1	18.9	-0.98	+	5.4	0.8/24.1	28601	(7338)	1998 04 26.1	14 13.77	-23 17.8	16.5	-0.80	+	5.3	2.9/29.1	29587
1981 EA ₄₁	1998 04 23.4	14 03.76	-07 46.3	18.7	-0.73	+	5.6	1.5/22.0	22271	1981 EL ₈	1998 04 26.2	14 13.95	-34 07.3	20.7	-0.94	+	1.9	5.5/01.9	26916
1990 QN ₅	1998 04 23.6	14 04.18	-22 48.7	18.2	-0.91	+	2.9	3.0/26.4	29657	(7434)	1998 04 26.2	14 14.30	+02 04.8	16.5	-0.99	+	4.3	5.9/22.1	28834
(8445)	1998 04 23.6	14 04.22	-11 33.6	18.2	-0.77	+	3.6	0.3/23.3	31483	1992 UD ₂	1998 04 26.3	14 14.69	-04 09.8	18.1	-1.18	-	0.8	3.1/24.5	29317
1988 RS ₃	1998 04 23.6	14 04.27	-09 10.4	18.6	-0.96	+	5.7	1.2/22.6	28841	1986 VX ₅	1998 04 26.4	14 14.89	-05 05.9	17.4	-0.83	+	4.0	2.6/24.1	31581
1986 VB ₁	1998 04 23.6	14 04.38	-19 06.7	17.7	-1.02	+	6.7	2.4/25.5	31581	2612 P-L	1998 04 26.4	14 14.99	-12 41.6	19.8	-0.72	+	4.1	0.2/26.2	26761
1355 T-2	1998 04 23.7	14 04.83	-12 22.3	16.6	-0.79	+	4.1	0.1/23.7	28892	1996 VW ₂	1998 04 26.4	14 15.02	-16 01.6	16.8	-1.08	+	3.3	1.0/27.1	28891
1995 UH ₄	1998 04 23.7	14 04.90	-25 50.8	18.4	-0.83	+	3.8	3.6/27.7	29319	1996 VU ₈	1998 04 26.5	14 15.54	-12 04.1	18.4	-0.97	+	7.7	0.6/26.2	28891
1981 EL ₃₀	1998 04 23.8	14 05.02	-30 05.2	19.2	-0.86	+	3.2	6.1/28.9	30779	1981 EP ₁₈	1998 04 26.6	14 15.65	-06 38.7	17.7	-0.71	+	6.7	2.4/24.4	15703
1971 UG	1998 04 23.8	14 05.17	-13 46.8	15.9	-0.77	+	7.7	0.3/24.2	31578	1929 PK	1998 04 26.8	14 16.33	-07 03.0	18.5	-0.99	+	5.9	2.3/25.0	31578
1990 PU ₇	1998 04 24.0	14 05.66	-09 19.0	17.6	-0.81	+	4.6	1.1/23.0	25974	1989 YV ₄	1998 04 26.8	14 16.44	-13 47.5	17.8	-0.99	+	4.3	0.0/26.9	21973
1981 EQ ₂₉	1998 04 24.0	14 05.98	-16 01.6	17.5	-0.76	+	4.8	0.9/25.0	26395	1992 WJ ₂	1998 04 26.9	14 16.61	-10 08.3	16.3	-1.07	+	2.2	1.4/26.1	30290
1994 LL	1998 04 24.1	14 06.37	+26 02.0	17.0	-0.78	+	6.7	13.0/08.7	31586	1989 SA ₃	1998 04 26.9	14 16.72	-08 28.7	17.4	-0.77	+	2.4	1.4/25.5	26419
1987 BB ₂	1998 04 24.1	14 06.47	-14 03.1	17.7	-1.00	+	6.2	0.5/24.5	23336	1996 XG ₃₂	1998 04 27.0	14 17.03	-15 02.6	15.0	-0.93	+	6.2	0.6/27.4	31279
1996 XR ₂₅	1998 04 24.3	14 06.93	-04 44.3	16.7	-0.96	+	5.5	3.1/22.0	31590	1995 SE ₄	1998 04 27.0	14 17.10	-30 36.2	17.3	-0.93	+	6.1	5.3/02.1	29139
1998 FB ₃	1998 04 24.3	14 07.05	-05 55.3	17.7	-0.90	+	4.4	2.6/22.4	31567	2247 T-3	1998 04 27.0	14 17.28	-22 33.7	15.8	-0.97	+	3.9	4.3/29.4	25085
1995 UG ₈	1998 04 24.4	14 07.21	-14 37.0	16.8	-0.83	+	4.2	0.6/24.9	28859	1981 EJ ₄	1998 04 27.1	14 17.39	-13 27.3	18.3	-0.73	+	6.4	0.1/27.0	26915
1981 EM ₇	1998 04 24.5	14 07.74	-14 19.3	16.7	-0.87	+	7.4	0.5/25.0	27303	2390 T-3	1998 04 27.1	14 17.44	-19 33.7	16.0	-1.09	+	0.9	2.5/28.4	27732
1996 VG ₃₀	1998 04 24.5	14 07.95	-19 46.3	16.6	-0.88	+	7.0	2.4/26.7	28868	1995 PV	1998 04 27.1	14 17.72	-26 25.3	16.1	-1.16	+	1.6	5.6/30.0	29318
1981 EG ₁₇	1998 04 24.6	14 08.03	+04 06.7	17.8	-0.70	+	9.0	5.2/18.7	26918	1997 AD ₈	1998 04 27.1	14 17.81	-16 01.8	19.3	-0.89	+	4.9	0.7/27.8	29123
1995 SL ₅	1998 04 24.6	14 08.24	-10 15.5	17.9	-0.94	+	6.3	1.0/23.9	31587	1981 ET ₂	1998 04 27.2	14 17.73	-21 06.8	19.5	-0.78	+	6.4	2.4/29.5	30779
1994 PC ₃₄	1998 04 24.8	14 08.87	+00 49.6	17.2	-0.74	+	5.8	4.4/20.5	31587	1994 PJ ₁₃	1998 04 27.3	14 18.12	-12 14.3	18.6	-0.73	+	3.8	0.4/26.9	25219
1995 VR ₁₂	1998 04 24.8	14 08.98	-08 29.7	20.4	-0.79	+	4.4	1.4/23.6	28860	1991 RB ₁₉	1998 04 27.3	14 18.15	-29 37.2	18.0	-1.05	+	2.6	5.4/01.3	29135
1994 OC	1998 04 25.0	14 09.80	-30 27.1	16.6	-0.88	+	2.8	4.7/30.0	31586	1982 QY ₁	1998 04 27.3	14 18.34	-18 50.0	16.4	-0.87	+	6.1	1.6/28.8	19497
1996 XA ₃₂	1998 04 25.0	14 09.80	-15 36.1	16.6	-0.96	+	5.4	1.1/25.8	30473	1997 CN	1998 04 27.4	14 18.53	-24 16.6	16.7	-1.03	+	4.7	3.6/30.0	31114
(7506)	1998 04 25.1	14 09.94	-13 23.0	17.5	-0.77	+	3.9	0.1/25.2	29091	1997 EO ₇	1998 04 27.4	14 18.67	-27 47.9	17.1	-0.89	+	2.3	4.6/01.1	31553
1989 SO	1998 04 25.2	14 10.27	-17 33.2	17.2	-0.73	+	4.4	1.1/26.5	26419	1991 LH ₁	1998 04 27.4	14 18.70	-09 29.0	17.0	-0.97	+	4.6	1.8/26.3	29659
(7469)	1998 04 25.2	14 10.28	-04 01.1	16.3	-0.80	+	2.7	2.8/22.8	30892	1991 PA ₇	1998 04 27.4	14 18.71	-17 10.8	17.5	-1.00	+	4.0	1.4/28.3	29659
1984 DR	1998 04 25.2	14 10.46	-03 20.3	17.2	-0.98	+	5.7	3.7/22.5	31581	1990 QR ₂	1998 04 27.4	14 18.88	-20 29.2	16.0	-0.91	+	3.4	2.3/29.2	22813
1991 GG ₁₀	1998 04 25.2	14 10.57	-05 46.2	17.3	-1.00	+	4.8	3.0/23.3	31583	(7545)	1998 04 27.5	14 19.07	-01 32.8	17.3	-1.03	+	5.2	5.2/24.1	29588
1984 EU ₁	1998 04 25.2	14 10.61	-19 28.5	16.8	-1.05	+	4.2	2.8/27.0	28084	1981 EV ₂₃	1998 04 27.6	14 19.28	-21 36.0	18.1	-1.01	+	2.8	2.7/29.6	28581
2514 P-L	1998 04 25.2	14 10.66	-22 30.9	20.0	-1.05	+	1.0	3.2/27.5	22700	1996 RR ₂	1998 04 27.6	14 19.37	-63 22.7	16.8	-1.86	-	0.6	24.2/18.4	30785
1995 SX ₂₉	1998 04 25.3	14 10.62	+02 40.7	18.0	-0.85	+	2.9	4.4/20.9	31587	1981 EW ₃₁	1998 04 27.6	14 19.44	-03 22.1	18.5	-0.71	+	5.2	2.9/24.5	29653
1989 SZ ₁	1998 04 25.3	14 10.80	-05 37.2	16.6	-0.91	+	7.3	3.7/23.1	31527	1995 WJ	1998 04 27.9	14 20.73	-08 51.0	17.8	-0.93	+	3.5	1.7/26.6	26407
1997 CA ₁₇	1998 04 25.3	14 10.81	-23 53.2	18.5	-0.78	+	4.3	2.9/28.5	29667	1287 T-1	1998 04 28.1	14 21.15	-13 58.2	17.7	-0.99	+	6.0	0.0/28.1	25085
4206 P-L	1998 04 25.3	14 10.91	-29 34.2	17.5	-1.24	+	0.1	6.8/28.9	29141	1989 UU ₃	1998 04 28.1	14 21.36	-11 28.5	17.9	-0.98	+	6.1	0.9/27.4	28884
2080 T-2	1998 04 25.4	14 11.17	-13 30.7	16.0	-0.91	+	7.1	0.1/25.5	31609	4730 P-L	1998 04 28.1	14 21.46	-15 42.7	18.9	-0.94	+	2.8	0.6/28.6	26414
1991 GN ₁₀	1998 04 25.5	14 11.42	-05 23.0	17.2	-1.02	+	4.8	3.0/23.4	31583	1994 EP	1998 04 28.2	14 21.78	-09 41.4	16.4	-0.98	+	2.2	1.9/27.2	31238