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ERRATA

MPC	Line	
30476	27	*For* Aleksandrovich *read* Alekseevich
32347	27	*For* Kenichiro Fukui *read* Ken'ichi Fukui
32349	11	*For* distinctive *read* distinguished
32350	48	*For* Livinia Clay *read* Lavinia Clay and their four sons
32493	25	*Add* the double designation 1936 VK = 1936 YG (*RI* 1749) is invalid

NEW OBSERVATORY CODES

The following listing is a continuation to that on *MPC* 32377. 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	$\rho\cos\phi'$	$\rho\sin\phi'$	
157	12.8117	0.74166	+0.66864	Frasso Sabino
343	127.1258	0.78688	+0.61507	Younchun
739	265.2440	0.77965	+0.62419	Sunflower Observatory, Olathe

CORRECTED OBSERVATIONS

The following observations correct those previously published.

Object	Date	UT	α_{2000}	δ_{2000}	Reference	N Obs.
1975 ED	1989 07	29.33958	20 33 13.61	−15 58 45.3	*MPC* 14994	3 675
1989 PC	1989 07	29.33958	20 36 02.21	−15 38 07.4	*MPC* 14998	5 675
(1976)	1989 07	29.33958	20 41 25.02	−20 47 24.6	*MPC* 15021	1 675
(1976)	1989 07	29.37031	20 41 23.11	−20 47 34.0	*MPC* 15021	1 675
(2628)	1989 07	29.37031	20 57 28.33	−15 00 35.7	*MPC* 15024	1 675
(3431)	1989 07	29.33958	20 39 36.98	−20 30 04.2	*MPC* 15027	1 675

Note 1: time corrected. 2: 1975 ED = (4185). 3 = 1 + 2. 4: 1989 PC = (4770). 5 = 1 + 4.

DELETED OBSERVATIONS

The following observations are to be deleted.

Object	Date	UT	α_{2000}	δ_{2000}	Reference	Obs.
(1163)	1955 06	22.65000	17 46 31.86	−14 42 51.0	*MPC* 2613	388
(1609)	1956 11	29.70069	06 16 39.07	+12 38 43.5	*MPC* 2159	388

IDENTIFICATION CHANGES

Continuation to *MPC* 32378.

Object		Date	UT	α_{2000}	δ_{2000}	Originally	Mag.	Obs.
1941 SQ_2	*	1941 09	29.96389	00 32.6	+00 24	1941 SC_1	15.5	053
1941 SR_2	*	1941 09	29.96389	00 33.3	+00 35	1941 SD_1	16.0	053
1975 TG_7	*	1975 10	13.95513	01 47 00.28	+05 56 04.0	1975 TP_3	18.0	095
1975 VP_{10}	*	1975 11	06.81727	01 32 14.95	+02 37 56.0	1975 TN_4	18.0	095
1982 SK_{13}	*	1982 09	20.92014	23 53 39.47	+00 36 03.8	1982 SH_{12}	17.5	095
1983 PR_2	*	1983 08	07.00130	23 45 18.41	−04 41 07.9	1983 RM_4	16.5	095
1988 RM_{14}	*	1988 09	05.33229	22 10 32.08	−10 49 11.7	1988 RX_5		809
1988 RM_{14}		1988 09	05.33854	22 10 31.76	−10 49 13.4	1988 RX_5		809
1988 RM_{14}		1988 09	05.34479	22 10 31.42	−10 49 15.4	1988 RX_5		809
1989 AE_{10}	*	1989 01	10.61840	08 52 12.25	+17 41 52.9	1989 AS_4		413
1989 AE_{10}		1989 01	10.67396	08 52 08.72	+17 42 03.8	1989 AS_4		413
1993 OB_{14}	*	1993 07	23.00208	19 58 20.60	−14 05 51.6	1993 NK	18.5	010
1993 OB_{14}		1993 07	23.01285	19 58 20.10	−14 05 54.5	1993 NK		010
1993 OB_{14}		1993 07	23.02332	19 58 19.62	−14 05 55.2	1993 NK		010
1995 YA_{26}	*	1995 12	20.66683	03 57 11.90	+24 23 10.8	1995 WF_7	16.6 V	358
1995 YA_{26}		1995 12	20.68358	03 57 11.01	+24 23 11.8	1995 WF_7		358
1997 XN_{13}	*	1997 12	05.15662	03 57 47.58	+15 26 49.2	1997 WB_{50}	18.8	704
1997 XN_{13}		1997 12	05.17911	03 57 46.24	+15 26 46.9	1997 WB_{50}	18.6	704
1997 XN_{13}		1997 12	05.19585	03 57 45.19	+15 26 42.5	1997 WB_{50}	18.2	704
1997 XN_{13}		1997 12	05.21244	03 57 44.29	+15 26 41.6	1997 WB_{50}	18.3	704
1997 XN_{13}		1997 12	05.23394	03 57 43.07	+15 26 38.9	1997 WB_{50}	18.3	704
1998 HG_{151}	*	1998 04	28.25208	16 09 34.03	−25 32 58.5	1998 HV_{149}		809
1998 HG_{151}		1998 04	28.26528	16 09 33.51	−25 32 57.5	1998 HV_{149}		809
1998 HG_{151}		1998 04	28.27847	16 09 32.92	−25 32 55.3	1998 HV_{149}		809
1998 OG_{15}	*	1998 07	26.40532	22 38 06.88	−08 44 00.6	1998 NH_1	19.6 V	691
1998 OG_{15}		1998 07	26.42654	22 38 06.33	−08 44 03.0	1998 NH_1	19.4 V	691
1998 OG_{15}		1998 07	26.44781	22 38 05.78	−08 44 05.5	1998 NH_1	19.4 V	691

1998 QB_{107}	*	1998 08 28.26344	00 29 50.79	+03 57 34.3	6594	P-L	18.4		704
1998 QB_{107}		1998 08 28.27236	00 29 50.62	+03 57 33.1	6594	P-L	18.4		704
1998 QB_{107}		1998 08 28.28173	00 29 50.19	+03 57 34.3	6594	P-L	19.0		704
1998 QB_{107}		1998 08 28.29103	00 29 49.89	+03 57 29.9	6594	P-L	19.0		704
1998 QB_{107}		1998 08 28.30037	00 29 49.57	+03 57 27.5	6594	P-L	19.0		704
1998 QD_{107}	*	1998 08 30.31459	23 53 42.07	−00 50 30.2	1998	QC_{59}	20.5	V	691
1998 QD_{107}		1998 08 30.32490	23 53 41.69	−00 50 32.6	1998	QC_{59}	20.6	V	691
1998 QD_{107}		1998 08 30.33415	23 53 41.35	−00 50 35.3	1998	QC_{59}	20.5	V	691

OBSERVATIONS OF COMETS

Observations are published here for the following observatory codes:

017 Hoher List. 1-m reflector + CCD. Observers J. Sanner and R. Vanscheidt. Measured by K. Kormarek and K. Troll.
046 Kleť. 0.57-m $f/5.2$ reflector + CCD. Observers J. Tichá, M. Tichý and Z. Moravec.
057 Belgrade. 0.14-m $f/12$ astrograph + CCD. Observers V. Protitch-Benishek and Vl. Benishek.
071 Rozhen. 0.5-m $f/1.4$ Schmidt + CCD. Observers V. Redeva, G. Borisov and L. Vasileva.
094 Simeïs. 1-m Ritchey-Chrétien + CCD. Observers Yu. N. Krugly, N. M. Gaftonyuk and I. N. Belskaya. Measured by Yu. N. Krugly.
108 Montelupo. 0.30-m $f/5.7$ Schmidt-Cassegrain + CCD. Observers M. Tombelli, A. Boattini and G. Forti.
113 Drebach. 0.50-m $f/4.0$ reflector + CCD. Observers J. Kandler and G. Lehmann.
118 Modra. 0.6-m $f/5.5$ reflector + CCD. Observers L. Kornoš and P. Kolény.
138 Village-Neuf. 0.20-m $f/3.3$ reflector + CCD. Observers C. Demeautis and D. Matter.
143 Gnosca. 0.20-m $f/6.3$ reflector + CCD. Observer S. Sposetti.
157 Sabino. 0.10-m $f/10$ refractor + CCD. Observers A. Pelloni, R. Albanesi, F. Anzellini and R. Haver.
351 Sakamoto. 0.15-m $f/7.0$ lens + CCD. Observer Y. Kitamura.
352 Konan. 0.25-m $f/6$ reflector + CCD. Observer M. Hotta.
355 Hadano. 0.28-m $f/5.0$ reflector + CCD. Observer A. Asami.
360 Kuma Kogen. 0.60-m $f/6.0$ Ritchey-Chrétien + CCD. Observer A. Nakamura.
372 Geisei. 0.21-m $f/3.0$ reflector. Observer T. Seki.
402 Dynic Astronomical Observatory. 0.60-m $f/4.0$ reflector + CCD. Observer A. Sugie.
411 Oizumi. 0.41-m $f/4.3$ reflector + CCD. Observer T. Kobayashi.
422 Loomberah. 0.25-m $f/4.1$ reflector + CCD. Observer G. J. Garradd.
426 Woomera. 0.30-m $f/3.3$ Schmidt-Cassegrain + CCD. Observer F. B. Zoltowski.
476 Bussoleno. 0.30-m $f/4.0$ reflector. Observer P. Pognant.
504 Le Creusot. 0.40-m $f/5$ reflector + CCD. Observers J. C. Merlin, D. Merlin and G. Merlin. Measured by J. C. Merlin.
553 Chorzów. 0.20-m $f/5$ Zeiss astrograph + CCD. Observers I. Włodarczyk and S. Janta
557 Ondřejov. 0.65-m $f/3.6$ reflector + CCD. Observers P. Pravec and L. Šarounová.
587 Sormano. 0.5-m reflector + CCD. Observers F. Manca, V. Giuliani, M. Cavagna and P. Chiavenna.
605 Marl. 0.2-m $f/10$ Schmidt-Cassegrain + CCD. Observer E. Jung.
610 Pianoro. 0.25-m $f/4$ Schmidt-Cassegrain. Observer V. Goretti.
611 Starkenburg. 0.45-m $f/4.4$ reflector + CCD. Observer E. Schwab. Measured by R. Stoss.
628 Mülheim-Ruhr. 0.2-m Schmidt-Cassegrain + CCD. Observers A. Boeker and A. Martin.
629 Szeged. 0.28-m Schmidt-Cassegrain + CCD. Observers K. Sárneczky and B. Csák. Measured by L. Kiss and K. Sárneczky.
670 Camarillo. 0.25-m Schmidt-Cassegrain + CCD. Observer J. E. Rogers.
683 Goodricke-Pigott Observatory. 0.36-m $f/11$ reflector + CCD. Observer R. A. Tucker.
691 Kitt Peak. 0.91-m Spacewatch telescope. Observers J. V. Scotti, J. Larsen, J. Montani, A. Gleason and N. Danzl.
693 University of Arizona, Catalina Station. 1.5-m reflector + CCD. Observer C. W. Hergenrother.
699 LONEOS. 0.59-m Schmidt + CCD. Observers W. D. Ferris, B. A. Skiff and B. W. Koehn. Measured by B. W. Koehn and E. Bowell.
703 Catalina Sky Survey. 0.41-m $f/3$ Schmidt + CCD. Observer T. B. Spahr.
704 LINEAR. 1.0-m $f/2.15$ reflector + CCD. Observers M. Blythe, F. Shelly and M. Bezpalko. Measured by J. Stuart, H. Viggh and R. Sayer.
734 Eskridge. 0.30-m Schmidt-Cassegrain + CCD. Observer G. Hug.
750 Hobbs Observatory, Fall Creek. 0.6-m $f/5$ telescope + CCD. Observer R. Elliott.
758 Cocoa. 0.3-m reflector + CCD. Observer I. Griffin.
834 Buenos Aires-AAAA. 0.25-m $f/6.3$ reflector + CCD. Observers R. Caprio, R. Mackintosh, H. Ruggiu and G. D. Rodriguez. Measured by R. Mackintosh and J. R. Carozza.
844 Los Molinos. 0.35-m $f/6.4$ reflector + CCD. Observer R. Salvo.
860 Valinhos. 0.20-m $f/3.3$ reflector + CCD. Observer P. R. Holvorcem.
867 Saji Observatory. 1.03-m $f/4.8$ reflector + CCD. Observers M. Yamanishi, A. Miyamoto, M. Aimoto and T. Oribe.
886 Susono. 0.25-m $f/6.3$ reflector + CCD. Observer M. Akiyama.
900 Moriyama. 0.25-m $f/6.3$ reflector + CCD. Observer Y. Ikari.

Object	Date	UT	α_{2000}	δ_{2000}	Mag.	N	Obs.
C/1995 O1 (Hale-Bopp)							
C/1995 O1	1998 08	31.25168	07 14 47.55	−57 57 30.0	11.5	T	844
C/1995 O1	1998 08	31.26784	07 14 48.26	−57 57 38.6	11.5	T	844
C/1995 O1	1998 08	31.27962	07 14 48.63	−57 57 45.9	11.5	T	844
C/1995 O1	1998 09	13.23517	07 22 22.42	−60 06 36.7	12.2	T	844
C/1995 O1	1998 09	13.23766	07 22 22.54	−60 06 37.4	12.2	T	844
C/1995 O1	1998 09	13.24162	07 22 22.73	−60 06 39.8	12.1	T	844
C/1995 O1	1998 09	14.19236	07 22 50.86	−60 16 26.1	11.4	T	844
C/1995 O1	1998 09	14.20587	07 22 51.22	−60 16 35.1	11.4	T	844
C/1995 O1	1998 09	14.22403	07 22 51.80	−60 16 45.6	11.2	T	844
C/1995 O1	1998 09	25.58734	07 27 25.37	−62 15 41.0	15.7	N	422
C/1995 O1	1998 09	25.58829	07 27 25.42	−62 15 42.0	15.7	N	422
C/1995 O1	1998 09	25.58882	07 27 25.40	−62 15 41.6	15.5	N	422

C/1997 J2 (Meunier-Dupouy)

C/1997 J2	1998 08 04.71458	21 51 38.09	+18 16 25.5			372
C/1997 J2	1998 08 05.74965	21 50 27.17	+17 54 35.4			372
C/1997 J2	1998 08 11.52708	21 43 48.53	+15 47 00.5	14.2	T	372
C/1997 J2	1998 08 11.54479	21 43 47.30	+15 46 35.9			372
C/1997 J2	1998 08 12.24809	21 42 58.42	+15 30 32.1			834
C/1997 J2	1998 08 17.09715	21 37 25.22	+13 36 15.5			834
C/1997 J2	1998 08 17.14106	21 37 22.19	+13 35 14.9			834
C/1997 J2	1998 08 20.52326	21 33 33.79	+12 12 51.1	13.9	T	372
C/1997 J2	1998 09 01.14933	21 21 22.07	+07 21 46.0			834
C/1997 J2	1998 09 01.17743	21 21 20.39	+07 21 04.3			834
C/1997 J2	1998 09 08.56976	21 14 38.91	+04 16 47.4			355
C/1997 J2	1998 09 08.57046	21 14 38.86	+04 16 46.6	13.1	T	355
C/1997 J2	1998 09 08.57190	21 14 38.79	+04 16 44.8			355
C/1997 J2	1998 09 09.48832	21 13 53.29	+03 54 16.5			352
C/1997 J2	1998 09 09.49110	21 13 53.14	+03 54 13.6	13.1	T	352
C/1997 J2	1998 09 09.49388	21 13 53.00	+03 54 09.1			352
C/1997 J2	1998 09 09.50660	21 13 52.36	+03 53 51.2	11.9	T	360
C/1997 J2	1998 09 09.50903	21 13 52.24	+03 53 47.6			360
C/1997 J2	1998 09 10.51295	21 13 03.43	+03 29 20.4			402
C/1997 J2	1998 09 10.51434	21 13 03.35	+03 29 18.3			402
C/1997 J2	1998 09 10.51573	21 13 03.28	+03 29 16.1			402
C/1997 J2	1998 09 12.56693	21 11 27.22	+02 39 48.2	14.0	T	351
C/1997 J2	1998 09 12.57475	21 11 26.73	+02 39 35.7			351
C/1997 J2	1998 09 12.57759	21 11 26.70	+02 39 31.6			351
C/1997 J2	1998 09 12.57978	21 11 26.66	+02 39 27.6			351
C/1997 J2	1998 09 12.61685	21 11 24.89	+02 38 34.0			352
C/1997 J2	1998 09 12.61963	21 11 24.77	+02 38 29.6			352
C/1997 J2	1998 09 12.62241	21 11 24.69	+02 38 26.4	13.1	T	352
C/1997 J2	1998 09 14.00736	21 10 23.02	+02 05 26.8	14.0	T	758
C/1997 J2	1998 09 14.01152	21 10 22.83	+02 05 20.9	14.0	T	758
C/1997 J2	1998 09 14.01500	21 10 22.72	+02 05 14.5	14.0	T	758
C/1997 J2	1998 09 15.88090	21 09 03.07	+01 21 20.3	13.7	T	057
C/1997 J2	1998 09 15.88155	21 09 02.95	+01 21 21.2			057
C/1997 J2	1998 09 15.88313	21 09 02.98	+01 21 18.9	13.9	T	057
C/1997 J2	1998 09 15.88472	21 09 02.86	+01 21 14.3			057
C/1997 J2	1998 09 15.88660	21 09 02.86	+01 21 09.1			057
C/1997 J2	1998 09 15.89332	21 09 02.23	+01 21 00.2	14.1	T	057
C/1997 J2	1998 09 17.55833	21 07 55.28	+00 42 28.5	11.9	T	360
C/1997 J2	1998 09 17.56076	21 07 55.19	+00 42 25.3			360
C/1997 J2	1998 09 17.85810	21 07 43.63	+00 35 34.6	12.3	T	504
C/1997 J2	1998 09 17.85936	21 07 43.59	+00 35 32.8	12.4	T	504
C/1997 J2	1998 09 17.86093	21 07 43.52	+00 35 30.8	12.3	T	504
C/1997 J2	1998 09 17.86532	21 07 43.37	+00 35 24.2	12.4	T	504
C/1997 J2	1998 09 17.86756	21 07 43.27	+00 35 21.5	12.3	T	504
C/1997 J2	1998 09 18.82769	21 07 06.51	+00 13 25.9	15.0	T	138
C/1997 J2	1998 09 18.84414	21 07 05.88	+00 13 03.2	14.9	T	138
C/1997 J2	1998 09 18.86348	21 07 05.14	+00 12 37.1	15.0	T	138
C/1997 J2	1998 09 18.86979	21 07 04.98	+00 12 27.5	13.6	T	476
C/1997 J2	1998 09 18.87847	21 07 04.59	+00 12 16.3	13.6	T	476
C/1997 J2	1998 09 18.88009	21 07 04.49	+00 12 14.4	14.9	T	138
C/1997 J2	1998 09 18.88542	21 07 04.32	+00 12 06.8	13.6	T	476
C/1997 J2	1998 09 18.89375	21 07 04.08	+00 11 53.8	13.6	T	476
C/1997 J2	1998 09 19.55193	21 06 39.49	−00 02 58.3	14.2	T	351
C/1997 J2	1998 09 19.55433	21 06 39.39	−00 03 02.0			351
C/1997 J2	1998 09 19.56404	21 06 39.01	−00 03 15.0			351
C/1997 J2	1998 09 19.86288	21 06 28.24	−00 09 59.5			504
C/1997 J2	1998 09 19.86792	21 06 28.05	−00 10 06.2			504
C/1997 J2	1998 09 19.86929	21 06 27.95	−00 10 08.2			504
C/1997 J2	1998 09 19.87102	21 06 27.90	−00 10 10.6			504
C/1997 J2	1998 09 19.87226	21 06 27.85	−00 10 12.2			504
C/1997 J2	1998 09 19.88360	21 06 27.45	−00 10 28.0	14.7	T	138
C/1997 J2	1998 09 19.90876	21 06 26.48	−00 11 03.1	14.6	T	138
C/1997 J2	1998 09 19.93768	21 06 25.45	−00 11 41.0	14.5	T	138
C/1997 J2	1998 09 19.96546	21 06 24.41	−00 12 17.8	14.7	T	138
C/1997 J2	1998 09 19.99363	21 06 23.40	−00 12 55.6	14.6	T	138
C/1997 J2	1998 09 20.07331	21 06 20.63	−00 14 38.9			834
C/1997 J2	1998 09 20.09802	21 06 19.63	−00 15 11.9			834
C/1997 J2	1998 09 20.79448	21 05 55.01	−00 30 50.2	15.7	N	143
C/1997 J2	1998 09 20.79645	21 05 54.94	−00 30 52.8	15.6	T	143
C/1997 J2	1998 09 20.79840	21 05 54.86	−00 30 55.6	15.6	T	143
C/1997 J2	1998 09 20.80036	21 05 54.76	−00 30 58.0	15.7	T	143
C/1997 J2	1998 09 22.53440	21 04 55.87	−01 09 15.9	13.9	T	351
C/1997 J2	1998 09 22.53835	21 04 55.71	−01 09 21.0			351
C/1997 J2	1998 09 22.54184	21 04 55.60	−01 09 24.0			351
C/1997 J2	1998 09 23.86343	21 04 13.52	−01 38 06.3			504
C/1997 J2	1998 09 23.86500	21 04 13.49	−01 38 08.3			504
C/1997 J2	1998 09 23.86700	21 04 13.42	−01 38 11.1			504
C/1997 J2	1998 09 23.86905	21 04 13.38	−01 38 14.0			504
C/1997 J2	1998 09 24.82482	21 03 44.36	−01 58 42.1	13.5	T	628
C/1997 J2	1998 09 24.85468	21 03 43.42	−01 59 20.5	12.8	T	628
C/1997 J2	1998 09 28.22864	21 02 10.65	−03 09 42.2			750
C/1997 J2	1998 09 28.24127	21 02 10.19	−03 09 57.7			750
C/1997 J2	1998 10 04.46196	20 59 58.89	−05 11 41.0	15.5	T	351
C/1997 J2	1998 10 04.46660	20 59 58.96	−05 11 46.4			351
C/1997 J2	1998 10 04.46876	20 59 58.82	−05 11 47.9			351

P/1997 T3 (Lagerkvist-Carsenty)

P/1997 T3	1998 09 19.74725	04 56 54.91	+22 34 15.6	20.1	T	867
P/1997 T3	1998 09 19.76461	04 56 55.26	+22 34 16.6			867
P/1997 T3	1998 09 19.77086	04 56 55.37	+22 34 16.7			867
P/1997 T3	1998 09 20.72919	04 57 13.61	+22 35 23.8	19.9	T	867
P/1997 T3	1998 09 20.75072	04 57 14.04	+22 35 25.2		1	867
P/1997 T3	1998 09 20.76183	04 57 14.19	+22 35 25.0			867

C/1998 K2 (LINEAR)

C/1998 K2	1998 09 14.03988	14 55 51.25	−58 31 38.5	16.7	T	844
C/1998 K2	1998 09 14.05196	14 55 52.27	−58 31 46.5	16.8	T	844
C/1998 K2	1998 09 14.06525	14 55 53.36	−58 31 55.4	16.8	T	844

C/1998 K5 (LINEAR)

C/1998 K5	1998 06 22.26538	21 02 02.32	+48 57 02.3	12.6	T	860
C/1998 K5	1998 06 22.27568	21 02 12.56	+48 57 53.7	12.8	T	860
C/1998 K5	1998 06 22.28981	21 02 26.59	+48 59 02.5	12.6	T	860
C/1998 K5	1998 06 24.23584	21 36 24.31	+51 16 41.8	13.4	T	860
C/1998 K5	1998 06 24.23755	21 36 26.15	+51 16 48.1	13.0	T	860
C/1998 K5	1998 06 24.24190	21 36 30.74	+51 17 04.2	13.2	T	860

C/1998 K5	1998 09 12.62302	03 50 25.69	+25 33 51.3	12.1 T	351
C/1998 K5	1998 09 12.62626	03 50 25.63	+25 33 48.6		351
C/1998 K5	1998 09 12.62854	03 50 25.60	+25 33 46.2		351
C/1998 K5	1998 09 15.91142	03 49 10.91	+24 41 14.3	12.3 T	057
C/1998 K5	1998 09 15.91220	03 49 10.84	+24 41 13.0		057
C/1998 K5	1998 09 15.91436	03 49 10.92	+24 41 10.7	12.5 T	057
C/1998 K5	1998 09 15.91499	03 49 10.91	+24 41 10.9		057
C/1998 K5	1998 09 15.91997	03 49 10.74	+24 41 05.3		057
C/1998 K5	1998 09 15.92120	03 49 10.60	+24 41 05.2	12.4 T	057
C/1998 K5	1998 09 15.92303	03 49 10.68	+24 41 03.0		057
C/1998 K5	1998 09 15.92370	03 49 10.64	+24 41 02.2	12.3 T	057
C/1998 K5	1998 09 16.59286	03 48 51.09	+24 30 18.7	12.4 T	355
C/1998 K5	1998 09 16.59465	03 48 51.03	+24 30 17.2		355
C/1998 K5	1998 09 16.59622	03 48 50.99	+24 30 15.7		355
C/1998 K5	1998 09 19.57482	03 47 05.79	+23 42 10.0	12.4 T	351
C/1998 K5	1998 09 19.57698	03 47 05.70	+23 42 07.7		351
C/1998 K5	1998 09 19.58485	03 47 05.33	+23 42 00.7		351
C/1998 K5	1998 09 19.66910	03 47 01.67	+23 40 41.0	12.8 T	355
C/1998 K5	1998 09 19.67322	03 47 01.54	+23 40 37.0		355
C/1998 K5	1998 09 19.67522	03 47 01.43	+23 40 35.0		355
C/1998 K5	1998 09 19.70255	03 47 00.29	+23 40 08.4	12.9 T	402
C/1998 K5	1998 09 19.70394	03 47 00.23	+23 40 07.0		402
C/1998 K5	1998 09 19.70532	03 47 00.17	+23 40 05.9		402
C/1998 K5	1998 09 19.74665	03 46 58.24	+23 39 25.9	12.6 T	900
C/1998 K5	1998 09 19.75577	03 46 57.85	+23 39 17.1		900
C/1998 K5	1998 09 30.88025	03 36 31.93	+20 36 25.2	13.1 T	057
C/1998 K5	1998 09 30.88216	03 36 32.09	+20 36 22.8		057
C/1998 K5	1998 09 30.88408	03 36 31.79	+20 36 19.4		057
C/1998 K5	1998 09 30.88519	03 36 31.63	+20 36 17.9	13.1 T	057
C/1998 K5	1998 09 30.88786	03 36 31.35	+20 36 16.1		057
C/1998 K5	1998 09 30.88985	03 36 31.29	+20 36 13.9		057
C/1998 K5	1998 09 30.89259	03 36 31.21	+20 36 11.3	13.3 T	057
C/1998 K5	1998 10 02.58676	03 34 30.12	+20 08 09.9	12.9 T	355
C/1998 K5	1998 10 02.59000	03 34 29.85	+20 08 06.7		355
C/1998 K5	1998 10 02.66904	03 34 23.85	+20 06 49.1	12.9 T	900
C/1998 K5	1998 10 02.67818	03 34 23.16	+20 06 40.1		900
C/1998 K5	1998 10 02.73385	03 34 18.92	+20 05 45.4	13.5 T	360
C/1998 K5	1998 10 02.73611	03 34 18.75	+20 05 43.1		360

C/1998 M1 (LINEAR)

C/1998 M1	1998 09 09.79449	16 12 50.02	−18 37 50.4		046
C/1998 M1	1998 09 09.79678	16 12 50.16	−18 37 50.3		046
C/1998 M1	1998 09 09.80039	16 12 50.34	−18 37 49.3		046
C/1998 M1	1998 09 16.44288	16 21 05.04	−18 29 08.1	16.1 T	360
C/1998 M1	1998 09 16.44549	16 21 05.22	−18 29 07.5		360

C/1998 M2 (LINEAR)

C/1998 M2	1998 06 24.24833	18 07 00.39	+05 49 20.7	15.9 T	860
C/1998 M2	1998 06 24.25248	18 07 00.04	+05 49 25.8	16.2 T	860
C/1998 M2	1998 09 06.81979	17 27 35.40	+19 27 31.5		587
C/1998 M2	1998 09 06.82222	17 27 35.41	+19 27 31.8		587
C/1998 M2	1998 09 06.82465	17 27 35.45	+19 27 32.1		587
C/1998 M2	1998 09 10.47892	17 29 11.63	+19 36 35.0	15.0 T	402
C/1998 M2	1998 09 10.48031	17 29 11.68	+19 36 35.3		402
C/1998 M2	1998 09 10.48170	17 29 11.72	+19 36 35.4		402
C/1998 M2	1998 09 12.53459	17 30 13.58	+19 41 15.6		352
C/1998 M2	1998 09 12.53737	17 30 13.67	+19 41 14.8		352
C/1998 M2	1998 09 16.46458	17 32 27.65	+19 49 32.3	15.1 T	360
C/1998 M2	1998 09 16.46719	17 32 27.74	+19 49 32.6		360
C/1998 M2	1998 09 16.48284	17 32 28.23	+19 49 33.9	16.0 T	351
C/1998 M2	1998 09 16.48722	17 32 28.60	+19 49 34.1		351
C/1998 M2	1998 09 17.46111	17 33 04.74	+19 51 31.5	15.1 T	360
C/1998 M2	1998 09 17.46389	17 33 04.85	+19 51 31.8		360
C/1998 M2	1998 09 20.48513	17 35 04.81	+19 57 21.3	14.9 T	900
C/1998 M2	1998 09 20.49554	17 35 05.23	+19 57 22.4		900
C/1998 M2	1998 09 24.80490	17 38 15.39	+20 05 18.6	15.1 T	118
C/1998 M2	1998 09 24.81742	17 38 15.99	+20 05 20.0		118
C/1998 M2	1998 09 25.80857	17 39 02.74	+20 07 07.7	16.3 T	071
C/1998 M2	1998 09 25.80975	17 39 02.82	+20 07 07.6	15.9 T	071
C/1998 M2	1998 09 25.81093	17 39 02.81	+20 07 08.3	16.5 T	071
C/1998 M2	1998 09 25.81211	17 39 02.99	+20 07 07.9	16.2 T	071
C/1998 M2	1998 09 25.81329	17 39 02.95	+20 07 07.5	16.4 T	071
C/1998 M2	1998 09 25.81447	17 39 03.06	+20 07 08.4	16.5 T	071
C/1998 M2	1998 09 25.81564	17 39 03.07	+20 07 09.2	16.5 T	071

C/1998 M5 (LINEAR)

C/1998 M5	1998 08 22.89146	21 41 43.68	+36 53 22.8		071
C/1998 M5	1998 08 22.89265	21 41 43.59	+36 53 23.5		071
C/1998 M5	1998 08 22.89385	21 41 43.36	+36 53 24.4		071
C/1998 M5	1998 08 22.89504	21 41 43.12	+36 53 25.2		071
C/1998 M5	1998 08 22.89560	21 41 42.52	+36 53 28.7		071
C/1998 M5	1998 08 22.89622	21 41 42.95	+36 53 27.1		071
C/1998 M5	1998 08 22.89741	21 41 42.67	+36 53 28.0		071
C/1998 M5	1998 08 22.90099	21 41 42.04	+36 53 31.4		071
C/1998 M5	1998 08 22.90217	21 41 41.74	+36 53 32.2		071
C/1998 M5	1998 08 22.90588	21 41 41.07	+36 53 35.5		071
C/1998 M5	1998 08 22.90779	21 41 40.76	+36 53 38.0		071
C/1998 M5	1998 08 22.90971	21 41 40.38	+36 53 40.4		071
C/1998 M5	1998 08 22.91162	21 41 40.06	+36 53 41.6		071
C/1998 M5	1998 08 22.91355	21 41 39.66	+36 53 44.4		071
C/1998 M5	1998 08 22.91821	21 41 38.89	+36 53 47.4		071
C/1998 M5	1998 08 22.91909	21 41 38.68	+36 53 48.3		071
C/1998 M5	1998 08 22.92027	21 41 38.45	+36 53 50.0		071
C/1998 M5	1998 08 22.92145	21 41 38.23	+36 53 51.9		071
C/1998 M5	1998 08 22.92263	21 41 38.04	+36 53 52.7		071
C/1998 M5	1998 08 22.92381	21 41 37.74	+36 53 53.5		071
C/1998 M5	1998 08 22.92499	21 41 37.58	+36 53 55.3		071
C/1998 M5	1998 08 22.92617	21 41 37.33	+36 53 56.0		071
C/1998 M5	1998 08 22.92735	21 41 37.15	+36 53 56.6		071
C/1998 M5	1998 08 22.92853	21 41 36.90	+36 53 58.4		071
C/1998 M5	1998 09 06.86273	20 52 36.47	+39 50 44.0		587
C/1998 M5	1998 09 06.86574	20 52 35.87	+39 50 45.1		587
C/1998 M5	1998 09 08.55784	20 46 54.18	+40 01 24.0	13.0 T	355
C/1998 M5	1998 09 08.55902	20 46 53.93	+40 01 24.1		355
C/1998 M5	1998 09 08.56061	20 46 53.59	+40 01 25.2		355
C/1998 M5	1998 09 08.65853	20 46 33.73	+40 01 57.9	12.5 T	402
C/1998 M5	1998 09 08.66028	20 46 33.39	+40 01 58.3		402

C/1998 M5	1998 09 08.66201	20 46 33.03	+40 01 59.0		402
C/1998 M5	1998 09 09.49983	20 43 45.09	+40 06 29.2	12.1 T	360
C/1998 M5	1998 09 09.50243	20 43 44.56	+40 06 30.0		360
C/1998 M5	1998 09 09.53100	20 43 38.76	+40 06 37.8	12.6 T	352
C/1998 M5	1998 09 09.53377	20 43 38.21	+40 06 38.9		352
C/1998 M5	1998 09 09.53655	20 43 37.62	+40 06 39.9		352
C/1998 M5	1998 09 09.77948	20 42 49.20	+40 07 51.8	11.0 T	610
C/1998 M5	1998 09 09.78377	20 42 48.33	+40 07 52.9		610
C/1998 M5	1998 09 09.78806	20 42 47.46	+40 07 54.1		610
C/1998 M5	1998 09 09.79234	20 42 46.59	+40 07 55.2		610
C/1998 M5	1998 09 09.79663	20 42 45.72	+40 07 56.4		610
C/1998 M5	1998 09 09.82175	20 42 40.92	+40 08 00.5		553
C/1998 M5	1998 09 10.49874	20 40 25.24	+40 11 13.0	12.1 T	402
C/1998 M5	1998 09 10.50013	20 40 24.96	+40 11 13.4		402
C/1998 M5	1998 09 10.50152	20 40 24.67	+40 11 13.7		402
C/1998 M5	1998 09 10.77248	20 39 30.77	+40 12 21.9	13.2 T	057
C/1998 M5	1998 09 10.77448	20 39 30.48	+40 12 22.4		057
C/1998 M5	1998 09 10.77543	20 39 30.26	+40 12 22.5	13.0 T	057
C/1998 M5	1998 09 10.77829	20 39 29.69	+40 12 23.2		057
C/1998 M5	1998 09 10.77980	20 39 29.37	+40 12 23.2		057
C/1998 M5	1998 09 10.78815	20 39 27.52	+40 12 25.1		057
C/1998 M5	1998 09 10.80295	20 39 24.78	+40 12 28.6		057
C/1998 M5	1998 09 10.80500	20 39 24.33	+40 12 30.5		057
C/1998 M5	1998 09 10.80896	20 39 23.32	+40 12 31.8	13.0 T	057
C/1998 M5	1998 09 10.81274	20 39 22.58	+40 12 34.3		057
C/1998 M5	1998 09 10.82356	20 39 20.59	+40 12 35.4		610
C/1998 M5	1998 09 10.82705	20 39 19.88	+40 12 36.3		610
C/1998 M5	1998 09 10.83052	20 39 19.18	+40 12 37.2		610
C/1998 M5	1998 09 10.83399	20 39 18.47	+40 12 38.1		610
C/1998 M5	1998 09 10.83747	20 39 17.77	+40 12 39.0		610
C/1998 M5	1998 09 11.77794	20 36 11.19	+40 16 17.1	12.7 T	057
C/1998 M5	1998 09 11.77921	20 36 10.92	+40 16 17.9		057
C/1998 M5	1998 09 11.78101	20 36 10.44	+40 16 19.0		057
C/1998 M5	1998 09 11.78635	20 36 09.54	+40 16 18.8	12.6 T	057
C/1998 M5	1998 09 11.78727	20 36 09.52	+40 16 20.4		057
C/1998 M5	1998 09 11.78990	20 36 08.76	+40 16 18.5		057
C/1998 M5	1998 09 11.79214	20 36 08.33	+40 16 20.0	12.9 T	057
C/1998 M5	1998 09 11.79545	20 36 07.67	+40 16 20.8		057
C/1998 M5	1998 09 11.79707	20 36 07.38	+40 16 22.3		057
C/1998 M5	1998 09 11.80102	20 36 06.50	+40 16 24.4		057
C/1998 M5	1998 09 12.14931	20 34 57.86	+40 17 36.5	12.6 T	670
C/1998 M5	1998 09 12.15625	20 34 56.48	+40 17 38.1		670
C/1998 M5	1998 09 12.16823	20 34 54.11	+40 17 40.8		670
C/1998 M5	1998 09 12.56226	20 33 36.21	+40 18 55.5		352
C/1998 M5	1998 09 12.56503	20 33 35.68	+40 18 57.1		352
C/1998 M5	1998 09 12.56781	20 33 35.12	+40 18 56.3		352
C/1998 M5	1998 09 12.64935	20 33 18.92	+40 19 11.7	12.6 T	351
C/1998 M5	1998 09 12.65157	20 33 18.50	+40 19 11.7		351
C/1998 M5	1998 09 12.65454	20 33 17.97	+40 19 11.8		351
C/1998 M5	1998 09 13.15887	20 31 39.34	+40 20 38.9		734
C/1998 M5	1998 09 13.16565	20 31 37.97	+40 20 40.3		734
C/1998 M5	1998 09 13.16899	20 31 37.30	+40 20 40.7		734
C/1998 M5	1998 09 13.85804	20 29 22.85	+40 22 23.4		046
C/1998 M5	1998 09 13.85955	20 29 22.55	+40 22 23.6		046
C/1998 M5	1998 09 13.86031	20 29 22.39	+40 22 23.8		046
C/1998 M5	1998 09 13.86098	20 29 22.27	+40 22 23.8		046
C/1998 M5	1998 09 14.01936	20 28 51.79	+40 22 45.3	12.8 T	758
C/1998 M5	1998 09 14.02220	20 28 51.24	+40 22 45.5	12.7 T	758
C/1998 M5	1998 09 14.02742	20 28 50.23	+40 22 46.6	12.4 T	758
C/1998 M5	1998 09 15.83498	20 23 02.49	+40 25 41.6	13.0 T	057
C/1998 M5	1998 09 15.83637	20 23 02.08	+40 25 43.5		057
C/1998 M5	1998 09 15.83792	20 23 01.68	+40 25 41.7	13.0 T	057
C/1998 M5	1998 09 15.84413	20 23 00.45	+40 25 42.2		057
C/1998 M5	1998 09 15.84696	20 22 59.90	+40 25 42.9		057
C/1998 M5	1998 09 15.84773	20 22 59.68	+40 25 43.1	12.7 T	057
C/1998 M5	1998 09 15.84836	20 22 59.58	+40 25 43.4		057
C/1998 M5	1998 09 15.84902	20 22 59.37	+40 25 43.7		057
C/1998 M5	1998 09 15.85111	20 22 59.10	+40 25 43.2		057
C/1998 M5	1998 09 15.85839	20 22 57.73	+40 25 42.5	12.8 T	057
C/1998 M5	1998 09 15.85899	20 22 57.50	+40 25 43.5		057
C/1998 M5	1998 09 16.52275	20 20 51.55	+40 26 19.7		355
C/1998 M5	1998 09 16.52439	20 20 51.27	+40 26 19.8	12.8 T	355
C/1998 M5	1998 09 16.52692	20 20 50.80	+40 26 19.6		355
C/1998 M5	1998 09 16.52847	20 20 50.50	+40 26 20.0	11.9 T	360
C/1998 M5	1998 09 16.53559	20 20 49.14	+40 26 20.3		360
C/1998 M5	1998 09 16.85244	20 19 49.48	+40 26 30.4	11.3 T	610
C/1998 M5	1998 09 16.85434	20 19 49.12	+40 26 30.6		610
C/1998 M5	1998 09 16.86118	20 19 47.83	+40 26 31.2		610
C/1998 M5	1998 09 17.81199	20 16 50.01	+40 26 45.0	11.5 T	610
C/1998 M5	1998 09 17.81513	20 16 49.43	+40 26 44.8		610
C/1998 M5	1998 09 17.81825	20 16 48.85	+40 26 44.7		610
C/1998 M5	1998 09 17.82161	20 16 48.22	+40 26 44.5		610
C/1998 M5	1998 09 17.82391	20 16 47.80	+40 26 44.4		610
C/1998 M5	1998 09 18.90903	20 13 27.72	+40 26 21.6	12.4 T	476
C/1998 M5	1998 09 18.91806	20 13 25.98	+40 26 21.3	12.4 T	476
C/1998 M5	1998 09 18.92188	20 13 25.34	+40 26 21.0	12.4 T	476
C/1998 M5	1998 09 19.00676	20 13 09.49	+40 26 16.8		157
C/1998 M5	1998 09 19.03106	20 13 04.94	+40 26 15.0		157
C/1998 M5	1998 09 19.21892	20 12 31.01	+40 26 10.9		670
C/1998 M5	1998 09 19.23698	20 12 27.66	+40 26 09.7	13.1 T	670
C/1998 M5	1998 09 19.59044	20 11 23.34	+40 25 51.2	13.4 T	351
C/1998 M5	1998 09 19.59281	20 11 22.99	+40 25 50.5		351
C/1998 M5	1998 09 19.60077	20 11 21.47	+40 25 50.3		351
C/1998 M5	1998 09 19.81823	20 10 42.41	+40 25 37.4	11.3 T	610
C/1998 M5	1998 09 19.82391	20 10 41.37	+40 25 36.8		610
C/1998 M5	1998 09 19.82654	20 10 40.89	+40 25 36.6		610
C/1998 M5	1998 09 19.83047	20 10 40.17	+40 25 36.2		610
C/1998 M5	1998 09 19.83360	20 10 39.59	+40 25 35.8		610
C/1998 M5	1998 09 19.88656	20 10 29.99	+40 25 31.3		504
C/1998 M5	1998 09 19.88863	20 10 29.63	+40 25 31.3		504
C/1998 M5	1998 09 19.88986	20 10 29.34	+40 25 31.2		504
C/1998 M5	1998 09 19.89102	20 10 29.12	+40 25 31.1		504
C/1998 M5	1998 09 20.81987	20 07 43.00	+40 24 16.6		143
C/1998 M5	1998 09 20.82145	20 07 42.73	+40 24 16.4		143
C/1998 M5	1998 09 20.82380	20 07 42.29	+40 24 15.9		143
C/1998 M5	1998 09 23.77727	19 59 11.00	+40 17 38.2	12.7 T	118

C/1998 M5	1998 09 23.78198	19 59 10.21	+40 17 37.1			118
C/1998 M5	1998 09 23.84806	19 58 58.99	+40 17 26.4			504
C/1998 M5	1998 09 23.85042	19 58 58.57	+40 17 25.5			504
C/1998 M5	1998 09 23.85319	19 58 58.11	+40 17 25.2			504
C/1998 M5	1998 09 23.85451	19 58 57.81	+40 17 25.0			504
C/1998 M5	1998 09 23.85569	19 58 57.66	+40 17 24.7			504
C/1998 M5	1998 09 24.90006	19 56 03.65	+40 14 08.3			611
C/1998 M5	1998 09 24.90284	19 56 03.25	+40 14 07.8			611
C/1998 M5	1998 09 24.90561	19 56 02.74	+40 14 07.6			611
C/1998 M5	1998 09 24.90839	19 56 02.31	+40 14 07.0			611
C/1998 M5	1998 09 24.91117	19 56 01.82	+40 14 05.9			611
C/1998 M5	1998 09 24.91395	19 56 01.37	+40 14 05.5			611
C/1998 M5	1998 09 24.91673	19 56 00.90	+40 14 04.9			611
C/1998 M5	1998 09 24.91950	19 56 00.48	+40 14 04.0			611
C/1998 M5	1998 09 24.95079	19 55 55.14	+40 13 57.8	13.4	T	071
C/1998 M5	1998 09 24.95199	19 55 54.95	+40 13 57.0	13.4	T	071
C/1998 M5	1998 09 24.95318	19 55 54.81	+40 13 57.2	13.4	T	071
C/1998 M5	1998 09 24.95437	19 55 54.62	+40 13 56.5	13.5	T	071
C/1998 M5	1998 09 24.95557	19 55 54.41	+40 13 56.9	13.4	T	071
C/1998 M5	1998 09 24.95677	19 55 54.18	+40 13 56.3	13.4	T	071
C/1998 M5	1998 09 24.95796	19 55 53.98	+40 13 55.5	13.4	T	071
C/1998 M5	1998 09 25.82012	19 53 33.58	+40 10 55.4			046
C/1998 M5	1998 09 25.82215	19 53 33.23	+40 10 54.9			046
C/1998 M5	1998 09 25.82293	19 53 33.11	+40 10 54.8			046
C/1998 M5	1998 09 25.82372	19 53 33.00	+40 10 54.6			046
C/1998 M5	1998 09 26.91477	19 50 38.45	+40 06 40.5	12.9	T	071
C/1998 M5	1998 09 26.91650	19 50 38.16	+40 06 40.0	12.9	T	071
C/1998 M5	1998 09 26.91771	19 50 37.96	+40 06 39.8	12.9	T	071
C/1998 M5	1998 09 26.91891	19 50 37.77	+40 06 39.5	12.9	T	071
C/1998 M5	1998 09 26.92012	19 50 37.61	+40 06 39.0	12.9	T	071
C/1998 M5	1998 09 26.92132	19 50 37.39	+40 06 38.7	12.9	T	071
C/1998 M5	1998 09 26.92251	19 50 37.18	+40 06 38.2	13.0	T	071
C/1998 M5	1998 09 26.92372	19 50 37.01	+40 06 37.9	12.9	T	071
C/1998 M5	1998 09 28.20965	19 47 16.81	+40 01 10.1			750
C/1998 M5	1998 09 28.21948	19 47 15.28	+40 01 07.2			750
C/1998 M5	1998 09 30.83736	19 40 46.22	+39 48 27.4	12.6	T	057
C/1998 M5	1998 09 30.83819	19 40 46.13	+39 48 28.1			057
C/1998 M5	1998 09 30.84015	19 40 46.03	+39 48 26.9			057
C/1998 M5	1998 09 30.84279	19 40 45.49	+39 48 24.7	12.7	T	057
C/1998 M5	1998 09 30.84385	19 40 45.18	+39 48 24.6			057
C/1998 M5	1998 09 30.84683	19 40 44.88	+39 48 24.2			057
C/1998 M5	1998 09 30.84910	19 40 44.47	+39 48 23.3	12.8	T	057
C/1998 M5	1998 10 01.43257	19 39 21.27	+39 45 21.5	12.0	T	402
C/1998 M5	1998 10 01.43465	19 39 20.97	+39 45 20.8			402
C/1998 M5	1998 10 01.43674	19 39 20.67	+39 45 20.1			402
C/1998 M5	1998 10 01.48925	19 39 13.09	+39 45 03.7			900
C/1998 M5	1998 10 01.49850	19 39 11.79	+39 45 00.0	12.3	T	900
C/1998 M5	1998 10 01.53039	19 39 07.11	+39 44 49.6	13.0	T	351
C/1998 M5	1998 10 01.53287	19 39 06.91	+39 44 48.6			351
C/1998 M5	1998 10 01.53510	19 39 06.58	+39 44 49.3			351
C/1998 M5	1998 10 04.02416	19 33 25.97	+39 30 52.8			758
C/1998 M5	1998 10 04.02773	19 33 25.43	+39 30 51.1	13.1	T	758
C/1998 M5	1998 10 04.03363	19 33 24.64	+39 30 49.6	12.9	T	758
C/1998 M5	1998 10 04.49051	19 32 24.42	+39 28 07.2	12.8	T	351
C/1998 M5	1998 10 04.49269	19 32 24.15	+39 28 06.6			351
C/1998 M5	1998 10 04.49582	19 32 23.71	+39 28 05.7			351
C/1998 M5	1998 10 05.04574	19 31 12.44	+39 24 48.9	12.8	T	758
C/1998 M5	1998 10 05.04825	19 31 12.16	+39 24 47.5	12.7	T	758
C/1998 M5	1998 10 05.05079	19 31 11.94	+39 24 46.5	12.4	T	758

C/1998 M6 (Montani)

C/1998 M6	1998 09 08.47705	19 59 55.50	−13 03 19.7	19.2	T	402
C/1998 M6	1998 09 08.48052	19 59 55.36	−13 03 21.2			402
C/1998 M6	1998 09 08.48399	19 59 55.34	−13 03 20.0			402
C/1998 M6	1998 09 09.46235	19 59 20.20	−12 59 37.5	19.3	T	402
C/1998 M6	1998 09 09.46514	19 59 20.06	−12 59 38.4			402
C/1998 M6	1998 09 09.46792	19 59 19.96	−12 59 38.5			402
C/1998 M6	1998 09 09.47069	19 59 19.85	−12 59 36.2			402

C/1998 P1 (Williams)

C/1998 P1	1998 08 21.06389	14 09 53.75	−53 20 25.9	9.8	T	860
C/1998 P1	1998 08 21.07425	14 09 51.94	−53 19 50.8	10.2	T	860
C/1998 P1	1998 08 21.08184	14 09 50.50	−53 19 24.1	10.0	T	860
C/1998 P1	1998 08 21.09390	14 09 48.33	−53 18 41.9	10.5	T	860
C/1998 P1	1998 09 01.94279	13 46 56.84	−43 58 08.6	9.9	T	860
C/1998 P1	1998 09 01.95330	13 46 56.19	−43 57 44.3	10.0	T	860
C/1998 P1	1998 09 01.96069	13 46 55.62	−43 57 27.0	10.0	T	860
C/1998 P1	1998 09 10.02034	13 39 51.10	−39 26 11.0	10.8	T	844
C/1998 P1	1998 09 10.02170	13 39 51.01	−39 26 07.9	10.8	T	844
C/1998 P1	1998 09 10.02321	13 39 50.98	−39 26 04.6	10.9	T	844
C/1998 P1	1998 09 13.98769	13 37 32.60	−37 35 47.5	8.6	T	844
C/1998 P1	1998 09 13.99950	13 37 32.30	−37 35 28.6	8.6	T	844
C/1998 P1	1998 09 14.01264	13 37 31.86	−37 35 07.5	8.4	T	844
C/1998 P1	1998 09 18.37271	13 35 34.53	−35 47 33.4	14.0	N	422
C/1998 P1	1998 09 18.37775	13 35 34.41	−35 47 26.1	14.0	N	422
C/1998 P1	1998 09 18.37815	13 35 34.39	−35 47 25.4	14.2	N	422

C/1998 Q1 (LINEAR)

C/1998 Q1	1998 09 02.12155	22 12 19.27	−06 08 38.1	17.1	T	860
C/1998 Q1	1998 09 02.12862	22 12 19.29	−06 08 52.5	16.4	T	860
C/1998 Q1	1998 09 02.13426	22 12 19.27	−06 09 06.2	16.8	T	860
C/1998 Q1	1998 09 08.58545	22 14 53.51	−10 19 05.3			355
C/1998 Q1	1998 09 08.59137	22 14 53.63	−10 19 18.1	16.7	T	355
C/1998 Q1	1998 09 09.49713	22 15 16.91	−10 51 36.5	16.8	T	402
C/1998 Q1	1998 09 09.49852	22 15 16.89	−10 51 39.6			402
C/1998 Q1	1998 09 09.49991	22 15 16.94	−10 51 42.8			402
C/1998 Q1	1998 09 10.84025	22 15 51.29	−11 38 15.0			108
C/1998 Q1	1998 09 10.84320	22 15 51.62	−11 38 20.1			108
C/1998 Q1	1998 09 10.84696	22 15 51.81	−11 38 29.3	16.3	T	108
C/1998 Q1	1998 09 12.57402	22 16 37.34	−12 36 02.5	16.2	T	402
C/1998 Q1	1998 09 12.57542	22 16 37.44	−12 36 05.1			402
C/1998 Q1	1998 09 12.57681	22 16 37.47	−12 36 07.8			402
C/1998 Q1	1998 09 12.63008	22 16 38.71	−12 37 51.0			352
C/1998 Q1	1998 09 12.63286	22 16 38.80	−12 37 55.7			352
C/1998 Q1	1998 09 12.63564	22 16 38.88	−12 38 01.5			352
C/1998 Q1	1998 09 14.14564	22 17 21.00	−13 26 07.4	17.9	T	704
C/1998 Q1	1998 09 14.16758	22 17 21.53	−13 26 48.2	17.9	T	704

C/1998 Q1	1998 09 14.18953	22 17 22.05	−13 27 29.1	17.9	T	704
C/1998 Q1	1998 09 14.21154	22 17 22.81	−13 28 12.9	18.7	T	704
C/1998 Q1	1998 09 14.23367	22 17 23.15	−13 28 51.2	17.9	T	704
C/1998 Q1	1998 09 15.15589	22 17 49.30	−13 57 09.6	17.3	T	758
C/1998 Q1	1998 09 15.16074	22 17 49.59	−13 57 18.4	16.4	T	758
C/1998 Q1	1998 09 15.47697	22 17 58.71	−14 06 41.0	16.9	T	426
C/1998 Q1	1998 09 15.48148	22 17 58.85	−14 06 49.3	16.9	T	426
C/1998 Q1	1998 09 15.48631	22 17 58.92	−14 06 57.9	17.2	T	426
C/1998 Q1	1998 09 16.12403	22 18 17.64	−14 25 59.5	17.2	T	699
C/1998 Q1	1998 09 16.14638	22 18 18.23	−14 26 40.2			699
C/1998 Q1	1998 09 16.16874	22 18 18.82	−14 27 20.3			699
C/1998 Q1	1998 09 16.55625	22 18 29.96	−14 38 41.8	16.0	T	360
C/1998 Q1	1998 09 16.56042	22 18 30.06	−14 38 48.9			360
C/1998 Q1	1998 09 16.56424	22 18 30.18	−14 38 55.1			360
C/1998 Q1	1998 09 17.56927	22 19 00.16	−15 07 37.7	16.2	T	360
C/1998 Q1	1998 09 17.57309	22 19 00.24	−15 07 44.6			360
C/1998 Q1	1998 09 17.57674	22 19 00.33	−15 07 50.7			360
C/1998 Q1	1998 09 17.88356	22 19 09.74	−15 16 25.2	16.8	T	504
C/1998 Q1	1998 09 17.88906	22 19 09.92	−15 16 34.4	16.8	T	504
C/1998 Q1	1998 09 18.24928	22 19 20.78	−15 26 33.1	18.3	T	704
C/1998 Q1	1998 09 18.26211	22 19 21.11	−15 26 53.1	18.8	T	704
C/1998 Q1	1998 09 18.27501	22 19 21.41	−15 27 16.1	18.6	T	704
C/1998 Q1	1998 09 18.28785	22 19 21.86	−15 27 36.1	18.4	T	704
C/1998 Q1	1998 09 18.30067	22 19 22.18	−15 27 56.4	18.4	T	704
C/1998 Q1	1998 09 19.54734	22 20 01.20	−16 01 30.4			355
C/1998 Q1	1998 09 19.55119	22 20 01.30	−16 01 36.6			355
C/1998 Q1	1998 09 19.56560	22 20 01.80	−16 01 59.6	16.4	T	900
C/1998 Q1	1998 09 19.57478	22 20 02.00	−16 02 14.4			900
C/1998 Q1	1998 09 25.12020	22 23 09.04	−18 15 08.6	18.7	T	704
C/1998 Q1	1998 09 25.14362	22 23 09.79	−18 15 39.2	19.0	T	704
C/1998 Q1	1998 09 25.16680	22 23 10.60	−18 16 08.2	18.5	T	704
C/1998 Q1	1998 09 25.18995	22 23 11.32	−18 16 37.0	18.7	T	704
C/1998 Q1	1998 09 25.21309	22 23 12.06	−18 17 08.7	18.6	T	704
C/1998 Q1	1998 09 27.11997	22 24 22.25	−18 56 45.7	18.6	T	704
C/1998 Q1	1998 09 27.15546	22 24 23.47	−18 57 30.6	19.0	T	704
C/1998 Q1	1998 09 27.17316	22 24 24.08	−18 57 50.9	18.9	T	704
C/1998 Q1	1998 09 27.19121	22 24 24.67	−18 58 12.9	18.6	T	704

P/1998 QP$_{54}$ (LONEOS-Tucker)

P/1998 QP$_{54}$	1998 08 27.41419	00 31 51.89	+10 28 55.0	17.1	N	699
P/1998 QP$_{54}$	1998 08 27.44105	00 31 51.36	+10 29 23.2			699
P/1998 QP$_{54}$	1998 08 27.46587	00 31 50.89	+10 29 48.7			699
P/1998 QP$_{54}$	1998 08 28.26315	00 31 36.33	+10 43 45.6	17.9	N	704
P/1998 QP$_{54}$	1998 08 28.27206	00 31 36.09	+10 43 55.8	17.9	N	704
P/1998 QP$_{54}$	1998 08 28.28144	00 31 36.01	+10 44 06.1	18.3	N	704
P/1998 QP$_{54}$	1998 08 28.29073	00 31 35.79	+10 44 16.0	18.2	N	704
P/1998 QP$_{54}$	1998 08 28.30009	00 31 35.53	+10 44 25.5	18.2	N	704
P/1998 QP$_{54}$	1998 08 28.40667	00 31 33.21	+10 46 17.5	17.3	N	699
P/1998 QP$_{54}$	1998 08 28.44046	00 31 32.30	+10 46 53.1			699
P/1998 QP$_{54}$	1998 08 28.46596	00 31 31.76	+10 47 18.6			699
P/1998 QP$_{54}$	1998 09 13.21368	00 22 19.28	+15 12 15.4	16.7	T	683
P/1998 QP$_{54}$	1998 09 13.24137	00 22 17.84	+15 12 41.4	16.6	T	683
P/1998 QP$_{54}$	1998 09 13.26713	00 22 16.53	+15 13 06.4	16.8	T	683
P/1998 QP$_{54}$	1998 09 13.34537	00 22 12.47	+15 14 20.1			683
P/1998 QP$_{54}$	1998 09 13.34946	00 22 12.20	+15 14 23.4			683
P/1998 QP$_{54}$	1998 09 13.35626	00 22 11.86	+15 14 30.7			683
P/1998 QP$_{54}$	1998 09 13.39566	00 22 09.64	+15 15 06.5	16.0	T	683
P/1998 QP$_{54}$	1998 09 13.40240	00 22 09.45	+15 15 14.0	16.4	T	683
P/1998 QP$_{54}$	1998 09 13.40992	00 22 09.06	+15 15 21.3	16.6	T	683
P/1998 QP$_{54}$	1998 09 13.43797	00 22 07.54	+15 15 46.1	16.0	T	683
P/1998 QP$_{54}$	1998 09 13.44569	00 22 07.21	+15 15 55.0	16.3	T	683
P/1998 QP$_{54}$	1998 09 13.45365	00 22 06.75	+15 16 01.7	16.1	T	683
P/1998 QP$_{54}$	1998 09 13.48431	00 22 05.13	+15 16 29.8	15.8	T	683
P/1998 QP$_{54}$	1998 09 13.49155	00 22 04.82	+15 16 36.8	16.3	T	683
P/1998 QP$_{54}$	1998 09 13.50034	00 22 04.42	+15 16 46.2	16.1	T	683
P/1998 QP$_{54}$	1998 09 13.78712	00 21 51.17	+15 21 14.1	17.2	T	046
P/1998 QP$_{54}$	1998 09 13.78839	00 21 51.09	+15 21 16.0			046
P/1998 QP$_{54}$	1998 09 13.79058	00 21 50.94	+15 21 18.4			046
P/1998 QP$_{54}$	1998 09 13.79356	00 21 50.86	+15 21 19.9			046
P/1998 QP$_{54}$	1998 09 13.79558	00 21 50.70	+15 21 21.9			046
P/1998 QP$_{54}$	1998 09 13.79682	00 21 50.69	+15 21 23.1			046
P/1998 QP$_{54}$	1998 09 13.87256	00 21 46.78	+15 22 34.8	17.5	N	557
P/1998 QP$_{54}$	1998 09 13.87419	00 21 46.69	+15 22 36.3	15.8	T	557
P/1998 QP$_{54}$	1998 09 13.87582	00 21 46.62	+15 22 38.1			557
P/1998 QP$_{54}$	1998 09 14.26894	00 21 26.86	+15 28 48.0			683
P/1998 QP$_{54}$	1998 09 14.28775	00 21 26.05	+15 29 06.1	16	T	703
P/1998 QP$_{54}$	1998 09 14.29257	00 21 25.58	+15 29 09.7			683
P/1998 QP$_{54}$	1998 09 14.32912	00 21 23.64	+15 29 44.8			703
P/1998 QP$_{54}$	1998 09 14.88600	00 20 55.72	+15 38 20.6			587
P/1998 QP$_{54}$	1998 09 14.89164	00 20 55.40	+15 38 27.3			587
P/1998 QP$_{54}$	1998 09 15.20823	00 20 39.21	+15 43 21.4	15.3	T	2 758
P/1998 QP$_{54}$	1998 09 15.21159	00 20 38.82	+15 43 26.9	16.4	T	758
P/1998 QP$_{54}$	1998 09 15.21437	00 20 38.65	+15 43 29.4	16.2	T	758
P/1998 QP$_{54}$	1998 09 15.26166	00 20 36.34	+15 44 12.2			703
P/1998 QP$_{54}$	1998 09 15.32676	00 20 32.76	+15 45 12.8			703
P/1998 QP$_{54}$	1998 09 15.35670	00 20 30.72	+15 45 34.7	15.9	T	691
P/1998 QP$_{54}$	1998 09 15.36245	00 20 30.49	+15 45 41.2	16.1	T	691
P/1998 QP$_{54}$	1998 09 16.23332	00 19 45.62	+15 59 03.7			693
P/1998 QP$_{54}$	1998 09 16.23747	00 19 45.39	+15 59 07.5			693
P/1998 QP$_{54}$	1998 09 16.24152	00 19 45.17	+15 59 11.2			693
P/1998 QP$_{54}$	1998 09 16.52542	00 19 30.13	+16 03 27.1			411
P/1998 QP$_{54}$	1998 09 16.53053	00 19 29.85	+16 03 32.0			411
P/1998 QP$_{54}$	1998 09 16.56054	00 19 28.14	+16 04 00.0	15.9	T	355
P/1998 QP$_{54}$	1998 09 16.56694	00 19 27.77	+16 04 05.3			355
P/1998 QP$_{54}$	1998 09 16.57422	00 19 27.41	+16 04 12.3			355
P/1998 QP$_{54}$	1998 09 16.57694	00 19 27.24	+16 04 13.4	16.1	T	352
P/1998 QP$_{54}$	1998 09 16.57972	00 19 27.14	+16 04 16.6			352
P/1998 QP$_{54}$	1998 09 16.58250	00 19 27.00	+16 04 19.6			352
P/1998 QP$_{54}$	1998 09 16.61198	00 19 25.36	+16 04 46.7	15.8	T	360
P/1998 QP$_{54}$	1998 09 16.61667	00 19 25.10	+16 04 51.3			360
P/1998 QP$_{54}$	1998 09 16.62118	00 19 24.84	+16 04 55.5			360
P/1998 QP$_{54}$	1998 09 16.69834	00 19 20.44	+16 06 04.6			900
P/1998 QP$_{54}$	1998 09 16.70721	00 19 19.89	+16 06 12.4	15.4	T	900
P/1998 QP$_{54}$	1998 09 17.61753	00 18 31.14	+16 19 50.4	15.7	T	360
P/1998 QP$_{54}$	1998 09 17.62813	00 18 30.50	+16 19 59.8			360
P/1998 QP$_{54}$	1998 09 17.63194	00 18 30.29	+16 20 03.4			360

P/1998 QP_{54}	1998 09 17.90519	00 18 15.53	+16 24 02.6		504
P/1998 QP_{54}	1998 09 17.90689	00 18 15.48	+16 24 04.1	15.9 T	504
P/1998 QP_{54}	1998 09 17.90840	00 18 15.35	+16 24 05.8		504
P/1998 QP_{54}	1998 09 18.89375	00 17 20.77	+16 38 35.4		557
P/1998 QP_{54}	1998 09 18.89608	00 17 20.65	+16 38 37.4	16.8 N	557
P/1998 QP_{54}	1998 09 18.89840	00 17 20.51	+16 38 39.5	15.6 T	557
P/1998 QP_{54}	1998 09 19.28420	00 16 58.82	+16 44 17.3		683
P/1998 QP_{54}	1998 09 19.29168	00 16 58.35	+16 44 23.1		683
P/1998 QP_{54}	1998 09 19.30013	00 16 57.83	+16 44 30.2		683
P/1998 QP_{54}	1998 09 19.32133	00 16 56.79	+16 44 50.1	17.0 T	699
P/1998 QP_{54}	1998 09 19.34616	00 16 55.11	+16 45 09.8		699
P/1998 QP_{54}	1998 09 19.37029	00 16 53.52	+16 45 31.2		699
P/1998 QP_{54}	1998 09 19.55879	00 16 43.52	+16 48 14.1	16.0 T	886
P/1998 QP_{54}	1998 09 19.57410	00 16 42.56	+16 48 31.1		886
P/1998 QP_{54}	1998 09 19.58220	00 16 42.08	+16 48 36.0	15.4 T	355
P/1998 QP_{54}	1998 09 19.58502	00 16 41.88	+16 48 38.7		355
P/1998 QP_{54}	1998 09 19.58632	00 16 41.78	+16 48 39.3		355
P/1998 QP_{54}	1998 09 19.58818	00 16 41.74	+16 48 41.8	15.3 T	900
P/1998 QP_{54}	1998 09 19.59733	00 16 41.14	+16 48 49.2		900
P/1998 QP_{54}	1998 09 19.60085	00 16 40.97	+16 48 52.7	15.4 T	402
P/1998 QP_{54}	1998 09 19.60258	00 16 40.87	+16 48 54.3		402
P/1998 QP_{54}	1998 09 19.60432	00 16 40.76	+16 48 55.9		402
P/1998 QP_{54}	1998 09 19.60605	00 16 40.65	+16 48 57.3		402
P/1998 QP_{54}	1998 09 20.05140	00 16 15.11	+16 55 18.3		046
P/1998 QP_{54}	1998 09 20.05341	00 16 14.99	+16 55 20.4		046
P/1998 QP_{54}	1998 09 20.05419	00 16 14.95	+16 55 20.8		046
P/1998 QP_{54}	1998 09 20.05503	00 16 14.90	+16 55 21.3		046
P/1998 QP_{54}	1998 09 20.34366	00 15 58.52	+16 59 29.0	15.5 T	683
P/1998 QP_{54}	1998 09 20.35106	00 15 58.06	+16 59 35.3	15.4 T	683
P/1998 QP_{54}	1998 09 20.35836	00 15 57.61	+16 59 41.4	15.4 T	683
P/1998 QP_{54}	1998 09 20.88443	00 15 27.92	+17 07 07.0		587
P/1998 QP_{54}	1998 09 20.89045	00 15 27.51	+17 07 12.2		587
P/1998 QP_{54}	1998 09 21.37030	00 14 59.39	+17 13 55.2	15.3 T	683
P/1998 QP_{54}	1998 09 21.37711	00 14 58.85	+17 14 00.4	15.4 T	683
P/1998 QP_{54}	1998 09 21.38234	00 14 58.55	+17 14 04.8	15.4 T	683
P/1998 QP_{54}	1998 09 21.87435	00 14 30.53	+17 20 54.9	15.6 T	504
P/1998 QP_{54}	1998 09 21.87650	00 14 30.46	+17 20 56.9	15.6 T	504
P/1998 QP_{54}	1998 09 21.88177	00 14 30.08	+17 21 02.3	15.4 T	504
P/1998 QP_{54}	1998 09 21.88334	00 14 30.01	+17 21 03.1	15.4 T	504
P/1998 QP_{54}	1998 09 21.88575	00 14 29.86	+17 21 04.9	15.5 T	504
P/1998 QP_{54}	1998 09 21.88980	00 14 29.62	+17 21 08.2	15.6 T	504
P/1998 QP_{54}	1998 09 23.00095	00 13 23.96	+17 36 20.1	15.7 T	113
P/1998 QP_{54}	1998 09 23.00866	00 13 23.53	+17 36 26.8	15.8 T	113
P/1998 QP_{54}	1998 09 24.34830	00 12 03.97	+17 54 19.2	15.6 T	683
P/1998 QP_{54}	1998 09 24.37617	00 12 02.09	+17 54 40.2	15.6 T	683
P/1998 QP_{54}	1998 09 24.38560	00 12 01.60	+17 54 49.8	15.5 T	683
P/1998 QP_{54}	1998 09 24.88566	00 11 32.23	+18 01 21.5	15.5 T	113
P/1998 QP_{54}	1998 09 24.92021	00 11 30.09	+18 01 48.2	15.5 T	113
P/1998 QP_{54}	1998 09 25.83304	00 10 35.61	+18 13 36.4	15.7 T	113
P/1998 QP_{54}	1998 09 26.82655	00 09 35.65	+18 26 07.4		046
P/1998 QP_{54}	1998 09 26.82748	00 09 35.59	+18 26 07.6		046
P/1998 QP_{54}	1998 09 26.82840	00 09 35.54	+18 26 09.7		046
P/1998 QP_{54}	1998 10 02.53608	00 03 52.49	+19 32 40.6	14.3 T	402
P/1998 QP_{54}	1998 10 02.53747	00 03 52.43	+19 32 41.5		402
P/1998 QP_{54}	1998 10 02.53885	00 03 52.32	+19 32 42.5		402
P/1998 QP_{54}	1998 10 04.04719	00 02 24.04	+19 48 42.5		758
P/1998 QP_{54}	1998 10 04.05309	00 02 23.48	+19 48 46.5		758
P/1998 QP_{54}	1998 10 05.05650	00 01 25.34	+19 58 58.5	14.8 T	758
P/1998 QP_{54}	1998 10 05.06172	00 01 25.10	+19 59 01.9	14.9 T	758
P/1998 QP_{54}	1998 10 05.06784	00 01 24.80	+19 59 09.6	15.4 T	758

2P/Encke

2P	1998 09 16.27801	22 06 30.45	−11 26 43.6		693
2P	1998 09 16.28618	22 06 30.00	−11 26 45.7		693
2P	1998 09 16.29428	22 06 29.58	−11 26 47.6	20.1 T	693

4P/Faye

4P	1998 09 09.47292	19 28 35.86	−10 16 46.9	16.2 T	360
4P	1998 09 09.47587	19 28 35.84	−10 16 47.9		360
4P	1998 09 16.17823	19 28 05.12	−10 47 11.7		693
4P	1998 09 16.18225	19 28 05.10	−10 47 12.9		693
4P	1998 09 16.18558	19 28 05.12	−10 47 14.0		693
4P	1998 09 16.47170	19 28 05.50	−10 48 29.3	16.1 T	360
4P	1998 09 16.47483	19 28 05.51	−10 48 30.1		360

21P/Giacobini-Zinner

21P	1998 08 31.81810	16 30 28.57	+19 33 49.7	13.0 T	605
21P	1998 08 31.83372	16 30 29.45	+19 33 34.3	13.0 T	605
21P	1998 09 06.78837	16 37 19.78	+17 51 53.6		587
21P	1998 09 06.81163	16 37 21.52	+17 51 28.9		587
21P	1998 09 06.81505	16 37 21.78	+17 51 25.3		587
21P	1998 09 08.51486	16 39 35.32	+17 21 15.3		355
21P	1998 09 08.51704	16 39 35.47	+17 21 12.6		355
21P	1998 09 08.53330	16 39 36.80	+17 20 55.0	12.8 T	355
21P	1998 09 09.12134	16 40 24.82	+17 10 21.1	14.5 T	750
21P	1998 09 09.12602	16 40 25.18	+17 10 15.9	15.0 T	750
21P	1998 09 09.45313	16 40 52.25	+17 04 23.1	12.0 T	360
21P	1998 09 09.45573	16 40 52.45	+17 04 20.3		360
21P	1998 09 10.47308	16 42 18.33	+16 45 50.3	12.2 T	402
21P	1998 09 10.47447	16 42 18.44	+16 45 48.8		402
21P	1998 09 10.47586	16 42 18.57	+16 45 47.2		402
21P	1998 09 12.51306	16 45 18.54	+16 08 12.4		352
21P	1998 09 12.51583	16 45 18.81	+16 08 08.9		352
21P	1998 09 12.51861	16 45 19.02	+16 08 05.7	12.6 T	352
21P	1998 09 13.43391	16 46 43.48	+15 50 57.9	12.5 T	351
21P	1998 09 13.43778	16 46 43.82	+15 50 53.7		351
21P	1998 09 13.44891	16 46 44.87	+15 50 41.5		351
21P	1998 09 16.10530	16 51 01.89	+15 00 02.7	14.7 T	750
21P	1998 09 16.14538	16 51 05.85	+14 59 16.1	14.7 T	750
21P	1998 09 16.16295	16 51 07.61	+14 58 57.0		693
21P	1998 09 16.16497	16 51 07.81	+14 58 54.6		693
21P	1998 09 16.16709	16 51 08.03	+14 58 52.1		693
21P	1998 09 16.45296	16 51 36.90	+14 53 20.3	13.1 T	351
21P	1998 09 16.47497	16 51 39.08	+14 52 54.7		351
21P	1998 09 16.47679	16 51 39.27	+14 52 51.9		351
21P	1998 09 17.44149	16 53 18.14	+14 34 06.0	11.3 T	360
21P	1998 09 17.44392	16 53 18.38	+14 34 03.0		360

21P	1998 09 18.07497	16 54 24.42	+14 21 39.0	14.5	T	750
21P	1998 09 18.08473	16 54 25.44	+14 21 27.3	14.8	T	750
21P	1998 09 18.78205	16 55 39.66	+14 07 40.6	14.2	N	143
21P	1998 09 18.79263	16 55 40.80	+14 07 28.3	14.0	T	143
21P	1998 09 18.80437	16 55 42.03	+14 07 14.6	14.0	T	143
21P	1998 09 18.82890	16 55 44.87	+14 06 45.1	12.6	T	476
21P	1998 09 18.83646	16 55 45.70	+14 06 37.2	12.6	T	476
21P	1998 09 18.84288	16 55 46.34	+14 06 29.4	12.6	T	476
21P	1998 09 18.84931	16 55 47.10	+14 06 20.1	12.6	T	476
21P	1998 09 20.46552	16 58 43.94	+13 34 02.7			900
21P	1998 09 20.47297	16 58 44.76	+13 33 53.8			900
21P	1998 09 20.50528	16 58 48.26	+13 33 15.1	12.3	T	351
21P	1998 09 20.50757	16 58 48.54	+13 33 12.4			351
21P	1998 09 20.81632	16 59 23.30	+13 26 57.6			587
21P	1998 09 20.81996	16 59 23.70	+13 26 53.6			587
21P	1998 09 23.76124	17 05 06.78	+12 26 33.4			118
21P	1998 09 23.76481	17 05 07.17	+12 26 29.4			118
21P	1998 09 24.85086	17 07 19.85	+12 03 46.6	11.7	T	071
21P	1998 09 24.85321	17 07 20.22	+12 03 43.6	11.7	T	071
21P	1998 09 24.85439	17 07 20.62	+12 03 42.5	11.4	T	071
21P	1998 09 24.85557	17 07 20.58	+12 03 40.9	11.6	T	071
21P	1998 09 24.85675	17 07 20.73	+12 03 39.6	11.4	T	071
21P	1998 09 24.85793	17 07 20.97	+12 03 38.0	11.5	T	071
21P	1998 09 24.86061	17 07 20.96	+12 03 34.3	11.9	T	071
21P	1998 09 24.86142	17 07 21.02	+12 03 33.8	11.9	T	071
21P	1998 09 24.86223	17 07 21.14	+12 03 32.4	12.1	T	071
21P	1998 09 24.86303	17 07 21.19	+12 03 31.6	12.1	T	071
21P	1998 09 24.86385	17 07 21.18	+12 03 30.1	12.3	T	071
21P	1998 09 24.86466	17 07 21.45	+12 03 29.4	12.0	T	071
21P	1998 09 24.86547	17 07 21.53	+12 03 28.7	12.0	T	071
21P	1998 09 24.86706	17 07 22.09	+12 03 26.9	11.5	T	071
21P	1998 09 25.76887	17 09 14.56	+11 44 23.3	11.6	T	071
21P	1998 09 25.77005	17 09 14.76	+11 44 22.0	11.6	T	071
21P	1998 09 25.77123	17 09 15.03	+11 44 20.7	11.4	T	071
21P	1998 09 25.77241	17 09 15.00	+11 44 19.1	11.6	T	071
21P	1998 09 25.77359	17 09 15.32	+11 44 17.7	11.4	T	071
21P	1998 09 25.77477	17 09 15.42	+11 44 16.4	11.5	T	071
21P	1998 09 25.77595	17 09 15.56	+11 44 14.0	11.5	T	071
21P	1998 09 25.77796	17 09 15.78	+11 44 11.7	11.5	T	071
21P	1998 09 25.77951	17 09 15.94	+11 44 10.1	11.6	T	071
21P	1998 09 25.78105	17 09 16.27	+11 44 08.0	11.4	T	071
21P	1998 09 25.78260	17 09 16.39	+11 44 05.9	11.3	T	071
21P	1998 09 25.78414	17 09 16.48	+11 44 04.1	11.5	T	071
21P	1998 09 25.78617	17 09 16.71	+11 44 01.1	11.5	T	071
21P	1998 09 25.78808	17 09 17.01	+11 43 59.9	11.4	T	071
21P	1998 09 25.78998	17 09 17.27	+11 43 57.2	11.4	T	071
21P	1998 09 30.74365	17 20 15.29	+09 56 10.8	11.9	T	057
21P	1998 09 30.74527	17 20 15.48	+09 56 07.7			057
21P	1998 09 30.74591	17 20 15.56	+09 56 07.7			057
21P	1998 09 30.74815	17 20 15.94	+09 56 04.7	12.0	T	057
21P	1998 09 30.74873	17 20 15.95	+09 56 05.0			057
21P	1998 09 30.75148	17 20 16.61	+09 56 02.6			057
21P	1998 09 30.75307	17 20 16.67	+09 55 59.8	12.0	T	057
21P	1998 09 30.75412	17 20 16.81	+09 55 57.4			057
21P	1998 09 30.76181	17 20 17.95	+09 55 46.8			057
21P	1998 09 30.76246	17 20 17.92	+09 55 46.6	12.0	T	057
21P	1998 09 30.76736	17 20 18.78	+09 55 39.2			057
21P	1998 09 30.76970	17 20 19.11	+09 55 36.8			057
21P	1998 09 30.77240	17 20 19.32	+09 55 33.2	12.0	T	057
21P	1998 10 01.41572	17 21 49.76	+09 41 09.7	11.0	T	402
21P	1998 10 01.41781	17 21 50.05	+09 41 06.9			402
21P	1998 10 01.41990	17 21 50.34	+09 41 04.1			402
21P	1998 10 01.45859	17 21 55.73	+09 40 12.1	10.9	T	900
21P	1998 10 01.47270	17 21 57.74	+09 39 53.2			900
21P	1998 10 02.44415	17 24 16.91	+09 17 58.4	11.2	T	351
21P	1998 10 02.45119	17 24 17.93	+09 17 48.6			351
21P	1998 10 02.45921	17 24 19.05	+09 17 37.7			351
21P	1998 10 04.45183	17 29 12.75	+08 31 55.4	11.9	T	351
21P	1998 10 04.45586	17 29 13.37	+08 31 50.2			351
21P	1998 10 04.45800	17 29 13.72	+08 31 47.1			351

52P/Harrington-Abell

52P	1998 07 23.01303	03 40 07.61	+27 37 25.9	14.8	N	094
52P	1998 07 23.01604	03 40 07.98	+27 37 27.3	15.0	N	094
52P	1998 07 23.01905	03 40 08.17	+27 37 28.7	15.0	N	094
52P	1998 09 08.07567	05 11 54.38	+33 41 51.4			629
52P	1998 09 08.07728	05 11 54.77	+33 41 51.9			629
52P	1998 09 08.08069	05 11 55.15	+33 41 52.9			629
52P	1998 09 19.61068	05 34 54.44	+34 54 02.0	15.3	T	351
52P	1998 09 19.61329	05 34 54.79	+34 54 04.5			351
52P	1998 09 19.62087	05 34 55.46	+34 54 07.6			351
52P	1998 09 19.70758	05 35 05.63	+34 54 38.9	13.9	T	355
52P	1998 09 19.71190	05 35 06.18	+34 54 40.7			355
52P	1998 09 19.72270	05 35 07.44	+34 54 44.4			355
52P	1998 09 19.79180	05 35 15.63	+34 55 09.9	13.3	T	900
52P	1998 09 19.79546	05 35 16.09	+34 55 10.9			900
52P	1998 09 30.14813	05 55 32.50	+35 54 20.7			046
52P	1998 09 30.14954	05 55 32.65	+35 54 21.2			046
52P	1998 09 30.15068	05 55 32.78	+35 54 21.6			046
52P	1998 10 02.77961	06 00 36.01	+36 08 37.0			900
52P	1998 10 02.78509	06 00 36.59	+36 08 38.8			900
52P	1998 10 02.82361	06 00 41.05	+36 08 51.7	13.2	T	360
52P	1998 10 02.82587	06 00 41.27	+36 08 52.4			360

59P/Kearns-Kwee

59P	1998 09 16.37527	23 02 33.49	+02 18 57.8			693
59P	1998 09 16.37936	23 02 33.31	+02 18 57.1			693
59P	1998 09 16.38341	23 02 33.13	+02 18 56.5	19.5	T	693

65P/Gunn

65P	1998 10 02.72828	03 47 01.80	+15 25 06.1	17.1	T	900
65P	1998 10 02.74216	03 47 01.63	+15 25 06.2			900
65P	1998 10 02.77431	03 47 00.90	+15 25 04.5	18.1	T	360
65P	1998 10 02.77934	03 47 00.81	+15 25 04.5			360

68P/Klemola

68P	1998 09 16.44685	03 45 56.29	+10 09 56.7			693
68P	1998 09 16.45094	03 45 56.37	+10 09 55.1			693

68P	1998 09 16.45497	03 45 56.45	+10 09 53.5	17.7	T	693
68P	1998 10 02.74253	03 47 08.85	+08 12 58.1	18.0	T	360
68P	1998 10 02.75156	03 47 08.76	+08 12 53.9			360
74P/Smirnova-Chernykh						
74P	1998 09 17.48617	04 00 02.11	+16 57 39.7			693
74P	1998 09 17.49031	04 00 02.13	+16 57 39.8			693
74P	1998 09 17.49434	04 00 02.15	+16 57 39.9	17.9	T	693
81P/Wild 2						
81P	1997 04 01.90167	08 15 26.78	+21 43 27.9			017
81P	1997 04 01.90412	08 15 27.00	+21 43 27.5			017
81P	1997 04 01.90601	08 15 27.18	+21 43 27.2			017
81P	1997 04 01.90964	08 15 28.11	+21 43 25.5			017
81P	1997 04 01.98061	08 15 34.10	+21 43 14.7			017
81P	1997 04 01.98244	08 15 34.27	+21 43 14.5			017
81P	1997 04 01.98418	08 15 34.43	+21 43 14.1			017
81P	1997 04 01.98593	08 15 34.59	+21 43 13.9			017
81P	1997 04 02.89172	08 17 01.27	+21 40 49.2			017
81P	1997 04 02.89439	08 17 01.43	+21 40 48.9			017
81P	1997 04 02.89612	08 17 01.60	+21 40 48.6			017
81P	1997 04 02.90006	08 17 01.90	+21 40 47.9			017
81P	1997 04 04.90405	08 20 19.10	+21 34 49.2			017
81P	1997 04 04.90615	08 20 19.31	+21 34 49.0			017
81P	1997 04 04.90825	08 20 19.53	+21 34 48.5			017
81P	1997 04 06.91539	08 23 45.18	+21 27 58.6			017
81P	1997 04 06.91714	08 23 45.35	+21 27 58.2			017
81P	1997 04 06.91890	08 23 45.54	+21 27 57.8			017
81P	1998 09 16.21036	20 17 36.90	−19 29 51.5			693
81P	1998 09 16.21887	20 17 36.76	−19 29 52.1			693
81P	1998 09 16.22707	20 17 36.66	−19 29 52.9	18.2	T	693
88P/Howell						
88P	1998 09 16.43681	15 59 47.62	−23 51 50.5	11.5	T	360
88P	1998 09 16.43889	15 59 48.04	−23 51 52.1			360
88P	1998 10 04.43448	17 02 47.76	−26 27 22.5	13.0	T	351
88P	1998 10 04.43666	17 02 48.41	−26 27 21.1			351
91P/Russell 3						
91P	1998 09 16.19593	19 56 53.86	−03 27 14.1			693
91P	1998 09 16.19995	19 56 53.88	−03 27 14.8			693
91P	1998 09 16.20399	19 56 53.90	−03 27 15.6	17.3	T	693
93P/Lovas 1						
93P	1998 09 01.01340	04 04 49.82	+32 59 04.1	15.6	T	605
93P	1998 09 01.02895	04 04 52.11	+32 59 19.5	15.5	T	605
93P	1998 09 01.04641	04 04 54.71	+32 59 37.2	15.4	T	605
93P	1998 09 08.03164	04 22 31.49	+34 48 30.8			629
93P	1998 09 08.03573	04 22 31.99	+34 48 36.4			629
93P	1998 09 08.03949	04 22 32.64	+34 48 39.8		1	629
93P	1998 09 19.65179	04 51 51.02	+37 37 54.7	14.9	T	355
93P	1998 09 19.65309	04 51 51.24	+37 37 55.5			355
93P	1998 09 19.65447	04 51 51.44	+37 37 56.4			355
93P	1998 09 19.77122	04 52 08.71	+37 39 35.1	14.8	T	900
93P	1998 09 19.77852	04 52 09.80	+37 39 41.3			900
93P	1998 10 02.61544	05 23 30.37	+40 26 31.0	14.7	T	355
93P	1998 10 02.61880	05 23 30.87	+40 26 33.8			355
93P	1998 10 02.75749	05 23 50.16	+40 28 16.3			900
93P	1998 10 02.76755	05 23 51.55	+40 28 23.2			900
93P	1998 10 02.83038	05 24 00.23	+40 29 09.4	14.5	T	360
93P	1998 10 02.83281	05 24 00.56	+40 29 11.2			360
117P/Helin-Roman-Alu 1						
117P	1998 09 19.67216	00 38 15.43	−08 48 29.7	16.3	T	900
117P	1998 09 19.68831	00 38 14.83	−08 48 32.8			900
121P/Shoemaker-Holt 2						
121P	1997 02 07.16036	10 47 54.95	+29 09 47.4			017
121P	1997 02 07.16443	10 47 54.81	+29 09 49.7			017
121P	1997 02 07.16853	10 47 54.67	+29 09 52.1			017
130P/McNaught-Hughes						
130P	1998 09 16.43385	02 35 47.31	+04 50 56.3			693
130P	1998 09 16.43801	02 35 47.23	+04 50 55.6			693
130P	1998 09 16.44204	02 35 47.15	+04 50 55.0	18.7	T	693
136P/Mueller 3						
136P	1998 09 12.54413	21 05 26.49	−18 09 03.8	18.4	T	402
136P	1998 09 12.54691	21 05 26.41	−18 09 04.7			402
136P	1998 09 12.54969	21 05 26.37	−18 09 04.6			402
136P	1998 09 16.54306	21 04 19.78	−18 23 12.2	18.4	T	3 360
136P	1998 09 16.54826	21 04 19.70	−18 23 13.5			3 360
136P	1998 09 17.50191	21 04 06.59	−18 26 21.4	18.3	T	360
136P	1998 09 17.50625	21 04 06.52	−18 26 22.5			360

Note 1: poor image. 2: involved with star. 3: bad seeing.

OBSERVATIONS OF MINOR PLANETS

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

012 Uccle

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

1987 RG, 3, 1, 0; 1990 WQ_4, 2, 1, 0; 1992 OF_1, 3, 1, 0; 1993 UP_8, 3, 1, 0; 1994 PS_{11}, 6, 2, 7; 1998 SH_{49} ∗, 6, 2, 7; (453), 3, 1, 0; (1389), 3, 1, 0; (1472), 2, 1, 0; (3368), 3, 1, 0; (4548), 3, 1, 0; *[37, 11, 1∗, 1996/06/15–1998/10/01]*

017 Hoher List

N. Ehring, Stationenweg 54, D-53332 Bornheim, Germany [norbert.ehring@t-online.de]
0.34-m f/4 Schmidt + CCD
GSC

1972 PA, 2, 1, 0; 1986 TV_6, 2, 1, 0; 1991 PT_9, 2, 1, 0; 1996 AP_3, 4, 2, 1; 1998 PG, 2, 1, 0; *[12, 5, 0∗, 1998/09/23–1998/09/24]*

033 Tautenburg

F. Börngen, Thüringer Landessternwarte, Sternwarte 5, D-07778 Tautenburg, Germany [boerg@tls.tautenburg.de]
1.3-m Schmidt telescope
PPM
(3845), 3, 2, 2; (3993), 3, 2, 2; (5364), 3, 2, 2; (5904), 3, 2, 2; (5941), 3, 2, 2; (6232), 3, 2, 2; (9232), 3, 2, 2; *[21, 7, 0∗, 1994/04/06–1994/04/08]*

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
1981 TT, 6, 2, 5; 1983 RB_2, 2, 1, 0; 1985 UJ, 5, 2, 5; 1988 GQ, 6, 2, 5; 1989 BV_1, 6, 2, 1; 1995 UD_4, 3, 1, 0; 1996 AR, 6, 2, 1; 1996 AO_1, 6, 2, 1; 1996 DL_1, 15, 4, 25; 1996 LA, 6, 2, 5; 1996 TR_6, 8, 2, 1; 1997 GY, 7, 2, 1; 1997 GL_{11}, 3, 1, 0; 1997 PU_2, 6, 2, 5; 1997 US_9, 4, 1, 0; 1998 MX_5, 3, 1, 0; 1998 ML_{14}, 3, 1, 0; 1998 ML_{24}, 6, 2, 1; 1998 MT_{24}, 3, 1, 0; 1998 PJ, 9, 3, 15; 1998 PB_1, 3, 1, 0; 1998 QR, 3, 1, 0; 1998 QA_1, 8, 2, 14; 1998 QC_1, 4, 1, 0; 1998 QH_1, 4, 1, 0; 1998 QC_2, 9, 3, 15; 1998 QD_2, 7, 2, 14; 1998 QE_2, 7, 2, 14; 1998 QH_2, 3, 1, 0; 1998 QR_{15}, 4, 1, 0; 1998 QQ_{52}, 3, 1, 0; 1998 QR_{52}, 6, 2, 6; 1998 QS_{52}, 13, 4, 20; 1998 QK_{56}, 12, 3, 10; 1998 QQ_{63}, 3, 1, 0; 1998 QH_{79}, 8, 2, 1; 1998 QO_{84}, 10, 2, 1; 1998 QF_{98}, 2, 1, 0; 1998 QV_{98} ∗, 26, 7, 29; 1998 RN_1, 3, 1, 0; 1998 RO_1, 4, 1, 0; 1998 RS_{14}, 9, 2, 4; 1998 SO, 11, 3, 5; 1998 SD_2, 4, 1, 0; 1998 SG_2, 7, 2, 5; 1998 SH_2, 3, 1, 0; 1998 SJ_2, 7, 2, 5; 1998 SP_2, 6, 1, 0; 1998 SX_2, 3, 1, 0; 1998 SG_4, 4, 1, 0; 1998 SS_4, 3, 1, 0; 1998 ST_4, 5, 1, 0; 1998 SU_4, 5, 1, 0; 1998 SV_4, 9, 2, 10; 1998 SO_{10}, 4, 1, 0; 1998 SW_{14} ∗, 6, 2, 1; 1998 SX_{14} ∗, 7, 2, 1; 1998 SY_{14}, 8, 2, 1; 1998 SZ_{14}, 4, 1, 0; 1998 SB_{15}, 7, 2, 1; 1998 SC_{15}, 16, 4, 6; 1998 SD_{15}, 16, 4, 6; 1998 SN_{26} ∗, 8, 2, 1; 1998 SO_{26} ∗, 9, 2, 1; 1998 SP_{26} ∗, 9, 2, 1; 1998 SQ_{26} ∗, 9, 2, 1; 1998 ST_{27}, 19, 5, 5; 1998 SU_{27}, 19, 5, 5; 1998 SE_{35}, 15, 4, 5; 1998 SF_{35}, 9, 3, 5; 1998 SZ_{35} ∗, 10, 2, 4; 1998 SB_{36} ∗, 10, 2, 4; 1998 SC_{36} ∗, 9, 2, 4; 1998 SD_{36}, 4, 1, 0; 1998 SE_{36}, 3, 1, 0; 1998 SF_{36}, 8, 1, 0; 1998 SG_{36}, 4, 1, 0; 1998 SH_{36}, 4, 1, 0; 1998 SJ_{36}, 4, 1, 0; 1998 SQ_{49}, 4, 1, 0; 1998 SR_{49}, 4, 1, 0; 1998 SS_{49}, 4, 1, 0; 1998 ST_{49}, 6, 1, 0; (5022), 3, 1, 0; (7727), 3, 1, 0; *[576, 85, 10∗, 1998/08/31–1998/09/30]*

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 MK_{30}, 6, 1, 0; *[6, 1, 0∗, 1998/09/11]*

071 Bulgarian National Observatory

V. Radeva, Astronomical Observatory and Planetarium, Varna, Bulgaria [astro@ms3.tu-varna.acad.bg]
Observers V. Radeva, G. Borisov
0.50-m f/1.4 Schmidt
GSC
1998 MK_{30}, 14, 1, 0; (71), 2, 1, 0; (534), 4, 2, 1; *[20, 3, 0∗, 1998/07/22–1998/08/20]*

104 San Marcello Pistoiese

L. Tesi, Osservatorio di Pian dei Termini, Viale Panoramico 45, I-51028 San Marcello Pistoiese (PT), Italy [iau@arcetri.astro.it]
Observer L. Tesi
Measurers G. Forti, L. Tesi
0.40-m f/5 reflector + CCD
GSC
1993 HK, 8, 2, 4; 1997 NJ_{10}, 3, 1, 0; 1998 OA_1, 3, 1, 0; 1998 OC_1, 4, 1, 0; 1998 OD_1, 7, 2, 4; 1998 PA_1, 6, 2, 4; 1998 QH_{79}, 4, 1, 0; 1998 SL_2, 4, 1, 0; 1998 SV_2, 4, 1, 0; 1998 SJ_{35} ∗, 9, 2, 4; *[52, 10, 1∗, 1998/09/19–1998/09/27]*

106 Crni vrh

H. Mikuž, Kersnikova 11, SI-61000 Ljubljana, Slovenia [herman.mikuz@uni-lj.si]
Observers H. Mikuž, B. Dintinjana, J. Skvarc
0.2-m f/2 Baker Schmidt + CCD
GSC 1.1
(20), 2, 1, 0; (68), 2, 1, 0; (77), 2, 1, 0; (101), 2, 1, 0; (109), 2, 1, 0; (196), 2, 1, 0; (200), 2, 1, 0; (295), 2, 1, 0; (305), 2, 1, 0; (396), 2, 1, 0; (1576), 2, 1, 0; (5676), 2, 1, 0; *[24, 12, 0∗, 1998/09/29–1998/09/30]*

108 Montelupo

M. Tombelli, Via Bozzeto 26, I-50056 Montelupo (Fi), Italy [iau@arcetri.astro.it]
Observers M. Tombelli, D. Guidetti, G. Forti, E. Masotti
0.30-m f/5.7 Schmidt-Cassegrain + CCD
GSC
1994 ST_{12}, 3, 1, 0; 1996 CM_7, 3, 1, 0; 1996 CO_7, 3, 1, 0; 1996 CT_7, 7, 2, 8; 1996 CV_7, 3, 1, 0; 1997 BC_9, 7, 2, 4; 1998 OK, 4, 1, 0; 1998 QS_{52}, 3, 1, 0; 1998 QF_{98}, 3, 1, 0; 1998 RL_1, 3, 1, 0; 1998 RN_1, 2, 1, 0; 1998 SG_2, 2, 1, 0; 1998 SJ_2, 4, 1, 0; 1998 SL_2 ∗, 20, 5, 15; 1998 SP_2, 3, 1, 0; 1998 SG_4, 3, 1, 0; *[73, 16, 1∗, 1998/09/10–1998/10/03]*

113 Volkssternwarte Drebach, Schönbrunn

G. Lehmann, Persterstrasse 6h, D-09430 Drebach, Germany [g.lehmann@abo.freiepresse.de]
Observers G. Lehmann, J. Kandler
0.50-m f/4 reflector + CCD, 0.18-m f/9.0 refractor + CCD
USNO-A1.0
1976 DA_1, 5, 2, 2; 1982 UD_4, 2, 1, 0; 1987 QS, 4, 2, 11; 1989 AJ_6, 4, 2, 4; 1989 AK_6, 2, 1, 0; 1989 AC_7, 5, 2, 9; 1989 CE_5, 5, 3, 9; 1989 EJ_6, 4, 2, 2; 1989 GH_8, 4, 2, 2; 1990 TB_4, 4, 2, 2; 1991 RS_2, 4, 2, 2; 1991 RT_3, 4, 2, 11; 1991 RB_4, 2, 1, 0; 1991 TH_6, 2, 1, 0; 1993 HA_6, 2, 1, 0; 1995 AO_4, 4, 2, 4; 1995 VD, 8, 3, 9; 1998 QK_8, 2, 1, 0; 1998 QK_{35}, 5, 2, 2; 1998 RR_{18}, 6, 2, 2; 1998 SG_{15} ∗, 6, 3, 7; 1998 SY_{35} ∗, 6, 3, 5; (7655), 4, 2, 4; (7773), 2, 1, 0; *[96, 24, 2∗, 1998/09/13–1998/09/29]*

116 Giesing

H. Beuchat, European Patent Office, Erhardstrasse 27, D-80331 Munich, Germany [100341.75@compuserve.com]
Observers J.-L. Dighaye, P. Sala
Measurers P. Sala, H. Beuchat
0.20-m reflector + CCD
1998 QT_{52}, 11, 3, 2; *[11, 1, 0∗, 1998/09/24–1998/09/26]*

118 Modra

A. Galád, AGO MFF UK, P.O. Box 4, SK-90001 Modra, Slovakia [ago_modra@center.fmph.uniba.sk]
Observers A. Galád, J. Tóth, D. Kalmančok, P. Kolény, A. Pravda
Measurer J. Tóth
0.6-m f/5.5 reflector + CCD
GSC, USNO-SA1.0
1996 DB_3, 2, 1, 0; 1998 KU_2, 7, 3, 5; 1998 KH_{17}, 2, 1, 0; 1998 MT_{24}, 3, 1, 0; 1998 PB_1, 11, 5, 15; 1998 QS, 3, 2, 8; 1998 QA_1, 2, 1, 0; 1998 QR_{15}, 2, 1, 0; 1998 QA_{34}, 2, 1, 0; 1998 QR_{52}, 2, 1, 0; 1998 QS_{52}, 9, 4, 13; 1998 QS_{60}, 3, 1, 0; 1998 QC_{74}, 6, 2, 1; 1998 QH_{79}, 6, 2, 1; 1998 RA, 9, 3, 3; 1998 SD_2, 3, 1, 0; 1998 SS_4, 2, 1, 0; 1998 SV_4, 6, 2, 1; 1998 SO_{10}, 3, 1, 0; 1998 SD_{15}, 3, 1, 0; 1998 SU_{27}, 3, 1, 0; 1998 SE_{35}, 3, 1, 0; (1574), 2, 1, 0; *[94, 23, 0∗, 1998/09/09–1998/09/24]*

120 Višnjan
K. Korlević, Istarska 5, HR-51463 Višnjan, Croatia [kkorlevic@x400.srce.hr]
Observers K. Korlević, M. Jurič, A. Ritosa, V. Ujcič, O. Persurič, P. Fatorič
Measurers K. Korlević, M. Jurič
0.41-m f/4.3 reflector + CCD
USNO-SA1.0
1978 RL_7, 2, 1, 0; 1978 RC_9, 9, 3, 8; 1981 EK_{22}, 3, 1, 0; 1981 EL_{24}, 7, 3, 6; 1981 EB_{25}, 2, 1, 0; 1983 RB_2, 3, 1, 0; 1985 TB_3, 2, 1, 0; 1987 RR, 2, 1, 0; 1987 WD, 6, 2, 2; 1988 RQ_5, 5, 2, 1; 1990 SV, 6, 1, 0; 1991 RK_{15}, 4, 1, 0; 1992 RF_7, 5, 2, 2; 1993 BQ_4, 3, 1, 0; 1993 FQ_8, 3, 1, 0; 1993 FH_{25}, 5, 2, 3; 1993 OS_{10}, 9, 2, 15; 1994 TJ_1, 5, 2, 3; 1994 TQ_3, 2, 1, 0; 1994 UJ_1, 3, 1, 0; 1994 UA_3, 10, 4, 8; 1995 XP_4, 6, 2, 1; 1996 BN, 2, 1, 0; 1996 DV, 3, 1, 0; 1996 DG_2, 5, 2, 4; 1996 ED_4, 3, 1, 0; 1997 DC, 18, 4, 8; 1997 ER_{11}, 3, 1, 0; 1997 JC_{14}, 2, 1, 0; 1997 JS_{14}, 4, 1, 0; 1998 OD_{15}, 6, 1, 0; 1998 PD_1, 3, 1, 0; 1998 QB, 7, 2, 19; 1998 QC, 7, 2, 19; 1998 QL_1, 10, 2, 6; 1998 QO_1, 3, 1, 0; 1998 QQ_1, 3, 1, 0; 1998 QM_2, 16, 4, 14; 1998 QX_3, 3, 1, 0; 1998 QG_{24}, 10, 2, 6; 1998 QY_{25}, 5, 2, 16; 1998 QZ_{25}, 8, 2, 11; 1998 QA_{26}, 7, 2, 11; 1998 QB_{26}, 12, 3, 11; 1998 QC_{26}, 12, 3, 25; 1998 QD_{26}, 5, 2, 24; 1998 QF_{28}, 2, 1, 0; 1998 QN_{30}, 5, 1, 0; 1998 QK_{34}, 4, 1, 0; 1998 QT_{37}, 10, 2, 2; 1998 QL_{48}, 12, 3, 7; 1998 QW_{48}, 3, 1, 0; 1998 QA_{51}, 3, 1, 0; 1998 QE_{51}, 12, 4, 18; 1998 QF_{51}, 3, 1, 0; 1998 QK_{51}, 6, 3, 8; 1998 QM_{51}, 5, 2, 5; 1998 QN_{51}, 5, 2, 5; 1998 QW_{53}, 16, 4, 22; 1998 QV_{55}, 6, 2, 1; 1998 QX_{55}, 6, 2, 3; 1998 QY_{55}, 1, 1, 0; 1998 QZ_{55}, 6, 2, 3; 1998 QT_{62}, 3, 1, 0; 1998 QU_{62}, 3, 1, 0; 1998 QG_{63}, 2, 1, 0; 1998 QW_{75}, 2, 1, 0; 1998 QL_{98}, 9, 3, 2; 1998 QH_{100}, 3, 1, 0; 1998 QN_{100}, 9, 3, 4; 1998 RL, 6, 2, 1; 1998 RF_1 *, 19, 6, 14; 1998 RG_1 *, 21, 6, 14; 1998 RH_1 *, 5, 2, 5; 1998 RJ_1 *, 21, 6, 14; 1998 RA_5 *, 15, 4, 14; 1998 RB_5 *, 12, 4, 13; 1998 RC_5 *, 15, 5, 9; 1998 RO_{20} *, 8, 3, 12; 1998 RN_{35}, 7, 2, 6; 1998 SH_8, 6, 2, 1; 1998 SJ_8, 3, 1, 0; 1998 SF_9, 12, 4, 7; 1998 SV_9 *, 10, 2, 6; 1998 SW_9 *, 6, 2, 4; 1998 SX_9 *, 6, 2, 4; 1998 SY_9 *, 11, 4, 6; 1998 SJ_{12} *, 6, 2, 5; 1998 SK_{12} *, 12, 4, 11; 1998 SL_{12} *, 10, 3, 2; 1998 SM_{12} *, 6, 2, 1; 1998 SN_{12} *, 9, 3, 2; 1998 SO_{12} *, 9, 3, 2; 1998 SU_{21} *, 6, 2, 7; 1998 SV_{21} *, 5, 2, 7; 1998 SW_{21} *, 8, 2, 2; 1998 SX_{21} *, 6, 2, 2; 1998 SY_{21} *, 6, 2, 2; 1998 SZ_{21} *, 6, 2, 2; 1998 SA_{22} *, 6, 2, 2; 1998 SB_{22} *, 6, 2, 2; 1998 SC_{22} *, 6, 2, 2; 1998 SD_{22} *, 6, 2, 2; 1998 SE_{22} *, 6, 2, 2; 1998 SF_{22} *, 8, 2, 1; 1998 SG_{22} *, 6, 2, 1; 1998 SH_{22} *, 6, 2, 1; 1998 SJ_{22} *, 9, 3, 9; 1998 SK_{22} *, 6, 2, 1; 1998 SL_{22} *, 5, 2, 1; 1998 SM_{22} *, 7, 3, 6; 1998 SN_{22} *, 6, 2, 1; 1998 SO_{22} *, 6, 2, 1; 1998 SP_{22} *, 9, 3, 9; 1998 SQ_{22} *, 6, 2, 1; 1998 SR_{22} *, 6, 2, 1; 1998 SS_{22} *, 9, 3, 9; 1998 ST_{22} *, 5, 2, 1; 1998 SU_{22} *, 4, 2, 1; 1998 SF_{27} *, 6, 2, 5; 1998 SA_{43}, 9, 2, 9; 1998 SM_{46}, 5, 2, 5; 1998 SZ_{48} *, 8, 2, 6; 1998 SA_{49} *, 6, 2, 6; 1998 SB_{49} *, 10, 2, 6; 1998 SC_{49} *, 12, 2, 6; 1998 SD_{49} *, 5, 2, 5; 1998 SE_{49} *, 7, 2, 5; 1998 SF_{49} *, 5, 2, 5; 1998 SG_{49} *, 5, 2, 5; 1998 ST_{63} *, 5, 2, 3; 2532 P-L, 3, 1, 0; 2566 P-L, 8, 3, 14; 6106 P-L, 6, 2, 2; 6583 P-L, 6, 1, 0; 1146 T-1, 2, 1, 0; 2108 T-2, 3, 1, 0; 3453 T-3, 15, 5, 6; (453), 3, 1, 0; (1225), 2, 1, 0; (1292), 6, 2, 1; (1389), 3, 1, 0; (1451), 6, 2, 4; (1720), 2, 1, 0; (2726), 5, 1, 0; (2739), 3, 1, 0; (2862), 3, 1, 0; (2990), 12, 3, 2; (3043), 3, 1, 0; (3719), 3, 1, 0; (4196), 3, 1, 0; (4518), 12, 4, 5; (4646), 3, 1, 0; (4719), 3, 1, 0; (4740), 8, 3, 8; (4897), 6, 2, 2; (5181), 3, 1, 0; (5300), 2, 1, 0; (5439), 25, 6, 20; (5704), 3, 1, 0; (6049), 14, 4, 20; (6273), 15, 4, 11; (6764), 3, 1, 0; (6779), 9, 2, 1; (6871), 3, 1, 0; (7064), 3, 1, 0; (7205), 4, 2, 3; (7594), 1, 1, 0; (7828), 3, 1, 0; (9197), 3, 1, 0; *[1098, 170, 54*, 1998/08/25–1998/10/02]*

122 Pises Observatory
B. Gaillard, 34 rue du mas de Lemasson, F-34070 Montpellier, France [observatoire.pises@hol.fr]
Observers B. Gaillard, J. Lopez, A. M. Jacquey
Measurer B. Gaillard
0.40-m f/4.7 reflector + CCD
USNO-SA1.0
1998 SJ_2, 4, 1, 0; *[4, 1, 0*, 1998/09/20]*

127 Bornheim
N. Ehring, Stationenweg 54, D-53332 Bornheim, Germany [norbert.ehring@t-online.de]
0.19-m f/4 FFC + CCD
GSC
1972 PA, 2, 1, 0; 1986 TV_6, 2, 1, 0; 1987 QH, 4, 2, 1; 1990 SF_4, 4, 2, 1; 1991 PT_9, 2, 1, 0; 1994 TR_1, 4, 2, 1; 1995 XH_1, 4, 2, 1; 1998 PG, 4, 2, 1; (9050), 2, 1, 0; (9083), 2, 1, 0; (9156), 4, 2, 1; *[34, 11, 0*, 1998/08/04–1998/09/21]*

130 Lumezzane
S. Foglia, F. Bisleri 11, I-20418 Milan, Italy [md3576@mclink.it]
Observers W. Marinello, J. Abdalla
Measurer G. Pizzetti
0.40-m f/6.5 reflector + CCD
USNO-A1.0
(1036), 4, 1, 0; *[4, 1, 0*, 1998/09/06]*

132 Bedoin
P. Antonini, 47 rue Guillaume Puy, F-84000 Avignon, France [Pierre.Antonini@wanadoo.fr]
0.20-m f/3.5 reflector + CCD
GSC
1991 PM_{16}, 3, 1, 0; 1997 GT_{18}, 2, 1, 0; 1998 QJ_2, 2, 1, 0; 1998 QW_{15}, 3, 1, 0; 1998 QJ_{26}, 2, 1, 0; 1998 QY_{42}, 5, 2, 1; *[17, 6, 0*, 1998/09/16–1998/09/18]*

138 Village-Neuf
C. Demeautis, 9 rue de Huningue, F-68300 Saint-Louis, France [Sky.walker@wanadoo.fr]
Observers C. Demeautis, D. Matter
Measurer C. Demeautis
0.20-m f/10 Schmidt-Cassegrain + focal reducer + CCD
GSC
1953 TA_1, 3, 1, 0; 1978 OQ, 3, 1, 0; 1983 RB_2, 3, 1, 0; 1989 TH_1, 3, 1, 0; 1992 OF_1, 3, 1, 0; 1994 RL_1, 3, 1, 0; 1998 MK_{30}, 3, 1, 0; 1998 PG, 3, 1, 0; *[24, 8, 0*, 1998/09/18–1998/09/20]*

143 Gnosca
S. Sposetti, CH-6525 Gnosca, Switzerland [spo@dial.eunet.ch]
0.20-m f/7.1 reflector + CCD
GSC, USNO-SA1.0
1998 MK_{30}, 4, 1, 0; 1998 PG, 3, 1, 0; 1998 QR_{15}, 3, 1, 0; (170), 3, 1, 0; (1936), 4, 1, 0; (2033), 3, 1, 0; (3445), 4, 1, 0; *[24, 7, 0*, 1998/09/18]*

146 Frignano
R. Calanca, Osservatorio Astronómico del Fragnano, I-41024 Le Piane de Mocogno (MO), Italy [oss_frign@msw.it]
0.30-m f/6.3 Schmidt-Cassegrain + CCD
GSC
1998 SE_9 *, 4, 2, 4; *[4, 1, 1*, 1998/09/17–1998/09/21]*

151 Eschenberg Observatory, Winterthur
M. Griesser, Breitenstrasse 2, CH-8542 Wiesendangen, Switzerland [griesser@spectraweb.ch]
0.25-m f/8.0 reflector + CCD
GSC
1998 MK_{30}, 6, 3, 9; 1998 PG, 7, 3, 13; 1998 QT_{60}, 4, 2, 17; (453), 6, 3, 11; (1036), 2, 1, 0; (1373), 2, 1, 0; (1508), 4, 2, 7; (3368), 2, 1, 0; (3772), 2, 1, 0; (4125), 2, 1, 0; (5051), 2, 1, 0; (7641), 2, 1, 0; *[41, 12, 0*, 1998/09/08–1998/10/02]*

153 Stuttgart–Hoffeld
R.Stuber, Hoffeldstrasse 121, D-70597 Stuttgart, Germany [rolf.stuber@swol.de]
0.25-m f/7.2 reflector + CCD
GSC
(1626), 5, 2, 1; *[5, 1, 0*, 1998/09/21–1998/09/22]*

157 Frasso Sabino
A. Pelloni, via Oratorio Damasiano 15, I-00148 Rome, Italy [mc3657@mclink.it]
Observers A. Pelloni, R. Albanesi, F. Anzellini, R. Haver

0.10-m $f/10$ refractor + CCD
USNO-A1.0
1978 OQ, 2, 1, 0; 1998 MK_{30}, 3, 1, 0; (9170), 2, 1, 0; *[7, 3, 0∗, 1998/09/18]*

304 Las Campanas
R. Casas, Instituto de Astrofisica de Canarias, Via Lactea, E-38200 La Laguna, Tenerife, Canary Islands, Spain [rcr@ll.iac.es]
Observer D. Martinez-Delgado
Measurer R. Casas
GSC
1998 SM_{35} ∗, 5, 3, 2; *[5, 1, 1∗, 1998/09/16–1998/09/18]*

327 Peking Observatory, Xinglong Station
J. Zhu, Peking Astronomical Observatory, Chinese Academy of Sciences, Zhongguancun, Peking 100101, Peoples Republic of China [zj@bac.pku.edu.cn]
Observers J. Zhu, X. Y. Li, X. M. Teng, X. S. Liu, Y. J. Chen
Measurers X. Y. Li, X. M. Teng, J. Zhu, Y. J. Chen
0.60-m Schmidt + CCD
1978 PX_3, 6, 2, 3; 1979 KQ, 6, 2, 4; 1987 WD, 6, 2, 3; 1988 EY_1, 3, 1, 0; 1990 SK_{28}, 6, 2, 2; 1991 LP_2, 3, 1, 0; 1991 RB_{10}, 3, 1, 0; 1993 GK_1, 6, 2, 3; 1994 QX, 3, 1, 0; 1994 UQ_1, 12, 4, 11; 1995 UA_{45}, 3, 1, 0; 1995 VE, 9, 3, 10; 1995 WX_5, 3, 1, 0; 1995 WW_{17}, 6, 2, 8; 1996 AS, 6, 2, 3; 1996 AW, 3, 1, 0; 1996 DG_2, 13, 4, 9; 1997 GT_{18}, 3, 1, 0; 1997 JO, 3, 1, 0; 1997 JP_{16}, 3, 1, 0; 1998 BM_{15}, 3, 1, 0; 1998 HV_{122}, 3, 1, 0; 1998 OE_7, 3, 1, 0; 1998 PQ_1 ∗, 7, 2, 32; 1998 PR_1 ∗, 7, 2, 32; 1998 QZ_4, 3, 1, 0; 1998 QO_{10}, 3, 1, 0; 1998 QU_{15}, 6, 2, 3; 1998 QV_{18}, 6, 2, 1; 1998 QC_{19}, 3, 1, 0; 1998 QB_{24}, 6, 2, 3; 1998 QG_{26}, 6, 2, 4; 1998 QT_{28}, 3, 1, 0; 1998 QR_{29}, 3, 1, 0; 1998 QU_{29}, 3, 1, 0; 1998 QV_{29}, 3, 1, 0; 1998 QW_{38}, 6, 2, 3; 1998 QG_{46}, 9, 2, 3; 1998 QN_{46}, 6, 2, 3; 1998 QJ_{52}, 6, 2, 2; 1998 QS_{52}, 4, 1, 0; 1998 QN_{62}, 3, 1, 0; 1998 QT_{62}, 10, 3, 7; 1998 QU_{62}, 12, 4, 12; 1998 QU_{63}, 6, 2, 6; 1998 QV_{63}, 9, 2, 6; 1998 QW_{63}, 6, 2, 3; 1998 QW_{70}, 6, 2, 2; 1998 QG_{90}, 6, 2, 2; 1998 QO_{93}, 7, 2, 4; 1998 QL_{98}, 7, 2, 5; 1998 QH_{104}, 6, 2, 4; 1998 RS_{15} ∗, 6, 2, 1; 1998 RT_{15} ∗, 12, 4, 30; 1998 RU_{15} ∗, 15, 5, 25; 1998 RV_{15} ∗, 15, 5, 21; 1998 RW_{15} ∗, 12, 4, 17; 1998 RX_{15} ∗, 9, 3, 11; 1998 RY_{15} ∗, 6, 2, 3; 1998 RZ_{15} ∗, 6, 2, 6; 1998 RA_{16} ∗, 12, 4, 16; 1998 RB_{16} ∗, 6, 2, 6; 1998 RC_{16} ∗, 9, 3, 6; 1998 RD_{16} ∗, 6, 2, 6; 1998 RE_{16} ∗, 15, 5, 12; 1998 RF_{16} ∗, 12, 4, 12; 1998 RG_{16} ∗, 9, 3, 9; 1998 RM_{28}, 6, 2, 3; 1998 SD_4 ∗, 18, 4, 6; 1998 SX_8, 6, 2, 4; 1998 SZ_8, 11, 2, 3; 1998 SC_9, 10, 3, 8; 1998 SF_9 ∗, 13, 4, 12; 1998 SH_9 ∗, 10, 3, 8; 1998 SJ_9 ∗, 9, 3, 8; 1998 SK_9 ∗, 15, 5, 14; 1998 SL_9 ∗, 6, 2, 3; 1998 SM_9 ∗, 9, 3, 8; 1998 SN_9 ∗, 12, 4, 14; 1998 SO_9 ∗, 12, 4, 14; 1998 SP_9 ∗, 6, 2, 3; 1998 SQ_9 ∗, 6, 2, 3; 1998 SR_9 ∗, 9, 3, 9; 1998 SS_9 ∗, 9, 3, 8; 1998 SU_9 ∗, 9, 3, 8; 1998 SW_9, 11, 2, 3; 1998 SX_9, 6, 2, 6; 1998 SM_{12}, 6, 2, 6; 1998 SR_{14}, 12, 4, 10; 1998 SK_{21}, 7, 2, 3; 1998 SB_{22}, 6, 2, 3; 1998 SC_{22}, 9, 2, 3; 1998 SX_{22}, 3, 1, 0; 1998 SU_{24}, 6, 2, 3; 1998 SW_{26} ∗, 9, 3, 8; 1998 SX_{26} ∗, 6, 2, 6; 1998 SY_{26} ∗, 6, 2, 6; 1998 SZ_{26} ∗, 13, 4, 10; 1998 SA_{27} ∗, 6, 2, 3; 1998 SB_{27} ∗, 14, 3, 4; 1998 SC_{27} ∗, 7, 2, 3; 1998 SD_{27} ∗, 6, 2, 3; 1998 SE_{27} ∗, 6, 2, 3; 1998 SU_{42} ∗, 6, 2, 8; 1998 SV_{42} ∗, 6, 2, 9; 1998 SW_{42} ∗, 11, 2, 5; 1998 SX_{42} ∗, 7, 2, 5; 1998 SY_{42} ∗, 7, 2, 5; 1998 SZ_{42} ∗, 7, 2, 5; 1998 SA_{43} ∗, 9, 3, 12; 1998 SB_{43} ∗, 6, 2, 5; 1998 SC_{43} ∗, 13, 3, 9; 1998 SD_{43} ∗, 6, 2, 6; 1998 SE_{43} ∗, 9, 3, 8; 1998 SF_{43} ∗, 9, 3, 8; 1998 SG_{43} ∗, 6, 2, 2; 1998 SH_{43} ∗, 6, 2, 2; 1998 SJ_{43} ∗, 6, 2, 2; 1998 SK_{43} ∗, 6, 2, 2; 1998 SL_{43} ∗, 6, 2, 2; 1998 SM_{43} ∗, 6, 2, 2; 1998 SN_{43} ∗, 9, 3, 8; 1998 SO_{43} ∗, 6, 2, 4; 1998 SP_{43} ∗, 6, 2, 4; 1998 SQ_{43} ∗, 6, 2, 4; 1998 SR_{43} ∗, 15, 4, 7; 1998 SS_{43} ∗, 9, 3, 6; 1998 ST_{43} ∗, 9, 3, 7; 1998 SU_{43} ∗, 9, 3, 7; 1998 SV_{43} ∗, 9, 3, 5; 1998 SW_{43} ∗, 9, 3, 5; 1998 SX_{43} ∗, 6, 2, 3; 1998 SY_{43} ∗, 6, 2, 3; 1998 SZ_{43} ∗, 9, 3, 5; 1998 SX_{51}, 3, 1, 0; 1998 SR_{52}, 6, 2, 2; 1998 SE_{55}, 6, 2, 6; 1998 SP_{62} ∗, 7, 2, 4; 1998 SQ_{62} ∗, 9, 2, 11; 1998 SR_{62} ∗, 6, 2, 3; 1998 SS_{62} ∗, 6, 2, 9; 1998 ST_{62} ∗, 6, 2, 4; 1998 SU_{62} ∗, 6, 2, 6; 1998 SV_{62} ∗, 6, 2, 6; 1998 SW_{62} ∗, 6, 2, 6; 1998 SX_{62} ∗, 6, 2, 6; 1998 SY_{62} ∗, 6, 2, 7; 1998 SZ_{62} ∗, 6, 2, 5; 1998 SA_{63} ∗, 9, 2, 6; 1998 SB_{63} ∗, 6, 2, 7; 1998 SC_{63} ∗, 9, 3, 6; 1998 SD_{63} ∗, 6, 2, 6; 1998 SE_{63} ∗, 6, 2, 3; 1998 SF_{63} ∗, 6, 2, 5; 1998 SG_{63} ∗, 6, 2, 5; 1998 SH_{63} ∗, 6, 2, 3; 1998 SJ_{63} ∗, 6, 2, 4; 1998 SK_{63} ∗, 6, 2, 5; 1998 SL_{63} ∗, 6, 2, 2; 1998 SM_{63} ∗, 6, 2, 2; 1998 SN_{63} ∗, 9, 2, 2; 1998 SO_{63} ∗, 6, 2, 1; 1998 SP_{63} ∗, 6, 2, 3; 1998 SQ_{63} ∗, 6, 2, 2; 1998 SR_{63} ∗, 6, 2, 2; 1998 SS_{63} ∗, 6, 2, 1; (561), 6, 2, 2; (1882), 6, 2, 1; (1910), 6, 2, 1; (3955), 7, 2, 6; (4457), 6, 2, 4; (5303), 6, 2, 1; (5499), 6, 2, 3; (5500), 9, 3, 7; (6070), 3, 1, 0; (6180), 6, 2, 6; (6764), 7, 2, 3; (7361), 6, 2, 2; (7655), 6, 2, 3; (7689), 6, 2, 4; (7721), 6, 2, 2; *[1282, 181, 100∗, 1995/10/28–1998/10/02]*

343 Younchun
T. H. Lee, #1401, Life-Officetel, Yoido-Dong, Seoul 150-010, South Korea
0.21-m $f/4.0$ reflector + CCD
1977 QD_2, 4, 2, 1; 1998 SM_4, 4, 2, 1; 1998 SG_5 ∗, 4, 2, 1; *[12, 3, 1∗, 1998/09/18–1998/09/19]*

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 MK_{30}, 3, 1, 0; 1998 PG, 3, 1, 0; *[6, 2, 0∗, 1998/09/16–1998/10/02]*

358 Nanyou
T. Okuni, 158-28, Mitsuma-dori, Nanyou, Yamagata-Ken, 999-22 Japan
0.28-m $f/6.3$ Schmidt-Cassegrain + CCD
GSC
1998 SF_5 ∗, 9, 3, 4; *[9, 1, 1∗, 1998/09/16–1998/09/20]*

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
1993 PC, 3, 1, 0; 1996 DD_3, 2, 1, 0; 1997 GZ_{25}, 2, 1, 0; 1998 KU_2, 3, 1, 0; 1998 MQ, 3, 1, 0; 1998 MT_{24}, 3, 1, 0; 1998 OH, 3, 1, 0; 1998 PB_1, 6, 2, 8; 1998 QC_1, 3, 1, 0; 1998 QJ_1, 3, 1, 0; 1998 QE_2, 3, 1, 0; 1998 QH_2, 3, 1, 0; 1998 QR_{15}, 6, 2, 8; 1998 QR_{52}, 3, 1, 0; 1998 QS_{52}, 3, 1, 0; 1998 RO_4, 3, 1, 0; 1998 SG_2, 3, 1, 0; 1998 SJ_2, 3, 1, 0; 1998 SR_{49}, 3, 1, 0; 1998 SS_{49}, 3, 1, 0; (7773), 2, 1, 0; *[66, 21, 0∗, 1998/09/09–1998/10/02]*

372 Geisei
T. Seki, Kamimachi 2-9-35, Kochi-Shi, Kochi-Ken 780, Japan
0.60-m $f/3.5$ reflector
GSC
1997 CK_{20}, 2, 1, 0; *[2, 1, 0∗, 1992/10/27]*

376 Uenohara
N. Kawasato, 3-11-10, Hana-Koganei, Kodaira, Tokyo, 187 Japan
0.30-m reflector + CCD
GSC
1998 QO_{87}, 4, 2, 1; 1998 QV_{96}, 4, 2, 3; 1998 SM_{10} ∗, 6, 3, 4; 1998 SN_{10} ∗, 4, 2, 1; *[18, 4, 2∗, 1998/09/16–1998/09/20]*

385 Nihondaira Observatory
T. Urata, 1-8, Dobayashi 1 Chome, Shimizu, Shizuoka-Ken 424-0851, Japan [urata@sannet.ne.jp]
0.31-m $f/4.7$ reflector + CCD
GSC, USNO-A1.0
1994 WQ_3, 2, 1, 0; 1998 KD_{54}, 4, 2, 1; 1998 QC_{107}, 2, 1, 0; 1998 SS_2, 8, 2, 1; *[16, 4, 0∗, 1998/09/19–1998/09/20]*

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
1993 AV ∗, 2, 1, 0; 1996 AN_{20} ∗, 6, 3, 8; *[8, 2, 2∗, 1993/01/13–1996/01/21]*

402 Dynic Astronomical Observatory
A. Sugie, Dynic Astronomical Observatory, Taga 283-1, Taga, Inukami-Gun, Shiga-Ken 522-03, Japan [sugiea@mx.biwa.or.jp]

0.60-m f/5.0 reflector + CCD
GSC
1972 PA, 3, 1, 0; 1988 PL_2, 3, 1, 0; 1996 HT_{14}, 4, 1, 0; 1998 MX_5, 3, 1, 0; 1998 MT_{24}, 3, 1, 0; 1998 OS_4, 3, 1, 0; 1998 PF, 3, 1, 0; 1998 PB_1, 3, 1, 0; 1998 QA_1, 3, 1, 0; 1998 QH_1, 3, 1, 0; 1998 QJ_1, 8, 3, 4; 1998 QD_2, 3, 1, 0; 1998 QE_2, 3, 1, 0; 1998 QH_2, 6, 2, 3; 1998 QV_3, 3, 1, 0; 1998 QR_{15}, 9, 3, 24; 1998 QO_{52}, 6, 2, 7; 1998 QP_{52}, 3, 1, 0; 1998 QQ_{52}, 5, 2, 3; 1998 QR_{52}, 9, 3, 23; 1998 QS_{52}, 15, 5, 23; 1998 QH_{56}, 6, 2, 7; 1998 QJ_{56}, 3, 1, 0; 1998 QP_{63}, 6, 2, 7; 1998 QS_{85}, 12, 3, 5; 1998 RB, 7, 2, 4; 1998 RE, 6, 2, 11; 1998 RR_2, 6, 2, 13; 1998 RO_4, 3, 1, 0; 1998 SO, 3, 1, 0; 1998 SG_2, 7, 2, 13; 1998 SH_2, 3, 1, 0; 1998 SJ_2, 7, 2, 13; 1998 SP_2, 4, 1, 0; 1998 SQ_2, 5, 1, 0; 1998 SR_2, 3, 1, 0; 1998 SX_2, 4, 1, 0; 1998 SD_4, 3, 1, 0; 1998 SG_4, 4, 1, 0; 1998 SS_4, 3, 1, 0; 1998 ST_4, 3, 1, 0; 1998 SV_4, 3, 1, 0; 1998 SO_{10}, 3, 1, 0; 1998 SB_{15}, 3, 1, 0; 1998 SC_{15}, 3, 1, 0; 1998 SD_{15}, 3, 1, 0; 1998 ST_{27}, 3, 1, 0; 1998 SU_{27}, 3, 1, 0; 1998 SE_{35}, 3, 1, 0; 1998 SF_{35}, 3, 1, 0; 1998 SE_{36}, 4, 1, 0; 1998 SF_{36}, 2, 1, 0; 1998 SG_{36}, 3, 1, 0; 1998 SH_{36}, 3, 1, 0; 1998 SR_{49}, 2, 1, 0; 3118 T-2, 3, 1, 0; (8035), 3, 1, 0; *[246, 57, 0*, 1998/09/04–1998/10/02]*

411 Oizumi
T. Kobayashi, 1717-2 Shimo-Koizumi, Oizumi-machi, Ora-gun, Gunma-ken, 370-0515 Japan [kobataka@sannet.ne.jp]
0.25-m f/4.4 reflector + CCD, 0.41-m f/4.3 reflector + CCD
GSC
1991 AA_1, 2, 1, 0; 1991 RJ_{41}, 4, 2, 4; 1994 WU, 2, 1, 0; 1995 WS, 2, 1, 0; 1995 XG_1, 3, 1, 0; 1995 XH_1, 5, 2, 1; 1997 FQ_3, 2, 1, 0; 1998 RW *, 11, 5, 7; 1998 RX *, 8, 4, 20; 1998 RY *, 12, 6, 20; 1998 RZ *, 4, 2, 1; 1998 RB_1 *, 8, 4, 20; 1998 RC_1 *, 8, 4, 20; 1998 RD_1 *, 8, 4, 20; 1998 SS_{49}, 3, 1, 0; 1998 ST_{49}, 3, 1, 0; *[85, 16, 7*, 1994/11/04–1998/10/02]*

413 Siding Spring
R. H. McNaught, Anglo-Australian Observatory, Coonabarabran, NSW 2357, Australia [rmn@aaocbn3.aao.gov.au]
Observer C. P. Cass
Measurer R. H. McNaught
1.2-m U.K. Schmidt
1998 QB_{105} *, 2, 1, 0; *[2, 1, 1*, 1998/08/30]*

422 Loomberah
G. J. Garradd, P.O. Box 157, Tamworth, NSW 2340, Australia [loomberah@ozemail.com.au]
0.45-m f/5.4 reflector + CCD, 0.25-m f/4.1 reflector + CCD
ACT, GSC, USNO-A1.0
1980 FS_1, 2, 1, 0; 1994 TW_1, 2, 1, 0; 1997 UF_9, 2, 1, 0; 1998 KU_2, 3, 1, 0; 1998 ML_{24}, 3, 1, 0; 1998 PF, 1, 1, 0; 1998 QH_1, 2, 1, 0; 1998 QH_2, 3, 1, 0; 1998 QR_{15}, 3, 1, 0; 1998 QP_{52}, 4, 2, 14; 1998 QH_{56}, 10, 4, 13; 1998 QJ_{56}, 2, 1, 0; 1998 QK_{56}, 3, 1, 0; 1998 QP_{63}, 3, 1, 0; 1998 QH_{79}, 4, 1, 0; 1998 QF_{98}, 6, 2, 1; 1998 QB_{105}, 4, 1, 0; 1998 RV, 3, 1, 0; 1998 RM_1, 7, 2, 1; 1998 RN_1, 10, 3, 11; 1998 RO_1, 12, 4, 11; 1998 RQ_2, 6, 2, 1; 1998 RR_2, 9, 3, 3; 1998 RS_2, 1, 1, 0; 1998 SO, 16, 4, 10; 1998 SG_2, 4, 1, 0; 1998 SH_2, 5, 2, 1; 1998 SJ_2, 4, 1, 0; 1998 SP_2, 4, 1, 0; 1998 SD_4, 10, 4, 12; 1998 SG_4, 1, 1, 0; 1998 SV_4, 6, 2, 2; 1998 SD_9, 10, 2, 3; 1998 SO_{10}, 2, 1, 0; 1998 SY_{14}, 3, 2, 3; 1998 SZ_{14}, 7, 2, 3; 1998 SA_{15}, 8, 2, 3; 1998 SB_{15}, 6, 2, 3; 1998 SC_{15}, 1, 1, 0; 1998 SD_{15}, 4, 1, 0; 1998 ST_{27}, 8, 2, 1; 1998 SU_{27}, 3, 1, 0; 1998 SZ_{27}, 6, 2, 1; 1998 SD_{36}, 5, 2, 1; 1998 SE_{36}, 2, 1, 0; 1998 SG_{36}, 8, 2, 1; 1998 SH_{36}, 7, 2, 1; 1998 SJ_{36}, 4, 2, 1; 1998 SQ_{49}, 3, 2, 1; 1998 SR_{49}, 7, 2, 1; 1998 SS_{49}, 9, 3, 2; 1998 ST_{49}, 8, 2, 1; (47), 4, 1, 0; (410), 5, 1, 0; (1451), 3, 1, 0; (3753), 3, 1, 0; *[281, 56, 0*, 1998/09/13–1998/10/04]*

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
1977 QN_1, 2, 1, 0; 1986 TT_{11}, 6, 2, 4; 1990 DL_3, 3, 1, 0; 1990 TK_3, 6, 2, 2; 1990 TN_3, 6, 2, 3; 1992 EX_8, 4, 2, 1; 1994 TS_3, 3, 1, 0; 1994 WE_2, 6, 2, 1; 1995 UV_4, 7, 3, 2; 1995 WU_1, 8, 3, 15; 1995 XN_1, 3, 1, 0; 1996 AT_7, 2, 1, 0; 1996 FU_{13}, 6, 2, 3; (1883), 4, 2, 3; *[66, 14, 0*, 1998/09/13–1998/09/30]*

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
1988 VR_2, 5, 2, 4; 1990 WR_2, 6, 2, 3; 1994 PN_{14}, 3, 1, 0; 1996 AS, 5, 2, 3; 1996 BM_{17}, 5, 2, 11; 1997 CG_6, 6, 2, 11; 1997 GB, 6, 2, 1; 1997 GZ_{31}, 5, 2, 11; 1997 MJ_2, 9, 3, 12; 1998 KU_2, 4, 1, 0; 1998 MQ, 4, 1, 0; 1998 ME_3, 3, 1, 0; 1998 MM_7, 5, 2, 7; 1998 ML_{24}, 6, 2, 1; 1998 PL, 7, 2, 2; 1998 PV, 5, 2, 9; 1998 PY, 3, 1, 0; 1998 PZ, 6, 2, 12; 1998 PG_1, 6, 2, 10; 1998 PJ_1, 3, 1, 0; 1998 QL, 6, 2, 11; 1998 QH_1, 3, 1, 0; 1998 QK_4, 3, 1, 0; 1998 QL_4, 9, 3, 30; 1998 QM_5, 9, 3, 11; 1998 QK_{26}, 6, 2, 1; 1998 QL_{26}, 6, 2, 11; 1998 QM_{26}, 4, 2, 1; 1998 QO_{52}, 7, 2, 8; 1998 QP_{52}, 10, 3, 16; 1998 QT_{53}, 6, 2, 2; 1998 QV_{53}, 6, 2, 3; 1998 QH_{56}, 3, 1, 0; 1998 QJ_{56}, 7, 2, 10; 1998 QK_{56}, 3, 1, 0; 1998 QP_{63}, 3, 1, 0; 1998 QO_{84}, 6, 2, 3; 1998 QF_{98}, 10, 3, 2; 1998 QB_{105}, 4, 1, 0; 1998 RF, 6, 2, 3; 1998 RG, 6, 2, 1; 1998 RH, 6, 2, 3; 1998 RJ, 6, 2, 4; 1998 RK, 6, 2, 3; 1998 RV *, 6, 2, 1; 1998 RM_1, 9, 3, 2; 1998 RN_1, 9, 3, 2; 1998 RO_1, 10, 3, 2; 1998 RB_2 *, 7, 3, 14; 1998 RC_2 *, 7, 3, 12; 1998 RD_2 *, 9, 3, 12; 1998 RE_2 *, 6, 2, 4; 1998 RQ_2, 3, 1, 0; 1998 RR_2, 6, 2, 12; 1998 RS_2, 3, 1, 0; 1998 RO_4, 3, 1, 0; 1998 RN_{13} *, 8, 3, 19; 1998 SC *, 6, 2, 1; 1998 SO, 5, 1, 0; 1998 SD_2, 3, 1, 0; 1998 SF_2 *, 6, 2, 1; 1998 SG_2, 11, 3, 5; 1998 SH_2, 6, 2, 5; 1998 SJ_2, 4, 1, 0; 1998 SP_2, 3, 1, 0; 1998 SX_2, 3, 1, 0; 1998 SG_4, 3, 1, 0; 1998 SS_4, 3, 1, 0; 1998 ST_4, 4, 1, 0; 1998 SU_4, 4, 1, 0; 1998 SV_4, 3, 1, 0; 1998 SY_{14}, 6, 2, 1; 1998 SZ_{14}, 9, 3, 5; 1998 SA_{15}, 6, 2, 1; 1998 SB_{15}, 6, 2, 1; 1998 SC_{15}, 3, 1, 0; 1998 SD_{15}, 4, 1, 0; 1998 SV_{22} *, 5, 2, 3; 1998 SW_{22} *, 5, 2, 3; 1998 SX_{22} *, 6, 2, 1; 1998 SY_{22} *, 4, 2, 1; 1998 SG_{27}, 2, 1, 0; 1998 SJ_{27} *, 8, 3, 4; 1998 ST_{27}, 4, 1, 0; 1998 SU_{27}, 3, 1, 0; 1998 SZ_{27}, 13, 4, 6; 1998 SF_{28} *, 5, 2, 2; 1998 SD_{36}, 2, 1, 0; 1998 SF_{36}, 3, 1, 0; 1998 SG_{36}, 3, 1, 0; 1998 SH_{36}, 3, 1, 0; 1998 SJ_{36}, 3, 1, 0; 3424 T-3, 6, 2, 3; (461), 3, 1, 0; (627), 6, 2, 2; (2953), 6, 2, 3; (3753), 5, 2, 3; (4436), 6, 2, 3; (5021), 5, 2, 5; (5786), 8, 3, 22; (6322), 6, 2, 5; (6738), 6, 2, 2; (6771), 6, 2, 3; (7071), 4, 2, 3; (7655), 6, 2, 3; (7672), 6, 2, 3; (7727), 6, 2, 2; (9166), 6, 2, 5; *[587, 108, 14*, 1998/08/25–1998/09/29]*

428 Reedy Creek
J. Broughton, 18 Branch Crescent, Reedy Creek, QLD 4228, Australia [reedyck@yahoo.com]
0.25-m f/6.3 Schmidt-Cassegrain + CCD
GSC
1976 SL_5, 1, 1, 0; 1991 TK, 2, 1, 0; 1994 GN, 2, 1, 0; 1997 EQ_{30}, 2, 1, 0; 1997 GR_{23}, 5, 3, 3; 1997 JM_{15}, 4, 2, 1; 1998 OX_{11}, 1, 1, 0; 1998 OY_{11}, 2, 1, 0; 1998 OZ_{11}, 2, 1, 0; 1998 OB_{12}, 2, 1, 0; 1998 OD_{12}, 2, 1, 0; 1998 OE_{12}, 2, 1, 0; 1998 OG_{12}, 2, 1, 0; 1998 OH_{12}, 2, 1, 0; 1998 OK_{12}, 2, 1, 0; 1998 OM_{12}, 2, 1, 0; 1998 OK_{14}, 2, 1, 0; 1998 PM_1, 2, 1, 0; 1998 PN_1, 2, 1, 0; 1998 QA_4, 2, 1, 0; 1998 QB_4, 1, 1, 0; 1998 QD_4, 2, 1, 0; 1998 QE_4, 1, 1, 0; 1998 QH_4, 2, 1, 0; 1998 QJ_4, 2, 1, 0; 1998 QN_{26}, 2, 1, 0; 1998 QX_{31}, 9, 4, 6; 1998 QL_{43}, 4, 2, 2; 1998 QQ_{43}, 6, 3, 7; 1998 QG_{63}, 4, 2, 11; 1998 QD_{99}, 6, 3, 4; 1998 QF_{99}, 5, 3, 3; 1998 QG_{102}, 6, 3, 4; 1998 QP_{102}, 4, 2, 1; 1998 RV, 6, 3, 3; 1998 RE_1 *, 7, 3, 3; 1998 RD_5 *, 5, 3, 4; 1998 RE_5 *, 6, 3, 4; 1998 RL_{20} *, 7, 4, 5; 1998 SG_2, 5, 2, 1; 1998 SP_2, 7, 3, 3; 1998 SP_{10} *, 3, 2, 1; (522), 4, 2, 2; (7666), 2, 1, 0; (7742), 4, 2, 2; (9038), 2, 1, 0; *[155, 46, 5*, 1998/09/02–1998/09/22]*

429 Hawker
J. B. Child, 64 Woolner Circuit, Hawker, ACT 2614, Australia [jbchild@dynamite.com.au]
0.32-m f/4.8 reflector + CCD
GSC-1.1
1997 GB, 2, 1, 0; 1998 RV, 7, 3, 13; 1998 SG_{27}, 2, 1, 0; *[11, 3, 0*, 1998/09/16–1998/09/29]*

468 Astronomical Observatory, Campo Catino
F. Mallia, Via dei Siculi 37, I-04100 Latina, Italy [pa0115@panservice.it]
Observers F. Mallia, G. Masi, M. Di Sora
Measurers F. Mallia, G. Masi, F. Rossi
0.80-m f/4 reflector + CCD
GSC
1998 RR_2, 3, 1, 0; 1998 SG_2, 3, 1, 0; 1998 SY_2 *, 3, 1, 0; (453), 2, 1, 0; *[11, 4, 1*, 1998/09/18–1998/09/19]*

470 Ceccano
G. Masi, Via Madonna de Loco 47, I-03023 Ceccano (FR), Italy [gianmasi@fr.flashnet.it]
0.28-m f/3.3 Schmidt-Cassegrain + CCD
USNO-A1.0
1998 QO_{84}, 2, 1, 0; 1998 RR_2, 7, 2, 9; 1998 RO_4, 3, 1, 0; 1998 SU_2, 4, 2, 1; 1998 SY_2, 7, 3, 9; 1998 SH_{36}, 2, 1, 0; (453), 3, 1, 0; (1508), 6, 2, 9; *[34, 8, 0∗, 1998/09/19–1998/09/29]*

504 Le Creusot
J.-C. Merlin, 18 rue P. Mendès-France, F-71200 Le Creusot, France [merlin@obspm.fr]
0.40-m f/5.1 reflector + CCD
GSC
1998 QS_{52}, 4, 1, 0; *[4, 1, 0∗, 1998/09/23]*

540 Linz
E. Meyer, F. Marklstrasse 1/62, A-4040 Linz, Austria [erich.meyer@ooenet.at]
Observers E. Meyer, E. Obermair
0.30-m f/5.2 Schmidt Cassegrain + CCD
GSC
1996 BZ, 7, 2, 3; 1998 MK_{30}, 3, 1, 0; 1998 PG, 4, 1, 0; 1998 PB_1, 3, 1, 0; 1998 QR_{15}, 3, 1, 0; 1998 RO_4, 3, 1, 0; 1998 SG_2, 3, 1, 0; 1998 SD_{15}, 4, 1, 0; *[30, 8, 0∗, 1998/09/09–1998/09/24]*

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
1982 WA, 5, 2, 34; (358), 2, 1, 0; *[7, 2, 0∗, 1998/08/15–1998/09/18]*

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, D. Čapek
0.65-m f/3.6 reflector + CCD
USNO-SA1.0, GSC
1978 CK, 4, 1, 0; 1990 VB, 3, 1, 0; 1994 CK_1, 3, 1, 0; 1994 TF_2, 3, 2, 1; 1996 FR_1, 6, 2, 7; 1996 OO, 2, 1, 0; 1997 PQ, 4, 2, 2; 1997 SH, 2, 1, 0; 1997 SM_1, 2, 1, 0; 1997 TT_9, 2, 1, 0; 1997 TU_9, 5, 2, 2; 1997 TA_{10}, 7, 3, 4; 1997 US_9, 3, 1, 0; 1997 VV_1, 2, 1, 0; 1997 VU_2, 6, 2, 3; 1998 MX_5, 2, 1, 0; 1998 ML_{14}, 3, 1, 0; 1998 MR_{24}, 4, 2, 8; 1998 OY_4, 2, 1, 0; 1998 OZ_4, 4, 2, 9; 1998 PG, 11, 3, 3; 1998 PB_1, 2, 1, 0; 1998 QA_1, 2, 1, 0; 1998 QC_1, 2, 1, 0; 1998 QR_1, 4, 2, 7; 1998 QS_1, 5, 2, 11; 1998 QE_2, 2, 1, 0; 1998 QV_3, 4, 2, 4; 1998 QO_4, 5, 2, 9; 1998 QW_5, 5, 2, 9; 1998 QR_{15}, 5, 2, 1; 1998 QK_{28}, 7, 2, 9; 1998 QE_{29}, 5, 2, 9; 1998 QR_{52}, 4, 2, 5; 1998 QS_{52}, 5, 2, 5; 1998 QH_{56}, 3, 1, 0; 1998 QK_{56}, 4, 2, 4; 1998 QN_{60}, 6, 3, 14; 1998 QO_{60}, 7, 3, 11; 1998 QP_{60}, 4, 2, 13; 1998 QQ_{60}, 5, 2, 9; 1998 QH_{79}, 7, 2, 1; 1998 QZ_{85}, 8, 2, 1; 1998 QF_{98}, 3, 1, 0; 1998 QA_{105}, 4, 1, 0; 1998 RM ∗, 14, 5, 19; 1998 RN_1, 9, 3, 11; 1998 RO_1, 7, 3, 11; 1998 RX_1, 3, 1, 0; 1998 RF_2, 6, 2, 1; 1998 RQ_2, 3, 1, 0; 1998 RR_2, 2, 1, 0; 1998 RS_2, 3, 1, 0; 1998 RO_4, 6, 2, 6; 1998 RP_{20} ∗, 8, 3, 10; 1998 SD_2, 4, 1, 0; 1998 SG_2, 7, 3, 7; 1998 SH_2, 3, 1, 0; 1998 SJ_2, 11, 4, 7; 1998 SP_2, 2, 1, 0; 1998 SQ_2, 7, 1, 0; 1998 SR_2, 6, 1, 0; 1998 SU_2 ∗, 8, 4, 9; 1998 SV_2, 6, 2, 1; 1998 SX_2, 2, 1, 0; 1998 SD_4, 5, 2, 1; 1998 SG_4, 6, 2, 1; 1998 SS_4, 5, 2, 5; 1998 ST_4, 5, 2, 1; 1998 SU_4, 9, 3, 2; 1998 SV_4, 11, 4, 8; 1998 SB_5 ∗, 10, 4, 6; 1998 SO_{10}, 9, 3, 2; 1998 SW_{10} ∗, 12, 4, 5; 1998 SA_{13} ∗, 7, 3, 3; 1998 SB_{13} ∗, 8, 3, 3; 1998 SC_{13} ∗, 6, 2, 1; 1998 SD_{13} ∗, 6, 3, 3; 1998 SB_{15}, 14, 4, 6; 1998 SC_{15}, 8, 3, 4; 1998 SD_{15}, 10, 3, 4; 1998 SS_{26} ∗, 10, 3, 4; 1998 ST_{26} ∗, 3, 2, 1; 1998 SU_{26} ∗, 9, 3, 6; 1998 SV_{26} ∗, 7, 2, 1; 1998 SH_{27} ∗, 9, 4, 5; 1998 ST_{27}, 8, 4, 5; 1998 SU_{27}, 10, 3, 2; 1998 SE_{35}, 12, 3, 3; 1998 SF_{35}, 8, 3, 3; 1998 SD_{36}, 2, 1, 0; 1998 SE_{36}, 3, 1, 0; 1998 SF_{36}, 3, 1, 0; 1998 SG_{36}, 4, 1, 0; 1998 SH_{36}, 7, 2, 1; 1998 SJ_{36}, 7, 2, 1; 1998 SK_{36} ∗, 5, 2, 2; 1998 SQ_{49}, 3, 1, 0; 1998 SR_{49}, 3, 1, 0; 1998 SS_{49}, 2, 1, 0; 1998 ST_{49}, 4, 1, 0; (1627), 2, 1, 0; (1692), 4, 1, 0; (1916), 3, 1, 0; (2201), 5, 2, 1; (2686), 2, 1, 0; (3152), 2, 1, 0; (3199), 2, 1, 0; (3352), 3, 1, 0; (4503), 3, 1, 0; (4537), 1, 1, 0; (5022), 3, 1, 0; (5731), 3, 1, 0; (6047), 2, 1, 0; (6402), 3, 1, 0; *[593, 115, 15∗, 1998/09/07–1998/09/30]*

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
1988 DE, 5, 2, 3; 1994 TW_{15}, 4, 1, 0; 2168 T-2, 6, 2, 1; (358), 3, 1, 0; *[18, 4, 0∗, 1998/09/14–1998/09/18]*

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
(2), 2, 1, 0; (453), 2, 1, 0; (927), 3, 1, 0; (1389), 2, 1, 0; *[9, 4, 0∗, 1998/09/15–1998/09/23]*

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. Bambery, S. Levin, J. Lorre, S. Shaklan, R. Byrd, A. Esquibel, C. Cotton, D. Bascon
1-m f/2.2 Ritchey-Chrétien + CCD
1987 VE_2, 3, 1, 0; 1990 TB_4, 3, 1, 0; 1991 LP_2, 3, 1, 0; 1991 RE_4, 3, 1, 0; 1991 VT_3, 3, 1, 0; 1993 RT_{19}, 9, 3, 887; 1993 ST_1, 6, 2, 37; 1994 QX, 3, 1, 0; 1995 GZ_8, 6, 2, 58; 1995 YZ_{25} ∗, 6, 2, 1; 1996 CF_3, 3, 1, 0; 1996 FM_5, 6, 2, 28; 1996 NA_2, 3, 1, 0; 1997 EK_{35}, 3, 1, 0; 1997 JU_7, 3, 1, 0; 1997 LN, 3, 1, 0; 1998 EN_{11}, 3, 1, 0; 1998 KL_{65}, 3, 1, 0; 1998 MR_{37}, 3, 1, 0; 1998 OU_9, 3, 1, 0; 1998 OU_{13}, 3, 1, 0; 1998 OY_{13}, 3, 1, 0; 1998 OO_{14}, 3, 1, 0; 1998 QA_{15}, 3, 1, 0; 1998 QS_{31}, 3, 1, 0; 4587 P-L, 3, 1, 0; 4590 P-L, 6, 2, 443; 6108 P-L, 3, 1, 0; *[105, 28, 1∗, 1995/12/21–1998/08/22]*

587 Sormano
P. Sicoli, Via Valli 9, I-23846 Garbagnate Monastero (Lecco), Italy [sormano@tin.it]
Observers F. Manca, V. Giuliani, M. Cavagna, P. Chiavenna, P. Sicoli, A. Testa, E. Colzani, G. Ventre, P. Ghezzi
0.5-m reflector + CCD
GSC
1994 RZ, 5, 2, 1; 1995 UE, 2, 1, 0; 1998 QA_1, 4, 2, 9; 1998 QC_1, 3, 2, 2; 1998 QD_2, 2, 1, 0; 1998 QE_2, 3, 1, 0; 1998 QJ_{21}, 7, 3, 2; 1998 QO_{52}, 2, 1, 0; 1998 QP_{52}, 2, 1, 0; 1998 QQ_{52}, 3, 1, 0; 1998 QS_{52}, 4, 2, 9; 1998 QH_{79}, 2, 1, 0; 1998 QF_{98}, 3, 1, 0; 1998 RN_1, 2, 1, 0; 1998 RO_1, 8, 3, 5; 1998 RF_3 ∗, 12, 5, 8; 1998 SO, 6, 2, 6; 1998 SS_4, 3, 1, 0; 1998 SV_4, 5, 2, 3; 1998 SO_{10}, 2, 1, 0; 1998 SC_{15}, 2, 1, 0; 1998 SD_{15}, 5, 1, 0; *[87, 22, 1∗, 1998/09/14–1998/09/23]*

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. Scrirri
0.50-m f/2.8 Ritchey-Chrétien + CCD
GSC
1993 SO_2, 6, 2, 10; 1994 RJ, 8, 3, 5; 1996 DO_1, 11, 4, 10; 1998 SR_4 ∗, 11, 4, 9; 1998 SR_{26} ∗, 9, 3, 5; *[45, 5, 2∗, 1998/09/14–1998/09/28]*

595 Farra d'Isonzo
L. Bittesini, Via dei Conventi 10, I-34070 Farra D'Isonzo (GO), Italy [ccaf@tmedia.it]
Observers A. Toso, E. Pettarin, M. Spolaor, G. Lombardi, L. Bittesini, L. Drigo
Measurers E. Pettarin, G. Lombardi, A. Toso
0.4-m f/4.5 reflector + CCD
GSC

1993 MR, 10, 5, 11; 1993 XB, 5, 2, 6; 1993 YO, 4, 2, 3; 1995 XA, 6, 2, 2; 1996 PS_1, 4, 2, 6; 1997 NQ_2, 5, 2, 2; 1998 MS_{24}, 4, 2, 2; 1998 OJ_1, 6, 2, 1; 1998 QE_5, 5, 2, 1; 1998 QX_{69}, 4, 2, 1; 1998 QF_{96}, 2, 1, 0; 1998 RT $*$, 9, 3, 6; 1998 SQ_{42} $*$, 6, 3, 6; 1998 SR_{42} $*$, 8, 3, 6; 1998 SS_{42} $*$, 5, 2, 1; 1998 ST_{42} $*$, 5, 2, 5; *[88, 16, 5*, 1998/08/30–1998/09/30]*

596 Colleverde di Guidonia
V. S. Casulli, Via M. Rosa 1, I-00010 Colleverde di Guidonia (RM), Italy [v.casulli@priminet.it]
0.40-m f/3.2 reflector + CCD
GSC

1997 CT_{16}, 3, 1, 0; 1997 FM_1, 4, 1, 0; 1997 JB_{10}, 6, 2, 3; 1998 NA, 3, 1, 0; 1998 QO_{53}, 4, 1, 0; 1998 RN_1, 3, 1, 0; 1998 RG_3 $*$, 15, 4, 8; 1998 SL_2, 3, 1, 0; 1998 ST_2 $*$, 15, 5, 11; 1998 SU_4, 3, 1, 0; 1998 SV_4, 3, 1, 0; *[62, 11, 2*, 1998/09/10–1998/09/29]*

610 Pianoro
V. Goretti, Via Resistenza 93, I-40065 Pianoro (BO), Italy [astrofil@astbo1.bo.cnr.it]
0.25-m f/4 Schmidt-Cassegrain + CCD
GSC

1976 YL_3, 2, 1, 0; 1978 PX_3, 3, 1, 0; 1978 RX_1, 3, 1, 0; 1980 TT_3, 3, 1, 0; 1981 EU_4, 7, 2, 5; 1981 EB_{25}, 3, 1, 0; 1987 SD_4, 3, 1, 0; 1987 UV_1, 3, 1, 0; 1990 CD, 4, 1, 0; 1990 RR_7, 3, 1, 0; 1990 SZ, 3, 1, 0; 1990 UU_3, 3, 1, 0; 1991 OO, 3, 1, 0; 1991 PM_{13}, 3, 1, 0; 1991 RU_7, 3, 1, 0; 1993 XD_1, 3, 1, 0; 1994 VU_6, 3, 1, 0; 1998 MK_{30}, 4, 1, 0; 1998 QK_{37}, 8, 2, 4; 1998 QG_{46}, 8, 2, 4; 1998 SU_{10} $*$, 6, 2, 1; 1998 SV_{10} $*$, 8, 2, 1; 2168 T-2, 3, 1, 0; (165), 3, 1, 0; (788), 3, 1, 0; (929), 3, 1, 0; (976), 2, 1, 0; (1149), 3, 1, 0; (1584), 3, 1, 0; (1611), 4, 1, 0; (1635), 3, 1, 0; (1776), 3, 1, 0; (1828), 3, 1, 0; (1930), 3, 1, 0; (2056), 3, 1, 0; (2327), 3, 1, 0; (2328), 6, 2, 4; (2451), 3, 1, 0; (2686), 3, 1, 0; (2728), 4, 1, 0; (3028), 3, 1, 0; (3035), 3, 1, 0; (3435), 3, 1, 0; (3640), 3, 1, 0; (3695), 3, 1, 0; (3746), 3, 1, 0; (3904), 4, 1, 0; (4214), 3, 1, 0; (4562), 3, 1, 0; (4695), 3, 1, 0; (4719), 3, 1, 0; (4849), 4, 1, 0; (4901), 3, 1, 0; (4977), 3, 1, 0; (5026), 3, 1, 0; (5186), 4, 1, 0; (5301), 3, 1, 0; (5462), 3, 1, 0; (5487), 3, 1, 0; (5499), 3, 1, 0; (5934), 3, 1, 0; (5986), 3, 1, 0; (6223), 3, 1, 0; (7038), 3, 1, 0; (9170), 3, 1, 0; (9173), 3, 1, 0; (9177), 8, 2, 3; (9179), 3, 1, 0; (9214), 4, 1, 0; (9218), 3, 1, 0; (9220), 3, 1, 0; (9232), 8, 2, 1; *[257, 72, 2*, 1998/09/06–1998/09/22]*

611 Starkenburg Sternwarte, Heppenheim
M. Busch, Giessener Strasse 4, D-64646 Heppenheim, Germany [mab@iez.com]
Observers P. Geffert, E. Schwab, R. Stoss, M. Busch, S. Kluegl, J. Rothermel, S. Kluegel, K. Sonnenberg
Measurers R. Stoss, M. Busch
0.45-m f/4.4 reflector + CCD
USNO-SA1.0

1989 UR, 2, 1, 0; 1991 RS_2, 2, 1, 0; 1991 RT_3, 2, 1, 0; 1997 GB, 2, 1, 0; 1998 KH_{17}, 3, 1, 0; 1998 MR_{17}, 2, 1, 0; 1998 QH_{79}, 3, 1, 0; 1998 RV, 2, 1, 0; 1998 SG_2, 3, 1, 0; 1998 SJ_2, 8, 3, 5; 1998 SP_2, 3, 1, 0; 1998 SV_2, 2, 1, 0; 1998 SX_2, 3, 1, 0; 1998 SD_4, 2, 1, 0; 1998 SG_4, 3, 1, 0; 1998 SV_4, 4, 1, 0; 1998 SO_{10}, 4, 1, 0; 1998 SC_{15}, 3, 1, 0; 1998 SD_{15}, 4, 1, 0; *[57, 19, 0*, 1998/07/30–1998/09/24]*

620 Observatorio Astronómico de Mallorca
M. Blasco, Afueras s/n, E-07144 Costitx, Baleares, Spain [astroam@dinky.bitel.es]
Observers A. Lopez, R. Pacheco
0.30-m f/3.3 Schmidt-Cassegrain + CCD
GSC

1998 OW_6, 3, 1, 0; 1998 PO, 2, 1, 0; 1998 PL_1, 3, 1, 0; 1998 QS_{26}, 5, 2, 10; 1998 QJ_{40}, 3, 1, 0; 1998 QG_{42}, 4, 1, 0; 1998 SD_{15}, 5, 1, 0; (456), 9, 2, 31; *[34, 8, 0*, 1998/08/08–1998/09/24]*

621 Bergisch Gladbach
W. Bickel, Schau ins Land 21, D-51429 Bergisch Gladbach, Germany [0220455671-0001@t-online.de]
0.60-m f/5 reflector + CCD
USNO-SA1.0

1982 UE_7, 7, 2, 1; 1992 SF_{11}, 4, 2, 1; 1995 YS_{25}, 7, 2, 1; 1998 OM_1, 11, 4, 25; 1998 ON_1, 23, 7, 59; 1998 OO_1, 9, 3, 20; 1998 OP_1, 5, 2, 18; 1998 SK_{49} $*$, 12, 4, 3; 1998 SL_{49} $*$, 7, 2, 1; 1998 SM_{49} $*$, 15, 4, 3; 1998 SN_{49} $*$, 10, 3, 2; 1998 SO_{49} $*$, 9, 3, 2; 1998 SP_{49} $*$, 9, 3, 2; (6020), 10, 3, 2; *[138, 14, 6*, 1998/07/26–1998/09/26]*

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 QR_{26}, 7, 2, 15; (2671), 2, 1, 0; *[9, 2, 0*, 1998/09/13–1998/09/28]*

628 Mülheim-Ruhr
A. Martin, Turtle Star Observatory, Friedhostr. 15, D-45478 Mülheim-Ruhr, Germany [axelm@bph.ruhr-uni-bochum.de]
Observers A. Boeker, A. Martin
0.2-m Schmidt-Cassegrain + CCD
USNO-SA1.0

1998 MZ_7, 4, 1, 0; 1998 PG, 10, 3, 3; (2099), 4, 1, 0; *[18, 3, 0*, 1998/09/20–1998/09/23]*

629 JATE Observatory, Szeged
L. Kiss, H-6725 Szeged, Pf. 596, Hungary [l.kiss@physx.u-szeged.hu]
Observers K. Sárneczky, B. Cs*a* ' k
Measurer L. Kiss, K. Sárneczky
0.28-m Schmidt-Cassegrain + CCD
GSC

1985 PS, 4, 1, 0; (183), 3, 1, 0; (1373), 3, 1, 0; (1508), 3, 1, 0; (1546), 2, 1, 0; (2306), 3, 1, 0; (2443), 2, 1, 0; (9143), 3, 1, 0; *[23, 8, 0*, 1998/09/07–1998/09/08]*

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

1998 PG, 4, 2, 4; (9177), 4, 2, 4; (9214), 4, 2, 4; *[12, 3, 0*, 1998/09/20–1998/09/24]*

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

1998 PG, 3, 1, 0; 1998 QR_{15}, 3, 1, 0; 1998 QS_{52}, 3, 1, 0; *[9, 3, 0*, 1998/09/22]*

635 Perpignan
J.-M. Llapasset, 66 Cours De Lassus, F-66000 Perpignan, France [Jean-Marie.Llapasset@wanadoo.fr]
0.28-m f/6.3 reflector + CCD
USNO-SA1.0

1998 PG, 10, 3, 11; 1998 QR_{15}, 5, 2, 4; (345), 2, 1, 0; (453), 4, 2, 1; (457), 4, 2, 1; (552), 3, 2, 2; (927), 4, 2, 12; *[32, 7, 0∗, 1998/09/14–1998/09/28]*

636 Essen

A. Knöfel, Saarbrücker Str. 8, D-40476 Düsseldorf, Germany [aknoefel@mail.ddorf.rhein-ruhr.de]

0.318-m $f/5.7$ reflector + CCD

USNO-A1.0

1978 PG_4, 4, 2, 3; 1990 SZ, 4, 2, 3; 1993 FJ_{46}, 4, 2, 3; 1998 MK_{30}, 4, 2, 3; 1998 PG, 6, 3, 11; (9068), 6, 2, 3; *[28, 6, 0∗, 1998/09/12–1998/09/24]*

638 Detmold

U. Borcheld, Klusstraße 39, D-32756 Detmold, Germany [100265.2520@compuserve.com]

0.25-m Schmidt-Cassegrain + CCD

GSC

(453), 2, 1, 0; (3368), 2, 1, 0; *[4, 2, 0∗, 1998/09/25]*

639 Dresden

S. Gebhard, Duckwitzstrasse 27d, D-01129 Dresden, Germany [Gebhard@t-online.de]

0.25-m $f/6.0$ reflector + CCD

GSC

1998 MK_{30}, 4, 2, 4; (453), 3, 2, 4; *[7, 2, 0∗, 1998/09/20–1998/09/24]*

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

1.82-m Plaskett telescope + CCD

GSC, USNO-A1.0

1989 UR, 3, 1, 0; 1991 EE, 3, 1, 0; 1998 HJ_{41}, 5, 2, 1; 1998 KU_2, 6, 2, 1; 1998 KH_{17}, 3, 1, 0; 1998 MQ, 6, 2, 2; 1998 MX_5, 3, 1, 0; 1998 MR_{17}, 3, 1, 0; 1998 MT_{24}, 3, 1, 0; 1998 OH, 5, 2, 1; 1998 QA_1, 2, 1, 0; 1998 QC_1, 6, 2, 1; 1998 QE_2, 3, 1, 0; 1998 QV_3, 3, 1, 0; 1998 QR_{15}, 3, 1, 0; 1998 QK_{28}, 3, 1, 0; 1998 QR_{52}, 6, 2, 7; 1998 QS_{52}, 9, 3, 2; 1998 QH_{79}, 3, 1, 0; 1998 QA_{105}, 3, 1, 0; 1998 SV_2, 3, 1, 0; 1998 SD_4, 3, 1, 0; 1998 SO_{10}, 3, 1, 0; 1998 SC_{15}, 9, 3, 6; 1998 SD_{15}, 3, 1, 0; 1998 SR_{27}, 3, 1, 0; 1998 ST_{27}, 9, 3, 3; 1998 SU_{27}, 3, 1, 0; 1998 SE_{35}, 6, 2, 1; 1998 SF_{35}, 6, 2, 1; 1998 SD_{36}, 3, 1, 0; 1998 SE_{36}, 3, 1, 0; 1998 SF_{36}, 9, 2, 1; 1998 SG_{36}, 6, 2, 1; 1998 SH_{36}, 6, 2, 1; 1998 SJ_{36}, 6, 2, 1; 1998 SQ_{49}, 6, 2, 1; 1998 SR_{49}, 3, 1, 0; 1998 SS_{49}, 3, 1, 0; 1998 SU_{63} ∗, 9, 3, 5; (3200), 4, 1, 0; *[187, 41, 1∗, 1998/08/31–1998/09/30]*

659 Heron Cove Observatory, Orcas

J. A. Jamieson, Heron Cove Observatory, Box 303, Orcas, WA 98280, U.S.A. [JamiesonSE@aol.com]

Observers J. A. Jamieson, E. Sanders

0.5-m Ritchey-Chrétien + CCD

GSC

(9247), 6, 2, 11; *[6, 1, 0∗, 1998/09/03–1998/09/14]*

669 Ojai

S. Stephens, Division of Geological and Planetary Sciences, California Institute of Technology, CA 91125, U.S.A. [stuart.stephens@jpl.nasa.gov]

Observers B. Bocala, S. Chang, O. Chu, Z. Cotler, J. Cuenco, E. Deyo, Ri. Doshi, L. Friedman, D. Han, A. Heinz, R. Ho, H. Hong, D. Hou, M. Kim, E. Klein, D. Krasnow, E. Latimer, F. Lee, J. Lee, R. Luna, A. Mallory, A. Marin, T. Nguyen, T. Penoyar, Z. Reidman, J. Ruderman, S. Saunders, W. Serber, M. Sontag, R. Spjut, E. Switzer, V. Tsai, G. Viste, S. Wu, N. Yoo, M. Compton, Ro. Doshi, D. Halkides, C. Wyman, G. Horne, S. Stephens

0.18-m $f/6.7$ astrograph

PPM, SAOC

(6), 4, 3, 15; (18), 2, 2, 2; (980), 6, 4, 16; *[12, 3, 0∗, 1998/07/17–1998/08/02]*

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

1988 BY_3, 2, 1, 0; 1997 US_9, 6, 2, 1; 1998 KU_2, 4, 1, 0; 1998 PG, 6, 2, 16; 1998 QK_{56}, 3, 1, 0; 1998 SG_2, 2, 1, 0; 1998 SP_2, 3, 1, 0; 1998 SV_4, 7, 2, 1; 1998 SD_{15}, 14, 3, 5; 1998 SK_{35}, 3, 1, 0; 1998 SL_{35}, 3, 1, 0; *[53, 11, 0∗, 1998/09/19–1998/10/05]*

673 Table Mountain Observatory

D. L. Rabinowitz, Jet Propulsion Laboratory, Pasadena, CA 91109, U.S.A. [dlr@ipl.jpl.nasa.gov]

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

Observers D. L. Rabinowitz, A. Boattini, W. M. Owen

0.6-m reflector + CCD

1998 QA_{62}, 3, 2, 1; 1998 SV_4, 2, 1, 0; 1998 SD_9, 4, 1, 0; (1), 24, 3, 84; (3), 6, 2, 64; (4), 43, 4, 88; (5), 18, 9, 487; (6), 6, 2, 18; (7), 17, 5, 63; (15), 25, 8, 499; (17), 7, 2, 21; (18), 3, 1, 0; (20), 27, 11, 507; (23), 3, 2, 1; (25), 10, 3, 58; (26), 2, 1, 0; (29), 4, 2, 7; (34), 5, 2, 1; (39), 4, 1, 0; (40), 5, 3, 24; (42), 12, 5, 501; (43), 12, 4, 82; (44), 45, 17, 418; (45), 6, 3, 7; (46), 18, 7, 74; (49), 6, 3, 7; (51), 28, 12, 509; (52), 9, 4, 375; (59), 9, 3, 83; (62), 3, 1, 0; (65), 2, 1, 0; (67), 17, 7, 425; (70), 2, 1, 0; (77), 12, 2, 1; (87), 3, 1, 0; (93), 3, 1, 0; (95), 2, 1, 0; (102), 7, 3, 7; (106), 3, 1, 0; (111), 2, 1, 0; (113), 2, 1, 0; (115), 3, 1, 0; (116), 6, 2, 2; (126), 27, 12, 132; (132), 23, 9, 496; (146), 14, 7, 422; (147), 2, 1, 0; (153), 2, 1, 0; (163), 26, 10, 124; (170), 7, 3, 2; (185), 3, 1, 0; (187), 2, 1, 0; (191), 13, 5, 66; (192), 3, 1, 0; (201), 36, 14, 145; (211), 13, 4, 33; (245), 23, 8, 424; (250), 2, 1, 0; (253), 17, 6, 34; (270), 12, 4, 460; (275), 10, 3, 21; (287), 26, 10, 124; (313), 18, 8, 486; (335), 1, 1, 0; (345), 2, 1, 0; (347), 5, 2, 2; (349), 9, 1, 0; (369), 10, 6, 177; (385), 14, 6, 177; (389), 10, 7, 487; (409), 2, 1, 0; (423), 4, 2, 1; (444), 8, 4, 115; (456), 5, 2, 2; (576), 2, 1, 0; (645), 3, 1, 0; (678), 2, 1, 0; (690), 2, 1, 0; (709), 3, 1, 0; (776), 1, 1, 0; (921), 6, 2, 45; (1036), 12, 4, 459; (1069), 3, 1, 0; (1428), 8, 2, 1; (1796), 5, 2, 45; *[826, 85, 0∗, 1997/05/09–1998/09/30]*

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@rulhl1.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. Helin (2, S), H. E. Holt (3, S), K. Lawrence (2, S), C. S. Shoemaker (3, S), E. M. Shoemaker (3, S), K. W. Zeigler (3, S)

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

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

(2) 1992 BL_2, 3, 2, 1; *[3, 1, 0∗, 1992/01/09–1992/01/10]*

(4) 2056 P-L ∗, 8, 8, 32; 2549 P-L ∗, 8, 8, 32; 2650 P-L ∗, 7, 7, 32; 2664 P-L ∗, 7, 4, 32; 2674 P-L ∗, 8, 8, 32; 2703 P-L ∗, 6, 6, 32; 2711 P-L ∗, 5, 5, 32; 2733 P-L ∗, 7, 7, 32; 3033 P-L ∗, 11, 6, 5; 4052 P-L ∗, 9, 8, 32; 4061 P-L ∗, 8, 8, 32; 4275 P-L ∗, 7, 7, 32; 4555 P-L ∗, 8, 8, 32; 4625 P-L ∗, 7, 7, 32; 4646 P-L ∗, 10, 8, 32; 4765 P-L ∗, 6, 6, 32; 4792 P-L ∗, 5, 5, 28; 5578 P-L ∗, 5, 5, 32; 6110 P-L ∗, 7, 7, 32; 6309 P-L ∗, 7, 7, 32; 6526 P-L ∗, 7, 7, 32; 6529 P-L ∗, 8, 8, 32; 6637 P-L ∗,

8, 8, 32; 6645 P-L ∗, 7, 6, 29; 6667 P-L ∗, 7, 7, 32; 6680 P-L ∗, 7, 7, 32; 6722 P-L ∗, 7, 7, 32; 6763 P-L ∗, 6, 6, 30; 6774 P-L ∗, 6, 6, 32; 6818 P-L ∗, 8, 8, 32; 7066 P-L ∗, 5, 5, 32; 9552 P-L ∗, 4, 4, 9; 9606 P-L ∗, 6, 6, 32; 1172 T-1 ∗, 6, 5, 9; 3262 T-1 ∗, 6, 5, 9; 4243 T-1 ∗, 5, 4, 9; 4676 T-1 ∗, 3, 3, 3; 4875 T-1 ∗, 3, 3, 3; 1135 T-2 ∗, 19, 8, 16; 1236 T-2 ∗, 15, 8, 16; 1278 T-2 ∗, 17, 8, 16; 1320 T-2 ∗, 15, 8, 16; 1323 T-2 ∗, 27, 8, 16; 1348 T-2 ∗, 17, 8, 16; 1350 T-2 ∗, 19, 8, 16; 1357 T-2 ∗, 29, 8, 16; 1409 T-2 ∗, 10, 5, 15; 1555 T-2 ∗, 7, 4, 6; 2049 T-2 ∗, 15, 8, 16; 2091 T-2 ∗, 14, 7, 16; 2162 T-2 ∗, 15, 8, 16; 2184 T-2 ∗, 29, 8, 16; 2186 T-2 ∗, 15, 8, 16; 2245 T-2 ∗, 15, 8, 16; 3051 T-2 ∗, 15, 8, 16; 3109 T-2 ∗, 15, 8, 16; 3335 T-2 ∗, 5, 3, 5; 4209 T-2 ∗, 13, 7, 15; 5476 T-2 ∗, 8, 4, 6; 1014 T-3 ∗, 11, 6, 15; 1071 T-3 ∗, 11, 6, 15; 1117 T-3 ∗, 11, 6, 15; 2244 T-3 ∗, 12, 6, 11; 2246 T-3 ∗, 12, 6, 11; 2456 T-3 ∗, 8, 4, 6; 2622 T-3 ∗, 6, 3, 5; 3093 T-3 ∗, 13, 7, 15; 3170 T-3 ∗, 13, 7, 15; 3246 T-3 ∗, 19, 7, 15; 4183 T-3 ∗, 11, 6, 11; 4221 T-3 ∗, 13, 7, 15; 4373 T-3 ∗, 12, 4, 6; *[741, 72, 72∗, 1960/09/24–1977/10/22]*

(9) 1978 UK_7, 3, 2, 24; 1978 VU_6, 2, 1, 0; 1981 EM_1, 4, 2, 24; 1981 EO_{24}, 2, 1, 0; 1986 TR_1, 4, 2, 24; 1987 DN, 3, 2, 24; 1990 TP_7, 1, 1, 0; 1990 WS_4, 2, 1, 0; 1991 AS_2, 3, 2, 24; 1993 BE_5, 2, 1, 0; 1993 TL_5, 1, 1, 0; 1994 PO_{16}, 2, 1, 0; 1994 TQ_3, 2, 1, 0; 1995 FA_7, 4, 2, 24; 1995 QS_3, 2, 1, 0; 1996 AT_7, 1, 1, 0; 1997 BO_1, 4, 2, 24; 1997 BC_2, 2, 1, 0; 1997 BT_3, 2, 1, 0; 1997 QA, 2, 1, 0; 1998 BH_7, 1, 1, 0; 1998 FX_{54}, 3, 2, 24; 1998 FQ_{67}, 4, 2, 24; 1998 HV_4, 2, 1, 0; 1998 HW_{38}, 1, 1, 0; 1998 HH_{93}, 2, 1, 0; 4333 T-3, 2, 2, 24; (1740), 2, 1, 0; (3059), 1, 1, 0; (3082), 1, 1, 0; (3431), 1, 1, 0; (3535), 3, 2, 24; (3603), 1, 1, 0; (3859), 2, 1, 0; (5717), 2, 1, 0; (6206), 2, 2, 24; (6219), 2, 1, 0; (6224), 1, 1, 0; (6448), 2, 1, 0; (6839), 3, 2, 24; (7101), 2, 1, 0; (7161), 1, 1, 0; (7171), 1, 1, 0; (7347), 2, 1, 0; (7348), 2, 1, 0; (7473), 4, 2, 24; (7674), 1, 1, 0; (7700), 2, 1, 0; (8053), 2, 1, 0; (8154), 3, 2, 24; (8428), 4, 2, 24; (8675), 4, 2, 24; (8681), 2, 1, 0; (8744), 1, 1, 0; (8751), 1, 1, 0; (8786), 2, 1, 0; (8932), 1, 1, 0; (9099), 2, 1, 0; *[123, 58, 0∗, 1989/07/05–1990/10/22]*

681 Calgary

G. W. Billings, 2320 Cherokee Dr NW, Calgary, Alberta T2L 0X7, Canada
[gbillings@talisman-energy.com]

0.235-m $f/3.3$ Schmidt-Cassegrain + CCD
GSC

1998 QT_{60}, 6, 2, 5; (285), 5, 2, 2; (457), 5, 2, 2; (934), 5, 2, 1; (5234), 4, 2, 2; *[25, 5, 0∗, 1998/08/30–1998/09/28]*

682 Kanab

E. Sheridan, 7205 Sunflower Lane, Kanab, UT 84741, U.S.A
[mened@xpressweb.com]

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

1998 QO_{84}, 4, 2, 1; 1998 SD_{15}, 4, 1, 0; *[8, 2, 0∗, 1998/09/20–1998/09/24]*

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

1988 BG_5, 5, 2, 1; 1998 MW_{15}, 4, 2, 2; 1998 QN_{69}, 5, 2, 1; 1998 QR_{69}, 5, 2, 1; 1998 QO_{83}, 6, 2, 1; 1998 SZ_2 ∗, 12, 4, 8; 1998 SA_3 ∗, 15, 5, 8; 1998 SB_3 ∗, 12, 4, 8; 1998 SY_{12} ∗, 12, 4, 9; 1998 SZ_{12} ∗, 11, 4, 8; 1998 SV_{27} ∗, 12, 4, 9; 1998 SW_{27} ∗, 7, 3, 2; 1998 SX_{27} ∗, 14, 5, 9; 1998 SY_{27} ∗, 12, 4, 8; (1416), 5, 2, 1; (2349), 6, 2, 1; *[143, 16, 9∗, 1998/09/18–1998/10/03]*

684 Prescott

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

1996 GS, 5, 2, 1; 1997 BU_5, 4, 2, 1; 1997 FB, 4, 2, 1; 1997 HP_2, 4, 2, 1; 1997 JU_3, 4, 2, 1; 1997 JA_8, 4, 2, 1; 1997 KG, 4, 2, 1; 1997 KH, 6, 2, 1; 1997 MR_1, 5, 2, 1; 1997 NC_3, 4, 2, 1; 1997 NE_3, 4, 2, 1; 1997 PM_1, 4, 2, 1; 1998 NH, 4, 2, 1; 1998 OT_1, 4, 1, 0; 1998 OH_2, 4, 2, 1; 1998 OJ_2, 4, 2, 1; 1998 OF_4, 5, 2, 1; 1998 OQ_4, 4, 2, 3; 1998 OW_5, 4, 2, 1; 1998 PP, 4, 2, 1; 1998 PQ, 2, 1, 0; 1998 PR, 4, 2, 1; 1998 PU, 4, 2, 1; 1998 QE, 4, 2, 1; 1998 QF, 4, 2, 1; 1998 QH, 4, 2, 1; 1998 QY, 4, 2, 3; 1998 QZ, 7, 3, 3; 1998 QS_5, 4, 2, 1; 1998 QT_5, 4, 2, 1; 1998 QD_{15}, 5, 2, 1; 1998 QM_{28}, 4, 2, 1; 1998 QO_{28}, 5, 2, 1; 1998 QY_{38}, 4, 2, 1; 1998 QE_{39}, 4, 2, 1; 1998 QD_{44}, 4, 2, 1; 1998 RU ∗, 4, 2, 1; 1998 RA_1 ∗, 4, 2, 1; 1998 RL_1 ∗, 4, 2, 1; 1998 RP_1 ∗, 8, 4, 7; 1998 SB_2 ∗, 8, 4, 8; 1998 SC_2 ∗, 4, 2, 1; 1998 SE_4 ∗, 8, 4, 5; 1998 SF_4 ∗, 8, 4, 5; 1998 SH_4, 2, 1, 0; 1998 SJ_4, 4, 2, 1; 1998 SK_4 ∗, 8, 4, 5; 1998 SL_4 ∗, 8, 4, 5; 1998 SM_4 ∗, 8, 4, 5; 1998 SK_{26} ∗, 4, 2, 1; 1998 SL_{26} ∗, 4, 2, 1; 1998 SM_{26} ∗, 8, 4, 5; 1998 SA_{28} ∗, 8, 4, 3; 1998 SB_{28} ∗, 8, 4, 3; 1998 SC_{28} ∗, 4, 2, 1; 1998 SD_{28} ∗, 4, 2, 1; 1998 SE_{28} ∗, 4, 2, 1; 1998 SG_{35}, 2, 1, 0; 1998 SA_{36} ∗, 4, 2, 1; (7579), 4, 1, 0; *[284, 60, 20∗, 1998/09/08–1998/09/29]*

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0.20-m transit telescope + CCD
ACT

1953 TA_1, 1, 1, 0; 1981 EB_{25}, 2, 2, 19; 1981 EY_{27}, 1, 1, 0; 1981 US_{22}, 1, 1, 0; 1982 UE_2, 1, 1, 0; 1985 JG_2, 1, 1, 0; 1985 PS, 1, 1, 0; 1986 XT, 1, 1, 0; 1987 SD_4, 3, 3, 19; 1987 SV_{12}, 1, 1, 0; 1988 SH_2, 2, 2, 1; 1990 UU_3, 1, 1, 0; 1991 AA_1, 2, 2, 19; 1991 FL_4, 2, 2, 19; 1991 OO, 1, 1, 0; 1991 PO_{11}, 1, 1, 0; 1991 RA_6, 1, 1, 0; 1991 YV, 1, 1, 0; 1994 PC_{39}, 1, 1, 0; 1996 DW_2, 1, 1, 0; 1996 XA_{12}, 1, 1, 0; 1998 MX_5, 1, 1, 0; 1998 MK_{37}, 1, 1, 0; (2), 1, 1, 0; (7), 1, 1, 0; (14), 2, 2, 1; (44), 2, 2, 1; (98), 2, 2, 1; (165), 3, 3, 19; (307), 2, 2, 1; (348), 2, 2, 1; (413), 1, 1, 0; (457), 1, 1, 0; (487), 2, 2, 20; (488), 2, 2, 1; (534), 2, 2, 1; (621), 2, 2, 1; (895), 1, 1, 0; (968), 2, 2, 1; (1036), 3, 3, 20; (1093), 1, 1, 0; (1237), 2, 2, 1; (3151), 3, 3, 20; (3445), 1, 1, 0; (3630), 1, 1, 0; (3943), 1, 1, 0; (4021), 1, 1, 0; (4038), 3, 3, 19; (4044), 4, 4, 20; (4295), 1, 1, 0; (4809), 1, 1, 0; (5499), 1, 1, 0; (6032), 1, 1, 0; (6046), 1, 1, 0; (6346), 1, 1, 0; (6708), 1, 1, 0; (6838), 1, 1, 0; (7478), 1, 1, 0; (9000), 2, 2, 20; (9002), 1, 1, 0; (9068), 2, 2, 1; (9147), 1, 1, 0; (9159), 1, 1, 0; (9164), 1, 1, 0; (9186), 1, 1, 0; (9219), 1, 1, 0; (9220), 1, 1, 0; (9225), 2, 2, 20; (9227), 1, 1, 0; (9252), 1, 1, 0; *[101, 70, 0∗, 1998/08/03–1998/08/23]*

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0.91-m Spacewatch telescope + CCD
GSC

1966 PL, 3, 1, 0; 1975 SB_2, 3, 1, 0; 1976 YL_3, 3, 1, 0; 1977 PB, 3, 1, 0; 1978 PG_4, 3, 1, 0; 1978 RL_7, 3, 1, 0; 1978 RL_{10}, 3, 1, 0; 1978 TQ_5, 2, 1, 0; 1978 VD_3, 6, 2, 2449; 1978 VG_4, 3, 1, 0; 1978 VE_7, 6, 2, 500; 1979 QW_3, 12, 4, 17; 1980 DS_4, 3, 1, 0; 1980 FH_3, 3, 1, 0; 1980 FK_4, 3, 1, 0; 1981 EE_1, 3, 1, 0; 1981 EB_{17}, 9, 3, 12; 1981 EJ_{20}, 3, 1, 0; 1981 EC_{22}, 3, 1, 0; 1981 EK_{22}, 3, 1, 0; 1981 EA_{23}, 3, 1, 0; 1981 EH_{23}, 3, 1, 0; 1981 EB_{25}, 9, 3, 7; 1981 ET_{27}, 3, 1, 0; 1981 EX_{32}, 3, 1, 0; 1981 EZ_{35}, 3, 1, 0; 1981 ET_{39}, 3, 1, 0; 1981 QR_2, 3, 1, 0; 1981 QN_3, 3, 1, 0; 1981 UE_{28}, 4, 2, 1; 1982 JD_2, 3, 1, 0; 1982 QO, 6, 2, 5; 1982 XQ_1, 3, 1, 0; 1983 RB_2, 6, 2, 7; 1984 SY_1, 3, 1, 0; 1985 RJ, 3, 1, 0; 1985 RB_4, 3, 1, 0; 1985 TB_3, 6, 2, 18; 1986 PJ_1, 3, 1, 0; 1986 QC_1, 3, 1, 0; 1988 QR, 3, 1, 0; 1988 RQ_5, 9, 3, 7; 1989 BV_1, 3, 1, 0; 1989 EJ_6, 3, 1, 0; 1989 GN_4, 3, 1, 0; 1989 RG_1, 3, 1, 0; 1989 SW_8, 3, 1, 0; 1990 HY, 3, 1, 0; 1990 RV_3, 3, 1, 0; 1990 SV, 3, 1, 0; 1990 SX_3, 3, 1, 0; 1990 VU_5, 3, 1, 0; 1990 VP_6, 6, 2, 1405; 1991 FO_1, 6, 2, 6; 1991 GP_3, 3, 1, 0; 1991 GH_{11}, 3, 1, 0; 1991 HK, 3, 1, 0; 1991 JF, 3, 1, 0; 1991 PG_{11}, 3, 1, 0; 1991 PZ_{14}, 2, 1, 0; 1991 PA_{15}, 3, 1, 0; 1991 RB_4, 9, 3, 12; 1991 RE_4, 3, 1, 0; 1991 RS_8, 3, 1, 0; 1991 RU_8, 3, 1, 0; 1991 RA_{10}, 3, 1, 0; 1991 RV_{17}, 6, 2, 1015; 1991 TH_2, 3, 1, 0; 1991 UZ_3, 6, 2, 2389; 1991 VZ_2, 3, 1, 0; 1991 VT_3, 3, 1, 0; 1992 DD_3, 6, 2, 920; 1992 EH_7, 3, 1, 0; 1992 HZ_3, 6, 2, 9; 1992 HA_4, 3, 1, 0; 1992 HD_7, 3, 1, 0; 1992 RF_7, 2, 1, 0; 1992 SP_{16}, 3, 1, 0; 1992 WR_1, 3, 1, 0; 1992 WC_9, 3, 1, 0; 1993 BZ_{12}, 3, 1, 0; 1993 BH_{13}, 3, 1, 0; 1993 BX_{13}, 3, 1, 0; 1993 DB_1, 6, 2, 5; 1993 EK, 3, 1, 0; 1993 FR_3, 3, 1, 0; 1993 FB_8, 3, 1, 0; 1993 FJ_{23}, 3, 1, 0; 1993 FV_{24}, 3, 1, 0; 1993 FR_{35}, 3, 1, 0; 1993 FJ_{46}, 3, 1, 0; 1993 FX_{50}, 3, 1, 0; 1993 FX_{79}, 9, 3, 6; 1993 GK_1, 3, 1, 0; 1993 HK, 3, 1, 0; 1993 JF_1, 3, 1, 0; 1993 OK_9, 2, 1, 0; 1993 PJ_7, 6, 2, 5; 1993 QF_3, 3, 1, 0; 1993 QP_3, 3, 1, 0; 1993 QZ_5, 5, 1, 0; 1993 RT_{19}, 9, 3, 7; 1993 SM_3, 3, 1, 0; 1993 SN_3, 3, 1, 0; 1993 SQ_3, 3, 1, 0; 1993 TK_{11}, 5, 2, 3; 1993 TX_{26}, 3, 1, 0; 1993 TD_{28}, 6, 2, 6; 1993 UZ_7, 3, 1, 0; 1993 XD_1, 6, 2, 1; 1993 XM_1, 3, 1, 0; 1994 AN_{10}, 3, 1, 0; 1994 CK_2, 3, 1, 0; 1994 CS_2, 3, 1, 0; 1994 CG_{12}, 6, 2, 1956; 1994 ET_6, 2, 1, 0; 1994 GB_9, 3, 1, 0; 1994 HX, 6, 2, 529; 1994 JF, 6, 2, 482; 1994 JG_4, 3, 1, 0; 1994 PF_{14}, 2, 1, 0; 1994 PW_{15}, 6, 2, 19; 1994 PQ_{16}, 3, 1, 0; 1994 PK_{17}, 12, 4, 10; 1994 PA_{19}, 3, 1, 0; 1994 PJ_{22}, 6, 2, 1369; 1994 PX_{22}, 3, 1, 0; 1994 PL_{25}, 3, 1, 0; 1994 PC_{29}, 3, 1, 0; 1994 PW_{29}, 3, 1, 0; 1994 PU_{37}, 3, 1, 0; 1994 PW_{38}, 6, 2, 1949; 1994 QR, 3, 1, 0; 1994 QT, 3, 1, 0; 1994 QA_1, 3, 1, 0; 1994 RW_{17}, 6, 2, 2; 1994 TK_{11}, 3, 1, 0; 1994 TZ_{14}, 9, 3, 6; 1994 UA_3, 3, 1, 0; 1995 BB, 8, 3, 9; 1995 BQ, 3, 1, 0; 1995 CE_1, 9, 3, 9; 1995 DX_2, 3, 1, 0; 1995 SQ_3, 3, 1, 0; 1995 SU_{15}, 3, 1, 0; 1995 TA_1, 3, 1, 0; 1995 UE, 6, 2, 6; 1995 UO_3, 3, 1, 0; 1995 UP_8, 9, 3, 12; 1995 UB_{15}, 3, 1, 0; 1995 UX_{48}, 3, 1, 0; 1995 VG_{13}, 3, 1, 0; 1995 WL_4, 2, 1, 0; 1995 WX_5, 3, 1, 0; 1995 WD_{32}, 2, 1,

0; 1995 XU_1, 3, 1, 0; 1995 YQ, 9, 3, 1361; 1995 YJ_3, 3, 1, 0; 1995 YO_3, 9, 3, 9; 1995 YC_5, 3, 1, 0; 1996 AN, 3, 1, 0; 1996 AR_1, 3, 1, 0; 1996 AO_2, 3, 1, 0; 1996 AP_2, 3, 1, 0; 1996 AM_{20} *, 5, 2, 7; 1996 DG_2, 3, 1, 0; 1996 EW_1, 12, 4, 11; 1996 FP_1, 2, 1, 0; 1996 FM_5, 3, 1, 0; 1996 FG_{16}, 3, 1, 0; 1996 HH_{10}, 3, 1, 0; 1996 HU_{10}, 3, 1, 0; 1996 VA_{27}, 3, 1, 0; 1997 AG_3, 3, 1, 0; 1997 AH_5, 3, 1, 0; 1997 AO_7, 3, 1, 0; 1997 AW_{17}, 3, 1, 0; 1997 BU_5, 3, 1, 0; 1997 BV_8, 3, 1, 0; 1997 CQ, 3, 1, 0; 1997 CA_1, 6, 2, 8; 1997 CZ_{14}, 2, 1, 0; 1997 CY_{16}, 3, 1, 0; 1997 CD_{20}, 3, 1, 0; 1997 CA_{22}, 3, 1, 0; 1997 CO_{26}, 8, 3, 11; 1997 CS_{28}, 3, 1, 0; 1997 CF_{29}, 3, 1, 0; 1997 ER_{11}, 3, 1, 0; 1997 EE_{16}, 6, 2, 27; 1997 EG_{27}, 6, 2, 1031; 1997 EO_{32}, 6, 2, 6; 1997 EW_{47}, 3, 1, 0; 1997 FB, 3, 1, 0; 1997 FM_1, 3, 1, 0; 1997 FO_3, 3, 1, 0; 1997 FT_3, 3, 1, 0; 1997 GP_6, 3, 1, 0; 1997 GL_{11}, 9, 3, 7; 1997 GD_{15}, 3, 1, 0; 1997 GE_{17}, 9, 3, 11; 1997 GK_{17}, 3, 1, 0; 1997 GL_{17}, 6, 2, 12; 1997 GZ_{25}, 3, 1, 0; 1997 GL_{28}, 3, 1, 0; 1997 GZ_{32}, 3, 1, 0; 1997 HP_2, 6, 2, 7; 1997 JA, 3, 1, 0; 1997 JA_8, 3, 1, 0; 1997 JB_{13}, 6, 2, 1819; 1997 JC_{14}, 3, 1, 0; 1997 JS_{14}, 3, 1, 0; 1997 JM_{15}, 3, 1, 0; 1997 JJ_{16}, 3, 1, 0; 1997 JP_{16}, 3, 1, 0; 1997 SK_1, 9, 3, 1018; 1997 WR_{31}, 3, 1, 0; 1997 YR_{13}, 3, 1, 0; 1998 BG_2, 3, 1, 0; 1998 BM_{15}, 6, 2, 53; 1998 EX_1, 6, 2, 12; 1998 ED_{21}, 3, 1, 0; 1998 FO_1, 3, 1, 0; 1998 FL_{12}, 3, 1, 0; 1998 FF_{35}, 3, 1, 0; 1998 FM_{40}, 6, 2, 1018; 1998 FV_{40}, 3, 1, 0; 1998 FZ_{40}, 2, 1, 0; 1998 FO_{54}, 3, 1, 0; 1998 FR_{58}, 3, 1, 0; 1998 FU_{58}, 3, 1, 0; 1998 FB_{61}, 3, 1, 0; 1998 FQ_{67}, 2, 1, 0; 1998 FD_{68}, 3, 1, 0; 1998 FJ_{72}, 6, 2, 8; 1998 FF_{97}, 3, 1, 0; 1998 FP_{106}, 3, 1, 0; 1998 FW_{113}, 3, 1, 0; 1998 FL_{123}, 6, 2, 501; 1998 FR_{136}, 3, 1, 0; 1998 FL_{137}, 3, 1, 0; 1998 GO_1, 3, 1, 0; 1998 HQ_{12}, 3, 1, 0; 1998 HT_{19}, 3, 1, 0; 1998 HC_{22}, 3, 1, 0; 1998 HM_{22}, 3, 1, 0; 1998 HW_{45}, 3, 1, 0; 1998 HR_{66}, 3, 1, 0; 1998 HS_{66}, 6, 2, 37; 1998 HY_{79}, 6, 1, 0; 1998 HH_{80}, 3, 1, 0; 1998 HJ_{80}, 3, 1, 0; 1998 HH_{97}, 6, 2, 14; 1998 HT_{98}, 3, 1, 0; 1998 HH_{100}, 3, 1, 0; 1998 HS_{100}, 3, 1, 0; 1998 HG_{103}, 3, 1, 0; 1998 HB_{115}, 3, 1, 0; 1998 HN_{115}, 6, 2, 10; 1998 HL_{117}, 3, 1, 0; 1998 HM_{117}, 3, 1, 0; 1998 HC_{120}, 3, 1, 0; 1998 HH_{147}, 3, 1, 0; 1998 JL_1, 3, 1, 0; 1998 JL_4, 2, 1, 0; 1998 KX_3, 5, 2, 24; 1998 KA_{10}, 3, 1, 0; 1998 KO_{31}, 3, 1, 0; 1998 KQ_{31}, 8, 3, 1560; 1998 KW_{33}, 3, 1, 0; 1998 KM_{39}, 3, 1, 0; 1998 KT_{44}, 3, 1, 0; 1998 KR_{46}, 3, 1, 0; 1998 KE_{48}, 3, 1, 0; 1998 KJ_{52}, 2, 1, 0; 1998 KN_{60}, 3, 1, 0; 1998 KM_{61}, 3, 1, 0; 1998 KX_{63}, 6, 2, 12; 1998 LT_2, 3, 1, 0; 1998 MD, 5, 2, 13; 1998 MK_4, 3, 1, 0; 1998 MB_{16}, 3, 1, 0; 1998 MG_{16}, 3, 1, 0; 1998 MP_{32}, 3, 1, 0; 1998 MT_{34}, 3, 1, 0; 1998 MY_{34}, 6, 2, 22; 1998 MA_{36}, 3, 1, 0; 1998 MM_{36}, 3, 1, 0; 1998 MF_{37}, 3, 1, 0; 1998 ML_{37}, 3, 1, 0; 1998 MQ_{37}, 6, 2, 30; 1998 MT_{37}, 3, 1, 0; 1998 MF_{48}, 3, 1, 0; 1998 OJ, 3, 1, 0; 1998 OQ, 3, 1, 0; 1998 OH_2, 3, 1, 0; 1998 OU_9, 3, 1, 0; 1998 OY_9, 3, 1, 0; 1998 OS_{10}, 3, 1, 0; 1998 OT_{11}, 3, 1, 0; 1998 OZ_{11}, 3, 1, 0; 1998 OP_{12}, 6, 2, 47; 1998 OL_{13}, 3, 1, 0; 1998 ON_{13}, 3, 1, 0; 1998 OR_{13}, 6, 2, 28; 1998 OY_{13}, 3, 1, 0; 1998 OC_{14}, 3, 1, 0; 1998 OO_{14}, 11, 4, 559; 1998 PQ, 3, 1, 0; 1998 PR, 6, 2, 4; 1998 PS, 9, 3, 11; 1998 QD, 6, 2, 6; 1998 QE, 12, 4, 9; 1998 QS, 6, 2, 11; 1998 QU, 3, 1, 0; 1998 QY, 3, 1, 0; 1998 QZ, 9, 3, 7; 1998 QX_1, 3, 1, 0; 1998 QA_2, 3, 1, 0; 1998 QS_2, 6, 2, 8; 1998 QT_2, 6, 2, 2; 1998 QJ_4, 3, 1, 0; 1998 QS_9, 3, 1, 0; 1998 QO_{10}, 3, 1, 0; 1998 QU_{10}, 6, 2, 5; 1998 QF_{11}, 3, 1, 0; 1998 QH_{11}, 3, 1, 0; 1998 QT_{12}, 3, 1, 0; 1998 QB_{13}, 6, 2, 5; 1998 QL_{13}, 6, 2, 7; 1998 QY_{13}, 3, 1, 0; 1998 QA_{15}, 9, 3, 1573; 1998 QB_{15}, 5, 2, 13; 1998 QK_{15}, 3, 1, 0; 1998 QJ_{16}, 3, 1, 0; 1998 QK_{16}, 3, 1, 0; 1998 QF_{17}, 3, 1, 0; 1998 QW_{17}, 3, 1, 0; 1998 QS_{18}, 3, 1, 0; 1998 QL_{23}, 3, 1, 0; 1998 QE_{24}, 2, 1, 0; 1998 QN_{25}, 3, 1, 0; 1998 QO_{26}, 2, 1, 0; 1998 QY_{27}, 3, 1, 0; 1998 QZ_{27}, 3, 1, 0; 1998 QB_{28}, 6, 2, 2; 1998 QC_{28}, 3, 1, 0; 1998 QF_{28}, 3, 1, 0; 1998 QM_{28}, 9, 3, 7; 1998 QM_{30}, 6, 2, 7; 1998 QN_{30}, 12, 4, 16; 1998 QS_{31}, 3, 1, 0; 1998 QV_{32}, 3, 1, 0; 1998 QY_{32}, 6, 2, 1035; 1998 QA_{33}, 3, 1, 0; 1998 QQ_{33}, 3, 1, 0; 1998 QX_{33}, 3, 1, 0; 1998 QA_{34}, 3, 1, 0; 1998 QD_{36}, 3, 1, 0; 1998 QK_{36}, 6, 2, 3; 1998 QX_{36}, 3, 1, 0; 1998 QY_{36}, 3, 1, 0; 1998 QK_{37}, 6, 2, 37; 1998 QV_{37}, 6, 2, 6; 1998 QW_{37}, 3, 1, 0; 1998 QA_{38}, 6, 2, 12; 1998 QK_{38}, 12, 4, 15; 1998 QY_{38}, 6, 2, 3; 1998 QC_{39}, 3, 1, 0; 1998 QD_{39}, 3, 1, 0; 1998 QE_{39}, 6, 2, 4; 1998 QG_{39}, 9, 3, 3; 1998 QA_{40}, 7, 3, 10; 1998 QT_{40}, 3, 1, 0; 1998 QV_{40}, 3, 1, 0; 1998 QD_{41}, 3, 1, 0; 1998 QH_{41}, 3, 1, 0; 1998 QK_{41}, 2, 1, 0; 1998 QM_{41}, 6, 2, 1; 1998 QT_{41}, 12, 4, 18; 1998 QW_{41}, 6, 2, 7; 1998 QP_{42}, 3, 1, 0; 1998 QD_{44}, 9, 3, 12; 1998 QE_{44}, 3, 1, 0; 1998 QF_{44}, 3, 1, 0; 1998 QP_{44}, 6, 2, 3; 1998 QQ_{44}, 3, 1, 0; 1998 QK_{49}, 3, 1, 0; 1998 QG_{50}, 3, 1, 0; 1998 QJ_{50}, 3, 1, 0; 1998 QF_{51}, 3, 1, 0; 1998 QX_{55}, 9, 3, 6; 1998 QB_{56}, 6, 2, 14; 1998 QN_{56}, 12, 4, 10; 1998 QQ_{56}, 6, 2, 6; 1998 QR_{56}, 5, 2, 5; 1998 QS_{56}, 6, 2, 3; 1998 QY_{56}, 5, 2, 5; 1998 QG_{57}, 9, 3, 11; 1998 QQ_{57}, 6, 2, 5; 1998 QS_{57}, 3, 1, 0; 1998 QU_{57}, 6, 2, 7; 1998 QV_{57}, 6, 2, 4; 1998 QW_{57}, 8, 3, 3; 1998 QX_{57}, 12, 4, 17; 1998 QA_{58}, 6, 2, 4; 1998 QC_{58}, 3, 1, 0; 1998 QD_{58}, 3, 1, 0; 1998 QJ_{58}, 3, 1, 0; 1998 QP_{58}, 3, 1, 0; 1998 QA_{59}, 9, 3, 8; 1998 QD_{59}, 11, 4, 6; 1998 QF_{59}, 9, 3, 8; 1998 QG_{59}, 6, 2, 5; 1998 QJ_{59}, 6, 2, 5; 1998 QK_{59}, 8, 3, 10; 1998 QL_{59}, 11, 4, 7; 1998 QR_{59}, 6, 2, 5; 1998 QV_{59}, 3, 1, 0; 1998 QW_{59}, 6, 2, 6; 1998 QX_{59}, 6, 2, 9; 1998 QD_{60}, 3, 1, 0; 1998 QU_{63}, 6, 2, 7; 1998 QV_{63}, 6, 2, 4; 1998 QS_{72}, 3, 1, 0; 1998 QE_{91}, 3, 1, 0; 1998 QG_{98}, 3, 1, 0; 1998 QE_{99}, 9, 3, 6; 1998 QM_{99}, 9, 3, 8; 1998 QH_{100}, 11, 4, 15; 1998 QO_{102}, 6, 2, 2; 1998 QH_{104}, 6, 2, 3; 1998 QA_{105} *, 12, 3, 13; 1998 QA_{107} *, 12, 4, 23; 1998 RL, 3, 1, 0; 1998 RU, 3, 1, 0; 1998 RK_1 *, 6, 2, 2; 1998 RL_1, 9, 3, 3; 1998 RP_1, 12, 4, 7; 1998 RT_2 *, 12, 4, 14; 1998 RU_2 *, 9, 3, 10; 1998 RV_2 *, 6, 2, 3; 1998 RW_2 *, 9, 3, 10; 1998 RX_2 *, 8, 3, 8; 1998 RY_2 *, 12, 4, 15; 1998 RZ_2 *, 6, 2, 3; 1998 RA_3 *, 8, 3, 10; 1998 RB_3 *, 9, 3, 10; 1998 RC_3 *, 9, 3, 10; 1998 RD_3 *, 6, 2, 2; 1998 RE_3 *, 6, 2, 2; 1998 RJ_4, 3, 1, 0; 1998 RT_5, 2, 1, 0; 1998 RU_5, 3, 1, 0; 1998 RB_6, 3, 1, 0; 1998 RF_6, 9, 3, 5; 1998 RJ_6, 9, 3, 9; 1998 RS_6 *, 6, 2, 6; 1998 RT_6 *, 6, 2, 6; 1998 RU_6 *, 9, 3, 13; 1998 RV_6 *, 6, 2, 6; 1998 RW_6 *, 6, 2, 6; 1998 RX_6 *, 9, 3, 12; 1998 RY_6 *, 9, 3, 12; 1998 RZ_6 *, 6, 2, 6; 1998 RA_7 *, 6, 2, 6; 1998 RB_7 *, 6, 2, 6; 1998 RC_7 *, 6, 2, 6; 1998 RD_7 *, 6, 2, 6; 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USNO-A1.0, GSC-1.0

1998 QS_{52}, 2, 1, 0; 1998 RK_5, 2, 1, 0; 1998 RL_5, 2, 1, 0; 1998 SD, 2, 1, 0; 1998 SO, 2, 1, 0; *[10, 5, 0*, 1998/09/16–1998/09/17]*

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1998 KR_{65}, 2, 1, 0; *[2, 1, 0*, 1998/07/27]*

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Measurers B. W. Koehn, M. E. Van Ness
0.59-m LONEOS Schmidt + CCD
USNO-A1.0

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(9258), 3, 1, 0; *[10150, 2427, 385*, 1998/05/28–1998/10/02]*

703 Catalina Sky Survey

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

Observers T. B. Spahr, S. M. Larson, R. Jedicke

Measurer T. B. Spahr

0.41-m $f/3$ Schmidt + CCD

USNO-A1.0, GSC

1972 PA, 5, 2, 1; 1997 NQ_2, 4, 2, 1; 1998 FL_3, 4, 1, 0; 1998 MJ_{14}, 3, 1, 0; 1998 RQ_1 *, 5, 2, 1; 1998 RR_1 *, 4, 2, 1; 1998 RS_1 *, 4, 2, 1; 1998 RT_1 *, 5, 2, 1; 1998 RU_1 *, 5, 2, 1; 1998 RV_1 *, 5, 2, 1; 1998 RW_1 *, 5, 2, 1; 1998 RX_1 *, 4, 2, 1; 1998 RY_1 *, 4, 2, 1; 1998 RZ_1 *, 5, 2, 1; 1998 RA_2 *, 5, 2, 1; 1998 RK_5 *, 3, 1, 0; 1998 RL_5 *, 3, 1, 0; 1998 SD *, 5, 1, 0; 1998 SD_2 *, 8, 3, 7; 1998 SE_2 *, 7, 3, 6; 1998 SQ_2 *, 5, 2, 1; 1998 SR_2 *, 6, 2, 1; 1998 SV_2 *, 10, 4, 3; 1998 SW_2 *, 8, 3, 7; 1998 SC_5 *, 6, 3, 6; 1998 SD_5 *, 5, 2, 1; 1998 SE_5 *, 7, 3, 3; 1998 SZ_9 *, 7, 3, 3; 1998 SA_{10} *, 8, 3, 3; 1998 SP_{12} *, 6, 3, 2; 1998 SR_{12} *, 5, 2, 1; 1998 SS_{12} *, 5, 2, 1; 1998 ST_{12} *, 8, 3, 3; 1998 SU_{12} *, 7, 3, 2; 1998 SV_{12} *, 7, 3, 2; 1998 SW_{12} *, 7, 3, 2; 1998 SX_{12} *, 5, 2, 1; 1998 SJ_{22}, 5, 1, 0; 1998 SK_{27} *, 6, 2, 3; 1998 SL_{27} *, 8, 3, 3; 1998 SM_{27} *, 7, 3, 2; 1998 SN_{27} *, 8, 3, 2; 1998 SO_{27} *, 5, 2, 1; 1998 SP_{27} *, 3, 2, 1; 1998 SQ_{27} *, 3, 2, 1; 1998 SR_{27} *, 6, 2, 1; 1998 SS_{27} *, 5, 2, 1; *[261, 47, 42*, 1998/09/14–1998/09/26]*

704 Lincoln Laboratory Experimental Test System, New Mexico

H. Viggh, MIT Lincoln Laboratory, 244 Wood Street, Lexington, MA 02173, U.S.A. [viggh@ll.mit.edu]

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

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

1.0-m $f/2.15$ reflector + CCD

USNO-SA1.0

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0.76-m $f/3.0$ reflector + CCD

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1998 SD_{15}, 5, 1, 0; *[5, 1, 0∗, 1998/09/25]*

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
1998 SO_2 ∗, 5, 2, 1; *[5, 1, 1∗, 1998/09/18–1998/09/19]*

725 Fair Oaks Ranch
J. V. McClusky, McClusky Observatory, 31789 Sunland, Fair Oaks Ranch, TX 78015, U.S.A. [mcclusky@lonestar.utsa.edu]
0.46-m $f/4.5$ Newtonian reflector + CCD
USNO-SA1.0
1998 QH_{79}, 3, 1, 0; 1998 SO_{10}, 4, 1, 0; *[7, 2, 0∗, 1998/09/24]*

727 Zeno Observatory, Edmond
T. Stafford, 2947 Village Circle, Edmond, OK 73013, U.S.A.
[tstaffor@aig.vialink.com]
0.15-m $f/6$ refractor + CCD
GSC
1987 WD, 3, 1, 0; 1994 UQ_1, 3, 1, 0; 1997 JJ_{16}, 3, 1, 0; 1998 RS ∗, 16, 6, 18; 1998 SK_2 ∗, 14, 5, 11; 1998 SC_{22}, 6, 2, 1; 2071 T-2, 3, 1, 0; (927), 3, 1, 0; (2836), 3, 1, 0; (3746), 2, 1, 0; (5069), 3, 1, 0; (6762), 6, 2, 1; (9206), 3, 1, 0; (9255), 3, 1, 0; *[71, 14, 2∗, 1998/09/11–1998/09/30]*

734 Farpoint Observatory, Eskridge
G. Hug, RTE 1 Box 35c, Eskridge, KS 66423, U.S.A. [frogstar@inlandnet.net]
Observers G. Hug, G. Bell
Measurer G. Hug
0.30-m Schmidt-Cassegrain + CCD
GSC
1998 SG_2, 6, 2, 1; 1998 SJ_2, 3, 1, 0; 1998 SP_2, 3, 1, 0; 1998 SX_2, 3, 1, 0; 1998 SG_4, 2, 1, 0; 1998 SU_{27}, 3, 1, 0; 1998 SE_{35}, 3, 1, 0; (2953), 7, 2, 1; (6771), 6, 2, 1; *[36, 9, 0∗, 1998/09/11–1998/09/26]*

735 George Observatory, Needville
W. G. Dillon, 4703 Birkenhead Circle, Missouri City, TX 77459, U.S.A.
[bdillon@houston.geoquest.slb.com]
Observers W. G. Dillon, R. Pepper, C. Gustava
Measurer W. G. Dillon
0.46-m reflector + CCD
USNO-A1.0
1998 SH_4 ∗, 10, 4, 8; 1998 SJ_4 ∗, 9, 4, 8; 1998 SG_{27}, 2, 1, 0; *[21, 3, 2∗, 1998/09/19–1998/09/27]*

739 Sunflower Observatory, Olathe
L. Robinson, Sunflower Observatory, 14680 W 144 St, Olathe, KS 66062, U.S.A.
[lrobinsn@ix.netcom.com]
0.25-m $f/4.1$ Schmidt-Cassegrain + CCD
GSC 1.1
(2), 1, 1, 0; (15), 1, 1, 0; (185), 3, 1, 0; (236), 1, 1, 0; (354), 3, 1, 0; (358), 1, 1, 0; (432), 3, 1, 0; (450), 3, 1, 0; (487), 3, 1, 0; (521), 6, 2, 4; (532), 4, 2, 4; (674), 2, 1, 0; (804), 7, 2, 4; (980), 5, 2, 4; (1036), 1, 1, 0; (1508), 3, 1, 0; *[47, 16, 0∗, 1998/09/27–1998/10/01]*

746 Brooks Observatory, Mt. Pleasant
W. Osborn, Physics Department, Central Michigan University, Mt. Pleasant, MI 48859, U.S.A. [email: osborn@dune.phy.cmich.edu]
Observers W. Osborn, D. Ferrer, R. Miller, J. Helmboldt
Measurers W, Osborn, W. Osborn, J. Helmboldt
0.40-m $f/12$ Cassegrain reflector + CCD, 0.35-m $f/11$ Schmidt Cassegrain + CCD
GSC
(86), 3, 1, 0; (122), 2, 1, 0; (453), 4, 2, 9; (1004), 3, 1, 0; (3687), 6, 2, 9; *[18, 5, 0∗, 1995/06/21–1998/09/28]*

747 Baton Rouge Observatory
W. R. Cooney, 10330 Dunn Dr., Baton Rouge, LA 70810, U.S.A.
[walt@sprintmail.com]
Observers W. R. Cooney, K. Wefel, M. Collier, P. Motl, P. Collier, T. G. Guzik, G. Burks
Measurer W. R. Cooney
0.51-m $f/8.4$ reflector + CCD
USNO-A1.0
1988 BY_3, 2, 1, 0; 1995 YP_1, 3, 1, 0; 1998 PB_1, 7, 3, 2; 1998 QX_6, 8, 3, 10; 1998 QH_{79}, 4, 1, 0; 1998 SH_4, 3, 1, 0; 1998 SJ_4, 3, 1, 0; 1998 SG_{27} ∗, 10, 3, 2; 1998 SK_{35} ∗, 3, 1, 0; 1998 SL_{35} ∗, 4, 1, 0; *[47, 10, 3∗, 1998/09/17–1998/09/27]*

750 Hobbs Observatory, Fall Creek
R. Elliott, S475 County Road K, Fall Creek, WI 54742, U.S.A.
[elliottb@uwec.edu]
0.60-m $f/5$ reflector + CCD
GSC
1973 RF, 2, 1, 0; 1994 RU, 2, 1, 0; 1994 VH, 2, 1, 0; 1998 MK_{30}, 5, 2, 2; 1998 PG, 12, 6, 16; 1998 SD_{15}, 3, 1, 0; (453), 5, 2, 2; (1036), 2, 1, 0; (1508), 5, 2, 2; (3687), 10, 5, 22; (3737), 2, 1, 0; (4736), 4, 2, 1; (5051), 3, 2, 2; (5749), 4, 2, 1; (5985), 6, 2, 1; (6475), 4, 2, 1; (9021), 2, 1, 0; *[73, 17, 0∗, 1998/09/08–1998/10/02]*

757 High Point
D. K. Chesney, 4210 Lauren Place, High Point, NC 27265, U.S.A.
[dkchesney@aol.com]
0.25-m Schmidt-Cassegrain + CCD
USNO-A1.0
1998 KU_2, 2, 1, 0; 1998 MK_{30}, 2, 1, 0; (552), 2, 1, 0; (921), 2, 1, 0; (927), 2, 1, 0; (982), 2, 1, 0; (6047), 2, 1, 0; (7358), 2, 1, 0; *[16, 8, 0∗, 1998/09/13–1998/10/03]*

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
1998 MF_{37}, 3, 1, 0; 1998 QF_{98}, 4, 1, 0; 1998 RN_1, 2, 1, 0; *[9, 3, 0∗, 1998/09/14–1998/09/15]*

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
1972 PA, 4, 2, 3; 1986 XT, 4, 2, 1; 1993 FR_{11}, 4, 2, 3; 1998 PG, 2, 1, 0; (453), 2, 1, 0; (1996), 1, 1, 0; (3368), 1, 1, 0; (3750), 2, 1, 0; (5051), 6, 3, 16; (5434), 2, 1, 0; (6020), 6, 3, 16; (6265), 1, 1, 0; (7602), 1, 1, 0; (7641), 2, 1, 0; (9196), 1, 1, 0; *[39, 15, 0∗, 1998/08/25–1998/10/02]*

809 European Southern Observatory
E. W. Elst, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180 Brussels, Belgium [ericelst@helios.oma.be] (4)
C.-I. Lagerkvist, Uppsala Observatory, Box 515, S-75120 Uppsala, Sweden [classe@laban.uu.se] (8)
Observers C.-I. Lagerkvist, M. Lindgren, G. Pizarro, O. Pizarro
Measurers E. W. Elst, O. Hernius, C.-I. Lagerkvist
1.0-m Schmidt

(4) 1976 SX_5, 6, 2, 1; 1978 GA, 3, 1, 0; 1978 VZ_2, 6, 2, 1; 1981 JR_2, 6, 2, 1; 1981 UR_{27}, 6, 2, 1; 1989 CJ_8, 6, 2, 1; 1990 EF_7, 6, 2, 1; 1990 UO_1, 3, 1, 0; 1991 PZ_{17}, 6, 2, 1; 1991 SX, 6, 2, 1; 1991 TN, 6, 2, 1; 1991 UR_1, 6, 2, 1; 1991 UP_3, 6, 2, 1; 1991 VM_4, 6, 2, 1; 1992 DN_7, 6, 2, 1; 1992 EW_9, 6, 2, 1; 1992 FE_1, 6, 2, 1; 1993 HK, 3, 1, 0; 1994 UJ_{11}, 6, 2, 1; 1994 WQ_1, 6, 2, 1; 1994 YA_1, 3, 1, 0; 1995 BG_1, 3, 1, 0; 1995 TQ_6, 6, 2, 1; 1995 UD_4, 6, 2, 1; 1995 UM_8, 6, 2, 1; 1995 YM_2, 6, 2, 1; 1995 YL_3, 6, 2, 1; 1995 YY_5, 6, 2, 1; 1996 CA_3, 6, 2, 1; 1996 DL_2, 6, 2, 1; 1997 AS_7, 6, 2, 1; 1997 CJ_{20}, 6, 2, 1; 1997 EW_{25}, 6, 2, 1; 1997 GR_{23}, 6, 2, 1; 1997 JD_{17}, 3, 1, 0; 1998 MH_{48}, 6, 2, 1; 1998 QX_{55}, 6, 2, 1; 1998 QP_{90}, 6, 2, 1; 1998 QZ_{97}, 6, 2, 1; 1998 QK_{98}, 3, 1, 0; 1998 QW_{98} *, 6, 2, 1; 1998 QX_{98} *, 6, 2, 1; 1998 QY_{98} *, 6, 2, 1; 1998 QZ_{98} *, 6, 2, 1; 1998 QA_{99} *, 6, 2, 1; 1998 QB_{99} *, 6, 2, 1; 1998 QC_{99} *, 6, 2, 1; 1998 QD_{99} *, 6, 2, 1; 1998 QE_{99} *, 6, 2, 1; 1998 QF_{99} *, 6, 2, 1; 1998 QG_{99} *, 6, 2, 1; 1998 QH_{99} *, 6, 2, 1; 1998 QJ_{99} *, 6, 2, 1; 1998 QK_{99} *, 6, 2, 1; 1998 QL_{99} *, 6, 2, 1; 1998 QM_{99} *, 6, 2, 1; 1998 QN_{99} *, 6, 2, 1; 1998 QO_{99} *, 6, 2, 1; 1998 QP_{99} *, 6, 2, 1; 1998 QQ_{99} *, 6, 2, 1; 1998 QR_{99} *, 6, 2, 1; 1998 QS_{99} *, 6, 2, 1; 1998 QT_{99} *, 6, 2, 1; 1998 QU_{99} *, 6, 2, 1; 1998 QV_{99} *, 6, 2, 1; 1998 QW_{99} *, 6, 2, 1; 1998 QX_{99} *, 6, 2, 1; 1998 QY_{99} *, 6, 2, 1; 1998 QZ_{99} *, 6, 2, 1; 1998 QA_{100} *, 6, 2, 1; 1998 QB_{100} *, 6, 2, 1; 1998 QC_{100} *, 6, 2, 1; 1998 QD_{100} *, 6, 2, 1; 1998 QE_{100} *, 6, 2, 1; 1998 QF_{100} *, 6, 2, 1; 1998 QG_{100} *, 6, 2, 1; 1998 QH_{100} *, 6, 2, 1; 1998 QJ_{100} *, 6, 2, 1; 1998 QK_{100} *, 6, 2, 1; 1998 QL_{100} *, 6, 2, 1; 1998 QM_{100} *, 6, 2, 1; 1998 QN_{100} *, 6, 2, 1; 1998 QO_{100} *, 6, 2, 1; 1998 QP_{100} *, 6, 2, 1; 1998 QQ_{100} *, 6, 2, 1; 1998 QR_{100} *, 6, 2, 1; 1998 QS_{100} *, 6, 2, 1; 1998 QT_{100} *, 6, 2, 1; 1998 QU_{100} *, 6, 2, 1; 1998 QV_{100} *, 6, 2, 1; 1998 QW_{100} *, 6, 2, 1; 1998 QX_{100} *, 6, 2, 1; 1998 QY_{100} *, 6, 2, 1; 1998 QZ_{100} *, 6, 2, 1; 1998 QA_{101} *, 6, 2, 1; 1998 QB_{101} *, 6, 2, 1; 1998 QC_{101} *, 6, 2, 1; 1998 QD_{101} *, 6, 2, 1; 1998 QE_{101} *, 6, 2, 1; 1998 QF_{101} *, 6, 2, 1; 1998 QG_{101} *, 6, 2, 1; 1998 QH_{101} *, 6, 2, 1; 1998 QJ_{101} *, 6, 2, 1; 1998 QK_{101} *, 6, 2, 1; 1998 QL_{101} *, 6, 2, 1; 1998 QM_{101} *, 6, 2, 1; 1998 QN_{101} *, 6, 2, 1; 1998 QO_{101} *, 6, 2, 1; 1998 QP_{101} *, 6, 2, 1; 1998 QQ_{101} *, 6, 2, 1; 1998 QR_{101} *, 6, 2, 1; 1998 QS_{101} *, 6, 2, 1; 1998 QT_{101} *, 6, 2, 1; 1998 QU_{101} *, 6, 2, 1; 1998 QV_{101} *, 6, 2, 1; 1998 QW_{101} *, 6, 2, 1; 1998 QX_{101} *, 6, 2, 1; 1998 QY_{101} *, 6, 2, 1; 1998 QZ_{101} *, 6, 2, 1; 1998 QA_{102} *, 6, 2, 1; 1998 QB_{102} *, 6, 2, 1; 1998 QC_{102} *, 6, 2, 1; 1998 QD_{102} *, 6, 2, 1; 1998 QE_{102} *, 6, 2, 1; 1998 QF_{102} *, 6, 2, 1; 1998 QG_{102} *, 6, 2, 1; 1998 QH_{102} *, 6, 2, 1; 1998 QJ_{102} *, 6, 2, 1; 1998 QK_{102} *, 6, 2, 1; 1998 QL_{102} *, 6, 2, 1; 1998 QM_{102} *, 6, 2, 1; 1998 QN_{102} *, 6, 2, 1; 1998 QO_{102} *, 6, 2, 1; 1998 QP_{102} *, 6, 2, 1; 1998 QQ_{102} *, 6, 2, 1; 1998 QR_{102} *, 6, 2, 1; 1998 QS_{102} *, 6, 2, 1; 1998 QT_{102} *, 6, 2, 1; 1998 QU_{102} *, 6, 2, 1; 1998 QV_{102} *, 6, 2, 1; 1998 QW_{102} *, 6, 2, 1; 1998 QX_{102} *, 6, 2, 1; 1998 QY_{102} *, 6, 2, 1; 1998 QZ_{102} *, 6, 2, 1; 1998 QA_{103} *, 6, 2, 1; 1998 QB_{103} *, 6, 2, 1; 1998 QC_{103} *, 6, 2, 1; 1998 QD_{103} *, 6, 2, 1; 1998 QE_{103} *, 6, 2, 1; 1998 QF_{103} *, 6, 2, 1; 1998 QG_{103} *, 6, 2, 1; 1998 QH_{103} *, 6, 2, 1; 1998 QJ_{103} *, 6, 2, 1; 1998 QK_{103} *, 6, 2, 1; 1998 QL_{103} *, 6, 2, 1; 1998 QM_{103} *, 6, 2, 1; 1998 QN_{103} *, 6, 2, 1; 1998 QO_{103} *, 6, 2, 1; 1998 QP_{103} *, 6, 2, 1; 1998 QQ_{103} *, 6, 2, 1; 1998 QR_{103} *, 6, 2, 1; 1998 QS_{103} *, 6, 2, 1; 1998 QT_{103} *, 6, 2, 1; 1998 QU_{103} *, 6, 2, 1; 1998 QV_{103} *, 6, 2, 1; 1998 QW_{103} *, 6, 2, 1; 1998 QX_{103} *, 6, 2, 1; 1998 QY_{103} *, 6, 2, 1; 1998 QZ_{103} *, 6, 2, 1; 1998 QA_{104} *, 6, 2, 1; 1998 QB_{104} *, 6, 2, 1; 1998 QC_{104} *, 6, 2, 1; 1998 QD_{104} *, 6, 2, 1; 1998 QE_{104} *, 6, 2, 1; 1998 QF_{104} *, 6, 2, 1; 1998 QG_{104} *, 6, 2, 1; 1998 QH_{104} *, 6, 2, 1; 1998 QJ_{104} *, 6, 2, 1; 1998 QK_{104} *, 6, 2, 1; 1998 QL_{104} *, 6, 2, 1; 1998 QM_{104} *, 6, 2, 1; 1998 QN_{104} *, 6, 2, 1; 1998 QO_{104} *, 6, 2, 1; 1998 QP_{104} *, 6, 2, 1; 1998 QQ_{104} *, 6, 2, 1; 1998 QR_{104} *, 6, 2, 1; 1998 QS_{104} *, 6, 2, 1; 1998 QT_{104} *, 6, 2, 1; 1998 QU_{104} *, 6, 2, 1; 1998 QV_{104} *, 6, 2, 1; 1998 QW_{104} *, 6, 2, 1; 1998 QY_{104} *, 6, 2, 1; 1998 QZ_{104} *, 6, 2, 1; 1998 QC_{105} *, 6, 2, 1; 1998 QD_{105} *, 6, 2, 1; 1998 QE_{105} *, 6, 2, 1; 1998 QF_{105} *, 6, 2, 1; 1998 QG_{105} *, 6, 2, 1; 1998 QH_{105} *, 6, 2, 1; 1998 QJ_{105} *, 6, 2, 1; 1998 QK_{105} *, 6, 2, 1; 1998 QL_{105} *, 6, 2, 1; 1998 QM_{105} *, 6, 2, 1; 1998 QN_{105} *, 6, 2, 1; 1998 QO_{105} *, 6, 2, 1; 1998 QP_{105} *, 6, 2, 1; 1998 QQ_{105} *, 6, 2, 1; 1998 QR_{105} *, 6, 2, 1; 1998 QS_{105} *, 6, 2, 1; 1998 QT_{105} *, 6, 2, 1; 1998 QU_{105} *, 6, 2, 1; 1998 QV_{105} *, 6, 2, 1; 1998 QW_{105} *, 6, 2, 1; 1998 QX_{105} *, 6, 2, 1; 1998 QY_{105} *, 6, 2, 1; 1998 QZ_{105} *, 6, 2, 1; 1998 QA_{106} *, 6, 2, 1; 1998 QB_{106} *, 6, 2, 1; 1998 QC_{106} *, 6, 2, 1; 1998 QD_{106} *, 6, 2, 1; 1998 QE_{106} *, 6, 2, 1; 1998 QF_{106} *, 6, 2, 1; 1998 QG_{106} *, 6, 2, 1; 1998 QH_{106} *, 6, 2, 1; 1998 QJ_{106} *, 6, 2, 1; 1998 QK_{106} *, 6, 2, 1; 1998 QL_{106} *, 6, 2, 1; 1998 QM_{106} *, 6, 2, 1; 1998 QN_{106} *, 6, 2, 1; 1998 QO_{106} *, 6, 2, 1; 1998 QP_{106} *, 6, 2, 1; 1998 QQ_{106} *, 6, 2, 1; 1998 QR_{106} *, 6, 2, 1; 1998 QS_{106} *, 6, 2, 1; 1998 QT_{106} *, 6, 2, 1; 1998 QU_{106} *, 6, 2, 1; 1998 QV_{106} *, 6, 2, 1; 1998 QW_{106} *, 6, 2, 1; 1998 QX_{106} *, 6, 2, 1; 1998 QY_{106} *, 6, 2, 1; 1998 QZ_{106} *, 6, 2, 1; 2785 P-L, 3, 1, 0; 3058 T-1, 6, 2, 1; 5041 T-3, 6, 2, 1; (257), 6, 2, 1; (522), 6, 2, 1; (1343), 6, 2, 1; (2323), 3, 1, 0; (2424), 6, 2, 1; (3372), 6, 2, 1; (3789), 6, 2, 1; (3943), 6, 2, 1; (4514), 3, 1, 0; (4702), 3, 1, 0; (4890), 6, 2, 1; (4929), 6, 2, 1; (5004), 6, 2, 1; (5741), 6, 2, 1; (6346), 6, 2, 1; (6792), 6, 2, 1; (6846), 6, 2, 1; (6993), 6, 2, 1; (7046), 6, 2, 1; (7611), 6, 2, 1; (7791), 6, 2, 1; (7878), 6, 2, 1; *[1563, 266, 201*, 1996/05/19–1998/08/27]*

(8) 1991 HK, 13, 10, 31; 1997 XH_9, 2, 2, 1; 1998 OP, 1, 1, 0; *[16, 3, 0*, 1995/08/24–1995/09/24]*

816 Rand Observatory
G. R. Viscome, 30 Hyland Avenue, Lake Placid, NY 12946, U.S.A. [GeorgeV@nct.org]
0.37-m $f/6$ reflector + CCD
USNO-SA1.0

1993 MR, 8, 2, 5; 1998 SG_2, 3, 1, 0; 1998 SJ_2, 2, 1, 0; 1998 SD_{15}, 4, 1, 0; *[17, 4, 0*, 1998/09/19–1998/09/24]*

823 Fitchburg
L. L. Amburgey, 777 Scott Road, Fitchburg, MA 01420-6680, U.S.A. [lla@tiac.net]
0.28-m Schmidt-Cassegrain + CCD
GSC-1.2

1981 UR_{27}, 4, 2, 1; 1987 QH, 4, 2, 1; 1994 PK_7, 4, 2, 1; *[12, 3, 0*, 1998/09/19–1998/09/21]*

824 Lake Clear
K. A. Williams, RD #1 Box 277, Forest Home Road, Lake Clear, NY 12945, U.S.A. [kenwill@NorthNet.org]
0.41-m $f/5.0$ reflector + CCD
GSC

(4887), 3, 1, 0; *[3, 1, 0*, 1998/09/19]*

827 Saint-Félicien
C. Boivin, 1265 Des Cormiers, Saint-Félicien, Quebec G8K 2H5, Canada [cboivin@destination.ca]
0.25-m $f/6.3$ Schmidt-Cassegrain + CCD
GSC

1990 BA_2, 1, 1, 0; (552), 9, 3, 5; *[10, 2, 0*, 1998/09/13–1998/09/18]*

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

1978 WU, 3, 1, 0; (7602), 6, 2, 1; *[9, 2, 0*, 1998/09/17–1998/09/18]*

835 Drum Hill Station, Chelmsford
R. Sinnott, Sky & Telescope, P. O. Box 9111, Belmont, MA 02478-9111, U.S.A. [rsinnott@skypub.com]
0.20-m $f/3.3$ Schmidt-Cassegrain + CCD
GSC

1998 SD_{15}, 3, 1, 0; *[3, 1, 0*, 1998/09/24]*

860 Valinhos
P. R. Holvorcem, Departamento de Matematica/IMECC, Universidade Estadual de Campiñas SP, BR-13081-970, Brazil [canis@mpc.com.br]
0.20-m $f/6.3$ Schmidt-Cassegrain + CCD
GSC

1991 RA_{17}, 2, 1, 0; 1998 HA_{34}, 3, 1, 0; 1998 KU_2, 6, 2, 2; 1998 KK_{56}, 3, 1, 0; 1998 MQ, 3, 1, 0; 1998 MZ, 3, 1, 0; 1998 ME_3, 3, 1, 0; 1998 ML_{14}, 2, 1, 0; 1998 SG_2, 2, 1, 0; 1998 SD_{15}, 3, 1, 0; (2491), 4, 1, 0; (4954), 3, 1, 0; *[37, 12, 0*, 1998/03/24–1998/09/27]*

867 Saji Observatory
M. Yamanishi, 1071-1 Takayama, Saji, Yazu-Gun, Tottori-Ken, 689-13 Japan
[sajinet@infosakyu.ne.jp]
Observers M. Yamanishi, A. Miyamoto, M. Aimoto, T. Oribe
1.03-m f/4.2 reflector + CCD
GSC
1998 QH_{56}, 4, 1, 0; *[4, 1, 0∗, 1998/09/14]*

886 Susono
M. Akiyama, 1655-23, Chabatake, Susono, Shizuoka-Ken, 410-11 Japan
0.25-m f/6.3 reflector + CCD
GSC
1972 PA, 2, 1, 0; 1994 TS_3, 2, 1, 0; 1998 SS_2, 2, 1, 0; 1998 TA ∗, 3, 1, 0; *[9, 4, 1∗, 1998/09/13–1998/10/02]*

888 Gekko Observatory
T. Kagawa, 1308-222, Kuwahara, Kannami-cho, Tagata-gun, Shizuoka-Ken, 419-010, Japan
0.50-m f/4.0 reflector
GSC 1.1
1988 DJ_1, 5, 2, 19; 1988 VN_3, 6, 2, 3; 1990 UA_2, 5, 2, 4; 1991 DE, 2, 1, 0; 1993 BO_3, 3, 1, 0; 1994 CA, 9, 3, 11; 1994 OB, 6, 2, 6; 1994 RX, 6, 2, 6; 1994 TS_3, 5, 2, 6; 1994 UY, 3, 1, 0; 1994 VD_2, 3, 1, 0; 1995 VG_2, 3, 1, 0; 1996 AL_2, 5, 2, 6; 1998 QS_{52}, 3, 1, 0; 1998 QT_{60}, 3, 1, 0; 1998 QP_{63}, 3, 1, 0; 1998 QB_{90}, 7, 2, 1; 1998 QC_{107} ∗, 2, 1, 0; 1998 SS_2, 6, 3, 13; 1998 TA, 2, 1, 0; 1998 TB ∗, 6, 2, 1; (1753), 3, 1, 0; *[96, 22, 2∗, 1998/08/23–1998/10/03]*

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
1972 PA, 2, 1, 0; 1998 QR_{15}, 2, 1, 0; 1998 QT_{60}, 2, 1, 0; 1998 QF_{98}, 2, 1, 0; 1998 SG_2, 2, 1, 0; 1998 SP_2, 2, 1, 0; 1998 SU_4, 2, 1, 0; 1998 ST_{49}, 2, 1, 0; *[16, 8, 0∗, 1998/09/16–1998/10/03]*

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 FM_{15}, 1, 1, 0; 1998 FM_{99}, 2, 1, 0; 1998 QB_{90}, 2, 1, 0; 1998 SS_2 ∗, 2, 1, 0; *[7, 4, 1∗, 1998/03/18–1998/09/16]*

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, B. Gaillard
Measurers A. Maury, G. Hahn
0.90-m Schmidt + CCD
GSC
1977 VL_1, 6, 2, 1; 1981 TP, 6, 2, 4; 1984 WJ_1, 3, 1, 0; 1988 RO_4, 3, 1, 0; 1988 VT_1, 3, 1, 0; 1990 SX_3, 3, 1, 0; 1990 SG_{11}, 3, 1, 0; 1990 SG_{12}, 3, 1, 0; 1991 RA_{17}, 6, 1, 0; 1991 RU_{17}, 6, 2, 1; 1991 YW, 3, 1, 0; 1993 BU_7, 3, 1, 0; 1993 FC_{22}, 6, 2, 1; 1993 FY_{55}, 6, 2, 2; 1993 SL_6, 6, 2, 5; 1994 PK_7, 3, 1, 0; 1994 PT_{31}, 3, 1, 0; 1994 RJ, 3, 1, 0; 1995 WS, 3, 1, 0; 1995 WB_{22}, 3, 1, 0; 1996 ED_9, 6, 2, 3; 1996 GC_{18}, 6, 2, 3; 1996 GM_{20}, 3, 1, 0; 1996 HU_{18}, 9, 3, 4; 1997 CG_6, 3, 1, 0; 1997 EE_{16}, 3, 1, 0; 1997 EG_{27}, 3, 1, 0; 1997 GX_{22}, 3, 1, 0; 1997 GR_{24}, 3, 1, 0; 1997 JH_{16}, 3, 1, 0; 1997 OJ, 6, 2, 1; 1998 OA_{13}, 6, 2, 5; 1998 OB_{14}, 9, 3, 12; 1998 OX_{14}, 6, 2, 7; 1998 QR, 3, 1, 0; 1998 QA_2, 3, 1, 0; 1998 QC_2, 3, 1, 0; 1998 QT_4, 3, 1, 0; 1998 QV_6, 6, 2, 7; 1998 QL_8, 3, 1, 0; 1998 QS_{11}, 3, 1, 0; 1998 QM_{16}, 3, 1, 0; 1998 QP_{16}, 3, 1, 0; 1998 QC_{18}, 3, 1, 0; 1998 QZ_{19}, 3, 1, 0; 1998 QC_{20}, 3, 1, 0; 1998 QM_{20}, 3, 1, 0; 1998 QP_{20}, 3, 1, 0; 1998 QD_{23}, 3, 1, 0; 1998 QD_{46}, 3, 1, 0; 1998 QO_{55}, 6, 2, 1; 1998 QU_{55}, 6, 2, 6; 1998 QY_{60}, 3, 1, 0; 1998 QC_{61}, 3, 1, 0; 1998 QC_{92}, 6, 2, 1; 1998 QE_{98}, 6, 2, 1; 1998 QF_{98}, 9, 3, 12; 1998 QX_{104} ∗, 6, 2, 16; 1998 RN ∗, 6, 2, 1; 1998 RO ∗, 9, 3, 8; 1998 RP ∗, 9, 3, 8; 1998 RQ ∗, 6, 2, 1; 1998 RR ∗, 9, 3, 8; 1998 RF_2 ∗, 12, 4, 4; 1998 RG_2 ∗, 9, 3, 2; 1998 RH_2 ∗, 9, 3, 2; 1998 RJ_2 ∗, 9, 3, 2; 1998 RK_2 ∗, 6, 2, 1; 1998 RL_2 ∗, 9, 3, 2; 1998 RM_2 ∗, 15, 5, 7; 1998 RN_2 ∗, 9, 3, 2; 1998 RO_2 ∗, 9, 3, 2; 1998 RP_2 ∗, 9, 3, 2; 1998 RF_5 ∗, 6, 2, 2; 1998 RG_5 ∗, 12, 4, 7; 1998 RH_5 ∗, 12, 4, 7; 1998 RJ_5 ∗, 12, 4, 7; 1998 RV_5 ∗, 9, 3, 7; 1998 RF_6, 3, 1, 0; 1998 RH_{16} ∗, 9, 3, 13; 1998 RJ_{16} ∗, 6, 2, 10; 1998 RK_{16} ∗, 9, 3, 12; 1998 RL_{16} ∗, 6, 2, 7; 1998 RM_{16} ∗, 9, 3, 12; 1998 RN_{16}, 3, 1, 0; 1998 RO_{22}, 3, 1, 0; 1998 SA ∗, 6, 2, 1; 1998 SB ∗, 6, 2, 1; 1998 SC, 6, 2, 6; 1998 SP ∗, 7, 3, 4; 1998 SQ ∗, 9, 3, 4; 1998 SR ∗, 9, 3, 4; 1998 SS ∗, 6, 2, 2; 1998 ST ∗, 9, 3, 4; 1998 SU ∗, 9, 3, 4; 1998 SV ∗, 9, 3, 4; 1998 SW ∗, 9, 3, 4; 1998 SX ∗, 9, 3, 4; 1998 SY ∗, 9, 3, 4; 1998 SZ ∗, 9, 3, 4; 1998 SA_1 ∗, 9, 3, 4; 1998 SB_1 ∗, 9, 3, 4; 1998 SC_1 ∗, 6, 2, 2; 1998 SD_1 ∗, 9, 3, 4; 1998 SE_1 ∗, 6, 2, 2; 1998 SF_1 ∗, 9, 3, 4; 1998 SG_1 ∗, 9, 3, 4; 1998 SH_1 ∗, 6, 2, 2; 1998 SJ_1 ∗, 6, 2, 2; 1998 SK_1 ∗, 6, 2, 2; 1998 SL_1 ∗, 6, 2, 2; 1998 SM_1 ∗, 6, 2, 2; 1998 SN_1 ∗, 6, 2, 2; 1998 SO_1 ∗, 9, 3, 4; 1998 SP_1 ∗, 6, 2, 1; 1998 SQ_1 ∗, 12, 4, 6; 1998 SR_1 ∗, 12, 4, 6; 1998 SS_1 ∗, 6, 2, 1; 1998 ST_1 ∗, 6, 2, 1; 1998 SU_1 ∗, 9, 3, 6; 1998 SV_1 ∗, 12, 3, 6; 1998 SW_1 ∗, 12, 3, 6; 1998 SX_1 ∗, 6, 2, 1; 1998 SY_1 ∗, 12, 4, 6; 1998 SZ_1 ∗, 9, 3, 3; 1998 SA_2 ∗, 9, 3, 6; 1998 SG_2, 6, 2, 5; 1998 SJ_2 ∗, 6, 2, 1; 1998 SM_2 ∗, 6, 2, 1; 1998 SN_2 ∗, 6, 2, 1; 1998 SC_3 ∗, 6, 2, 3; 1998 SD_3 ∗, 6, 2, 2; 1998 SE_3 ∗, 6, 2, 2; 1998 SF_3 ∗, 9, 3, 5; 1998 SG_3 ∗, 9, 3, 5; 1998 SH_3 ∗, 6, 2, 2; 1998 SJ_3 ∗, 6, 2, 2; 1998 SK_3 ∗, 9, 3, 5; 1998 SL_3 ∗, 9, 3, 5; 1998 SM_3 ∗, 6, 2, 2; 1998 SN_3 ∗, 9, 3, 5; 1998 SO_3 ∗, 9, 3, 5; 1998 SP_3 ∗, 6, 2, 2; 1998 SQ_3 ∗, 6, 2, 2; 1998 SR_3 ∗, 6, 2, 2; 1998 SS_3 ∗, 6, 2, 2; 1998 ST_3 ∗, 6, 2, 2; 1998 SU_3 ∗, 6, 2, 2; 1998 SV_3 ∗, 6, 2, 2; 1998 SW_3 ∗, 6, 2, 2; 1998 SX_3 ∗, 6, 2, 2; 1998 SY_3 ∗, 6, 2, 2; 1998 SZ_3 ∗, 6, 2, 2; 1998 SA_4 ∗, 6, 2, 2; 1998 SB_4 ∗, 6, 2, 2; 1998 SC_4 ∗, 6, 2, 2; 1998 SR_6, 3, 1, 0; 1998 SB_{10} ∗, 6, 2, 6; 1998 SC_{10} ∗, 12, 4, 8; 1998 SD_{10} ∗, 6, 2, 6; 1998 SE_{10} ∗, 9, 3, 7; 1998 SF_{10} ∗, 9, 3, 7; 1998 SG_{10} ∗, 6, 2, 5; 1998 SH_{10} ∗, 9, 3, 6; 1998 SJ_{10} ∗, 6, 2, 4; 1998 SK_{10} ∗, 9, 3, 5; 1998 SL_{10} ∗, 9, 3, 4; 1998 SP_{10}, 3, 1, 0; 1998 SX_{10} ∗, 9, 3, 8; 1998 SY_{10} ∗, 6, 2, 5; 1998 SZ_{10} ∗, 6, 2, 5; 1998 SA_{11} ∗, 6, 2, 5; 1998 SB_{11} ∗, 6, 2, 5; 1998 SC_{11} ∗, 6, 2, 5; 1998 SD_{11} ∗, 6, 2, 5; 1998 SE_{11} ∗, 6, 2, 5; 1998 SF_{11} ∗, 6, 2, 5; 1998 SG_{11} ∗, 6, 2, 5; 1998 SH_{11} ∗, 6, 2, 5; 1998 SJ_{11} ∗, 6, 2, 5; 1998 SK_{11} ∗, 6, 2, 5; 1998 SL_{11} ∗, 6, 2, 3; 1998 SM_{11} ∗, 6, 2, 3; 1998 SN_{11} ∗, 6, 2, 3; 1998 SO_{11} ∗, 6, 2, 3; 1998 SP_{11} ∗, 6, 2, 3; 1998 SQ_{11} ∗, 6, 2, 3; 1998 SR_{11} ∗, 6, 2, 3; 1998 SS_{11} ∗, 6, 2, 3; 1998 ST_{11} ∗, 6, 2, 3; 1998 SU_{11} ∗, 6, 2, 3; 1998 SV_{11} ∗, 6, 2, 3; 1998 SW_{11} ∗, 6, 2, 3; 1998 SX_{11} ∗, 6, 2, 3; 1998 SY_{11} ∗, 6, 2, 3; 1998 SZ_{11} ∗, 9, 3, 7; 1998 SA_{12} ∗, 6, 2, 1; 1998 SB_{12} ∗, 6, 2, 1; 1998 SC_{12} ∗, 6, 2, 1; 1998 SD_{12} ∗, 6, 2, 1; 1998 SE_{12} ∗, 9, 3, 2; 1998 SF_{12} ∗, 6, 2, 1; 1998 SG_{12} ∗, 6, 2, 1; 1998 SH_{12} ∗, 6, 2, 1; 1998 SE_{13} ∗, 6, 2, 8; 1998 SF_{13} ∗, 6, 2, 2; 1998 SG_{13} ∗, 6, 2, 2; 1998 SH_{13} ∗, 9, 3, 7; 1998 SJ_{13} ∗, 6, 2, 2; 1998 SK_{13} ∗, 6, 2, 2; 1998 SL_{13} ∗, 6, 2, 2; 1998 SM_{13} ∗, 6, 2, 2; 1998 SN_{13} ∗, 6, 2, 2; 1998 SO_{13} ∗, 6, 2, 2; 1998 SP_{13} ∗, 6, 2, 2; 1998 SQ_{13} ∗, 6, 2, 1; 1998 SR_{13} ∗, 6, 2, 1; 1998 SS_{13} ∗, 6, 2, 1; 1998 ST_{13} ∗, 6, 2, 1; 1998 SV_{14}, 3, 1, 0; 1998 SD_{24}, 3, 1, 0; 1998 SR_{25}, 3, 1, 0; 1998 SN_{35} ∗, 6, 2, 7; 1998 SO_{35} ∗, 6, 2, 7; 1998 SP_{35} ∗, 6, 2, 7; 1998 SQ_{35} ∗, 6, 2, 7; 1998 SR_{35} ∗, 6, 2, 7; 1998 SS_{35} ∗, 6, 2, 5; 1998 ST_{35} ∗, 6, 2, 5; 1998 SU_{35} ∗, 6, 2, 5; 1998 SV_{35} ∗, 6, 2, 5; 1998 SW_{35} ∗, 6, 2, 5; 1998 SX_{35} ∗, 6, 2, 5; 1998 SJ_{49} ∗, 6, 2, 3; 2626 P-L, 3, 1, 0; 4604 P-L, 3, 1, 0; 6628 P-L, 6, 2, 4; 1290 T-1, 3, 1, 0; (46), 3, 1, 0; (305), 3, 1, 0; (460), 3, 1, 0; (1165), 3, 1, 0; (1412), 3, 1, 0; (1536), 3, 1, 0; (1650), 3, 1, 0; (1766), 3, 1, 0; (1829), 3, 1, 0; (1969), 3, 1, 0; (2321), 9, 3, 2; (3078), 12, 4, 7; (3149), 3, 1, 0; (3254), 6, 2, 7; (3454), 6, 2, 1; (3519), 6, 2, 1; (3668), 3, 1, 0; (3705), 3, 1, 0; (3797), 9, 3, 4; (3898), 3, 1, 0; (3909), 3, 1, 0; (3957), 3, 1, 0; (4024), 3, 1, 0; (4478), 6, 2, 3; (4595), 3, 1, 0; (4754), 3, 1, 0; (4912), 3, 1, 0; (5030), 3, 1, 0; (5142), 3, 1, 0; (5501), 6, 2, 1; (5763), 6, 2, 2; (5894), 6, 2, 5; (6097), 3, 1, 0; (6204), 6, 2, 1; (6216), 9, 3, 6; (6689), 3, 1, 0; (6843), 6, 2, 2; (7022), 9, 3, 5; (7494), 3, 1, 0; (7835), 3, 1, 0; *[1684, 278, 167∗, 1997/01/31–1998/10/02]*

951 Highworth
J. W. Rock, 2 Spa Close, Highworth, Swindon, Wiltshire SN6 7PJ, England
[OC34@dial.pipex.com]
0.30-m Newtonian reflector + CCD
GSC
(1172), 4, 2, 7; *[4, 1, 0∗, 1998/09/13–1998/09/20]*

953 Montjoia
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Observer A. Vidal
Measurer F. Casarramona

0.40-m $f/4$ reflector + CCD
GSC
1998 QZ_{15}, 6, 1, 0; *[6, 1, 0∗, 1998/09/12–1998/09/13]*

954 Teide Observatory
R. Casas, Instituto de Astrofisica de Canarias, Via Lactea, E-38200 La Laguna, Tenerife, Canary Islands, Spain [rcr@ll.iac.es]
Observers R. Casas, P. Rodríguez-Gil, C. Vázquez, S. López
Measurers R. Casas, P. Rodríguez-Gil, C. Vázquez
0.8-m $f/11.3$ Cassegrain + CCD
APM, GSC
1992 BT_2, 3, 1, 0; 1998 PH, 3, 1, 0; 1998 QZ_{15}, 5, 1, 0; 1998 QS_{52}, 3, 1, 0; 1998 QX_{104}, 3, 1, 0; 1998 SD_9, 5, 1, 0; 1998 SO_{10}, 5, 1, 0; 1998 SY_{14}, 3, 1, 0; 1998 SA_{15}, 3, 1, 0; 1998 SB_{15}, 3, 1, 0; 1998 SH_{35} ∗, 8, 2, 1; *[44, 11, 1∗, 1998/08/28–1998/09/26]*

958 Observatoire de Dax
P. Dupouy, Observatoire de Dax, F-40100 Dax, France [Dupouy_Philippe@compuserve.com]
Observers P. Dupouy, F. Marechal
Measurer F. Marechal, J.-F. Lahitte
0.203-m $f/3.3$ reflector + CCD
GSC
1988 PX_2, 5, 2, 2; 1995 VL_2, 6, 2, 4; 1998 OU_9, 5, 2, 1; 1998 QT, 6, 2, 1; 1998 QK_3, 6, 2, 1; 1998 QW_{15}, 5, 2, 1; 1998 QR_{53}, 5, 14, 5, 14; (3191), 6, 2, 20; (3615), 6, 2, 35; (3950), 5, 3, 12; (4478), 6, 3, 24; (5462), 3, 2, 2; (5641), 10, 2, 6; (8988), 9, 5, 48; *[92, 14, 0∗, 1998/07/17–1998/10/01]*

966 Church Stretton
S. P. Laurie, Toleman, 10 Hazler Orchard, Church Stetton, Shropshire SY6 7AL, England [100336.3635@compuserve.com]
0.25-m Schmidt Cassegrain + focal reducer + CCD
GSC
1998 SD_{15}, 2, 1, 0; *[2, 1, 0∗, 1998/09/24]*

ORBITAL ELEMENTS

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P/1997 T3 (Lagerkvist-Carsenty)
Epoch 1998 Mar. 8.0 TT = JDT 2450880.5

				Nakano	
T	1998 Mar. 11.3968 TT				
q	4.240314		(2000.0)	**P**	**Q**
n	0.0570523	ω	334.2231	+0.7928037	−0.6048153
a	6.682730	Ω	63.1986	+0.5727532	+0.6971310
e	0.365482	i	4.8354	+0.2083653	+0.3849764
P	17.3				

From 131 observations 1997 Oct. 5–1998 Sept. 20, mean residual 0″.6.

C/1998 K2 (LINEAR)
Epoch 1998 Aug. 15.0 TT = JDT 2451040.5

				Marsden	
T	1998 Sept. 1.2134 TT				
q	2.323558		(2000.0)	**P**	**Q**
z	+0.000263	ω	221.4112	−0.0055724	+0.5408567
	±0.000009	Ω	68.7810	−0.4987551	+0.7275186
e	0.999389	i	64.4576	−0.8667251	−0.4221263

From 146 observations 1998 May 22–Sept. 14, mean residual 0″.6.

C/1998 K5 (LINEAR)
Epoch 1998 July 6.0 TT = JDT 2451000.5

				Nakano	
T	1998 July 17.4464 TT				
q	0.963547		(2000.0)	**P**	**Q**
z	+0.013820	ω	99.4589	+0.6428496	+0.7607933
	±0.000004	Ω	211.1190	−0.7528892	+0.6061424
e	0.986684	i	9.9269	−0.1410752	+0.2319158

From 453 observations 1998 May 26–Oct. 2, mean residual 0″.5.

C/1998 M1 (LINEAR)
Epoch 1998 Nov. 3.0 TT = JDT 2451120.5

				Nakano	
T	1998 Oct. 28.1439 TT				
q	3.118035		(2000.0)	**P**	**Q**
z	+0.002299	ω	19.4123	+0.0752927	+0.9381023
	±0.000033	Ω	256.0675	−0.9547416	−0.0300156
e	0.992831	i	20.3848	−0.2877492	+0.3450552

From 141 observations 1998 May 22–Sept. 16, mean residual 0″.7.

C/1998 M2 (LINEAR)
Epoch 1998 Aug. 15.0 TT = JDT 2451040.5

				Marsden	
T	1998 Aug. 13.1767 TT				
q	2.725314		(2000.0)	**P**	**Q**
z	+0.000833	ω	37.2444	+0.1709607	+0.4867632
	±0.000007	Ω	260.8800	−0.9737719	+0.2159593
e	0.997730	i	60.1820	+0.1501360	+0.8464178

From 270 observations 1998 June 19–Sept. 25, mean residual 0″.6.

C/1998 M5 (LINEAR)
Epoch 1999 Jan. 22.0 TT = JDT 2451200.5
T 1999 Jan. 24.5718 TT Marsden

				P	Q
q	1.742233		(2000.0)	−0.1155390	−0.8885435
z	+0.002267	ω	101.2863	−0.1972754	+0.4586215
	±0.000009	Ω	333.3768	+0.9735159	−0.0125183
e	0.996050	i	82.2288		

From 572 observations 1998 June 30–Oct. 5, mean residual 0″.6.

C/1998 M6 (Montani)
T 1998 Oct. 6.1180 TT Nakano

				P	Q
q	5.979798		(2000.0)		
		ω	9.1039	+0.5853225	−0.1158968
		Ω	306.6044	−0.7925188	−0.2907691
e	1.0	i	91.5578	−0.1712065	+0.9497480

From 75 observations 1998 June 30–Sept. 9.

C/1998 P1 (Williams)
T 1998 Oct. 17.8340 TT Marsden

				P	Q
q	1.146815		(2000.0)		
		ω	294.4661	−0.6808461	−0.6968102
		Ω	156.3791	−0.2761810	+0.5295513
e	1.0	i	145.7305	−0.6783602	+0.4837674

From 123 observations 1998 Aug. 11–Sept. 18.

C/1998 Q1 (LINEAR)
Epoch 1998 July 6.0 TT = JDT 2451000.5
T 1998 June 29.5034 TT Marsden

				P	Q
q	1.577595		(2000.0)		
z	+0.003318	ω	134.7251	+0.4528428	+0.8722713
	±0.000131	Ω	159.7861	−0.8911708	+0.4364711
e	0.994766	i	32.2931	+0.0273494	−0.2205351

From 132 observations 1998 Aug. 24–Sept. 27, mean residual 0″.6.

P/1998 QP$_{54}$ (LONEOS-Tucker)
T 1998 Oct. 6.4196 TT Marsden

				P	Q
q	1.881718		(2000.0)		
n	0.1145671	ω	30.1103	+0.9706095	−0.2213154
a	4.198518	Ω	341.9272	+0.1097228	+0.7565649
e	0.551814	i	17.7418	+0.2141919	+0.6153285
P	8.60				

From 110 observations 1998 Aug. 27–Oct. 5.

52P/Harrington-Abell
Epoch 1999 Jan. 22.0 TT = JDT 2451200.5
T 1999 Jan. 27.8772 TT Nakano

				P	Q
q	1.755993		(2000.0)		
n	0.1308953	ω	138.8996	−0.4453397	−0.8927379
a	3.841669	Ω	337.2882	+0.7680905	−0.3416047
e	0.542909	i	10.2186	+0.4601190	−0.2938117
P	7.53				

From 140 observations 1975–1998, mean residual 0″.7. Nongravitational parameters $A_1 = +0.25$, $A_2 = +0.0072$.

(9260)∗ 1953 TA$_1$ = 1991 QH
Discovered 1953 Oct. 8 at the Goethe Link Observatory, Indiana University.
Id. H. Kaneda (*MPC* 19009)
Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

				P	Q
M	334.90594		(2000.0)		
n	0.28436768	ω	148.07332	+0.99749726	−0.04926175
a	2.2902482	Ω	214.86010	+0.02985664	+0.94371713
e	0.2295972	i	5.09094	+0.06409205	+0.32706461
P	3.47	H	14.7	G 0.15	U 2

Residuals in seconds of arc

1953 10 08	760	0.6+	2.4−	1991 09 09	894	0.7+	0.2+	1998 09 16	699	0.3−	0.1−
1953 10 08	760	(1.3−	2.8−)	1991 09 09	894	0.0	0.1+	1998 09 18	704	0.2+	0.1+
1953 10 10	760	(53.6−	1.8−)X	1991 09 14	675	1.0+	0.8−	1998 09 18	704	0.7−	1.0+
1953 10 15	760	1.5+	2.2−	1997 03 13	809	0.5−	0.5−	1998 09 18	704	0.7−	0.7+
1953 10 15	760	(3.0+	0.3+)	1997 03 13	809	0.0	0.0	1998 09 18	704	0.9−	1.9+
1953 10 30	760	0.2+	0.1−	1997 03 13	809	1.6−	0.7+	1998 09 18	704	0.1−	0.7+
1953 10 30	760	(3.5−	0.3+)	1997 04 11	704	0.6+	0.2−	1998 09 19	138	0.3−	0.3−
1953 10 31	675	(4.3−	1.0−)	1997 04 11	704	0.9+	1.2−	1998 09 20	138	0.4−	0.4−
1953 10 31	675	0.7−	0.4−	1998 06 30	704	1.4+	0.7+	1998 09 20	138	0.4−	0.4−
1991 08 06	675	0.7+	0.8−	1998 06 30	704	(0.9+	2.4+)	1998 09 26	704	0.5−	1.0+
1991 08 06	675	0.5+	1.5−	1998 06 30	704	0.1+	0.7+	1998 09 26	704	0.1−	0.4+
1991 08 31	894	0.1+	1.3+	1998 06 30	704	0.1+	0.7+	1998 09 26	704	0.2+	0.8−
1991 08 31	894	1.1+	0.5+	1998 06 30	704	1.9−	0.8+	1998 09 26	704	0.2+	0.0
1991 09 02	046	1.0−	1.9−	1998 08 22	689	0.2−	0.1+	1998 09 26	704	0.3−	0.3−
1991 09 02	046	(0.7+	2.1−)	1998 09 14	704	0.3+	0.2+	1998 09 27	704	0.2−	0.9+
1991 09 03	046	1.2−	1.4−	1998 09 14	704	0.1−	0.3−	1998 09 27	704	0.5+	1.5+
1991 09 03	046	1.8−	1.1−	1998 09 14	704	0.0	0.6+	1998 09 27	704	0.3−	0.5+
1991 09 07	894	0.0	1.5−	1998 09 14	704	0.4+	0.9+	1998 09 27	704	0.7+	0.2−
1991 09 07	894	0.7+	0.5+	1998 09 14	704	(4.0−	2.4+)	1998 09 27	704	0.5−	0.8+
1991 09 07	894	1.1+	0.7−	1998 09 16	699	0.4+	0.0				
1991 09 07	894	0.1+	0.3+	1998 09 16	699	0.3+	0.1−				

(9261)∗ 1953 TD$_1$ = 1991 SE$_5$ = 1993 FD$_3$ = 1996 AW$_3$
Discovered 1953 Oct. 8 at the Goethe Link Observatory, Indiana University.
Id. S. Nakano (*MPC* 26556)
Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

				P	Q
M	327.18284		(2000.0)		
n	0.28495064	ω	193.53549	+0.86711222	−0.49761382
a	2.2871236	Ω	196.36350	+0.46405977	+0.82328561
e	0.1639694	i	4.53806	+0.18101086	+0.27309576
P	3.46	H	14.1	G 0.15	U 2

Residuals in seconds of arc

1953 10 08	760	(7.7−	2.0+)	1993 03 25	691	0.5−	0.0	1998 09 14	699	0.0	0.3+
1953 10 08	760	1.0−	0.7+	1996 01 13	399	0.3+	0.1+	1998 09 14	699	0.3−	0.2−
1953 10 10	760	1.5+	1.4−	1996 01 13	399	1.1+	1.0−	1998 09 26	704	1.4+	0.4+
1953 10 10	760	0.9−	0.9+	1996 01 18	399	0.7−	1.0+	1998 09 26	704	0.2+	0.4+
1953 10 15	760	0.3+	1.3+	1996 01 18	399	0.6−	0.8+	1998 09 26	704	0.4+	0.0
1953 10 15	760	(3.3+	4.0+)	1996 01 21	399	0.1+	0.2−	1998 09 26	704	0.1+	1.6−
1991 09 17	675	0.5−	0.8−	1996 01 21	399	1.3+	0.1+	1998 09 26	704	1.0+	1.2−
1991 09 17	675	1.0−	1.1−	1997 05 03	809	1.6+	0.3−	1998 09 27	704	0.7+	0.7−
1993 03 24	691	1.1−	1.4−	1997 05 03	809	0.1+	0.2−	1998 09 27	704	1.6+	0.6+
1993 03 24	691	0.8−	1.1−	1997 05 03	809	0.6+	0.5−	1998 09 27	704	0.2+	0.1−
1993 03 24	691	0.9−	0.9−	1998 08 29	959	1.0−	0.1−	1998 09 27	704	0.0	1.4−
1993 03 25	691	1.2−	0.7−	1998 08 29	959	1.0−	0.4−	1998 09 27	704	0.9−	0.6−
1993 03 25	691	0.5−	0.5−	1998 09 14	699	0.2−	0.3−				

(9262)∗ 1973 RF = 1973 UQ = 1988 GX$_2$
Discovered 1973 Sept. 6 by T. M. Smirnova at the Crimean Astrophysical Observatory.
Id. B. G. Marsden (d, *MPC* 9064), C. M. Bardwell (*MPC* 15698)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Bardwell

M	346.81446		(2000.0)		**P**	**Q**	
n	0.23719167	ω	0.61512		+0.99323747	−0.11245256	
a	2.5846581	Ω	6.07323		+0.10532072	+0.76805045	
e	0.1415536	i	15.83804		+0.04885562	+0.63043867	
P	4.16	H	13.0	G	0.15	U	2

Residuals in seconds of arc

1973 09 06	095	(5.6+	1.7−)	1994 10 01	675	0.2−	0.4−	1996 05 08	327	0.3−	0.8+
1973 09 19	675	1.0+	0.2−	1994 10 01	675	0.1−	0.4−	1998 08 28	704	0.7−	0.6−
1973 09 19	675	1.0+	1.8−	1994 10 08	801	0.2−	0.2−	1998 08 28	704	1.5−	0.7+
1973 09 20	675	1.9−	0.6−	1994 10 08	801	0.3−	0.4−	1998 08 31	704	(0.5−	2.3−)
1973 09 24	675	1.5−	0.9+	1995 02 26	801	0.8−	0.3+	1998 08 31	704	(3.5−	2.1−)
1973 09 24	675	0.9−	0.8+	1995 02 27	801	0.8−	0.2+	1998 08 31	704	1.2−	1.7−
1973 09 25	675	0.6+	1.2−	1995 03 03	801	0.9+	1.9+	1998 09 14	699	0.4−	0.3+
1973 09 25	675	1.5+	1.3−	1995 03 04	801	0.9−	0.5+	1998 09 14	699	0.5−	1.0+
1973 09 29	675	1.0+	0.4−	1996 02 23	684	0.4+	0.5+	1998 09 14	699	0.4−	1.0+
1973 09 29	675	0.4+	0.4+	1996 02 23	684	0.1+	0.2−	1998 09 18	704	0.7+	0.5+
1973 09 30	675	0.5+	0.2−	1996 02 23	684	0.5+	0.8+	1998 09 18	704	0.5−	1.6+
1973 09 30	675	0.9+	0.3−	1996 02 28	966	0.0	0.5+	1998 09 18	704	1.0−	0.2+
1973 10 04	675	1.1+	1.9−	1996 02 28	966	0.6+	0.4−	1998 09 18	704	0.3−	0.2−
1973 10 04	675	1.6+	2.1−	1996 03 17	801	0.3−	1.0−	1998 09 18	704	0.8−	0.8+
1973 10 05	675	(3.0+	2.2−)	1996 03 17	801	0.3−	1.2−	1998 09 26	704	0.6+	0.2+
1973 10 05	675	1.7+	1.9−	1996 03 19	801	0.3−	0.6−	1998 09 26	704	0.7+	0.5−
1973 10 26	095	(1.5−	9.7+)	1996 03 19	801	0.6−	0.7−	1998 09 26	704	0.9+	0.1+
1973 10 29	095	0.4+	1.2+	1996 03 25	327	0.1+	0.1−	1998 09 26	704	0.0	0.1−
1988 04 10	808	0.8−	0.5−	1996 03 25	327	0.3−	0.0	1998 09 26	704	0.1+	0.5−
1988 04 10	808	0.9−	1.8−	1996 03 25	327	0.6−	0.9−	1998 09 27	704	0.9+	0.2+
1988 04 12	808	1.2−	0.1+	1996 04 06	327	0.6+	0.5−	1998 09 27	704	0.5+	0.8+
1988 04 12	808	0.6−	0.4+	1996 04 06	327	0.3+	0.2+	1998 09 27	704	0.1−	0.6+
1992 02 27	372	0.5+	0.2−	1996 04 06	327	0.2−	0.0	1998 09 27	704	0.2+	0.1−
1992 02 27	372	1.3+	0.8+	1996 04 07	327	0.2+	0.1−	1998 09 27	704	0.8−	0.2+
1992 02 28	675	0.8−	0.9−	1996 04 07	327	0.3−	0.5−	1998 10 02	750	0.4−	0.2+
1992 02 28	675	0.8−	1.2−	1996 04 07	327	0.4+	0.5−	1998 10 02	750	0.7+	0.1+
1992 03 03	372	1.8−	0.8−	1996 05 08	327	0.6+	0.9+				
1992 03 03	372	(3.0−	0.5−)	1996 05 08	327	0.0	0.4+				

(9263)∗ 1976 SX$_5$ = 1976 UL$_9$ = 1993 UA$_9$ = 1995 CS$_8$

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

Id. H. Oishi (d, *JAM* 1664), G. V. Williams (*MPC* 24893)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	348.87028		(2000.0)		**P**	**Q**	
n	0.17702958	ω	286.27888		+0.99007544	+0.13638686	
a	3.1412716	Ω	65.89251		−0.11054127	+0.90471744	
e	0.1892415	i	2.12844		−0.08678276	+0.40359012	
P	5.57	H	13.7	G	0.15	U	1

Residuals in seconds of arc

1976 09 24	095	1.2−	2.2−	1998 08 23	704	0.9+	1.0−	1998 09 18	704	1.4−	0.2−
1976 10 22	381	0.5+	0.5+	1998 08 23	704	1.6+	1.3−	1998 09 18	704	1.7−	0.2+
1976 10 22	381	0.4+	0.0	1998 08 23	704	0.4−	0.5+	1998 09 18	704	1.1−	0.9+
1976 10 24	381	0.6+	0.4+	1998 08 23	704	(0.8−	2.4−)	1998 09 18	704	1.0−	0.4−
1993 10 18	033	1.1+	0.0	1998 08 26	809	(2.3+	0.8+)	1998 09 24	699	0.1−	0.6+
1993 10 18	033	0.4+	0.6−	1998 08 26	809	1.8+	0.7+	1998 09 24	699	0.3+	0.5+
1993 11 12	033	0.7−	0.4+	1998 08 26	809	1.6+	0.5+	1998 09 24	699	0.3+	0.7+
1993 11 12	033	0.2+	0.1+	1998 08 27	809	(2.2+	2.6+)	1998 09 26	704	0.8+	0.3+
1995 02 04	691	0.2−	0.3+	1998 08 27	809	(2.3+	2.1+)	1998 09 26	704	0.9+	0.3−
1995 02 04	691	0.1−	0.2−	1998 08 27	809	(2.5+	2.7+)	1998 09 26	704	0.1+	0.1−
1995 02 04	691	0.2−	0.1−	1998 09 14	704	1.7−	0.2−	1998 09 26	704	0.7−	0.4+
1995 02 05	691	0.2−	0.1+	1998 09 14	704	1.0−	0.9−	1998 09 26	704	0.2+	1.2+
1995 02 05	691	0.3−	0.1+	1998 09 14	704	0.3+	0.8−	1998 09 27	704	(3.5+	0.2−)
1995 02 05	691	0.1−	0.1+	1998 09 14	704	0.2+	0.7−	1998 09 27	704	(3.3+	0.2−)
1996 03 26	691	0.0	0.1−	1998 09 17	699	0.4−	0.1+	1998 09 27	704	(3.8+	0.3+)
1996 03 26	691	0.2+	0.3−	1998 09 17	699	0.1+	0.2+	1998 09 27	704	(3.2+	0.6+)
1996 03 26	691	0.2+	0.4−	1998 09 17	699	0.3+	0.4+	1998 09 27	704	(3.7+	0.2+)
1998 08 23	704	0.2+	1.5−	1998 09 18	704	0.4−	0.6+				

(9264)∗ 1978 OQ = 1954 WG$_1$ = 1983 PQ$_2$ = 1991 EZ$_2$

Discovered 1978 July 28 at the Perth Observatory.

Id. E. Bowell (*MPC* 25527), G. V. Williams (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	352.39136		(2000.0)		**P**	**Q**	
n	0.20049205	ω	356.78716		+0.96264339	+0.26980023	
a	2.8911544	Ω	347.48818		−0.24601018	+0.83609848	
e	0.1999288	i	6.07433		−0.11312248	+0.47764754	
P	4.92	H	13.3	G	0.15	U	1

Residuals in seconds of arc

1954 11 23	675	0.2−	0.0	1996 02 14	691	0.9−	0.0	1998 09 18	704	0.4+	0.7+
1954 11 23	675	0.8+	0.0	1996 02 14	691	0.9−	0.2−	1998 09 18	704	1.9−	0.6+
1978 07 10	675	(5.4−	8.5+)Y	1996 02 15	566	0.5+	0.5+	1998 09 18	704	0.2−	1.7+
1978 07 11	675	(0.4−	4.9+)Y	1996 02 15	566	0.1+	0.3+	1998 09 18	704	0.9−	1.6+
1978 07 13	675	(11.1−	6.3−)Y	1996 02 15	566	0.5+	0.4+	1998 09 18	157	0.7−	1.0+
1978 07 28	323	0.5−	0.2+	1997 04 08	689	0.6−	0.6+	1998 09 18	157	0.4−	0.2−
1978 07 28	323	1.7−	0.0	1997 04 09	689	0.1+	0.2+	1998 09 19	138	0.1−	0.7−
1978 08 01	323	0.3−	0.4−	1997 04 26	689	1.8+	0.6−	1998 09 19	138	0.1−	0.6−
1978 08 01	323	0.7+	0.2+	1998 08 23	704	1.2+	0.8+	1998 09 19	138	0.3−	0.4−
1978 08 06	323	0.6−	0.0	1998 08 23	704	0.5+	1.4+	1998 09 25	699	0.1+	0.3−
1978 08 06	323	1.3−	0.2+	1998 08 23	704	0.3−	0.9−	1998 09 25	699	0.0	0.2−
1978 08 09	323	0.7−	1.0−	1998 08 23	704	1.5+	1.5−	1998 09 25	699	0.1+	0.7−
1978 08 09	323	1.7−	0.2−	1998 08 23	704	1.4−	0.0	1998 09 25	704	0.1+	0.0
1978 08 11	323	1.7+	1.0−	1998 08 26	761	0.4+	0.7−	1998 09 25	704	0.4+	0.9−
1978 08 11	323	0.1+	0.3+	1998 08 26	761	0.7+	1.3−	1998 09 25	704	0.7+	0.8+
1978 08 11	323	1.2+	0.8−	1998 08 26	699	0.4+	0.2+	1998 09 25	704	1.2−	0.9+
1978 08 11	323	0.8+	1.0+	1998 08 26	699	0.5+	1.0+	1998 09 26	704	0.9+	0.0
1983 08 13	688	1.4+	0.1−	1998 08 26	699	0.4+	0.5+	1998 09 26	704	1.3+	0.5−
1983 08 13	688	0.4+	0.2−	1998 08 27	761	0.7+	0.6−	1998 09 26	704	0.9+	0.2+
1991 03 11	809	0.1−	0.8−	1998 08 27	761	0.5+	0.4−	1998 09 26	704	0.8+	1.6−
1991 03 11	809	0.1−	0.9−	1998 08 27	691	1.2−	0.9−	1998 09 26	704	0.1+	0.4−
1991 03 11	809	0.2+	0.5−	1998 08 27	691	1.6−	0.7−	1998 09 27	704	0.2−	1.0−
1991 03 13	809	(1.8−	6.1−)	1998 08 27	691	1.4−	0.7−	1998 09 27	704	0.9−	0.2−
1991 03 13	809	(1.7−	6.3−)	1998 09 14	704	0.4+	0.2+	1998 09 27	704	0.3−	0.1−
1991 03 13	809	(1.6−	6.4−)	1998 09 14	704	0.3+	0.6+	1998 09 27	704	0.4−	0.2+
1993 08 13	675	1.2+	0.5+	1998 09 14	704	0.0	0.3+	1998 09 27	704	1.0−	1.1−
1993 08 13	675	0.6+	0.7+	1998 09 14	704	0.0	1.0+				
1996 02 14	691	1.1−	0.5−	1998 09 18	704	0.0	1.3+				

(9265)∗ 1978 RC$_9$ = 1978 RD$_{12}$ = 1988 RW$_6$

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

Id. B. G. Marsden (d, *MPC* 9203), T. Kobayashi (*MPC* 15063)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	11.03385		(2000.0)		**P**	**Q**	
n	0.29637315	ω	328.59983		+0.60469545	+0.79604503	
a	2.2279741	Ω	338.57343		−0.71543872	+0.52877487	
e	0.1658114	i	4.01958		−0.34998693	+0.29446468	
P	3.33	H	15.4	G	0.15	U	2

Residuals in seconds of arc

1978 09 02	809	0.4−	0.6−	1988 09 18	809	0.7−	0.7+	1998 09 10	120	0.5−	0.4+
1978 09 02	809	0.4−	0.8−	1988 09 18	809	0.7−	0.7+	1998 09 10	120	0.3−	0.4+
1978 09 02	809	0.2+	0.6−	1988 09 18	809	0.4−	0.7+	1998 09 10	120	0.7−	0.3−
1978 09 02	809	0.1−	1.6−	1988 11 03	807	2.1+	0.4−	1998 09 14	704	0.6+	0.2+
1978 09 06	809	0.5+	0.8−	1988 11 05	807	0.0	0.3−	1998 09 14	704	0.3−	0.0
1978 09 10	809	0.3−	2.1+	1995 11 19	691	0.3−	0.0	1998 09 14	704	0.3+	0.7+
1978 09 10	809	0.6+	1.6−	1995 11 19	691	0.2−	0.1+	1998 09 14	704	0.3+	1.2+
1978 09 10	809	1.2+	0.9+	1995 11 19	691	0.1−	0.1−	1998 09 17	120	0.2−	1.6+
1978 09 10	809	1.0+	0.7−	1997 03 11	691	0.3−	0.9−	1998 09 17	120	1.1+	0.1−
1988 09 08	809	0.5−	0.6+	1997 03 11	691	0.5−	0.8−	1998 09 17	120	0.5+	1.4+

1988 09 08	809	0.3−	0.8+	1997 03 11	691	0.6−	1.4−	1998 09 18	704	1.0+	0.3−
1988 09 08	809	0.1−	0.9+	1998 08 17	704	0.1−	0.9−	1998 09 18	704	0.5+	0.1+
1988 09 09	809	0.6−	0.4+	1998 08 17	704	0.7−	1.8−	1998 09 18	704	0.9+	0.2−
1988 09 09	809	0.4−	0.4+	1998 08 17	704	0.2−	1.5−	1998 09 18	704	0.2−	0.6+
1988 09 09	809	0.4−	0.3+	1998 08 17	704	0.8−	1.7−	1998 09 18	704	0.8+	0.3−
1988 09 12	809	0.1−	0.0	1998 08 23	704	0.3+	0.8+	1998 09 25	704	0.2+	1.2−
1988 09 12	809	0.0	0.2+	1998 08 23	704	0.1−	0.7+	1998 09 25	704	0.6+	1.6−
1988 09 12	809	0.1+	0.0	1998 08 23	704	0.6−	1.2−	1998 09 25	704	0.4+	0.9−
1988 09 14	809	0.2−	0.4+	1998 08 23	704	0.2−	1.4−	1998 09 25	704	0.0	0.7−
1988 09 14	809	0.1+	0.4+	1998 08 23	704	0.9−	0.7−	1998 09 25	704	0.8+	0.1+
1988 09 14	809	0.2+	0.2+	1998 08 26	699	0.1+	0.2−	1998 09 27	704	0.4+	0.1+
1988 09 15	809	0.4−	0.2+	1998 08 26	699	0.4+	0.5−	1998 09 27	704	0.7+	0.4−
1988 09 15	809	0.2−	0.2+	1998 08 26	699	0.1−	0.2+	1998 09 27	704	0.4+	1.3−
1988 09 15	809	0.1−	0.1+	1998 09 09	120	0.8−	0.9+	1998 09 27	704	0.4+	0.9−
1988 09 16	675	0.4−	0.2+	1998 09 09	120	0.5−	1.1+	1998 09 27	704	0.8+	0.2−
1988 09 16	675	0.8−	0.7+	1998 09 09	120	0.7−	1.3+				

(9266)∗ 1978 RD_{10} = 1981 EC_{36}

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

Id. H. Kaneda (*MPC* 15700)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	299.26600		(2000.0)		**P**	**Q**	
n	0.19603263	ω	222.02037		+0.86028969	−0.50975522	
a	2.9348357	Ω	168.62073		+0.47686838	+0.79966339	
e	0.1121300	i	2.07956		+0.18027257	+0.31731385	
P	5.03	H	13.7	G	0.15	U	2

Residuals in seconds of arc

1971 03 24	675	0.1+	0.7−	1981 03 07	413	0.5−	0.3−	1996 03 19	566	0.2−	0.3+
1971 03 25	675	0.5+	1.3−	1981 03 07	413	0.2+	0.2−	1996 03 19	566	0.3−	0.5+
1971 03 25	675	0.4+	0.3−	1981 03 11	413	(2.7−	0.9+)	1997 06 04	566	0.7−	0.3+
1971 03 26	675	1.5−	0.1−	1981 03 11	413	1.5+	0.7−	1997 06 04	566	0.4−	0.5+
1971 03 27	675	1.2−	0.4−	1981 03 11	413	1.0−	0.2+	1997 06 04	566	0.5−	0.6+
1971 04 02	675	0.7+	1.3−	1981 03 11	413	1.1+	0.6−	1998 08 17	704	0.7+	1.0+
1971 04 16	675	1.4+	0.6+	1981 03 15	413	2.3+	1.3−	1998 08 17	704	1.1+	1.2+
1971 04 16	675	0.9−	1.2+	1981 03 16	413	0.7−	1.9−	1998 08 17	704	1.0+	0.6+
1971 05 13	675	1.1+	0.1+	1981 03 16	413	0.8−	1.4−	1998 08 17	704	0.1+	0.7+
1971 05 14	675	1.1+	0.4−	1981 04 05	413	1.7−	0.2+	1998 08 17	704	0.5+	0.2+
1978 09 02	809	0.3−	1.0−	1981 04 05	413	(2.8+	2.2−)	1998 08 23	699	0.0	0.2+
1978 09 02	809	0.0	0.8−	1981 04 26	413	(3.2+	1.3−)	1998 08 23	699	0.5+	0.5−
1978 09 02	809	0.0	1.2−	1981 05 02	413	1.2+	0.6+	1998 08 23	699	0.3+	0.2−
1978 09 02	809	1.1−	1.3−	1988 09 10	675	0.2+	0.6−	1998 09 14	704	0.3−	0.0
1978 09 06	809	0.8−	0.9−	1988 09 10	675	0.5−	0.4−	1998 09 14	704	0.6−	0.7+
1978 09 10	809	0.6+	0.6+	1988 09 12	675	0.7+	0.5−	1998 09 14	704	0.2−	0.4+
1978 09 10	809	0.7+	0.5−	1988 09 12	675	0.3+	1.6−	1998 09 14	704	0.3+	0.4+
1981 02 09	413	1.1+	0.3−	1991 02 11	675	1.3−	1.3+	1998 09 14	704	1.1−	0.7+
1981 02 13	413	0.1+	0.9−	1991 02 11	675	0.2−	1.3+	1998 09 21	699	0.2−	0.5−
1981 03 03	413	1.0−	1.0−	1991 03 09	675	0.5−	0.3+	1998 09 21	699	0.1+	0.0
1981 03 06	413	1.1−	1.1+	1996 03 19	566	0.4−	0.7+	1998 09 21	699	0.0	0.3−

(9267)∗ 1978 RL_{10} = 1997 LR_8 = 1998 OC_{15}

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

Id. G. V. Williams (*MPC* 32438)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	339.29251		(2000.0)		**P**	**Q**	
n	0.19663489	ω	214.08545		+0.96967126	+0.24143437	
a	2.9288401	Ω	131.89577		−0.21130681	+0.90632917	
e	0.1020355	i	2.92939		−0.12282948	+0.34680958	
P	5.01	H	14.2	G	0.15	U	2

Residuals in seconds of arc

1978 09 02	809	0.3+	0.1+	1998 07 26	809	0.2−	1.0−	1998 08 23	704	1.3−	0.2+
1978 09 02	809	0.0	1.3+	1998 07 26	809	(0.6−	2.1−)	1998 08 23	704	0.6−	0.4−
1978 09 02	809	0.1−	0.2+	1998 07 26	809	0.7−	1.7−	1998 08 23	699	0.2+	0.1−
1978 09 02	809	0.7+	0.1−	1998 07 27	809	0.5−	0.9−	1998 08 23	704	0.6+	0.3+
1978 09 02	809	0.1−	0.8−	1998 07 27	809	0.9−	1.6−	1998 09 14	704	0.7−	0.3+
1978 09 06	809	0.1+	0.8−	1998 07 27	809	0.8−	1.6−	1998 09 14	704	0.1+	0.0
1978 09 10	809	1.2−	0.4+	1998 08 17	704	0.3−	1.6+	1998 09 14	704	(2.1−	1.3+)
1978 09 10	809	0.3−	1.6+	1998 08 17	704	0.3−	0.1−	1998 09 14	704	1.8−	0.4+
1996 03 17	691	0.1−	0.8−	1998 08 17	704	1.8+	1.2−	1998 09 14	704	(1.0−	2.5+)
1996 03 17	691	0.2−	0.4−	1998 08 17	704	0.0	0.9−	1998 09 18	704	0.3+	0.3+
1996 03 17	691	0.3−	0.4−	1998 08 21	566	0.1+	0.1−	1998 09 18	704	1.7+	0.4+
1997 06 07	809	0.5+	0.3+	1998 08 21	566	0.2−	0.1+	1998 09 18	704	0.0	0.8+
1997 06 07	809	0.4−	1.1+	1998 08 21	566	0.3−	0.0	1998 09 18	704	0.1−	0.5+
1997 06 07	809	0.2−	0.6+	1998 08 23	699	0.6+	1.1+	1998 09 21	699	0.8+	0.7+
1997 06 08	809	0.5+	0.4−	1998 08 23	704	0.0	0.2−	1998 09 21	699	1.8+	0.4+
1997 06 08	809	0.4+	0.2+	1998 08 23	704	1.2+	1.2−	1998 09 21	699	0.1+	0.1+
1997 06 08	809	0.3−	0.2−	1998 08 23	699	0.3+	0.4+				

(9268)∗ 1978 VZ_2 = 1978 WV_8 = 1982 XO_1 = 1986 UR

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

Id. H. Oishi (*JAM* 2047, *MPC* 16575)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	256.54956		(2000.0)		**P**	**Q**	
n	0.23923762	ω	22.31635		+0.00471318	−0.99962884	
a	2.5699011	Ω	67.42209		+0.91302676	−0.00664263	
e	0.0839414	i	1.66522		+0.40787244	+0.02642084	
P	4.12	H	14.4	G	0.15	U	2

Residuals in seconds of arc

1978 11 05	675	0.9−	0.9−	1992 02 25	675	0.3−	1.4−	1996 03 14	608	0.1+	0.0
1978 11 06	675	0.9+	0.4−	1992 03 06	809	0.1+	1.1+	1998 08 26	809	(3.2+	1.3+)
1978 11 07	675	2.2−	1.5−	1992 03 08	809	0.4−	1.3+	1998 08 26	809	(2.8+	0.3+)
1978 11 29	675	0.0	0.1−	1992 03 09	809	1.6+	1.1+	1998 08 26	809	(3.3+	1.5+)
1978 11 29	675	(5.0+	1.3+)	1994 09 29	691	1.0−	0.4+	1998 08 27	809	(0.4+	2.1+)
1978 11 30	675	0.5+	0.5+	1994 09 29	691	1.2−	0.4+	1998 08 27	809	0.3+	1.3+
1982 12 13	381	0.1+	1.1+	1994 09 29	691	1.1−	0.1+	1998 08 27	809	0.5+	1.5+
1982 12 13	381	2.0+	0.3+	1994 09 30	691	0.6−	0.4+	1998 09 18	704	1.5+	0.2+
1982 12 14	381	0.7+	0.3+	1994 09 30	691	0.9−	0.5+	1998 09 18	704	1.6−	0.1−
1982 12 14	381	0.8+	0.9+	1994 09 30	691	0.7−	0.6+	1998 09 18	704	0.1−	0.1−
1986 10 28	046	0.2−	2.0−	1996 03 13	608	0.1+	0.9−	1998 09 18	704	1.5+	0.3−
1986 10 28	046	(0.3−	2.8−)	1996 03 13	608	0.0	1.6+				
1992 02 25	675	0.0	1.0+	1996 03 14	608	0.0	0.3+				

(9269)∗ 1978 VW_6 = 1982 XQ

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

Id. K. Hurukawa (*MPC* 8384)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	282.60923		(2000.0)		**P**	**Q**	
n	0.23948554	ω	176.94694		+0.49606364	−0.84433347	
a	2.5681271	Ω	243.23131		+0.79175384	+0.53561684	
e	0.1516227	i	13.11166		+0.35643615	−0.01468301	
P	4.12	H	14.5	G	0.15	U	2

Residuals in seconds of arc

1978 11 05	675	0.5+	1.1−	1986 11 04	010	1.2+	0.4+	1998 08 27	704	0.5+	0.9−
1978 11 06	675	0.2−	1.1−	1996 03 02	608	0.7+	0.1−	1998 08 27	704	0.6−	1.2−
1978 11 07	675	0.3+	0.5+	1996 03 02	608	0.0	0.6+	1998 08 27	704	1.7+	0.0
1978 11 08	675	0.3−	0.5−	1996 03 11	608	0.2−	0.3−	1998 08 27	704	1.4−	1.0+
1978 11 27	323	(2.8+	3.4−)	1996 03 11	608	0.4−	0.4−	1998 09 19	704	0.5−	0.0
1978 11 28	323	0.6−	1.4+	1996 03 13	608	0.6−	0.9−	1998 09 19	704	0.9−	0.8+
1978 11 29	675	0.4−	0.7−	1996 03 13	608	0.1−	0.5−	1998 09 19	704	0.7−	0.0
1978 11 30	675	0.8−	0.7−	1996 03 14	608	0.1+	0.3−	1998 09 19	704	0.5+	0.1−
1982 12 13	381	0.2−	1.2+	1996 03 14	608	0.2−	0.4−	1998 09 19	699	0.1+	0.6+
1982 12 13	381	0.7+	1.1+	1998 08 24	704	0.7−	0.7−	1998 09 19	699	0.6+	0.9−
1982 12 14	381	0.6+	0.1−	1998 08 24	704	0.4−	0.4−	1998 09 19	704	0.8−	0.4−
1982 12 14	381	0.6+	0.2+	1998 08 24	704	0.1+	0.9−	1998 09 19	699	0.8+	0.4−

1986 11 04	010	0.9−	0.2−	1998 08 24	704	1.3+	0.3+	
1986 11 04	010	0.1−	0.2−	1998 08 24	704	0.5+	0.8+	

(9270)∗ 1978 VO_8 = 1962 XN_1 = 1985 CR_1

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

Id. B. G. Marsden (*MPC* 10157), G. V. Williams (*MPC* 29909)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	182.93643	(2000.0)	**P**	**Q**	
n	0.18400707	ω	37.55473	−0.84831466	−0.52789789
a	3.0613504	Ω	110.53356	+0.47454969	−0.79239887
e	0.1401945	i	2.51307	+0.23487192	−0.30565970
P	5.36	H	13.1	G 0.15	U 2

Residuals in seconds of arc

1962 12 03	760	1.6−	1.1−	1985 02 22	809	0.4+	0.1+	1996 03 24	691	0.8−	0.5−
1962 12 03	760	1.9+	1.4−	1985 02 22	809	0.9+	0.3+	1996 03 26	566	0.6+	0.2−
1978 11 05	675	0.1+	0.1+	1985 02 22	809	1.2+	0.3+	1996 03 26	566	0.3+	0.4−
1978 11 06	675	0.4−	0.1−	1985 02 24	809	0.2+	0.0	1996 03 26	566	0.3+	0.3−
1978 11 07	675	0.6+	1.3+	1985 02 24	809	0.3+	0.3−	1996 04 07	608	0.1−	0.1−
1978 11 08	675	0.6−	0.0	1985 02 24	809	0.3+	0.1+	1996 04 07	608	0.3−	0.1−
1978 11 29	675	0.5−	1.1+	1985 02 25	809	0.7+	0.1+	1996 04 08	608	0.2−	0.4−
1978 11 30	675	1.0−	0.7+	1985 02 25	809	0.7+	0.0	1996 04 08	608	0.2−	0.4−
1985 02 10	809	1.0−	0.9−	1985 02 25	809	0.8+	0.0	1998 08 17	704	0.2−	1.2−
1985 02 10	809	1.1−	1.1−	1985 02 27	809	0.5+	0.6−	1998 08 17	704	0.0	0.0
1985 02 10	809	0.9−	1.0−	1985 02 27	809	0.2+	0.3−	1998 08 17	704	1.6−	1.6+
1985 02 11	809	0.7−	0.0	1985 02 27	809	0.1−	0.1−	1998 08 17	704	0.5−	0.7+
1985 02 11	809	0.7−	0.1−	1985 02 28	809	0.0	0.4+	1998 08 17	704	0.6+	0.1−
1985 02 11	809	0.6−	0.1−	1985 02 28	809	0.4+	0.3+	1998 08 23	704	1.4−	1.0−
1985 02 14	809	0.2−	0.1+	1985 02 28	809	0.8+	0.3+	1998 08 23	704	1.6+	1.1−
1985 02 14	809	0.2−	0.3+	1988 10 07	675	1.1−	2.2−	1998 08 23	704	(0.7+	2.9−)
1985 02 14	809	0.1−	0.4+	1988 10 07	675	1.0+	1.4−	1998 08 23	704	(2.3−	0.9+)
1985 02 16	809	0.4−	0.2−	1988 10 13	675	1.0+	0.2−	1998 09 14	704	1.6+	1.0−
1985 02 16	809	0.2−	0.3−	1993 09 19	675	0.2−	1.1+	1998 09 14	704	0.0	0.1+
1985 02 16	809	0.1+	0.0	1993 09 19	675	0.9+	0.4−	1998 09 14	704	1.1−	0.6+
1985 02 17	809	0.4−	0.6+	1993 09 21	675	1.1+	0.4+	1998 09 14	704	0.4−	0.4−
1985 02 17	809	0.1−	0.3+	1993 09 21	675	0.8−	0.3−	1998 09 14	704	0.5−	0.4−
1985 02 17	809	0.2+	0.5+	1993 09 23	675	0.9+	0.1+	1998 09 25	704	0.6+	1.1+
1985 02 19	809	0.3−	0.1+	1993 09 23	675	1.8+	0.5+	1998 09 25	704	1.2−	1.3+
1985 02 19	809	0.1−	0.2+	1993 10 15	675	0.5+	1.1−	1998 09 25	704	1.0+	0.1+
1985 02 19	809	0.4+	0.2+	1993 10 15	675	0.4−	0.2+	1998 09 25	704	0.9−	0.7+
1985 02 20	809	0.3−	0.1−	1996 03 20	608	0.2−	0.2−	1998 09 27	704	0.2+	1.7−
1985 02 20	809	0.3+	0.0	1996 03 20	608	0.1−	0.1−	1998 09 27	704	0.1−	1.5+
1985 02 20	809	0.4+	0.2+	1996 03 21	608	0.2+	0.1+	1998 09 27	704	0.4−	0.2+
1985 02 21	809	0.1+	0.4+	1996 03 21	608	0.4+	0.2+	1998 09 27	704	(1.4−	2.2−)
1985 02 21	809	0.2+	0.2+	1996 03 24	691	1.0−	0.3−				
1985 02 21	809	0.3+	0.4+	1996 03 24	691	1.2−	0.3−				

(9271)∗ 1978 VT_8 = 1991 GX_8

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

Id. H. Kaneda (*MPC* 18619)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	111.58901	(2000.0)	**P**	**Q**	
n	0.18895385	ω	5.71068	−0.54380730	+0.83669689
a	3.0076841	Ω	231.36447	−0.77321139	−0.52960090
e	0.0141445	i	4.76583	−0.32621735	−0.13950340
P	5.22	H	13.4	G 0.15	U 1

Residuals in seconds of arc

1978 11 05	675	0.4−	0.5−	1997 06 29	704	0.1−	0.4+	1998 09 18	704	0.3+	0.6−
1978 11 06	675	0.3+	0.2−	1997 06 29	704	0.7−	0.9−	1998 09 18	699	0.0	0.6−
1978 11 07	675	0.5−	0.4+	1997 06 29	704	0.1+	0.4−	1998 09 18	704	1.3+	1.6−
1978 11 08	675	0.1−	0.2−	1997 06 29	704	0.2+	0.2+	1998 09 18	699	0.5+	0.6−
1978 11 29	675	1.3+	0.2−	1997 06 29	704	(4.1−	0.0)	1998 09 25	704	0.1+	1.9+
1978 11 30	675	0.6−	0.3−	1997 07 02	704	0.3+	0.5+	1998 09 25	704	0.7−	0.4+
1991 04 08	809	1.6+	0.9−	1997 07 02	704	0.1−	0.0	1998 09 25	704	1.0−	0.2−
1991 04 08	809	0.1−	0.7−	1997 07 02	704	0.1−	0.5+	1998 09 25	704	0.5−	0.5−
1991 04 08	809	1.0+	0.2−	1997 07 02	704	0.2−	0.0	1998 09 26	704	0.5−	0.2−
1991 04 10	809	0.8−	0.2−	1997 07 02	704	0.6+	0.8+	1998 09 26	704	0.5+	0.8+
1991 04 10	809	1.4−	0.9−	1998 08 27	699	0.5−	0.6−	1998 09 26	704	1.7+	0.1−
1991 04 10	809	1.6−	1.5−	1998 08 27	699	0.8−	0.7−	1998 09 26	704	0.4+	0.8−
1991 04 15	675	0.4+	0.0	1998 08 27	699	1.3−	0.2−	1998 09 26	704	1.9−	0.7−
1991 04 15	675	0.0	0.8−	1998 09 14	704	1.0+	0.7−	1998 09 27	704	0.3+	0.7+
1991 04 19	809	0.4+	0.6+	1998 09 14	704	1.3+	0.4−	1998 09 27	704	0.4−	0.4+
1991 04 19	809	0.4+	1.0+	1998 09 14	704	0.7+	0.9−	1998 09 27	704	0.1+	0.4+
1991 04 19	809	0.9−	0.5−	1998 09 18	704	0.6+	0.3+	1998 09 27	704	0.5−	0.7+
1997 06 28	704	0.2+	0.5+	1998 09 18	704	0.1+	0.5−	1998 09 27	704	0.8−	1.2+
1997 06 28	704	1.2−	0.7−	1998 09 18	699	0.2−	0.4+				
1997 06 28	704	0.6+	0.1+	1998 09 18	704	1.2+	0.8−				

(9272)∗ 1979 KQ = 1976 SQ_3 = 1980 PK_3

Discovered 1979 May 19 by R. M. West at the European Southern Observatory.

Id. T. Kobayashi (*MPC* 13151), G. V. Williams (*MPC* 20141)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	21.21638	(2000.0)	**P**	**Q**	
n	0.22459568	ω	147.87558	+0.80937449	+0.58726131
a	2.6804134	Ω	176.14495	−0.55617524	+0.76977927
e	0.1196475	i	5.19703	−0.18863202	+0.25012804
P	4.39	H	14.0	G 0.15	U 1

Residuals in seconds of arc

1976 09 24	095	0.6−	0.9−	1997 05 30	596	0.9−	0.2+	1998 09 18	704	0.0	0.6+
1976 09 29	095	2.4+	0.8−	1997 06 08	809	1.0+	1.5+	1998 09 18	704	1.4+	0.0
1979 05 19	809	0.3−	0.3−	1997 06 08	809	0.8+	1.6+	1998 09 25	327	0.8−	0.2−
1979 05 19	809	0.0	1.6−	1997 06 08	809	0.8+	1.5+	1998 09 25	327	0.7−	0.1+
1979 05 21	809	0.4−	0.4−	1997 06 09	809	0.1+	0.6+	1998 09 25	327	0.6−	0.1−
1979 05 23	809	0.4−	0.0	1997 06 09	809	0.0	0.1+	1998 09 26	704	0.2−	0.8−
1979 05 23	809	0.0	0.4−	1997 06 09	809	0.1−	0.3+	1998 09 26	704	0.3−	0.0
1979 05 24	809	(18.9+	8.5+)	1998 08 27	327	0.5−	0.2+	1998 09 26	704	0.3−	0.3+
1980 08 03	675	0.1+	1.8−	1998 08 27	327	0.5−	0.0	1998 09 26	704	0.6−	0.3+
1980 08 05	675	0.5−	1.9−	1998 08 27	327	0.6−	0.1+	1998 09 26	704	1.1−	0.3+
1994 11 27	675	0.3−	1.4+	1998 08 31	327	0.4−	0.2+	1998 09 27	704	0.0	0.1+
1994 11 27	675	0.6−	0.5+	1998 08 31	327	0.4−	0.3+	1998 09 27	704	0.6+	0.2−
1997 05 03	809	0.8+	1.2−	1998 08 31	327	0.4−	0.3+	1998 09 27	704	0.5+	0.6+
1997 05 03	809	1.1−	1.0−	1998 09 15	699	0.1−	0.3+	1998 09 27	704	0.1+	0.1+
1997 05 03	809	0.9−	0.8−	1998 09 15	699	0.0	0.6+	1998 09 27	704	0.2+	0.2−
1997 05 04	809	1.2+	1.6+	1998 09 15	699	0.2+	0.3+	1998 09 29	327	0.3+	0.3+
1997 05 04	809	1.0+	1.1+	1998 09 18	704	0.2+	0.7+	1998 09 29	327	0.0	1.1−
1997 05 04	809	1.0+	1.5+	1998 09 18	704	0.8+	1.2+	1998 09 29	327	0.3+	0.4−
1997 05 30	596	1.7−	0.1−	1998 09 18	704	1.4+	1.0+				

(9273)∗ 1979 QW_3 = 1982 FG_1 = 1986 LQ_1

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

Id. E. Goffin (*MPC* 11991), G. V. Williams (*MPC* 20328)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	83.45581	(2000.0)	**P**	**Q**	
n	0.26039673	ω	62.16549	−0.71304386	+0.70110278
a	2.4287289	Ω	162.34861	−0.64874057	−0.65714439
e	0.1541761	i	0.91318	−0.26590249	−0.27679621
P	3.79	H	14.7	G 0.15	U 2

Residuals in seconds of arc

1979 08 22	809	1.2−	2.0−	1997 04 28	704	0.5−	1.0−	1998 09 14	704	0.3−	0.7+
1979 08 22	809	0.3+	1.1−	1997 04 28	704	(3.8−	0.1+)	1998 09 14	704	(3.7−	1.1−)
1979 08 22	809	0.7−	1.1−	1997 04 29	704	0.9+	0.0	1998 09 14	704	1.0+	1.5+
1979 08 23	809	0.5+	0.1−	1997 04 29	704	1.2+	0.3−	1998 09 18	704	1.3+	0.5+
1979 08 23	809	0.1+	0.4+	1997 04 29	704	0.7+	0.4+	1998 09 18	704	1.1+	0.2−
1979 08 26	809	1.4+	0.3+	1997 04 29	704	0.9+	0.1+	1998 09 18	704	1.2+	0.9−
1979 08 26	809	0.4+	0.3+	1997 04 29	704	0.4+	0.1−	1998 09 18	699	(0.3−	2.1+)

1979 08 26	809	0.1+	0.2+	1998 08 15	684	0.2−	0.7−	1998 09 18	704	1.1+	1.6−
1982 03 24	046	2.5+	0.0	1998 08 15	684	0.1+	0.5−	1998 09 18	699	0.5+	0.9−
1982 03 24	046	0.3+	1.4−	1998 08 16	684	0.3−	0.6−	1998 09 18	704	0.7+	1.7+
1982 03 27	046	(3.8−	0.6−)	1998 08 16	684	0.1−	0.6−	1998 09 18	699	0.6+	0.1+
1982 03 27	046	1.4−	2.0−	1998 08 17	704	0.3+	0.6−	1998 09 19	691	0.7−	0.2+
1982 03 27	046	0.8+	2.0+	1998 08 17	704	0.8+	1.3+	1998 09 19	691	0.7−	0.0
1982 03 27	046	0.4−	0.4+	1998 08 17	704	0.5+	0.3−	1998 09 19	691	0.9−	0.1−
1986 06 01	805	(2.0−	3.6+)	1998 08 17	704	0.6−	1.4+	1998 09 24	691	0.7−	0.2−
1986 06 01	805	0.8−	2.1+	1998 08 17	704	0.2+	0.8+	1998 09 24	691	0.6−	0.0
1986 06 01	805	0.5−	0.9+	1998 08 23	684	0.3+	0.1+	1998 09 24	691	0.7−	0.2−
1986 06 01	805	0.3−	1.3−	1998 08 23	684	0.3+	0.2+	1998 09 27	704	1.4+	0.6+
1991 11 03	691	0.8−	0.1−	1998 08 23	704	(1.2+	2.9−)	1998 09 27	704	1.0+	0.8+
1991 11 03	691	0.9−	0.1+	1998 08 23	704	(2.3+	2.9−)	1998 09 27	704	(2.6+	0.3+)
1997 03 08	886	0.3−	0.6+	1998 08 23	704	0.5−	0.4+	1998 09 27	704	(2.1+	0.0)
1997 03 08	886	0.9−	0.2−	1998 08 23	704	(3.8−	0.4−)	1998 09 27	704	(2.4+	0.3−)
1997 03 09	886	0.5−	0.1+	1998 09 13	691	0.9−	0.0	1998 09 30	691	(2.1−	0.4+)
1997 03 09	886	0.0	0.4+	1998 09 13	691	0.8−	0.5−	1998 09 30	691	0.4−	1.6+
1997 04 28	704	0.9−	0.1+	1998 09 13	691	1.1−	0.4−	1998 09 30	691	1.8−	0.2+
1997 04 28	704	0.5−	0.0	1998 09 14	704	0.4−	0.2−				
1997 04 28	704	0.6−	0.1−	1998 09 14	704	0.2+	0.1−				

(9274)∗ 1980 FF$_3$ = 4181 P-L

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

Id. H. Kaneda (*MPC* 16022)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	55.22971		(2000.0)		**P**	**Q**	
n	0.23085928	ω	247.85367		−0.51201227	+0.85878881	
a	2.6317087	Ω	351.28183		−0.73774913	−0.45040766	
e	0.1556002	i	6.83315		−0.43996552	−0.24416127	
P	4.27	H	14.4	G	0.15	U	2

Residuals in seconds of arc

1950 04 17	675	0.3−	1.7+	1977 09 10	675	0.8+	1.7−	1997 04 28	704	0.3−	0.4−
1960 09 24	675	0.6−	0.6+	1980 03 16	809	0.0	0.7+	1997 04 28	704	0.1+	1.1−
1960 09 25	675	1.1+	0.2−	1980 03 16	809	0.2+	0.5+	1998 07 31	699	0.7−	0.3−
1960 09 25	675	0.4−	0.2−	1980 03 17	809	0.1−	0.6−	1998 07 31	699	0.6+	0.9−
1960 09 26	675	0.1−	0.3−	1980 03 17	809	0.3+	0.3+	1998 07 31	699	0.2−	2.0+
1960 09 26	675	0.4+	0.0	1980 03 17	809	0.1+	0.0	1998 08 17	704	0.3−	0.4+
1960 09 28	675	0.4−	0.4−	1980 03 17	809	0.7+	0.5−	1998 08 17	704	0.1−	0.4+
1960 09 28	675	0.3+	0.2+	1980 03 23	809	0.1−	0.2−	1998 08 17	704	0.1−	1.8−
1960 09 28	675	1.2+	1.2+	1997 04 28	704	0.6−	1.1−	1998 08 17	704	0.5+	0.5+
1977 09 09	675	1.3−	0.6−	1997 04 28	704	0.9−	0.5−				

(9275)∗ 1980 FS$_3$ = 1993 TC$_{13}$

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

Id. T. Kobayashi (*MPC* 23969)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	342.55335		(2000.0)		**P**	**Q**	
n	0.18497139	ω	358.34819		+0.98951363	+0.14323768	
a	3.0507012	Ω	353.32988		−0.13061748	+0.83242214	
e	0.0920143	i	9.21183		−0.06165918	+0.53530958	
P	5.33	H	13.6	G	0.15	U	2

Residuals in seconds of arc

1980 03 16	809	0.4−	0.3+	1996 03 16	566	0.8+	0.5−	1998 09 14	704	0.3−	0.2−
1980 03 16	809	0.1−	0.0	1996 03 19	566	0.3−	0.0	1998 09 14	704	1.0−	1.5−
1980 03 16	809	0.2+	0.3+	1996 03 19	566	0.4−	0.1−	1998 09 14	704	0.0	1.2−
1980 03 16	809	0.1+	0.2−	1996 03 19	566	0.5−	0.2−	1998 09 18	699	0.4+	0.7+
1980 03 17	809	0.3−	0.5−	1998 08 17	704	0.5+	1.1−	1998 09 18	699	0.7+	0.5+
1980 03 17	809	0.3−	0.2−	1998 08 17	704	0.7+	1.7−	1998 09 18	704	1.1+	0.3+
1980 03 17	809	0.7−	0.2−	1998 08 17	704	(1.1+	2.6−)	1998 09 18	699	0.6+	0.4−
1980 03 17	809	0.3+	0.8−	1998 08 17	704	(0.1+	2.4−)	1998 09 18	704	1.2+	0.7+
1980 03 23	809	0.1+	0.5−	1998 08 17	704	1.4−	1.9−	1998 09 18	704	1.7−	1.3+
1988 11 09	675	0.4+	0.6+	1998 08 23	704	0.4+	0.3+	1998 09 18	704	0.1+	0.4+
1988 11 09	675	0.2+	1.8−	1998 08 23	704	(2.1−	1.7+)	1998 09 18	704	0.1−	0.1+
1993 10 13	675	0.4+	0.4−	1998 08 23	704	(2.1−	3.1+)	1998 09 25	704	0.6+	0.2+
1993 10 13	675	0.1−	0.6+	1998 08 23	704	0.2−	0.2+	1998 09 25	704	0.2+	1.6−
1993 10 15	675	0.2−	0.9−	1998 08 23	704	0.1−	1.2+	1998 09 25	704	0.8+	0.6−
1996 03 15	566	0.7−	0.3−	1998 08 30	699	0.3+	0.7+	1998 09 25	704	0.8+	1.2−
1996 03 15	566	0.8−	0.2−	1998 08 30	699	0.9+	0.4+	1998 09 25	704	1.4−	0.5+
1996 03 15	566	0.4−	1.0−	1998 08 30	699	0.5+	0.4+	1998 09 27	704	0.3−	0.5−
1996 03 15	566	1.0−	0.0	1998 09 13	699	0.0	0.2−	1998 09 27	704	0.1−	0.3−
1996 03 15	566	0.8−	1.2−	1998 09 13	699	0.3+	0.4+	1998 09 27	704	0.7−	0.9+
1996 03 15	566	0.0	0.6−	1998 09 13	699	0.6+	0.2−	1998 09 27	704	0.7−	0.5−
1996 03 16	566	0.7+	0.1−	1998 09 14	704	0.3+	0.3−	1998 09 27	704	0.3+	0.4−
1996 03 16	566	0.6+	0.2−	1998 09 14	704	0.3−	0.2−				

(9276)∗ 1980 RB$_8$ = 1980 TO$_6$ = 1991 RF$_7$

Discovered 1980 Sept. 13 by S. J. Bus at Palomar.

Id. G. V. Williams (d, *MPC* 18264; *MPC* 19014)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	76.68197		(2000.0)		**P**	**Q**	
n	0.27364354	ω	17.45776		−0.19817053	+0.97685662	
a	2.3497009	Ω	241.17722		−0.90989472	−0.21387683	
e	0.0744117	i	5.27167		−0.36444485	+0.00280210	
P	3.60	H	13.8	G	0.15	U	1

Residuals in seconds of arc

1951 09 09	675	0.2−	0.4−	1993 01 24	675	0.2−	0.2−	1998 09 25	704	2.9+	0.3−
1951 09 09	675	0.2+	0.3−	1994 08 07	292	0.9+	0.5+	1998 09 25	704	0.6+	0.2−
1980 09 13	675	1.1+	0.1−	1994 08 07	292	0.2−	0.3−	1998 09 25	704	1.0+	0.3+
1980 09 14	675	0.6+	0.3−	1998 08 20	699	0.4−	0.4+	1998 09 26	704	0.0	0.1+
1980 10 08	095	2.1−	1.7+	1998 08 20	699	0.2−	0.2−	1998 09 26	704	0.6−	0.5+
1990 05 26	675	0.3−	0.1+	1998 08 20	699	0.1−	0.4+	1998 09 26	704	0.7−	0.2−
1990 05 26	675	0.2+	0.3+	1998 08 28	699	0.8+	0.1−	1998 09 26	704	0.7−	1.1+
1991 09 10	033	0.4−	0.2+	1998 08 28	699	0.0	0.4−	1998 09 26	704	0.6−	0.8+
1991 09 11	033	0.1−	0.3−	1998 08 28	699	0.0	0.4−	1998 09 27	704	0.4−	0.3+
1991 09 13	033	1.0−	0.1−	1998 08 31	704	0.3−	0.5−	1998 09 27	704	0.9+	0.5−
1991 09 13	033	0.3−	0.2+	1998 08 31	704	0.6−	0.8+	1998 09 27	704	0.5+	0.4+
1991 09 14	033	0.0	0.3−	1998 08 31	704	0.5−	0.2−	1998 09 27	704	1.9+	0.4+
1991 09 15	033	0.3+	0.6−	1998 08 31	704	0.4−	0.0	1998 09 27	704	1.1+	0.9−
1991 10 05	033	0.5+	0.8−	1998 08 31	704	0.5−	0.5+	1998 09 29	704	0.8−	0.5−
1991 10 06	033	0.9+	0.6+	1998 09 14	704	0.3+	0.1+	1998 09 29	704	0.1+	0.1−
1991 10 06	033	1.8+	0.4−	1998 09 14	704	0.4+	0.2+	1998 09 29	704	0.8−	0.6−
1991 10 09	033	0.6−	0.3+	1998 09 14	704	0.4−	0.8−	1998 09 29	704	0.1+	0.2+
1991 10 09	033	0.4+	0.2+	1998 09 18	704	0.2−	0.5−	1998 09 29	704	0.6−	0.1−
1991 10 10	033	0.2−	0.1+	1998 09 18	704	0.7−	0.1−	1998 09 29	704	0.2−	0.2+
1991 11 05	691	(2.6−	0.3−)	1998 09 18	704	0.9−	0.4+	1998 09 29	704	0.6−	1.2−
1991 11 05	691	(2.8−	0.0)	1998 09 18	704	0.4−	0.7+	1998 09 29	704	0.0	0.2+
1991 11 05	691	(2.5−	0.1−)	1998 09 18	704	1.0−	0.9+	1998 09 29	704	0.4−	1.5−
1993 01 24	675	0.3+	0.9+	1998 09 25	704	0.4+	0.9+	1998 09 29	704	0.1+	0.4−

(9277)∗ 1980 TT$_3$ = 1991 TA$_5$

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

Id. H. Kaneda (*MPC* 19857)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	300.81817		(2000.0)		**P**	**Q**	
n	0.27182580	ω	37.35240		+0.77961445	−0.62625215	
a	2.3601645	Ω	1.43296		+0.54061111	+0.67049254	
e	0.1203811	i	7.10132		+0.31613438	+0.39780397	
P	3.63	H	14.4	G	0.15	U	1

Residuals in seconds of arc

1953 04 15	675	0.3+	0.5−	1995 12 25	608	0.5−	0.6−	1998 09 15	610	1.7+	0.7−
1953 04 15	675	0.2+	0.1−	1995 12 25	608	0.3−	0.3−	1998 09 15	610	1.6+	0.4−
1955 10 24	675	0.7+	0.4+	1995 12 27	608	0.3−	0.7−	1998 09 15	610	1.6+	0.1−
1955 10 24	675	0.2−	0.4−	1995 12 27	608	0.2−	0.6−	1998 09 18	699	0.2+	0.2+
1980 10 07	675	1.2−	0.1+	1996 01 09	608	0.4+	1.0−	1998 09 18	704	0.4−	0.4−

1980 10 08	675	1.0−	0.8−	1996 01 12	608	0.7+	0.1−	1998 09 18	699	0.2−	0.1+
1980 10 09	675	0.9+	0.2−	1996 01 12	608	0.7+	0.1−	1998 09 18	704	0.5−	0.1+
1980 10 10	675	1.2+	0.4+	1996 01 13	608	0.7+	0.5+	1998 09 18	699	0.1+	0.1−
1980 10 15	095	(5.0+	1.4−)	1996 01 13	608	1.0+	0.4+	1998 09 18	704	0.2−	0.0
1989 02 02	675	0.7−	0.4−	1998 08 23	704	0.0	0.3+	1998 09 18	704	0.6+	0.1−
1989 02 02	675	0.0	0.8−	1998 08 23	704	0.3−	0.1+	1998 09 18	704	0.6−	1.4+
1991 10 05	033	1.4−	0.5−	1998 08 23	704	0.2+	1.0−	1998 09 25	704	1.7−	0.2−
1991 10 06	033	0.9−	0.5+	1998 08 23	704	0.7+	0.8−	1998 09 25	704	0.2+	1.0−
1991 10 06	033	1.0−	0.3+	1998 08 30	699	0.3+	0.7+	1998 09 25	704	0.6−	0.4+
1991 10 09	033	0.4−	0.4+	1998 08 30	699	0.0	0.1+	1998 09 25	704	0.2−	0.2+
1991 10 09	033	1.1−	0.4+	1998 08 30	699	0.6+	0.4+	1998 09 25	704	1.0−	1.2+
1991 10 10	033	0.1+	0.1+	1998 09 13	699	0.2−	0.8+	1998 09 27	704	0.0	0.4−
1993 03 19	809	0.5+	0.3−	1998 09 13	699	0.2+	0.3+	1998 09 27	704	0.6+	1.4−
1993 03 20	809	1.2+	0.2−	1998 09 13	699	0.0	0.5+	1998 09 27	704	1.9+	2.0−
1993 04 17	413	1.3−	0.8+	1998 09 14	704	0.3+	0.6+	1998 09 27	704	0.8+	1.8−
1993 04 18	691	1.4−	0.6−	1998 09 14	704	1.1+	0.2−	1998 09 27	704	(0.7+	2.4−)
1993 04 18	691	1.3−	0.7−	1998 09 14	704	1.0−	0.3−				
1993 04 18	691	1.3−	0.8−	1998 09 14	704	0.2−	0.9−				

(9278)∗ 1981 EM$_1$ = 1975 BK = 1982 JQ$_1$

Discovered 1981 Mar. 7 by H. Debehogne and G. DeSanctis at the European Southern Observatory.

Id. K. Kinoshita (*MPC* 25211)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	75.18678		(2000.0)		**P**	**Q**	
n	0.17427521	ω	332.53397		−0.04622433	−0.99830538	
a	3.1742830	Ω	120.09632		+0.92383443	−0.05618427	
e	0.1522043	i	2.34171		+0.37999112	+0.01515552	
P	5.66	H	13.0	G	0.15	U	1

Residuals in seconds of arc

1975 01 17	095	(4.2−	0.1−)	1989 07 05	675	0.9−	0.3+	1998 03 04	704	(2.2−	0.4−)
1981 03 07	809	0.2+	0.2+	1989 07 05	675	1.0−	0.3−	1998 03 04	704	(3.2−	1.0−)
1981 03 07	809	0.1+	0.4+	1989 07 29	675	0.3−	1.6+	1998 03 04	704	(2.4−	0.2−)
1981 03 07	809	0.3+	0.5+	1989 07 29	675	1.6+	0.7+	1998 03 04	704	(2.0−	0.0)
1981 03 08	809	0.9+	0.1−	1998 02 05	360	0.1+	0.2−	1998 03 04	704	(2.9−	0.3−)
1981 03 08	809	0.6+	0.3−	1998 02 05	360	0.2+	0.4−	1998 03 20	704	1.0+	0.1−
1981 03 08	809	0.8+	0.5−	1998 02 05	360	0.2+	0.4−	1998 03 20	704	0.4−	0.5−
1981 03 09	809	0.6+	0.2−	1998 02 06	360	0.2+	0.3−	1998 03 20	704	0.8+	0.2−
1981 03 09	809	0.5+	0.0	1998 02 06	360	0.4+	0.4−	1998 03 20	704	0.6−	0.8+
1981 03 09	809	0.5+	0.1−	1998 02 06	360	0.3+	0.4−	1998 03 20	704	0.1−	1.0+
1981 03 09	809	0.2−	1.0+	1998 02 19	699	1.2−	0.8+	1998 03 22	704	0.4+	0.1−
1981 03 09	809	0.1−	1.2+	1998 02 19	699	0.4−	1.0+	1998 03 22	704	0.7+	0.3+
1981 03 09	809	0.3−	1.2+	1998 02 19	699	0.9−	0.6+	1998 03 22	704	0.6+	0.8+
1981 03 10	809	0.2+	0.5+	1998 02 26	566	0.9−	1.3−	1998 03 22	704	0.6+	0.4+
1981 03 10	809	0.2+	0.6+	1998 02 26	566	0.7−	1.3−	1998 03 22	704	0.6+	0.1+
1981 03 10	809	0.2−	0.6+	1998 02 26	566	0.8−	1.2−	1998 03 24	691	0.5−	0.2−
1981 03 10	809	0.4−	0.9+	1998 02 26	610	0.1+	0.6−	1998 03 24	691	0.6−	0.0
1981 03 10	809	0.5−	0.5+	1998 02 26	610	0.3+	0.4−	1998 03 24	691	0.6−	0.0
1981 03 10	809	0.6−	0.2+	1998 02 26	610	0.5+	0.2−	1998 03 26	704	0.3+	0.1−
1982 05 15	675	1.1+	1.0+	1998 03 03	704	0.2+	0.6−	1998 03 26	704	0.6+	0.3+
1982 05 16	675	1.3−	1.5−	1998 03 03	704	0.9−	0.1+	1998 03 26	704	0.4−	0.4−
1982 05 16	675	0.5−	0.2+	1998 03 03	704	0.3+	0.1−	1998 04 03	691	0.5−	0.2−
1982 05 17	675	0.8+	1.2−	1998 03 03	704	0.0	0.2−	1998 04 03	691	0.4−	0.2−
1982 05 18	675	0.5−	0.2+	1998 03 03	704	0.2+	0.4−	1998 04 03	691	0.4−	0.3−

(9279)∗ 1981 EY$_{12}$

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

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	234.35042		(2000.0)		**P**	**Q**	
n	0.25650547	ω	259.93320		−0.33609502	−0.93906393	
a	2.4532302	Ω	210.01911		+0.91069292	−0.30450842	
e	0.1897921	i	8.28667		+0.24016359	−0.15947903	
P	3.84	H	14.2	G	0.15	U	2

Residuals in seconds of arc

1979 09 18	675	0.0	0.2−	1995 12 27	292	1.0+	0.2−	1998 09 18	704	0.6−	1.3−
1979 09 19	675	0.2+	0.4−	1995 12 27	292	1.2−	1.3−	1998 09 18	704	0.6−	0.8+
1981 02 09	413	0.1+	1.2+	1996 02 19	292	0.9−	0.6−	1998 09 19	704	0.4−	0.6−
1981 02 12	413	(0.6+	3.5+)	1996 02 19	292	0.8+	1.2+	1998 09 19	704	0.9−	0.2+
1981 02 14	413	0.3+	0.0	1998 08 24	704	0.2+	0.0	1998 09 19	704	1.0−	1.2+
1981 03 01	413	1.2+	0.4−	1998 08 24	704	0.3−	1.2+	1998 09 19	704	0.8−	1.1−
1981 03 06	413	0.8−	1.5+	1998 08 24	704	0.1−	0.1+	1998 09 19	704	0.5+	0.5−
1981 03 06	413	1.0+	0.8−	1998 08 24	704	0.6+	0.2+	1998 09 25	704	0.8−	0.2+
1981 03 08	413	0.6−	0.9+	1998 08 24	704	0.7+	0.2+	1998 09 25	704	(1.1−	2.2+)
1981 03 08	413	0.6+	0.3−	1998 08 27	704	0.5+	0.4−	1998 09 25	704	1.0−	0.3−
1981 03 12	413	1.3−	1.7+	1998 08 27	704	1.4+	0.5+	1998 09 25	704	0.2−	0.1+
1981 04 06	413	0.8−	1.1+	1998 08 27	704	0.9+	0.9+	1998 09 25	704	0.4−	0.3−
1981 04 06	413	0.2+	0.3−	1998 08 27	704	1.8+	1.3−	1998 09 27	704	0.3+	0.6+
1981 04 08	413	0.7−	0.3−	1998 09 14	704	0.2−	0.2+	1998 09 27	704	0.8+	0.3+
1981 04 08	413	0.2+	1.6−	1998 09 14	704	0.4−	0.7+	1998 09 27	704	(2.3−	1.6+)
1981 04 09	413	0.6−	0.4+	1998 09 14	704	0.5+	1.2−	1998 09 27	704	1.1−	0.3−
1981 04 09	413	0.2+	1.1−	1998 09 14	704	0.2+	0.8−	1998 09 27	704	(0.6−	2.5+)
1981 05 01	413	0.4+	1.4−	1998 09 14	704	0.3+	0.9+				
1981 05 03	413	0.3+	1.3−	1998 09 18	704	(2.3−	1.6−)				

(9280)∗ 1981 EQ$_{14}$ = 1992 BC$_6$ = 1994 PC$_{36}$

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* 24557)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	320.51515		(2000.0)		**P**	**Q**	
n	0.25436858	ω	63.59943		+0.91621492	−0.39187339	
a	2.4669503	Ω	319.32277		+0.30650968	+0.81979884	
e	0.1656024	i	7.36725		+0.25807372	+0.41757048	
P	3.87	H	15.0	G	0.15	U	2

Residuals in seconds of arc

1981 02 09	413	0.6−	0.6+	1994 09 04	809	(0.7+	3.4+)	1998 09 14	704	0.3−	0.1+
1981 02 12	413	1.8+	1.4+	1994 09 04	809	(0.2+	3.8+)	1998 09 14	704	0.1+	0.4−
1981 03 01	413	0.2−	0.9+	1994 09 07	675	1.5+	0.7−	1998 09 16	699	0.1+	0.7−
1981 03 08	413	0.8−	0.8+	1994 09 07	675	0.6+	1.1+	1998 09 16	699	0.2+	0.2−
1981 03 08	413	2.4+	0.1+	1996 02 15	566	2.0+	0.2−	1998 09 16	699	0.3+	0.2+
1981 03 12	413	0.9−	1.2+	1996 02 15	566	0.0	0.1+	1998 09 18	704	0.3+	1.0−
1981 03 12	413	(2.8+	1.2−)	1996 02 15	566	0.1−	0.4−	1998 09 18	704	0.3+	0.2−
1981 04 09	413	2.0−	0.5+	1996 02 20	566	0.1−	0.0	1998 09 18	704	0.0	0.3+
1981 04 09	413	1.0+	0.4−	1996 02 20	566	0.5−	0.4−	1998 09 18	704	0.8+	0.6+
1981 05 01	413	0.1+	1.3−	1996 02 20	566	0.0	0.3−	1998 09 18	704	0.2+	0.7+
1981 05 03	413	1.8−	1.5−	1998 08 17	704	0.1+	0.0	1998 09 25	704	0.2−	0.2−
1992 01 30	691	0.0	0.4−	1998 08 17	704	0.1−	1.3−	1998 09 25	704	0.0	0.7−
1992 01 30	691	0.5−	0.4−	1998 08 17	704	0.2+	1.4−	1998 09 25	699	0.1−	1.0+
1992 01 30	691	0.1−	0.7−	1998 08 17	704	0.7+	1.5−	1998 09 25	704	0.7−	0.4−
1994 08 10	809	1.0+	0.9−	1998 08 17	704	0.5+	0.2+	1998 09 25	699	0.5−	1.9+
1994 08 10	809	0.0	0.2−	1998 08 23	704	0.2−	0.5−	1998 09 25	699	0.8−	0.8+
1994 08 10	809	0.0	0.7−	1998 08 23	704	0.3−	0.1−	1998 09 25	704	0.1−	0.0
1994 08 11	809	0.6−	1.0−	1998 08 23	704	(0.2−	2.6−)	1998 09 25	704	1.2−	0.3+
1994 08 11	809	0.4+	0.1+	1998 08 23	704	1.1−	1.3−	1998 09 27	704	0.3−	0.3−
1994 08 11	809	0.1−	0.1+	1998 08 30	699	0.4+	0.5+	1998 09 27	704	0.1−	0.2+
1994 09 03	809	0.2+	1.7+	1998 08 30	699	0.5−	0.4+	1998 09 27	704	0.5+	0.3+
1994 09 03	809	0.1−	1.3+	1998 08 30	699	0.2+	0.8+	1998 09 27	704	0.5+	0.5−
1994 09 03	809	0.2−	1.3+	1998 09 14	704	0.2−	0.2−	1998 09 27	704	0.2+	0.2−
1994 09 04	809	(1.0+	3.7+)	1998 09 14	704	0.9−	0.1+				

(9281)∗ 1981 EJ$_{15}$ = 1979 TV$_1$

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

Id. A. Lowe (*MPC* 10616)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	301.81695		(2000.0)	**P**	**Q**
n	0.25695230	ω	136.80498	+0.65110427	−0.75801864
a	2.4503853	Ω	272.53204	+0.68548797	+0.60899370
e	0.1713920	i	2.20016	+0.32583656	+0.23352604
P	3.84	H	14.9 G 0.15	U 2	

Residuals in seconds of arc

1979 10 14	095	0.1−	2.5+	1994 08 10	809	0.1+	1.2+	1998 09 18	704	0.2+	0.1−
1979 10 18	675	1.0−	0.8−	1994 08 10	809	0.9−	0.9+	1998 09 18	704	0.0	0.4−
1979 10 18	675	0.0	1.4+	1994 08 10	809	0.6−	1.2+	1998 09 18	704	0.0	0.1+
1981 02 12	413	1.1+	0.9+	1994 08 11	809	0.3−	0.7+	1998 09 18	704	0.5−	0.0
1981 02 12	413	0.2−	0.6−	1994 08 11	809	0.8−	0.8+	1998 09 18	704	0.4+	0.3−
1981 03 01	413	1.7−	0.6−	1994 08 11	809	0.2+	1.0+	1998 09 25	699	0.1+	0.6−
1981 03 06	413	1.9−	1.2+	1998 08 23	704	0.7+	0.4−	1998 09 25	699	0.1+	0.1+
1981 03 06	413	2.0+	0.3−	1998 08 23	704	0.5−	1.4−	1998 09 25	699	0.5+	0.7+
1981 03 08	413	0.6−	0.7+	1998 08 23	704	1.1+	1.8−	1998 09 26	704	0.2+	0.3−
1981 03 08	413	1.6+	0.3+	1998 08 23	704	(2.4+	3.6−)	1998 09 26	704	0.2+	1.4−
1981 03 12	413	(2.9−	1.0+)	1998 08 23	704	(1.1−	2.2−)	1998 09 26	704	0.3−	0.8−
1981 03 12	413	1.5+	0.1−	1998 09 14	704	0.5+	0.2−	1998 09 26	704	0.2+	0.5−
1981 04 06	413	0.8+	0.1−	1998 09 14	704	0.7+	0.4−	1998 09 26	704	0.1+	1.3−
1981 04 08	413	2.3−	0.7−	1998 09 14	704	0.0	0.6+	1998 09 27	704	0.3+	0.1+
1981 04 09	413	(2.9−	1.1+)	1998 09 14	704	0.6+	0.6−	1998 09 27	704	0.7−	0.1+
1981 04 09	413	0.5+	0.4−	1998 09 16	699	0.5+	0.3−	1998 09 27	704	0.0	0.5−
1981 05 01	413	2.1−	2.3−	1998 09 16	699	0.3+	0.1+	1998 09 27	704	0.6−	0.6−
1981 05 03	413	0.1−	0.7−	1998 09 16	699	0.4+	0.2+	1998 09 27	704	0.2−	0.2+

(9282)∗ 1981 EP$_{16}$

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

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	346.85921		(2000.0)	**P**	**Q**
n	0.30789415	ω	90.24234	+0.96565597	+0.25099777
a	2.1720430	Ω	255.22168	−0.25733483	+0.88822811
e	0.1769764	i	3.98204	−0.03587941	+0.38477388
P	3.20	H	15.2 G 0.15	U 2	

Residuals in seconds of arc

1981 02 12	413	(0.7+	35.7−)	1996 01 12	691	0.4−	0.4−	1998 09 14	704	0.1+	0.5−
1981 03 06	413	(6.4−	3.1+)	1996 01 14	595	0.5+	0.1+	1998 09 14	704	1.1−	0.2−
1981 03 06	413	0.0	0.7−	1996 01 14	595	0.1−	0.2+	1998 09 18	699	0.3+	0.5+
1981 03 08	413	0.7−	0.5+	1996 01 15	595	0.3−	0.9−	1998 09 18	699	0.5+	0.4+
1981 03 08	413	1.4−	0.3−	1996 01 15	595	0.4+	0.6+	1998 09 18	699	0.6+	0.0
1981 03 12	413	1.6+	1.8−	1997 05 13	688	0.5−	0.9−	1998 09 26	704	0.7+	0.6−
1981 04 09	413	1.4−	0.9+	1997 05 13	688	0.8−	1.1−	1998 09 26	704	0.3−	0.5+
1991 05 15	675	1.2+	0.5−	1997 05 13	688	0.4−	1.0−	1998 09 26	704	0.3+	0.4+
1995 11 02	411	0.3+	0.1−	1997 05 13	688	0.5−	0.7−	1998 09 26	704	0.6−	0.8−
1995 11 02	411	1.1+	0.2−	1998 06 30	704	1.5+	1.3−	1998 09 26	704	0.7−	0.2+
1995 11 04	411	0.8+	0.5−	1998 06 30	704	0.4−	0.7−	1998 09 27	704	0.3+	0.1+
1995 11 04	411	0.5+	0.6−	1998 08 27	699	0.9−	0.5+	1998 09 27	704	0.2−	0.5−
1995 12 10	411	0.0	0.2+	1998 08 27	699	0.1−	0.5+	1998 09 27	704	0.1−	0.6−
1995 12 10	411	0.8−	0.1−	1998 08 27	699	0.1+	0.6+	1998 09 27	704	0.2−	0.4−
1995 12 10	411	0.2−	0.7+	1998 09 14	704	0.0	0.8−	1998 09 27	704	0.5+	0.8−
1996 01 12	691	0.4−	0.5−	1998 09 14	704	0.2+	0.6−				
1996 01 12	691	0.0	0.2−	1998 09 14	704	0.4+	0.3−				

(9283)∗ 1981 EY$_{17}$

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

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	281.21515		(2000.0)	**P**	**Q**
n	0.25629559	ω	247.05267	+0.55484348	−0.83192315
a	2.4545693	Ω	169.23846	+0.77682362	+0.51493582
e	0.1589026	i	2.22570	+0.29781501	+0.20674857
P	3.85	H	14.6 G 0.15	U 1	

Residuals in seconds of arc

1950 03 21	675	1.1−	0.3−	1983 11 04	688	(1.0+	3.6−)	1997 06 07	809	0.3+	0.4+
1950 03 21	675	0.7−	1.0−	1983 11 07	688	(1.5−	3.6−)	1997 06 07	809	0.1+	0.1−
1978 06 10	675	1.5−	1.0−	1983 11 07	688	(1.4+	2.9−)	1997 06 07	809	0.1−	0.0
1978 06 10	675	(1.8−	2.5−)	1987 11 23	801	0.3+	0.6+	1997 06 08	809	0.6−	0.2−
1981 02 02	413	0.9+	0.1+	1991 12 29	511	0.4−	1.2−	1997 06 08	809	1.1−	0.7+
1981 02 13	413	0.5+	0.9+	1991 12 29	511	1.8−	1.2−	1997 06 08	809	0.9−	0.0
1981 03 02	413	1.7−	0.1−	1991 12 30	511	0.5+	0.6−	1998 08 23	704	0.5+	1.6−
1981 03 02	413	1.0−	1.6−	1991 12 30	511	0.7−	0.3−	1998 08 23	704	0.7+	1.4−
1981 03 03	413	1.8−	0.3+	1992 01 01	801	0.3+	0.6+	1998 08 23	704	1.1+	0.6−
1981 03 03	413	1.9+	2.3−	1992 01 01	801	0.4+	0.1+	1998 08 23	704	1.5−	0.7−
1981 03 07	413	0.5−	0.1−	1992 01 04	511	0.2+	0.1−	1998 09 13	699	0.2−	0.2+
1981 03 07	413	0.6+	1.6−	1992 01 04	511	0.5−	1.0−	1998 09 13	699	1.0+	0.3−
1981 03 11	413	0.8+	0.2+	1992 01 08	801	0.7+	0.9−	1998 09 13	699	0.5−	0.8+
1981 03 11	413	1.4+	1.5−	1992 01 08	801	0.8+	1.0−	1998 09 14	704	1.0+	0.4−
1981 03 16	413	(2.8−	1.6+)	1996 01 13	691	0.9−	0.3+	1998 09 14	704	0.6−	0.5+
1981 03 29	413	1.7−	1.6+	1996 01 13	691	0.1−	0.4+	1998 09 14	704	0.2−	0.1−
1981 03 29	413	1.0+	0.8−	1996 01 13	691	0.1−	0.4+	1998 09 14	704	0.8+	0.2−
1981 04 07	413	2.4+	1.5−	1996 01 19	691	0.1−	0.3+	1998 09 14	704	0.5−	0.8+
1981 04 08	413	0.4−	1.1+	1996 01 19	691	0.0	0.1+	1998 09 18	704	0.9+	0.3+
1981 04 08	413	1.9+	0.9−	1996 01 19	691	0.1−	0.2+	1998 09 18	704	0.3+	1.9−
1981 04 11	413	1.0+	1.0−	1996 01 26	691	0.1−	0.3−	1998 09 18	704	0.4+	2.0−
1981 05 02	413	0.1−	0.4+	1996 01 26	691	0.3−	0.1−	1998 09 18	704	0.8+	0.5−
1981 05 03	413	0.3−	0.4+	1996 01 26	691	0.2−	0.0	1998 09 18	704	0.1+	1.3−
1983 10 30	675	0.6−	0.2+	1997 06 03	566	0.4−	0.1−	1998 09 21	699	0.1+	0.0
1983 11 04	688	(0.9−	2.9−)	1997 06 03	566	0.6−	0.3−	1998 09 21	699	0.4+	0.4+
1983 11 04	675	0.3−	0.4+	1997 06 03	566	0.7−	0.8−	1998 09 21	699	0.4+	0.3+

(9284)∗ 1981 ED$_{24}$

Discovered 1981 Mar. 7 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey.

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	287.03150		(2000.0)	**P**	**Q**
n	0.19519290	ω	234.57043	+0.73963858	−0.67207517
a	2.9432469	Ω	167.52649	+0.65827405	+0.71152133
e	0.0280260	i	9.42019	+0.14003588	+0.20506672
P	5.05	H	14.4 G 0.15	U 1	

Residuals in seconds of arc

1971 03 25	675	1.6−	0.2−	1988 10 06	807	0.6+	0.6−	1998 08 17	704	0.2+	0.7+
1971 03 25	675	(2.6−	1.4+)	1988 10 07	807	1.4−	1.1−	1998 08 17	704	0.7−	0.4+
1971 03 26	675	1.2+	0.8−	1991 03 09	675	1.6+	0.8−	1998 08 23	691	0.7−	0.0
1971 03 27	675	(2.9−	0.2+)	1991 03 09	675	1.0−	1.9−	1998 08 23	691	0.8−	0.1−
1971 04 02	675	2.3+	0.4+	1991 03 12	675	0.1−	1.0−	1998 08 23	704	1.1−	1.1−
1971 04 16	675	0.9+	0.7−	1991 03 12	675	0.1−	0.0	1998 08 23	691	0.8−	0.1−
1971 04 16	675	0.1−	1.1−	1991 04 16	675	0.3−	1.5+	1998 08 23	704	(2.1−	0.2−)
1981 02 02	413	0.2−	0.9−	1993 08 13	675	1.0−	0.1−	1998 08 23	704	0.7+	1.4+
1981 02 13	413	1.0−	1.7−	1993 08 17	010	(9.5+	0.3+)	1998 08 23	704	(1.0−	2.2+)
1981 03 02	413	1.5−	0.3+	1993 08 17	010	(13.9+	4.3+)	1998 08 26	699	1.6−	0.4+
1981 03 02	413	0.3+	1.1−	1993 08 19	010	(1.1+	2.7−)	1998 08 26	699	0.4−	0.5+
1981 03 03	413	0.2+	0.2−	1993 08 19	010	(0.1+	2.9−)	1998 08 26	699	1.3−	0.2+
1981 03 07	413	1.8−	1.1+	1993 08 19	010	(1.5+	3.3−)	1998 09 14	704	1.5+	0.8−
1981 03 11	413	1.1−	1.1+	1997 07 07	910	0.1−	0.0	1998 09 14	704	(1.7+	2.7−)
1981 03 16	413	1.8−	0.5+	1997 07 07	910	0.0	0.0	1998 09 14	704	0.9+	1.7−
1981 03 16	413	1.2+	0.2+	1997 07 07	910	0.2−	0.1+	1998 09 14	704	0.4+	0.4+
1981 03 29	413	0.0	0.6+	1997 07 08	910	0.2−	0.2+	1998 09 14	704	0.5+	0.5+
1981 04 08	413	1.0+	1.5−	1997 07 08	910	0.1−	0.1−	1998 09 18	704	1.0+	1.3−
1981 04 08	413	0.3−	0.0	1997 07 08	910	0.3−	0.1+	1998 09 18	704	(1.2+	2.4−)
1981 04 11	413	(2.6+	2.5−)	1997 07 09	910	0.2+	0.2+	1998 09 18	704	1.0+	1.6−

1981 04 11	413	0.4+	0.6−	1997 07 09	910	0.1+	0.0	1998 09 18	704	0.8+	0.1−
1981 04 26	413	0.1+	1.8−	1997 07 09	910	0.0	0.2+	1998 09 25	704	0.1+	0.8−
1981 05 02	413	0.3−	0.5+	1998 08 17	704	0.8−	0.9+	1998 09 25	704	1.4+	1.1−
1988 09 14	807	0.2−	1.3−	1998 08 17	704	1.6+	1.2+	1998 09 25	704	1.2+	1.6−
1988 09 15	807	0.1−	1.2−	1998 08 17	704	1.0+	0.4+	1998 09 25	704	(1.0−	2.3+)

(9285)∗ 1981 EL$_{24}$

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

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	309.82382		(2000.0)		**P**	**Q**	
n	0.19799375	ω	83.30236		+0.78895601	−0.61428579	
a	2.9154240	Ω	314.59648		+0.55558070	+0.72304236	
e	0.0619085	i	1.14194		+0.26244715	+0.31601062	
P	4.98	H	13.3	G	0.15	U	2

Residuals in seconds of arc

1977 06 12	675	0.5−	1.7−	1991 04 17	675	0.3−	0.9−	1998 09 18	704	0.5−	1.1−
1977 06 13	675	0.0	2.1+	1991 05 12	688	0.1+	0.7+	1998 09 18	704	0.2+	0.7−
1981 02 09	413	0.5+	1.3−	1991 05 13	688	0.2+	0.2+	1998 09 18	704	1.0+	0.2−
1981 02 13	413	0.1+	0.6−	1991 05 13	688	0.1−	0.1+	1998 09 18	704	0.1+	0.2+
1981 03 02	413	1.6−	0.7−	1993 09 14	809	(4.5+	2.3+)	1998 09 23	120	0.2−	0.1+
1981 03 02	413	0.9+	2.3−	1993 09 14	809	(2.3+	1.4+)	1998 09 23	120	0.3+	0.1+
1981 03 06	413	1.8−	0.0	1993 09 14	809	1.7+	1.8+	1998 09 23	120	0.1+	0.1−
1981 03 11	413	1.8−	0.5+	1993 09 15	691	1.2−	0.3−	1998 09 24	120	0.2−	0.1+
1981 03 15	413	1.8−	1.6+	1993 09 15	691	1.6−	0.1+	1998 09 24	120	0.4−	0.2−
1981 03 15	413	1.1+	0.1−	1993 09 15	691	1.4−	0.1−	1998 09 24	120	0.3−	0.2−
1981 04 06	413	0.8−	1.0+	1993 09 19	809	1.4+	2.0+	1998 09 25	704	0.3−	1.0−
1981 04 06	413	1.3+	1.1−	1993 09 19	809	0.7+	1.2+	1998 09 25	704	0.1+	1.4+
1981 04 10	413	1.7+	1.6−	1993 09 19	809	1.0+	0.3+	1998 09 25	704	(0.5−	2.3+)
1981 04 26	413	(2.0+	3.0−)	1993 09 20	691	1.3−	0.3−	1998 09 25	704	0.7−	0.5+
1981 05 02	413	1.7−	0.7−	1993 09 20	691	1.3−	0.2−	1998 09 26	704	0.6+	0.3−
1981 05 03	413	0.1+	0.8−	1993 09 20	691	1.1−	0.2−	1998 09 26	704	0.3+	0.1−
1988 09 11	675	0.3+	0.1−	1993 10 10	675	1.3+	0.3+	1998 09 26	704	0.6−	0.4−
1988 09 11	675	0.0	1.3−	1993 10 10	675	1.1+	0.5+	1998 09 26	704	0.0	0.6−
1988 09 16	675	0.6+	0.8−	1998 09 14	704	0.0	0.2+	1998 09 26	704	0.3+	0.2−
1988 09 16	675	0.1+	1.1−	1998 09 14	704	0.5+	0.1+	1998 09 27	704	0.1+	0.2−
1988 10 07	675	0.3+	1.0−	1998 09 14	704	0.6−	0.3−	1998 09 27	704	0.4−	0.8+
1988 10 07	675	0.8+	1.3−	1998 09 14	704	0.1−	0.6−	1998 09 27	704	0.3−	0.4+
1988 10 09	675	1.1+	1.6−	1998 09 14	704	0.3−	0.6−	1998 09 27	704	0.4−	0.0
1988 10 09	675	1.7+	2.0−	1998 09 16	699	0.2+	0.7+	1998 09 27	704	1.5−	0.2−
1991 04 15	675	0.4+	0.6−	1998 09 16	699	0.3+	0.1+	1998 09 29	120	1.1+	0.1−
1991 04 15	675	0.1−	0.0	1998 09 16	699	0.6+	0.0				
1991 04 17	675	0.8+	0.4−	1998 09 18	704	0.2−	0.0				

(9286)∗ 1981 ED$_{35}$

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

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	257.51307		(2000.0)		**P**	**Q**	
n	0.25818345	ω	85.73424		+0.05326803	−0.99858008	
a	2.4425893	Ω	1.21275		+0.90479209	+0.04801556	
e	0.2139204	i	1.59393		+0.42250892	+0.02307239	
P	3.82	H	15.0	G	0.15	U	2

Residuals in seconds of arc

1977 02 13	675	0.6−	0.5+	1981 04 07	413	0.4+	0.1−	1995 12 27	691	0.2−	0.5−
1977 02 14	675	1.7−	0.0	1981 04 07	413	0.3+	0.9+	1998 08 17	704	0.6−	0.6+
1981 02 02	413	0.6+	1.3−	1981 04 08	413	2.0−	0.9+	1998 08 17	704	1.6−	0.8−
1981 02 13	413	0.4+	1.3−	1981 04 08	413	1.8+	0.7−	1998 08 17	704	1.3+	0.5−
1981 03 02	413	0.9−	0.7+	1981 04 30	413	0.4+	0.1+	1998 08 17	704	2.0+	0.6+
1981 03 02	413	0.5−	0.3−	1981 05 02	413	1.2+	0.7−	1998 08 17	704	1.1−	0.8−
1981 03 03	413	1.7−	0.7+	1981 05 02	413	0.2−	0.1+	1998 08 23	704	1.7+	1.3−
1981 03 03	413	1.1+	0.4+	1981 05 03	413	0.9+	0.6+	1998 08 23	704	1.4−	0.2+
1981 03 07	413	0.7−	0.1−	1987 11 17	688	0.4+	0.9−	1998 08 23	704	1.9+	1.1−
1981 03 07	413	2.2+	1.7−	1987 11 17	688	0.3+	0.6−	1998 08 23	704	(1.4−	3.5−)
1981 03 11	413	0.7−	0.9+	1987 11 21	688	0.2+	0.1+	1998 09 14	704	0.5+	0.4+
1981 03 11	413	1.0+	0.1+	1987 11 21	688	0.0	0.2−	1998 09 14	704	0.8−	1.2+
1981 03 16	413	1.2−	0.7+	1987 12 21	688	0.0	1.9+	1998 09 14	704	2.1−	0.4−
1981 03 16	413	2.3+	1.5−	1987 12 21	688	0.1+	1.9+	1998 09 14	704	0.4−	0.3−
1981 03 29	413	1.6−	0.3+	1995 12 27	691	0.5−	0.5−				
1981 03 29	413	0.0	0.2−	1995 12 27	691	0.3−	0.5−				

(9287)∗ 1981 ER$_{43}$

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

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	326.98956		(2000.0)		**P**	**Q**	
n	0.19759354	ω	97.62498		+0.95239318	−0.30445908	
a	2.9193593	Ω	280.10167		+0.27297467	+0.87477366	
e	0.0979017	i	0.92371		+0.13576471	+0.37692932	
P	4.99	H	14.3	G	0.15	U	2

Residuals in seconds of arc

1978 09 01	675	0.6−	0.6−	1988 10 09	675	0.7+	2.3−	1998 08 30	691	0.1−	0.1−
1978 09 02	675	0.7+	0.4+	1988 11 03	807	1.1+	0.3+	1998 08 30	691	0.4−	0.0
1979 12 20	675	0.9−	0.1−	1988 11 05	807	0.8+	0.2−	1998 08 31	691	0.7−	0.3−
1979 12 20	675	0.5+	0.7+	1991 04 14	688	(2.9+	0.3−)	1998 08 31	691	0.7−	0.2−
1981 02 09	413	0.5−	2.0−	1991 04 14	688	0.9+	0.6+	1998 08 31	691	0.5−	0.1−
1981 02 13	413	2.3+	0.0	1991 04 14	688	0.7+	0.6+	1998 09 18	704	0.3−	0.1+
1981 03 06	413	0.3−	0.9−	1993 09 14	809	(2.1+	3.8+)	1998 09 18	704	0.2+	0.5+
1981 03 07	413	(5.7+	0.1−)	1993 09 14	809	(1.5+	2.9+)	1998 09 18	704	0.2+	0.2+
1981 03 11	413	1.8−	0.7+	1993 09 14	809	(1.0+	2.4+)	1998 09 18	704	0.4+	0.2+
1981 03 11	413	0.4+	0.4−	1993 09 19	809	(1.4+	3.8+)	1998 09 18	704	0.3+	0.5+
1981 03 15	413	2.1+	0.5+	1993 09 19	809	(0.6−	3.3+)	1998 09 26	704	0.7+	0.5+
1981 04 10	413	1.5−	0.7+	1993 09 19	809	(0.5+	3.4+)	1998 09 26	704	0.6−	0.3+
1981 04 26	413	2.2+	2.3−	1996 03 20	691	1.2−	0.0	1998 09 26	704	0.2−	0.8−
1981 05 02	413	0.5−	0.6−	1996 03 20	691	1.3−	0.1+	1998 09 26	704	0.4+	0.3−
1981 05 03	413	1.5−	0.7−	1996 03 20	691	1.1−	0.1+	1998 09 26	704	0.1+	0.3+
1988 09 11	675	0.3−	1.4+	1998 08 23	704	0.3+	0.1+	1998 09 27	704	(2.6+	0.5−)
1988 09 11	675	1.7−	0.6+	1998 08 23	704	0.2+	0.2+	1998 09 27	704	1.2+	0.3+
1988 09 16	675	1.2−	0.7+	1998 08 23	704	1.6+	0.9−	1998 09 27	704	1.1+	0.9−
1988 09 16	675	1.6−	0.6+	1998 08 23	704	1.2−	1.8+	1998 09 27	704	(1.7+	2.4−)
1988 10 07	675	0.2+	0.8−	1998 08 23	704	0.4−	0.4−	1998 09 27	704	1.4+	1.8−
1988 10 07	675	0.9+	2.4−	1998 08 30	691	0.2−	0.2+				

(9288)∗ 1981 EV$_{46}$

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

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	1.74395		(2000.0)		**P**	**Q**	
n	0.30615312	ω	354.19785		+0.80256760	+0.59645801	
a	2.1802699	Ω	329.17697		−0.54645978	+0.72757751	
e	0.1974674	i	1.24072		−0.23930516	+0.33892301	
P	3.22	H	16.2	G	0.15	U	2

Residuals in seconds of arc

1953 10 31	675	0.4−	0.8−	1991 05 13	688	0.3+	0.5+	1998 09 18	704	0.4+	0.0
1953 10 31	675	0.6+	0.3+	1991 05 13	688	0.4+	0.8+	1998 09 18	704	0.4−	0.1−
1979 11 22	675	0.6+	0.1+	1998 08 28	704	2.0+	1.3+	1998 09 18	704	0.8−	0.4−
1979 11 24	675	2.3−	0.1+	1998 08 28	704	(3.0+	1.6+)	1998 09 26	704	0.7+	0.2+
1979 11 25	675	1.5+	1.5+	1998 08 28	704	0.3−	0.2−	1998 09 26	704	0.6+	0.4+
1981 02 09	413	0.5−	0.7−	1998 08 28	704	1.6−	1.8−	1998 09 26	704	0.1+	0.3−
1981 02 13	413	0.9+	0.2−	1998 09 14	704	0.2−	0.2+	1998 09 26	704	0.9+	0.1−
1981 03 02	413	(5.3−	1.4+)	1998 09 14	704	0.5−	0.2+	1998 09 26	704	0.2+	0.6+
1981 03 07	413	0.2+	0.3−	1998 09 14	704	0.4−	0.3+	1998 09 27	704	1.2−	0.5−
1981 03 11	413	(2.9+	0.8−)	1998 09 16	699	0.7−	0.2+	1998 09 27	704	0.9+	0.1+
1981 03 11	413	0.5+	0.5−	1998 09 16	699	0.2−	0.3+	1998 09 27	704	0.7+	0.4+
1981 04 11	413	0.8−	0.1+	1998 09 16	699	0.5−	0.3+	1998 09 27	704	0.3+	0.6−

1981 04 30	413	1.1−	0.4+	1998 09 18	704	0.0	0.3−	1998 09 27	704	0.4+	0.5−
1981 05 02	413	0.6−	0.4−	1998 09 18	704	0.0	0.2−				

(9289)∗ 1981 QR$_3$ = 1988 FV$_1$ = 1994 TO$_3$

Discovered 1981 Aug. 26 by H. Debehogne at the European Southern Observatory.

Id. G. V. Williams (*MPC* 24227)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	30.43305		(2000.0)		**P**	**Q**	
n	0.23512199	ω	316.30304		+0.65637740	+0.75410995	
a	2.5998036	Ω	354.58406		−0.61188810	+0.51502289	
e	0.1573970	i	13.51979		−0.44131809	+0.40751639	
P	4.19	H	13.6	G	0.15	U	2

Residuals in seconds of arc

1964 08 08	675	2.0+	0.8−	1981 09 07	809	0.1+	0.1+	1994 10 16	046	0.2+	0.3−
1981 08 26	809	0.2−	0.6−	1981 09 07	809	0.8+	0.4+	1994 10 18	046	0.3−	0.8−
1981 08 26	809	0.2−	0.5−	1981 09 07	809	0.5+	0.2+	1994 10 18	046	0.2−	0.9−
1981 08 26	809	0.3−	0.3−	1981 09 18	809	0.3−	0.4−	1994 10 18	046	0.5−	0.6−
1981 08 27	809	1.1+	0.8−	1981 09 18	809	0.7−	0.5−	1994 10 27	046	0.1+	0.5+
1981 08 27	809	1.0+	1.0−	1981 09 18	809	0.4−	0.2−	1994 10 27	046	1.2+	0.2+
1981 08 27	809	0.9+	0.3−	1981 09 20	809	0.1+	0.0	1994 10 27	046	0.0	0.2+
1981 08 28	809	0.2+	0.2−	1981 09 20	809	0.5−	0.5+	1994 11 06	046	0.3−	0.4+
1981 08 28	809	0.1+	0.4+	1981 09 20	809	0.6−	0.1−	1994 11 06	046	0.2+	0.2+
1981 08 28	809	0.3+	0.2+	1981 09 20	809	2.2−	0.4+	1994 11 06	046	0.5−	0.5+
1981 09 02	809	0.9+	0.5+	1981 09 20	809	1.8−	0.5+	1994 11 22	046	0.1+	0.1+
1981 09 02	809	0.1+	0.6+	1981 09 20	809	1.3−	0.6+	1994 11 22	046	0.2−	0.2+
1981 09 02	809	0.4+	0.0	1981 09 21	809	1.5−	0.8+	1994 11 22	046	0.3+	0.2−
1981 09 03	809	0.6−	1.0+	1981 09 21	809	1.2−	0.2+	1998 08 28	704	(0.3+	2.6−)
1981 09 03	809	0.6−	0.3+	1981 09 21	809	0.2−	0.3+	1998 08 28	704	1.9−	1.6−
1981 09 03	809	0.5+	0.4+	1988 03 18	675	0.4+	1.1+	1998 08 28	704	0.1+	1.0−
1981 09 04	809	0.6+	0.2+	1988 03 18	675	0.2+	0.6+	1998 08 28	704	0.9+	0.2−
1981 09 04	809	0.1−	0.3−	1988 03 18	033	1.0+	0.2−	1998 08 28	704	0.6−	0.9+
1981 09 04	809	0.7−	0.7−	1988 03 18	033	1.5−	0.6−	1998 09 17	699	0.2+	0.7+
1981 09 05	809	0.1−	0.3−	1994 10 01	675	0.5−	0.3−	1998 09 17	699	0.3+	1.0+
1981 09 05	809	0.0	0.4−	1994 10 01	675	(1.2−	2.1−)	1998 09 17	699	0.2+	0.9+
1981 09 05	809	0.4+	0.9−	1994 10 15	046	0.1+	0.2−	1998 09 18	704	0.2+	0.3+
1981 09 05	095	0.2−	0.7−	1994 10 15	046	0.3+	0.6−	1998 09 18	704	0.2−	0.9+
1981 09 06	809	0.1+	0.6+	1994 10 15	046	0.2+	0.5−	1998 09 18	704	0.5+	0.2−
1981 09 06	809	0.5+	0.7+	1994 10 16	046	0.1−	0.4−	1998 09 18	704	1.3+	0.6−
1981 09 06	809	0.3+	0.2+	1994 10 16	046	0.0	0.4−	1998 09 18	704	1.1+	0.1+

(9290)∗ 1981 TT = 1981 UE$_{11}$ = 1991 OT

Discovered 1981 Oct. 6 by Z. Vávrová at Kleť.

Id. S. Nakano (d, *MPC* 10752), E. Bowell (*MPC* 18808)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	3.14224		(2000.0)		**P**	**Q**	
n	0.29075375	ω	130.48985		+0.90991297	+0.41361162	
a	2.2565892	Ω	205.12563		−0.39941130	+0.85324412	
e	0.1956700	i	4.23633		−0.11193300	+0.31764744	
P	3.39	H	14.6	G	0.15	U	2

Residuals in seconds of arc

1981 10 06	046	0.3+	0.5−	1995 12 18	046	0.2+	0.8−	1998 09 20	046	0.2+	0.1−
1981 10 06	046	(1.6−	3.5−)	1995 12 18	046	0.1−	0.7−	1998 09 20	046	0.3+	0.1−
1981 10 22	095	(3.2+	4.2+)	1996 01 10	046	0.5−	0.6−	1998 09 20	046	0.3+	0.1−
1981 10 24	095	(1.3+	3.4+)	1996 01 10	046	0.3−	0.6−	1998 09 25	046	0.1−	0.0
1991 07 16	675	0.8−	0.9−	1996 01 10	046	0.8+	0.1+	1998 09 25	046	0.1−	0.0
1991 07 16	675	0.2−	1.3−	1996 01 11	046	0.2−	0.0	1998 09 25	046	0.1−	0.0
1991 07 18	675	0.4+	0.9−	1996 01 11	046	0.1−	0.1−	1998 09 26	704	0.1−	0.4−
1991 07 18	675	0.0	1.2−	1996 01 11	046	0.1−	0.7−	1998 09 26	704	0.3+	0.5−
1991 08 07	675	1.6+	0.7−	1998 08 06	046	0.3−	0.6+	1998 09 26	704	0.2−	0.9−
1991 08 07	675	0.2+	0.8−	1998 08 06	046	0.3+	0.2+	1998 09 26	704	0.2+	0.2+
1995 11 27	046	0.2−	0.4−	1998 08 06	046	0.1+	0.8+	1998 09 26	704	1.2−	0.1+
1995 11 27	046	0.1−	0.4−	1998 08 07	046	0.3−	0.7+	1998 09 27	704	0.0	0.3−
1995 11 27	046	0.3−	0.2−	1998 08 07	046	0.1−	0.7+	1998 09 27	704	0.0	0.8+
1995 11 28	046	0.2+	0.0	1998 08 07	046	0.1+	0.4+	1998 09 27	704	0.1+	0.7+
1995 11 28	046	0.1+	0.2−	1998 09 14	699	0.1+	0.7+	1998 09 27	704	0.0	1.2+
1995 11 28	046	0.1+	0.3−	1998 09 14	699	0.0	0.5+	1998 09 27	704	0.4−	0.4+
1995 12 18	046	0.3+	0.8−	1998 09 14	699	0.1−	0.1+				

(9291)∗ 1982 QO = 1982 SB$_1$ = 1993 TR$_{12}$

Discovered 1982 Aug. 17 at the Oak Ridge Observatory.

Id. R. E. McCrosky (d, *MPC* 7447), E. Bowell (*MPC* 22809)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	317.54148		(2000.0)		**P**	**Q**	
n	0.18402406	ω	219.99845		+0.93086552	−0.36082488	
a	3.0611619	Ω	160.91365		+0.36370968	+0.90022392	
e	0.1104553	i	10.11008		+0.03470822	+0.24372586	
P	5.36	H	13.4	G	0.15	U	2

Residuals in seconds of arc

1982 08 17	801	1.0+	0.4+	1998 08 17	704	0.5+	0.3+	1998 09 18	704	0.2+	1.0−
1982 08 18	801	0.0	0.3−	1998 08 17	704	0.8+	0.4−	1998 09 18	704	0.3+	0.6−
1982 08 22	801	(3.2−	1.6+)	1998 08 21	566	0.8−	0.7−	1998 09 19	691	0.9−	0.1−
1982 08 26	801	(3.3+	1.3+)	1998 08 21	566	0.3−	0.5−	1998 09 19	691	1.2−	0.0
1982 09 20	801	1.5−	1.4+	1998 08 21	566	0.1−	0.5−	1998 09 19	691	1.1−	0.0
1982 10 11	801	0.2+	2.3−	1998 08 23	704	0.4+	0.4−	1998 09 24	691	1.2−	0.0
1982 10 12	801	0.1+	0.2+	1998 08 23	704	0.6+	0.6+	1998 09 24	691	1.3−	0.2+
1991 04 16	675	0.9+	0.1−	1998 08 23	704	0.6−	1.1+	1998 09 24	691	1.3−	0.0
1991 04 16	675	0.1−	0.2+	1998 08 23	704	0.9+	0.2−	1998 09 25	704	0.1−	0.0
1993 10 13	675	0.0	0.0	1998 08 23	704	0.3+	0.8+	1998 09 25	704	0.3+	0.3+
1993 10 13	675	0.0	0.8−	1998 09 14	704	1.8+	0.2+	1998 09 25	704	0.4−	0.2−
1993 10 15	675	0.6+	0.1−	1998 09 14	704	1.2+	0.4−	1998 09 25	704	0.9−	0.6+
1996 03 12	691	0.8−	0.5−	1998 09 14	704	0.7+	0.6+	1998 09 25	704	1.1−	0.4+
1996 03 12	691	1.0−	0.5−	1998 09 14	704	1.5+	0.2+	1998 09 27	704	0.0	0.2−
1996 03 12	691	0.8−	0.8−	1998 09 14	704	1.1+	0.8+	1998 09 27	704	0.2−	0.3+
1996 04 22	691	0.5+	0.0	1998 09 14	699	0.2+	0.2+	1998 09 27	704	0.7−	0.2+
1996 04 22	691	0.5+	0.3−	1998 09 14	699	0.8+	0.2+	1998 09 27	704	1.0−	0.6+
1996 04 22	691	0.3+	0.1−	1998 09 14	699	0.6+	0.6+	1998 09 27	704	0.2−	0.1+
1998 08 17	704	0.6+	0.2+	1998 09 18	704	2.6+	1.2−				
1998 08 17	704	0.9−	0.4+	1998 09 18	704	1.1−	2.9−				

(9292)∗ 1982 UE$_2$ = 1995 UP$_1$ = 2163 T-1

Discovered 1982 Oct. 16 by A. Mrkos at Kleť.

Id. B. G. Marsden (*MPC* 25953), G. V. Williams (unpublished)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	313.88035		(2000.0)		**P**	**Q**	
n	0.30290335	ω	324.47451		+0.99639236	−0.06978116	
a	2.1958365	Ω	39.61255		+0.08408016	+0.88897216	
e	0.2844070	i	4.34449		−0.01152309	+0.45261363	
P	3.25	H	14.9	G	0.15	U	2

Residuals in seconds of arc

1971 03 25	675	1.0−	0.5−	1995 10 23	046	0.3+	0.6+	1997 04 09	046	0.3+	0.1+
1971 03 25	675	0.4+	0.9−	1995 10 27	399	0.4−	0.4+	1997 04 09	046	0.7+	0.2−
1971 03 27	675	1.6+	2.1−	1995 10 27	399	0.1+	0.2+	1997 04 09	046	0.5+	0.1−
1982 10 16	046	0.2+	1.9−	1995 10 28	399	0.3−	0.3+	1998 06 24	704	0.6+	0.1−
1982 10 16	046	1.1+	1.1−	1995 10 28	399	1.7−	1.2+	1998 06 24	704	0.2−	0.5−
1982 10 20	046	0.0	1.2−	1996 01 16	046	0.4+	0.6+	1998 06 24	704	0.5−	1.8+
1982 10 21	046	0.3−	0.8−	1996 01 16	046	0.3+	0.5+	1998 06 24	704	0.2+	0.5−
1982 10 21	046	1.3−	0.2−	1996 01 16	046	0.1+	0.3+	1998 06 24	704	0.9−	1.8+
1982 10 21	046	0.0	0.3+	1996 01 17	046	0.1+	0.4+	1998 06 26	704	0.6−	0.1+
1982 11 14	095	1.9+	1.6−	1996 01 17	046	0.3+	0.7+	1998 06 26	704	0.9+	1.0−
1995 10 22	046	0.2+	0.2−	1996 01 17	046	0.4+	0.4+	1998 06 26	704	0.2−	1.4−
1995 10 22	046	1.0−	0.1−	1997 03 12	046	1.6−	0.3+	1998 06 26	704	1.8+	1.1−
1995 10 23	046	0.4+	0.6+	1997 03 12	046	1.1−	1.8+	1998 08 03	689	0.6−	0.7+
1995 10 23	046	0.4+	0.7+	1997 03 12	046	1.0−	0.3+				

(9293)∗ 1982 XQ$_1$ = 1979 FC$_2$ = 1985 GF

Discovered 1982 Dec. 13 by H. Kosai and K. Hurukawa at the Kiso Station of the Tokyo Astronomical Observatoruy.

Id. S. Nakano (*MPC* 12000)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

					P	Q
M	98.29326		(2000.0)			
n	0.17133011	ω	69.17480		−0.77984375	+0.62578711
a	3.2105560	Ω	149.55914		−0.58496608	−0.71983427
e	0.1041632	i	1.73096		−0.22284166	−0.30038161
P	5.75	H	12.8	G	0.15	U 1

Residuals in seconds of arc

1979 03 23	095	1.0−	1.3−	1992 07 30	809	1.8+	1.0+	1998 09 12	691	1.5−	0.1+
1982 12 13	381	0.8−	0.7−	1992 07 30	809	1.2+	0.9+	1998 09 12	691	0.7−	0.3+
1982 12 13	381	0.5+	0.3+	1992 07 30	809	0.0	0.3+	1998 09 12	691	1.7−	0.3+
1982 12 14	381	0.3+	1.0+	1992 07 30	809	0.9−	0.2−	1998 09 14	704	0.5+	1.8−
1982 12 14	381	1.0+	0.5+	1992 07 30	809	0.2−	0.3+	1998 09 14	704	0.8−	0.1−
1985 04 14	688	1.2+	0.4−	1993 09 19	691	1.2−	0.1−	1998 09 14	704	1.2−	0.4+
1985 04 14	688	0.4−	1.0+	1993 09 19	691	0.8−	0.1−	1998 09 14	704	1.0−	0.1−
1985 04 23	688	0.1+	1.0−	1993 09 19	691	1.0−	0.5−	1998 09 14	704	1.0−	1.2+
1985 04 23	688	(2.9−	1.5−)	1993 10 10	675	0.5−	0.2+	1998 09 14	699	0.0	0.4+
1991 05 11	801	0.4−	0.0	1993 10 10	675	0.2+	0.7−	1998 09 14	699	0.6+	1.1+
1991 05 11	801	0.6−	0.0	1993 10 13	675	0.2−	0.0	1998 09 14	699	1.6+	1.5+
1991 05 13	801	0.0	0.2+	1993 10 13	675	0.0	0.0	1998 09 18	704	0.5−	1.0+
1991 05 13	801	0.4−	0.2+	1996 03 21	566	1.2+	0.1−	1998 09 18	704	(2.4−	0.5+)
1991 05 18	675	0.3−	1.1+	1996 03 21	566	0.1−	0.2−	1998 09 18	704	0.2+	1.0−
1991 05 18	675	0.1−	1.0+	1996 03 21	566	0.0	0.5−	1998 09 18	704	(2.6+	2.1−)
1991 07 16	801	(2.6−	0.3−)	1998 08 17	704	0.3+	0.2+	1998 09 18	704	0.0	0.4+
1991 07 16	801	0.2−	0.1−	1998 08 17	704	1.1+	0.3+	1998 09 25	704	0.9+	0.7+
1992 06 28	675	1.0−	0.6+	1998 08 17	704	1.3+	0.8+	1998 09 25	704	1.1+	0.5+
1992 07 24	809	(2.4+	0.3−)	1998 08 17	704	0.7+	0.7−	1998 09 25	704	0.1+	0.1+
1992 07 24	809	1.4+	1.3−	1998 08 17	704	0.3−	0.6+	1998 09 25	704	0.4−	0.2+
1992 07 24	809	0.9+	1.8−	1998 08 23	699	0.5+	0.3+	1998 09 25	704	0.2−	0.4−
1992 07 26	809	0.5−	0.4−	1998 08 23	704	0.8−	1.0−	1998 09 27	704	0.1+	0.3−
1992 07 26	809	0.3−	0.1+	1998 08 23	704	1.5+	1.8−	1998 09 27	704	0.7+	0.7−
1992 07 26	809	0.3−	0.0	1998 08 23	699	0.6+	0.3−	1998 09 27	704	2.0+	0.2−
1992 07 26	809	(2.8+	2.3+)	1998 08 23	704	0.5−	0.4−	1998 09 27	704	0.7+	1.0−
1992 07 26	809	(1.7+	2.6+)	1998 08 23	704	0.4−	1.0−	1998 09 27	704	(0.5−	2.5−)
1992 07 26	809	(1.8+	2.5+)	1998 08 23	699	0.0	0.4+				
1992 07 30	809	(2.9+	0.7+)	1998 08 23	704	1.9−	0.1−				

(9294)∗ 1983 EV = 1938 DB$_2$ = 1974 EF = 1976 SZ$_{10}$ = 1981 UL$_5$

Discovered 1983 Mar. 10 by E. Barr at the Anderson Mesa Station of the Lowell Observatory.

Id. C. M. Bardwell (*MPC* 8213)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Bardwell

					P	Q
M	158.45242		(2000.0)			
n	0.21883935	ω	145.94037		−0.92543697	−0.37867921
a	2.7272133	Ω	11.82884		+0.33200337	−0.82692399
e	0.1109158	i	3.63036		+0.18259294	−0.41569071
P	4.50	H	13.1	G	0.15	U 1

Residuals in seconds of arc

1938 02 28	053	(2.3−	20.0−)X	1983 03 18	095	0.6−	1.1−	1997 05 25	689	1.5−	0.1−
1938 03 06	053	(25.6+	3.4−)X	1983 03 20	095	2.1−	0.1+	1997 05 26	689	1.3−	1.8+
1950 12 09	675	0.7−	0.1−	1983 04 10	688	1.0+	2.1−	1998 08 17	704	0.3+	0.0
1950 12 09	675	0.1+	0.9+	1983 04 10	688	0.4+	2.0−	1998 08 17	704	0.3+	0.7−
1954 11 23	675	0.1−	1.0−	1987 01 29	801	0.6+	0.4+	1998 08 17	704	1.9+	1.1−
1974 03 13	095	(4.8−	5.3+)	1987 01 30	801	0.6+	0.7+	1998 08 17	704	0.5+	1.5−
1976 09 29	095	(3.8+	0.4−)	1992 03 01	801	0.2+	1.4+	1998 08 17	704	0.6+	1.2−
1981 10 30	381	1.0−	1.1−	1992 03 01	801	0.1−	1.5+	1998 08 19	566	0.2−	0.3−
1981 10 30	381	0.0	1.4−	1992 03 09	046	(3.5−	1.1+)	1998 08 19	566	0.4+	0.2−
1981 10 30	381	0.2−	0.5−	1992 03 09	046	0.6−	1.6−	1998 08 19	566	0.2−	0.5−
1981 10 30	381	0.9+	1.3−	1992 04 01	801	(0.1−	3.9−)	1998 08 23	704	0.8+	0.5−
1981 10 30	381	0.6+	0.3+	1992 04 01	801	(0.2−	3.6−)	1998 08 23	704	1.1+	0.2−
1981 10 30	381	0.2−	0.3−	1994 09 28	691	0.2−	0.3−	1998 08 23	704	1.5+	0.9+
1983 03 10	688	0.8+	1.7−	1994 09 28	691	0.4−	0.4−	1998 08 23	704	1.5+	0.6+
1983 03 10	688	(0.6+	3.4−)	1994 09 28	691	0.3−	0.4−	1998 08 23	704	0.4−	0.2−
1983 03 12	046	0.2+	0.3−	1994 10 04	691	0.6−	0.4−	1998 08 27	699	0.6+	0.3+
1983 03 12	046	(5.6+	1.4+)	1994 10 04	691	0.5−	0.3−	1998 08 27	699	0.7+	0.8−
1983 03 13	046	0.6−	1.4−	1994 10 11	691	0.9−	0.0	1998 08 27	699	0.5−	1.1+
1983 03 13	046	0.8−	1.0−	1994 10 11	691	0.7−	0.1−	1998 09 18	704	0.3−	0.8+
1983 03 15	095	(2.6+	0.4−)	1994 10 11	691	0.7−	0.2−	1998 09 18	704	1.9+	1.2−
1983 03 17	688	0.3+	1.4−	1996 03 08	689	0.0	0.4+	1998 09 18	704	0.2+	0.3−
1983 03 17	688	0.1−	1.8−	1997 05 12	689	0.8−	0.9+	1998 09 18	704	0.1−	0.6+
1983 03 18	095	(4.2−	1.1−)	1997 05 13	689	0.8−	0.8+				

(9295)∗ 1983 RT$_1$ = 1987 UE$_4$

Discovered 1983 Sept. 2 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. T. Kobayashi (*MPC* 14474)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	20.81334		(2000.0)			
n	0.26666788	ω	321.57820		+0.78685394	+0.61713897
a	2.3905009	Ω	0.31618		−0.53572727	+0.68353873
e	0.1410228	i	6.28023		−0.30636116	+0.38976185
P	3.70	H	14.3	G	0.15	U 1

Residuals in seconds of arc

1950 08 14	675	0.3+	0.3−	1987 10 28	399	0.3+	1.0+	1998 09 26	704	0.2−	0.3+
1950 08 14	675	0.8+	0.3−	1987 10 28	399	1.5+	1.0+	1998 09 26	704	0.3−	0.7+
1971 04 16	675	0.0	1.8+	1987 10 28	399	0.6+	0.2−	1998 09 26	704	0.4−	0.1−
1971 04 16	675	0.3+	0.0	1994 09 07	689	0.2+	0.5+	1998 09 26	704	0.7−	0.4+
1983 09 02	688	(3.6+	0.4−)	1994 09 08	689	0.3+	0.8+	1998 09 26	704	0.1+	1.1+
1983 09 02	688	1.0+	0.4−	1997 04 27	689	1.1+	0.9+	1998 09 27	704	0.2+	0.1−
1983 09 06	688	1.1−	1.7−	1998 08 29	959	0.3+	0.4−	1998 09 27	704	0.2−	0.4+
1983 09 06	688	0.9+	0.1−	1998 08 29	959	0.3+	0.3−	1998 09 27	704	0.0	0.4+
1983 09 06	095	1.0−	0.4+	1998 08 29	959	0.0	1.1−	1998 09 27	704	0.4−	0.8+
1987 10 25	399	0.0	0.5−	1998 09 14	699	0.2−	0.1+	1998 09 27	704	0.5−	1.0+
1987 10 25	399	(0.6+	2.8−)	1998 09 14	699	0.1−	0.4+				
1987 10 25	399	1.9−	2.0−	1998 09 14	699	0.4−	0.2+				

(9296)∗ 1983 RB$_2$ = 1989 ER$_5$

Discovered 1983 Sept. 5 by Z. Vávrová at Kleť.

Id. H. Kaneda (*MPC* 19294)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	340.82218		(2000.0)			
n	0.26320607	ω	180.36234		+0.99742522	+0.06940991
a	2.4114159	Ω	175.53592		−0.06519991	+0.98240135
e	0.1211965	i	13.39623		−0.02986458	+0.17340663
P	3.74	H	13.8	G	0.15	U 2

Residuals in seconds of arc

1983 09 04	688	(2.0−	3.9−)	1998 06 30	704	0.0	1.6+	1998 09 18	704	0.5−	0.2−
1983 09 04	688	(3.9−	4.9−)	1998 08 07	046	0.6+	0.1−	1998 09 18	704	0.5+	0.6+
1983 09 05	046	(7.8−	6.1−)	1998 08 07	046	0.6+	0.1+	1998 09 18	704	0.7+	0.4−
1983 09 06	046	(4.5−	4.0−)	1998 08 07	046	0.8+	0.4−	1998 09 18	704	0.3+	0.4+
1983 09 07	046	(9.7−	7.8−)	1998 08 07	046	0.1+	0.8−	1998 09 18	704	0.2+	0.1−
1983 09 07	046	(9.5−	8.7−)	1998 08 07	046	0.0	0.3+	1998 09 20	138	0.1−	1.1−
1983 09 08	046	(7.1−	5.8−)	1998 08 07	046	0.6+	0.6−	1998 09 20	138	0.1+	1.0−
1983 09 08	046	(9.3−	8.0−)	1998 08 07	046	1.1+	0.1+	1998 09 20	138	0.1−	1.0−
1989 03 02	413	1.6−	1.4+	1998 08 23	704	0.8+	0.1−	1998 09 21	691	1.1−	0.5+
1989 03 02	413	1.8+	0.3−	1998 08 23	704	0.4+	0.7+	1998 09 21	691	1.0−	0.5+
1989 03 04	413	0.1+	0.2+	1998 08 23	704	1.6+	0.7−	1998 09 21	691	1.2−	0.5+
1993 03 18	809	1.3+	1.7+	1998 08 23	704	0.9+	0.0	1998 09 25	704	0.1+	0.8−
1993 03 23	809	0.5−	0.6+	1998 08 23	704	1.3+	1.9−	1998 09 25	704	1.5−	0.8−
1993 03 23	691	0.6−	0.9−	1998 08 29	120	1.4+	0.5+	1998 09 25	704	0.1+	0.3+
1993 03 23	691	0.4−	1.0−	1998 08 29	120	0.6+	0.3+	1998 09 25	704	0.1−	0.8+
1993 03 23	691	0.5−	1.0−	1998 08 29	120	0.5+	0.0	1998 09 25	704	1.0−	0.1+

1993 04 16	413	0.2−	1.6+	1998 08 29	120	1.0+	0.3+	1998 09 26	704	0.1−	0.5+
1995 12 18	046	0.1−	0.2−	1998 08 29	120	0.9+	0.1+	1998 09 26	704	1.7−	0.5+
1995 12 18	046	0.3+	0.2+	1998 08 31	120	0.8+	0.3−	1998 09 26	704	1.8−	0.6+
1995 12 18	046	0.2−	0.4−	1998 08 31	120	(2.3+	0.9+)	1998 09 26	704	0.6−	0.6+
1995 12 27	046	0.0	1.1−	1998 08 31	120	0.4+	0.4−	1998 09 26	704	1.2−	0.7+
1995 12 27	046	0.5+	1.2−	1998 09 14	704	0.5+	0.4−	1998 09 27	704	0.3+	0.2−
1995 12 27	046	0.6+	0.9−	1998 09 14	691	1.5−	0.0	1998 09 27	704	1.3−	0.5+
1996 01 15	046	0.2−	0.5+	1998 09 14	704	1.1+	0.8−	1998 09 27	704	0.5−	0.5−
1996 01 15	046	0.6−	0.4+	1998 09 14	691	1.4−	0.4−	1998 09 27	704	0.5+	0.1−
1996 01 15	046	1.0−	0.3+	1998 09 14	704	1.0+	0.2−	1998 09 27	704	0.7−	0.1+
1996 01 17	046	1.3+	0.8+	1998 09 14	691	1.3−	0.3−	1998 09 29	046	0.1−	1.0+
1996 01 17	046	0.5+	0.4+	1998 09 14	704	0.7−	0.7+	1998 09 29	046	0.2−	1.0+
1996 01 17	046	0.0	0.4+	1998 09 14	704	0.4−	0.9+	1998 09 29	120	0.1+	0.1+
1998 06 30	704	0.2+	1.3+	1998 09 16	699	0.2−	0.2+	1998 09 29	120	0.0	0.1−
1998 06 30	704	(2.5+	0.5−)	1998 09 16	699	0.1+	0.1+	1998 09 29	120	0.0	0.4−
1998 06 30	704	1.7+	0.1+	1998 09 16	699	0.1+	0.3+				

(9297)∗ 1984 MP = 1970 GN$_2$ = 1994 UP$_2$

Discovered 1984 June 25 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Id. K. Kinoshita (*MPC* 24385)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	73.81962		(2000.0)		**P**	**Q**	
n	0.22361581	ω	36.54447		−0.14582543	+0.97670544	
a	2.6882380	Ω	225.67470		−0.95179849	−0.18191036	
e	0.1511579	i	12.71204		−0.26984177	+0.11382047	
P	4.41	H	12.3	G	0.15	U	1

Residuals in seconds of arc

1970 04 07	805	0.9+	1.9−	1997 05 04	809	0.7+	0.3−	1997 06 08	619	0.5−	0.1−
1970 04 07	805	0.2+	0.1+	1997 05 28	610	1.9+	0.2−	1997 06 08	809	0.0	1.4+
1970 04 07	805	0.5−	2.0+	1997 05 28	610	1.8+	0.6−	1997 06 08	809	0.4−	1.5+
1984 06 25	095	1.5+	0.4+	1997 05 28	619	0.1−	0.2+	1997 06 08	809	0.3−	1.6+
1984 06 28	095	0.1+	1.4−	1997 05 28	610	1.8+	0.7−	1997 06 08	619	0.5−	0.6−
1984 07 02	095	1.9−	0.0	1997 05 28	619	0.8+	0.1−	1997 06 08	619	0.3−	0.1−
1990 11 16	675	0.2+	0.1+	1997 05 28	619	0.1−	0.1−	1997 06 08	619	0.4−	0.0
1990 11 16	675	0.6+	0.9+	1997 05 28	619	0.3−	0.3−	1997 06 08	619	0.2−	0.1−
1994 10 31	399	(2.0+	1.3−)	1997 05 30	691	1.3−	0.1+	1997 06 23	610	0.1−	0.4−
1994 10 31	399	0.5−	0.5−	1997 05 30	691	1.2−	0.0	1997 06 23	610	0.2+	0.5−
1994 11 07	399	(3.4−	0.1+)	1997 05 30	691	1.5−	0.4+	1997 06 23	610	0.4+	0.7−
1994 11 07	399	(2.3−	0.3−)	1997 06 03	619	0.6−	0.4+	1998 08 23	699	0.1−	0.3−
1994 11 08	894	1.1−	0.0	1997 06 03	619	0.5−	0.1+	1998 08 23	699	0.2+	0.2−
1994 11 08	894	0.1−	0.4−	1997 06 03	619	0.3−	0.2−	1998 08 23	699	0.0	0.1+
1994 11 10	894	0.5−	0.2+	1997 06 03	619	0.7−	0.1+	1998 09 19	699	0.2+	0.5+
1994 11 10	894	0.3−	0.3−	1997 06 07	809	0.4+	0.7+	1998 09 19	699	0.1+	0.4+
1994 11 23	399	0.5−	1.3+	1997 06 07	809	0.3−	1.2+	1998 09 19	699	0.2+	0.2+
1994 11 23	399	(0.8−	3.1+)	1997 06 07	809	0.4−	1.1+	1998 09 25	699	0.6+	0.5+
1997 05 04	809	1.5+	0.2−	1997 06 07	619	0.4−	0.4−	1998 09 25	699	0.3+	0.3+
1997 05 04	809	1.5+	0.1−	1997 06 08	619	0.7−	0.3−	1998 09 25	699	0.3+	0.2+

(9298)∗ 1985 JM = 1994 VN$_2$

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

Id. S. Nakano (*MPC* 24385)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	5.82316		(2000.0)		**P**	**Q**	
n	0.23938196	ω	120.02448		+0.87322205	+0.47450373	
a	2.5688679	Ω	212.03060		−0.48713191	+0.84354723	
e	0.3033742	i	12.08478		−0.01362922	+0.25154380	
P	4.12	H	13.6	G	0.15	U	2

Residuals in seconds of arc

1956 05 08	675	0.2+	1.0+	1994 11 03	400	0.3+	0.4+	1998 08 28	704	(2.7−	1.1−)
1956 05 08	675	0.6+	1.0+	1994 11 05	896	0.9−	1.5−	1998 08 28	704	1.5+	1.1+
1985 05 15	688	0.8+	2.0+	1994 11 05	896	(3.6−	2.4−)	1998 08 28	704	(1.2+	2.4+)
1985 05 18	688	0.7−	0.6+	1994 11 24	400	0.7−	0.4+	1998 08 28	704	0.1−	0.8+
1985 05 18	688	0.5−	1.6+	1994 11 24	400	1.0−	0.9+	1998 08 28	704	1.7+	0.8−
1985 05 21	688	0.5+	1.7−	1994 11 30	400	1.1+	0.3+	1998 08 31	704	1.6−	0.1−
1985 05 21	688	0.6−	0.2+	1994 11 30	400	1.0+	0.2−	1998 08 31	704	(1.2−	3.5−)
1985 05 24	675	0.1−	0.5+	1994 12 03	400	0.3+	1.1+	1998 08 31	704	0.8−	1.5+
1985 05 24	675	0.4+	0.0	1994 12 03	400	0.3−	1.0+	1998 08 31	704	(1.7+	3.3+)
1989 05 07	675	1.1−	0.5+	1995 01 01	689	0.2−	0.7−	1998 08 31	704	(2.4+	0.3+)
1994 10 31	399	(3.9−	0.1−)	1997 03 27	689	(2.7+	0.7+)	1998 09 26	704	0.6+	0.3+
1994 10 31	399	1.3−	1.0+	1997 04 11	704	1.0+	0.3−	1998 09 26	704	(2.2+	0.9−)
1994 11 01	400	1.7+	0.6+	1997 04 11	704	1.4−	1.2+	1998 09 26	704	0.8−	0.6−
1994 11 01	400	0.1−	0.5+	1997 04 11	704	1.1+	0.2−	1998 09 26	704	0.1+	0.7−
1994 11 03	400	0.8−	1.4+	1997 04 11	704	0.8+	0.3−	1998 09 26	704	0.3+	0.4−

(9299)∗ 1985 JG$_2$ = 1978 TH$_5$ = 1982 UR$_4$ = 1994 RA$_5$

Discovered 1985 May 13 by C. S. Shoemaker at Palomar.

Id. K. Kinoshita (*MPC* 25637)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	89.16973		(2000.0)		**P**	**Q**	
n	0.24309911	ω	198.46976		−0.51995211	+0.85244015	
a	2.5426142	Ω	40.25054		−0.77264754	−0.44202560	
e	0.1548175	i	4.85919		−0.36423287	−0.27921167	
P	4.05	H	13.3	G	0.15	U	1

Residuals in seconds of arc

1978 10 07	095	0.1−	0.4+	1997 04 11	809	0.3+	1.0+	1998 09 17	699	0.3+	0.7+
1982 10 20	033	0.3−	0.6−	1997 04 11	809	0.1+	0.5+	1998 09 17	699	0.2+	0.9+
1985 05 13	675	0.9+	0.1+	1997 04 12	809	0.4−	0.3+	1998 09 17	699	(3.3−	1.4+)
1985 05 14	675	0.5+	0.6+	1997 04 12	809	0.0	0.0	1998 09 18	704	0.3+	0.1−
1985 05 15	675	0.0	0.1+	1997 04 12	809	0.5−	0.0	1998 09 18	704	0.9+	0.3+
1990 09 28	675	0.0	0.0	1998 08 22	689	1.1+	0.2+	1998 09 18	704	0.0	0.8+
1994 09 05	691	0.9−	0.2−	1998 08 28	704	(2.9+	1.4+)	1998 09 18	704	0.8−	0.9+
1994 09 05	691	0.8−	0.2−	1998 08 28	704	1.2+	1.9+	1998 09 18	704	0.3−	0.1+
1994 09 05	691	0.7−	0.2−	1998 08 28	704	0.4+	1.0+	1998 09 26	704	0.5+	0.5−
1994 09 09	691	0.9−	0.8−	1998 08 28	704	0.8+	0.2+	1998 09 26	704	0.6+	0.4−
1994 09 09	691	1.0−	0.3−	1998 08 28	704	0.0	0.4−	1998 09 26	704	0.1−	0.1−
1994 09 09	691	0.5−	0.1−	1998 08 31	704	1.0+	0.3+	1998 09 26	704	0.1+	0.4−
1994 10 01	399	0.6−	1.0−	1998 08 31	704	(0.9−	2.3+)	1998 09 26	704	0.5−	0.3−
1994 10 01	399	0.0	0.3−	1998 08 31	704	0.0	0.0	1998 09 27	704	(2.7+	1.5−)
1994 11 04	675	0.6+	0.2+	1998 08 31	704	0.5+	0.7−	1998 09 27	704	1.0+	0.8+
1995 11 30	596	0.2+	0.8+	1998 08 31	704	1.4−	0.4−	1998 09 27	704	1.5+	0.1−
1995 11 30	596	0.6+	0.8+	1998 09 14	704	0.9−	0.8−	1998 09 27	704	(2.3+	0.4+)
1995 11 30	596	0.4+	0.8+	1998 09 14	704	1.2−	0.4+	1998 09 27	704	(2.3+	0.5−)
1997 04 11	809	0.0	0.3+	1998 09 14	704	1.3−	0.2+				

(9300)∗ 1985 PS = 1955 XK$_1$ = 1972 RZ$_2$ = 1993 KR$_3$

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

Id. E. Bowell (*MPC* 26899), L. D. Schmadel (*ibid.*), G. V. Williams (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	329.24718		(2000.0)		**P**	**Q**	
n	0.22755278	ω	223.24332		+0.97071761	−0.23109216	
a	2.6571411	Ω	149.93309		+0.24013986	+0.92628898	
e	0.3614536	i	7.52397		+0.00633774	+0.29763257	
P	4.33	H	14.7	G	0.15	U	2

Residuals in seconds of arc

1955 12 11	675	0.2+	0.4+	1998 06 29	704	0.9−	2.0+	1998 09 07	629	0.5−	0.6+
1955 12 11	675	0.1+	0.2+	1998 06 30	699	1.0+	1.5+	1998 09 07	629	0.4+	0.3+
1972 09 04	095	(2.1+	4.9−)	1998 06 30	699	0.0	1.2+	1998 09 13	699	0.3+	1.0+
1985 08 14	688	0.1+	0.4−	1998 06 30	699	0.5+	1.0+	1998 09 13	699	0.9+	0.3+
1985 08 14	688	0.2−	0.9−	1998 07 26	699	1.4+	0.2−	1998 09 13	699	0.4+	0.1−
1985 08 20	688	0.4−	0.5+	1998 07 26	699	1.6+	0.5−	1998 09 14	704	0.3+	0.3−
1985 08 20	688	0.4+	0.4+	1998 07 26	699	1.2+	0.1−	1998 09 14	704	(3.1−	2.2−)
1985 09 14	688	0.5−	0.4+	1998 08 04	689	0.5+	0.4−	1998 09 14	704	0.6+	0.8−
1985 09 14	688	1.0+	0.5+	1998 08 17	704	0.6−	0.1−	1998 09 14	704	1.2+	0.7−

1985 11 09	801	2.0−	0.3+	1998 08 17	704	0.4−	0.0	1998 09 14	704	0.5+	0.2−
1993 05 18	691	0.3+	0.6−	1998 08 17	704	0.0	0.8−	1998 09 18	704	0.9+	0.4+
1993 05 18	691	0.4+	0.1−	1998 08 17	704	0.2+	0.4−	1998 09 18	704	1.0+	0.2−
1993 05 18	691	0.0	0.5−	1998 08 17	704	0.5−	0.4−	1998 09 18	704	1.2−	0.1+
1997 05 09	691	0.8−	0.7+	1998 08 23	704	0.0	0.4+	1998 09 18	704	0.7+	1.2−
1997 05 09	691	0.4+	0.5−	1998 08 23	704	(2.2−	1.5+)	1998 09 18	704	0.4−	1.4−
1997 05 09	691	0.7−	0.1−	1998 08 23	704	1.5−	0.4−	1998 09 21	699	0.2+	0.2+
1998 06 29	704	1.6−	1.5+	1998 08 23	704	1.9−	0.5+	1998 09 21	699	0.0	0.1−
1998 06 29	704	(0.7+	3.0−)	1998 08 23	704	1.2−	0.7−	1998 09 21	699	0.3+	0.4−
1998 06 29	704	1.3−	0.4−	1998 09 07	629	1.9−	1.1+				
1998 06 29	704	1.2+	0.8−	1998 09 07	629	0.3−	0.5−				

(9301)∗ 1985 RB_4 = 1998 LO = 2297 T-1

Discovered 1985 Sept. 10 by H. Debehogne at the European Southern Observatory.

Id. B. G. Marsden (*MPC* 32216)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	331.86203		(2000.0)		**P**	**Q**	
n	0.29636823	ω	148.80124		+0.62160630	+0.78328045	
a	2.2279988	Ω	159.62808		−0.72379626	+0.57862075	
e	0.2225763	i	1.44762		−0.29954060	+0.22730984	
P	3.33	H	15.4	G	0.15	U	1

Residuals in seconds of arc

1971 03 25	675	0.7−	0.4−	1985 09 19	809	0.5−	0.1−	1998 05 22	704	0.1−	0.1+
1971 03 25	675	0.5+	1.8−	1985 09 19	809	0.4−	0.0	1998 05 22	704	(2.5+	0.6+)
1971 03 26	675	0.7−	0.8−	1985 09 19	809	0.2−	0.2−	1998 05 24	704	0.8−	0.6−
1971 03 27	675	(5.9−	1.9+)	1985 09 21	809	0.6+	0.3−	1998 05 24	704	0.8−	0.3+
1985 08 24	010	(3.0−	2.9+)	1985 09 21	809	0.6+	0.3−	1998 05 24	704	0.3−	0.1+
1985 08 24	010	2.2−	0.9+	1985 09 21	809	0.6+	0.3−	1998 05 24	704	0.4−	0.6+
1985 09 10	809	0.3+	0.1−	1995 08 24	809	1.3+	1.1+	1998 05 24	704	1.0−	1.7−
1985 09 10	809	0.4+	0.0	1995 08 25	809	0.2+	0.5+	1998 06 01	809	(2.4+	3.7+)
1985 09 10	809	0.6+	0.0	1995 08 25	809	0.0	0.3−	1998 06 01	809	(2.9+	3.0+)
1985 09 11	809	0.7−	0.4+	1995 08 26	809	1.0+	0.4+	1998 06 01	809	(2.3+	3.1+)
1985 09 11	809	0.3−	0.6+	1995 09 01	809	0.6+	0.2+	1998 06 02	809	(2.4+	3.1+)
1985 09 11	809	0.2−	0.7+	1995 09 17	691	2.0−	0.1+	1998 06 02	809	(2.7+	2.6+)
1985 09 12	809	0.0	0.3+	1995 09 17	691	1.5−	0.1−	1998 06 02	809	(3.3+	2.7+)
1985 09 12	809	0.2+	0.2+	1995 09 17	691	1.9−	0.0	1998 06 24	704	1.2+	1.6−
1985 09 12	809	0.7+	0.2+	1995 09 18	809	0.3+	0.5−	1998 06 24	704	1.0+	1.1−
1985 09 14	809	0.5−	2.3−	1995 09 19	809	0.8+	0.7−	1998 06 24	704	0.9+	1.0−
1985 09 14	809	0.5−	2.2−	1995 09 19	809	0.5+	0.3−	1998 06 24	704	0.7+	0.9+
1985 09 14	809	0.6−	2.3−	1995 09 20	809	0.1−	1.0−	1998 06 24	704	0.6+	0.0
1985 09 16	809	0.4+	0.7+	1995 09 22	809	(2.4−	0.1−)	1998 06 29	699	0.2+	0.4+
1985 09 16	809	0.6+	0.7+	1995 09 22	809	0.4+	0.2−	1998 06 29	699	0.4+	0.8+
1985 09 16	809	0.7+	0.8+	1995 09 23	809	1.0+	0.3+	1998 06 29	699	0.6+	1.0+
1985 09 17	809	0.0	0.2+	1995 09 24	809	0.1+	0.3+	1998 07 02	699	1.1+	0.0
1985 09 17	809	0.2+	0.1+	1998 05 22	704	1.4−	0.4+	1998 07 02	699	0.4−	0.9+
1985 09 17	809	0.5+	0.1+	1998 05 22	704	1.3−	0.4+	1998 07 02	699	0.1−	0.1−

(9302)∗ 1985 TB_3 = 1972 TH_1 = 1990 DB_2

Discovered 1985 Oct. 12 by P. Wild at Zimmerwald.

Id. H. Kaneda (*MPC* 17436), R. Nagata (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	336.90951		(2000.0)		**P**	**Q**	
n	0.30262308	ω	188.24947		+0.99635192	−0.08524748	
a	2.1971920	Ω	176.63316		+0.08164457	+0.93866018	
e	0.1506054	i	3.87087		+0.02483978	+0.33414058	
P	3.26	H	14.7	G	0.15	U	2

Residuals in seconds of arc

1972 10 07	095	(2.2−	3.6−)	1997 03 13	809	0.1+	1.2+	1998 09 18	704	0.8−	0.7+
1985 09 22	095	1.9+	1.3−	1997 03 13	809	(2.7+	0.2+)	1998 09 18	704	0.7−	1.2+
1985 10 12	026	1.0−	0.7−	1997 03 13	809	0.7+	1.1+	1998 09 18	704	0.4−	0.4+
1985 10 13	026	(4.0−	1.0−)	1997 04 11	704	1.3+	0.2+	1998 09 18	704	0.0	0.1+
1985 10 14	026	0.2+	0.9−	1997 04 11	704	1.2+	0.6+	1998 09 23	120	0.5−	0.2+
1985 10 16	026	(3.8−	0.1+)	1998 08 02	699	0.4+	0.5−	1998 09 23	120	0.7+	0.1+
1990 02 24	809	(2.4−	0.2+)	1998 08 02	699	0.2+	0.1+	1998 09 26	704	1.2+	0.3+
1990 02 24	809	1.8−	0.3+	1998 08 02	699	0.4+	0.3−	1998 09 26	704	0.5+	0.1+
1990 02 24	809	1.2−	0.4+	1998 09 02	691	1.1−	0.2+	1998 09 26	704	0.8+	0.5−
1990 02 25	809	0.0	0.0	1998 09 02	691	1.0−	0.1+	1998 09 26	704	0.1−	0.5+
1990 02 25	809	0.5+	0.1−	1998 09 02	691	0.9−	0.1+	1998 09 26	704	0.0	0.3+
1990 02 25	809	1.1+	0.0	1998 09 12	691	1.7−	0.8+	1998 09 27	704	0.6+	0.3+
1990 02 28	809	0.3−	0.0	1998 09 12	691	0.8−	0.0	1998 09 27	704	0.7+	0.4+
1990 02 28	809	0.0	0.1+	1998 09 12	691	0.8−	0.0	1998 09 27	704	0.2+	0.6+
1990 02 28	809	0.1+	0.2+	1998 09 14	704	1.2+	0.6+	1998 09 27	704	0.0	0.7+
1990 02 28	809	0.7+	0.2+	1998 09 14	704	0.8+	0.9−	1998 09 27	704	0.3+	0.8+
1990 02 28	809	0.7+	0.5+	1998 09 14	704	0.4+	1.0−	1998 09 30	691	0.8−	0.4−
1990 02 28	809	0.7+	0.3+	1998 09 17	699	0.2+	0.5+	1998 09 30	691	0.6−	0.0
1997 03 12	809	1.1−	0.3−	1998 09 17	699	0.0	0.7+	1998 09 30	691	0.7−	0.1−
1997 03 12	809	0.8−	0.2+	1998 09 17	699	0.6+	0.9+				
1997 03 12	809	0.4−	0.5+	1998 09 18	704	0.7−	0.2−				

(9303)∗ 1986 QH_3 = 1996 AT_{15}

Discovered 1986 Aug. 29 by H. Debehogne at the European Southern Observatory.

Id. G. V. Williams (*MPC* 26738)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	302.66327		(2000.0)		**P**	**Q**	
n	0.24690497	ω	270.11979		+0.81922297	−0.56672325	
a	2.5164183	Ω	124.40293		+0.55932822	+0.75583255	
e	0.0999300	i	6.10448		+0.12659254	+0.32793584	
P	3.99	H	14.1	G	0.15	U	1

Residuals in seconds of arc

1986 08 29	809	0.1−	0.3+	1993 05 20	691	0.1−	0.3−	1998 08 23	704	0.9−	0.4+
1986 08 29	809	0.1+	0.4+	1993 05 20	691	0.0	0.5−	1998 09 14	704	0.6+	0.0
1986 08 29	809	0.1+	0.5+	1993 05 20	691	0.1−	0.6−	1998 09 14	704	1.1+	0.7+
1986 08 29	809	0.2+	0.2+	1994 09 11	675	0.3+	0.6+	1998 09 14	704	0.4+	0.5+
1986 08 29	809	0.2+	0.2+	1994 09 11	675	0.4+	0.3−	1998 09 14	704	0.8+	0.2−
1986 08 29	809	0.0	0.0	1996 01 14	327	0.8+	0.1−	1998 09 18	704	0.5+	0.0
1986 08 31	809	0.3+	0.2+	1996 01 14	327	0.0	0.2−	1998 09 18	704	0.7−	0.0
1986 08 31	809	0.2+	0.2+	1996 01 14	327	0.1−	0.7+	1998 09 18	704	1.0−	0.2+
1986 08 31	809	0.7+	0.1+	1996 01 18	327	0.2−	0.4−	1998 09 18	704	0.4+	0.2+
1986 09 01	809	0.2+	0.5−	1996 01 18	327	0.1−	0.4+	1998 09 18	704	0.8−	1.9−
1986 09 01	809	0.2+	0.8−	1996 01 18	327	0.5−	0.3+	1998 09 22	699	0.1−	1.2+
1986 09 01	809	0.3+	0.8−	1998 08 16	426	0.8−	0.4+	1998 09 22	699	0.0	0.7+
1986 09 02	809	0.2−	0.6+	1998 08 16	426	0.7−	0.6+	1998 09 22	699	0.3−	0.3+
1986 09 02	809	0.4−	0.4+	1998 08 17	704	0.6−	0.2+	1998 09 25	704	1.1+	0.3−
1986 09 02	809	0.4−	0.3+	1998 08 17	704	1.6−	0.5−	1998 09 25	704	1.0+	1.3−
1986 09 07	809	0.4−	0.2+	1998 08 17	704	1.5−	0.0	1998 09 25	704	1.6+	1.4−
1986 09 07	809	0.4−	0.0	1998 08 17	704	0.5−	1.2+	1998 09 25	704	1.2+	2.0−
1986 09 07	809	0.2−	0.2−	1998 08 17	704	0.0	0.9+	1998 09 25	704	1.4+	1.4−
1986 09 07	809	0.6−	0.4+	1998 08 17	426	0.4−	0.4+	1998 09 27	704	0.3+	0.1−
1986 09 07	809	0.4−	0.2+	1998 08 17	426	0.1+	0.9+	1998 09 27	704	0.2−	0.1−
1986 09 07	809	0.4−	0.1+	1998 08 23	704	0.5−	0.0	1998 09 27	704	1.1+	0.1−
1986 09 09	809	0.2+	0.2−	1998 08 23	704	0.3+	0.0	1998 09 27	704	0.5+	0.6−
1986 09 09	809	0.1−	0.1−	1998 08 23	704	0.9−	0.6−	1998 09 27	704	0.2−	0.3−
1986 09 09	809	0.0	0.2−	1998 08 23	704	0.5−	0.6−				

(9304)∗ 1986 RA_5 = 1992 CE_8 = 1993 FO_{15}

Discovered 1986 Sept. 1 by H. Debehogne at the European Southern Observatory.

Id. G. V. Williams (*MPC* 23512)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	340.23658		(2000.0)		**P**	**Q**	
n	0.24577419	ω	210.40532		+0.91523388	+0.39256321	
a	2.5241309	Ω	126.20507		−0.34331538	+0.87771872	
e	0.2164181	i	6.45967		−0.21090635	+0.27477988	
P	4.01	H	13.8	G	0.15	U	2

Residuals in seconds of arc

1954 07 29	675	0.0	0.2−	1986 09 10	809	0.3−	0.1−	1994 07 13	801	0.3−	0.0
1954 07 29	675	0.5−	0.4−	1986 09 12	809	0.2−	0.0	1998 08 17	704	0.1−	0.5−
1986 09 01	809	0.4+	0.1+	1986 09 12	809	0.2+	0.0	1998 08 17	704	0.2+	0.3+
1986 09 01	809	0.9+	0.4+	1986 09 12	809	0.4+	0.0	1998 08 17	704	0.6+	0.5+
1986 09 01	809	1.5+	0.2+	1992 02 01	691	1.3−	0.9+	1998 08 17	704	0.0	0.0
1986 09 03	809	1.0+	0.1+	1992 02 01	691	0.5+	0.4−	1998 08 17	704	0.2+	0.3+
1986 09 03	809	0.8+	0.1+	1992 02 01	691	0.6−	0.2−	1998 08 19	566	0.2−	0.2+
1986 09 03	809	0.9+	0.1+	1993 03 17	809	1.0+	0.2−	1998 08 19	566	0.2−	0.1+
1986 09 05	809	0.2+	0.1−	1993 03 18	809	(2.5−	0.0)	1998 08 19	566	0.1−	0.2−
1986 09 05	809	0.2+	0.1−	1993 03 18	809	1.1+	0.0	1998 08 23	704	0.8−	0.9+
1986 09 05	809	0.1+	0.1−	1993 03 23	809	1.0−	0.0	1998 08 23	704	0.7−	0.0
1986 09 06	809	0.2−	0.3−	1993 04 16	413	0.1+	0.5−	1998 08 23	704	0.4+	0.2+
1986 09 06	809	0.1+	0.4−	1994 06 07	691	1.9−	0.8−	1998 08 23	704	0.4+	0.5+
1986 09 06	809	0.1−	0.4−	1994 06 07	691	1.8−	0.8−	1998 08 23	704	0.8−	0.3+
1986 09 08	809	0.3−	0.5−	1994 06 07	691	1.8−	0.6−	1998 09 14	699	0.1+	0.2+
1986 09 08	809	0.3−	0.8−	1994 06 08	691	(2.3−	0.2−)	1998 09 14	699	0.6+	1.1+
1986 09 08	809	0.3−	0.9−	1994 06 08	691	(2.2−	0.1−)	1998 09 14	699	0.5+	0.6+
1986 09 10	809	0.4−	0.0	1994 06 08	691	(2.3−	0.1+)				
1986 09 10	809	0.3−	0.0	1994 07 13	801	0.0	0.0				

(9305)∗ 1986 TR$_1$ = 1998 FG$_{70}$

Discovered 1986 Oct. 7 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. G. V. Williams (*MPC* 31949)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	282.34503		(2000.0)		**P**		**Q**
n	0.30956214	ω	218.55327		+0.75942319		+0.64749648
a	2.1642337	Ω	100.97286		−0.57974564		+0.71774727
e	0.1749040	*i*	3.70516		−0.29524805		+0.25609992
P	3.18	*H*	14.6	*G*	0.15	*U*	2

Residuals in seconds of arc

1954 08 04	675	0.5+	1.2−	1998 03 22	704	0.2−	0.0	1998 04 22	704	0.0	0.3−
1954 08 04	675	0.1−	0.3−	1998 03 22	704	0.8−	0.0	1998 04 22	704	0.9+	0.0
1986 09 14	095	0.5+	1.6−	1998 03 22	704	0.1−	0.2−	1998 04 22	704	0.4+	0.5−
1986 10 06	688	1.3−	1.8−	1998 03 22	704	0.1+	0.9−	1998 04 22	704	(0.5−	2.6+)
1986 10 07	688	(7.2+	2.3−)	1998 03 22	704	0.2−	0.7−	1998 04 22	704	0.7+	0.2−
1986 10 07	688	2.3+	0.7−	1998 03 25	704	0.7−	0.1−	1998 04 29	691	0.7−	0.1−
1989 07 05	675	0.4+	0.8+	1998 03 25	704	0.3−	0.3−	1998 04 29	691	0.9−	0.2+
1989 07 05	675	0.2−	1.1+	1998 03 25	704	1.2−	0.2−	1998 04 29	691	0.9−	0.1+
1989 07 29	675	0.0	0.1−	1998 03 25	704	0.7−	0.6+	1998 05 16	704	0.9+	0.6+
1989 07 29	675	0.5−	0.5+	1998 03 25	704	0.3−	0.3+	1998 05 16	704	1.3+	0.2−
1998 03 20	704	0.3−	0.5−	1998 04 20	704	0.2−	0.4+	1998 05 16	704	0.1−	1.0−
1998 03 20	704	0.5−	0.2+	1998 04 20	704	1.2+	0.5−	1998 05 16	704	1.6+	1.1−
1998 03 20	704	0.0	0.5−	1998 04 20	704	0.4+	1.1−	1998 05 16	704	1.4−	0.3+
1998 03 20	704	0.4+	0.2+	1998 04 20	704	0.3−	0.7+				
1998 03 20	704	0.5−	0.4−	1998 04 20	704	(0.8+	4.4−)				

(9306)∗ 1987 CG = 1987 GY = 1975 XL$_1$ = 1990 XU$_1$ = 1994 SD$_4$ = 1997 FY

Discovered 1987 Feb. 2 by E. W. Elst at the European Southern Observatory.

Id. D. W. E. Green (d, *MPC* 11982), S. Nakano (d, *ibid.*), G. V. Williams (*MPC* 29610, *MPC* 32217)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Green

M	6.44793		(2000.0)		**P**		**Q**
n	0.20218950	ω	270.23938		+0.09994008		+0.99499004
a	2.8749501	Ω	5.49839		−0.90172016		+0.09167916
e	0.0193449	*i*	1.55971		−0.42060995		+0.03987172
P	4.87	*H*	12.4	*G*	0.15	*U*	1

Residuals in seconds of arc

1975 12 01	095	(5.9+	0.9+)	1997 03 05	809	1.4+	1.1+	1998 05 29	704	0.8+	0.3+
1987 02 02	809	1.5−	1.6+	1997 03 05	809	1.3+	1.2+	1998 05 29	704	0.6+	0.9+
1987 02 02	809	(3.6−	0.9+)	1997 03 05	809	1.0+	0.6+	1998 05 29	704	0.5+	0.0
1987 02 02	809	0.1−	1.0+	1997 03 06	809	0.2−	0.7+	1998 05 29	704	1.1+	0.4+
1987 02 02	809	(9.1−	2.4+)	1997 03 06	809	0.4−	0.6+	1998 06 24	704	1.1−	0.4−
1987 02 02	809	(14.3−	0.6+)	1997 03 06	809	0.8−	0.6+	1998 06 24	704	0.3+	0.0
1987 02 04	809	0.4+	0.9+	1997 03 27	327	0.7−	0.4−	1998 06 24	704	0.4+	0.6+
1987 02 04	809	1.1+	0.4+	1997 03 27	327	0.5−	0.5−	1998 06 24	704	0.3−	0.1+
1987 02 05	809	0.6−	0.4+	1997 03 27	327	0.3−	0.4−	1998 06 24	704	1.1+	0.2+
1987 02 05	809	2.1+	0.2−	1997 03 28	327	0.4−	0.5−	1998 06 26	704	0.5+	0.1−
1987 04 01	675	(6.0+	0.2−)	1997 03 28	327	0.5−	0.5−	1998 06 26	704	0.1−	0.0
1987 04 01	675	(8.2+	1.4−)	1997 03 28	327	0.6−	0.4−	1998 06 26	704	0.4+	0.7−
1987 04 03	675	(4.8+	1.1−)	1997 03 28	327	0.3−	0.4−	1998 06 26	704	0.0	0.8+
1987 04 03	675	(4.1+	1.6−)	1997 03 30	327	0.3−	0.8−	1998 06 26	704	1.9−	1.0+
1990 12 14	801	1.9+	0.0	1997 03 30	327	0.1−	1.0−	1998 07 21	704	0.2−	1.2+
1990 12 14	801	(3.5+	4.0−)	1997 03 30	327	0.2−	1.0−	1998 07 21	704	0.6+	0.5−
1994 09 28	691	0.9−	0.1+	1997 04 14	691	(2.3−	0.1+)	1998 07 21	704	(0.9−	2.7+)
1994 09 28	691	0.8−	0.3+	1997 04 14	691	(2.5−	0.0)	1998 07 21	704	1.2−	1.1−
1994 09 28	691	0.7−	0.1+	1997 04 14	691	(2.5−	0.0)				

(9307)∗ 1987 QS = 1989 CX$_4$

Discovered 1987 Aug. 21 at Tautenburg.

Id. S. Nakano (*MPC* 15414)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	18.88990		(2000.0)		**P**		**Q**
n	0.27413739	ω	7.40688		+0.85925177		+0.50663831
a	2.3468781	Ω	321.88457		−0.47502168		+0.73890617
e	0.1439616	*i*	6.58080		−0.18984417		+0.44422437
P	3.60	*H*	14.0	*G*	0.15	*U*	2

Residuals in seconds of arc

1955 10 24	675	0.3+	0.3+	1991 10 08	033	0.1−	0.5+	1992 01 07	033	0.3−	0.3−
1955 10 24	675	0.3−	0.7+	1991 10 09	033	0.4+	0.5−	1994 07 12	675	0.3−	0.8+
1987 08 21	033	0.0	0.3−	1991 10 10	033	0.3+	0.0	1994 07 12	675	1.0−	0.3+
1987 08 22	033	1.3−	0.9−	1991 10 30	033	1.0−	0.3+	1998 08 20	113	0.6+	0.0
1987 08 23	033	0.3+	1.0−	1991 10 30	033	0.6+	0.8+	1998 08 20	113	0.1+	0.3−
1987 09 17	095	1.2+	1.0+	1991 11 01	033	0.8+	0.4+	1998 09 14	113	1.3+	0.8+
1987 09 23	095	0.8+	0.1−	1991 12 11	033	0.8−	0.3−	1998 09 14	113	1.5+	0.6+
1989 02 02	033	0.6+	0.4−	1991 12 11	033	1.0−	0.9−	1998 09 24	113	0.6−	0.2−
1989 02 03	033	0.4+	0.2+	1991 12 12	033	0.8−	0.3−	1998 09 24	113	0.8−	0.2−
1991 10 08	033	0.3−	0.1−	1992 01 07	033	0.4−	0.2+				

(9308)∗ 1987 SD$_4$ = 1950 QC = 1972 OE

Discovered 1987 Sept. 21 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. T. Kobayashi (*MPC* 12950)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	0.95691		(2000.0)		**P**		**Q**
n	0.26700128	ω	28.67950		+0.76560575		+0.63207206
a	2.3885105	Ω	291.61341		−0.61207815		+0.65843027
e	0.2201988	*i*	7.39872		−0.19801051		+0.40860064
P	3.69	*H*	14.2	*G*	0.15	*U*	2

Residuals in seconds of arc

1950 08 22	024	0.4−	1.7+	1998 06 29	704	0.3−	0.2−	1998 08 27	704	1.1+	0.4+
1972 07 19	095	1.4−	1.7+	1998 06 29	704	1.4−	1.0+	1998 08 27	704	0.5+	0.1+
1987 09 21	688	1.8+	0.0	1998 06 29	704	1.2−	0.9+	1998 08 27	704	(4.3+	0.0)
1987 09 21	688	0.6+	0.7−	1998 06 29	704	0.4−	0.1+	1998 08 27	704	1.6+	0.5+
1987 09 21	010	0.6−	0.2+	1998 08 03	689	0.3−	0.4−	1998 08 28	823	0.1−	0.1−
1987 09 22	010	0.2−	0.3+	1998 08 04	689	0.2−	0.0	1998 08 28	823	0.7−	0.3−
1987 09 29	688	0.8−	0.0	1998 08 19	704	0.3+	1.4−	1998 09 15	610	2.0+	0.5+
1987 09 29	688	1.7+	0.2−	1998 08 19	704	0.1+	0.1+	1998 09 15	610	1.7+	0.3+
1987 10 16	688	0.4−	1.1−	1998 08 19	704	0.7−	0.0	1998 09 15	610	1.5+	0.0
1987 10 16	688	(3.9+	1.5−)	1998 08 19	704	1.6−	1.7−	1998 09 19	704	0.3+	0.1−
1987 11 23	675	2.0−	0.5−	1998 08 19	704	(2.8−	0.0)	1998 09 19	704	0.5−	0.0
1989 01 04	413	2.2+	0.9+	1998 08 20	823	0.8−	0.6+	1998 09 19	704	0.0	0.4+
1989 01 04	413	(5.1+	0.6−)	1998 08 20	823	0.2−	0.5+	1998 09 19	704	1.2+	0.3−

1989 01 10	413	0.9+	1.4+	1998 08 22	689	0.6−	0.6−	1998 09 19	704	0.3+	0.7+
1989 01 10	413	0.8−	0.8+	1998 08 24	704	0.7+	0.4−	1998 09 23	704	0.5−	0.2−
1991 12 01	675	(0.1+	6.8+)	1998 08 24	704	0.5+	0.1+	1998 09 23	704	1.1−	1.2−
1991 12 01	675	0.6−	0.1−	1998 08 24	704	0.4+	0.4+	1998 09 23	704	0.8−	0.7+
1991 12 03	675	0.9−	1.2+	1998 08 24	704	0.4+	0.2+	1998 09 23	704	1.0−	0.6−
1991 12 03	675	(1.2−	2.3−)	1998 08 24	704	0.6−	0.8+	1998 09 23	704	1.9−	0.0
1998 06 29	704	0.1−	0.6−	1998 08 27	704	1.2+	0.5+				

(9309)∗ 1987 SS_9 = 1989 AC_4

Discovered 1987 Sept. 20 by E. W. Elst at Smolyan.

Id. S. Nakano (*MPC* 14620)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	304.03736		(2000.0)		**P**	**Q**	
n	0.17429299	ω	289.57076		+0.72950096	−0.68269145	
a	3.1740670	Ω	113.50880		+0.64344156	+0.66416571	
e	0.1926670	i	2.62273		+0.23197263	+0.30465766	
P	5.65	H	13.3	G	0.15	U	1

Residuals in seconds of arc

1954 12 22	675	0.6−	1.1+	1993 12 18	801	0.7+	0.3+	1998 09 14	704	0.6−	0.1−
1987 09 19	071	(1.7−	4.5−)	1995 02 02	691	0.3−	0.1+	1998 09 14	704	0.0	0.3−
1987 09 19	071	0.6−	1.6+	1995 02 02	691	0.2−	0.2+	1998 09 14	704	0.3−	0.1−
1987 09 20	071	(3.0−	3.2−)	1995 02 02	691	0.4−	0.1+	1998 09 14	704	0.8−	0.5−
1987 09 21	071	(4.0−	1.0+)	1996 03 24	809	0.7+	0.6+	1998 09 14	704	1.4−	0.6+
1987 09 30	033	0.4+	0.3−	1996 03 24	809	0.1+	0.0	1998 09 16	699	0.6−	0.1+
1987 09 30	033	0.3−	0.6−	1996 03 24	809	0.4−	0.4+	1998 09 16	699	0.1−	0.1+
1987 10 01	033	1.0+	0.1−	1996 03 26	809	(3.5+	2.4+)	1998 09 16	699	0.2−	0.1−
1989 01 04	413	0.3−	1.1+	1996 03 26	809	(3.3+	2.6+)	1998 09 18	704	1.4+	0.7−
1989 01 04	413	0.2+	0.5−	1996 03 26	809	(2.9+	3.3+)	1998 09 18	704	(0.6+	2.3−)
1989 01 08	675	0.0	0.4−	1998 08 17	704	0.1−	0.8−	1998 09 18	704	0.7−	0.4−
1989 01 10	413	1.1+	0.0	1998 08 17	704	0.7−	0.1+	1998 09 18	704	0.8−	0.4−
1989 01 10	413	(3.3+	1.5−)	1998 08 17	704	0.0	1.0+	1998 09 18	704	0.6+	1.7−
1992 08 27	675	2.2+	0.5+	1998 08 17	704	0.1−	0.7+	1998 09 25	704	0.6+	0.1−
1993 11 07	399	0.5−	0.1+	1998 08 17	704	0.2−	0.7−	1998 09 25	704	0.8+	0.0
1993 11 07	399	1.6−	0.3−	1998 08 23	704	1.9−	1.3+	1998 09 25	704	0.0	0.1+
1993 11 15	894	0.6−	0.8+	1998 08 23	704	0.9+	0.4+	1998 09 25	704	0.5+	0.8+
1993 11 15	894	0.4−	0.1+	1998 08 23	704	0.1−	0.0	1998 09 25	704	0.2−	1.1+
1993 11 16	894	0.6−	0.3−	1998 08 23	704	0.7−	0.1+	1998 09 27	704	0.1−	0.4−
1993 11 16	894	1.0+	0.8−	1998 08 23	704	1.0−	0.8−	1998 09 27	704	0.1−	0.2+
1993 12 13	801	1.9+	0.1−	1998 08 30	699	0.5+	0.5−	1998 09 27	704	0.6+	0.3+
1993 12 13	801	0.2+	0.2+	1998 08 30	699	0.8+	0.1−	1998 09 27	704	0.4−	1.1+
1993 12 18	801	0.8+	0.1+	1998 08 30	699	1.2+	0.1−	1998 09 27	704	0.2+	0.0

(9310)∗ 1987 SV_{12} = 1976 SM_3 = 1982 VG_{11}

Discovered 1987 Sept. 18 by H. Debehogne at the European Southern Observatory.

Id. B. G. Marsden (*MPC* 13586)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	339.70824		(2000.0)		**P**	**Q**	
n	0.17765036	ω	277.79398		+0.99139049	+0.12398322	
a	3.1339494	Ω	75.09116		−0.09624321	+0.90803637	
e	0.2175244	i	2.49743		−0.08878141	+0.40012263	
P	5.55	H	13.3	G	0.15	U	1

Residuals in seconds of arc

1952 05 24	675	0.0	0.5+	1993 11 11	801	0.2+	0.0	1998 08 23	704	2.0−	1.7−
1976 09 24	095	0.1−	1.6−	1993 11 11	801	0.3+	0.0	1998 09 14	704	0.3+	0.3−
1976 09 29	095	(2.3+	4.8−)	1997 05 28	816	0.1−	0.2−	1998 09 14	704	0.3+	0.0
1982 11 12	095	0.7−	0.3−	1997 05 28	816	0.0	0.1−	1998 09 14	704	0.1−	0.0
1987 09 01	095	(4.0−	0.8+)	1997 05 28	816	0.0	0.1−	1998 09 14	704	0.3+	0.5+
1987 09 18	809	1.1−	0.4+	1997 06 04	816	0.8−	0.3+	1998 09 14	704	0.3−	0.1+
1987 09 18	809	1.0−	0.4+	1997 06 04	816	0.3−	0.1−	1998 09 18	704	0.2+	0.6−
1987 09 18	809	0.7−	0.3+	1997 06 04	816	0.1−	0.2+	1998 09 18	704	0.8+	1.3−
1987 09 20	095	(0.8−	3.0−)	1997 06 05	816	0.0	0.1+	1998 09 18	704	1.0−	0.9−
1987 09 22	095	0.0	1.3+	1997 06 05	816	0.0	0.2−	1998 09 18	704	0.9+	0.1+
1987 09 23	809	0.9+	0.0	1997 06 05	816	0.1+	0.2+	1998 09 18	704	0.9−	1.5−
1987 09 23	809	0.8+	0.1−	1998 08 04	689	0.2−	0.6−	1998 09 25	704	1.6+	0.3+
1987 09 23	809	0.7+	0.2−	1998 08 17	704	0.2−	0.7−	1998 09 25	704	0.2+	0.2+
1987 09 27	809	0.0	0.0	1998 08 17	704	0.8−	0.2−	1998 09 25	704	0.2−	1.3+
1987 09 27	809	0.1−	0.1−	1998 08 17	704	0.6−	0.5+	1998 09 25	704	0.7+	0.5+
1987 09 27	809	0.3−	0.0	1998 08 17	704	0.8−	0.7+	1998 09 25	704	0.9−	1.3+
1987 10 01	809	0.3+	1.4+	1998 08 17	704	0.3+	0.3+	1998 09 27	704	2.1+	0.2−
1987 10 01	809	0.1+	1.3+	1998 08 23	699	0.3+	1.4+	1998 09 27	704	0.5−	1.2−
1987 10 01	809	0.2+	1.2+	1998 08 23	704	0.1−	1.6−	1998 09 27	704	1.3+	0.0
1991 04 15	675	1.4+	1.3−	1998 08 23	704	(0.1−	2.3−)	1998 09 27	704	0.4−	0.7−
1991 04 15	675	0.3−	0.8+	1998 08 23	699	0.6+	1.4+	1998 09 27	704	0.9−	1.8−
1991 04 16	675	(1.3−	2.3+)	1998 08 23	704	0.8−	0.7−				
1991 04 16	675	(0.3−	2.8+)	1998 08 23	699	1.3+	1.3+				

(9311)∗ 1987 UV_1 = 1976 YN_5 = 1983 RD_3

Discovered 1987 Oct. 25 by S. Ueda and H. Kaneda at Kushiro.

Id. H. Kaneda (*MPC* 16428)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	336.51137		(2000.0)		**P**	**Q**	
n	0.26279764	ω	24.51203		+0.99448839	+0.10357677	
a	2.4139137	Ω	329.52911		−0.10071149	+0.90054224	
e	0.1415638	i	1.83858		−0.02915553	+0.42225056	
P	3.75	H	14.4	G	0.15	U	2

Residuals in seconds of arc

1976 12 18	095	0.8+	2.2+	1997 04 07	566	0.1+	0.4−	1998 09 18	699	0.7−	0.3+
1983 09 03	071	0.9−	0.7−	1997 04 07	566	0.6−	0.5−	1998 09 18	704	0.2−	0.5−
1983 09 03	071	0.5+	1.3+	1997 04 07	566	0.4−	0.5−	1998 09 18	699	0.3−	0.6+
1983 09 11	095	(0.9+	3.1+)	1998 08 17	704	0.6−	0.6+	1998 09 18	704	0.3−	0.2−
1987 10 25	399	1.0−	0.1− Y	1998 08 17	704	1.2+	0.2−	1998 09 18	704	0.4−	0.2+
1987 10 25	399	0.1−	1.1− Y	1998 08 17	704	0.2+	1.0+	1998 09 18	699	0.0	0.5+
1987 10 25	399	1.5+	0.4− Y	1998 08 17	704	0.2+	0.6+	1998 09 18	610	0.6+	0.4+
1987 10 27	881	(3.0−	3.4+)	1998 08 17	704	0.2−	0.6+	1998 09 18	610	(6.4−	2.3−)
1987 10 27	881	(1.5+	3.3+)	1998 08 23	704	0.2+	0.2+	1998 09 18	610	0.7+	0.2+
1987 10 31	399	1.5−	0.1+ Y	1998 08 23	704	0.2−	0.5−	1998 09 25	704	0.4−	0.3+
1987 10 31	399	(3.0−	4.0+)Y	1998 08 23	704	0.2+	0.6−	1998 09 25	704	0.6−	0.0
1997 01 17	684	0.9+	0.4+	1998 08 23	704	0.4+	0.9−	1998 09 25	704	0.8−	0.3−
1997 01 17	684	1.5+	1.0+	1998 08 23	704	1.1−	0.4+	1998 09 25	704	0.3−	0.3+
1997 01 17	684	1.1+	1.6+	1998 09 14	704	0.5+	0.2+	1998 09 25	704	0.6−	0.1+
1997 01 18	684	0.3+	1.1+	1998 09 14	704	1.0+	0.7−	1998 09 27	704	0.2−	0.3+
1997 01 18	684	0.5+	0.0	1998 09 14	704	0.0	0.8−	1998 09 27	704	0.4−	0.8+
1997 01 18	684	0.2−	0.5+	1998 09 14	704	0.4+	0.6−	1998 09 27	704	0.1+	0.2+
1997 04 01	809	(0.9−	2.8+)	1998 09 14	704	0.8+	0.3+	1998 09 27	704	0.2−	0.2+
1997 04 01	809	0.3−	1.3+	1998 09 18	704	0.7+	0.1+	1998 09 27	704	0.7−	1.0+
1997 04 01	809	0.1−	1.1+	1998 09 18	704	0.2+	0.1−				

(9312)∗ 1987 VE_2 = 1990 MT_1 = 1996 VZ_{21} = 1997 YY_{10}

Discovered 1987 Nov. 15 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 32443)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	25.80565		(2000.0)		**P**	**Q**	
n	0.20935142	ω	215.04185		−0.62264162	−0.76997243	
a	2.8090024	Ω	273.88066		+0.74608172	−0.53039058	
e	0.1122449	i	8.03738		+0.23596497	−0.35472283	
P	4.71	H	12.9	G	0.15	U	1

Residuals in seconds of arc

1987 11 15	399	0.8−	0.9+	1990 06 28	808	0.2−	0.0	1997 12 25	566	0.5+	0.0
1987 11 15	399	1.2−	1.2−	1996 11 09	691	0.3−	0.1+	1997 12 30	566	0.1+	0.6+
1987 11 22	399	0.3−	0.3−	1996 11 09	691	0.3−	0.3+	1997 12 30	566	0.0	0.1+
1987 11 22	399	0.2+	0.9−	1996 11 09	691	0.3−	0.3+	1997 12 30	566	0.0	0.6+
1987 11 28	399	0.3+	0.0	1996 11 13	691	0.1+	0.5−	1998 01 26	566	0.6−	0.5−
1987 11 28	399	1.0+	0.7−	1996 11 13	691	0.3+	0.2+	1998 01 26	566	0.4−	0.5−
1987 12 12	399	0.7+	0.8+	1996 11 13	691	0.1+	0.3+	1998 01 26	566	0.7−	0.5−

1987 12 12	399	0.7+	0.1+	1997 12 25	566	0.6+	0.1−
1990 06 28	808	0.3+	1.0−	1997 12 25	566	0.4+	0.1+

(9313)∗ 1988 CH_3

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

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	93.59924	(2000.0)	**P**	**Q**	
n	0.22993840	ω	297.96228	−0.62918544	+0.74855493
a	2.6387305	Ω	291.47819	−0.61043040	−0.64255914
e	0.1497016	i	12.99581	−0.48114488	−0.16365597
P	4.29	H	13.7	G 0.15	U 2

Residuals in seconds of arc

1988 02 13	809	1.3−	0.7+	1988 03 10	413	0.6+	0.7+	1998 08 24	704	0.7−	0.6+
1988 02 13	809	0.6+	0.2+	1988 03 10	413	0.2+	0.5+	1998 08 24	704	0.4+	1.0−
1988 02 13	809	0.2+	0.2−	1988 04 20	413	(3.0+	0.1−)	1998 08 24	704	1.0−	1.9−
1988 02 14	809	2.1+	0.1−	1988 04 20	413	0.1+	0.1−	1998 08 24	704	0.3+	0.7+
1988 02 14	809	0.7+	0.8−	1988 07 11	413	0.4−	1.3−	1998 08 27	704	1.0−	0.0
1988 02 14	809	0.4−	0.6+	1989 07 29	675	0.6+	0.8−	1998 08 27	704	0.1+	0.7+
1988 02 15	809	1.3−	0.2−	1989 07 29	675	0.3+	0.9−	1998 08 27	704	1.7−	0.3+
1988 02 15	809	0.9−	1.1−	1992 01 30	809	(1.9+	3.6+)	1998 08 27	704	0.2−	0.4−
1988 02 15	809	(0.6+	3.1−)	1995 12 18	801	0.2−	0.5−	1998 08 27	704	(2.1−	0.1−)
1988 02 16	809	0.4−	1.1−	1995 12 23	801	0.3−	0.4−	1998 09 19	704	0.5+	1.0+
1988 02 16	809	0.3+	0.7−	1995 12 23	801	0.1+	0.7−	1998 09 19	704	0.2+	1.0+
1988 02 17	809	0.7−	0.9+	1998 08 19	704	0.6−	0.5−	1998 09 19	704	0.5+	1.4+
1988 02 17	809	1.2−	0.3+	1998 08 19	704	0.1+	1.3+	1998 09 23	704	0.0	0.2+
1988 02 23	413	0.2−	0.5+	1998 08 19	704	1.1+	0.1+	1998 09 23	704	0.8+	0.9−
1988 02 23	413	0.6+	0.4+	1998 08 19	704	1.1+	0.4+	1998 09 23	704	0.7+	0.1−
1988 02 25	413	0.6−	0.3+	1998 08 19	704	0.5−	0.2−	1998 09 23	704	0.1+	1.2−
1988 02 25	413	1.6+	0.3−	1998 08 24	704	0.4−	0.2+	1998 09 23	704	0.2−	0.9−

(9314)∗ 1988 DJ_1 = 1990 QY_1 = 1990 RK

Discovered 1988 Feb. 19 by Y. Oshima at the Gekko Observatory.

Id. H. Kaneda (*MPC* 17441)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	316.05483	(2000.0)	**P**	**Q**	
n	0.25450921	ω	269.09547	+0.51196289	−0.85773857
a	2.4660415	Ω	149.96430	+0.82055557	+0.47224842
e	0.1898209	i	5.35056	+0.25413099	+0.20314029
P	3.87	H	13.7	G 0.15	U 2

Residuals in seconds of arc

1988 02 19	888	(2.7−	0.3+)	1990 08 20	809	(0.1−	2.8−)	1998 08 28	704	1.9−	0.7−
1988 02 19	888	1.5−	1.2−	1990 08 20	809	(0.4+	2.4−)	1998 08 28	704	0.2−	0.2+
1988 03 07	888	0.0	1.7+	1990 08 22	675	0.6+	0.1−	1998 08 28	704	2.0−	0.5−
1988 03 07	888	1.4+	1.6−	1990 08 22	675	0.0	0.5−	1998 08 28	704	0.0	0.4−
1988 03 07	888	1.9+	0.9−	1990 09 14	675	0.0	0.9−	1998 08 31	704	0.5−	0.9+
1988 03 08	888	2.1−	0.7+	1990 09 14	675	0.3−	0.5−	1998 08 31	704	0.2−	1.3+
1988 03 08	888	(3.0−	0.3+)	1990 09 19	675	0.1+	1.4−	1998 08 31	704	0.9+	1.3−
1988 03 09	888	0.7−	2.2−	1990 09 19	675	0.3−	0.5−	1998 08 31	704	0.2−	1.2+
1988 03 09	888	1.1+	1.3−	1990 09 21	095	(5.4+	9.3+)	1998 08 31	704	1.8+	2.0−
1988 03 10	888	1.1−	0.2−	1992 02 28	675	0.4+	0.5+	1998 09 13	888	1.3−	0.9+
1988 03 10	888	1.1−	0.2+	1992 02 28	675	1.0+	0.5+	1998 09 13	888	0.7−	0.2+
1990 08 16	809	0.0	0.4+	1994 09 11	675	1.8+	0.8+	1998 10 02	888	0.1+	0.3+
1990 08 16	809	0.4−	0.0	1994 09 11	675	0.9+	0.3+	1998 10 02	888	0.2+	0.2+
1990 08 16	809	0.9−	0.3+	1994 11 04	675	0.9+	0.7+	1998 10 02	888	0.2+	0.3+
1990 08 20	809	0.6+	2.0−	1994 11 04	675	0.6+	0.1−				

(9315)∗ 1988 PP_2 = 1977 SE_2 = 1998 JN_2

Discovered 1988 Aug. 13 at Tautenburg.

Id. G. V. Williams (*MPC* 31949)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	231.15062	(2000.0)	**P**	**Q**	
n	0.26811288	ω	11.76469	+0.99462301	−0.10346882
a	2.3819040	Ω	354.16892	+0.09116659	+0.89490208
e	0.1711425	i	2.47692	+0.04912969	+0.43410191
P	3.68	H	14.3	G 0.15	U 2

Residuals in seconds of arc

1977 09 19	095	0.7−	1.5+	1996 11 08	327	0.6−	0.9−	1998 04 21	704	1.5+	1.5−
1988 08 13	033	1.2+	0.4−	1996 11 08	327	0.3+	0.5−	1998 04 21	704	(2.0−	2.5−)
1988 08 14	033	0.4+	0.4−	1996 11 08	327	0.0	0.3−	1998 04 21	704	1.7+	0.9−
1988 08 14	033	0.1+	0.2−	1998 03 25	704	1.4−	0.1+	1998 04 22	704	0.4+	0.6+
1988 09 11	675	0.1−	0.5−	1998 03 25	704	0.5−	1.3−	1998 04 22	704	0.5+	1.1+
1988 09 11	675	0.7−	0.3+	1998 03 25	704	(2.2+	1.5−)	1998 04 22	704	1.1+	0.6−
1988 09 16	675	0.9+	0.4+	1998 03 25	704	(4.3−	1.6−)	1998 04 22	704	1.0+	0.3+
1988 09 16	675	0.2+	0.1−	1998 04 20	688	0.4−	0.4+	1998 04 22	704	0.7−	0.4−
1988 10 07	675	1.9−	0.7−	1998 04 20	688	0.3−	0.5+	1998 05 03	701	0.6−	0.1+
1988 10 07	675	0.5+	0.7−	1998 04 20	688	0.2−	0.4+	1998 05 03	701	1.0−	0.1+
1988 10 09	675	0.1+	0.0	1998 04 21	704	0.4−	0.0	1998 05 05	701	1.4−	0.1+
1988 10 09	675	0.7+	0.6−	1998 04 21	704	0.2−	0.5−	1998 05 05	701	(3.7−	0.5+)

(9316)∗ 1988 PX_2 = 1978 TH_2

Discovered 1988 Aug. 12 by E. W. Elst at Haute Provence.

Id. T. Kobayashi (*MPC* 15417)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	277.23137	(2000.0)	**P**	**Q**	
n	0.18959783	ω	207.98020	+0.86870080	−0.49530587
a	3.0008697	Ω	181.73974	+0.48178746	+0.84749651
e	0.0771556	i	10.57154	+0.11506420	+0.19084487
P	5.20	H	12.9	G 0.15	U 1

Residuals in seconds of arc

1978 10 03	095	0.7+	0.7−	1989 12 29	511	0.7−	1.6−	1993 07 21	801	0.5+	1.3−
1978 10 07	095	(0.4+	4.9+)	1989 12 29	511	(3.2+	1.1−)	1993 08 14	801	0.8+	0.5−
1988 08 12	511	2.2−	0.1−	1989 12 30	511	0.9+	1.1−	1993 08 14	801	0.7+	0.3−
1988 08 12	511	0.8−	0.2+	1989 12 30	511	0.1+	1.5−	1993 08 22	801	0.3+	0.1+
1988 08 14	511	1.6−	0.7+	1989 12 30	511	0.2+	0.7+	1993 08 22	801	0.7+	0.3+
1988 08 15	511	0.6−	0.4−	1989 12 30	511	0.3−	1.3+	1998 08 01	823	0.5−	0.2−
1988 08 18	511	1.0−	0.6−	1989 12 31	511	(3.5+	0.8−)	1998 08 01	823	0.2−	0.5−
1988 08 18	511	1.0−	0.3−	1991 02 09	675	0.6−	1.7−	1998 08 02	823	0.4−	1.1−
1988 08 18	511	1.5+	1.5+	1991 02 09	675	0.9−	0.6−	1998 08 02	823	0.1−	1.0−
1988 09 10	675	1.6+	0.2+	1991 03 12	675	0.6−	0.4−	1998 08 27	958	0.4+	1.5−
1988 09 10	675	1.0+	0.6+	1991 03 12	675	0.9+	0.5−	1998 08 27	958	0.7−	0.4+
1989 12 28	511	1.3−	1.1−	1993 07 17	801	0.2+	0.0	1998 08 27	958	(2.6−	1.3−)
1989 12 28	511	1.1+	0.0	1993 07 17	801	0.4+	0.4+	1998 08 29	958	0.4+	0.2−
1989 12 28	511	0.4+	0.4+	1993 07 21	801	0.7−	0.1−	1998 08 29	958	1.1+	0.7−

(9317)∗ 1988 RO_4 = 1993 PZ_3

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

Id. G. V. Williams (*MPC* 22590)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	270.13121	(2000.0)	**P**	**Q**	
n	0.19001572	ω	243.08411	+0.69963621	−0.71205697
a	2.9964683	Ω	162.10738	+0.70456205	+0.67381751
e	0.1235289	i	11.07653	+0.11874972	+0.19734446
P	5.19	H	13.3	G 0.15	U 1

Residuals in seconds of arc

1988 09 01	809	0.5−	0.5−	1988 09 20	809	0.8−	1.3+	1996 03 20	566	0.5+	0.3−
1988 09 01	809	0.5−	0.4−	1988 09 20	809	0.4−	1.5+	1996 03 20	566	1.0+	0.4−
1988 09 01	809	0.4−	0.4−	1988 09 20	809	0.2+	1.6+	1996 03 20	566	0.7+	0.1−
1988 09 03	809	0.6−	1.4−	1988 10 04	807	0.1−	0.4+	1997 04 06	691	0.3+	0.1+
1988 09 03	809	0.2−	1.4−	1988 10 07	807	0.2−	0.1−	1997 04 06	691	0.4+	0.2+

1988 09 03	809	0.2−	1.6−	1988 11 03	807	0.3−	0.3−	1997 04 06	691	0.1−	0.3+
1988 09 06	809	0.5−	0.5−	1988 11 05	807	0.3−	0.9−	1997 04 08	691	0.3−	0.1−
1988 09 06	809	0.5−	0.6−	1993 08 14	010	0.7+	0.3+	1997 04 08	691	0.3−	0.0
1988 09 08	809	0.4−	0.5−	1993 08 14	010	0.4−	0.5−	1997 04 08	691	0.3−	0.1−
1988 09 08	809	0.2−	0.6−	1993 08 14	010	0.5+	0.5−	1998 06 27	699	0.2−	0.6+
1988 09 08	809	0.2−	0.4−	1993 08 15	010	0.5+	0.4−	1998 06 27	699	0.7−	0.7+
1988 09 12	809	0.2+	0.3−	1993 08 18	010	1.8+	0.8−	1998 06 27	699	0.8−	0.6+
1988 09 12	809	0.2+	0.2−	1993 08 18	010	0.6+	1.5−	1998 08 17	704	0.1+	1.2−
1988 09 12	809	0.2+	0.1+	1993 08 18	010	1.3+	0.8−	1998 08 17	704	0.4+	0.8−
1988 09 15	809	0.8+	0.4+	1996 02 15	691	0.2−	0.0	1998 08 17	704	0.4−	1.0+
1988 09 15	809	0.7+	0.1+	1996 02 15	691	0.2−	0.1−	1998 09 19	910	0.5−	1.0+
1988 09 15	809	0.8+	0.2+	1996 02 15	691	0.1−	0.1+	1998 09 19	910	0.4−	0.9+
1988 09 18	809	0.3+	1.3+	1996 03 11	596	0.4−	0.5−	1998 09 19	910	0.5−	1.0+
1988 09 18	809	0.2+	1.1+	1996 03 11	596	0.5−	0.8−				
1988 09 18	809	0.6+	1.2+	1996 03 11	596	0.9−	0.2−				

(9318)∗ 1988 RG_9 = 1995 WR_{18}

Discovered 1988 Sept. 6 by H. Debehogne at the European Southern Observatory.

Id. K. Ichikawa (*MPC* 29096)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	311.96756		(2000.0)		**P**	**Q**	
n	0.29726685	ω	260.22415		+0.92978530	−0.36525484	
a	2.2235065	Ω	121.18635		+0.35519526	+0.85765819	
e	0.1242933	i	3.06198		+0.09662104	+0.36195486	
P	3.32	H	15.4	G	0.15	U	1

Residuals in seconds of arc

1988 08 16	675	0.0	0.2−	1995 11 17	691	0.1+	0.2+	1998 09 14	704	0.1+	0.4+
1988 08 16	675	0.4−	0.3−	1995 11 22	691	0.3−	0.3+	1998 09 14	704	0.0	0.2+
1988 09 03	809	0.5−	1.2+	1995 11 22	691	0.4−	0.1+	1998 09 14	704	0.1−	0.0
1988 09 03	809	0.2−	1.7+	1995 11 22	691	0.5−	0.3+	1998 09 14	704	0.7−	0.2+
1988 09 03	809	0.1+	1.8+	1996 01 17	327	0.6+	0.2+	1998 09 16	699	0.4+	0.8+
1988 09 06	809	(2.7−	1.8+)	1996 01 17	327	0.4+	0.2+	1998 09 16	699	0.2+	0.5+
1988 09 06	809	1.5−	1.2+	1996 01 17	327	0.1+	0.4+	1998 09 16	699	0.7+	0.6+
1988 09 06	809	0.3−	1.1+	1997 04 05	566	0.9+	0.0	1998 09 18	704	0.6+	0.0
1988 09 07	809	0.5−	0.3+	1997 04 05	566	0.8−	0.1+	1998 09 18	704	0.8−	1.1−
1988 09 07	809	0.2−	0.3+	1997 04 05	566	0.0	0.2+	1998 09 18	704	0.1−	0.2−
1988 09 07	809	0.0	0.5+	1998 08 17	704	1.5+	0.2+	1998 09 18	704	0.6−	0.0
1988 09 09	809	0.0	0.5−	1998 08 17	704	0.2+	0.2+	1998 09 18	704	0.9−	0.4−
1988 09 09	809	0.1+	0.5−	1998 08 17	704	0.9+	0.5+	1998 09 25	704	0.0	1.1−
1988 09 09	809	0.3+	0.5−	1998 08 17	704	0.4+	0.2−	1998 09 25	704	0.9+	1.8−
1988 09 10	675	0.0	1.2+	1998 08 17	704	0.4−	1.6+	1998 09 25	704	(0.6+	3.0−)
1988 09 10	675	1.2+	0.8+	1998 08 23	704	0.9−	0.5−	1998 09 25	704	1.2+	2.1−
1988 09 11	675	0.6−	0.3−	1998 08 23	704	1.4−	0.4+	1998 09 25	704	(1.4+	3.2−)
1988 09 11	675	0.4−	0.2+	1998 08 23	704	0.9−	0.2−	1998 09 27	704	0.2−	0.2+
1988 09 12	809	0.7+	1.6−	1998 08 23	704	0.5+	0.5−	1998 09 27	704	0.3−	0.1+
1988 09 12	809	0.7+	1.7−	1998 08 23	704	0.1+	0.7+	1998 09 27	704	0.7−	0.6+
1988 09 12	809	0.7+	2.0−	1998 08 30	699	0.5+	1.1+	1998 09 27	704	0.2+	1.4+
1995 11 17	691	0.2−	0.3+	1998 08 30	699	0.3−	0.3+	1998 09 27	704	0.3−	0.2+
1995 11 17	691	0.1−	0.3+	1998 08 30	699	0.4−	1.0+				

(9319)∗ 1988 RV_{11} = 1997 AS_9

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

Id. G. V. Williams (*MPC* 28842)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	35.00825		(2000.0)		**P**	**Q**	
n	0.29263290	ω	97.23092		−0.12298000	+0.99232842	
a	2.2469183	Ω	165.68639		−0.92952806	−0.11071042	
e	0.1534010	i	2.93476		−0.34763991	−0.05502276	
P	3.37	H	15.5	G	0.15	U	1

Residuals in seconds of arc

1988 09 14	807	0.6+	0.6−	1997 01 10	691	0.0	0.1−	1998 08 23	704	0.3+	0.2−
1988 09 15	807	0.4+	0.6−	1997 01 10	691	0.0	0.0	1998 08 23	704	1.0+	1.2−
1988 10 06	807	0.1+	0.4−	1997 01 10	691	0.0	0.1−	1998 08 23	704	1.4−	1.0+
1988 10 07	807	0.2−	0.6−	1997 02 15	691	0.1+	0.4+	1998 08 23	704	0.2−	1.2+
1988 11 06	807	0.2−	0.2−	1997 02 15	691	0.1+	0.6+	1998 08 25	426	0.2+	0.4−
1994 03 14	675	0.9+	0.3−	1997 02 15	691	0.0	0.6+	1998 08 25	426	0.0	0.1−
1994 03 14	675	0.0	0.9−	1998 07 26	809	(3.0+	2.8+)	1998 08 25	426	0.1+	0.3−
1994 04 03	675	0.6−	1.0+	1998 07 26	809	(3.2+	2.2+)	1998 08 26	426	0.0	0.4−
1994 04 03	675	0.6+	0.2+	1998 07 26	809	(3.3+	1.9+)	1998 08 26	426	0.1+	0.3−
1994 04 04	675	0.7−	0.0	1998 07 27	809	(2.6+	1.0+)	1998 08 26	426	0.0	0.4−
1994 04 04	675	0.3−	0.3−	1998 07 27	809	(3.0+	1.0+)	1998 09 14	704	0.1−	0.6+
1996 11 05	691	0.3−	0.1−	1998 07 27	809	(2.6+	1.7+)	1998 09 14	704	0.2−	1.7+
1996 11 05	691	0.0	0.2+	1998 08 17	704	0.1−	0.2+	1998 09 14	704	0.7+	0.3+
1996 11 05	691	0.3−	0.2+	1998 08 17	704	0.6−	0.5+	1998 09 14	704	0.8+	0.1−
1997 01 03	691	0.6+	0.2+	1998 08 17	704	0.2−	0.5+	1998 09 14	704	0.7−	0.7+
1997 01 03	691	0.1+	0.2+	1998 08 17	704	0.6−	0.0				
1997 01 03	691	0.0	0.0	1998 08 17	704	0.1−	0.4+				

(9320)∗ 1988 VN_3

Discovered 1988 Nov. 11 by Y. Oshima at the Gekko Observatory.

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	259.63473		(2000.0)		**P**	**Q**	
n	0.28499347	ω	214.69228		+0.14071802	−0.98808634	
a	2.2868944	Ω	227.30550		+0.92647010	+0.15361394	
e	0.1285624	i	4.86406		+0.34907248	−0.00938823	
P	3.46	H	14.8	G	0.15	U	1

Residuals in seconds of arc

1988 11 11	888	(3.8+	1.4−)	1995 12 23	801	0.2−	0.3−	1998 09 13	888	0.3−	0.4+
1988 11 11	888	(2.4+	1.9−)	1995 12 23	801	0.3−	0.6−	1998 09 14	704	0.2−	0.6−
1988 11 12	888	0.3+	0.4+	1997 05 07	566	0.9−	0.4−	1998 09 14	704	0.1−	0.2+
1988 11 12	888	0.3+	0.7+	1997 05 07	566	0.8−	0.3−	1998 09 14	704	0.1−	1.4+
1988 11 14	888	(0.9+	2.9−)	1997 05 07	566	0.1−	0.3−	1998 09 14	704	0.1+	0.6−
1988 11 14	888	(2.2+	3.2−)	1998 08 17	704	0.1+	0.5−	1998 09 14	704	0.3+	0.0
1988 11 30	888	0.7−	0.0	1998 08 17	704	0.8+	0.3+	1998 09 15	699	0.5−	0.4−
1988 11 30	888	0.1+	0.1+	1998 08 17	704	1.1+	0.4+	1998 09 15	699	0.5−	0.3−
1988 12 05	888	1.0−	0.2+	1998 08 17	704	0.3+	1.5+	1998 09 15	699	0.2+	0.4−
1988 12 10	888	0.0	0.4−	1998 08 17	704	1.0+	0.0	1998 09 16	888	0.3−	0.5−
1988 12 10	888	0.0	0.5−	1998 08 23	704	0.2−	0.1−	1998 09 16	888	0.2+	0.4−
1991 09 03	413	0.3+	0.4−	1998 08 23	704	0.4+	1.9−	1998 09 16	888	0.9−	0.5−
1991 09 03	413	1.0+	0.4+	1998 08 23	704	0.1−	0.1+	1998 09 25	704	0.0	0.8−
1991 09 04	413	0.3+	0.3−	1998 08 23	704	0.4+	0.8−	1998 09 25	704	0.1−	0.5+
1991 09 04	413	0.7−	0.0	1998 08 23	704	0.7+	0.3+	1998 09 25	704	0.1+	0.4−
1993 01 30	413	(2.7−	0.7+)	1998 08 23	888	0.0	0.0	1998 09 25	704	1.2−	0.1−
1993 01 30	413	(2.7+	0.4−)	1998 08 23	888	0.1−	0.2−	1998 09 25	704	1.2−	0.2−
1993 03 23	801	0.6−	0.5+	1998 08 23	888	0.6+	0.3+	1998 09 27	704	0.7+	0.4−
1993 03 23	801	0.4−	0.5+	1998 08 30	699	0.1+	0.6+	1998 09 27	704	1.1−	0.2−
1993 03 24	675	1.6+	0.7−	1998 08 30	699	0.5+	0.0	1998 09 27	704	0.2−	1.1+
1993 03 24	675	0.7+	1.2−	1998 08 30	699	1.0+	0.4+	1998 09 27	704	(2.2−	0.7+)
1995 12 18	801	0.1+	0.3−	1998 09 13	888	0.3+	0.7+				
1995 12 18	801	0.2+	1.0−	1998 09 13	888	0.9−	0.2+				

(9321)∗ 1989 AK = 1977 VZ_1 = 1977 XD = 1984 EK

Discovered 1989 Jan. 5 by T. Kojima at Chiyoda.

Id. T. Kobayashi (*MPC* 14205)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	280.46619		(2000.0)		**P**	**Q**	
n	0.18021104	ω	353.62827		+0.11428479	−0.99055347	
a	3.1041912	Ω	89.79095		+0.91478346	+0.07517937	
e	0.2697214	i	4.34615		+0.38744059	+0.11468171	
P	5.47	H	12.8	G	0.15	U	1

Residuals in seconds of arc

1977 11 14	330	2.1+	0.7−	1993 10 09	809	(2.6+	1.6+)	1998 08 23	704	0.8−	0.0
1977 12 07	675	0.5−	0.5−	1993 10 09	809	0.5+	1.6+	1998 08 23	704	0.1−	0.6−
1977 12 08	675	0.4−	0.6−	1993 10 11	809	1.4+	0.9+	1998 08 23	704	0.4+	1.2+
1977 12 08	330	0.8−	0.8−	1993 10 11	809	1.2+	1.1+	1998 08 23	426	0.3−	0.3+

1984 03 01	688	1.3+	0.9−	1993 10 11	809	0.5+	1.8+	1998 08 23	426	0.8−	0.0
1984 03 01	688	(1.9+	2.6−)	1993 10 12	801	1.2−	0.9−	1998 08 23	426	0.5−	0.1+
1984 03 06	688	(2.5+	3.3−)	1993 10 12	801	1.1−	0.9−	1998 09 16	699	0.8+	0.3−
1984 03 06	688	(1.3+	2.9−)	1993 10 19	801	1.3−	1.1−	1998 09 16	699	0.8+	0.4+
1988 12 30	897	0.3+	0.7+	1993 10 19	801	0.7−	1.3−	1998 09 16	699	1.0+	0.6−
1988 12 30	897	1.3−	0.1−	1993 10 21	809	1.5+	1.4+	1998 09 18	704	0.1+	0.2−
1989 01 04	399	1.0−	0.5+	1993 10 21	809	1.4+	1.6+	1998 09 18	704	1.0+	0.8−
1989 01 04	399	0.9−	0.1+	1993 10 21	809	1.1+	1.4+	1998 09 18	704	0.7+	0.3+
1989 01 04	399	1.4+	0.2+	1998 08 17	704	0.0	0.4+	1998 09 18	704	0.2+	1.3+
1989 01 04	399	1.3+	0.5+	1998 08 17	704	0.1−	0.3+	1998 09 18	704	0.4−	0.3−
1989 01 05	897	0.9−	0.7+	1998 08 17	704	0.1+	0.3−	1998 09 25	704	0.4−	0.5−
1989 01 05	897	0.8−	0.4+	1998 08 17	704	0.1−	0.5−	1998 09 25	704	0.0	0.1−
1989 01 06	399	2.0+	1.8−	1998 08 17	704	0.7−	0.4−	1998 09 25	704	0.4+	0.4−
1989 01 06	897	(3.2−	0.7−)	1998 08 17	426	0.5+	0.6+	1998 09 25	704	0.1−	0.7−
1989 01 06	399	1.2−	0.3−	1998 08 17	426	0.1−	0.6+	1998 09 27	704	0.3−	0.9−
1989 01 06	897	(1.5−	5.3−)	1998 08 17	426	1.0+	0.1−	1998 09 27	704	0.8−	0.1+
1989 02 04	071	0.8−	0.9+	1998 08 21	426	0.4−	0.0	1998 09 27	704	0.7−	0.2−
1989 02 04	071	0.4−	0.3−	1998 08 21	426	0.8−	0.4+	1998 09 27	704	0.3−	0.8−
1993 09 19	801	1.1−	1.3−	1998 08 21	426	0.4+	1.0+	1998 09 27	704	1.1−	0.8−
1993 09 19	801	0.4−	1.1−	1998 08 23	704	0.9−	0.7+				
1993 10 09	809	(2.7+	1.5+)	1998 08 23	704	0.7+	1.1−				

(9322)∗ 1989 AC$_7$ = 1981 SQ$_4$ = 1996 HA$_{11}$

Discovered 1989 Jan. 10 by F. Börngen at Tautenburg.

Id. B. G. Marsden (*MPC* 27306)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	342.82700		(2000.0)		**P**	**Q**	
n	0.17551398	ω	245.75468		+0.92116835	−0.38844832	
a	3.1593293	Ω	137.09286		+0.36844260	+0.85099317	
e	0.1774619	i	1.98621		+0.12529534	+0.35343816	
P	5.62	H	13.7	G	0.15	U	1

Residuals in seconds of arc

1981 09 25	095	0.8+	0.4−	1997 06 29	704	0.4−	0.3−	1998 09 14	113	0.7−	0.0
1989 01 10	033	0.3−	0.2+	1997 06 29	704	0.5−	0.1−	1998 09 14	113	0.8−	0.0
1989 01 11	033	0.3+	0.9+	1997 06 29	704	0.1+	0.5−	1998 09 18	699	0.7−	0.6+
1989 01 12	033	0.3+	0.6+	1997 06 29	704	1.5−	0.5−	1998 09 18	699	0.4−	0.5+
1989 02 02	033	0.0	0.1+	1997 06 29	704	0.4+	0.6+	1998 09 18	699	0.2−	0.4+
1989 02 04	033	0.9+	0.3−	1997 07 02	704	0.5−	0.3+	1998 09 22	113	0.2−	0.4+
1989 02 10	033	0.7−	0.7+	1997 07 02	704	0.2−	0.2+	1998 09 22	113	0.4−	0.5+
1989 02 10	033	1.0−	0.8+	1997 07 02	704	0.5−	0.6+	1998 09 26	704	0.1−	0.1−
1990 03 27	675	1.3−	0.2+	1997 07 02	704	0.8+	0.9−	1998 09 26	704	0.5+	0.4+
1996 04 17	809	1.3+	1.8+	1997 07 02	704	0.2−	0.1−	1998 09 26	704	0.7+	0.4−
1996 04 17	809	1.3+	1.7+	1997 07 02	704	0.1−	0.5+	1998 09 26	704	0.1−	0.6−
1996 04 17	809	0.1+	1.6+	1997 07 02	704	0.9+	0.5+	1998 09 26	704	0.5+	0.5−
1996 04 18	809	0.2+	1.1−	1997 07 02	704	(2.4−	0.1−)	1998 09 27	704	0.5+	1.2+
1996 04 18	809	0.9+	1.9−	1997 07 02	704	1.3−	0.1+	1998 09 27	704	0.6+	0.5+
1996 04 18	809	1.0+	1.5−	1997 07 02	704	0.1+	0.5+	1998 09 27	704	0.1−	0.9+
1997 06 28	704	0.2−	0.2+	1998 08 20	113	0.0	0.3−	1998 09 27	704	0.5+	0.0
1997 06 28	704	0.2+	0.9+	1998 08 20	113	0.1−	0.3−	1998 09 27	704	0.2+	0.3+
1997 06 28	704	0.1+	0.0	1998 09 13	113	0.8−	0.2−				

(9323)∗ 1989 CV$_1$ = 1991 TR

Discovered 1989 Feb. 11 by T. Seki at Geisei.

Id. S. Nakano (*MPC* 19302), G. V. Williams (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	240.32552		(2000.0)		**P**	**Q**	
n	0.26947165	ω	358.40465		−0.14131758	−0.98544043	
a	2.3738904	Ω	99.71212		+0.90933331	−0.16696216	
e	0.1707146	i	5.50356		+0.39133398	+0.03210605	
P	3.66	H	14.5	G	0.15	U	1

Residuals in seconds of arc

1954 08 04	675	1.5+	1.6−	1995 11 23	372	1.5−	0.2−	1998 08 17	704	(0.2+	2.8+)
1989 02 11	372	(0.5+	3.0−)	1995 11 23	372	1.1+	0.2−	1998 08 17	704	1.8+	1.1−
1989 02 11	372	(1.5+	2.5−)	1995 12 12	411	0.2+	1.2−	1998 08 17	704	1.2−	0.7−
1989 02 12	400	(4.6+	0.2−)	1995 12 12	411	0.3−	0.1+	1998 09 14	704	0.8+	1.9−
1989 02 12	400	(3.8+	0.2+)	1995 12 19	372	(2.9+	0.3+)	1998 09 14	704	0.4−	0.3+
1989 02 12	400	1.6+	0.2+	1995 12 19	372	0.3−	2.0+	1998 09 14	704	0.6+	0.1+
1989 02 14	372	2.0−	0.7+	1996 01 21	566	1.0+	0.3−	1998 09 14	704	1.6+	0.2+
1989 02 14	372	(2.6−	2.2+)	1996 01 21	566	1.1+	0.1+	1998 09 17	699	0.3+	1.3+
1989 03 01	372	(5.4−	2.5+)	1996 01 21	566	0.7+	0.1−	1998 09 17	699	0.2+	0.8+
1989 03 01	372	1.5−	1.3+	1996 02 28	118	1.2+	0.1+	1998 09 17	699	0.0	1.1+
1989 03 09	675	0.0	1.5−	1996 02 28	118	0.5+	0.3+	1998 09 18	704	1.3+	0.0
1989 03 09	675	0.1−	0.2−	1997 06 08	809	0.0	0.5+	1998 09 18	704	(1.3+	3.0+)
1989 03 10	675	0.3−	1.4−	1997 06 08	809	0.1−	0.7−	1998 09 18	704	1.2−	1.7−
1991 09 12	675	0.2+	0.9−	1997 06 08	809	0.3−	0.9−	1998 09 18	704	1.1−	0.5+
1991 09 12	675	0.2−	0.5−	1997 06 09	809	(0.9−	2.3−)	1998 09 18	704	1.4+	1.6+
1991 09 16	675	0.2−	1.8−	1997 06 09	809	(0.0	2.8−)	1998 09 25	704	1.1−	1.2−
1991 09 16	675	0.3−	0.5−	1997 06 09	809	(0.6−	2.7−)	1998 09 25	704	2.0−	1.4+
1991 10 01	413	1.0+	0.4+	1997 06 24	910	0.3+	0.4+	1998 09 25	704	1.6−	0.8+
1991 10 02	413	2.0−	0.1+	1997 06 24	910	0.2+	0.3+	1998 09 25	704	0.1+	0.1+
1991 10 07	413	(56.6−	20.9−)	1997 06 24	910	0.8+	0.0	1998 09 25	704	1.9−	0.3+
1991 10 15	413	(2.3−	0.5−)	1998 08 17	704	0.4+	1.4−				
1994 07 09	675	(2.4−	0.7−)	1998 08 17	704	1.5+	1.9+				

(9324)∗ 1989 CH$_4$ = 1993 EV

Discovered 1989 Feb. 7 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 22401)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	136.82251		(2000.0)		**P**	**Q**	
n	0.26204955	ω	231.67906		−0.93884353	+0.34383306	
a	2.4185056	Ω	328.41881		−0.30370175	−0.85247123	
e	0.1519435	i	2.05205		−0.16229011	−0.39379134	
P	3.76	H	13.7	G	0.15	U	2

Residuals in seconds of arc

1989 02 04	399	(0.0	2.7−)	1989 02 14	809	0.8+	0.0	1994 09 30	675	0.5−	0.3−
1989 02 04	399	0.5−	0.0	1989 02 27	399	(3.7−	2.1+)	1994 09 30	675	1.0−	1.2−
1989 02 04	399	(2.2−	1.0+)	1989 02 27	399	(3.2−	0.3+)	1997 05 31	367	0.0	0.2−
1989 02 05	399	0.2−	0.3−	1989 02 27	399	(2.0−	2.6+)	1997 05 31	367	0.1−	0.1−
1989 02 07	399	1.0+	1.1−	1993 03 15	400	0.3−	0.8−	1998 08 28	704	0.7+	1.0+
1989 02 07	399	1.7+	0.4−	1993 03 15	400	(0.4−	5.2−)	1998 08 28	704	0.7+	0.2+
1989 02 07	399	0.2−	0.0	1993 03 20	400	0.5−	1.0+	1998 08 28	704	1.2−	0.6−
1989 02 08	809	0.1+	0.8−	1993 03 20	400	(1.4+	2.7−)	1998 08 28	704	1.3+	0.8+
1989 02 08	809	0.3+	0.7−	1993 03 21	809	0.2+	0.5+	1998 08 28	704	(3.0−	2.2+)
1989 02 08	809	0.4+	0.8−	1993 03 22	809	0.4+	0.7+	1998 09 14	704	0.0	0.2−
1989 02 09	809	0.6+	0.1−	1993 03 26	809	0.7+	0.1+	1998 09 14	704	0.2−	0.6+
1989 02 09	809	0.8+	0.1−	1993 03 26	033	0.5+	0.1−	1998 09 14	704	0.1+	0.9−
1989 02 09	809	0.9+	0.1−	1993 03 26	033	0.5+	0.1+	1998 09 18	704	0.1−	0.1+
1989 02 10	809	0.2−	0.2+	1993 03 29	400	0.4−	0.2+	1998 09 18	704	0.5−	0.4−
1989 02 10	809	0.0	0.2+	1993 03 29	400	0.1−	0.0	1998 09 18	704	0.6+	0.6−
1989 02 10	809	0.1+	0.4+	1993 04 21	413	(6.2+	4.2+)	1998 09 18	704	0.1−	0.2−
1989 02 11	399	0.3−	0.6+	1994 08 12	809	(2.8+	5.3+)	1998 09 18	704	1.0+	0.5+
1989 02 11	399	0.3−	0.1+	1994 08 12	809	(1.9+	4.7+)	1998 09 26	704	0.4+	0.7−
1989 02 11	399	1.8−	1.7+	1994 08 12	809	(1.0+	4.3+)	1998 09 26	704	1.7−	0.3−
1989 02 12	809	0.5−	0.4+	1994 09 04	809	0.0	0.6+	1998 09 26	704	0.7−	1.5+
1989 02 12	809	0.2−	0.6+	1994 09 04	809	0.4−	0.2+	1998 09 26	704	0.7−	0.8+
1989 02 12	809	0.3−	0.5+	1994 09 04	809	1.7−	0.1+	1998 09 26	704	1.8−	0.6+
1989 02 13	049	0.6−	0.2−	1994 09 05	809	1.6+	1.0+	1998 09 27	704	0.7+	0.5−
1989 02 13	049	1.9−	1.2+	1994 09 05	809	0.6+	1.5+	1998 09 27	704	0.8+	0.1−
1989 02 13	809	0.3−	0.1+	1994 09 05	809	0.0	0.9+	1998 09 27	704	0.0	0.3−
1989 02 13	809	0.1+	0.1+	1994 09 06	809	(2.6+	3.8+)	1998 09 27	704	0.3+	0.2−
1989 02 13	809	0.1+	0.1+	1994 09 06	809	(1.9+	3.5+)	1998 09 27	704	0.2+	0.6−
1989 02 14	809	0.9+	0.0	1994 09 06	809	(2.7+	3.1+)				

(9325)∗ 1989 GG$_4$ = 1970 EM$_2$ = 1993 KF$_2$

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

Id. T. Urata (*MPC* 22401)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	195.02576		(2000.0)		**P**	**Q**	
n	0.26000356	ω	299.87174		−0.87819818	−0.47523328	
a	2.4311767	Ω	211.84371		+0.46652929	−0.82619271	
e	0.0648935	i	5.87982		+0.10544371	−0.30258708	
P	3.79	H	13.7	G	0.15	U	2

Residuals in seconds of arc

1970 03 04	805	0.4+	0.1+	1994 08 13	809	(2.4+	0.4+)	1998 09 16	699	0.1+	1.4+
1970 03 04	805	0.5−	0.4+	1994 09 05	809	(2.6+	3.2+)	1998 09 16	699	0.1−	0.9+
1970 03 04	805	0.3−	0.4+	1994 09 05	809	(1.8+	3.0+)	1998 09 16	699	0.1+	0.7+
1989 04 03	809	0.7−	1.4+	1994 09 05	809	(1.6+	2.7+)	1998 09 18	704	0.2+	0.4−
1989 04 03	809	1.0+	0.7+	1994 09 06	809	(2.9+	3.8+)	1998 09 18	704	0.8+	0.0
1989 04 03	809	0.5+	1.4+	1994 09 06	809	(3.0+	3.2+)	1998 09 18	704	0.1+	0.0
1989 04 05	809	0.0	1.1+	1994 09 06	809	(3.1+	3.4+)	1998 09 18	704	0.7+	0.4−
1989 04 05	809	0.0	0.0	1994 10 04	801	0.9+	0.3+	1998 09 18	704	0.2+	1.0−
1989 04 06	809	0.2−	0.2+	1994 10 04	801	1.9+	0.3+	1998 09 25	704	0.2+	0.5−
1989 04 06	809	0.4+	0.2−	1996 02 19	689	0.3−	0.9−	1998 09 25	704	0.5+	0.5−
1989 04 06	809	0.9+	0.2−	1997 06 24	689	(0.7−	2.3+)	1998 09 25	704	(3.2−	0.6−)
1989 04 09	809	0.2+	1.1−	1997 07 08	689	0.1−	0.7−	1998 09 25	704	0.9−	0.9−
1989 04 09	809	0.1+	1.4−	1997 07 09	689	0.4−	0.1+	1998 09 26	704	0.1−	0.7+
1989 04 09	809	0.1+	1.4−	1998 08 27	699	0.1−	0.9+	1998 09 26	704	0.5−	0.2−
1993 05 25	905	0.8−	0.0	1998 08 27	699	0.3−	0.4+	1998 09 26	704	0.6−	0.4+
1993 05 25	905	0.8−	1.0−	1998 08 27	699	0.3−	0.1−	1998 09 26	704	0.1+	1.0+
1993 05 27	385	0.8+	2.0+	1998 08 28	704	0.1+	0.4−	1998 09 26	704	0.2−	0.0
1993 05 27	385	0.4−	1.1+	1998 08 28	704	0.6−	0.2+	1998 09 27	704	0.1−	0.4−
1993 05 27	385	0.2−	0.4−	1998 08 28	704	0.5+	0.2+	1998 09 27	704	0.3+	0.6−
1994 08 12	809	0.6+	1.3−	1998 08 28	704	1.3−	0.4−	1998 09 27	704	0.6+	0.2+
1994 08 12	809	0.1+	0.3−	1998 08 28	704	(2.1−	2.9−)	1998 09 27	704	0.6+	0.7+
1994 08 12	809	0.1−	1.0−	1998 09 14	704	0.5+	1.0+	1998 09 27	704	0.2−	0.6−
1994 08 13	809	(3.2+	0.7+)	1998 09 14	704	0.3−	1.5+				
1994 08 13	809	(2.7+	0.7+)	1998 09 14	704	0.3−	0.7+				

(9326)∗ 1989 SP_2 = 1996 DV_3 = 1997 LT_{12}

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

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

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	26.11848		(2000.0)		**P**	**Q**	
n	0.21119791	ω	173.07670		+0.53373142	+0.84266705	
a	2.7926058	Ω	129.15461		−0.78019735	+0.52307432	
e	0.0449000	i	5.25444		−0.32622517	+0.12769303	
P	4.67	H	13.9	G	0.15	U	1

Residuals in seconds of arc

1989 09 26	809	1.1+	1.5−	1996 02 17	010	(2.4+	0.8+)	1998 08 30	699	0.2+	1.3+
1989 09 26	809	0.9+	1.6−	1996 02 17	010	1.7+	0.5+	1998 09 13	699	0.4+	0.7+
1989 09 26	809	1.1+	1.0−	1997 06 07	809	0.1+	0.6−	1998 09 13	699	(0.8−	2.4+)
1989 09 29	675	1.7−	2.2−	1997 06 07	809	0.6−	1.2−	1998 09 13	699	(0.2+	2.1+)
1989 09 29	675	0.5−	0.2−	1997 06 07	809	0.3−	1.2−	1998 09 14	704	0.1+	1.9+
1989 10 03	809	0.2−	2.0−	1997 06 08	809	0.3−	1.9−	1998 09 14	704	0.8−	1.6+
1989 10 03	809	0.3−	2.3−	1997 06 08	809	0.4−	1.7−	1998 09 14	704	0.9+	1.4+
1989 10 03	809	0.5−	1.9−	1997 06 08	809	0.6−	1.7−	1998 09 14	704	0.2−	0.5+
1989 10 07	809	(3.8+	0.2+)	1998 08 17	704	0.3−	0.4+	1998 09 25	704	(0.8+	2.1−)
1989 10 07	809	(3.1+	0.7−)	1998 08 17	704	0.0	1.4+	1998 09 25	704	1.2+	0.0
1989 10 07	809	1.1+	1.0−	1998 08 17	704	1.4−	0.9+	1998 09 25	704	0.1+	0.3−
1989 10 08	809	1.7+	0.1−	1998 08 17	704	0.6−	0.3−	1998 09 25	704	0.4+	0.3+
1989 10 08	809	1.3+	0.0	1998 08 17	704	0.5−	1.6−	1998 09 25	704	0.3−	0.5+
1989 10 08	809	1.6+	0.1−	1998 08 23	704	1.8+	0.5−	1998 09 27	704	0.2−	0.2−
1989 11 02	675	0.7+	0.3−	1998 08 23	704	0.1+	0.6+	1998 09 27	704	0.4+	0.0
1989 11 02	675	0.8−	0.6−	1998 08 23	704	1.1−	0.3+	1998 09 27	704	0.3−	0.6−
1996 02 16	010	1.9−	0.1+	1998 08 23	704	0.6−	0.7−	1998 09 27	704	1.1−	0.7+
1996 02 16	010	(2.8−	0.3−)	1998 08 23	704	0.1−	0.1−	1998 09 27	704	0.8−	0.8+
1996 02 16	010	(2.3−	0.2−)	1998 08 30	699	0.8−	0.7+				
1996 02 17	010	(2.9+	1.1+)	1998 08 30	699	0.1−	1.4+				

(9327)∗ 1989 SW_2 = 1992 FA

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

Id. H. Kaneda (*MPC* 20017)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	87.02416		(2000.0)		**P**	**Q**	
n	0.20226671	ω	129.68512		−0.82929546	+0.54993740	
a	2.8742184	Ω	83.89512		−0.53837339	−0.73871681	
e	0.1486452	i	5.72488		−0.14974356	−0.38970031	
P	4.87	H	12.9	G	0.15	U	1

Residuals in seconds of arc

1989 09 26	809	0.3−	0.8−	1989 10 08	809	2.0+	1.2+	1998 08 17	704	0.2+	0.0
1989 09 26	809	0.1+	1.2−	1989 10 08	809	0.9+	0.9+	1998 08 23	704	0.1−	0.2+
1989 09 26	809	0.1−	0.4−	1989 10 08	809	0.0	1.0+	1998 08 23	704	0.4−	1.0+
1989 09 28	809	0.2−	0.7−	1989 11 05	675	0.6+	0.1−	1998 08 23	704	0.5−	0.0
1989 09 28	809	0.3−	0.6−	1992 03 23	399	0.4−	1.9−	1998 08 23	704	0.7−	1.1+
1989 09 28	809	0.1−	0.6−	1992 03 23	399	0.2−	0.5−	1998 09 14	704	0.3+	0.1+
1989 09 29	675	0.0	0.3−	1992 03 24	399	1.2−	0.1−	1998 09 14	704	0.8−	0.4−
1989 09 29	675	0.1−	0.7−	1992 03 24	399	1.9−	0.5+	1998 09 14	704	0.4−	0.0
1989 10 03	809	0.1−	0.1−	1993 07 25	675	0.3+	0.2+	1998 09 14	704	1.4+	1.5−
1989 10 03	809	0.6−	0.9−	1995 10 21	327	0.6−	1.0+	1998 09 14	704	1.2+	0.1+
1989 10 03	809	1.4−	0.4−	1995 10 21	327	0.5−	0.8+	1998 09 14	699	0.5−	1.2−
1989 10 07	809	0.8+	0.9−	1995 10 21	327	0.4−	0.6+	1998 09 14	699	0.4−	0.2−
1989 10 07	809	0.9+	1.3−	1997 04 08	689	0.2+	0.4−	1998 09 14	699	0.6+	0.6−
1989 10 07	809	0.6+	0.6−	1997 04 09	801	0.8+	0.5−	1998 09 18	704	0.1−	0.5−
1989 10 07	809	0.3+	0.4+	1997 04 09	801	0.7+	1.0−	1998 09 18	704	(2.1+	1.4+)
1989 10 07	809	0.2−	0.5+	1997 04 09	689	0.8+	0.6−	1998 09 18	704	1.4−	1.5+
1989 10 07	809	0.1−	1.0+	1998 08 17	704	0.0	0.1−	1998 09 18	704	1.0−	0.2+
1989 10 08	809	1.1+	0.4−	1998 08 17	704	0.1−	0.8+	1998 09 24	699	1.1−	0.1−
1989 10 08	809	0.7+	0.1−	1998 08 17	704	0.4+	0.4−	1998 09 24	699	0.0	0.3−
1989 10 08	809	1.2+	0.1−	1998 08 17	704	0.5+	0.5+	1998 09 24	699	0.6−	0.2+

(9328)∗ 1990 DL_3 = 1991 RP_{14}

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

Id. E. Bowell (*MPC* 19678)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	15.02559		(2000.0)		**P**	**Q**	
n	0.27444937	ω	291.54956		+0.23537715	+0.97175160	
a	2.3450992	Ω	352.00564		−0.83962306	+0.19438673	
e	0.1939560	i	7.11130		−0.48952091	+0.13383809	
P	3.59	H	13.5	G	0.15	U	2

Residuals in seconds of arc

1990 02 24	809	0.0	1.0−	1990 03 17	809	0.9−	0.6+	1998 08 17	704	1.8+	0.5−
1990 02 24	809	0.7+	1.0−	1990 03 17	809	0.8−	0.5+	1998 08 17	704	0.7−	1.3−
1990 02 25	809	0.2−	2.0−	1990 03 19	809	0.4−	0.4−	1998 08 17	704	0.2−	1.1−
1990 02 25	809	0.2−	1.9−	1990 03 19	809	0.2−	0.3−	1998 08 23	704	0.5−	0.5+
1990 02 25	809	0.1−	2.1−	1990 03 19	809	0.0	0.1−	1998 08 23	704	0.1−	0.5+
1990 02 26	809	(2.5−	1.0−)	1991 09 11	675	(2.8+	0.4−)	1998 08 23	704	0.4−	0.6+
1990 02 26	809	2.0−	1.3−	1991 09 11	675	0.1−	1.4−	1998 08 23	704	0.1−	1.3+
1990 02 26	809	1.7−	1.7−	1991 09 15	675	0.9+	1.1−	1998 09 14	699	0.2+	0.3−
1990 03 15	046	(26.9+	4.2−)	1991 09 15	675	1.8+	1.2−	1998 09 14	699	0.3+	0.1−
1990 03 15	046	(29.0+	4.2−)	1993 01 28	675	0.6+	0.6+	1998 09 14	699	0.1+	0.2−
1990 03 16	809	0.4+	0.6+	1993 01 28	675	0.3+	1.0+	1998 09 19	423	0.5+	0.7−
1990 03 16	809	0.2+	0.6+	1994 05 06	323	0.8+	0.5−	1998 09 19	423	0.1−	0.8−
1990 03 16	809	0.2+	0.8+	1997 03 04	411	0.3−	0.7−	1998 09 19	423	0.6+	1.3−
1990 03 16	046	(3.1−	2.4+)	1997 03 04	411	0.1+	0.5−	1998 09 24	699	0.8+	0.5−
1990 03 16	046	(1.5+	3.2+)	1998 08 17	704	0.3−	0.2−	1998 09 24	699	0.4+	0.6−
1990 03 17	809	1.3−	0.6+	1998 08 17	704	1.2−	0.1+	1998 09 24	699	0.8+	0.1−

(9329)∗ 1990 EO = 1991 PG_{12}

Discovered 1990 Mar. 2 by E. W. Elst at the European Southern Observatory.

Id. E. Bowell (*MPC* 18819)
Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	59.14137		(2000.0)		**P**	**Q**	
n	0.28437771	ω	21.06982		−0.08672395	+0.99181607	
a	2.2901944	Ω	244.05622		−0.92828009	−0.11459199	
e	0.0910040	*i*	5.98118		−0.36162831	+0.05629884	
P	3.47	*H*	14.1	*G*	0.15	*U*	1

Residuals in seconds of arc

1990 02 24	809	0.6+	1.2−	1991 08 10	675	0.4+	0.3+	1998 08 27	704	2.0+	0.2−
1990 02 24	809	0.4+	1.1−	1991 09 10	675	0.2+	1.2−	1998 08 27	704	0.2−	0.0
1990 02 24	809	0.1−	1.5−	1991 09 10	675	0.3+	0.9−	1998 08 27	704	0.1−	1.4−
1990 03 02	809	0.4−	0.5+	1995 12 23	691	0.2+	0.0	1998 08 27	704	0.4+	1.1−
1990 03 02	809	1.0−	0.6+	1995 12 23	691	0.2+	0.3−	1998 09 19	704	0.8−	0.0
1990 03 02	809	1.8−	0.2+	1995 12 23	691	0.2+	0.2−	1998 09 19	704	1.0−	0.2+
1990 03 04	809	0.2+	0.3−	1998 08 24	704	0.2+	0.2+	1998 09 19	704	0.1+	0.8+
1990 03 04	809	0.3+	0.7−	1998 08 24	704	0.1+	1.0+	1998 09 25	704	0.3−	0.5−
1990 03 04	809	0.0	1.0−	1998 08 24	704	0.4−	0.2+	1998 09 25	704	0.2+	0.0
1991 08 07	675	0.8+	1.5−	1998 08 24	704	0.1+	1.1+	1998 09 25	704	0.1−	0.6−
1991 08 07	675	0.1+	0.9−	1998 08 24	704	1.1−	0.7+	1998 09 25	704	0.6+	0.0
1991 08 10	675	0.1−	0.4−	1998 08 27	704	0.6+	0.9−	1998 09 25	704	0.6−	0.6+

(9330)∗ 1990 EF$_7$ = 1979 HG$_3$ = 1991 JV$_2$

Discovered 1990 Mar. 3 by H. Debehogne at the European Southern Observatory.
Id. S. Nakano (*MPC* 20925)
Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	76.64226		(2000.0)		**P**	**Q**	
n	0.17002023	ω	118.51869		−0.31254155	+0.94955101	
a	3.2270249	Ω	133.24444		−0.88347419	−0.28056041	
e	0.1188691	*i*	2.03737		−0.34898587	−0.14013826	
P	5.80	*H*	12.7	*G*	0.15	*U*	1

Residuals in seconds of arc

1979 04 25	095	0.4+	0.9+	1991 05 17	809	0.6−	1.0−	1998 08 26	809	1.8+	1.9−
1990 03 03	809	0.4−	0.2−	1996 03 11	691	0.1−	0.2−	1998 08 26	809	(1.7+	2.4−)
1990 03 03	809	0.1−	0.4−	1996 03 11	691	0.0	0.2−	1998 08 26	809	(0.9+	2.6−)
1990 03 03	809	0.1−	0.4−	1996 03 11	691	0.1−	0.2−	1998 08 26	699	1.3+	0.4−
1990 03 06	809	0.1+	0.5−	1996 03 19	566	0.3−	0.2+	1998 08 26	699	0.0	0.2+
1990 03 06	809	0.3+	0.6−	1996 03 19	566	1.3−	1.5−	1998 08 26	699	0.2−	1.2−
1990 03 06	809	0.2+	0.5−	1996 03 19	566	0.4−	1.8−	1998 08 27	809	0.8+	0.1−
1990 03 07	809	0.7−	0.6−	1996 03 22	566	0.0	0.7+	1998 08 27	809	0.9+	0.1+
1990 03 07	809	0.2−	0.6−	1996 03 22	566	0.8+	0.7+	1998 08 27	809	1.6+	0.3+
1990 03 07	809	0.2−	0.6−	1996 03 22	566	0.2+	0.8+	1998 09 18	704	(2.6−	1.4+)
1991 05 12	809	0.4+	0.8+	1997 05 12	689	0.7+	1.4+	1998 09 18	704	0.8−	0.8+
1991 05 12	809	0.4−	0.1+	1998 08 23	704	0.9−	0.7−	1998 09 18	704	0.9+	0.3+
1991 05 12	809	1.1+	0.2−	1998 08 23	704	0.0	2.0−	1998 09 18	704	1.6−	0.5+
1991 05 17	809	0.4−	1.1−	1998 08 23	704	1.2−	0.2−				
1991 05 17	809	1.2−	1.4−	1998 08 23	704	0.2−	1.7−				

(9331)∗ 1990 QM$_9$ = 1997 CA$_6$

Discovered 1990 Aug. 16 by E. W. Elst at the European Southern Observatory.
Id. T. B. Spahr (*MPC* 30653)
Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	299.48055		(2000.0)		**P**	**Q**	
n	0.21654643	ω	281.95567		+0.43780953	+0.89887059	
a	2.7464311	Ω	14.05411		−0.79176706	+0.39539490	
e	0.0545245	*i*	4.44662		−0.42594335	+0.18892995	
P	4.55	*H*	14.5	*G*	0.15	*U*	2

Residuals in seconds of arc

1990 08 16	809	(0.2+	4.2+)	1995 11 30	691	0.4−	0.7+	1998 04 21	704	0.7+	0.2+
1990 08 16	809	(1.1−	3.8+)	1995 11 30	691	0.4−	0.7+	1998 04 21	704	0.3−	0.4+
1990 08 16	809	(1.0−	2.6+)	1997 01 11	566	0.4−	0.8−	1998 04 21	704	0.1−	0.2−
1990 08 18	809	(2.5−	3.3+)	1997 01 11	566	0.0	0.4−	1998 04 21	704	0.9+	0.4+
1990 08 18	809	(6.7−	4.1+)	1997 01 11	566	0.0	0.6−	1998 04 21	704	0.1+	1.3+
1990 08 18	809	(3.2−	3.4+)	1997 01 16	599	1.0−	0.1+	1998 04 22	704	1.2+	1.2−
1990 08 24	809	1.0+	1.7−	1997 01 16	599	0.4−	0.0	1998 04 22	704	0.3+	0.2+
1990 08 24	809	0.2+	1.9−	1997 02 01	596	0.5+	0.5+	1998 04 22	704	0.8+	1.1−
1990 08 24	809	(0.4+	2.5−)	1997 02 01	596	0.2+	0.4+	1998 04 22	704	1.1+	1.6−
1990 08 26	809	(4.0−	3.3+)	1997 02 07	596	0.1−	1.5−	1998 04 22	704	(2.6−	0.7−)
1990 08 26	809	(2.7−	3.2+)	1997 02 07	596	0.2−	1.8−	1998 05 26	691	0.8−	0.5+
1990 08 26	809	(3.7−	1.9+)	1997 02 07	596	0.1+	1.1−	1998 05 26	691	0.8−	0.3−
1990 09 16	675	0.9+	1.4−	1998 04 20	688	0.2+	0.2−	1998 06 01	691	1.6−	0.6+
1990 09 16	675	0.4+	0.0	1998 04 20	688	0.1+	0.0	1998 06 01	691	1.8−	0.2+
1995 11 30	691	0.5−	0.6+	1998 04 20	688	0.2+	0.0	1998 06 01	691	1.6−	0.2−

(9332)∗ 1990 SB$_1$ = 1994 TU$_{15}$

Discovered 1990 Sept. 16 by H. E. Holt at Palomar.
Id. K. Lawrence (*MPC* 24564)
Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	127.75610		(2000.0)		**P**	**Q**	
n	0.23752143	ω	209.54591		−0.95714396	+0.28517325	
a	2.5822652	Ω	346.73086		−0.20318385	−0.78550243	
e	0.1078131	*i*	12.71373		−0.20637772	−0.54923779	
P	4.15	*H*	13.2	*G*	0.15	*U*	1

Residuals in seconds of arc

1955 03 23	675	0.6−	1.0−	1994 11 01	033	0.0	0.5+	1998 08 30	699	0.8−	1.0+
1955 03 23	675	0.4−	0.6−	1995 10 23	801	0.0	0.0	1998 09 14	704	0.5−	0.2−
1990 09 16	675	0.2+	1.1−	1995 10 23	801	0.0	0.1−	1998 09 14	704	1.0+	0.3−
1990 09 16	675	0.6+	1.6−	1995 10 29	801	0.2−	0.4+	1998 09 14	704	0.1+	0.6+
1990 09 17	675	1.1+	1.9−	1995 10 29	801	0.2−	0.5+	1998 09 14	704	0.5+	0.0
1990 09 17	675	0.8+	1.7−	1995 12 08	608	0.0	0.7+	1998 09 18	704	0.4+	0.7−
1990 09 18	675	(1.1−	4.4−)	1995 12 08	608	0.1+	0.6+	1998 09 18	704	0.3+	0.3−
1990 09 18	675	0.8+	0.1+	1996 01 09	608	0.4+	0.5+	1998 09 18	704	0.6+	0.3+
1990 09 18	675	(0.6−	3.2−)	1996 01 09	608	0.3+	0.5+	1998 09 18	699	0.4+	0.1−
1990 09 18	675	0.4+	0.2−	1996 01 12	608	0.5+	0.5+	1998 09 18	704	0.1−	0.3+
1990 09 20	675	(1.1+	2.2−)	1996 01 12	608	0.6+	0.7+	1998 09 18	704	0.6−	0.2+
1990 09 20	675	0.4+	0.4−	1998 08 17	704	0.9−	0.8+	1998 09 18	699	0.2+	0.4+
1992 02 05	675	0.2−	0.3−	1998 08 17	704	0.4−	0.4+	1998 09 18	699	0.4−	0.1+
1992 02 05	675	1.3−	0.5−	1998 08 17	704	1.2−	0.0	1998 09 25	704	0.1−	0.9−
1994 09 04	675	0.4−	0.3−	1998 08 17	704	1.2+	0.1−	1998 09 25	704	0.7−	0.5−
1994 09 04	675	(0.5+	2.7+)	1998 08 17	704	0.2−	0.9+	1998 09 25	704	0.3+	0.9−
1994 09 06	675	(0.5+	3.2+)	1998 08 23	704	0.0	0.2+	1998 09 25	704	0.3−	1.8−
1994 09 06	675	(2.5+	1.0+)	1998 08 23	704	0.9+	1.4+	1998 09 25	704	0.4+	0.7−
1994 10 08	675	1.4−	1.2+	1998 08 23	704	0.2−	0.8+	1998 09 27	704	0.6−	0.0
1994 10 08	675	0.4−	0.9+	1998 08 23	704	1.0−	0.4−	1998 09 27	704	0.2−	0.5+
1994 10 10	675	1.1+	0.8+	1998 08 23	704	0.1−	1.0+	1998 09 27	704	0.3+	0.1+
1994 10 10	675	(2.6+	1.3+)	1998 08 30	699	0.7−	0.8+	1998 09 27	704	0.2+	0.3−
1994 11 01	033	0.5+	0.3−	1998 08 30	699	0.6−	0.6+	1998 09 27	704	0.1+	1.0−

(9333)∗ 1990 TK$_3$ = 1992 EQ$_1$

Discovered 1990 Oct. 15 by K. Endate and K. Watanabe at Kitami.
Id. K. Watanabe (*MPC* 20021)
Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	311.52989		(2000.0)		**P**	**Q**	
n	0.23744735	ω	1.40410		+0.83007530	−0.53475859	
a	2.5828023	Ω	32.54921		+0.50872749	+0.61001100	
e	0.1747838	*i*	17.09323		+0.22841047	+0.58473911	
P	4.15	*H*	12.9	*G*	0.15	*U*	2

Residuals in seconds of arc

1990 10 15	400	1.5+	0.3−	1992 03 08	400	(3.0+	0.5+)	1996 02 19	801	0.1−	0.8−
1990 10 15	400	(2.8+	0.4+)	1992 03 22	400	0.1−	0.0	1996 03 13	400	0.6+	0.6−

1990 10 16	095	(3.6−	5.3+)	1992 03 22	400	(5.7−	3.5+)	1996 03 13	400	0.1−	1.9+
1990 10 16	095	(2.0−	3.6+)	1992 03 23	400	(0.8+	2.2+)	1996 03 18	801	0.2−	0.8+
1990 10 20	402	0.7−	0.4−	1992 03 23	400	0.4+	1.0+	1996 03 18	801	0.2−	0.8+
1990 10 20	402	0.9+	0.1+	1994 10 01	397	0.3+	0.7−	1997 04 27	689	0.3+	0.9−
1990 10 21	400	1.9+	0.7−	1994 10 01	397	1.7+	0.7−	1997 05 13	689	0.7−	0.5+
1990 10 21	402	1.0−	0.0	1994 10 05	397	1.7+	0.5−	1998 08 23	423	0.5−	0.1+
1990 10 21	400	(3.1+	0.1+)	1994 10 05	397	(2.1+	0.4−)	1998 08 23	423	0.5−	0.3+
1990 10 21	402	0.3+	0.2−	1994 10 05	397	1.6+	1.4−	1998 08 24	423	0.8−	0.2+
1990 10 22	675	0.7−	0.7+	1994 10 16	292	1.2+	1.6−	1998 08 24	423	0.7−	0.2+
1990 10 22	675	0.9−	0.9+	1994 10 16	292	1.6+	1.8−	1998 09 21	704	0.6−	0.1−
1990 10 23	095	1.5−	1.3+	1994 10 26	400	0.7−	0.4+	1998 09 21	704	0.9−	0.7+
1990 11 11	675	0.8−	0.0	1994 10 26	400	0.6+	0.9−	1998 09 21	704	0.8+	1.2+
1990 11 11	675	0.8−	0.7−	1994 11 01	400	0.7−	0.8+	1998 09 21	704	0.8−	0.8+
1990 11 13	675	0.2−	0.2−	1994 11 01	400	(3.2+	0.5+)	1998 09 21	704	0.1−	1.4+
1990 11 13	675	0.3−	0.3−	1994 11 07	675	0.2+	0.6+	1998 09 27	423	0.8−	0.0
1990 11 15	400	0.6−	1.1+	1994 11 07	675	0.2+	0.2+	1998 09 27	423	0.8−	0.6+
1990 11 15	400	0.1−	1.2+	1996 01 25	801	0.1−	1.1+	1998 09 27	423	0.5−	0.5+
1992 02 27	376	1.1−	0.0	1996 02 16	801	1.0+	0.0	1998 09 29	423	0.5−	0.0
1992 02 27	376	0.9+	0.5−	1996 02 16	801	0.9+	0.1−	1998 09 29	423	0.2+	0.5+
1992 03 08	400	(2.8+	0.2+)	1996 02 19	801	0.3−	1.1−	1998 09 29	423	0.2+	0.0

(9334)∗ 1990 UU$_3$ = 1976 JM$_2$ = 1997 GP$_{30}$

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

Id. K. Ichikawa (*MPC* 29914)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	21.36629		(2000.0)		**P**	**Q**	
n	0.23050233	ω	99.58977		+0.31998392	+0.94683959	
a	2.6344250	Ω	189.27887		−0.92986134	+0.30713479	
e	0.1701576	i	11.89801		−0.18157143	+0.09572368	
P	4.28	H	13.6	G	0.15	U	1

Residuals in seconds of arc

1976 05 02	095	0.1−	0.3−	1997 04 12	691	0.5−	0.9−	1998 08 24	704	0.3+	0.8+
1990 10 16	809	0.7−	0.4+	1997 04 16	691	0.3−	1.1−	1998 08 24	470	0.8+	0.2−
1990 10 16	809	0.6−	0.6−	1997 04 16	691	0.3−	1.1−	1998 08 24	470	1.2+	0.0
1990 10 16	809	(2.2−	0.6−)	1997 04 16	691	0.3−	1.2−	1998 08 27	704	0.1+	0.6−
1990 10 20	809	0.3+	0.5−	1998 06 30	704	1.5−	1.2+	1998 08 27	704	1.1−	0.1−
1990 10 20	809	0.5+	1.6−	1998 06 30	704	0.7−	0.4−	1998 08 27	704	(3.5−	0.8−)
1990 10 20	809	0.2+	1.7−	1998 06 30	704	0.4−	1.1+	1998 08 27	704	0.3+	1.1−
1990 10 24	809	0.6+	0.5−	1998 08 04	699	0.4+	0.7−	1998 08 27	704	(0.5+	2.3−)
1990 10 24	809	0.3+	0.9−	1998 08 04	699	0.2+	0.9−	1998 09 15	610	0.8+	0.1−
1990 10 24	809	0.2+	0.5−	1998 08 04	699	0.1−	0.6−	1998 09 15	610	0.3+	0.0
1993 05 26	675	0.5+	0.1−	1998 08 22	689	0.3−	0.7−	1998 09 15	610	0.1−	0.2+
1997 04 08	691	0.1+	0.7−	1998 08 22	470	0.5+	0.2+	1998 09 18	704	0.3−	0.4−
1997 04 08	691	0.3+	0.9−	1998 08 22	470	0.2−	0.3+	1998 09 18	704	0.1−	0.7−
1997 04 08	691	0.4+	0.7−	1998 08 22	470	0.2−	0.5+	1998 09 18	704	0.3−	1.3−
1997 04 08	691	0.7−	0.8−	1998 08 24	704	1.2+	1.1−	1998 09 18	704	0.8−	0.5−
1997 04 08	691	0.6−	1.1−	1998 08 24	704	0.5+	0.6−	1998 09 18	704	0.8−	0.1−
1997 04 08	691	0.4−	0.8−	1998 08 24	704	0.6+	0.1+				
1997 04 12	691	0.4−	1.0−	1998 08 24	704	0.1−	0.2+				

(9335)∗ 1991 AA$_1$ = 1979 MT = 1980 TP$_{10}$ = 1985 YA$_2$

Discovered 1991 Jan. 10 by Y. Kushida and O. Muramatsu at the Yatsugatake South Base Observatory.

Id. S. Nakano (*MPC* 17832; unpublished)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	307.56029		(2000.0)		**P**	**Q**	
n	0.21474529	ω	301.95922		+0.88317474	−0.46152801	
a	2.7617665	Ω	85.64671		+0.45366418	+0.79524242	
e	0.0946235	i	4.81126		+0.11912677	+0.39316839	
P	4.59	H	13.2	G	0.15	U	1

Residuals in seconds of arc

1979 06 22	805	0.6−	1.3+	1996 05 08	327	0.1+	0.4+	1998 09 14	704	0.6−	0.0
1979 06 22	805	1.3+	0.3+	1996 05 15	327	0.4−	0.2+	1998 09 14	704	1.1−	2.0+
1979 06 25	805	1.8−	0.3−	1996 05 15	327	0.0	0.3+	1998 09 14	704	1.1−	0.1+
1980 10 08	095	1.0−	1.4+	1996 05 15	327	0.0	0.0	1998 09 14	704	0.5−	0.5+
1985 12 17	010	(8.0+	7.3−)	1996 05 20	327	0.5−	0.1−	1998 09 16	699	0.5−	0.9+
1985 12 17	010	(10.5+	6.7−)	1996 05 20	327	0.5+	0.8+	1998 09 16	699	0.3−	0.8+
1985 12 19	010	(6.6−	4.0+)	1996 05 20	327	0.4−	0.2+	1998 09 16	699	0.4−	0.9+
1989 09 02	675	0.1+	0.6+	1997 05 27	689	0.4−	0.8+	1998 09 18	704	0.3+	1.0+
1989 09 02	675	0.5+	0.2+	1998 08 04	689	0.0	0.8−	1998 09 18	704	0.3−	0.4+
1989 09 29	675	1.0+	0.0	1998 08 17	704	0.0	0.1+	1998 09 18	704	0.3−	0.7−
1989 09 29	675	0.5+	0.1+	1998 08 17	704	0.9+	0.1+	1998 09 18	704	0.9−	0.4−
1991 01 10	896	0.5+	0.8+	1998 08 17	704	0.0	0.6−	1998 09 18	704	1.0−	0.1+
1991 01 10	896	0.6+	0.6+	1998 08 17	704	0.1+	0.0	1998 09 25	704	0.3−	0.2−
1991 01 14	896	1.3+	0.5−	1998 08 17	704	0.4−	0.9−	1998 09 25	704	0.1−	0.6−
1991 01 15	896	(3.6−	0.2+)	1998 08 23	689	0.1−	0.4−	1998 09 25	704	0.3−	0.7−
1991 01 23	896	(3.1+	0.2+)	1998 08 23	704	1.1+	0.1−	1998 09 25	704	0.2+	0.7−
1992 04 28	691	0.4+	0.0	1998 08 23	704	0.9+	1.5+	1998 09 25	704	0.4+	0.9−
1992 04 28	691	0.4+	0.1+	1998 08 23	704	0.1+	0.4+	1998 09 27	704	0.4−	0.1−
1992 04 28	691	0.1+	0.3+	1998 08 23	704	0.6+	0.3−	1998 09 27	704	0.0	0.8+
1994 11 04	411	1.5−	0.1+	1998 08 23	704	1.5+	1.1+	1998 09 27	704	0.1−	0.3−
1994 11 04	411	1.4−	0.6−	1998 08 28	699	0.6+	0.3−	1998 09 27	704	0.5+	0.3+
1996 05 08	327	0.3+	1.3+	1998 08 28	699	1.2+	0.2−	1998 09 27	704	0.6−	0.3−
1996 05 08	327	0.6+	0.7+	1998 08 28	699	1.0+	0.4−				

(9336)∗ 1991 AY$_2$ = 1992 OG$_3$

Discovered 1991 Jan. 15 by F. Börngen at Tautenburg.

Id. G. V. Williams (*MPC* 29299)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	357.33970		(2000.0)		**P**	**Q**	
n	0.29377521	ω	253.49654		−0.74290428	+0.66936292	
a	2.2410899	Ω	328.52040		−0.60907246	−0.68014597	
e	0.1013921	i	0.74823		−0.27771203	−0.29892263	
P	3.35	H	15.4	G	0.15	U	1

Residuals in seconds of arc

1991 01 15	033	0.3−	0.7−	1996 10 21	691	(2.3+	0.5−)	1998 04 01	704	0.0	0.4−
1991 01 15	033	0.5−	1.7−	1996 10 21	691	0.9−	0.2−	1998 04 01	704	0.5−	0.1−
1991 01 15	033	0.3+	1.0−	1998 03 22	704	0.4−	0.2+	1998 04 01	704	0.0	1.3−
1991 01 15	033	0.2−	1.4−	1998 03 22	704	0.5−	0.2+	1998 04 01	704	0.5+	0.9−
1991 01 16	033	0.5−	0.5−	1998 03 22	704	0.3+	0.3+	1998 04 01	704	0.5+	0.6−
1991 01 22	675	0.2−	0.2+	1998 03 22	704	0.1−	0.5+	1998 04 16	113	0.3−	1.0+
1991 01 22	675	0.3−	0.1−	1998 03 22	704	0.1−	0.6+	1998 04 16	113	0.9−	0.5+
1992 07 24	809	(2.5+	0.9−)	1998 03 24	113	1.8−	0.9+	1998 04 18	704	0.3+	0.1−
1992 07 24	809	(1.8+	2.3−)	1998 03 24	113	1.7−	0.6+	1998 04 18	704	0.5−	1.1−
1992 07 24	809	0.1−	1.7−	1998 03 28	704	0.1+	0.3+	1998 04 18	704	0.4−	0.4−
1992 07 26	809	0.5+	0.5−	1998 03 28	704	0.2+	1.0+	1998 04 18	704	(0.8+	2.7−)
1992 07 26	809	0.4+	1.2−	1998 03 28	704	0.4+	1.1+	1998 04 19	704	0.8+	0.0
1992 07 26	809	0.1+	1.2−	1998 03 28	704	0.0	0.7+	1998 04 19	704	0.9+	0.0
1992 07 30	809	0.9+	0.0	1998 03 28	704	0.4+	0.0	1998 04 19	704	0.7+	0.1−
1992 07 30	809	0.5+	0.9−	1998 03 29	704	0.4−	0.3−	1998 04 19	704	1.1+	0.1+
1992 07 30	809	0.5−	0.0	1998 03 29	704	0.1+	0.1−	1998 04 19	704	0.1−	0.3−
1996 10 10	691	0.3−	0.1−	1998 03 29	704	0.0	0.3+	1998 04 21	113	0.2+	0.6−
1996 10 10	691	0.4−	0.2−	1998 03 29	704	0.0	0.6+	1998 04 21	113	0.2−	0.1+
1996 10 12	691	0.2+	0.2−	1998 03 29	704	0.4+	0.3−	1998 04 22	113	0.3−	0.1+
1996 10 12	691	0.2+	0.2−	1998 03 29	113	0.1−	1.2−	1998 04 22	113	0.4+	0.2−
1996 10 12	691	0.3+	0.2−	1998 03 31	113	0.7+	1.7−				
1996 10 21	691	1.1+	0.5+	1998 04 01	113	0.2−	0.8−				

(9337)∗ 1991 FO$_1$ = 1979 WY

Discovered 1991 Mar. 17 by H. Debehogne at the European Southern Observatory.

Id. T. Kobayashi (*MPC* 25638)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	282.38824		(2000.0)		**P**	**Q**	
n	0.20329730	ω	67.44719		+0.44662904	−0.89471729	
a	2.8644966	Ω	356.02372		+0.81071312	+0.40557377	
e	0.0622715	i	1.53812		+0.37850594	+0.18705849	
P	4.85	H	13.2	G	0.15	U	1

Residuals in seconds of arc

1979 11 16	095	(0.6−	4.4−)	1991 04 15	675	1.5−	1.6+	1998 09 14	704	0.5+	0.7−
1979 11 22	095	(2.3+	4.2−)	1991 04 15	675	0.6−	0.1+	1998 09 14	704	0.9+	1.0−
1988 09 10	675	1.1+	1.0+	1993 08 20	675	1.0−	1.0−	1998 09 14	704	0.2+	0.3−
1988 09 10	675	1.3+	1.2+	1993 08 20	675	1.6−	0.2−	1998 09 18	704	0.5−	1.4−
1991 03 12	675	0.2+	0.4−	1993 08 24	675	0.9−	0.1−	1998 09 18	704	0.7−	1.3+
1991 03 12	675	(2.2−	0.3+)	1993 08 24	675	2.0−	1.1+	1998 09 18	704	0.1−	0.6+
1991 03 17	809	0.5+	0.4+	1996 03 16	566	0.8−	1.1−	1998 09 18	704	0.7+	0.2−
1991 03 17	809	0.5+	0.4+	1996 03 16	566	0.7−	1.2−	1998 09 19	691	0.1−	0.7+
1991 03 17	809	1.1+	0.0	1996 03 16	566	0.6−	1.0−	1998 09 19	691	0.5−	0.6+
1991 03 19	809	1.3+	0.8+	1996 03 20	566	0.1−	0.5−	1998 09 19	691	0.0	0.5+
1991 03 19	809	1.4+	0.9+	1996 03 20	566	0.0	0.6−	1998 09 26	704	1.4+	0.3+
1991 03 19	809	1.7+	1.0+	1996 03 20	566	0.3+	0.1−	1998 09 26	704	(0.5−	2.5+)
1991 03 20	809	0.2−	0.7+	1998 08 23	704	0.8+	1.0+	1998 09 26	704	0.1+	0.3+
1991 03 20	809	0.1+	0.6+	1998 08 23	704	0.6+	1.2−	1998 09 26	704	(3.8−	0.4+)
1991 03 20	809	0.3+	0.8+	1998 08 23	704	0.2+	1.3−	1998 09 27	704	(1.0−	2.1+)
1991 03 20	809	0.5+	0.8+	1998 08 23	704	0.6−	0.9+	1998 09 27	704	(2.3+	0.2+)
1991 03 20	809	0.8+	0.9+	1998 08 23	704	0.8−	0.1−	1998 09 27	704	1.1+	0.4+
1991 03 20	809	1.0+	0.9+	1998 09 13	691	0.4−	0.5+	1998 09 27	704	0.1+	1.5−
1991 03 21	809	1.8−	0.8−	1998 09 13	691	0.4−	0.6+	1998 09 27	704	(1.5−	2.5+)
1991 03 21	809	1.7−	0.9−	1998 09 13	691	0.3−	0.6+				
1991 03 21	809	1.2−	0.8−	1998 09 14	704	0.4+	0.1+				

(9338)∗ 1991 FL_4 = 1987 SG_6 = 1992 PY_4

Discovered 1991 Mar. 25 by H. Debehogne at the European Southern Observatory.

Id. G. V. Williams (*MPC* 25064)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	36.72295		(2000.0)		**P**	**Q**	
n	0.17797770	ω	106.72396		+0.32350834	+0.94618087	
a	3.1301056	Ω	182.21528		−0.93312508	+0.31740730	
e	0.1939488	i	13.72437		−0.15690740	+0.06320091	
P	5.54	H	12.5	G	0.15	U	1

Residuals in seconds of arc

1987 09 21	046	(0.8+	3.7−)	1997 04 08	691	0.3−	0.3+	1998 09 18	704	0.2−	0.3+
1987 09 21	046	1.4+	2.3−	1998 06 30	704	1.4+	0.9−	1998 09 18	704	0.8−	0.2+
1987 09 27	095	1.0−	0.2−	1998 06 30	704	(2.2+	1.7−)	1998 09 18	704	0.0	0.2+
1991 03 25	809	0.5−	0.2−	1998 06 30	704	0.2+	1.0+	1998 09 18	704	1.1−	0.2−
1991 03 25	809	0.4−	0.2−	1998 06 30	704	0.8−	0.6+	1998 09 18	704	0.2−	0.6+
1991 03 25	809	0.2−	0.3−	1998 06 30	704	0.1−	0.7−	1998 09 18	704	1.4−	0.3+
1991 03 26	809	0.5+	0.2+	1998 06 30	704	0.6+	1.6−	1998 09 18	704	0.2−	0.1+
1991 03 26	809	0.6+	0.4+	1998 06 30	704	1.4+	1.2+	1998 09 18	704	0.2−	0.6−
1991 03 26	809	0.5+	0.4+	1998 06 30	704	1.5+	1.3−	1998 09 18	704	0.6−	0.4+
1991 04 09	046	(2.7+	2.2−)	1998 06 30	704	1.9+	0.1−	1998 09 25	699	0.0	0.0
1991 04 09	046	1.6+	0.4−	1998 08 03	689	0.5−	0.4−	1998 09 25	699	0.1−	0.3+
1991 04 20	675	0.9−	0.0	1998 08 22	689	0.5+	1.2−	1998 09 25	699	0.3−	0.2+
1991 04 20	675	0.7−	0.0	1998 08 28	143	0.6−	0.8+	1998 09 26	704	0.9−	0.4+
1992 08 04	675	0.3−	0.1−	1998 08 28	143	0.1+	0.3+	1998 09 26	704	0.3+	0.9−
1992 08 04	675	0.3−	0.8−	1998 08 28	143	0.1+	0.4+	1998 09 26	704	0.0	0.8−
1992 08 06	675	0.3−	0.9−	1998 09 14	704	0.3+	1.5+	1998 09 26	704	0.1−	0.8+
1992 08 06	675	0.7+	0.1−	1998 09 14	704	1.2+	0.8+	1998 09 26	704	0.3−	0.1+
1997 04 06	691	0.3+	0.5+	1998 09 14	704	0.5+	0.4+	1998 09 27	704	0.4−	0.3+
1997 04 06	691	0.3+	0.8+	1998 09 16	699	0.6+	0.4+	1998 09 27	704	0.0	0.1+
1997 04 06	691	0.0	0.8+	1998 09 16	699	0.3+	0.2+	1998 09 27	704	0.7−	0.1+
1997 04 08	691	0.2−	0.3+	1998 09 16	699	1.0+	0.4+	1998 09 27	704	0.4−	0.2+
1997 04 08	691	0.3−	0.3+	1998 09 18	704	0.3−	0.6+	1998 09 27	704	0.2−	0.2+

(9339)∗ 1991 GT_5 = 1992 OG_{10} = 1993 SZ_7

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

Id. G. V. Williams (*MPC* 23123, *MPC* 23976)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	87.95967		(2000.0)		**P**	**Q**	
n	0.17431751	ω	55.88376		−0.77754848	+0.62880848	
a	3.1737694	Ω	163.07721		−0.58165943	−0.71663199	
e	0.1218919	i	0.84094		−0.23893652	−0.30172585	
P	5.65	H	13.6	G	0.15	U	1

Residuals in seconds of arc

1991 04 08	809	1.0−	0.7−	1992 07 24	809	0.4+	0.6−	1993 09 24	809	0.3−	1.1−
1991 04 08	809	0.1−	0.9−	1992 07 26	809	0.4−	1.2+	1993 09 24	809	1.2−	0.8−
1991 04 08	809	0.7−	1.1−	1992 07 26	809	0.2+	1.3+	1993 09 24	809	(3.0−	0.4−)
1991 04 10	809	0.7−	0.3+	1992 07 26	809	0.4+	1.2+	1995 04 01	691	1.8−	0.3+
1991 04 10	809	0.8−	0.1+	1992 07 27	809	0.7−	0.6+	1995 04 01	691	(2.7−	0.4+)
1991 04 10	809	1.4−	0.0	1992 07 27	809	0.0	0.9+	1996 01 14	327	0.6−	1.0−
1991 04 19	809	0.7+	0.5+	1992 07 27	809	0.3+	1.0+	1996 01 14	327	0.3−	0.0
1991 04 19	809	0.2+	0.6+	1992 07 28	809	1.1−	0.5−	1996 01 14	327	0.2−	0.2+
1991 04 19	809	0.2+	0.5+	1992 07 28	809	1.0−	0.2−	1996 01 18	327	0.3+	0.2+
1991 04 19	675	0.2+	1.2−	1992 07 28	809	0.5−	0.2−	1996 01 18	327	0.3+	0.2+
1991 04 19	675	0.5+	1.9−	1993 09 17	809	1.9+	0.5−	1996 01 18	327	1.0+	0.6+
1991 05 15	675	0.8+	1.1−	1993 09 17	809	1.4+	1.1−	1998 08 17	704	0.2−	1.5−
1991 05 17	675	0.3+	0.4−	1993 09 17	809	1.0−	1.0−	1998 08 17	704	0.7+	0.4−
1991 05 17	675	0.4+	0.8+	1993 09 18	809	(2.5+	0.8−)	1998 08 17	704	(2.6+	0.8−)
1992 07 22	809	0.5+	0.4−	1993 09 18	809	0.3+	1.4−	1998 08 17	704	1.3−	0.1+
1992 07 22	809	0.4+	0.4−	1993 09 18	809	0.7+	0.6−	1998 09 14	704	0.3−	1.5+
1992 07 22	809	0.6+	0.4−	1993 09 22	809	(3.6+	0.3−)	1998 09 14	704	1.4+	0.2−
1992 07 24	809	0.2−	0.8−	1993 09 22	809	1.6+	0.5+	1998 09 14	704	(0.8−	3.4+)
1992 07 24	809	0.0	0.4−	1993 09 22	809	0.1−	1.2+	1998 09 14	704	(1.5+	2.6+)

(9340)∗ 1991 LW_1 = 1992 SB_{26}

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

Id. T. Kobayashi (*MPC* 24741)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	77.51194		(2000.0)		**P**	**Q**	
n	0.17001820	ω	150.42460		−0.26287935	+0.96406817	
a	3.2270506	Ω	104.31222		−0.89279267	−0.22800935	
e	0.1333856	i	2.26540		−0.36580829	−0.13632426	
P	5.80	H	13.1	G	0.15	U	1

Residuals in seconds of arc

1991 05 18	809	1.8−	0.7−	1996 03 21	566	0.1+	0.2+	1998 09 18	704	1.3−	1.5−
1991 05 18	809	1.6−	0.9−	1996 03 25	566	0.7+	0.6+	1998 09 18	704	0.8+	0.6−
1991 05 18	809	1.4−	0.6−	1996 03 25	566	0.4+	0.6+	1998 09 18	704	0.5+	0.9−
1991 06 06	809	1.8+	1.2+	1996 03 25	566	0.4+	0.8+	1998 09 25	699	0.2−	0.5−
1991 06 06	809	1.2+	0.5+	1998 08 28	704	1.6−	0.9−	1998 09 25	699	0.2+	0.5+
1991 06 06	809	1.1+	1.5+	1998 08 28	704	(2.1−	1.1+)	1998 09 25	699	0.2−	0.9−
1991 06 08	809	0.2−	0.0	1998 08 28	704	(2.3−	1.1+)	1998 09 26	704	0.9+	0.2+
1991 06 08	809	0.6+	0.8−	1998 08 28	704	(2.4−	1.0+)	1998 09 26	704	0.1−	0.3+
1991 06 08	809	0.1+	1.0−	1998 09 14	704	0.3−	0.6+	1998 09 26	704	1.2−	0.0
1992 09 26	691	0.2−	0.7+	1998 09 14	704	0.1+	1.1+	1998 09 26	704	0.5+	0.5+
1992 09 26	691	0.5+	0.3+	1998 09 14	704	0.8−	0.2+	1998 09 26	704	(2.3−	0.8+)
1992 09 27	691	0.8−	1.0+	1998 09 17	699	0.0	0.4+	1998 09 27	704	0.8+	0.2−
1992 09 27	691	0.6−	1.4+	1998 09 17	699	0.5+	0.7+	1998 09 27	704	1.2+	0.1+
1992 09 27	691	0.5−	0.8+	1998 09 17	699	0.2−	0.1−	1998 09 27	704	1.5+	0.1−
1996 03 21	566	0.2−	0.3−	1998 09 18	704	(2.1+	0.2−)	1998 09 27	704	0.3+	0.0
1996 03 21	566	0.3−	0.5+	1998 09 18	704	1.3−	0.7+	1998 09 27	704	0.7+	1.5−

(9341)∗ 1991 PH_2 = 1996 XZ_{32}

Discovered 1991 Aug. 2 by E. W. Elst at the European Southern Observatory.

Id. M. Tombelli (*MPC* 28845)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	237.48218		(2000.0)		**P**	**Q**	
n	0.24163555	ω	244.50586		+0.83544028	+0.54909860	
a	2.5528708	Ω	82.18105		−0.49551789	+0.77071719	
e	0.0864951	i	1.33188		−0.23770055	+0.32324255	
P	4.08	H	14.9	G	0.15	U	2

Residuals in seconds of arc

1991 08 02	809	1.5+	0.3−	1991 09 07	809	0.2−	1.0+	1998 03 20	704	1.2+	0.8+
1991 08 02	809	0.3+	0.4−	1991 09 07	809	0.5+	0.5+	1998 03 20	704	0.9−	0.7+
1991 08 02	809	0.9+	0.6−	1994 03 14	691	0.2−	0.4−	1998 03 20	704	0.5−	0.0
1991 08 07	809	0.1+	0.6+	1994 03 14	691	0.0	0.9−	1998 03 20	704	0.8−	0.5+
1991 08 07	809	1.2−	0.3+	1994 03 14	691	0.5−	0.2−	1998 03 22	704	0.8+	0.3−
1991 08 07	809	1.5−	0.9−	1996 12 06	098	0.7−	0.8−	1998 03 22	704	1.0+	0.8−
1991 08 14	809	0.4+	0.2+	1996 12 06	098	0.3−	0.4+	1998 03 22	704	(0.2+	2.2−)
1991 08 14	809	0.1−	0.2−	1996 12 08	098	0.4+	0.0	1998 03 22	704	0.3+	1.4−
1991 08 14	809	0.3−	1.0−	1996 12 08	098	0.7+	0.5−	1998 03 29	704	1.0−	0.7+
1991 09 04	809	0.9+	0.0	1998 02 27	566	0.2−	0.5+	1998 03 29	704	0.0	0.3+
1991 09 04	809	0.5−	0.4−	1998 02 27	566	0.3−	0.9+	1998 03 29	704	1.0+	0.7+
1991 09 04	809	0.2−	0.4−	1998 02 27	566	0.2−	0.3+	1998 03 29	704	0.7+	0.3−
1991 09 07	809	0.4−	1.2+	1998 03 20	704	0.6+	0.2−	1998 03 29	704	1.3−	1.0−

(9342)∗ 1991 PJ$_7$ = 6382 P-L

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

Id. G. V. Williams (*MPC* 20930)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	329.22024		(2000.0)		**P**	**Q**	
n	0.28481554	ω	24.21335		+0.99852443	−0.04082907	
a	2.2878468	Ω	338.03680		+0.01880202	+0.87848098	
e	0.1729417	i	5.49339		+0.05094558	+0.47602958	
P	3.46	H	15.1	G	0.15	U	2

Residuals in seconds of arc

1953 09 06	675	1.0+	1.3−	1991 09 07	809	0.1−	1.4+	1998 09 14	704	0.5−	0.4+
1953 09 06	675	0.3+	0.1−	1991 09 07	809	1.3−	0.3+	1998 09 14	704	0.1−	1.6+
1953 11 30	675	0.4−	0.4−	1997 04 03	704	0.0	1.1+	1998 09 14	704	0.2−	0.4−
1960 09 24	675	0.1+	0.2−	1997 04 03	704	0.7+	0.7+	1998 09 14	704	0.3−	1.9+
1960 09 25	675	0.1+	0.1−	1997 04 05	704	0.3+	0.6+	1998 09 14	699	0.2+	0.9+
1960 09 26	675	0.7−	0.2+	1997 04 06	704	0.6−	0.7+	1998 09 14	699	0.3+	0.1−
1986 02 07	675	0.7−	0.9+	1997 04 06	704	0.3+	1.5+	1998 09 14	699	0.6+	0.2+
1986 02 07	675	0.3−	0.5+	1997 04 07	704	1.1+	0.4+	1998 09 18	704	0.8+	0.3+
1986 02 07	675	0.8+	0.2+	1997 04 07	704	0.8−	1.5−	1998 09 18	704	0.2+	0.6+
1986 02 07	675	1.8+	1.0+	1998 08 17	704	0.1−	0.2+	1998 09 18	704	0.3−	0.6+
1991 08 06	809	(0.8+	2.5−)	1998 08 17	704	1.0−	0.3−	1998 09 18	704	0.6+	1.5+
1991 08 06	809	(0.9+	2.3−)	1998 08 17	704	0.2+	0.3−	1998 09 18	704	0.2−	1.6+
1991 08 06	809	(0.7+	2.5−)	1998 08 17	704	0.2−	1.2−	1998 09 25	704	0.4+	0.6−
1991 08 14	809	1.7+	0.1+	1998 08 17	704	0.0	1.3−	1998 09 25	704	0.5+	1.3−
1991 08 14	809	1.3+	0.4+	1998 08 23	704	0.2−	0.5−	1998 09 25	704	0.5+	0.7−
1991 08 14	809	0.5+	0.1+	1998 08 23	704	0.3−	1.4+	1998 09 25	704	1.0−	0.8−
1991 09 04	809	0.8−	0.2−	1998 08 23	704	0.3−	0.3−	1998 09 25	704	0.2+	0.1+
1991 09 04	809	0.4−	0.3−	1998 08 23	704	0.3−	0.3−	1998 09 27	704	0.4−	0.3−
1991 09 04	809	0.9−	0.6−	1998 08 23	704	0.4−	0.4+	1998 09 27	704	0.2−	0.3−
1991 09 06	809	0.4−	0.0	1998 08 30	699	0.2+	0.4−	1998 09 27	704	1.1−	0.2−
1991 09 06	809	0.8−	0.2−	1998 08 30	699	0.4+	0.3−	1998 09 27	704	0.0	0.2+
1991 09 06	809	0.4−	0.5−	1998 08 30	699	0.6+	0.1−	1998 09 27	704	0.7−	0.0
1991 09 07	809	1.5+	1.6+	1998 09 14	704	0.3−	0.9+				

(9343)∗ 1991 PO$_{11}$ = 1984 SB$_4$ = 1997 HJ$_4$

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

Id. G. V. Williams (*MPC* 29914)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	12.08544		(2000.0)		**P**	**Q**	
n	0.27644754	ω	109.51850		+0.44736893	+0.89424471	
a	2.3337853	Ω	187.10242		−0.85645716	+0.42395572	
e	0.1234231	i	6.35720		−0.25756973	+0.14348501	
P	3.57	H	14.2	G	0.15	U	2

Residuals in seconds of arc

1983 05 13	801	0.1+	1.7−	1997 04 28	704	1.0−	0.6−	1998 08 17	704	1.7+	0.2+
1984 09 27	033	0.9+	1.1−	1997 04 28	704	0.8−	0.4−	1998 08 17	704	1.4+	0.6+
1984 09 27	033	0.4+	1.5−	1997 04 28	704	0.7−	0.1−	1998 08 19	566	1.0+	0.1+
1991 08 09	675	1.8+	1.1+	1997 04 28	704	0.1+	0.4−	1998 08 19	566	0.8+	0.1+
1991 08 10	675	0.1+	0.7−	1997 04 29	704	0.8+	0.2−	1998 08 19	566	0.3+	0.3−
1991 09 13	675	(1.5−	3.7−)	1997 04 29	704	0.7+	0.7−	1998 08 22	689	0.2−	0.5−
1991 09 13	675	0.2−	1.5−	1997 04 29	704	1.1+	0.3+	1998 08 23	699	0.0	0.8+
1991 09 15	675	0.7−	1.4−	1997 04 29	704	1.2+	0.1−	1998 08 23	699	0.1−	1.0+
1991 09 15	675	0.3−	0.8−	1998 05 22	688	0.8−	1.0−	1998 08 23	699	0.5−	0.3+
1991 09 16	675	0.3+	0.9−	1998 05 22	688	1.2−	0.9−	1998 08 30	699	0.9−	0.0
1991 09 16	675	0.5+	0.6−	1998 05 22	688	1.2−	0.8−	1998 08 30	699	1.1−	0.4−
1991 09 17	675	0.6−	0.2+	1998 07 26	699	0.7−	0.7−	1998 08 30	699	0.8−	0.1+
1991 09 17	675	0.7−	0.7−	1998 07 26	699	0.3−	0.4−	1998 09 14	704	0.3−	0.1+
1997 04 07	691	0.9−	0.9−	1998 07 26	699	0.3−	0.5−	1998 09 14	704	0.5−	0.8+
1997 04 07	691	0.9−	0.9−	1998 08 17	704	0.3−	0.2+	1998 09 14	704	0.7+	0.3−
1997 04 07	691	0.6−	1.1−	1998 08 17	704	1.7+	0.5+	1998 09 14	704	0.1+	0.1−
1997 04 28	704	1.1−	0.8−	1998 08 17	704	0.3+	1.5+	1998 09 14	704	(1.3+	2.7+)

(9344)∗ 1991 RB$_4$ = 1995 WK$_2$

Discovered 1991 Sept. 12 by F. Börngen and L. D. Schmadel at Tautenburg.

Id. K. Kinoshita (*MPC* 26398)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	192.68381		(2000.0)		**P**	**Q**	
n	0.27088417	ω	154.91473		−0.71357170	−0.69997402	
a	2.3656308	Ω	340.56708		+0.62707134	−0.61956673	
e	0.0874147	i	5.03260		+0.31240512	−0.35520900	
P	3.64	H	14.3	G	0.15	U	2

Residuals in seconds of arc

1991 09 12	033	0.2+	0.9+	1998 08 15	113	0.2−	1.5−	1998 09 14	699	0.1+	0.6+
1991 09 12	033	0.5+	1.1+	1998 08 15	113	1.3−	0.0	1998 09 14	699	0.6+	1.0+
1991 09 14	033	1.0+	1.2+	1998 08 17	704	0.2+	0.4−	1998 09 18	704	1.6+	0.0
1991 09 15	033	(0.6−	4.9−)	1998 08 17	704	0.2−	0.3+	1998 09 18	704	0.8−	0.7−
1991 09 15	033	1.5+	0.3−	1998 08 17	704	0.2−	1.6+	1998 09 18	704	0.1−	0.3−
1991 10 02	033	0.5−	0.0	1998 08 17	704	0.2−	0.6+	1998 09 18	704	(1.3−	2.8−)
1991 10 02	033	0.5+	0.3+	1998 08 17	704	0.3+	0.2+	1998 09 19	691	0.1−	0.2−
1991 10 03	033	0.3+	1.3−	1998 08 19	113	0.1+	0.9−	1998 09 19	691	1.1+	0.6+
1991 10 04	033	0.3−	0.5−	1998 08 19	113	0.6−	0.8−	1998 09 19	691	0.3−	0.3−
1991 10 09	691	1.6−	0.0	1998 08 23	704	(0.8+	3.4−)	1998 09 20	113	0.3+	0.3+
1991 10 09	691	1.3−	0.1−	1998 08 23	704	0.5+	0.4−	1998 09 20	113	0.9+	0.1+
1991 10 09	691	1.3−	0.3+	1998 08 23	704	1.9−	0.3+	1998 09 25	704	0.1−	0.6−
1991 10 09	033	0.3+	0.1+	1998 08 23	704	0.3−	1.0+	1998 09 25	691	0.9−	0.3−
1991 10 09	033	0.0	0.2+	1998 08 26	699	0.2−	0.0	1998 09 25	704	1.2+	0.9−
1993 02 21	400	(2.0+	3.1+)	1998 08 26	699	0.6+	0.1−	1998 09 25	691	0.6−	0.2−
1993 02 21	400	0.3+	0.6+	1998 08 26	699	0.3+	0.6−	1998 09 25	704	1.4+	1.3−
1995 11 18	107	0.9+	1.0+	1998 09 13	691	1.2−	0.2−	1998 09 25	691	0.8−	0.3−
1995 11 18	107	1.1−	0.8−	1998 09 13	691	1.0−	0.3−	1998 09 25	704	0.6+	0.1+
1995 11 19	107	1.2−	0.0	1998 09 13	691	1.0−	0.3−	1998 09 25	704	0.6+	0.8+
1995 11 19	107	0.5+	0.2+	1998 09 14	704	0.5−	0.3+	1998 09 27	704	1.3+	0.9−
1995 11 20	107	0.6+	0.8−	1998 09 14	704	0.1−	1.0+	1998 09 27	704	0.4−	0.7−
1995 11 20	107	0.4−	0.4−	1998 09 14	704	0.4+	0.1+	1998 09 27	704	0.6+	0.3+
1995 11 21	107	0.2+	0.3−	1998 09 14	704	1.2+	0.2+	1998 09 27	704	0.7−	0.8+
1995 11 21	107	0.8+	0.2−	1998 09 14	704	0.3+	0.2−				
1995 11 21	107	0.1−	0.6+	1998 09 14	699	0.1+	1.3+				

(9345)∗ 1991 RA$_{10}$ = 1980 PW$_4$ = 1993 BQ$_7$

Discovered 1991 Sept. 12 by H. E. Holt at Palomar.

Id. K. Ichikawa (*MPC* 20152), G. V. Williams (*MPC* 32449)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	11.51555		(2000.0)		**P**		**Q**
n	0.27583693	ω	46.56134		+0.65099125		+0.75327411
a	2.3372282	Ω	264.29805		−0.72082478		+0.57473255
e	0.0671974	*i*	5.40604		−0.23795385		+0.31978213
P	3.57	*H*	14.6	*G*	0.15	*U*	2

Residuals in seconds of arc

1980 08 04	675	0.0	2.0−	1998 08 17	704	1.0+	0.1+	1998 08 30	699	0.3+	0.2+
1980 08 05	675	1.6+	1.2−	1998 08 17	704	1.1+	0.4+	1998 09 19	704	0.3−	0.2+
1991 09 10	675	0.5−	1.0−	1998 08 17	704	0.2+	0.2+	1998 09 19	704	0.7−	0.4+
1991 09 10	675	0.2−	1.7−	1998 08 17	704	0.4+	0.9+	1998 09 19	704	1.1−	0.5−
1991 09 12	675	0.1−	0.5+	1998 08 17	704	0.8+	0.9+	1998 09 19	704	0.5−	0.3−
1991 09 12	675	0.4−	1.2−	1998 08 19	704	(0.6+	2.3−)	1998 09 19	704	1.1−	0.1+
1991 09 14	675	(1.0−	3.5−)	1998 08 19	704	(0.9−	3.7−)	1998 09 25	704	0.1−	0.2+
1991 09 14	675	0.1+	0.5+	1998 08 19	704	1.1+	1.7−	1998 09 25	704	0.0	0.0
1993 01 23	809	0.7+	0.7−	1998 08 19	704	(0.5+	2.3−)	1998 09 25	704	0.1+	0.0
1993 01 23	809	0.5+	1.0−	1998 08 19	704	(0.2+	2.2−)	1998 09 25	704	0.3−	0.6−
1993 01 23	809	0.8+	0.9−	1998 08 23	704	0.7+	0.1−	1998 09 25	704	0.6−	0.7−
1993 01 28	809	0.5−	1.1−	1998 08 23	704	0.5+	1.2−	1998 09 27	704	0.2−	0.0
1993 01 28	809	0.4−	1.1−	1998 08 23	704	0.2+	1.0−	1998 09 27	704	0.3+	0.3+
1993 01 28	809	1.5−	1.6−	1998 08 23	704	0.5−	0.4−	1998 09 27	704	0.1+	1.0+
1997 04 10	691	1.2−	0.6−	1998 08 23	704	1.0−	0.3−	1998 09 27	704	0.0	0.7+
1997 04 10	691	0.5−	0.7−	1998 08 30	699	0.8+	0.1−	1998 09 27	704	0.4−	0.6+
1997 04 10	691	1.0−	0.6−	1998 08 30	699	1.0+	0.1−				

(9346)∗ 1991 RN$_{11}$ = 1988 YF

Discovered 1991 Sept. 4 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 20640)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	222.25569		(2000.0)		**P**		**Q**
n	0.26041207	ω	299.76519		+0.67471532		−0.73615388
a	2.4286335	Ω	107.70228		+0.69501274		+0.60940209
e	0.1749999	*i*	3.20496		+0.24842811		+0.29445976
P	3.78	*H*	14.2	*G*	0.15	*U*	2

Residuals in seconds of arc

1988 12 30	046	(3.7−	0.9−)	1991 09 05	809	1.3+	1.6−	1998 05 24	704	1.7−	0.9−
1988 12 30	046	0.4+	1.2−	1991 09 05	809	0.8−	1.2−	1998 05 24	704	(3.4−	0.3−)
1989 01 02	046	0.1+	1.5−	1991 09 05	809	1.0−	0.5−	1998 05 24	704	0.2−	1.4−
1989 01 02	046	(3.5−	0.7−)	1991 09 06	809	0.7−	0.7−	1998 05 24	704	0.4−	0.4+
1989 01 03	046	1.5−	0.8−	1991 09 06	809	1.4−	0.6−	1998 06 01	809	(2.6+	1.3−)
1989 01 03	046	0.8+	0.5−	1991 09 06	809	1.0−	0.3−	1998 06 01	809	0.7+	0.5−
1991 08 02	809	1.4+	1.7+	1991 09 07	809	0.7−	0.3+	1998 06 01	809	1.1+	0.1+
1991 08 02	809	(1.5+	2.1+)	1991 09 07	809	(2.5−	0.7+)	1998 06 02	809	(2.2+	1.5+)
1991 08 02	809	0.8+	1.9+	1991 09 07	809	(2.8−	0.7+)	1998 06 02	809	(2.5+	1.8+)
1991 08 14	809	0.9+	0.8+	1997 02 12	411	0.1−	0.1−	1998 06 02	809	1.8+	1.1+
1991 08 14	809	0.9+	0.3+	1997 02 12	411	0.3+	0.4+	1998 06 24	704	(2.6−	0.1−)
1991 08 14	809	1.4+	0.5+	1998 05 22	704	(1.9−	2.9−)	1998 06 24	704	(2.7−	0.6−)
1991 09 04	809	0.3+	1.5−	1998 05 22	704	0.8+	0.4+	1998 06 24	704	1.1−	1.1−
1991 09 04	809	1.5−	0.8−	1998 05 22	704	0.9−	0.8−				
1991 09 04	809	(2.1−	0.6−)	1998 05 22	704	1.1−	1.1−				

(9347)∗ 1991 RY$_{21}$ = 1979 FH$_4$ = 1996 XY$_{30}$

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

Id. G. V. Williams (*MPC* 29299)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	35.77508		(2000.0)		**P**		**Q**
n	0.26325030	ω	127.89121		−0.63996235		+0.76633327
a	2.4111458	Ω	102.22386		−0.72187663		−0.57443294
e	0.1536610	*i*	3.30857		−0.26332929		−0.28768058
P	3.74	*H*	13.6	*G*	0.15	*U*	1

Residuals in seconds of arc

1979 03 31	095	0.2+	0.6+	1993 01 01	691	0.1+	0.1−	1998 06 26	704	0.1+	0.0
1991 08 08	675	0.5−	0.6+	1993 01 01	691	0.1+	0.1−	1998 06 26	704	1.5−	0.5+
1991 08 08	675	0.4−	0.1+	1993 01 01	691	0.2+	0.1−	1998 06 26	704	0.2−	1.6+
1991 09 12	675	0.3+	0.1+	1996 12 08	327	0.0	0.1−	1998 06 26	704	0.6−	0.6+
1991 09 12	675	0.3+	0.7−	1996 12 08	327	0.4−	0.9+	1998 06 26	704	(2.1−	1.5+)
1991 09 15	675	0.5+	0.1+	1996 12 08	327	0.0	0.5+	1998 07 21	704	0.7+	0.7−
1991 09 15	675	1.0−	0.8+	1996 12 14	411	0.7−	0.9+	1998 07 21	704	1.3+	0.4−
1991 09 16	675	0.3+	0.7−	1996 12 14	411	1.1+	0.1+	1998 07 21	704	0.8+	0.9−
1991 09 16	675	0.3+	0.7−	1996 12 16	411	0.2+	0.1−	1998 07 21	704	(3.1+	0.1−)
1991 09 17	675	0.6+	0.5+	1996 12 16	411	0.1−	0.4+				
1991 09 17	675	1.0−	1.1+	1998 06 14	689	0.4−	0.2+				

(9348)∗ 1991 RH$_{25}$ = 1977 SM$_2$

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

Id. G. V. Williams (*MPC* 20641)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	351.45128		(2000.0)		**P**		**Q**
n	0.28230736	ω	288.86185		+0.99217180		+0.04879148
a	2.3013778	Ω	68.47372		+0.00630650		+0.89976489
e	0.1655550	*i*	7.09840		−0.12472109		+0.43363872
P	3.49	*H*	14.3	*G*	0.15	*U*	2

Residuals in seconds of arc

1953 12 07	675	0.0	1.2+	1996 02 19	801	0.2+	0.1−	1998 08 28	704	(2.5−	1.0+)
1953 12 07	675	0.5+	0.2−	1996 02 19	801	0.7−	1.7−	1998 08 28	704	(3.0−	1.4+)
1977 09 19	095	0.1−	0.8−	1996 03 18	801	0.0	0.4−	1998 08 28	704	0.0	1.6+
1991 09 11	675	0.2−	0.5−	1996 03 18	801	0.7−	0.3−	1998 08 28	704	0.3+	1.8−
1991 09 11	675	0.1+	1.3−	1996 03 23	801	0.6−	0.1+	1998 08 28	704	0.6+	1.2−
1991 09 13	675	0.4−	1.0−	1996 03 23	801	0.8+	0.1−	1998 09 26	704	0.3+	1.5+
1991 11 01	808	0.4+	0.1−	1997 04 07	809	(0.2+	2.2−)	1998 09 26	704	0.7−	1.4+
1991 11 01	808	0.3+	0.2+	1997 04 07	809	(0.3−	2.1−)	1998 09 26	704	0.9+	0.4−
1991 11 09	808	(7.4−	1.9+)	1997 04 07	809	(0.5−	2.9−)	1998 09 26	704	0.7−	0.5+
1991 11 09	808	0.1−	0.3+	1997 04 08	809	0.6+	0.4+	1998 09 26	704	(2.5−	0.4+)
1991 11 12	808	0.7−	1.5+	1997 04 08	809	0.6+	0.5+				
1991 11 12	808	0.1−	0.4+	1997 04 08	809	0.2−	0.4+				

(9349)∗ 1991 SX = 1994 JS$_9$ = 1997 EZ$_{47}$

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

Id. M. W. Buie (*MPC* 30078), G. V. Williams (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	351.77441		(2000.0)		**P**		**Q**
n	0.28241769	ω	217.25732		+0.89469590		+0.43438344
a	2.3007784	Ω	116.68831		−0.37662879		+0.85888983
e	0.1912824	*i*	6.68887		−0.24014578		+0.27132874
P	3.49	*H*	15.6	*G*	0.15	*U*	2

Residuals in seconds of arc

1991 09 14	675	0.1−	1.1+	1994 05 08	691	0.2−	0.5−	1998 08 25	809	0.1−	0.2−
1991 09 14	675	1.0+	0.3−	1994 05 08	691	0.2−	0.2−	1998 08 25	809	0.7−	1.2−
1991 09 30	413	1.7+	0.2−	1997 03 02	691	0.1−	0.3−	1998 08 26	809	0.3−	1.3+
1991 10 01	413	0.7−	0.8−	1997 03 02	691	0.2−	0.1−	1998 08 26	809	0.8+	1.3+
1991 10 02	413	0.6−	0.6−	1997 03 02	691	0.0	0.3−	1998 08 26	809	0.1+	1.2+
1991 10 05	413	0.7−	0.3+	1997 05 14	688	0.1+	0.3+	1998 09 21	704	0.4−	0.6−
1991 10 09	413	0.4−	0.4+	1997 05 14	688	0.1+	0.4+	1998 09 21	704	0.1+	0.7−
1991 10 12	413	0.5−	0.1+	1997 05 14	688	0.3+	0.6+	1998 09 21	704	0.7−	0.4−
1991 11 02	413	0.0	0.4+	1997 05 14	688	0.2+	0.5+	1998 09 21	704	0.5+	0.8−
1994 05 08	691	0.0	0.2−	1998 08 25	809	0.3+	0.2+	1998 09 21	704	0.4+	0.1−

(9350)∗ 1991 TH$_2$ = 1969 TV$_5$ = 1980 TX$_{10}$

Discovered 1991 Oct. 13 by M. Hirasawa and S. Suzuki at Nyukasa.

Id. S. Nakano (*MPC* 19509)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	307.71338		(2000.0)		**P**	**Q**	
n	0.26945659	ω	219.29190		+0.94797410	−0.31794122	
a	2.3739788	Ω	159.22951		+0.30230828	+0.88323549	
e	0.2227491	i	2.59851		+0.09977382	+0.34468601	
P	3.66	H	14.3	G	0.15	U	2

Residuals in seconds of arc

1969 10 15	095	(2.1−	3.9−)	1991 11 04	408	1.1+	1.4−	1998 08 23	704	0.2−	0.3−
1969 10 17	095	1.2+	1.0−	1991 11 04	408	0.9+	0.1+	1998 08 23	704	0.2−	0.8+
1980 10 08	095	2.3−	1.6+	1991 11 04	894	0.9+	0.4+	1998 08 23	704	1.2+	0.1+
1991 10 07	675	0.1−	0.1+	1991 11 04	894	(2.5+	0.5−)	1998 08 27	691	0.9−	0.2−
1991 10 07	675	0.1−	1.6+	1991 11 05	894	0.5−	0.1+	1998 08 27	691	1.2−	0.1+
1991 10 13	403	(0.4+	4.3−)Y	1991 11 05	894	0.7−	0.6−	1998 08 27	691	1.1−	0.0
1991 10 13	403	(1.0+	3.0−)Y	1991 11 11	894	0.3+	0.6−	1998 08 27	699	0.3+	0.1+
1991 10 13	408	0.1−	0.7+	1991 11 11	894	0.5+	0.8−	1998 08 27	699	0.8+	0.5+
1991 10 13	408	1.3+	1.3+	1993 04 14	691	0.1−	0.5+	1998 08 27	699	0.3+	0.5+
1991 10 15	408	0.9+	1.2+	1993 04 14	691	0.1−	0.2−	1998 09 14	699	0.3+	0.9+
1991 10 15	408	1.4−	0.5+	1998 08 17	704	(2.7+	0.9−)	1998 09 14	699	0.8+	0.3+
1991 10 15	894	1.0+	1.5−	1998 08 17	704	0.3+	0.8−	1998 09 14	699	0.3+	0.6+
1991 10 15	894	0.1+	1.2−	1998 08 17	704	1.3+	0.5−	1998 09 28	691	2.0−	0.4−
1991 11 03	408	1.4−	1.0+	1998 08 17	704	1.2+	0.4−	1998 09 28	691	1.7−	0.2+
1991 11 03	408	(0.3−	2.9+)	1998 08 17	704	0.6+	0.9−	1998 09 28	691	1.8−	0.2−
1991 11 03	408	1.2−	1.3−	1998 08 23	704	0.4+	0.8−				

(9351)∗ 1991 TH$_6$ = 1997 JS$_4$

Discovered 1991 Oct. 2 by F. Börngen and L. D. Schmadel at Tautenburg.

Id. G. V. Williams (*MPC* 29915)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	324.96094		(2000.0)		**P**	**Q**	
n	0.27229943	ω	101.61109		+0.97878489	+0.19984015	
a	2.3574268	Ω	246.87439		−0.20187274	+0.90286509	
e	0.1424457	i	2.81788		−0.03503608	+0.38065541	
P	3.62	H	15.6	G	0.15	U	2

Residuals in seconds of arc

1991 09 13	675	0.3+	1.0−	1997 05 07	568	0.3+	0.9−	1998 08 02	910	0.1+	0.3−
1991 09 13	675	0.6−	1.5−	1997 05 08	568	0.9−	0.0	1998 08 02	910	0.1+	0.2−
1991 10 02	033	0.3+	0.5+	1997 05 08	568	0.2−	0.5−	1998 08 14	113	2.0−	0.3−
1991 10 02	033	0.4+	0.4+	1997 05 08	568	0.0	0.4−	1998 08 14	113	1.9−	0.7−
1991 10 03	033	0.4+	0.8+	1997 05 08	568	0.2−	0.2−	1998 08 17	704	0.5−	0.1−
1991 10 08	033	0.2+	0.9−	1997 05 08	568	0.2−	0.2−	1998 08 17	704	1.8+	1.6−
1991 10 08	033	0.8+	1.5−	1997 05 08	568	0.2−	0.4−	1998 08 17	704	0.6−	1.1−
1991 10 09	033	0.5−	0.5−	1998 07 24	910	0.1+	0.9+	1998 08 17	704	0.4−	1.6−
1995 11 30	327	0.1+	0.8−	1998 07 24	910	0.0	0.9+	1998 08 19	113	(2.7−	0.6−)
1995 11 30	327	0.2−	0.9−	1998 07 24	910	0.2+	0.9+	1998 08 19	113	1.2−	0.3−
1995 11 30	327	0.4+	0.7−	1998 07 27	910	0.6+	0.3+	1998 08 23	704	1.1−	1.5+
1997 05 07	568	0.4−	1.6−	1998 07 27	910	0.6+	0.6+	1998 08 23	704	(2.4+	0.5−)
1997 05 07	568	0.1+	1.5−	1998 07 27	910	0.6+	0.5+	1998 08 23	704	0.7+	0.9−
1997 05 07	568	0.5−	0.0	1998 07 28	910	0.4+	0.1+	1998 08 23	704	0.7+	0.3−
1997 05 07	568	0.2−	0.7−	1998 07 28	910	0.4+	0.1+	1998 09 22	113	0.6+	0.2+
1997 05 07	568	1.1−	0.8−	1998 07 28	910	0.5+	0.0	1998 09 22	113	0.5+	0.3−
1997 05 07	568	0.1−	1.1−	1998 08 01	910	0.4+	0.1−				

(9352)∗ 1991 UB$_4$ = 1997 AH$_{19}$

Discovered 1991 Oct. 31 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 29099)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	95.91288		(2000.0)		**P**	**Q**	
n	0.22855768	ω	325.04778		−0.90482930	−0.42563015	
a	2.6493470	Ω	189.78046		+0.40400457	−0.85005402	
e	0.1265518	i	3.74220		+0.13440333	−0.31023723	
P	4.31	H	12.9	G	0.15	U	1

Residuals in seconds of arc

1989 04 01	675	0.9+	0.5+	1991 11 09	399	1.5−	0.3−	1998 05 22	704	0.0	1.4+
1989 04 01	675	0.5−	0.9+	1991 11 09	399	(2.2−	1.1+)	1998 06 24	704	0.2+	0.1+
1991 10 31	399	1.3+	0.3+	1997 01 12	400	0.2−	0.3+	1998 06 24	704	0.1+	0.2+
1991 10 31	399	1.5+	0.1−	1997 01 12	400	0.8+	0.6−	1998 06 24	704	0.2−	0.1−
1991 11 03	691	1.0−	0.2+	1997 01 13	400	0.2+	1.6−	1998 06 24	704	0.9+	0.2−
1991 11 03	691	0.4−	0.5+	1997 01 13	400	1.4+	0.7−	1998 06 24	704	0.1+	0.6−
1991 11 03	691	0.7−	0.4+	1997 02 02	399	(2.6−	0.1−)	1998 06 26	704	0.4+	0.2+
1991 11 04	399	0.7+	0.3+	1997 02 02	399	(3.2−	1.5+)	1998 06 26	704	0.4−	0.0
1991 11 04	399	0.3−	0.7−	1997 02 10	399	1.2−	0.6+	1998 06 26	704	1.2−	0.4+
1991 11 05	691	0.3−	0.5+	1997 02 10	399	1.2−	1.5+	1998 06 26	704	0.8+	1.1−
1991 11 05	691	0.2+	0.4+	1998 05 22	704	0.4−	1.3+	1998 06 26	704	0.3−	0.6−
1991 11 05	691	0.1−	0.4+	1998 05 22	704	0.2−	0.7−				

(9353)∗ 1991 VM$_4$ = 1976 SY$_2$ = 1987 RQ$_5$ = 1987 SR$_{27}$ = 1987 WW$_2$

Discovered 1991 Nov. 9 by A. Sugie at the Dynic Astronomical Observatory.

Id. G. V. Williams (*MPC* 20029), S. Nakano (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	292.37273		(2000.0)		**P**	**Q**	
n	0.26787037	ω	31.88850		+0.51112719	−0.85917152	
a	2.3833414	Ω	27.39451		+0.77724202	+0.45013500	
e	0.1830403	i	2.98294		+0.36693846	+0.24331622	
P	3.68	H	14.5	G	0.15	U	1

Residuals in seconds of arc

1954 10 22	760	1.1+	1.4−	1991 12 11	033	0.7−	0.4−	1998 08 27	809	1.8+	1.8+
1954 10 22	760	1.0−	0.4+	1993 04 25	691	0.8−	0.4−	1998 08 27	809	(2.5+	1.8+)
1976 09 24	095	0.4+	0.4−	1993 04 25	691	0.3−	0.1−	1998 08 27	809	(2.4+	2.4+)
1976 09 29	095	(0.7+	3.2−)	1993 04 25	691	0.4−	0.6−	1998 09 14	704	0.8+	0.8−
1987 09 04	095	0.3−	1.4+	1996 04 14	327	0.4+	0.3+	1998 09 14	704	0.3+	1.3−
1987 09 24	095	1.5+	0.1+	1996 04 14	327	1.2+	0.6−	1998 09 14	704	0.4−	1.5−
1987 11 17	010	0.8+	1.2−	1996 04 14	327	0.3+	0.0	1998 09 14	704	1.0−	0.0
1987 11 17	010	0.3+	0.9−	1997 06 03	566	0.5−	0.3−	1998 09 18	704	1.0−	0.1+
1991 11 05	095	0.5−	0.2−	1997 06 03	566	0.6+	0.4−	1998 09 18	704	0.6−	0.8−
1991 11 06	095	(0.2+	3.0+)	1997 06 03	566	0.3−	0.5−	1998 09 18	704	0.1−	0.6+
1991 11 09	402	(0.5+	2.7−)	1998 08 23	704	0.7−	0.2−	1998 09 18	704	1.8−	1.9+
1991 11 09	402	(1.4+	2.3−)	1998 08 23	704	0.5−	1.1−	1998 09 27	704	0.4+	0.1−
1991 11 15	402	0.5−	0.6+	1998 08 23	704	1.0−	0.7+	1998 09 27	704	0.5+	1.0+
1991 11 15	402	0.0	0.5+	1998 08 23	704	1.1+	1.1−	1998 09 27	704	1.0−	0.4−
1991 11 30	402	1.1+	0.4−	1998 08 23	704	1.7−	1.1−	1998 09 27	704	0.5−	0.3+
1991 11 30	402	0.1−	0.5−	1998 08 26	809	1.3+	0.6+	1998 09 27	704	0.1+	0.1+
1991 12 10	033	1.1−	0.1+	1998 08 26	809	1.4+	1.1+				
1991 12 10	033	1.0+	0.3−	1998 08 26	809	1.2+	0.8+				

(9354)∗ 1991 VF$_7$ = 1993 FH$_{32}$

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

Id. G. V. Williams (*MPC* 23519)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	94.64958		(2000.0)		**P**	**Q**	
n	0.26172114	ω	354.88112		−0.51028182	+0.85570963	
a	2.4205284	Ω	244.41192		−0.78562378	−0.50443697	
e	0.0319574	i	5.46321		−0.34986818	−0.11534457	
P	3.77	H	13.8	G	0.15	U	1

Residuals in seconds of arc

1991 11 11	399	(3.3−	0.3+)	1993 03 26	809	0.9+	0.2+	1998 09 18	704	0.7−	0.6−
1991 11 11	399	1.7−	0.4+	1993 04 17	413	0.6−	0.2+	1998 09 18	704	0.1−	0.2−
1991 11 13	399	(4.4−	0.4+)	1996 01 15	118	0.1+	0.4+	1998 09 18	704	0.7−	0.4+
1991 11 13	399	(2.5−	1.9+)	1996 01 15	118	0.1+	0.6+	1998 09 18	704	0.5−	0.5+
1991 12 01	675	(3.5−	0.4−)	1996 01 16	118	0.1+	0.3+	1998 09 18	704	1.0−	0.2+
1991 12 01	675	0.6+	0.2+	1996 01 16	118	0.3−	0.6+	1998 09 26	704	0.1+	0.0
1991 12 03	675	0.3+	1.4−	1996 01 16	118	0.1+	0.5+	1998 09 26	704	0.5−	1.0+
1991 12 03	675	0.6+	1.4−	1998 08 23	704	1.8+	0.3−	1998 09 26	704	0.5−	0.1+
1991 12 05	399	0.1−	0.7−	1998 08 23	704	0.6+	0.2−	1998 09 26	704	0.0	0.5+
1991 12 05	399	0.8+	0.2+	1998 08 23	704	1.0+	1.3−	1998 09 26	704	0.2+	0.5+

1991 12 07	399	(2.7−	1.9−)	1998 08 23	704	1.0+	0.7−	1998 09 27	704	0.2+	0.6−
1991 12 07	399	(3.1−	3.9−)	1998 08 23	704	1.1−	0.1−	1998 09 27	704	0.4+	0.1+
1991 12 14	399	(2.3+	0.7+)	1998 09 14	704	0.5+	0.8+	1998 09 27	704	0.1−	0.2−
1991 12 14	399	0.1−	0.1−	1998 09 14	704	0.1−	0.4−	1998 09 27	704	0.4−	0.5+
1993 03 21	809	(3.2−	2.1+)	1998 09 14	704	1.2−	0.9+	1998 09 27	704	0.1+	0.8+
1993 03 22	809	0.1+	0.3+	1998 09 14	704	0.5+	0.4+				

(9355)∗ 1991 XO_2 = 1962 WX_1 = 1962 XG_1

Discovered 1991 Dec. 5 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 22056)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

					P	**Q**
M	292.88517		(2000.0)			
n	0.27135408	ω	198.61561		+0.46470514	−0.88386783
a	2.3628989	Ω	223.73554		+0.82185175	+0.45288938
e	0.2079493	i	4.41076		+0.32955854	+0.11691395
P	3.63	H	15.0	G	0.15	U 1

Residuals in seconds of arc

1955 12 12	675	0.3−	0.6−	1996 01 24	691	0.4−	0.1−	1998 09 16	699	0.1+	1.2+
1955 12 12	675	0.1+	0.1−	1996 01 29	691	0.2+	0.1+	1998 09 16	699	0.3−	0.2+
1962 11 30	760	0.6−	0.6−	1996 01 29	691	0.2+	0.1−	1998 09 16	699	0.1−	0.7+
1962 11 30	760	0.7−	1.2−	1996 01 29	691	0.5+	0.1−	1998 09 18	704	0.3+	0.5+
1962 12 03	760	0.2−	0.3−	1998 08 17	704	1.0+	0.1−	1998 09 18	704	0.8+	0.7+
1962 12 03	760	1.7+	0.1+	1998 08 17	704	(1.0−	2.7+)	1998 09 18	704	1.0+	0.6+
1989 03 07	675	0.2−	1.0+	1998 08 17	704	1.2−	1.5+	1998 09 18	704	0.5+	0.3+
1989 03 07	675	0.3+	0.7+	1998 08 17	704	1.3+	0.9+	1998 09 18	704	0.2+	1.0+
1991 11 02	400	(2.5+	0.4+)	1998 08 17	704	(0.8−	2.4+)	1998 09 25	704	0.2−	0.2+
1991 11 02	400	0.9+	1.4+	1998 08 18	566	0.2−	1.1−	1998 09 25	704	0.1+	1.5−
1991 11 04	400	1.2+	1.4+	1998 08 18	566	0.6−	0.7−	1998 09 25	699	0.6−	0.4+
1991 11 04	400	0.1+	0.3+	1998 08 18	566	1.4−	0.6−	1998 09 25	704	0.3−	1.1−
1991 11 29	691	1.0−	0.1+	1998 08 23	704	1.5+	1.8−	1998 09 25	699	0.5−	0.2−
1991 11 29	691	1.3−	0.4+	1998 08 23	704	1.3+	0.1−	1998 09 25	699	0.6−	0.1+
1991 11 29	691	0.6−	0.2+	1998 08 23	704	0.1−	1.0−	1998 09 25	704	0.0	2.0−
1991 12 05	399	1.8−	0.5−	1998 08 23	704	1.5+	0.4+	1998 09 25	704	0.2+	0.8−
1991 12 05	399	0.2−	0.3+	1998 08 30	699	0.2−	0.1−	1998 09 27	704	0.7−	0.2−
1991 12 07	399	1.3+	0.4−	1998 08 30	699	0.1−	0.3−	1998 09 27	704	0.2+	0.2+
1991 12 07	399	0.5−	1.8−	1998 08 30	699	0.4−	1.0−	1998 09 27	704	0.3−	0.4−
1991 12 09	399	1.5+	0.4+	1998 09 14	704	0.2−	1.0+	1998 09 27	704	0.0	0.1+
1991 12 09	399	0.4−	0.8+	1998 09 14	704	0.2−	1.0+	1998 09 27	704	0.0	0.3−
1996 01 24	691	0.1+	0.2−	1998 09 14	704	1.4−	1.3+				
1996 01 24	691	0.1−	0.0	1998 09 14	704	0.3−	0.7+				

(9356)∗ 1991 YV = 1989 KJ = 1995 YN_{23}

Discovered 1991 Dec. 30 by E. W. Elst at Haute Provence.

Id. K. Ichikawa (*MPC* 27712)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	182.85082		(2000.0)			
n	0.23300430	ω	2.04575		−0.36519824	−0.90263277
a	2.6155323	Ω	109.43540		+0.85064488	−0.42296340
e	0.1004070	i	13.97776		+0.37819775	+0.07972483
P	4.23	H	12.9	G	0.15	U 2

Residuals in seconds of arc

1989 05 31	675	(4.7+	1.5+)	1995 12 21	566	0.2−	0.0	1998 06 26	704	0.7−	0.5+
1989 05 31	675	0.2−	0.2−	1995 12 22	566	0.9−	0.8+	1998 06 28	809	0.2+	0.9−
1989 06 01	675	1.1+	1.2+	1995 12 22	566	0.8−	0.9+	1998 06 28	809	1.1+	1.0−
1989 06 01	675	1.2−	1.1+	1995 12 22	566	0.8−	1.0+	1998 06 28	809	0.8+	0.6−
1989 06 02	675	(6.8+	2.8−)	1997 03 10	689	(30.2−	11.0+)	1998 07 01	809	0.1+	0.7−
1989 06 02	675	(2.6+	4.5+)	1997 04 09	127	0.1−	0.3−	1998 07 01	809	0.3+	1.2−
1991 12 29	511	1.6+	1.2−	1997 04 09	127	0.4−	0.6−	1998 07 01	809	0.4+	0.8−
1991 12 29	511	1.4+	1.0−	1998 06 24	704	0.2+	0.5−	1998 07 03	699	0.5−	0.8+
1991 12 30	511	(1.6+	2.7−)	1998 06 24	704	1.6+	0.6−	1998 07 03	699	0.3−	0.7+
1991 12 30	511	0.4+	1.1−	1998 06 24	704	(0.7−	2.1+)	1998 07 03	699	1.1−	0.6+
1992 01 04	511	0.5+	1.5−	1998 06 24	704	0.4−	0.4+	1998 07 24	566	0.1−	1.0−
1992 01 04	511	1.5−	0.3−	1998 06 26	704	0.5−	0.2+	1998 07 24	566	0.9+	1.1−
1995 12 21	566	0.1+	0.1−	1998 06 26	704	0.3+	0.5+	1998 07 24	566	1.0+	1.1−
1995 12 21	566	0.1−	0.2−	1998 06 26	704	1.5−	0.2+	1998 08 04	689	0.7−	0.8+

(9357)∗ 1992 AT_3 = 1995 UN_{12} = 1998 HV_{57}

Discovered 1992 Jan. 11 by O. A. Naranjo at Mérida.

Id. G. V. Williams (*MPC* 31956)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	190.25858		(2000.0)			
n	0.19981751	ω	150.03813		+0.84317293	−0.53742055
a	2.8976573	Ω	242.47801		+0.48975286	+0.77960388
e	0.0793298	i	0.99792		+0.22181420	+0.32155394
P	4.93	H	13.4	G	0.15	U 1

Residuals in seconds of arc

1992 01 11	303	0.4+	0.0	1997 02 07	566	0.3−	0.3+	1998 04 01	704	0.6+	0.5−
1992 01 12	303	(3.0+	1.3−)	1997 02 07	566	0.1+	0.1−	1998 04 01	704	0.0	0.6−
1992 02 04	675	(3.1+	1.5−)	1998 03 25	704	0.8−	0.7+	1998 04 01	704	0.7−	0.6−
1992 02 04	675	0.6+	0.5+	1998 03 25	704	1.1+	0.2−	1998 04 01	704	1.7−	0.7−
1992 02 09	691	0.6−	0.4−	1998 03 25	704	(1.3−	2.1−)	1998 04 21	704	0.2−	0.5+
1992 02 09	691	0.4−	0.1−	1998 03 25	704	0.4+	0.9+	1998 04 21	704	0.2−	0.4+
1995 10 17	691	0.3−	0.4+	1998 03 25	704	0.5+	0.6−	1998 04 21	704	0.5+	0.1+
1995 10 17	691	0.0	0.4+	1998 03 29	704	0.4−	0.3−	1998 04 21	704	0.1+	0.1−
1995 10 17	691	0.1+	0.2+	1998 03 29	704	0.0	0.1+	1998 04 21	704	0.0	0.1−
1995 10 27	691	0.3−	0.1−	1998 03 29	704	1.0−	0.5+	1998 04 22	704	0.4−	0.3+
1995 10 27	691	0.2−	0.2+	1998 03 29	704	1.6+	0.7+	1998 04 22	704	0.6−	0.1+
1995 10 27	691	0.1+	0.2+	1998 03 29	704	(1.5−	3.3+)	1998 04 22	704	0.4+	0.9+
1997 02 07	566	0.2+	0.0	1998 04 01	704	0.3+	0.5−	1998 04 22	704	1.1+	0.5+

(9358)∗ 1992 DN_7 = 1995 VX_1

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* 26171)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	350.89880		(2000.0)			
n	0.22899026	ω	217.61275		+0.96339266	+0.26411419
a	2.6460094	Ω	127.01045		−0.22985252	+0.90207298
e	0.0910143	i	3.30419		−0.13799418	+0.34133272
P	4.30	H	13.5	G	0.15	U 2

Residuals in seconds of arc

1990 11 14	675	0.2+	0.7+	1997 05 03	596	0.3+	0.5+	1998 09 14	704	0.3+	0.4−
1990 11 14	675	0.1+	0.4−	1998 08 21	426	0.6+	1.0−	1998 09 14	704	1.3+	0.1+
1992 02 29	809	0.3−	0.7+	1998 08 21	426	0.4+	1.2−	1998 09 14	704	0.3−	0.1−
1992 03 03	809	0.4−	0.5+	1998 08 21	426	0.3+	1.0−	1998 09 18	704	0.2+	0.0
1992 03 07	809	0.7+	0.7+	1998 08 23	704	0.7+	1.3−	1998 09 18	704	0.3+	0.3+
1992 04 06	809	0.0	0.2+	1998 08 23	704	1.1+	1.2−	1998 09 18	704	0.4−	0.2−
1995 11 04	327	0.4+	0.3−	1998 08 23	704	1.2+	0.2−	1998 09 18	704	0.3−	0.3+
1995 11 04	327	0.7−	0.1−	1998 08 23	704	0.0	0.1−	1998 09 18	704	0.9−	0.3+
1995 11 04	327	0.0	0.3+	1998 08 23	704	0.1−	2.1−	1998 09 26	704	0.9+	0.1−
1995 11 05	327	0.9+	0.4+	1998 08 23	426	0.1−	1.0−	1998 09 26	704	1.0+	0.4+
1995 11 05	327	0.7−	0.1−	1998 08 23	426	0.3+	1.1−	1998 09 26	704	2.1+	1.9−
1995 11 05	327	0.8+	0.2+	1998 08 23	426	0.0	1.1−	1998 09 26	704	1.1+	0.7−
1995 11 28	327	0.4−	0.7−	1998 08 26	809	1.2+	1.3+	1998 09 26	704	1.9+	1.4−
1995 11 28	327	0.3−	0.3−	1998 08 26	809	0.9+	1.2+	1998 09 27	704	(4.3−	3.0+)
1995 11 28	327	0.4−	0.2−	1998 08 26	809	1.3+	1.5+	1998 09 27	704	2.3−	1.6+
1996 01 18	327	0.8+	0.3+	1998 08 27	809	1.8−	1.0+	1998 09 27	704	2.3−	2.2+
1996 01 18	327	0.1+	0.4+	1998 08 27	809	0.5−	1.6+	1998 09 27	704	(3.0−	1.5+)
1997 05 03	596	0.3+	0.9+	1998 08 27	809	0.4−	1.1+	1998 09 27	704	1.8−	1.5+
1997 05 03	596	0.3+	0.9+	1998 09 14	704	0.2+	0.2+				

(9359)∗ 1992 ED_{11} = 1977 RX_2 = 1982 YV_1 = 1986 WX_5

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

Id. G. V. Williams (*MPC* 23862)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	279.21763		(2000.0)		**P**	**Q**	
n	0.23260211	ω	61.53140		+0.62095271	−0.78342228	
a	2.6185464	Ω	349.95911		+0.65736212	+0.53841984	
e	0.0823362	i	8.52018		+0.42695757	+0.31040879	
P	4.24	H	13.6	G	0.15	U	1

Residuals in seconds of arc

1977 09 09	675	0.5−	1.0−	1992 04 06	809	0.4−	1.0−	1998 08 23	704	0.8+	0.1+
1977 09 09	095	0.8+	0.5+	1994 09 12	691	1.5−	1.0+	1998 08 23	704	0.3+	1.0−
1977 09 10	675	0.9+	1.7−	1994 09 12	691	1.4−	0.9+	1998 08 23	704	0.1−	1.2+
1982 12 24	095	(10.4+	1.1+)	1994 09 12	691	0.8−	0.6+	1998 08 23	704	0.2−	0.0
1986 11 27	010	(3.8+	0.7+)	1994 09 12	292	(2.3+	0.7+)	1998 09 14	704	0.0	0.3+
1986 11 27	010	0.1−	0.6−	1994 09 12	292	1.7−	0.1−	1998 09 14	704	0.4+	0.1+
1986 11 28	010	0.5+	0.9−	1994 09 13	691	0.7−	0.9+	1998 09 14	704	0.1+	0.1+
1986 12 02	010	0.9+	0.5−	1994 09 13	691	1.0−	0.9+	1998 09 14	704	0.4+	0.7−
1986 12 03	010	0.3−	0.6−	1994 09 13	691	0.9−	1.0+	1998 09 14	704	1.3+	0.8−
1986 12 03	010	1.4+	0.2−	1998 08 17	704	(3.9−	0.6+)	1998 09 18	704	0.3−	0.3+
1992 02 24	691	0.1−	0.1+	1998 08 17	704	0.7+	0.5−	1998 09 18	704	0.4−	0.5+
1992 02 24	691	0.1−	0.2−	1998 08 17	704	0.6+	0.4−	1998 09 18	704	0.5−	1.4+
1992 02 24	691	0.2+	0.4−	1998 08 17	704	0.0	1.0−	1998 09 18	704	0.8−	1.6+
1992 02 25	675	0.3+	0.9−	1998 08 17	704	0.0	0.9−	1998 09 18	704	0.4−	0.8+
1992 02 25	675	(0.7−	2.5−)	1998 08 17	118	0.4+	1.0−	1998 09 21	699	0.4−	0.4+
1992 03 06	809	0.3+	1.2+	1998 08 17	118	0.6+	0.9−	1998 09 21	699	0.2+	0.0
1992 03 08	809	0.1+	1.6+	1998 08 20	118	0.9+	0.6−	1998 09 21	699	0.0	0.3+
1992 03 09	809	0.3+	1.7+	1998 08 20	118	0.8+	0.6−				

(9360)∗ 1992 EV$_{13}$ = 1994 PN$_{10}$ = 1995 WG$_4$

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

Id. S. Nakano (*MPC* 26171)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	92.16665		(2000.0)		**P**	**Q**	
n	0.19243744	ω	287.60071		−0.90344174	−0.42853052	
a	2.9712761	Ω	227.02697		+0.39949732	−0.83100082	
e	0.0337350	i	0.97377		+0.15554716	−0.35468186	
P	5.12	H	12.9	G	0.15	U	1

Residuals in seconds of arc

1992 03 02	809	(0.7+	2.3+)	1994 09 04	809	0.7+	0.8+	1995 12 25	566	0.3+	0.0
1992 03 05	809	0.3−	0.1+	1995 11 17	399	(2.4−	1.8−)	1998 05 24	704	1.1−	0.2−
1992 03 09	809	0.5−	0.7−	1995 11 17	399	(3.9−	2.2−)	1998 05 24	704	0.1−	1.4−
1992 04 07	809	0.5+	0.2−	1995 11 20	691	0.5−	0.2−	1998 05 24	704	0.6+	0.4−
1994 08 10	809	1.6−	1.8−	1995 11 20	691	0.4−	0.1+	1998 05 24	704	1.0+	1.5−
1994 08 10	809	(2.6−	1.9−)	1995 11 20	691	0.6−	0.1+	1998 05 24	704	0.1+	1.3−
1994 08 10	809	(2.9−	2.1−)	1995 11 21	399	(2.6−	0.5+)	1998 06 21	688	0.3−	0.1+
1994 08 11	809	(1.0−	2.5−)	1995 11 21	399	1.2−	0.8−	1998 06 21	688	0.0	0.2+
1994 08 11	809	0.1+	1.4−	1995 11 27	691	0.5−	0.4+	1998 06 21	688	0.2+	0.0
1994 08 11	809	1.0−	1.2−	1995 11 27	691	0.5−	0.0	1998 06 25	691	0.6−	0.6+
1994 09 03	809	0.5−	0.2+	1995 11 29	369	0.7+	0.5−	1998 06 25	691	0.5−	0.0
1994 09 03	809	0.1+	0.2+	1995 11 29	369	1.4+	0.2+	1998 06 25	691	0.7−	0.0
1994 09 03	809	0.7+	0.6+	1995 11 29	369	0.3+	0.5−	1998 06 27	699	0.7+	1.4+
1994 09 04	809	1.1+	0.3+	1995 12 25	566	1.0+	0.1−	1998 06 27	699	0.8+	1.0+
1994 09 04	809	0.8+	0.9+	1995 12 25	566	0.4+	0.0	1998 06 27	699	0.4−	0.8+

(9361)∗ 1992 EM$_{18}$ = 1990 WH$_6$

Discovered 1992 Mar. 3 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. K. Ichikawa (*MPC* 24106)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	10.65764		(2000.0)		**P**	**Q**	
n	0.23048904	ω	119.55066		+0.83566959	+0.54699978	
a	2.6345262	Ω	207.37796		−0.53376885	+0.78761578	
e	0.0962022	i	6.17603		−0.12941081	+0.28364171	
P	4.28	H	14.4	G	0.15	U	2

Residuals in seconds of arc

1990 11 14	675	1.1−	0.4+	1996 01 29	691	0.4+	0.9−	1998 09 16	699	0.6+	0.1+
1990 11 14	675	0.9+	0.7+	1996 01 29	691	0.1+	0.4−	1998 09 16	699	0.2+	0.0
1990 11 21	809	0.7+	0.3+	1996 01 29	691	0.2+	0.6−	1998 09 18	704	0.3−	0.4+
1990 11 21	809	0.1+	0.3+	1998 08 18	621	0.3+	0.2−	1998 09 18	704	0.0	1.5+
1990 11 21	809	1.6+	0.6+	1998 08 18	621	0.1+	0.2−	1998 09 18	704	0.6−	0.4+
1990 11 22	809	1.0+	0.7+	1998 08 18	621	0.1+	0.2−	1998 09 18	704	0.2−	1.1+
1990 11 22	809	0.9−	0.4−	1998 08 20	621	0.1−	0.3−	1998 09 18	704	0.2+	2.0+
1990 11 22	809	1.7−	0.9−	1998 08 20	621	0.0	0.6−	1998 09 26	704	0.2+	0.6−
1992 02 28	675	1.3+	0.6−	1998 08 20	621	0.1−	0.1−	1998 09 26	704	0.5+	0.8−
1992 03 03	809	(2.9−	0.9+)	1998 08 27	699	0.0	0.4+	1998 09 26	704	0.1+	2.9−
1992 03 05	809	1.3−	1.1+	1998 08 27	699	0.3+	0.0	1998 09 26	704	0.2+	0.4+
1992 03 08	809	0.1−	0.5+	1998 08 27	699	0.1+	0.6−	1998 09 26	704	0.8+	0.4−
1994 10 26	691	0.2−	0.0	1998 09 14	704	0.1+	0.5−	1998 09 27	704	0.2−	0.3+
1994 10 26	691	0.5−	0.1+	1998 09 14	704	0.8−	0.6−	1998 09 27	704	0.4−	0.3+
1994 10 26	691	0.4−	0.4+	1998 09 14	704	0.0	0.4−	1998 09 27	704	0.0	0.4+
1996 01 24	691	0.9−	0.6−	1998 09 14	704	0.2+	0.5−	1998 09 27	704	0.4−	0.3+
1996 01 24	691	0.2−	0.6−	1998 09 14	704	0.1+	0.7−	1998 09 27	704	0.1+	0.2−
1996 01 24	691	0.3−	0.4−	1998 09 16	699	0.1+	0.3−				

(9362)∗ 1992 FE$_1$ = 1994 UG$_2$

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

Id. S. Nakano (*MPC* 24392)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	321.46960		(2000.0)		**P**	**Q**	
n	0.22483456	ω	329.76565		+0.93343219	−0.35203155	
a	2.6785145	Ω	51.00895		+0.34438911	+0.82528969	
e	0.1293554	i	5.10233		+0.10050121	+0.44155488	
P	4.38	H	12.8	G	0.15	U	1

Residuals in seconds of arc

1992 03 23	400	0.5−	0.1−	1996 02 02	327	0.3−	0.4+	1998 06 29	704	(0.5−	2.9−)
1992 03 23	400	0.8+	0.2−	1996 02 02	327	0.2+	0.1+	1998 06 29	704	0.1−	1.5−
1992 03 24	400	0.8+	0.1+	1996 02 02	327	0.5−	0.4+	1998 06 29	704	0.6−	0.4+
1992 03 24	400	(1.9+	2.4+)	1996 02 03	327	0.1−	0.4+	1998 06 29	704	0.3+	1.5−
1992 04 03	400	1.8+	1.6+	1996 02 03	327	0.6+	0.2+	1998 06 29	704	(3.6−	0.6+)
1992 04 03	400	(3.2−	0.2+)	1996 02 03	327	0.1+	0.0	1998 08 25	809	(2.3+	3.6+)
1994 10 31	399	0.2+	1.2+	1996 02 03	327	0.0	0.7+	1998 08 25	809	(2.0+	3.8+)
1994 10 31	399	0.4+	0.4+	1996 03 13	400	0.7+	0.2+	1998 08 25	809	(0.8+	2.8+)
1994 11 07	399	0.7−	0.8+	1996 03 13	400	0.5+	0.4−	1998 08 26	809	(1.7+	2.4+)
1994 11 07	399	1.4−	0.6+	1996 03 20	400	0.5−	0.5+	1998 08 26	809	(1.8+	2.6+)
1994 11 08	894	1.0−	0.5+	1996 03 20	400	0.2−	0.0	1998 08 26	809	(1.5+	2.7+)
1994 11 08	894	0.3+	0.1+	1996 03 25	327	0.1−	0.2+	1998 09 14	704	0.2−	0.6+
1994 11 10	894	0.7−	0.2+	1996 03 25	327	0.2+	0.5+	1998 09 14	704	0.4−	0.3+
1994 11 10	894	0.2+	0.6−	1996 03 25	327	0.2+	0.9+	1998 09 14	704	0.9−	0.0
1994 11 23	399	0.5+	1.4−	1996 03 27	327	0.3−	0.9+	1998 09 14	704	0.1−	0.4+
1994 11 23	399	0.6+	0.9−	1996 03 27	327	0.5+	0.6+	1998 09 18	704	0.2+	1.0+
1995 12 23	801	0.4+	0.4−	1996 03 27	327	0.3−	1.0+	1998 09 18	704	0.1+	1.0+
1995 12 23	801	0.2+	0.9−	1996 05 15	327	0.1+	0.6+	1998 09 18	704	0.6+	0.7−
1996 01 21	801	0.0	1.3−	1996 05 15	327	0.1+	0.2+	1998 09 18	704	0.3−	1.5+
1996 01 21	801	(2.7+	2.2−)	1996 05 15	327	0.2+	0.1+	1998 09 18	704	1.2−	0.5+
1996 01 25	801	0.1+	1.4−	1996 05 20	327	0.7+	0.5+	1998 09 27	704	0.1+	0.7+
1996 01 25	801	0.3−	1.3−	1996 05 20	327	0.3−	0.4+	1998 09 27	704	1.0+	0.4+
1996 02 01	327	0.6−	0.0	1996 05 20	327	0.7+	0.5+	1998 09 27	704	1.0−	0.2+
1996 02 01	327	0.2+	0.2+	1997 05 12	689	1.0−	0.5+	1998 09 27	704	1.2+	1.4+
1996 02 01	327	0.0	0.5+	1997 05 13	689	0.8−	1.0+	1998 09 27	704	0.2+	0.0

(9363)∗ 1992 GR = 1986 XT$_1$ = 1996 DZ$_2$

Discovered 1992 Apr. 3 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 26902)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	219.53030		(2000.0)		**P**		**Q**
n	0.22843535	ω	65.93330		−0.58852358		−0.78024922
a	2.6502927	Ω	61.80828		+0.62665964		−0.60574791
e	0.1329825	i	13.90339		+0.51082061		−0.15582241
P	4.31	H	12.8	G	0.15	U	1

Residuals in seconds of arc

1986 12 01	010	0.3+	2.2−	1996 02 16	399	1.4+	1.2+	1998 09 03	426	0.1+	0.3+
1986 12 01	010	2.1−	0.6+	1996 02 16	399	0.0	0.8+	1998 09 03	426	0.1+	0.3−
1986 12 01	010	1.9+	0.2−	1996 02 24	399	1.7+	0.2+	1998 09 21	704	1.7+	0.7−
1992 03 28	400	0.8+	1.7+	1996 02 24	399	(2.5+	0.3+)	1998 09 21	704	(0.2−	2.5−)
1992 03 28	400	1.5+	0.3+	1996 03 10	399	0.0	0.2−	1998 09 21	704	0.3−	0.5−
1992 03 31	400	0.9−	1.1−	1996 03 10	399	0.4−	0.2−	1998 09 21	704	1.0−	0.9+
1992 03 31	400	0.4+	0.1−	1996 03 12	399	1.0−	0.1−	1998 09 21	704	0.8−	0.4−
1992 04 03	399	0.8−	0.6−	1996 03 12	399	1.8−	0.0	1998 09 21	704	0.4−	0.3+
1992 04 03	399	1.4−	0.4−	1996 03 20	399	0.2+	0.5−	1998 09 21	704	0.7−	0.3−
1992 04 07	399	0.1−	0.3−	1996 03 20	399	0.8+	0.6+	1998 09 21	704	0.1+	0.9+
1992 04 07	399	0.3+	0.6−	1998 09 01	426	0.4+	0.5−	1998 09 21	704	0.5−	0.7−
1992 05 02	399	1.9−	0.8−	1998 09 01	426	0.4+	0.2−	1998 09 21	704	0.8+	1.6+
1992 05 02	399	1.0+	0.5+	1998 09 03	426	0.2+	0.2−				

(9364)∗ 1992 HZ$_3$ = 1989 UD$_5$

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

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

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	91.53768		(2000.0)		**P**		**Q**
n	0.21157852	ω	227.92705		−0.47943494		+0.87750856
a	2.7892557	Ω	13.43706		−0.79054802		−0.42641660
e	0.0749265	i	2.71159		−0.38101963		−0.21942563
P	4.66	H	13.2	G	0.15	U	1

Residuals in seconds of arc

1989 10 30	807	0.1+	0.9−	1996 03 16	566	0.0	0.9+	1998 09 17	699	0.1+	0.0
1989 11 01	807	0.5+	0.6−	1996 03 16	566	0.6+	0.7+	1998 09 18	704	0.8+	0.3−
1992 04 03	303	0.0	0.5+	1996 03 16	566	0.2+	0.7+	1998 09 18	704	0.5+	0.5−
1992 04 03	303	0.6−	0.2−	1996 03 16	566	0.5+	0.8+	1998 09 18	704	0.5+	0.1−
1992 04 03	303	0.2+	0.2+	1996 03 16	566	0.7+	0.8+	1998 09 18	704	0.7+	0.3−
1992 04 04	809	0.2+	1.1+	1996 03 16	566	0.7+	0.9+	1998 09 18	704	0.3+	0.3+
1992 04 04	809	0.5+	0.3+	1996 04 17	566	0.6−	1.0−	1998 09 21	691	1.4−	0.8+
1992 04 04	809	0.0	0.1+	1996 04 17	566	0.9−	0.7−	1998 09 21	691	1.6−	0.9+
1992 04 06	809	0.1+	0.9−	1996 04 17	566	0.9−	1.2−	1998 09 21	691	1.7−	1.0+
1992 04 06	809	0.6−	1.2−	1998 08 26	691	0.6+	0.1−	1998 09 26	704	0.2+	0.4−
1992 04 06	809	1.0−	1.1−	1998 08 26	691	0.6+	0.1+	1998 09 26	704	0.7−	0.2−
1992 04 23	809	1.2−	0.6+	1998 08 26	691	0.5+	0.4+	1998 09 26	704	0.9−	0.2+
1992 04 23	809	(2.5−	1.4+)	1998 08 31	691	0.5−	0.2+	1998 09 26	704	0.1−	0.1+
1992 04 23	809	0.6−	0.1−	1998 08 31	691	0.5−	0.1+	1998 09 26	704	0.3−	0.6+
1992 04 25	809	0.7+	0.0	1998 08 31	691	0.4−	0.2+	1998 09 27	704	0.3+	0.4+
1992 04 25	809	0.0	0.1+	1998 09 14	704	0.6+	1.1−	1998 09 27	704	0.1+	1.4+
1992 04 25	809	0.4−	0.7−	1998 09 14	704	1.0+	0.0	1998 09 27	704	0.8+	0.2−
1992 04 27	675	0.8+	0.5+	1998 09 14	704	0.2−	0.1−	1998 09 27	704	0.6+	0.4−
1992 04 27	675	1.5+	0.5+	1998 09 14	704	0.8+	0.6−	1998 09 27	704	0.1+	0.0
1992 04 30	691	0.7+	0.4+	1998 09 14	704	0.1+	0.4+	1998 09 30	691	1.2−	0.3+
1992 04 30	691	0.4+	0.5+	1998 09 17	699	0.0	0.1−	1998 09 30	691	0.9−	0.5+
1992 04 30	691	0.1+	0.4+	1998 09 17	699	0.0	0.3−	1998 09 30	691	0.9−	0.5+

(9365)∗ 1992 RU$_3$ = 1991 EF$_8$ = 1998 HB$_{18}$

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

Id. G. V. Williams (*MPC* 31958)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	346.80131		(2000.0)		**P**		**Q**
n	0.28822569	ω	271.16425		−0.46770893		+0.88322529
a	2.2697651	Ω	330.87263		−0.78055470		−0.43081612
e	0.0774281	i	4.01484		−0.41470799		−0.18523110
P	3.42	H	14.7	G	0.15	U	1

Residuals in seconds of arc

1991 03 09	675	0.5+	0.4−	1998 03 26	566	0.8−	0.8−	1998 04 19	704	(2.5+	0.0)
1991 03 09	675	0.8−	0.3−	1998 03 26	566	0.3−	0.9−	1998 04 20	704	0.6+	0.1−
1992 09 02	809	1.4+	0.2−	1998 03 28	704	1.0−	0.1+	1998 04 20	704	0.6+	0.3−
1992 09 02	809	1.4+	0.3−	1998 03 28	704	0.4−	0.4+	1998 04 20	704	0.6+	0.0
1992 09 02	809	1.0+	0.7−	1998 03 28	704	0.6−	0.6−	1998 04 20	704	0.7+	0.7−
1992 09 03	809	0.4−	1.4−	1998 03 28	704	0.3−	0.7−	1998 04 20	704	1.3+	0.3−
1992 09 22	809	0.0	0.2+	1998 03 29	704	0.3−	0.7−	1998 04 22	704	0.9+	0.8+
1992 09 22	809	0.6−	0.3−	1998 03 29	704	0.9−	0.8−	1998 04 22	704	0.3+	0.1−
1992 09 22	809	0.6−	0.1−	1998 03 29	704	1.1−	0.4−	1998 04 22	704	0.1+	0.3−
1992 09 23	809	0.1+	0.7−	1998 03 29	704	0.9−	0.2−	1998 04 22	704	0.1+	0.5+
1992 09 23	809	0.1+	0.5−	1998 03 29	704	0.3−	0.7−	1998 04 22	704	0.1−	0.1−
1992 09 23	809	0.2−	0.7−	1998 04 01	704	0.4+	0.0	1998 04 30	699	0.7−	0.1+
1994 01 17	691	0.5+	1.2−	1998 04 01	704	0.3−	0.1+	1998 04 30	699	1.0+	0.1−
1994 01 17	691	0.2−	0.6−	1998 04 01	704	0.1+	0.2−	1998 04 30	699	0.8+	0.0
1994 01 17	691	0.7−	0.4−	1998 04 01	704	0.5+	0.4−	1998 05 14	704	0.5+	0.2−
1998 03 24	699	0.0	0.7+	1998 04 01	704	0.4+	0.8−	1998 05 14	704	0.6−	1.3+
1998 03 24	699	0.4−	0.4−	1998 04 18	704	1.2+	0.6+	1998 05 14	704	(2.4−	5.6+)
1998 03 24	699	0.5−	0.0	1998 04 18	704	0.5+	0.2−	1998 05 14	704	(3.5−	0.9+)
1998 03 25	704	0.2−	0.5+	1998 04 18	704	0.5+	0.2+	1998 06 18	704	(2.5+	0.9−)
1998 03 25	704	0.0	1.2+	1998 04 18	704	0.3+	0.1−	1998 06 18	704	1.3−	0.6−
1998 03 25	704	0.5−	1.0+	1998 04 18	704	(2.3−	3.7+)	1998 06 18	704	0.7−	0.2−
1998 03 25	704	0.3−	0.3+	1998 04 19	704	0.5+	0.8−	1998 06 18	704	(0.3−	2.0−)
1998 03 25	704	0.1+	1.4+	1998 04 19	704	0.9+	0.4+				
1998 03 26	566	0.7−	0.9−	1998 04 19	704	1.8−	0.0				

(9366)∗ 1992 WR$_1$ = 1978 RP$_4$ = 1998 KV$_6$

Discovered 1992 Nov. 17 by A. Sugie at the Dynic Astronomical Observatory.

Id. G. V. Williams (*MPC* 32228)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	310.09802		(2000.0)		**P**		**Q**
n	0.29031968	ω	227.52890		+0.82157471		+0.55434193
a	2.2588379	Ω	98.38648		−0.47559026		+0.79518665
e	0.2052596	i	7.73291		−0.31437064		+0.24572996
P	3.39	H	14.1	G	0.15	U	2

Residuals in seconds of arc

1978 09 07	095	0.1−	0.2+	1998 05 22	704	0.4−	0.2+	1998 06 16	704	0.5+	0.7+
1992 11 17	402	0.3−	0.3+	1998 05 22	704	0.1+	0.2+	1998 06 16	704	0.7−	0.1−
1992 11 17	402	0.0	0.8+	1998 05 22	699	0.3+	0.0	1998 06 18	691	0.3−	0.1+
1992 11 18	402	0.3+	0.9+	1998 05 22	699	0.6+	0.1−	1998 06 18	691	(2.3−	2.0−)
1992 11 18	402	0.5−	0.5+	1998 05 22	699	0.1+	0.0	1998 06 18	691	(2.0+	2.8−)
1992 11 18	400	1.5+	1.1−	1998 05 23	699	1.0+	0.6−	1998 06 18	704	(2.3−	2.2+)
1992 11 18	400	1.7−	1.1−	1998 05 23	699	1.3+	0.2−	1998 06 18	704	0.5+	0.3+
1992 11 21	400	(0.8+	2.9−)	1998 05 23	699	0.8+	0.4−	1998 06 18	704	0.7−	1.1+
1992 11 21	400	1.5+	0.0	1998 05 24	704	(1.0+	3.7−)	1998 06 18	704	0.3+	0.8+
1992 11 28	693	0.6+	0.1−	1998 05 24	704	0.4+	0.6−	1998 06 26	699	0.4−	0.0
1992 11 28	693	1.1−	0.6−	1998 05 24	704	0.2−	0.2−	1998 06 26	699	0.2+	0.0
1996 12 12	327	0.6+	0.1+	1998 05 24	704	(2.2+	1.7−)	1998 06 26	699	0.0	0.1+
1996 12 12	327	0.7+	0.1+	1998 05 24	704	1.8−	0.4−	1998 06 29	691	1.5−	0.3−
1996 12 12	327	0.8+	0.1−	1998 06 03	704	0.6+	0.8−	1998 06 29	691	(2.7−	2.0−)
1997 01 10	691	0.6−	0.2+	1998 06 03	704	0.6−	0.5−	1998 06 29	691	0.3−	0.5+
1997 01 10	691	0.6−	0.3+	1998 06 03	704	0.5−	1.6+	1998 06 30	699	0.3−	0.4−
1997 01 10	691	0.6−	0.1−	1998 06 03	704	0.2+	0.8+	1998 06 30	699	0.5−	0.7−
1998 05 22	704	1.0+	0.4−	1998 06 16	704	0.2−	0.0	1998 06 30	699	0.3−	0.1−
1998 05 22	704	0.2−	0.0	1998 06 16	704	0.1+	0.3−				
1998 05 22	704	0.2+	0.5−	1998 06 16	704	0.1+	0.0				

(9367)∗ 1993 BO_3 = 1981 RA_5 = 1995 UD_8

Discovered 1993 Jan. 30 by A. Natori and T. Urata at the JCPM Yakiimo Station.

Id. T. Urata (*MPC* 26172)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	259.18309		(2000.0)		**P**	**Q**	
n	0.28736732	ω	355.17131		+0.17497037	−0.98133884	
a	2.2742828	Ω	84.73609		+0.90598903	+0.12876729	
e	0.1433987	*i*	4.59339		+0.38544680	+0.14280432	
P	3.43	*H*	14.2	*G*	0.15	*U*	2

Residuals in seconds of arc

1981 09 08	095	(1.7+	12.5−)	1995 12 28	691	0.6−	0.1+	1998 08 23	888	0.9+	0.6−
1993 01 23	675	0.5−	1.4+	1995 12 28	691	0.3−	0.2+	1998 09 13	888	1.1−	0.6+
1993 01 23	675	0.8+	0.1+	1997 05 03	809	(3.3−	0.0)	1998 09 13	888	0.4+	0.1−
1993 01 30	885	0.5+	0.7+	1997 05 03	809	(3.6−	0.0)	1998 09 13	888	0.8−	0.6−
1993 01 30	885	(1.7+	3.1+)	1997 05 03	809	1.3−	0.4−	1998 09 14	704	0.5−	0.0
1993 01 31	885	1.4+	1.2+	1997 05 04	809	1.6−	1.2−	1998 09 14	704	0.4−	0.7+
1993 01 31	885	(0.2+	2.4+)	1997 05 04	809	(1.5−	2.2−)	1998 09 14	704	0.6−	1.1+
1993 02 01	885	0.9−	0.6−	1997 05 04	809	0.8−	0.0	1998 09 14	704	1.1−	0.7+
1993 02 13	885	0.9−	0.5+	1997 05 07	704	0.7+	0.4+	1998 09 14	704	0.2−	0.5+
1993 02 13	885	0.7+	0.4−	1997 05 07	704	0.5+	0.3+	1998 09 18	704	0.4−	0.4+
1993 02 23	885	0.1−	0.1+	1997 05 07	704	0.7+	0.3+	1998 09 18	704	0.2+	0.5−
1995 10 27	905	0.3−	0.4−	1997 05 07	704	1.0+	0.4+	1998 09 18	704	0.1+	1.0−
1995 10 27	905	0.4+	1.0−	1997 05 07	704	0.8+	0.4+	1998 09 18	704	0.2+	0.6−
1995 10 30	905	0.9+	0.1−	1998 07 31	699	0.1−	1.0+	1998 09 18	704	0.1−	0.5+
1995 10 30	905	0.3−	1.1−	1998 07 31	699	0.7−	0.3+	1998 09 22	699	0.2+	0.2+
1995 11 16	385	1.1+	0.3−	1998 07 31	699	0.2−	0.5+	1998 09 22	699	0.4+	0.2−
1995 11 16	385	1.0+	0.3−	1998 08 17	704	0.4+	0.2−	1998 09 22	699	0.5+	0.2+
1995 11 16	385	1.0+	0.0	1998 08 17	704	0.8+	0.5+	1998 09 25	704	0.6−	0.1−
1995 11 17	887	0.6+	0.3+	1998 08 17	704	0.6+	0.4+	1998 09 25	704	1.0−	0.8−
1995 11 30	905	0.2+	0.5−	1998 08 17	704	1.0+	0.5+	1998 09 25	704	0.1+	0.2−
1995 11 30	905	0.4+	0.8−	1998 08 17	704	0.1+	0.2+	1998 09 25	704	0.8−	0.7−
1995 12 16	691	0.9−	0.5+	1998 08 23	704	0.5+	1.2−	1998 09 25	704	0.3−	0.0
1995 12 16	691	0.9−	0.5+	1998 08 23	704	0.6+	0.6−	1998 09 27	704	0.1−	0.6+
1995 12 16	691	0.8−	0.5+	1998 08 23	704	1.5+	0.5+	1998 09 27	704	0.4−	1.0+
1995 12 22	691	0.1+	0.1−	1998 08 23	704	(0.6+	2.8−)	1998 09 27	704	0.8−	1.6+
1995 12 22	691	0.4−	0.5+	1998 08 23	704	0.7−	0.8−	1998 09 27	704	0.6−	1.4+
1995 12 22	691	0.3−	0.4+	1998 08 23	888	0.2−	0.4−	1998 09 27	704	0.5+	0.4+
1995 12 28	691	0.8−	0.3+	1998 08 23	888	0.4+	0.9−				

(9368)∗ 1993 BS_3 = 1991 RS_{37} = 1995 UL_{44}

Discovered 1993 Jan. 26 by M. Mukai and M. Takeishi at the YCPM Kagoshima Station.

Id. S. Nakano (*MPC* 26172)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	187.53785		(2000.0)		**P**	**Q**	
n	0.28045828	ω	212.26330		−0.84379152	−0.52577779	
a	2.3114821	Ω	295.64841		+0.51424509	−0.73477764	
e	0.1160947	*i*	6.85398		+0.15351826	−0.42855517	
P	3.51	*H*	13.7	*G*	0.15	*U*	2

Residuals in seconds of arc

1991 09 15	675	(2.5−	4.8−)	1995 10 22	408	0.2−	1.0−	1998 08 23	704	0.9−	0.4−
1991 09 15	675	(0.7−	2.9−)	1995 10 26	408	(0.0	2.8+)	1998 09 14	704	0.8+	0.2+
1993 01 23	809	0.4+	0.4−	1995 10 26	408	(2.3−	1.9+)	1998 09 14	704	0.3+	1.2+
1993 01 26	364	1.5+	0.1+	1995 12 18	801	0.2+	0.5+	1998 09 14	704	0.1+	0.6+
1993 01 26	364	1.1−	0.6+	1995 12 18	801	0.7+	0.3−	1998 09 14	704	0.5−	0.8+
1993 01 28	809	0.4+	1.3−	1995 12 23	801	0.0	0.1−	1998 09 16	699	0.6+	0.6+
1993 01 28	809	1.4−	1.1−	1995 12 23	801	0.1+	0.1−	1998 09 16	699	0.4+	0.4+
1993 01 29	365	0.9−	0.7+	1997 05 31	367	0.3−	0.4+	1998 09 16	699	0.5+	0.4+
1993 01 29	365	0.8+	0.8−	1997 05 31	367	0.3+	0.3−	1998 09 18	704	0.3−	0.2−
1993 01 30	364	0.9−	0.4+	1998 08 17	704	0.0	0.0	1998 09 18	704	0.2−	0.2+
1993 01 30	364	0.2−	0.6+	1998 08 17	704	0.1+	0.1−	1998 09 18	704	0.3−	0.1−
1993 01 30	365	(2.3+	2.6−)	1998 08 17	704	0.8−	0.2+	1998 09 18	704	0.7−	1.0+
1993 01 30	365	(3.1−	2.3+)	1998 08 17	704	1.3−	0.0	1998 09 18	704	0.2−	0.2+
1993 02 01	364	0.8−	1.6+	1998 08 17	704	0.5−	0.8+	1998 09 25	704	0.3+	0.5−
1993 02 01	364	0.5−	0.4+	1998 08 23	704	0.5+	0.9−	1998 09 25	704	1.4−	1.7+
1993 02 12	364	1.8+	0.7+	1998 08 23	704	1.3+	0.3−	1998 09 25	704	0.5+	1.3−
1993 02 12	364	1.8+	0.5+	1998 08 23	704	0.7−	1.0−	1998 09 25	704	0.5+	0.1−
1995 10 22	408	0.8−	0.1−	1998 08 23	704	0.7+	0.6−	1998 09 25	704	0.3−	0.3−

(9369)∗ 1993 DB_1 = 1982 BJ_2

Discovered 1993 Feb. 20 by T. Hioki and S. Hayakawa at Okutama.

Id. S. Nakano (*MPC* 22059), K. Ichikawa (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	157.62033		(2000.0)		**P**	**Q**	
n	0.27719104	ω	108.51666		−0.90446005	+0.42654055	
a	2.3296102	Ω	96.73171		−0.39282410	−0.82933732	
e	0.1499565	*i*	0.22472		−0.16625655	−0.36091934	
P	3.56	*H*	13.6	*G*	0.15	*U*	2

Residuals in seconds of arc

1982 01 16	046	0.4−	1.0−	1993 02 23	877	(2.3−	0.1−)	1998 09 14	699	0.5+	0.2+
1982 01 16	046	0.8−	0.4−	1993 02 23	877	(2.3+	2.7−)	1998 09 14	699	0.6+	0.3−
1982 01 18	046	0.5+	0.6+	1993 02 25	877	0.1+	1.9−	1998 09 14	699	0.6+	0.3+
1982 01 18	046	0.6+	0.3−	1993 02 25	877	0.7+	0.7+	1998 09 25	691	0.3−	0.3−
1982 01 19	046	(0.9−	16.0+)	1993 03 16	894	0.4−	0.1+	1998 09 25	691	0.4−	0.1−
1982 01 19	046	(2.6−	1.2−)	1993 03 16	894	0.1−	1.1+	1998 09 25	691	0.2−	0.1−
1982 01 19	095	(3.0+	1.4+)	1993 03 18	894	0.3−	0.1+	1998 09 26	704	0.8+	0.0
1982 01 20	095	(8.0+	0.4−)	1993 03 18	894	0.3−	0.1+	1998 09 26	704	0.8+	0.3+
1991 10 17	675	1.0+	1.8+	1994 09 01	033	0.3+	0.5−	1998 09 26	704	0.8+	0.4+
1991 11 05	691	1.2−	0.7+	1994 09 02	033	0.4+	0.0	1998 09 26	704	0.9+	0.1+
1991 11 05	691	1.1−	0.2+	1994 09 03	033	0.6+	0.1+	1998 09 26	704	0.5+	0.0
1991 11 05	691	0.9−	0.3+	1994 09 30	675	0.1+	1.8−	1998 09 30	691	1.4−	0.2+
1993 02 20	877	0.3+	1.0−	1994 09 30	675	1.1+	1.9−	1998 09 30	691	1.5−	0.2+
1993 02 20	877	(3.0−	1.1−)	1997 05 27	689	0.6−	1.8+	1998 09 30	691	1.3−	0.0

(9370)∗ 1993 FC_{22} = 1971 QR_2 = 1978 JK_1 = 1986 NV = 1997 GQ_{35}

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* 29918)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	47.37309		(2000.0)		**P**	**Q**	
n	0.26004345	ω	114.40244		+0.53289574	+0.84617373	
a	2.4309280	Ω	187.80163		−0.78536293	+0.49305666	
e	0.1379220	*i*	1.47174		−0.31500349	+0.20220077	
P	3.79	*H*	14.4	*G*	0.15	*U*	1

Residuals in seconds of arc

1971 08 19	808	0.1−	1.2+	1997 04 11	704	0.5−	0.1+	1997 05 07	704	0.0	0.2−
1978 05 06	095	(4.0−	1.5+)	1997 04 30	704	1.2+	0.2−	1998 08 26	910	1.2−	0.2−
1986 07 08	801	(4.0−	0.1−)	1997 04 30	704	0.1+	0.1+	1998 08 26	910	1.0−	0.2−
1993 03 21	809	1.2−	0.6+	1997 04 30	704	0.6+	0.1−	1998 08 26	910	1.1−	0.2−
1993 03 22	809	0.2−	0.4+	1997 04 30	704	0.1+	0.9−	1998 08 31	910	0.4+	0.7−
1993 03 26	809	(2.6−	1.1+)	1997 04 30	704	0.3+	0.4−	1998 08 31	910	0.5+	0.8−
1993 03 27	809	1.1−	0.6+	1997 05 01	704	0.0	0.1+	1998 08 31	910	0.7+	0.8−
1993 04 18	413	(5.8−	0.0)	1997 05 01	704	0.4−	0.2−	1998 09 23	910	0.1+	0.1+
1995 12 19	566	0.4+	0.1+	1997 05 01	704	0.3−	0.0	1998 09 23	910	0.1+	0.1+
1995 12 19	566	1.1+	0.5−	1997 05 01	704	0.2−	0.1−	1998 09 23	910	0.3+	0.1+
1995 12 19	566	0.3+	0.2+	1997 05 01	704	0.0	0.1−	1998 09 24	910	1.1+	0.3−
1997 04 06	704	0.1+	0.6−	1997 05 07	704	0.3+	0.4−	1998 09 24	910	0.0	0.2−
1997 04 06	704	0.4−	0.4+	1997 05 07	704	0.3+	0.0	1998 09 24	910	0.4−	0.2−
1997 04 11	704	0.6−	0.1−	1997 05 07	704	0.4+	0.3−				

(9371)∗ 1993 FV_{31}

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

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	188.29924		(2000.0)		**P**	**Q**	
n	0.25947268	ω	32.64604		−0.76378854	−0.64309772	
a	2.4344916	Ω	107.22994		+0.57909933	−0.72054481	
e	0.0406009	i	3.31609		+0.28508075	−0.25930775	
P	3.80	H	14.0	G	0.15	U	1

Residuals in seconds of arc

1993 03 19	809	1.0+	0.2+	1997 04 07	809	(3.5+	4.9+)	1998 08 23	704	0.3−	0.0
1993 03 20	809	0.5+	0.4+	1997 04 07	809	(2.6+	4.5+)	1998 08 23	704	0.9−	0.4−
1993 03 24	809	0.3+	0.8+	1997 04 07	704	(2.4+	0.4−)	1998 08 23	704	1.6−	0.2−
1993 04 18	413	0.8−	0.1−	1997 04 07	809	(3.2+	4.7+)	1998 08 23	704	0.1+	0.5−
1995 11 26	411	0.6−	1.0+	1997 04 07	704	1.6+	1.0−	1998 08 23	704	1.4−	0.7+
1995 11 26	411	0.8−	0.5+	1997 04 08	809	1.0−	1.2+	1998 08 30	699	0.5+	0.4+
1995 11 28	411	0.4+	0.4−	1997 04 08	809	1.3−	1.0+	1998 08 30	699	0.4+	0.8+
1995 11 28	411	1.1−	0.2+	1997 04 08	809	1.0−	1.3+	1998 08 30	699	0.3+	0.5+
1995 12 12	411	0.3−	0.4−	1997 04 11	809	1.2−	0.3+	1998 09 14	704	0.0	1.4−
1995 12 12	411	0.0	0.4−	1997 04 11	809	0.4−	0.5−	1998 09 14	704	0.4+	0.6−
1996 04 15	709	0.8−	0.5+	1997 04 11	809	(2.3−	0.2−)	1998 09 14	704	0.4−	1.1−
1996 04 15	709	0.7−	1.1+	1997 04 12	809	1.0−	0.9+	1998 09 14	704	0.2+	1.6−
1996 04 16	709	1.4+	0.8−	1997 04 12	809	1.3−	0.4+	1998 09 16	699	0.0	0.2+
1996 04 16	709	(2.2+	0.5−)	1997 04 12	809	0.8−	1.3+	1998 09 16	699	0.2+	0.9+
1996 04 16	709	1.4+	0.1+	1997 05 14	709	0.5+	0.6−	1998 09 16	699	0.8−	0.7+
1996 04 16	709	(2.9+	0.5+)	1997 05 14	709	0.7+	0.7−	1998 09 18	704	0.2−	0.2−
1996 04 16	709	1.6+	0.6+	1997 05 14	709	0.6+	0.7−	1998 09 18	704	1.3−	0.1+
1996 04 16	709	(2.4+	0.4+)	1997 05 14	709	0.6+	0.7−	1998 09 18	704	1.4−	1.0−
1996 04 16	709	(2.3+	0.4+)	1997 05 14	709	0.7+	0.7−	1998 09 18	704	0.1−	0.4+
1996 04 16	709	(2.4+	0.6+)	1998 08 17	704	0.8−	1.2−	1998 09 18	704	0.1−	0.4−
1996 04 16	709	(2.3+	0.9+)	1998 08 17	704	1.0−	1.7+	1998 09 25	704	0.7+	0.1+
1996 05 01	709	0.5+	0.4+	1998 08 17	704	0.5+	0.9+	1998 09 25	704	0.1−	0.8−
1996 05 01	709	0.2+	0.5+	1998 08 17	704	0.2+	0.1−	1998 09 25	704	0.7+	0.5−
1996 05 01	709	0.2−	0.4−	1998 08 17	704	1.2+	0.8+	1998 09 25	704	0.3−	0.3−
1996 05 01	709	0.0	0.1−	1998 08 17	426	0.4−	0.0	1998 09 27	704	0.5+	1.3+
1996 05 01	709	0.4+	0.0	1998 08 17	426	0.4−	0.7+	1998 09 27	704	0.1+	1.1+
1996 05 01	709	0.1−	0.0	1998 08 17	426	0.1+	0.4+	1998 09 27	704	1.4+	0.0
1996 05 01	709	0.3+	0.5−	1998 08 21	426	0.2+	0.2+	1998 09 27	704	1.5+	0.6+
1997 04 06	704	1.5+	0.3−	1998 08 21	426	0.4+	0.5+	1998 09 27	704	1.6+	0.3+
1997 04 06	704	1.0+	0.8−	1998 08 21	426	0.2+	0.3−				

(9372)∗ 1993 FK$_{37}$ = 1996 XW$_{13}$ = 1998 HR$_{39}$

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

Id. A. Gnädig (*MPC* 31723), G. V. Williams (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	184.67546		(2000.0)		**P**	**Q**	
n	0.20139331	ω	350.20839		+0.84370194	−0.53597392	
a	2.8825224	Ω	42.24634		+0.49548305	+0.75603864	
e	0.0800945	i	2.55606		+0.20655167	+0.37568276	
P	4.89	H	13.8	G	0.15	U	1

Residuals in seconds of arc

1993 03 19	809	0.6+	0.3−	1998 03 02	910	0.7+	0.4+	1998 04 20	704	0.3−	1.1+
1993 03 20	809	0.6+	0.4−	1998 03 02	910	0.5+	0.5+	1998 04 20	704	(3.0−	1.1+)
1993 03 24	809	0.2+	0.3+	1998 03 22	704	0.5+	0.1−	1998 04 20	704	0.3+	1.1+
1993 04 18	413	1.5−	0.4+	1998 03 22	704	(3.3+	0.5+)	1998 04 20	704	0.9+	1.0+
1995 10 20	691	0.5−	0.7+	1998 03 22	704	0.6+	0.4+	1998 04 20	704	1.9−	0.2+
1995 10 20	691	0.3−	0.8+	1998 03 22	704	1.1−	0.6+	1998 04 21	704	0.8+	0.1−
1995 10 20	691	0.4−	0.7+	1998 03 22	704	(5.7−	0.6+)	1998 04 21	704	0.6−	0.7+
1996 12 04	691	0.3−	0.2+	1998 03 25	704	0.5−	0.6−	1998 04 21	704	0.6−	0.7+
1996 12 04	691	0.5−	0.2+	1998 03 25	704	0.6+	0.3−	1998 04 21	704	0.2−	0.0
1996 12 04	691	0.5−	0.2−	1998 03 25	704	0.6+	0.1−	1998 04 21	704	0.5+	1.1−
1996 12 11	691	0.3+	0.2−	1998 03 25	704	0.5−	0.1+	1998 04 22	704	0.1+	0.2−
1996 12 11	691	0.2+	0.1−	1998 03 25	704	1.7+	0.4+	1998 04 22	704	0.2−	0.2−
1996 12 11	691	0.0	0.2−	1998 03 29	704	0.7+	0.3+	1998 04 22	704	0.3−	1.7−
1996 12 14	691	0.3+	0.1+	1998 03 29	704	1.4−	0.3+	1998 04 22	704	0.4+	1.4−
1996 12 14	691	0.2+	0.1+	1998 03 29	704	0.6+	0.5+	1998 04 22	704	0.8−	1.1−
1996 12 14	691	0.2+	0.1+	1998 03 29	704	0.2+	0.6+				
1998 03 02	910	1.0+	0.3+	1998 03 29	704	1.0−	0.6+				

(9373)∗ 1993 FY$_{43}$ = 1994 PH$_{27}$

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

Id. G. V. Williams (*MPC* 25428)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	3.07653		(2000.0)		**P**	**Q**	
n	0.23536346	ω	300.43152		+0.39202560	+0.91993877	
a	2.5980251	Ω	352.64308		−0.82907489	+0.35077404	
e	0.1296920	i	2.39294		−0.39868629	+0.17512918	
P	4.19	H	14.3	G	0.15	U	2

Residuals in seconds of arc

1993 03 19	809	(1.2+	2.7+)	1994 08 13	809	(3.0+	2.4+)	1997 04 02	704	0.4−	1.3+
1993 03 20	809	(2.6+	2.4+)	1994 09 03	809	(1.0−	4.4−)	1997 04 02	704	1.0+	0.7+
1993 03 24	809	1.8+	0.7+	1994 09 03	809	(1.0−	4.4−)	1997 04 02	704	0.0	0.8+
1993 04 17	691	0.7−	0.3−	1994 09 03	809	(1.8−	3.9−)	1998 06 24	699	0.4−	0.4+
1993 04 17	691	0.7−	0.4−	1994 09 04	809	0.2+	1.5−	1998 06 24	699	0.3−	1.1+
1993 04 17	691	0.6−	0.3−	1994 09 04	809	(0.2−	2.2−)	1998 06 24	699	0.7+	0.2+
1994 08 10	809	0.3+	0.6+	1994 09 04	809	(1.0−	2.7−)	1998 07 16	699	0.2+	0.1−
1994 08 10	809	0.6−	0.5+	1994 09 05	809	(1.9+	4.1+)	1998 07 16	699	0.4−	0.2+
1994 08 10	809	1.4−	0.2+	1994 09 05	809	0.5+	1.6+	1998 07 16	699	0.1+	0.5+
1994 08 12	809	0.3+	0.5−	1994 09 05	809	(0.9+	2.6+)	1998 08 17	704	0.4−	0.0
1994 08 12	809	0.1+	0.6−	1994 09 06	809	(0.8−	2.5+)	1998 08 17	704	1.0+	1.6−
1994 08 12	809	0.4+	0.5+	1994 09 06	809	0.7−	1.9+	1998 08 17	704	0.0	1.5−
1994 08 13	809	(2.1+	2.2+)	1994 09 06	809	1.0−	1.8+	1998 08 17	704	0.1−	0.8−
1994 08 13	809	(2.6+	2.1+)	1997 04 02	704	0.7+	0.1+	1998 08 17	704	0.0	0.8−

(9374)∗ 1993 FJ$_{46}$ = 1982 BB$_{11}$ = 1984 SP$_{7}$ = 1991 RS$_{9}$

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

Id. K. Kinoshita (*MPC* 24394)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	303.56757		(2000.0)		**P**	**Q**	
n	0.28139281	ω	68.74547		+0.63842291	−0.76966525	
a	2.3063615	Ω	341.57674		+0.69941687	+0.58317020	
e	0.1881886	i	1.01891		+0.32129773	+0.25986134	
P	3.50	H	14.6	G	0.15	U	2

Residuals in seconds of arc

1982 01 19	095	(6.5+	2.2−)	1994 07 08	809	0.9+	0.5−	1998 09 21	636	1.4−	0.5−
1984 09 21	010	0.1+	0.8+	1994 07 09	809	0.3−	0.4+	1998 09 21	636	0.3+	2.2+
1991 09 10	675	0.8+	0.7−	1994 07 09	809	0.3+	0.1−	1998 09 23	636	(3.3+	0.5+)
1991 09 10	675	0.6−	1.4−	1994 07 09	809	0.8+	0.1+	1998 09 23	636	(4.3−	0.6+)
1991 09 17	675	0.2+	0.8−	1996 01 11	411	0.7+	0.6−	1998 09 25	699	0.2+	0.2+
1991 09 17	675	0.2+	1.4−	1996 01 11	411	0.8+	0.3−	1998 09 25	699	0.2+	0.4−
1993 03 19	809	1.2+	1.9+	1998 08 02	699	0.3−	1.2+	1998 09 25	699	0.2+	0.1+
1993 03 20	809	(3.0+	1.6+)	1998 08 02	699	1.5−	1.0+	1998 09 26	704	2.3+	0.6−
1993 03 24	809	0.7+	0.1+	1998 08 02	699	0.2+	0.4+	1998 09 26	704	0.1+	0.5−
1993 03 26	691	0.5−	0.1+	1998 09 14	704	0.3+	0.8+	1998 09 26	704	0.2+	1.7−
1993 03 26	691	0.5−	0.0	1998 09 14	704	0.3−	0.5+	1998 09 26	704	0.7+	0.4−
1993 03 26	691	0.3−	0.1−	1998 09 14	704	0.7−	0.2−	1998 09 26	704	0.7+	2.0−
1993 03 28	691	(0.9−	3.3−)	1998 09 16	699	0.3−	0.1+	1998 09 27	704	0.1+	0.7+
1993 03 28	691	(0.9+	3.9−)	1998 09 16	699	0.1−	0.0	1998 09 27	704	0.8−	0.7+
1993 03 28	691	1.2−	1.2−	1998 09 16	699	0.5−	0.1+	1998 09 27	704	0.4+	0.4−
1993 04 01	474	0.4−	1.2+	1998 09 18	704	0.6−	0.5+	1998 09 27	704	0.2−	0.4−
1993 04 01	474	0.8−	0.0	1998 09 18	704	0.3+	0.7+	1998 09 27	704	0.2+	1.1−
1993 04 17	413	(0.6+	4.2+)	1998 09 18	704	0.8+	0.8+	1998 10 01	691	1.0−	0.1+
1994 07 08	809	0.1−	0.5−	1998 09 18	704	0.3−	1.2+	1998 10 01	691	0.9−	0.1−
1994 07 08	809	0.5+	0.9−	1998 09 18	704	0.2+	1.0+	1998 10 01	691	0.5−	0.5−

(9375)∗ 1993 HK = 1979 QA$_4$

Discovered 1993 Apr. 16 by K. Endate and K. Watanabe at Kitami.

Id. K. Ichikawa (*MPC* 22596)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	172.14928		(2000.0)	**P**	**Q**		
n	0.26248756	ω	35.13052	−0.96565964	−0.25563006		
a	2.4158144	Ω	129.99033	+0.22234720	−0.90554278		
e	0.1267323	i	3.47351	+0.13439931	−0.33859349		
P	3.75	H	13.8	G 0.15	U 1		

Residuals in seconds of arc

1979 08 22	809	1.8−	1.9+	1994 05 19	691	0.2−	0.2−	1998 09 14	704	0.7−	1.3−
1979 08 22	809	1.4−	1.9+	1995 11 26	292	0.6−	1.0+	1998 09 23	104	0.4+	1.2−
1979 08 22	809	0.8−	1.6+	1995 11 26	292	0.1−	1.3−	1998 09 23	104	0.6+	0.6−
1979 08 23	809	0.5−	1.3+	1995 12 10	104	0.3−	1.0+	1998 09 23	104	0.1−	0.5−
1979 08 23	809	0.5+	2.0+	1995 12 10	104	0.0	0.8+	1998 09 23	104	0.0	1.2−
1979 08 26	809	(3.7+	1.1+)	1995 12 10	104	0.6+	0.1+	1998 09 24	699	0.3−	0.0
1979 08 26	809	0.4+	2.1+	1995 12 18	801	0.1−	0.2+	1998 09 24	699	0.6+	0.7−
1979 08 26	809	(0.1+	2.5+)	1995 12 18	292	1.9−	0.4+	1998 09 24	699	0.3−	0.5−
1979 08 30	809	(5.4−	5.4+)	1995 12 18	292	0.4+	1.3+	1998 09 26	704	0.1+	0.3−
1979 08 30	809	(6.0−	4.7+)	1995 12 18	801	0.5+	0.4+	1998 09 26	704	1.4−	0.5+
1991 10 17	675	1.1+	0.9+	1995 12 23	801	0.3−	0.0	1998 09 26	704	(0.3−	2.5−)
1993 04 15	675	0.1−	1.1−	1995 12 23	801	0.2−	0.1−	1998 09 26	704	0.3+	2.1−
1993 04 15	675	0.0	0.3−	1998 08 23	704	(0.5−	2.6−)	1998 09 26	704	0.3−	0.5−
1993 04 16	675	0.2+	0.5−	1998 08 23	704	(1.3+	2.8−)	1998 09 27	704	1.7+	0.9+
1993 04 16	675	0.2+	1.0−	1998 08 23	704	0.4−	1.6+	1998 09 27	704	1.4+	0.1+
1993 04 16	400	(2.8+	0.2−)	1998 08 23	704	0.3+	1.5+	1998 09 27	704	0.3−	0.1+
1993 04 16	400	(3.8+	0.7−)	1998 08 23	704	(0.7−	2.8−)	1998 09 27	704	(1.6+	2.4−)
1993 04 19	675	0.6−	0.4−	1998 08 26	809	0.8+	0.3+	1998 09 27	704	0.6+	1.0−
1993 04 19	675	1.0+	0.0	1998 08 26	809	1.1+	0.7+	1998 09 27	104	0.0	1.0−
1993 04 20	400	0.8−	1.3+	1998 08 26	809	0.8+	0.0	1998 09 27	104	0.3+	1.3−
1993 04 20	400	0.2+	0.9+	1998 09 14	704	0.6−	0.9−	1998 09 27	104	0.1−	1.1−
1994 05 19	691	0.7−	0.0	1998 09 14	704	(2.5−	1.4−)	1998 09 27	104	0.2+	1.3−
1994 05 19	691	0.8−	0.2−	1998 09 14	704	0.8+	1.6−				

(9376)∗ 1993 OU$_7$ = 1987 DR$_3$ = 1989 QC$_1$ = 1996 FH$_3$

Discovered 1993 July 20 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 26904)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	341.58661		(2000.0)	**P**	**Q**		
n	0.22159606	ω	195.45075	+0.99995435	+0.00154883		
a	2.7045480	Ω	164.45135	+0.00201393	+0.93043891		
e	0.0453535	i	2.01568	−0.00934004	+0.36644376		
P	4.45	H	13.6	G 0.15	U 1		

Residuals in seconds of arc

1987 02 23	010	0.7−	0.1+	1993 07 26	809	(2.6−	1.6−)	1998 09 14	704	1.4+	0.1+
1987 02 23	010	0.8+	0.4+	1993 07 26	809	(3.8−	1.2−)	1998 09 14	704	0.6+	0.1+
1987 02 23	010	0.4+	0.7+	1993 07 26	809	(3.9−	0.9−)	1998 09 16	699	0.7+	0.2+
1989 08 28	888	1.9−	1.3+	1993 07 26	809	(1.0+	3.7+)	1998 09 16	699	0.6+	0.1+
1989 08 28	888	(3.8−	3.0+)	1993 07 26	809	(0.4−	2.7+)	1998 09 16	699	1.2+	0.1−
1993 06 21	691	(3.0−	0.4+)	1993 07 26	809	(0.4−	3.0+)	1998 09 18	704	1.0+	0.4−
1993 06 21	691	(2.9−	0.8+)	1996 03 14	327	0.0	0.0	1998 09 18	704	0.4+	0.3+
1993 06 21	691	(3.4−	0.7+)	1996 03 14	327	0.1−	0.1−	1998 09 18	704	0.6+	1.2−
1993 07 12	809	0.7−	0.6−	1996 03 14	327	0.1+	0.2−	1998 09 18	704	1.1+	0.9−
1993 07 12	809	(2.0−	1.3−)	1996 03 19	566	0.2−	1.0+	1998 09 18	704	0.5+	0.6−
1993 07 12	809	(2.2−	0.4−)	1996 03 19	566	0.1−	0.8+	1998 09 25	699	0.1−	0.9+
1993 07 13	809	0.9+	1.4−	1996 03 19	566	0.2−	0.5+	1998 09 25	699	0.2−	0.3−
1993 07 13	809	0.4+	1.0−	1996 03 25	566	0.0	1.7−	1998 09 25	699	0.2−	0.8+
1993 07 13	809	0.1−	0.9−	1996 03 25	566	0.1−	1.9−	1998 09 26	704	0.2−	0.3−
1993 07 19	809	1.6+	0.7+	1996 03 25	566	0.4+	1.2−	1998 09 26	704	0.6−	0.6−
1993 07 19	809	1.4+	0.9+	1997 06 24	689	1.8−	1.1+	1998 09 26	704	0.7−	0.7−
1993 07 19	809	1.5+	1.3+	1998 06 29	704	1.8+	1.3+	1998 09 26	704	0.6−	1.0−
1993 07 20	809	0.5−	0.1−	1998 06 29	704	0.2+	1.2+	1998 09 26	704	0.9−	0.7−
1993 07 20	809	0.9−	0.3−	1998 06 29	704	0.1−	0.6−	1998 09 27	704	0.7−	0.0
1993 07 20	809	1.0−	0.2−	1998 06 29	704	1.3−	0.7+	1998 09 27	704	0.5+	0.5+
1993 07 23	809	0.6+	0.5+	1998 08 31	691	0.9−	0.5+	1998 09 27	704	1.2−	0.4+
1993 07 23	809	0.3+	0.8+	1998 08 31	691	0.9−	0.3+	1998 09 27	704	0.4−	0.3−
1993 07 23	809	0.1+	0.6+	1998 08 31	691	0.8−	0.6+	1998 09 27	704	0.7−	0.4−
1993 07 24	809	1.1−	2.0−	1998 09 14	704	1.0+	0.6−				

(9377)∗ 1993 PJ$_7$ = 1991 EL$_5$

Discovered 1993 Aug. 15 by E. W. Elst at Caussols.

Id. A. Lowe (*MPC* 22691), G. V. Williams (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	358.71667		(2000.0)	**P**	**Q**		
n	0.18831577	ω	338.98075	+0.67379975	+0.73871478		
a	3.0144744	Ω	333.37113	−0.67236183	+0.60331666		
e	0.0424299	i	2.19376	−0.30646935	+0.30051537		
P	5.23	H	13.6	G 0.15	U 2		

Residuals in seconds of arc

1991 03 14	809	0.2+	0.0	1993 09 09	691	1.4−	0.7+	1998 08 18	566	0.4−	0.8−
1991 03 14	809	0.7+	0.1−	1993 09 09	691	1.7−	1.0+	1998 08 18	566	0.1−	0.8−
1991 03 14	809	0.7+	0.1−	1993 09 09	691	1.2−	0.5+	1998 08 18	566	0.3−	0.5−
1991 03 17	809	0.6−	0.3−	1993 09 18	010	1.3+	0.1−	1998 08 27	699	1.1+	0.3−
1991 03 17	809	0.5−	0.0	1993 09 18	010	0.7−	0.6−	1998 08 27	699	1.4+	0.0
1991 03 17	809	0.6−	0.1+	1993 09 18	010	0.7+	0.3+	1998 08 27	699	(2.3+	1.0−)
1993 08 13	675	1.2+	1.1+	1996 03 19	566	0.1+	0.8+	1998 09 14	691	0.3−	0.4+
1993 08 13	675	1.4+	0.4+	1996 03 19	566	0.6+	0.5+	1998 09 14	691	0.5−	0.3+
1993 08 15	010	0.6+	0.7−	1996 03 19	566	0.1+	1.0+	1998 09 14	691	0.4−	0.3+
1993 08 15	010	0.1−	1.4−	1998 08 17	704	0.5+	0.6−	1998 09 19	691	0.6−	0.9+
1993 08 15	010	0.2+	1.4−	1998 08 17	704	0.3+	0.1+	1998 09 19	691	0.8−	0.8+
1993 08 16	010	(0.8+	2.2−)	1998 08 17	704	0.2−	0.6+	1998 09 19	691	0.6−	0.7+
1993 08 17	010	0.4+	1.0−	1998 08 17	704	0.1−	1.7+				
1993 08 17	010	(0.1−	4.0−)	1998 08 17	704	0.3−	0.4+				

(9378)∗ 1993 QF$_3$ = 1993 SN$_4$ = 1997 JP$_{12}$

Discovered 1993 Aug. 18 by E. W. Elst at Caussols.

Id. G. V. Williams (d, *MPC* 23324), B. G. Marsden (*MPC* 29919)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	110.08011		(2000.0)	**P**	**Q**		
n	0.17508390	ω	26.96399	−0.99978968	+0.01289990		
a	3.1645011	Ω	153.76046	−0.01786173	−0.92971664		
e	0.1268189	i	2.06660	+0.01007787	−0.36804967		
P	5.63	H	13.0	G 0.15	U 1		

Residuals in seconds of arc

1993 08 18	010	(4.5−	0.4−)	1993 09 20	010	(1.0−	2.3+)	1997 05 07	704	0.4+	0.2+
1993 08 19	010	(4.4−	1.2−)	1995 12 18	691	0.0	0.9+	1997 05 07	704	0.5+	0.2−
1993 08 19	010	(8.3−	2.5−)	1995 12 18	691	0.3+	0.8+	1997 05 07	704	0.3+	0.1−
1993 08 19	010	(7.0−	2.8−)	1995 12 18	691	0.3+	0.7+	1998 06 25	691	1.2−	0.4−
1993 08 20	809	(0.3−	2.1−)	1997 04 11	704	0.8+	0.1−	1998 06 25	691	1.1−	0.3−
1993 08 20	809	(1.4−	2.5−)	1997 04 11	704	0.2−	0.4−	1998 06 25	691	0.9−	0.4−
1993 08 20	809	0.3−	1.0−	1997 05 03	809	0.1+	2.0+	1998 07 02	691	0.4−	0.5−
1993 08 24	809	0.1+	1.6+	1997 05 03	809	0.3−	1.4+	1998 07 02	691	0.2−	0.5−
1993 08 24	809	0.8+	1.3+	1997 05 03	809	0.8−	1.3+	1998 07 02	691	0.2−	0.3−
1993 08 24	809	0.6+	1.0+	1997 05 04	809	(0.9+	2.3+)	1998 08 17	704	1.3+	1.6+
1993 09 19	010	0.8−	0.3+	1997 05 04	809	(1.4+	2.6+)	1998 08 17	704	(0.0	2.3−)
1993 09 19	010	0.5−	0.7+	1997 05 04	809	(1.3+	4.9+)	1998 08 17	704	1.4+	1.6−
1993 09 20	010	1.5−	0.8+	1997 05 07	704	0.2+	0.0	1998 08 17	704	1.7+	0.4−
1993 09 20	010	0.9−	1.8+	1997 05 07	704	0.2+	0.3+	1998 08 17	704	0.3+	1.0−

(9379)∗ 1993 QH$_3$ = 1987 KN$_4$

Discovered 1993 Aug. 18 by E. W. Elst at Caussols.

Id. T. Kobayashi (*MPC* 24569)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	319.89741		(2000.0)		**P**	**Q**	
n	0.20532091	ω	118.02013		+0.80474725	−0.59340734	
a	2.8456442	Ω	278.38327		+0.53887219	+0.74143556	
e	0.0860226	i	0.91503		+0.24899524	+0.31327472	
P	4.80	H	13.3	G	0.15	U	1

Residuals in seconds of arc

1987 05 30	413	0.7+	0.5−	1993 09 20	010	1.6−	1.8−	1998 09 18	704	0.2+	0.2−
1987 05 30	413	0.9+	0.7−	1994 12 09	411	0.4+	0.2−	1998 09 18	704	0.5−	0.4−
1988 09 10	675	0.3−	0.0	1994 12 09	411	0.2−	1.0−	1998 09 18	704	0.5−	0.1−
1988 09 10	675	0.8−	0.3−	1996 03 18	566	0.3−	0.3+	1998 09 25	704	(2.2+	0.8−)
1991 03 09	675	0.1+	0.2+	1996 03 18	566	0.1−	0.3+	1998 09 25	704	(2.9+	0.6−)
1991 03 09	675	0.5−	0.4+	1996 03 18	566	0.4−	0.3+	1998 09 25	704	2.0+	1.1−
1993 08 18	010	1.2+	0.5+	1998 08 02	699	0.5−	0.6+	1998 09 25	704	0.3+	1.5−
1993 08 19	010	1.7+	0.3+	1998 08 02	699	0.8−	0.2+	1998 09 27	704	0.1−	0.2−
1993 08 19	010	1.7+	0.6+	1998 08 02	699	0.6−	0.5+	1998 09 27	704	0.3−	0.4+
1993 08 19	010	0.8+	0.3+	1998 09 14	704	0.1+	0.2+	1998 09 27	704	0.5−	0.9+
1993 09 19	010	0.7−	0.0	1998 09 14	704	0.1+	0.7+	1998 09 27	704	0.2−	1.0+
1993 09 19	010	0.7−	0.0	1998 09 14	704	0.0	0.7+	1998 09 27	704	0.9−	0.7+
1993 09 20	010	(0.1−	2.4−)	1998 09 18	704	0.9+	0.2+				
1993 09 20	010	1.4−	2.0−	1998 09 18	704	0.4+	0.5+				

(9380)∗ 1993 QZ$_5$ = 1991 EK$_2$

Discovered 1993 Aug. 17 by E. W. Elst at Caussols.

Id. A. Lowe (*MPC* 22959)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	242.04196		(2000.0)		**P**	**Q**	
n	0.20252315	ω	290.00803		−0.19112554	−0.98154886	
a	2.8717917	Ω	171.00468		+0.91371908	−0.18004557	
e	0.0288000	i	2.10137		+0.35859234	−0.06438504	
P	4.87	H	13.6	G	0.15	U	2

Residuals in seconds of arc

1991 03 10	809	1.4−	0.7−	1996 02 03	327	0.2−	1.1−	1998 08 27	691	0.8−	0.2−
1991 03 10	809	1.1−	0.8−	1996 02 03	327	0.7−	0.0	1998 09 14	704	0.6+	0.4−
1991 03 10	809	0.7−	0.8−	1996 02 03	327	0.4−	0.8−	1998 09 14	704	1.4+	0.5+
1991 03 12	809	0.5+	0.8−	1996 02 05	327	0.1−	0.6−	1998 09 14	704	0.1+	0.0
1991 03 12	809	0.6+	0.9−	1996 02 05	327	0.8−	0.3−	1998 09 14	704	1.9+	1.1−
1991 03 12	809	0.5+	0.8−	1996 02 05	327	0.9−	0.1−	1998 09 18	704	1.0+	0.1−
1993 08 13	675	1.1+	0.1+	1996 02 05	327	1.1−	0.3+	1998 09 18	704	0.4−	1.3+
1993 08 13	675	1.9+	0.2+	1996 03 17	566	0.3+	0.5−	1998 09 18	704	0.3+	1.4+
1993 08 15	010	0.2−	0.4+	1996 03 17	566	0.7+	0.6−	1998 09 18	704	1.2−	1.3+
1993 08 15	010	0.7−	0.7+	1996 03 17	566	0.6+	0.6−	1998 09 18	704	0.6−	1.4+
1993 08 15	010	1.4−	1.0−	1996 04 23	566	0.3+	1.0+	1998 09 20	691	0.6−	0.5+
1993 08 16	010	(3.0+	1.0+)	1996 04 23	566	0.7+	0.0	1998 09 20	691	1.7−	0.6+
1993 08 17	010	(2.1+	2.8+)	1996 04 23	566	0.1−	0.3+	1998 09 20	691	1.7−	0.0
1993 08 17	010	(2.4+	1.7+)	1998 08 23	704	(2.6+	2.1−)	1998 09 20	691	0.8−	1.3+
1993 08 17	010	0.1+	1.5−	1998 08 23	704	0.2−	0.1+	1998 09 20	691	0.6−	0.8+
1993 08 17	010	0.3−	1.3−	1998 08 23	704	1.4+	0.2−	1998 09 26	704	1.1+	1.4−
1993 08 19	010	0.5+	0.5−	1998 08 23	704	1.8+	1.4−	1998 09 26	704	1.2+	0.2−
1993 08 19	010	0.6−	0.8−	1998 08 23	704	0.2−	2.0−	1998 09 26	704	(1.3+	3.6−)
1993 08 19	010	0.2+	0.4−	1998 08 26	691	0.7−	0.3−	1998 09 27	704	0.5+	0.1+
1993 09 18	010	1.3+	1.5−	1998 08 26	691	0.8−	0.3−	1998 09 27	704	1.0+	0.9−
1993 09 18	010	(0.4−	2.2−)	1998 08 26	691	0.5−	0.2−	1998 09 27	704	1.4+	1.9−
1993 09 18	010	(0.2+	2.4−)	1998 08 27	691	0.7−	0.4−	1998 09 27	704	0.3−	0.6−
1996 02 03	327	0.2−	0.4−	1998 08 27	691	0.6−	0.3−				

(9381)∗ 1993 RT$_{19}$ = 1975 EK$_6$ = 1980 DO$_2$ = 1985 BH$_1$ = 1991 GP$_5$ = 1998 QW$_{39}$

Discovered 1993 Sept. 15 by H. Debehogne and E. W. Elst at the European Southern Observatory.

Id. A. Gnädig (*MPC* 32455), G. V. Williams (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	249.27937		(2000.0)		**P**	**Q**	
n	0.18925707	ω	91.02659		+0.03783226	−0.99928348	
a	3.0044707	Ω	356.80462		+0.90865911	+0.03486704	
e	0.0604829	i	1.14989		+0.41582130	+0.01472483	
P	5.21	H	13.1	G	0.15	U	1

Residuals in seconds of arc

1975 03 15	095	1.2+	1.1−	1993 09 22	809	1.0−	0.4−	1998 09 14	704	1.2+	0.2−
1980 02 20	095	(4.9−	3.1−)	1993 09 23	675	0.3+	0.0	1998 09 14	691	1.0−	0.2+
1985 01 18	691	(4.2−	1.3−)	1993 09 23	675	0.4−	0.2+	1998 09 14	704	0.3+	0.5−
1985 01 18	691	1.0−	1.4−	1993 10 10	675	(2.9−	0.4−)	1998 09 14	691	1.1−	0.5+
1985 01 18	691	0.6−	1.4−	1993 10 10	675	0.1+	0.1−	1998 09 14	699	0.3+	0.3+
1991 04 08	809	0.4−	1.1+	1996 03 17	566	0.1−	0.6−	1998 09 14	699	1.0+	0.9+
1991 04 08	809	0.6−	0.7+	1996 03 17	566	0.1+	0.5−	1998 09 14	699	0.8+	0.0
1991 04 08	809	1.7−	0.8+	1996 03 17	566	0.2+	0.7−	1998 09 18	704	0.6+	0.6−
1991 04 10	809	0.2+	0.9+	1996 04 19	566	0.4−	1.5−	1998 09 18	704	1.1+	1.8−
1991 04 10	809	0.2+	0.4+	1996 04 19	566	0.1−	1.0−	1998 09 18	704	1.2+	0.9−
1991 04 10	809	0.0	0.3−	1996 04 19	566	0.6−	1.1−	1998 09 18	704	1.1+	0.6−
1991 04 14	400	(7.9+	2.5−)	1998 08 17	704	0.2−	0.2+	1998 09 18	704	0.3−	1.0−
1991 04 14	400	(4.2+	3.4−)	1998 08 17	704	0.4+	0.1−	1998 09 20	691	0.7−	0.2+
1991 04 19	809	0.0	1.3−	1998 08 17	704	0.3−	0.5+	1998 09 20	691	0.5−	0.1−
1991 04 19	809	0.2+	0.8−	1998 08 17	704	0.1−	0.8+	1998 09 20	691	0.5−	0.2+
1991 04 19	809	0.4−	0.7−	1998 08 17	704	0.3−	0.1+	1998 09 21	691	0.5−	0.2+
1991 04 19	675	(2.6+	1.3−)	1998 08 21	566	0.2−	0.9−	1998 09 21	691	0.6−	0.1+
1991 04 19	675	(3.2+	2.4−)	1998 08 21	566	0.0	0.3−	1998 09 21	691	0.7−	0.0
1993 09 15	809	0.2+	1.7−	1998 08 21	566	0.5+	0.6−	1998 09 25	704	0.7+	0.4−
1993 09 15	809	(0.5−	2.9−)	1998 08 23	704	0.4+	0.0	1998 09 25	704	0.2−	0.1−
1993 09 15	809	(0.8−	2.5−)	1998 08 23	704	1.4−	1.1+	1998 09 25	704	0.2−	0.4−
1993 09 19	675	0.7−	0.4−	1998 08 23	704	1.6−	0.9−	1998 09 25	704	0.0	0.1−
1993 09 19	675	0.8−	0.1−	1998 08 23	704	1.1+	0.4+	1998 09 25	704	1.5+	0.8−
1993 09 20	691	(2.6−	0.7−)	1998 08 23	704	0.8+	0.8−	1998 09 27	704	0.9+	0.5−
1993 09 20	691	(2.4−	0.6−)	1998 09 14	704	0.2+	0.2−	1998 09 27	704	0.4+	0.1−
1993 09 20	691	(2.2−	0.8−)	1998 09 14	704	0.2−	0.3+	1998 09 27	704	0.4+	0.8+
1993 09 22	809	0.6+	0.0	1998 09 14	704	1.4+	0.9−	1998 09 27	704	0.4+	0.8+
1993 09 22	809	0.2+	0.5−	1998 09 14	691	1.0−	0.2+	1998 09 27	704	0.2+	0.9+

(9382)∗ 1993 TK$_{11}$ = 1958 TA = 1974 VW$_1$ = 1977 SF$_2$ = 1987 YC$_2$ = 1998 HG$_{19}$

Discovered 1993 Oct. 11 by K. Endate and K. Watanabe at Kitami.

Id. S. Nakano (*MPC* 32231)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	169.39246		(2000.0)		**P**	**Q**	
n	0.30987237	ω	208.77919		+0.85594364	−0.51706212	
a	2.1627890	Ω	182.36137		+0.48604331	+0.80635095	
e	0.1428001	i	3.74900		+0.17641539	+0.28713221	
P	3.18	H	14.8	G	0.15	U	2

Residuals in seconds of arc

1958 10 09	024	0.4+	0.2−	1993 10 14	675	(0.6−	2.2−)	1998 03 29	704	0.3+	0.1+
1974 11 15	095	(3.6−	0.4−)	1993 10 15	675	0.7−	1.5−	1998 03 29	704	0.3+	0.4+
1977 09 19	095	0.7−	1.2+	1993 10 15	675	0.5+	1.0−	1998 03 29	704	0.3−	0.2+
1987 12 20	010	0.1−	0.4+	1993 10 15	400	(3.1−	2.5−)	1998 03 29	704	1.5+	2.0−
1987 12 20	010	0.8−	0.1+	1993 10 19	400	1.5−	1.3+	1998 04 18	704	0.9−	0.5+
1992 05 06	691	0.3+	0.2−	1993 10 19	400	0.2−	1.9+	1998 04 18	704	(2.2+	0.5−)
1992 05 06	691	0.4+	0.5+	1993 10 21	809	(2.9−	4.3−)	1998 04 18	704	1.1−	0.8−
1992 05 06	691	0.5+	0.8+	1993 10 21	809	(3.2−	3.7−)	1998 04 18	704	(5.1−	2.8+)
1992 05 09	691	(2.4−	0.3+)	1993 10 21	809	(2.6−	4.1−)	1998 04 19	704	0.3+	0.5+
1992 05 09	691	2.0−	0.3−	1998 03 22	704	0.4−	0.3+	1998 04 19	704	0.3−	0.2+
1993 10 11	400	0.7+	1.9+	1998 03 22	704	1.8+	1.0+	1998 04 19	704	0.6−	0.2+
1993 10 11	400	0.5+	0.5+	1998 03 22	704	0.5+	0.2−	1998 04 19	704	0.8−	0.3−
1993 10 13	675	1.2+	1.7−	1998 03 22	704	1.0+	0.1−	1998 04 19	704	0.1−	0.1−
1993 10 13	675	0.2−	1.2−	1998 03 29	704	0.2+	0.0				

(9383)∗ 1993 TP$_{15}$ = 1997 JO$_{12}$ = 3133 T-3

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

Id. B. G. Marsden (*MPC* 29920), G. V. Williams (*MPC* 30661)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	35.66279		(2000.0)		**P**	**Q**	
n	0.18439022	ω	156.45519		+0.22362497	+0.97417900	
a	3.0571081	Ω	126.45272		−0.90027837	+0.21867691	
e	0.1590819	*i*	2.21581		−0.37348457	+0.05617544	
P	5.35	*H*	13.9	*G*	0.15	*U*	1

Residuals in seconds of arc

1977 10 07	675	(14.7+	3.3+)	1993 10 20	809	0.0	1.5+	1998 09 14	704	0.8−	0.2+
1977 10 11	675	0.0	0.7−	1997 04 11	704	1.1+	0.6−	1998 09 14	704	0.2+	0.8−
1977 10 11	675	0.3+	0.1−	1997 04 11	704	0.1+	0.7−	1998 09 14	704	1.2−	1.1−
1977 10 12	675	0.4+	0.6−	1997 05 03	809	1.0−	1.8+	1998 09 18	699	0.6+	0.2−
1977 10 12	675	0.0	1.2−	1997 05 03	809	0.7−	1.0+	1998 09 18	699	0.3−	1.1+
1977 10 16	675	1.2+	1.1+	1997 05 03	809	1.0−	1.4+	1998 09 18	704	0.3−	0.9−
1977 10 16	675	0.8−	0.3−	1997 05 04	809	(1.5+	2.9+)	1998 09 18	699	0.5+	0.7−
1977 10 17	675	0.2−	1.3+	1997 05 04	809	(1.7+	3.1+)	1998 09 18	704	0.1−	0.3−
1977 10 17	675	1.5−	0.9+	1997 05 04	809	(1.6+	4.1+)	1998 09 18	704	0.5−	0.8−
1977 10 21	675	0.9+	0.2−	1997 05 07	704	0.5+	0.1−	1998 09 18	704	0.9−	1.2−
1977 10 21	675	0.6−	0.7+	1997 05 07	704	0.5+	0.0	1998 09 18	704	0.2+	0.4−
1977 10 22	675	1.1−	1.1−	1997 05 07	704	0.6+	0.3−	1998 09 25	704	0.1−	0.1+
1977 10 22	675	1.5+	0.2−	1997 05 07	704	0.9+	1.5+	1998 09 25	704	0.2+	0.7−
1993 09 21	675	(2.5−	0.6+)	1997 05 07	704	0.1+	0.7−	1998 09 25	704	0.6+	0.8−
1993 09 23	675	1.9−	0.3−	1998 08 17	704	0.5+	0.6+	1998 09 25	704	0.2−	1.6−
1993 10 09	809	0.3+	0.8+	1998 08 17	704	0.4−	0.1−	1998 09 25	704	0.3−	0.2−
1993 10 09	809	0.2−	0.9+	1998 08 17	704	0.9+	0.4−	1998 09 27	704	0.8+	0.2+
1993 10 09	809	0.8−	1.4+	1998 08 17	704	0.2−	0.9+	1998 09 27	704	1.3+	0.2−
1993 10 11	809	0.0	0.5−	1998 08 17	704	0.0	1.0+	1998 09 27	704	0.4−	0.8+
1993 10 11	809	0.8−	0.2+	1998 08 30	699	0.7+	0.8+	1998 09 27	704	0.6+	0.8+
1993 10 11	809	1.2−	0.1+	1998 08 30	699	0.2+	0.6+	1998 09 27	704	(1.0+	3.3+)
1993 10 20	809	0.6+	1.2+	1998 08 30	699	0.2−	0.5+				
1993 10 20	809	1.4+	1.7+	1998 09 14	704	0.0	0.6−				

(9384)∗ 1993 TP$_{26}$ = 1977 XL$_3$ = 1983 YB$_1$

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

Id. G. V. Williams (*MPC* 23125)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	135.88820		(2000.0)		**P**	**Q**	
n	0.17499726	ω	70.12453		−0.97435563	+0.21965027	
a	3.1655454	Ω	122.53570		−0.22197363	−0.90272720	
e	0.0993315	*i*	3.32078		−0.03686208	−0.36991534	
P	5.63	*H*	13.1	*G*	0.15	*U*	2

Residuals in seconds of arc

1977 12 07	675	0.2−	0.6+	1996 04 19	566	0.6+	0.4−	1998 08 23	704	0.5−	1.6+
1977 12 08	675	0.5−	0.8+	1996 04 19	566	0.4+	0.3−	1998 09 14	704	0.9−	0.2−
1983 12 30	675	0.5+	0.7−	1996 04 19	566	0.3+	0.5−	1998 09 14	704	0.4−	0.8+
1984 01 08	675	1.0−	1.1+	1996 04 23	566	0.6−	0.5−	1998 09 14	704	0.3+	0.5−
1992 06 28	675	(2.3+	2.1−)	1996 04 23	566	0.6−	0.3−	1998 09 14	704	0.1−	0.3+
1992 06 28	675	1.9+	1.9−	1996 04 23	566	0.7−	0.2−	1998 09 25	704	0.2−	0.6+
1993 10 09	809	0.8+	1.0−	1998 08 17	704	1.1−	0.2+	1998 09 25	704	0.7+	1.0−
1993 10 09	809	1.0+	0.8−	1998 08 17	704	0.7+	1.2+	1998 09 25	704	0.6+	0.5+
1993 10 09	809	0.7+	1.3−	1998 08 17	704	0.0	1.2+	1998 09 25	704	0.1−	0.5+
1993 10 11	809	1.6+	0.2−	1998 08 17	704	0.0	0.2+	1998 09 25	704	1.6−	0.1+
1993 10 11	809	0.7+	0.8−	1998 08 17	704	(1.1−	2.4+)	1998 09 27	704	0.1−	1.0+
1993 10 11	809	0.3+	0.6−	1998 08 23	704	1.0−	0.2−	1998 09 27	704	0.5−	1.8+
1993 10 20	809	(2.8+	1.2+)	1998 08 23	704	0.2+	1.0−	1998 09 27	704	2.4+	1.7−
1993 10 20	809	(2.6+	1.7+)	1998 08 23	704	1.3−	0.4−	1998 09 27	704	0.9−	1.1+
1993 10 20	809	(3.1+	2.1+)	1998 08 23	704	0.6−	0.7−	1998 09 27	704	0.5−	1.9−

(9385)∗ 1993 TJ$_{30}$ = 1987 SE$_{19}$ = 1997 EA$_{57}$ = 1998 OC$_6$

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

Id. G. V. Williams (*MPC* 32456)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	1.15820		(2000.0)		**P**	**Q**	
n	0.17532576	ω	110.53252		+0.48462640	+0.87389655	
a	3.1615901	Ω	188.75128		−0.86633397	+0.47352954	
e	0.2415316	*i*	14.45347		−0.12084163	+0.10988445	
P	5.62	*H*	13.7	*G*	0.15	*U*	1

Residuals in seconds of arc

1987 09 17	095	0.8+	0.9−	1997 03 10	809	0.1−	0.0	1998 08 01	595	0.5−	0.0
1987 09 23	095	0.5−	1.2−	1997 03 10	809	0.1−	0.3−	1998 08 01	595	0.1+	0.2+
1993 10 09	809	1.2−	0.0	1997 03 10	809	0.0	0.7−	1998 08 14	595	0.2−	0.3+
1993 10 09	809	1.3−	0.7−	1997 03 11	809	0.5+	0.7+	1998 08 14	595	0.1−	0.1−
1993 10 09	809	1.6−	0.0	1997 03 11	809	0.2+	0.1+	1998 08 15	595	0.4−	1.2+
1993 10 11	809	0.4+	1.1−	1997 03 11	809	0.4−	0.1−	1998 08 15	595	0.5−	0.3+
1993 10 11	809	0.8+	0.4−	1998 07 30	595	0.5+	0.0	1998 08 19	566	0.2−	0.2−
1993 10 11	809	0.5+	1.0−	1998 07 31	595	0.4+	0.0	1998 08 19	566	0.1−	0.5−
1993 10 21	809	1.1+	1.9+	1998 07 31	595	0.7+	0.2+	1998 08 19	566	0.7−	0.4−
1993 10 21	809	0.4+	1.4+	1998 07 31	595	0.4+	0.3+				
1993 10 21	809	0.8+	1.0+	1998 07 31	595	0.3+	0.0				

(9386)∗ 1993 XD$_1$ = 1981 QK$_4$ = 1987 TW

Discovered 1993 Dec. 5 by M. Hirasawa and S. Suzuki at Nyukasa.

Id. K. Ichikawa (*MPC* 22964)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	318.17214		(2000.0)		**P**	**Q**	
n	0.17392797	ω	187.90459		+0.86985006	−0.49323208	
a	3.1785065	Ω	201.65599		+0.45394848	+0.80752655	
e	0.2410644	*i*	1.41456		+0.19311047	+0.32345478	
P	5.67	*H*	13.4	*G*	0.15	*U*	1

Residuals in seconds of arc

1953 10 31	675	0.8+	0.2+	1998 08 17	704	1.0−	0.7−	1998 09 18	704	0.1−	0.3+
1953 10 31	675	0.7−	0.1−	1998 08 17	704	0.3−	1.0−	1998 09 18	704	0.9+	0.5−
1981 08 30	675	1.1−	0.6+	1998 08 23	704	0.7−	0.5+	1998 09 20	691	2.0−	0.3+
1981 08 31	675	0.2−	0.4+	1998 08 23	704	0.8−	0.4−	1998 09 20	691	1.8−	0.4+
1987 10 02	095	0.8+	0.4−	1998 08 23	704	0.6−	0.5+	1998 09 20	691	1.6−	0.9+
1993 12 05	408	0.5−	0.4−	1998 08 23	704	0.2−	0.0	1998 09 21	691	0.7−	0.2−
1993 12 05	408	1.0−	1.4−	1998 08 23	704	0.4−	0.5+	1998 09 21	691	0.6−	0.2+
1993 12 09	408	0.7+	0.8+	1998 08 25	470	1.9−	0.3−	1998 09 21	691	0.8−	0.1+
1993 12 09	408	0.4+	0.4−	1998 08 25	470	1.1−	0.3−	1998 09 21	610	1.9+	1.7+
1993 12 11	408	0.0	1.1+	1998 08 25	470	(2.4−	0.3−)	1998 09 21	610	1.9+	1.3+
1993 12 11	408	(1.0+	2.4−)	1998 08 25	470	1.7−	0.0	1998 09 21	610	2.0+	0.8+
1993 12 18	408	0.3−	0.7−	1998 08 25	470	(2.7−	0.2−)	1998 09 25	704	0.8+	0.6+
1993 12 18	408	0.2+	0.5+	1998 09 14	704	0.6+	0.7+	1998 09 25	704	0.9+	0.1−
1996 03 24	608	0.0	0.3−	1998 09 14	704	1.6+	0.3−	1998 09 25	704	1.3+	0.5−
1996 03 24	608	0.9−	0.5−	1998 09 14	704	0.4+	0.4−	1998 09 25	704	1.3+	1.7−
1996 03 25	608	0.1+	0.8−	1998 09 14	704	0.9+	0.3+	1998 09 27	704	0.8+	0.2−
1996 03 25	608	0.5+	0.6−	1998 09 14	704	0.9+	0.1−	1998 09 27	704	(3.0+	0.6−)
1998 08 17	704	0.4−	0.1−	1998 09 18	704	1.1+	0.4+	1998 09 27	704	1.9−	1.5−
1998 08 17	704	0.0	0.5−	1998 09 18	704	1.6+	0.1−	1998 09 27	704	1.1−	1.1−
1998 08 17	704	0.1+	0.5−	1998 09 18	704	1.4+	0.8−				

(9387)∗ 1994 CA = 1986 EM = 1987 QQ$_1$

Discovered 1994 Feb. 2 by H. Shiozawa and T. Urata at Fujieda.

Id. T. Urata (*MPC* 23129)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	323.04407		(2000.0)		**P**	**Q**	
n	0.36496809	ω	55.96582		+0.84750972	−0.50383905	
a	1.9392455	Ω	333.10966		+0.27628904	+0.68733626	
e	0.0893326	*i*	21.66222		+0.45320154	+0.52317786	
P	2.70	*H*	14.0	*G*	0.15	*U*	2

Residuals in seconds of arc

1986 03 03	675	0.8−	0.9−	1994 02 06	893	0.1−	0.1−	1997 02 14	385	0.0	0.5−
1986 03 03	675	0.2+	0.4−	1994 02 06	893	0.1−	0.1−	1997 02 18	385	1.0−	0.8−
1986 03 05	675	0.5+	0.8−	1994 02 07	887	0.1−	0.2+	1997 02 18	385	1.1−	0.2−
1986 03 06	675	0.6+	0.9+	1994 02 07	893	0.5−	0.1+	1997 03 03	385	0.0	0.1+
1986 03 07	675	0.9−	0.6−	1994 02 07	887	0.2−	0.1−	1997 03 03	385	0.0	0.1−
1986 03 07	675	0.4−	1.1+	1994 02 07	893	0.3−	0.0	1998 08 23	888	0.2+	0.5+
1987 08 29	552	(20.2+	3.4−)	1994 02 07	887	0.0	0.1+	1998 08 29	704	0.8−	1.5−
1987 08 29	552	(16.1+	4.1−)	1994 02 07	893	0.0	0.1−	1998 08 29	704	(1.0−	3.1+)
1994 02 02	898	0.7+	0.2+	1994 02 07	893	0.2+	0.3−	1998 08 29	704	0.6+	0.6−
1994 02 02	898	0.1−	0.6+	1994 02 10	675	0.6+	1.1−	1998 08 29	704	0.6+	0.1+
1994 02 04	385	0.2+	0.8+	1994 02 10	675	1.0−	1.4−	1998 08 29	704	0.4+	0.6+
1994 02 04	385	0.6+	0.1−	1994 02 10	366	0.3+	0.1+	1998 09 08	888	0.3+	0.5−
1994 02 04	385	0.3+	0.6+	1994 02 10	366	1.0−	0.1+	1998 09 08	888	0.1−	0.8+
1994 02 06	391	1.6−	1.0+	1994 02 13	887	0.5+	0.1+	1998 09 08	888	0.0	0.4+
1994 02 06	900	0.5+	0.1+	1994 02 13	887	0.7+	0.2+	1998 09 13	888	0.1−	0.6−
1994 02 06	391	0.3+	0.4+	1994 02 13	887	0.5+	0.2+	1998 09 13	888	0.1−	0.7−
1994 02 06	900	0.1−	1.1+	1994 02 14	893	0.6+	0.6+	1998 09 13	888	0.1+	0.7−
1994 02 06	385	0.0	0.1+	1994 02 14	893	0.6+	0.1−	1998 09 19	888	0.1−	0.1−
1994 02 06	385	0.0	0.4−	1994 02 14	893	0.5+	0.1+	1998 09 19	888	0.1+	0.0
1994 02 06	385	0.5−	0.1+	1994 02 15	675	0.4+	0.6−	1998 09 19	888	0.3+	0.3−
1994 02 06	385	0.1−	0.3−	1994 02 15	675	0.1+	0.8−				
1994 02 06	893	0.4−	0.0	1997 02 14	385	0.3−	0.7−				

(9388)∗ 1994 EH_2 = 1997 AO_{24}

Discovered 1994 Mar. 10 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 29619)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	11.70909		(2000.0)	**P**	**Q**	
n	0.29248352	ω	196.11237	+0.39897245	+0.91328702	
a	2.2476833	Ω	97.46053	−0.83190131	+0.39813605	
e	0.1922184	i	4.74513	−0.38569574	+0.08599125	
P	3.37	H	15.2	G 0.15	U 2	

Residuals in seconds of arc

1988 09 10	675	0.0	0.4−	1997 01 14	566	0.9+	1.2+	1998 08 28	699	0.4+	0.3+
1988 09 10	675	0.3+	0.2−	1998 07 31	699	0.4−	0.5−	1998 09 14	704	0.4+	0.8+
1994 03 10	411	0.3−	0.9−	1998 07 31	699	0.5−	0.0	1998 09 14	704	0.1−	0.5+
1994 03 10	411	0.5−	1.0−	1998 07 31	699	0.2−	0.5−	1998 09 14	704	0.4+	0.7+
1994 03 10	411	1.3−	1.0−	1998 08 17	704	0.4−	0.8−	1998 09 14	704	0.1−	0.6−
1994 03 15	411	0.4−	0.8+	1998 08 17	704	0.1−	0.4−	1998 09 14	704	0.5−	0.8−
1994 03 15	411	0.5−	1.3+	1998 08 17	704	0.1−	1.1+	1998 09 18	704	0.9+	0.4+
1994 03 15	411	0.1−	1.1+	1998 08 17	704	0.5−	1.1+	1998 09 18	704	1.4−	1.5+
1994 03 20	411	1.3+	1.2−	1998 08 17	704	0.1+	0.1−	1998 09 18	704	0.2−	0.7−
1994 03 20	411	1.5+	0.5−	1998 08 21	566	0.5+	0.9−	1998 09 18	704	(0.3−	3.4+)
1994 03 20	411	0.1+	1.8−	1998 08 21	566	0.0	1.0−	1998 09 18	704	(2.2−	0.7+)
1994 04 02	411	0.6+	1.2+	1998 08 21	566	0.2+	0.8−	1998 09 24	699	0.5−	0.4+
1994 04 02	411	0.5+	1.2+	1998 08 23	704	0.1+	0.1−	1998 09 24	699	0.5−	0.4+
1994 04 02	411	0.0	0.8+	1998 08 23	704	0.3−	0.3+	1998 09 24	699	0.0	0.6+
1994 04 03	411	0.4−	0.8+	1998 08 23	704	1.1+	0.1+	1998 09 25	704	0.8+	0.2−
1994 04 03	411	0.2−	0.7+	1998 08 23	704	0.3−	0.5+	1998 09 25	704	0.2−	0.7+
1994 04 03	411	0.2+	0.9+	1998 08 23	704	1.0+	0.4−	1998 09 25	704	0.4−	0.3+
1997 01 14	566	0.2+	0.7+	1998 08 28	699	0.0	0.4+	1998 09 25	704	1.1+	0.4+
1997 01 14	566	0.1+	0.4+	1998 08 28	699	0.3−	0.5+	1998 09 25	704	1.4−	1.1+

(9389)∗ 1994 ET_6 = 1982 XP_4 = 1998 ML_{26}

Discovered 1994 Mar. 9 by E. W. Elst at Caussols.

Id. G. V. Williams (*MPC* 32233)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	4.49015		(2000.0)	**P**	**Q**	
n	0.29342506	ω	163.19840	+0.14065529	+0.98694880	
a	2.2428725	Ω	114.83060	−0.91800605	+0.15966937	
e	0.1156638	i	4.95638	−0.37078429	−0.02092289	
P	3.36	H	14.7	G 0.15	U 2	

Residuals in seconds of arc

1982 12 14	381	0.1−	0.4+	1994 03 10	010	0.6+	0.4−	1998 06 24	704	(3.4+	1.2+)
1982 12 14	381	(3.3−	3.8−)	1997 01 02	327	1.8+	0.1−	1998 06 24	704	(0.2−	2.9+)
1994 02 08	809	(1.3−	3.3+)	1997 01 02	327	0.4+	0.2−	1998 06 24	704	0.6+	0.6−
1994 02 08	809	(1.1−	2.9+)	1997 01 02	327	0.8+	0.2+	1998 06 24	704	1.4+	0.3+
1994 02 08	809	(2.8−	2.9+)	1997 01 02	327	1.4+	0.1+	1998 06 26	704	0.2+	0.0
1994 02 10	809	(0.4−	3.4+)	1997 01 02	327	0.0	0.0	1998 06 26	704	1.0+	0.2+
1994 02 10	809	1.1−	1.4+	1997 01 02	327	0.5+	0.0	1998 06 26	704	0.5−	0.5−
1994 02 10	809	0.8−	1.1+	1997 01 09	691	0.8−	0.0	1998 06 26	704	0.6−	0.5+
1994 03 09	010	0.1+	0.1−	1997 01 09	691	1.1−	0.2+	1998 07 21	704	0.3−	1.3−
1994 03 09	010	0.5+	0.0	1997 01 26	327	0.1+	1.1+	1998 07 21	704	1.9−	1.0+
1994 03 09	010	0.3−	0.1+	1997 01 26	327	1.5−	0.5+	1998 07 21	704	1.0−	1.6+
1994 03 10	010	0.1+	0.9−	1997 01 26	327	1.1−	1.0+	1998 07 21	704	0.0	1.3+
1994 03 10	010	0.6+	1.1−	1998 06 24	704	1.0+	0.3+				

(9390)∗ 1994 NJ_1 = 1976 SV_6 = 1987 SO_6

Discovered 1994 July 12 by Y. Shimizu and T. Urata at the Nachi-Katsuura Observatory.

Id. G. V. Williams (*MPC* 23984)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	24.46642		(2000.0)	**P**	**Q**	
n	0.27077887	ω	83.78074	+0.61472895	+0.78852731	
a	2.3662440	Ω	224.16875	−0.73361527	+0.56311665	
e	0.2183986	i	1.50072	−0.28968422	+0.24723332	
P	3.64	H	14.5	G 0.15	U 1	

Residuals in seconds of arc

1976 09 25	095	0.7+	0.5+	1995 12 17	887	0.7+	0.6+	1998 09 14	699	1.0−	0.1−
1987 09 21	046	(3.5−	2.5+)	1995 12 17	887	0.3+	1.2+	1998 09 14	699	1.1−	0.1+
1987 09 22	046	2.7−	1.2+	1995 12 17	887	0.3+	1.2+	1998 09 14	699	0.6−	0.4−
1994 07 12	905	0.1+	1.5+	1997 03 09	385	0.6+	0.2−	1998 09 26	704	0.7+	0.5−
1994 07 12	905	1.1−	0.2+	1997 03 09	385	0.9+	0.5−	1998 09 26	704	1.0+	0.7−
1994 07 31	905	0.1+	0.1+	1997 04 08	691	0.9−	0.6−	1998 09 26	704	0.8+	0.9−
1994 07 31	905	0.5+	0.1−	1997 04 08	691	0.7−	0.7−	1998 09 26	704	0.8+	1.2−
1994 08 03	905	0.1−	1.2−	1997 04 08	691	0.9−	0.7−	1998 09 26	704	0.2+	0.8−
1994 08 03	905	0.2+	0.1+	1997 07 04	691	1.1−	0.9−	1998 09 27	704	0.0	0.6+
1994 08 06	905	0.2−	0.1−	1997 07 04	691	1.0−	0.6−	1998 09 27	704	0.7+	0.2−
1994 08 06	905	0.4+	0.6+	1998 08 29	959	0.5−	0.3−	1998 09 27	704	0.6+	0.2−
1994 08 09	905	0.6+	0.2+	1998 08 29	959	0.8+	0.2−	1998 09 27	704	1.0+	0.1−
1994 08 09	905	0.3−	0.0	1998 08 29	959	0.6−	0.4−	1998 09 27	704	0.2−	1.0−

(9391)∗ 1994 PH_1 = 1985 PK_2 = 1985 QJ_6 = 1998 HY_{108}

Discovered 1994 Aug. 14 by R. H. McNaught at Siding Spring.

Id. G. V. Williams (*MPC* 31965)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	322.30451		(2000.0)	**P**	**Q**	
n	0.21688591	ω	160.79847	+0.44178438	+0.88506349	
a	2.7435644	Ω	135.09652	−0.84787149	+0.46531539	
e	0.3107727	i	11.98540	−0.29315609	−0.01200872	
P	4.54	H	14.0	G 0.15	U 1	

Residuals in seconds of arc

1985 08 13	095	0.2−	1.0+	1998 03 24	704	0.4+	0.2−	1998 04 27	566	0.0	0.6+
1985 08 24	095	(3.9+	5.9−)	1998 03 24	704	0.3+	0.4+	1998 04 27	566	0.1+	0.4+
1994 08 14	413	0.4−	0.2+	1998 03 24	704	1.0+	0.1−	1998 04 27	566	0.5−	0.5+
1994 08 16	413	0.5+	0.0	1998 04 03	704	0.2+	0.1−	1998 05 16	704	0.1+	0.3+
1994 08 16	413	0.3+	0.0	1998 04 03	704	0.1+	0.3−	1998 05 16	704	0.2+	0.2−
1994 08 17	413	0.2+	0.5−	1998 04 03	704	0.6+	0.2+	1998 05 16	704	1.4+	0.2+
1994 08 17	413	0.2+	0.4−	1998 04 03	704	1.6+	0.4+	1998 05 16	704	1.3−	0.2+
1994 08 26	413	0.0	0.0	1998 04 03	704	0.4−	0.6+	1998 05 16	704	0.2+	0.2+
1994 08 26	413	0.0	0.1−	1998 04 23	704	1.1−	0.3−	1998 05 28	704	0.3+	0.5−
1994 08 28	413	0.3−	0.2+	1998 04 23	704	0.1+	0.4+	1998 05 28	704	0.1−	1.0−
1994 08 28	413	0.4−	0.3+	1998 04 23	704	0.9−	0.3+	1998 05 28	704	1.4−	0.9−
1994 09 17	413	0.0	0.2−	1998 04 23	704	0.9−	0.9+	1998 05 28	704	0.8−	1.6−
1994 09 17	413	0.0	0.0	1998 04 23	704	0.0	0.5+	1998 05 28	704	(1.7+	2.4−)

1997 01 02	691	0.2+	0.4−	1998 04 24	704	0.3+	0.4+	1998 06 17	704	0.0	1.6−
1997 01 02	691	0.2−	0.4−	1998 04 24	704	0.4+	0.2+	1998 06 17	704	(2.2−	1.0−)
1997 01 02	691	0.0	0.4−	1998 04 24	704	0.2−	0.3−	1998 06 17	704	1.4+	1.3−
1998 03 24	704	0.2−	0.3+	1998 04 24	704	0.2+	0.1+	1998 06 17	704	(2.1+	0.0)
1998 03 24	704	0.7+	0.4+	1998 04 24	704	0.9−	0.3−	1998 06 17	704	0.6−	0.5+

(9392)∗ 1994 PK_7 = 1979 UO_1

Discovered 1994 Aug. 10 by E. W. Elst at the European Southern Observatory.

Id. S. Nakano (*MPC* 26565)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	328.41644		(2000.0)		**P**		**Q**
n	0.25790856	ω	228.68143		+0.94331318		−0.32716638
a	2.4443246	Ω	150.28899		+0.32812129		+0.89390570
e	0.1263484	*i*	6.47347		+0.04996654		+0.30642252
P	3.82	*H*	14.5	*G*	0.15	*U*	2

Residuals in seconds of arc

1979 10 21	805	0.3−	0.3−	1994 09 06	809	(1.4+	4.0+)	1998 09 18	704	0.3−	0.2+
1979 10 23	805	0.2+	0.6−	1994 10 01	675	(2.4−	1.8−)	1998 09 18	704	0.7−	0.1+
1979 10 23	805	0.7+	0.6−	1994 10 01	675	0.9−	0.1−	1998 09 18	704	1.2−	1.2+
1994 08 10	809	0.9+	1.0−	1996 01 26	411	0.2+	0.3−	1998 09 18	704	0.4−	0.1−
1994 08 10	809	0.8+	0.6−	1996 01 26	411	0.7+	1.6−	1998 09 19	823	0.3+	0.6−
1994 08 10	809	1.3+	0.3−	1996 01 27	411	0.0	1.5−	1998 09 19	823	0.4+	0.3−
1994 08 11	809	0.9+	1.0−	1996 01 27	411	0.2−	1.0−	1998 09 20	823	0.5+	0.5−
1994 08 11	809	1.3+	0.1−	1996 02 19	411	0.7−	0.1+	1998 09 20	823	0.1−	0.3−
1994 08 11	809	0.9+	0.2+	1996 02 19	411	1.0−	0.7−	1998 09 26	704	0.1−	0.2−
1994 08 11	675	(2.2−	0.5−)	1998 06 29	704	1.3−	1.6+	1998 09 26	704	0.2+	0.2+
1994 08 11	675	(3.3−	0.1−)	1998 06 29	704	0.2−	1.7−	1998 09 26	704	0.1+	0.3+
1994 09 03	809	1.1−	0.8−	1998 06 29	704	0.9+	0.9−	1998 09 26	704	1.2−	1.6+
1994 09 03	809	0.7−	0.3−	1998 08 02	699	0.3+	0.4+	1998 09 26	704	0.7−	0.7+
1994 09 03	809	0.7−	0.9−	1998 08 02	699	1.6+	0.2+	1998 09 27	704	0.9−	0.2−
1994 09 04	809	0.7−	0.9−	1998 08 02	699	0.9+	0.2+	1998 09 27	704	0.9−	0.6−
1994 09 04	809	0.1−	1.1−	1998 09 14	704	0.1−	0.2+	1998 09 27	704	1.0−	0.6−
1994 09 04	809	0.2−	0.9−	1998 09 14	704	0.0	1.3+	1998 09 27	704	0.2−	0.8−
1994 09 05	809	(1.2−	3.0+)	1998 09 14	704	0.5−	1.5+	1998 09 27	704	1.1−	1.2−
1994 09 05	809	(0.9−	2.3+)	1998 09 17	699	0.6+	1.1+	1998 09 29	910	1.2+	0.0
1994 09 05	809	(0.5−	2.0+)	1998 09 17	699	0.4+	1.0+	1998 09 29	910	1.3+	0.1+
1994 09 06	809	(0.9+	4.3+)	1998 09 17	699	0.5+	1.1+	1998 09 29	910	1.1+	0.0
1994 09 06	809	(0.9+	4.3+)	1998 09 18	704	0.1−	0.1+				

(9393)∗ 1994 PT_{14} = 1972 HH = 1991 XX_5

Discovered 1994 Aug. 10 by E. W. Elst at the European Southern Observatory.

Id. K. Ichikawa (*MPC* 25219)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	93.18547		(2000.0)		**P**		**Q**
n	0.23429642	ω	40.16407		−0.89967679		+0.43614601
a	2.6059072	Ω	165.65893		−0.41757857		−0.84711066
e	0.1014395	*i*	4.38301		−0.12731776		−0.30361189
P	4.21	*H*	13.7	*G*	0.15	*U*	2

Residuals in seconds of arc

1972 04 18	095	(5.1−	6.4+)	1994 09 03	809	0.0	0.8−	1998 08 23	704	0.3+	0.7−
1991 12 11	033	0.7+	0.1+	1994 09 03	809	0.3−	1.3−	1998 08 23	704	0.8−	0.4−
1991 12 12	033	0.3−	1.1+	1994 09 03	809	0.5−	0.0	1998 08 23	704	0.4+	0.6+
1991 12 12	033	0.4−	0.4−	1994 09 04	809	0.0	0.4−	1998 08 23	704	0.1+	1.4+
1993 04 17	675	0.2+	0.5−	1994 09 04	809	0.6−	0.6−	1998 08 27	699	0.1+	0.1−
1993 04 17	675	0.3−	0.2+	1994 09 04	809	0.4−	0.5−	1998 08 27	699	0.3+	0.3+
1994 08 10	809	1.5+	0.2−	1998 08 17	704	0.2−	0.3−	1998 08 27	699	0.2+	0.2−
1994 08 10	809	1.5+	0.8+	1998 08 17	704	0.7−	0.4+	1998 09 14	699	0.0	0.1−
1994 08 10	809	1.5+	0.7+	1998 08 17	704	0.0	1.1+	1998 09 14	699	0.1−	0.7−
1994 08 11	809	0.4−	0.2−	1998 08 17	704	0.7−	0.7+	1998 09 14	699	0.3+	0.6+
1994 08 11	809	0.1+	0.0	1998 08 17	704	0.5−	1.2+				
1994 08 11	809	1.5−	0.0	1998 08 23	704	0.7+	1.0−				

(9394)∗ 1994 PV_{16} = 1981 UO_{27} = 1986 XG_4

Discovered 1994 Aug. 10 by E. W. Elst at the European Southern Observatory.

Id. K. Ichikawa (*MPC* 25219)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	16.63954		(2000.0)		**P**		**Q**
n	0.21985841	ω	278.32359		−0.07976452		+0.99673657
a	2.7187795	Ω	347.08179		−0.89133528		−0.07688912
e	0.0517437	*i*	3.18032		−0.44627238		−0.02458192
P	4.48	*H*	13.7	*G*	0.15	*U*	1

Residuals in seconds of arc

1981 10 24	675	0.9+	0.4+	1994 08 11	809	0.6+	1.8+	1998 06 26	704	1.6+	1.2+
1981 10 25	675	0.6+	0.9−	1994 08 11	809	0.7−	0.8+	1998 06 26	704	2.0+	0.4+
1981 10 26	675	0.2+	0.4−	1994 08 11	809	1.1−	0.7+	1998 06 26	704	0.5−	0.9−
1986 12 04	010	(1.9−	4.7−)	1994 09 03	809	0.9+	0.9−	1998 06 26	704	(0.9−	3.9−)
1992 02 04	675	(0.6+	2.7−)	1994 09 03	809	0.6+	0.3−	1998 07 21	704	(2.5+	1.7−)
1992 02 04	675	0.9+	0.5+	1994 09 03	809	0.9+	0.2+	1998 07 21	704	(0.5−	2.7+)
1993 04 19	675	0.7−	0.3+	1994 09 04	809	0.5−	1.8−	1998 07 21	704	0.2+	1.5−
1993 04 19	675	1.0−	0.0	1994 09 04	809	0.8−	1.3−	1998 07 21	704	(1.0+	2.4+)
1994 08 10	809	(0.1−	2.7+)	1994 09 04	809	1.2−	1.6−	1998 07 21	704	(2.8−	0.0)
1994 08 10	809	0.7−	1.1+	1997 03 10	689	0.5−	0.3−				
1994 08 10	809	1.7−	1.7+	1998 06 26	704	(2.5+	1.3−)				

(9395)∗ 1994 PC_{39} = 1993 HZ_6

Discovered 1994 Aug. 10 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 24571)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	94.19242		(2000.0)		**P**		**Q**
n	0.23483047	ω	300.62328		−0.94044621		+0.33760555
a	2.6019548	Ω	259.13279		−0.29637657		−0.87161700
e	0.1035336	*i*	2.32219		−0.16649882		−0.35539596
P	4.20	*H*	13.5	*G*	0.15	*U*	1

Residuals in seconds of arc

1993 04 27	809	0.1−	0.5−	1994 09 03	809	0.9+	1.0+	1997 03 09	886	0.8+	0.4−
1993 04 27	809	0.4+	0.4−	1994 09 04	809	0.3−	0.4+	1997 03 11	886	0.9+	0.0
1993 04 27	809	0.8+	0.4−	1994 09 04	809	0.1+	0.8+	1997 03 11	886	0.3−	1.0+
1993 04 28	809	(2.5−	1.1−)	1994 09 04	809	0.1−	0.7+	1998 08 04	689	0.5−	0.7−
1993 04 28	809	1.8−	0.8−	1994 09 07	675	1.1−	0.2−	1998 08 17	704	0.1+	0.0
1993 04 28	809	1.2−	0.7−	1994 09 07	675	1.7−	0.4−	1998 08 17	704	0.5−	0.5+
1994 08 10	809	0.2+	1.5−	1995 12 19	566	0.0	0.8−	1998 08 17	704	(3.7+	0.1+)
1994 08 10	809	0.0	1.7−	1995 12 19	566	0.3−	0.7−	1998 08 17	704	0.0	0.2−
1994 08 10	809	0.8−	1.5−	1995 12 19	566	0.0	0.8−	1998 08 17	704	0.1+	0.4−
1994 08 11	809	1.3+	0.2+	1995 12 20	566	0.0	0.3−	1998 08 23	704	0.5−	1.9+
1994 08 11	809	1.5+	0.6+	1995 12 20	566	0.1−	0.5−	1998 08 23	704	1.6−	0.5−
1994 08 11	809	1.2+	0.0	1995 12 20	566	0.3+	0.5−	1998 08 23	704	1.7+	0.9−
1994 09 03	809	(0.4−	2.6+)	1997 03 09	886	0.2+	1.0−	1998 08 23	704	0.2+	0.8−
1994 09 03	809	0.7+	1.6+	1997 03 09	886	0.3−	0.4+				

(9396)∗ 1994 QT = 1978 TC_3 = 1997 CQ_{18} = 1998 HV_{69}

Discovered 1994 Aug. 17 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 32237)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	253.89682		(2000.0)		**P**		**Q**
n	0.18111128	ω	332.94064		+0.96813612		+0.25031968
a	3.0938960	Ω	12.56929		−0.22331408		+0.87606070
e	0.1609547	*i*	1.90814		−0.11332814		+0.41213798
P	5.44	*H*	13.4	*G*	0.15	*U*	1

Residuals in seconds of arc

1978 10 04	095	0.6+	1.5−	1994 09 03	411	0.1+	0.7+	1998 04 21	704	0.1−	0.2−
1994 08 16	411	0.1−	0.3−	1994 09 03	411	0.2−	0.5+	1998 04 21	704	0.7+	0.9−
1994 08 16	411	1.1+	0.4+	1994 09 03	033	0.0	0.6−	1998 04 21	704	0.2+	0.0
1994 08 17	411	1.0−	0.5+	1997 02 07	691	0.6+	0.2+	1998 04 22	704	0.6+	0.8−
1994 08 17	411	0.2−	0.2−	1997 02 07	691	0.2+	0.2+	1998 04 22	704	0.4+	0.9−
1994 09 01	411	0.7+	0.1+	1997 02 07	691	0.2+	0.1+	1998 04 22	704	0.2+	0.2+
1994 09 01	411	0.3+	0.4+	1997 02 11	691	0.0	0.1+	1998 04 22	704	0.1−	0.0
1994 09 01	411	0.4−	0.6+	1997 02 11	691	0.6−	0.0	1998 04 22	704	0.8+	0.3+
1994 09 01	033	0.6−	0.7−	1997 02 11	691	0.1−	0.2+	1998 06 02	691	1.8−	1.2+
1994 09 02	033	0.6+	0.6−	1998 04 21	704	0.5−	0.5−	1998 06 02	691	(2.3−	0.8+)
1994 09 03	411	0.8−	0.1+	1998 04 21	704	0.5+	0.3−	1998 06 02	691	1.8−	0.9+

(9397)∗ 1994 RJ = 1993 FG$_{67}$

Discovered 1994 Sept. 6 at Stroncone.

Id. G. V. Williams (*MPC* 23984)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	352.21654		(2000.0)		**P**	**Q**	
n	0.24639396	ω	106.68196		+0.79797377	+0.60180764	
a	2.5198964	Ω	216.33709		−0.57182584	+0.73888533	
e	0.1499646	i	3.15785		−0.19040241	+0.30311057	
P	4.00	H	15.7	G	0.15	U	2

Residuals in seconds of arc

1993 03 21	809	(3.5−	0.4+)	1994 09 28	589	1.4+	0.7+	1998 08 23	704	0.1+	1.1−
1993 03 22	809	0.1−	1.6−	1996 01 09	589	0.3−	0.8+	1998 08 26	589	0.4−	0.1−
1994 09 06	589	0.3−	0.2−	1996 01 09	589	0.9+	1.6−	1998 08 26	589	0.0	0.4+
1994 09 06	589	0.0	0.0	1996 01 09	589	0.1−	0.7+	1998 08 26	589	0.4+	0.1−
1994 09 06	589	0.1−	0.0	1996 01 14	589	0.9−	0.4+	1998 08 30	699	0.8−	0.4−
1994 09 06	589	0.0	0.0	1996 01 14	589	0.4+	0.4−	1998 08 30	699	0.2+	0.0
1994 09 07	589	0.2+	0.2−	1997 04 12	589	0.1+	1.0+	1998 08 30	699	0.0	0.5+
1994 09 07	589	0.3−	0.1+	1997 04 12	589	0.1+	0.5+	1998 09 10	910	0.9+	0.6+
1994 09 07	589	0.2−	0.0	1998 08 17	704	0.4+	1.3−	1998 09 11	910	1.1+	0.6+
1994 09 09	589	0.4−	0.0	1998 08 17	704	0.1−	0.4+	1998 09 11	910	1.1+	0.6+
1994 09 09	589	0.5−	0.1+	1998 08 17	704	0.6+	0.7+	1998 09 14	589	0.7+	0.2−
1994 09 09	589	0.3+	0.4−	1998 08 17	704	0.7+	0.3−	1998 09 14	589	(3.7−	1.1+)
1994 09 10	589	1.2+	1.9−	1998 08 17	704	0.5+	0.7−	1998 09 15	589	0.2−	0.9−
1994 09 10	589	0.0	0.1−	1998 08 23	699	0.3−	0.6+	1998 09 15	589	0.7+	0.1+
1994 09 10	589	0.1−	0.2−	1998 08 23	699	0.2−	0.2−	1998 09 15	589	0.1+	0.1−
1994 09 24	589	0.6+	0.9+	1998 08 23	699	0.2−	0.5+	1998 09 19	589	0.6−	0.4−
1994 09 24	589	0.8−	0.7−	1998 08 23	704	1.0−	1.2−	1998 09 19	589	0.3+	0.4+
1994 09 28	589	0.6−	0.6−	1998 08 23	704	1.1−	0.5+	1998 09 19	589	0.5+	0.4+
1994 09 28	589	0.1+	0.3+	1998 08 23	704	0.2−	1.9+				

(9398)∗ 1994 SH$_3$ = 1997 AC$_{20}$

Discovered 1994 Sept. 28 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 28854)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	254.40730		(2000.0)		**P**	**Q**	
n	0.16161120	ω	112.33203		+0.78980618	+0.61326523	
a	3.3380160	Ω	209.84509		−0.57027732	+0.72787372	
e	0.1435366	i	1.21830		−0.22580960	+0.30676638	
P	6.10	H	13.9	G	0.15	U	1

Residuals in seconds of arc

1992 04 28	691	0.1−	0.2−	1997 01 02	691	0.4−	0.0	1998 03 28	704	0.1−	0.0
1992 04 28	691	0.3−	0.2−	1997 01 02	691	0.0	0.0	1998 04 01	704	0.5+	0.4+
1992 04 28	691	0.2+	0.2+	1997 01 02	691	0.4−	0.2+	1998 04 01	704	0.1−	0.6−
1994 09 14	691	0.0	0.3−	1997 01 10	691	0.6+	0.0	1998 04 01	704	0.7−	0.9−
1994 09 14	691	0.1+	0.2−	1997 01 10	691	0.5+	0.0	1998 04 01	704	0.3−	0.1+
1994 09 14	691	0.3−	0.2−	1997 01 10	691	0.8+	0.2−	1998 04 01	704	(4.2−	1.3−)
1994 09 28	691	0.0	0.5+	1997 01 17	691	0.4−	0.1−	1998 04 19	704	1.2+	1.5+
1994 09 28	691	0.3+	0.0	1997 01 17	691	0.5−	0.0	1998 04 19	704	1.3+	1.4−
1994 09 28	691	0.0	0.2−	1997 01 17	691	0.2−	0.2+	1998 04 19	704	0.0	1.2+
1994 09 29	691	0.1+	0.0	1998 03 28	704	0.5−	1.0−	1998 04 19	704	(2.8−	0.4+)
1994 09 29	691	0.0	0.1+	1998 03 28	704	(2.4−	2.0+)				
1994 09 29	691	0.0	0.1+	1998 03 28	704	1.2−	0.7+				

(9399)∗ 1994 ST$_{12}$ = 1997 GX$_{12}$

Discovered 1994 Sept. 29 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 29621)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	2.54330		(2000.0)		**P**	**Q**	
n	0.23602208	ω	288.35249		+0.72828910	+0.68455331	
a	2.5931897	Ω	28.47253		−0.60129893	+0.66030921	
e	0.1559797	i	3.76840		−0.32868615	+0.30883412	
P	4.18	H	13.9	G	0.15	U	2

Residuals in seconds of arc

1993 04 25	691	0.2−	0.3−	1997 04 30	691	1.1−	0.6+	1998 09 14	704	0.7−	0.7+
1993 04 25	691	0.1−	0.1−	1997 04 30	691	1.5−	0.3+	1998 09 14	704	0.3−	1.8+
1993 04 25	691	0.2−	0.6−	1997 04 30	691	1.2−	0.5+	1998 09 18	704	0.4+	0.2+
1994 09 29	691	0.3−	0.2+	1997 05 09	691	1.4−	0.4+	1998 09 18	704	0.6−	1.0−
1994 09 29	691	0.2−	0.1+	1997 05 09	691	1.3−	0.1+	1998 09 18	704	0.3+	1.1−
1994 09 29	691	0.1−	0.1+	1997 05 09	691	1.3−	0.2+	1998 09 18	704	0.4−	0.5−
1994 09 30	691	0.5−	0.3+	1998 07 31	699	(3.1−	0.2−)	1998 09 18	704	0.6+	0.1−
1994 09 30	691	0.4−	0.3+	1998 07 31	699	0.2−	1.1+	1998 09 19	108	0.6+	2.1−
1994 09 30	691	0.5−	0.4+	1998 07 31	699	0.2−	0.6+	1998 09 19	108	0.8−	1.4−
1994 10 01	399	(2.1+	0.3−)	1998 08 17	704	0.1+	1.0−	1998 09 19	108	0.4−	0.7−
1994 10 01	399	0.9+	0.2+	1998 08 17	704	0.3+	0.5−	1998 09 25	704	0.9+	0.2−
1994 10 13	691	0.2+	0.3+	1998 08 17	704	0.6−	0.6−	1998 09 25	704	0.2+	0.0
1994 10 13	691	0.1+	0.1+	1998 08 17	704	0.5−	0.3−	1998 09 25	704	0.8−	0.1−
1994 10 13	691	0.3−	0.1+	1998 08 17	704	0.9−	0.4−	1998 09 25	704	0.5−	0.6+
1997 04 03	704	0.9+	0.5+	1998 08 23	704	0.5+	0.0	1998 09 25	704	0.4−	0.9+
1997 04 03	704	0.4+	0.2+	1998 08 23	704	0.6+	0.1−	1998 09 27	704	1.0+	0.7+
1997 04 05	704	1.5+	0.4+	1998 08 23	704	0.3+	0.4−	1998 09 27	704	0.0	1.4+
1997 04 05	704	1.8+	0.6−	1998 08 23	704	1.0+	0.0	1998 09 27	704	0.3+	0.3+
1997 04 06	704	1.3+	0.4+	1998 08 23	704	0.4−	1.2+	1998 09 27	704	1.0+	0.1+
1997 04 06	704	(5.3+	0.6+)	1998 09 14	704	0.4+	0.1+	1998 09 27	704	1.0−	0.7−
1997 04 07	704	1.7+	0.5+	1998 09 14	704	0.0	0.5+				
1997 04 07	704	1.3+	0.2+	1998 09 14	704	0.3+	1.4+				

(9400)∗ 1994 TW$_1$

Discovered 1994 Oct. 9 by E. F. Helin and K. J. Lawrence at Palomar.

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	301.72703		(2000.0)		**P**	**Q**	
n	0.23621752	ω	62.14251		+0.42139182	−0.90612380	
a	2.5917592	Ω	3.60534		+0.47470277	+0.18563445	
e	0.5766754	i	36.03658		+0.77271354	+0.38010460	
P	4.17	H	14.8	G	0.15	U	1

Residuals in seconds of arc

1991 03 18	675	(2.6+	0.9−)	1994 12 06	587	0.1−	0.4−	1995 03 26	816	0.2−	0.2+
1991 03 18	675	(1.1−	2.8−)	1994 12 06	587	0.4+	1.6+	1995 03 26	816	0.0	0.4+
1991 04 09	675	0.5+	0.5+	1994 12 08	670	0.3−	0.7+	1995 03 26	816	0.2−	0.4+
1991 04 09	675	1.5+	0.1+	1994 12 08	670	1.0−	0.8−	1995 03 26	816	0.1−	0.6+
1991 04 11	675	(2.3+	2.7+)	1994 12 08	670	0.2−	1.1+	1995 04 01	801	0.3−	0.2−
1991 04 11	675	0.1+	0.7+	1994 12 08	670	0.6−	0.3−	1995 04 01	801	0.2−	0.6−
1994 10 09	675	(2.8+	1.3+)	1994 12 08	670	0.8+	1.2+	1995 04 01	801	0.2−	0.1−
1994 10 09	675	(3.3+	3.1−)	1994 12 23	816	1.7+	0.7+	1995 04 01	801	0.0	0.1−
1994 10 10	675	(1.7−	3.1+)	1994 12 23	816	0.2+	0.2−	1995 04 01	897	0.7−	1.7+
1994 10 10	675	1.6+	1.3+	1994 12 23	816	0.9+	0.0	1995 04 01	897	0.9+	0.4−
1994 10 10	413	(0.2−	2.8+)	1994 12 23	816	0.2+	0.1−	1995 04 01	897	0.3+	0.3−
1994 10 10	413	(3.3−	7.2+)	1994 12 26	104	1.5+	0.5+	1995 04 03	801	0.4+	0.1+
1994 10 11	670	1.6−	0.6−	1994 12 26	104	1.8+	1.0+	1995 04 03	801	0.4+	0.3+
1994 10 11	670	(2.3+	1.0−)	1994 12 26	104	1.5+	1.1+	1995 04 05	658	(2.4−	2.4+)
1994 10 11	670	0.7+	1.3−	1995 01 01	385	1.8+	0.3+	1995 04 05	658	(2.5−	2.5+)
1994 10 11	670	1.4−	0.9+	1995 01 01	385	0.4+	0.2−	1995 04 05	658	0.5−	0.8+
1994 10 11	670	0.9−	0.7−	1995 01 01	385	0.6+	0.4+	1995 04 06	658	0.8−	1.2+
1994 10 11	413	1.4−	0.5+	1995 01 02	897	0.5+	0.0	1995 04 06	658	0.5−	1.0+

1994 10 11	046	0.8−	0.6−	1995 01 02	897	0.3+	0.3+	1995 04 06	658	1.0−	1.0+
1994 10 11	046	0.8−	0.3−	1995 01 02	897	0.3+	1.0+	1995 04 20	897	0.1−	0.1+
1994 10 12	670	0.3+	1.0−	1995 01 05	540	0.1+	0.3+	1995 04 20	897	0.6−	0.5+
1994 10 12	670	0.0	0.3+	1995 01 05	540	0.1−	0.3+	1995 04 20	897	0.4+	0.6+
1994 10 12	670	(0.9+	2.4−)	1995 01 05	540	0.3+	0.1+	1995 04 21	658	0.4−	0.5+
1994 10 12	670	1.2−	0.4+	1995 01 06	897	0.1−	0.0	1995 04 21	658	0.0	0.2+
1994 10 12	670	(1.6+	2.9−)	1995 01 06	897	0.7+	0.6+	1995 04 21	658	0.3+	0.2−
1994 10 13	608	0.1+	0.5−	1995 01 06	897	0.1+	0.3−	1995 04 23	360	0.7−	0.2+
1994 10 13	608	0.0	0.6−	1995 01 23	658	0.1+	0.6+	1995 04 23	360	0.8−	0.5−
1994 10 13	608	0.0	0.8−	1995 01 23	658	0.6−	0.1+	1995 04 23	360	1.2−	0.2−
1994 10 14	360	0.0	0.6−	1995 01 24	658	0.1−	0.4+	1996 02 29	413	(2.5−	0.5+)
1994 10 14	360	0.1+	0.5−	1995 01 24	658	0.4−	0.2+	1996 02 29	413	(2.2−	2.1+)
1994 10 14	360	0.2−	0.4−	1995 01 24	658	0.0	0.5+	1996 02 29	413	1.4−	0.2−
1994 10 23	360	0.4−	0.6+	1995 01 31	557	0.3−	0.3+	1996 03 26	413	0.5+	1.1−
1994 10 23	360	0.9−	1.0+	1995 01 31	557	0.1−	0.4+	1996 03 26	413	0.3+	1.2−
1994 10 29	675	(2.5+	1.8−)	1995 01 31	557	0.2+	0.3+	1996 03 27	413	0.3+	0.8−
1994 10 29	675	(1.6+	4.4−)	1995 02 01	897	0.0	0.1−	1996 03 27	413	0.3+	0.9−
1994 10 29	587	0.2+	0.1+	1995 02 01	897	0.2+	0.6−	1996 05 26	413	0.4−	1.0−
1994 10 29	587	0.1+	0.1+	1995 02 01	897	0.8−	0.3+	1996 05 28	413	0.6−	1.6−
1994 10 29	587	0.3+	0.5+	1995 02 07	540	0.6+	0.5+	1996 05 28	413	0.3−	0.8−
1994 10 30	360	0.2+	0.1−	1995 02 07	540	0.8+	0.0	1998 08 10	422	0.8−	0.8+
1994 10 30	360	0.3+	0.1−	1995 02 07	540	0.7−	0.4−	1998 08 10	422	0.1−	1.0+
1994 11 01	675	0.5−	1.0+	1995 02 21	897	0.1−	0.9+	1998 08 13	422	0.4−	0.9+
1994 11 01	675	(0.1+	3.9+)	1995 02 21	897	0.9−	0.8+	1998 08 13	422	1.4−	0.5+
1994 11 02	689	0.2+	0.1+	1995 02 28	587	0.4−	0.6−	1998 08 13	422	0.5+	1.3−
1994 11 07	801	0.1−	0.9−	1995 02 28	587	0.0	0.7−	1998 08 16	426	1.7−	1.0+
1994 11 07	801	1.4−	1.8−	1995 03 01	540	0.4+	0.6+	1998 08 16	426	0.1−	0.6+
1994 11 11	413	0.2−	0.5−	1995 03 01	540	0.1−	0.2−	1998 08 16	426	0.2+	0.7+
1994 11 11	413	0.3−	0.5−	1995 03 01	540	0.7−	0.2−	1998 08 17	426	0.0	0.8+
1994 11 24	360	0.0	0.2+	1995 03 06	587	0.7+	0.5+	1998 08 17	426	0.1+	0.8+
1994 11 24	360	0.1+	0.1+	1995 03 06	587	0.6−	1.1+	1998 08 17	426	0.1+	0.7+
1994 12 01	540	0.2+	0.8−	1995 03 11	540	1.2+	0.6+	1998 09 27	422	0.4−	0.2−
1994 12 01	540	1.0+	0.1−	1995 03 11	540	0.0	0.2+	1998 09 27	422	0.2−	0.4+
1994 12 01	540	0.2+	0.5−	1995 03 11	540	0.5−	1.0+				

(9401)∗ 1994 TS$_3$

Discovered 1994 Oct. 13 by Y. Shimizu and T. Urata at the Nachi-Katsuura Observatory.

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	341.57973		(2000.0)		**P**	**Q**	
n	0.22496424	ω	315.29413		+0.97118437	+0.19385015	
a	2.6774851	Ω	34.24746		−0.08115920	+0.81597507	
e	0.2057550	i	14.26260		−0.22408505	+0.54461620	
P	4.38	H	12.9	G	0.15	U	2

Residuals in seconds of arc

1994 10 13	905	0.1−	0.7−	1994 12 06	887	0.0	0.0	1998 08 23	888	0.4−	0.3−
1994 10 13	905	0.2+	0.3+	1994 12 06	887	0.0	0.0	1998 09 13	886	0.3−	0.1+
1994 10 15	905	0.5−	0.4−	1994 12 06	887	0.1+	0.2+	1998 09 13	886	0.6−	1.3−
1994 10 15	905	1.0−	0.0	1995 01 01	385	0.7+	0.4−	1998 09 13	888	0.3+	0.3−
1994 10 31	399	1.5−	0.0	1995 01 01	385	0.7+	0.2−	1998 09 13	888	0.0	0.4−
1994 10 31	399	0.4+	0.8−	1996 01 27	385	0.2+	0.5+	1998 09 13	888	0.1−	0.3−
1994 10 31	905	0.3+	0.0	1996 01 27	385	1.3+	0.3−	1998 09 19	888	0.3+	0.1+
1994 10 31	905	0.8+	0.9+	1996 02 10	385	0.3−	0.1+	1998 09 19	888	0.1+	0.1−
1994 11 12	385	0.4−	0.5+	1996 02 10	385	0.8−	1.0+	1998 09 21	704	0.4−	0.1−
1994 11 12	385	0.2−	0.6+	1996 02 10	385	0.6+	0.1+	1998 09 21	704	0.4+	0.7+
1994 11 12	385	0.5−	0.1+	1997 05 05	691	0.1+	0.5−	1998 09 21	704	0.2+	1.2+
1994 11 27	887	0.3+	0.3−	1997 05 05	691	0.1+	0.4−	1998 09 21	704	1.5+	1.0+
1994 11 27	887	0.0	0.2−	1997 05 05	691	0.1−	0.2−	1998 09 21	704	1.5+	1.4+
1994 11 27	887	0.2+	0.1−	1997 06 05	385	0.4−	0.2−	1998 09 30	423	1.0−	0.2−
1994 11 30	887	0.8+	0.4+	1997 06 05	385	0.5−	0.7+	1998 09 30	423	0.3−	0.2−
1994 11 30	887	0.5+	0.6−	1998 08 23	888	0.3−	0.2−	1998 09 30	423	0.9−	0.1+
1994 12 06	887	0.2+	0.3−	1998 08 23	888	0.4−	0.3−				

(9402)∗ 1994 UN$_1$ = 1988 VQ$_{10}$ = 1992 JC$_5$

Discovered 1994 Oct. 25 by S. Ueda and H. Kaneda at Kushiro.

Id. T. B. Spahr (*MPC* 30454), G. V. Williams (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	235.30700		(2000.0)		**P**	**Q**	
n	0.16023802	ω	155.84068		+0.96710661	−0.23099067	
a	3.3570592	Ω	218.01404		+0.19600008	+0.94362611	
e	0.1062338	i	9.96084		+0.16213810	+0.23709298	
P	6.15	H	12.3	G	0.15	U	2

Residuals in seconds of arc

1988 11 12	046	0.4−	2.2−	1994 12 03	675	0.5+	0.4−	1998 05 22	699	0.9−	0.4−
1988 11 12	046	0.7+	1.2−	1997 02 14	385	0.5−	0.5+	1998 05 24	704	0.5−	1.4−
1992 05 03	809	(4.6+	0.5+)	1997 02 14	385	0.2+	0.7−	1998 05 24	704	0.0	0.3−
1992 05 03	809	(4.4+	1.2+)	1998 04 22	704	0.0	0.9−	1998 05 24	704	0.7+	0.2−
1992 05 03	809	(3.7+	0.8+)	1998 04 22	704	0.6+	0.1−	1998 05 24	704	0.3−	1.2+
1994 10 13	691	1.5−	1.0+	1998 04 22	704	0.9+	0.7+	1998 05 24	704	0.8−	0.3−
1994 10 13	691	0.9−	0.4+	1998 04 22	704	1.5+	0.6+	1998 05 24	699	0.1+	1.4−
1994 10 13	691	1.1−	0.5+	1998 04 22	704	1.6−	1.4+	1998 05 24	699	0.1+	0.2−
1994 10 25	399	0.8+	0.0	1998 04 30	566	0.8−	1.3−	1998 05 24	699	0.7+	0.8−
1994 10 25	399	0.9+	0.4−	1998 04 30	566	0.6−	1.5−	1998 06 16	704	(0.8+	2.4−)
1994 10 26	399	0.3+	0.3+	1998 04 30	566	1.0−	1.2−	1998 06 16	704	0.7+	0.6−
1994 10 26	399	0.6−	0.5−	1998 05 05	699	0.2−	0.6+	1998 06 16	704	0.2+	0.9+
1994 11 07	399	1.0−	1.7−	1998 05 05	699	0.9−	0.6−	1998 06 16	704	1.4+	1.0+
1994 11 07	399	1.1−	0.1−	1998 05 05	699	0.7−	0.3−	1998 06 16	704	0.6−	0.2+
1994 11 10	399	0.1−	0.9+	1998 05 22	704	0.4+	0.1+	1998 06 27	699	0.2+	1.6−
1994 11 10	399	0.0	0.5+	1998 05 22	704	0.2−	1.1−	1998 06 27	699	0.2+	0.1+
1994 11 28	675	0.5+	0.9−	1998 05 22	704	1.2−	0.2+	1998 06 27	699	0.6+	1.4+
1994 11 28	675	1.3+	0.4−	1998 05 22	704	0.4−	0.3−	1998 06 30	699	0.5+	0.8−
1994 11 30	675	1.8+	0.3−	1998 05 22	704	1.0−	0.7+	1998 06 30	699	1.3+	0.2−
1994 11 30	675	0.7+	1.0−	1998 05 22	699	0.0	0.1−	1998 06 30	699	1.9+	0.2−
1994 12 03	675	0.4+	0.4−	1998 05 22	699	0.1−	0.2+				

(9403)∗ 1994 UJ$_{11}$ = 1997 GS$_{36}$

Discovered 1994 Oct. 31 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 29922)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	28.04371		(2000.0)		**P**	**Q**	
n	0.22352925	ω	222.49459		+0.51725408	+0.85268461	
a	2.6889320	Ω	78.77787		−0.76375406	+0.49856743	
e	0.0939885	i	4.28735		−0.38617088	+0.15607518	
P	4.41	H	13.3	G	0.15	U	1

Residuals in seconds of arc

1992 03 09	809	0.6−	0.2+	1997 04 07	704	1.0+	0.5+	1998 09 14	704	0.6−	0.6+
1994 10 31	691	0.9−	0.8+	1997 04 08	809	0.5+	0.3−	1998 09 14	704	1.2−	0.1−
1994 10 31	691	0.3−	0.9+	1997 04 08	809	0.1−	0.2+	1998 09 14	704	0.0	0.6−
1994 10 31	691	0.5−	0.5+	1997 04 08	809	0.1+	0.7−	1998 09 14	704	1.0−	0.2+
1994 11 01	400	0.7−	1.8+	1997 04 11	704	0.1−	0.5+	1998 09 18	704	1.0+	0.3−
1994 11 01	400	1.1+	1.5+	1997 04 11	704	0.8−	1.4+	1998 09 18	704	1.4−	0.7+
1994 11 03	400	0.5+	0.8−	1997 05 07	704	0.1+	0.7+	1998 09 18	704	0.7+	0.0
1994 11 03	400	0.1+	1.2+	1997 05 07	704	0.3+	0.6+	1998 09 18	704	0.2−	0.8+
1994 11 06	691	1.1−	0.3+	1997 05 07	704	0.1−	0.4+	1998 09 18	704	0.3+	0.6+
1994 11 06	691	1.0−	0.5+	1997 05 07	704	0.2−	0.6+	1998 09 24	699	0.5−	0.3+
1994 11 06	691	0.9−	0.1+	1997 05 07	704	0.0	0.8+	1998 09 24	699	0.7−	0.1+
1994 11 28	675	1.0+	0.0	1998 06 29	704	(0.8−	2.2−)	1998 09 24	699	0.1−	0.7+
1994 11 28	675	0.5+	0.8−	1998 06 29	704	0.4−	0.3+	1998 09 25	704	0.8−	0.4+
1994 11 30	675	0.5+	0.7−	1998 06 29	704	1.1−	1.8−	1998 09 25	704	0.3+	0.3+
1994 11 30	675	1.2+	0.7−	1998 06 29	704	0.5+	1.4−	1998 09 25	704	(2.6−	0.9+)
1994 12 03	675	0.6−	1.0−	1998 08 26	809	0.3+	1.2−	1998 09 25	704	(3.2−	2.4+)
1994 12 03	675	0.5+	0.6+	1998 08 26	809	0.3−	0.5−	1998 09 26	704	0.3+	0.1−
1996 02 10	691	0.4−	0.2+	1998 08 26	809	0.7−	0.7−	1998 09 26	704	0.2+	0.4+
1996 02 10	691	0.3+	0.2+	1998 08 27	809	(2.1−	1.2−)	1998 09 26	704	0.9+	0.8+
1996 02 10	691	0.2+	0.1+	1998 08 27	809	(2.1−	0.9−)	1998 09 27	704	0.4+	0.5+
1997 04 07	809	1.0+	0.6+	1998 08 27	809	1.5−	0.7−	1998 09 27	704	1.3+	0.7+
1997 04 07	809	1.1+	0.5+	1998 09 13	699	(2.4−	0.7−)	1998 09 27	704	0.0	0.0

1997 04 07	809	0.7+	0.1−	1998 09 13	699	0.1+	0.5−	1998 09 27	704	1.7+	0.1+
1997 04 07	704	0.8−	0.9−	1998 09 13	699	0.1+	0.5−	1998 09 27	704	1.1+	0.2+

(9404)∗ 1994 UQ_{11} = 1989 SS_8 = 1992 GR_4

Discovered 1994 Oct. 26 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 24400)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	249.83868		(2000.0)		**P**	**Q**	
n	0.21637934	ω	66.69900		+0.03060589	−0.99901863	
a	2.7478447	Ω	21.62050		+0.88237933	+0.01195760	
e	0.0921318	i	4.98491		+0.46954233	+0.04264731	
P	4.55	H	13.3	G	0.15	U	1

Residuals in seconds of arc

1989 09 25	809	0.9+	0.9+	1994 11 10	399	1.1+	1.0+	1998 09 16	699	0.1−	0.9+
1989 09 25	809	1.4+	0.4+	1996 05 20	327	1.1+	0.6+	1998 09 16	699	0.5−	0.5+
1989 09 25	809	1.4+	0.6+	1996 05 20	327	1.0+	0.7+	1998 09 16	699	0.7−	0.4−
1989 09 26	809	0.5−	1.2−	1996 05 20	327	0.7+	0.5+	1998 09 18	704	0.7+	0.1+
1989 09 26	809	0.7−	0.7−	1998 08 17	704	0.6+	1.9+	1998 09 18	704	0.7+	0.2−
1989 09 26	809	1.0−	1.0−	1998 08 17	704	1.0+	0.2−	1998 09 18	704	0.3+	0.8−
1992 04 04	809	0.8+	0.1−	1998 08 17	704	0.0	0.4−	1998 09 18	704	(0.3+	2.3−)
1992 04 04	809	0.5−	0.0	1998 08 17	704	0.6−	0.4−	1998 09 18	704	1.0−	1.0−
1992 04 04	809	0.9−	0.2−	1998 08 17	704	0.6−	0.4−	1998 09 25	704	0.7+	0.1+
1992 04 06	809	0.5−	0.4+	1998 08 23	704	0.6−	0.5+	1998 09 25	704	0.6−	0.3+
1992 04 06	809	0.1−	0.0	1998 08 23	704	0.1+	0.2+	1998 09 25	704	0.0	0.9+
1992 04 06	809	0.5−	0.8−	1998 08 23	704	0.3−	0.3+	1998 09 25	704	0.1+	0.6+
1994 10 25	399	0.5−	0.1−	1998 08 23	704	0.1−	0.6−	1998 09 25	704	0.3−	0.7+
1994 10 25	399	0.8+	0.9+	1998 08 23	704	(0.2−	2.3+)	1998 09 27	704	0.2−	0.1−
1994 10 26	399	0.9−	0.4−	1998 09 14	704	0.8−	0.3−	1998 09 27	704	0.1+	0.0
1994 10 26	399	0.7−	1.0−	1998 09 14	704	0.4−	0.4+	1998 09 27	704	0.6+	0.3−
1994 11 07	399	0.5−	0.3−	1998 09 14	704	0.4−	0.1−	1998 09 27	704	0.7+	0.1−
1994 11 07	399	1.2−	0.8−	1998 09 14	704	0.6+	0.3+	1998 09 27	704	(0.2+	2.2−)
1994 11 10	399	1.1+	0.3+	1998 09 14	704	(3.0−	1.7+)				

(9405)∗ 1994 WQ_1 = 1978 NG_6 = 1984 WC_5 = 1991 FZ_5

Discovered 1994 Nov. 27 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 24574)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	297.82362		(2000.0)		**P**	**Q**	
n	0.20205917	ω	3.52234		+0.65997408	−0.75052517	
a	2.8761863	Ω	45.18355		+0.68812200	+0.58578488	
e	0.0688145	i	2.73553		+0.30153329	+0.30588892	
P	4.88	H	13.5	G	0.15	U	1

Residuals in seconds of arc

1954 07 29	675	0.1+	0.9−	1994 11 27	411	0.3−	1.3−	1998 09 17	699	0.5−	0.0
1954 07 29	675	0.7−	1.1−	1994 11 28	411	0.1−	0.1−	1998 09 17	699	0.6−	0.3−
1978 07 10	675	(9.7+	1.5−)Y	1994 11 28	411	0.1−	0.1−	1998 09 17	699	0.9−	0.5−
1978 07 11	675	(3.5+	3.9−)Y	1994 11 28	411	0.3−	0.1−	1998 09 18	704	0.0	0.1−
1978 07 13	675	(8.0+	2.9+)Y	1994 12 04	411	0.0	0.0	1998 09 18	704	0.7−	0.7−
1984 11 21	010	2.0+	1.0+	1994 12 04	411	0.4+	0.8+	1998 09 18	704	0.1+	1.0−
1988 09 11	675	0.9+	0.6+	1996 04 07	689	0.0	0.5−	1998 09 18	704	0.6+	0.5−
1988 09 11	675	1.1+	0.8+	1996 04 08	689	(1.1+	2.2−)	1998 09 18	704	0.5−	0.7+
1989 11 28	675	0.1−	0.9+	1998 08 26	809	0.1+	0.5−	1998 09 26	704	0.4+	0.4+
1991 03 09	675	1.5+	0.5+	1998 08 26	809	0.0	0.6−	1998 09 26	704	0.8+	0.5+
1991 03 09	675	0.1+	0.0	1998 08 26	809	0.8−	0.3−	1998 09 26	704	0.2+	1.1+
1991 03 23	809	0.2−	0.4−	1998 08 27	809	0.2−	0.7−	1998 09 26	704	1.3−	1.0+
1991 03 23	809	0.3−	0.5−	1998 08 27	809	0.5+	0.0	1998 09 26	704	0.4+	0.7+
1991 03 23	809	0.6−	0.4−	1998 08 27	809	0.4+	0.2+	1998 09 27	704	0.7+	0.2−
1991 04 15	675	(3.2−	0.5+)	1998 09 14	704	0.2−	1.0−	1998 09 27	704	1.6+	0.7+
1991 04 15	675	1.4−	0.5+	1998 09 14	704	0.3−	0.9−	1998 09 27	704	1.3+	0.4+
1993 08 13	675	0.3−	0.5+	1998 09 14	704	0.5−	0.6−	1998 09 27	704	(0.3+	2.5+)
1993 08 13	675	0.7+	1.1+	1998 09 14	704	0.6−	0.6+	1998 09 27	704	1.1−	1.8−
1994 11 27	411	0.6−	0.9−	1998 09 14	704	0.9−	0.4+				

(9406)∗ 1994 WG_2

Discovered 1994 Nov. 28 by S. Ueda and H. Kaneda at Kushiro.

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	265.14201		(2000.0)		**P**	**Q**	
n	0.21884820	ω	296.26920		−0.05329612	−0.99775315	
a	2.7271398	Ω	156.67851		+0.94886369	−0.06326904	
e	0.0696317	i	5.88593		+0.31115467	+0.02203830	
P	4.50	H	13.0	G	0.15	U	1

Residuals in seconds of arc

1989 09 30	675	0.8+	0.3−	1994 11 29	399	0.4−	0.4+	1998 09 18	704	0.3−	0.4+
1989 09 30	675	0.9+	0.0	1994 12 09	399	1.2+	1.9+	1998 09 18	704	0.5−	1.1+
1991 01 18	675	(2.7−	7.1+)	1994 12 09	399	(0.2+	2.6+)	1998 09 18	704	0.2+	0.2+
1991 01 18	675	0.1−	1.1−	1997 07 11	696	0.6+	0.0	1998 09 18	704	0.8+	0.8+
1993 07 26	691	1.1−	0.6+	1997 07 11	696	0.5+	0.4+	1998 09 25	699	0.2−	0.8+
1993 07 26	691	0.9−	0.3+	1997 07 12	696	0.1−	0.0	1998 09 25	699	0.5−	0.8+
1993 07 26	691	1.1−	0.2+	1997 07 12	696	0.4+	0.5+	1998 09 25	699	0.0	0.4+
1994 10 05	033	1.0+	0.3−	1998 08 02	699	0.1−	0.8−	1998 09 26	704	0.1−	0.0
1994 10 05	033	0.2+	0.7−	1998 08 02	699	0.6−	0.7−	1998 09 26	704	0.4+	0.2+
1994 10 06	033	0.2+	0.9−	1998 08 02	699	1.2+	1.5−	1998 09 26	704	0.2+	0.9−
1994 10 28	033	0.2−	0.2+	1998 09 14	704	0.1+	0.6−	1998 09 26	704	0.6−	0.2−
1994 10 28	033	0.4−	0.2−	1998 09 14	704	0.1+	1.2−	1998 09 26	704	0.9+	0.8+
1994 11 01	033	0.6−	0.3−	1998 09 14	704	0.2−	0.8−	1998 09 27	704	0.5+	0.5−
1994 11 02	033	0.5−	0.5−	1998 09 17	699	0.1+	0.4+	1998 09 27	704	0.0	0.0
1994 11 28	399	0.2+	1.9+	1998 09 17	699	0.0	0.1+	1998 09 27	704	0.1−	0.1−
1994 11 28	399	1.4−	0.4+	1998 09 17	699	0.3+	0.0	1998 09 27	704	0.5−	0.1+
1994 11 29	399	0.3−	0.2+	1998 09 18	704	0.3−	0.2+	1998 09 27	704	0.4+	1.1−

(9407)∗ 1994 WS_3 = 1981 WX_8 = 1996 FP_{18}

Discovered 1994 Nov. 28 by S. Otomo at Kiyosato.

Id. G. V. Williams (*MPC* 28301), S. Nakano (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	288.46518		(2000.0)		**P**	**Q**	
n	0.22659538	ω	234.07893		+0.13969593	−0.98927976	
a	2.6646204	Ω	207.98141		+0.93519777	+0.14593726	
e	0.2536880	i	5.20341		+0.32540771	+0.00528002	
P	4.35	H	13.8	G	0.15	U	1

Residuals in seconds of arc

1981 11 25	095	0.1+	0.5+	1995 01 20	381	0.3+	0.0	1996 04 17	809	0.7−	0.5−
1994 11 27	675	0.4+	0.6−	1995 01 20	381	0.2+	0.0	1996 04 17	809	0.3−	1.8−
1994 11 27	675	0.5+	0.6−	1995 01 20	381	0.3+	0.0	1996 04 17	809	0.7−	2.1−
1994 11 28	894	(2.7+	0.8+)	1995 01 20	381	0.8+	0.2+	1998 08 23	704	0.2+	1.3+
1994 11 28	894	1.3+	0.0	1995 01 20	381	0.7+	0.3+	1998 08 23	704	0.9+	1.3−
1994 11 30	894	0.0	2.1+	1995 01 20	381	0.4+	0.1+	1998 08 23	704	0.1+	0.4+
1994 11 30	894	0.2+	0.4+	1995 01 20	381	0.3+	0.1+	1998 09 14	704	0.6+	0.1+
1994 12 01	691	0.8−	0.0	1995 01 20	381	0.3+	0.1+	1998 09 14	704	0.2−	0.1+
1994 12 01	691	0.8−	0.0	1995 01 20	381	0.2+	0.0	1998 09 14	704	0.8+	0.3+
1994 12 01	691	0.9−	0.4−	1995 01 20	381	0.2+	0.1−	1998 09 18	704	0.8+	0.6+
1994 12 02	905	(2.3+	0.9+)	1995 01 20	381	0.2+	0.1+	1998 09 18	704	1.2+	0.9+
1994 12 02	905	0.4−	0.8+	1995 01 20	381	0.2+	0.1−	1998 09 18	704	0.2−	0.0
1994 12 06	894	0.9−	0.1−	1995 01 20	381	0.1−	0.7−	1998 09 18	704	1.0+	0.3+
1994 12 06	894	1.1−	0.6−	1995 01 20	381	0.3+	0.9+	1998 09 18	704	0.0	0.8+
1994 12 09	894	1.2−	0.8−	1995 01 20	381	0.2−	0.1−	1998 09 25	699	0.5−	0.9+
1994 12 09	894	1.3+	0.4+	1995 01 20	381	0.1+	0.3+	1998 09 25	699	0.5−	0.6+
1994 12 23	894	(3.1−	0.4+)	1995 01 20	381	0.3+	0.1+	1998 09 25	699	0.3−	0.9+
1994 12 23	894	1.5−	0.3+	1996 03 22	809	(2.4+	0.2+)	1998 09 26	704	0.7−	0.5+
1994 12 28	894	1.5−	1.1+	1996 03 22	809	1.0+	0.0	1998 09 26	704	0.7+	0.5−
1994 12 28	894	0.9−	0.2−	1996 03 22	809	1.6+	0.0	1998 09 26	704	0.2−	0.4−
1995 01 05	033	1.0+	1.1−	1996 03 24	809	0.9−	0.7+	1998 09 26	704	0.6−	0.2−
1995 01 05	033	0.7−	0.5+	1996 03 24	809	1.8−	1.7+	1998 09 26	704	0.2+	0.3+
1995 01 20	381	0.2+	0.0	1996 03 24	809	1.1−	1.3+	1998 09 27	704	0.7−	0.0
1995 01 20	381	0.4+	0.2+	1996 03 26	809	2.0+	0.7+	1998 09 27	704	1.0−	0.4+
1995 01 20	381	0.3+	0.1+	1996 03 26	809	1.2+	1.4+	1998 09 27	704	1.0−	0.3+
1995 01 20	381	0.3+	0.1+	1996 03 26	809	0.9+	1.9+	1998 09 27	704	0.7−	0.3−

1995 01 20	381	0.4+	0.0	1996 03 27	809	0.2+	2.1+	1998 09 27	704	0.8−	0.6−
1995 01 20	381	0.4+	0.0	1996 03 27	809	0.3+	1.2+				
1995 01 20	381	0.4+	0.0	1996 03 27	809	0.3+	1.8+				

(9408)∗ 1995 BC = 1978 TS$_4$ = 1988 TH$_5$ = 1993 TD$_{48}$

Discovered 1995 Jan. 20 by T. Kobayashi at Oizumi.

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

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	321.12533		(2000.0)		**P**	**Q**	
n	0.19442505	ω	266.86370		+0.92689791	−0.37199378	
a	2.9509911	Ω	114.97031		+0.36246757	+0.85283045	
e	0.1126606	*i*	3.14967		+0.09735257	+0.36647080	
P	5.07	*H*	13.4	*G*	0.15	*U*	1

Residuals in seconds of arc

1978 10 07	095	0.1−	1.0−	1995 01 24	411	0.2−	0.7−	1998 09 14	704	1.1+	0.7−
1988 09 10	675	0.6+	0.1+	1995 01 30	411	0.0	0.7+	1998 09 18	704	0.5+	0.0
1988 09 10	675	0.1+	1.6−	1995 01 30	411	0.0	0.1+	1998 09 18	704	0.6+	0.1−
1988 10 07	675	0.9+	1.2−	1995 01 30	411	0.4+	0.2−	1998 09 18	704	0.7+	0.6−
1988 10 07	675	0.9+	0.5−	1995 02 06	411	0.3+	0.9−	1998 09 18	704	0.7+	0.8−
1993 09 21	675	0.4−	0.3−	1995 02 06	411	0.4+	1.0−	1998 09 18	704	0.7+	0.8+
1993 09 21	675	0.1−	0.7−	1995 02 06	411	0.3+	0.3+	1998 09 25	704	0.3−	0.5−
1993 10 10	675	0.4+	1.0+	1996 03 12	691	0.3−	1.0−	1998 09 25	704	0.4−	0.0
1993 10 10	675	0.4−	1.4+	1996 03 12	691	0.3−	0.9−	1998 09 25	704	1.0−	1.0+
1994 11 30	691	0.7−	0.1+	1996 03 12	691	0.5−	0.5−	1998 09 25	704	0.5−	0.3+
1994 11 30	691	0.7−	0.2+	1998 08 23	704	1.2−	0.4−	1998 09 25	704	0.6−	1.4+
1994 11 30	691	1.1−	0.1+	1998 08 23	704	0.0	0.1+	1998 09 27	704	0.5−	0.1+
1995 01 20	411	0.6−	0.2−	1998 08 23	704	2.1−	0.5+	1998 09 27	704	0.0	0.2+
1995 01 20	411	1.4+	0.1−	1998 08 23	704	0.3−	0.4−	1998 09 27	704	0.7−	0.5−
1995 01 23	411	0.3+	0.6+	1998 08 23	704	0.6+	0.5+	1998 09 27	704	0.2+	1.1−
1995 01 23	411	0.2+	0.4+	1998 09 14	704	0.1+	0.7+	1998 09 27	704	0.3+	0.2−
1995 01 23	411	0.0	1.0+	1998 09 14	704	0.8+	0.0				
1995 01 24	411	0.2+	0.6+	1998 09 14	704	0.3+	0.5+				

(9409)∗ 1995 BG$_1$ = 1971 SB$_2$ = 1971 TF$_1$ = 1979 GE

Discovered 1995 Jan. 25 by T. Seki at Geisei.

Id. T. Kobayashi (*MPC* 25333)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	283.95763		(2000.0)		**P**	**Q**	
n	0.17885112	ω	6.56449		+0.39728740	−0.91731544	
a	3.1199067	Ω	60.02967		+0.84057796	+0.35222424	
e	0.2153749	*i*	1.74404		+0.36822740	+0.18566227	
P	5.51	*H*	13.1	*G*	0.15	*U*	1

Residuals in seconds of arc

1971 09 23	095	0.9+	1.6+	1996 04 18	809	0.4+	1.4+	1998 09 14	704	1.1+	0.3+
1971 10 11	095	0.5+	0.1−	1996 04 18	809	0.1+	0.2+	1998 09 14	704	0.1+	0.1−
1979 03 31	095	2.1−	0.7+	1996 05 19	809	1.5+	0.3+	1998 09 14	704	0.1+	0.0
1979 04 01	809	2.2−	0.4+	1996 05 19	809	1.0+	0.2−	1998 09 14	704	0.0	0.6+
1979 04 02	809	1.4−	0.2−	1996 05 19	809	0.6−	0.7+	1998 09 14	704	0.0	0.5+
1995 01 25	372	1.0−	0.6+	1998 08 17	704	0.5+	0.3−	1998 09 16	699	1.3−	1.4−
1995 01 25	372	1.7+	1.5+	1998 08 17	704	0.8+	0.1−	1998 09 16	699	1.7+	0.6−
1995 01 31	033	0.1+	0.0	1998 08 17	704	0.2+	0.1−	1998 09 16	699	0.6+	0.1+
1995 02 03	033	0.6+	0.4+	1998 08 17	704	0.6+	0.0	1998 09 25	704	0.3+	1.0−
1995 02 03	033	0.1+	0.2+	1998 08 17	704	0.9+	1.1−	1998 09 25	704	0.3−	0.5−
1995 02 22	033	0.1+	0.5−	1998 08 23	699	0.0	0.2+	1998 09 25	704	0.0	0.2+
1995 02 23	033	0.1+	0.0	1998 08 23	704	0.2+	0.0	1998 09 25	704	1.7−	0.7+
1995 02 24	033	0.2+	0.2−	1998 08 23	704	0.3−	0.4−	1998 09 27	704	0.0	0.5+
1996 04 17	809	0.9+	0.4−	1998 08 23	699	0.2−	0.5−	1998 09 27	704	0.7+	0.2−
1996 04 17	809	0.6+	0.2−	1998 08 23	704	1.1−	0.9−	1998 09 27	704	1.3−	0.6+
1996 04 17	809	0.9+	1.2−	1998 08 23	699	0.0	0.8+	1998 09 27	704	1.0−	0.9+
1996 04 18	809	1.2+	0.1−	1998 08 23	704	2.1−	0.7+	1998 09 27	704	1.8−	1.7+

(9410)∗ 1995 BJ$_1$ = 1978 EH$_6$

Discovered 1995 Jan. 26 by T. Urata at the Nihondaira Observatory.

Id. S. Nakano (*MPC* 27109)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	215.98539		(2000.0)		**P**	**Q**	
n	0.17006215	ω	24.45133		−0.52588206	−0.84962687	
a	3.2264946	Ω	97.29856		+0.77361984	−0.49722619	
e	0.1344517	*i*	2.29832		+0.35349739	−0.17578483	
P	5.80	*H*	12.4	*G*	0.15	*U*	1

Residuals in seconds of arc

1978 03 06	095	(2.0−	3.3−)	1996 03 24	809	2.0+	1.8+	1997 07 02	704	0.1−	0.8+
1990 03 27	675	1.6−	0.6−	1996 03 24	809	0.7+	1.7+	1997 07 02	704	0.1−	0.5+
1990 03 27	675	0.3−	0.1−	1996 03 27	809	1.2+	0.5+	1997 07 02	704	0.3+	0.7+
1990 04 01	675	0.4+	1.7−	1996 03 27	809	0.2+	1.2+	1997 07 04	385	0.1−	0.1+
1990 04 01	675	0.3−	1.1−	1996 03 27	809	0.5−	0.3+	1997 07 04	385	0.4−	1.4+
1990 04 22	675	0.5−	1.7−	1996 04 23	385	0.8−	0.4−	1997 07 12	817	0.9+	0.2+
1990 04 22	675	0.4−	1.6−	1996 04 23	385	0.6−	0.3−	1997 07 12	817	0.5−	0.8+
1995 01 26	385	0.1+	0.2+	1996 04 23	385	0.5−	0.3−	1997 07 12	817	0.6+	0.5−
1995 01 26	385	0.1+	0.2+	1996 04 24	385	0.3−	0.3+	1998 08 17	704	0.1+	0.4+
1995 01 26	385	0.5+	0.2−	1996 04 24	385	0.8−	0.1−	1998 08 17	704	0.7−	0.6+
1995 01 28	385	0.1+	0.3−	1996 04 24	385	1.1−	0.6−	1998 08 17	704	(0.6−	2.3+)
1995 01 28	385	0.2+	0.4−	1996 05 09	385	0.8−	0.4+	1998 08 17	704	2.0−	1.1−
1995 01 31	887	0.2+	0.2+	1996 05 09	385	0.2−	0.3−	1998 08 17	704	0.8−	0.9+
1995 01 31	887	0.2+	0.1+	1996 05 13	566	0.2+	0.2+	1998 08 23	704	0.4+	0.3+
1995 01 31	887	0.1+	0.3+	1996 05 13	566	0.6+	0.1−	1998 08 23	704	0.3−	0.3+
1995 01 31	560	0.0	0.7+	1996 05 13	566	0.2+	0.1−	1998 08 23	704	0.7+	1.6−
1995 01 31	560	0.8−	0.0	1996 05 15	385	0.1−	0.1−	1998 08 23	704	0.1−	1.2−
1995 01 31	560	0.1+	0.2−	1996 05 15	385	0.2−	0.4−	1998 09 14	704	0.5−	0.2−
1995 02 01	560	0.2+	0.3+	1996 05 15	385	0.2−	0.1+	1998 09 14	704	0.1−	0.8+
1995 02 01	560	0.1−	0.2+	1996 06 08	809	(1.4−	3.8−)	1998 09 14	704	0.3−	0.3+
1995 02 01	560	1.1−	0.7+	1996 06 08	809	(1.2−	4.3−)	1998 09 14	704	1.0−	1.5+
1995 02 04	560	(2.2−	0.5−)	1996 06 08	809	(1.1−	4.3−)	1998 09 14	704	0.2−	1.2+
1995 02 04	560	0.1−	0.3−	1996 06 10	809	1.1+	1.3−	1998 09 18	704	0.2−	0.7−
1995 02 04	560	0.4+	1.2+	1996 06 10	809	0.2−	1.0−	1998 09 18	704	0.7+	0.2+
1995 02 05	560	(4.7+	0.9−)	1996 06 10	809	0.0	1.0−	1998 09 18	704	0.2+	1.4−
1995 02 05	560	(3.2+	0.5+)	1997 06 28	704	0.7−	0.4+	1998 09 18	704	0.6−	0.2+
1995 02 05	560	0.5+	0.9+	1997 06 28	704	0.6+	0.3−	1998 09 25	704	0.1+	0.3+
1995 02 21	887	0.4−	0.2+	1997 06 28	704	0.5−	0.0	1998 09 25	704	1.2+	0.9−
1995 02 21	887	0.3−	0.1+	1997 06 29	704	0.1−	0.5+	1998 09 25	704	1.2+	1.3−
1995 02 21	887	0.2−	0.1+	1997 06 29	704	0.0	0.4+	1998 09 25	704	1.5+	1.4−
1995 03 01	887	0.3+	0.2−	1997 06 29	704	0.7−	0.7+	1998 09 25	704	0.3+	1.9−
1995 03 01	887	0.1+	0.1−	1997 06 29	704	0.3−	0.9+	1998 09 27	704	1.0+	0.6−
1995 03 01	887	0.2+	0.1−	1997 07 02	704	0.9−	0.4+	1998 09 27	704	1.3+	0.4+
1996 03 24	809	1.9+	1.1+	1997 07 02	704	0.4+	0.1+	1998 09 27	704	0.5+	0.8+

(9411)∗ 1995 CF = 1989 AK$_5$ = 1991 LF$_7$ = 1993 UT$_3$

Discovered 1995 Feb. 1 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 24906)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	296.62279		(2000.0)		**P**	**Q**	
n	0.17276441	ω	299.80317		+0.60904225	−0.78648339	
a	3.1927619	Ω	112.31845		+0.76057458	+0.54247814	
e	0.1549930	*i*	6.36302		+0.22493076	+0.29523099	
P	5.70	*H*	13.0	*G*	0.15	*U*	1

Residuals in seconds of arc

1989 01 04	413	1.3−	0.7+	1995 02 08	411	0.2+	0.7+	1998 09 18	704	1.1+	0.2−
1989 01 04	413	0.6−	0.1−	1998 08 17	704	0.6+	0.5+	1998 09 18	704	1.3+	0.4−
1989 01 10	413	1.4+	0.2−	1998 08 17	704	0.9−	0.5−	1998 09 18	704	0.9+	1.3−
1989 01 10	413	1.4+	0.7−	1998 08 17	704	0.1−	0.1+	1998 09 22	699	0.5−	0.1+
1991 06 08	809	0.2−	0.7−	1998 08 17	704	0.2−	0.1−	1998 09 22	699	0.2−	0.7+
1991 06 08	809	0.1+	0.6−	1998 08 17	704	1.4−	0.7−	1998 09 22	699	0.3+	0.3+
1991 06 08	809	0.9−	1.1−	1998 08 23	704	0.2−	0.8−	1998 09 25	704	0.5−	0.2−
1993 10 16	033	0.7−	1.4−	1998 08 23	704	1.8−	1.0+	1998 09 25	704	0.7−	0.0
1993 10 16	033	0.3+	0.6−	1998 08 23	704	0.3+	0.6+	1998 09 25	704	1.1−	0.4+
1993 10 18	033	0.0	0.3−	1998 08 23	704	1.6−	0.1+	1998 09 25	704	0.7+	0.7−

1995 02 01	411	1.1+	0.2−	1998 08 23	704	0.1−	0.1+	1998 09 27	704	0.3−	0.2−
1995 02 01	411	0.7−	0.2+	1998 09 14	704	0.7+	0.0	1998 09 27	704	0.5+	0.5+
1995 02 03	411	0.3+	1.0−	1998 09 14	704	0.6+	0.4+	1998 09 27	704	1.0+	1.0+
1995 02 03	411	1.5−	0.2−	1998 09 14	704	0.4+	1.0+	1998 09 27	704	0.3+	0.0
1995 02 07	411	0.3+	0.1−	1998 09 14	704	0.8+	0.2+	1998 09 27	704	0.4−	0.2−
1995 02 07	411	0.3+	0.2+	1998 09 18	704	0.9+	0.6−				
1995 02 08	411	0.6−	0.5−	1998 09 18	704	0.2+	1.3−				

(9412)∗ 1995 GZ$_8$ = 1941 SC$_1$ = 1941 SR$_2$ = 1980 FQ = 1988 PK$_3$ = 1991 FR$_1$ = 1996 QJ$_3$

Discovered 1995 Apr. 4 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 32463; unpublished)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	148.17350		(2000.0)		**P**	**Q**	
n	0.26777985	ω	206.30641		+0.97386558	−0.22645824	
a	2.3838785	Ω	166.74740		+0.21946159	+0.91851876	
e	0.0746080	*i*	4.35111		+0.05850162	+0.32409869	
P	3.68	*H*	14.0	*G*	0.15	*U*	2

Residuals in seconds of arc

1941 09 21	053	(44.6−	62.4−)X	1991 03 17	809	0.3−	0.6+	1996 08 18	010	0.9+	1.6+
1941 09 29	053	(71.8+	14.7−)X	1991 03 17	809	0.3−	0.6+	1996 08 20	010	1.6−	1.0+
1980 03 16	809	0.0	0.2+	1991 03 20	809	0.7+	1.1+	1996 08 20	010	0.6−	0.9+
1980 03 16	809	0.2+	0.3+	1991 03 20	809	0.9+	1.1+	1996 08 20	010	0.6−	1.2+
1980 03 16	809	0.0	0.1−	1991 03 20	809	1.6+	1.0+	1997 12 30	566	0.4+	0.2+
1980 03 16	809	0.1+	1.0+	1995 04 04	399	(2.5−	1.1+)	1997 12 30	566	0.4+	0.0
1980 03 17	809	0.1−	0.6+	1995 04 04	399	0.1−	1.4−	1997 12 30	566	0.3+	0.1+
1980 03 17	809	0.1−	0.5+	1995 04 20	399	0.8−	0.6+	1998 02 26	566	(2.4+	0.3−)
1980 03 17	809	0.2−	0.4+	1995 04 20	399	0.8+	1.4−	1998 02 26	566	1.1+	0.5−
1980 03 17	809	0.8+	0.4−	1995 04 27	399	0.7+	1.0+	1998 02 26	566	1.1+	0.8−
1988 08 04	413	0.5+	1.4−	1995 04 27	399	0.7−	0.1+	1998 03 31	910	1.6−	0.3+
1988 08 04	413	1.2−	1.3−	1996 08 18	010	0.1−	0.8+	1998 03 31	910	1.6−	0.3+
1991 03 17	809	0.2−	0.9+	1996 08 18	010	0.0	1.3+	1998 03 31	910	1.7−	0.5+

(9413)∗ 1995 SQ$_{54}$ = 1997 EU$_{33}$

Discovered 1995 Sept. 21 by F. Börngen at Tautenburg.

Id. G. V. Williams (*MPC* 29624)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	304.18357		(2000.0)		**P**	**Q**	
n	0.27475396	ω	257.45360		+0.88489544	+0.46064747	
a	2.3433657	Ω	75.08289		−0.39480461	+0.82038931	
e	0.1915686	*i*	4.09605		−0.24716267	+0.33877027	
P	3.59	*H*	15.1	*G*	0.15	*U*	2

Residuals in seconds of arc

1988 11 06	675	0.4+	0.4+	1998 05 15	113	0.1−	0.8+	1998 06 18	704	0.9−	1.1+
1988 11 06	675	0.5−	0.1+	1998 05 15	113	0.0	0.9+	1998 06 18	704	(3.2−	1.8−)
1995 09 21	033	0.8+	0.1+	1998 05 22	704	0.3+	0.4−	1998 06 21	688	0.0	0.3+
1995 09 21	033	1.0−	0.2−	1998 05 22	704	0.2+	1.7+	1998 06 21	688	0.2+	0.1+
1995 09 23	033	0.1+	0.5+	1998 05 22	704	0.6+	0.1−	1998 06 21	688	0.2−	0.3+
1995 10 23	033	0.2−	0.2−	1998 05 22	704	0.2−	1.0−	1998 06 27	699	0.6−	0.1+
1995 10 23	033	0.8−	0.2−	1998 05 24	704	0.4−	0.9−	1998 06 27	699	0.6+	0.3+
1995 10 24	033	0.8+	0.8+	1998 05 24	704	0.1+	1.2−	1998 06 27	699	0.6−	0.5+
1995 10 25	033	0.1−	0.0	1998 05 24	704	0.5+	0.4+	1998 06 29	699	0.9+	0.4−
1997 03 04	704	0.1−	1.7+	1998 05 24	704	0.9+	0.9+	1998 06 29	699	0.1+	0.4+
1997 03 04	704	0.8+	0.1−	1998 05 24	704	1.8−	0.1+	1998 06 29	699	0.3−	0.4−
1997 03 06	704	(3.5−	0.2+)	1998 06 18	704	1.0+	1.8−				
1997 03 06	704	0.4−	0.7−	1998 06 18	704	0.1−	0.3−				

(9414)∗ 1995 UV$_4$ = 1952 HU$_2$ = 1987 ST$_{29}$ = 1991 VG$_5$

Discovered 1995 Oct. 25 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 26181)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	68.91762		(2000.0)		**P**	**Q**	
n	0.26116712	ω	182.88266		−0.50897306	+0.84259587	
a	2.4239503	Ω	56.58470		−0.78547432	−0.37099128	
e	0.1353381	*i*	12.17293		−0.35210298	−0.39038145	
P	3.77	*H*	12.5	*G*	0.15	*U*	1

Residuals in seconds of arc

1952 04 26	711	(9.1−	3.2−)Y	1995 11 16	399	1.1−	0.1+	1997 03 01	367	0.0	0.3−
1952 04 26	711	0.3−	0.6− Y	1995 11 16	399	1.7−	0.3+	1998 08 29	423	0.0	0.7+
1987 09 24	095	(4.8−	3.0−)	1995 11 17	399	0.5−	0.4−	1998 08 29	423	0.0	0.4+
1991 11 04	894	0.3+	0.6+	1995 11 17	399	1.2−	0.2−	1998 08 29	423	0.1+	0.8+
1991 11 11	894	0.1+	0.2+	1995 11 18	369	0.2+	0.1+	1998 09 21	704	0.1+	0.6+
1991 11 11	894	1.4+	0.8−	1995 11 18	369	0.0	0.2+	1998 09 21	704	0.1+	0.3−
1994 07 12	675	1.6−	0.9+	1995 11 18	369	0.0	0.0	1998 09 21	704	0.7+	1.2−
1994 07 12	675	(2.3−	0.9+)	1995 11 21	691	1.0−	0.2+	1998 09 21	704	0.1−	1.0−
1995 10 25	411	1.4+	0.9+	1995 11 21	691	1.2−	0.2−	1998 09 21	704	(1.9−	2.6−)
1995 10 25	411	0.2+	0.5−	1995 11 21	691	0.8−	0.0	1998 09 27	423	0.2+	0.2+
1995 10 26	411	0.7+	0.6+	1995 11 27	046	0.5−	0.2+	1998 09 28	423	0.1−	0.5−
1995 10 26	411	1.8+	0.2+	1995 11 27	046	1.7−	1.6+	1998 09 28	423	0.5−	0.0
1995 11 02	411	0.7+	0.2−	1995 11 27	046	1.0+	0.6−	1998 09 28	423	0.1+	0.0
1995 11 02	411	0.7+	0.4−	1995 11 27	046	1.0+	0.5−	1998 09 29	423	0.3+	0.4−
1995 11 15	691	0.8−	0.0	1995 11 27	046	1.0+	0.4−	1998 09 29	423	0.6+	0.0
1995 11 15	691	0.7−	0.2−	1995 11 27	046	1.0+	0.5−	1998 09 29	423	0.5+	0.4−
1995 11 15	691	0.5−	0.4−	1997 03 01	367	0.1+	0.4−				

(9415)∗ 1995 VE = 1984 MC = 1997 GT$_6$

Discovered 1995 Nov. 1 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 29626)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	309.55875		(2000.0)		**P**	**Q**	
n	0.30182407	ω	35.30048		+0.76046852	−0.64935652	
a	2.2010680	Ω	5.20068		+0.58275352	+0.67912051	
e	0.0705065	*i*	3.08097		+0.28650648	+0.34224470	
P	3.27	*H*	15.3	*G*	0.15	*U*	2

Residuals in seconds of arc

1984 06 21	691	0.7+	1.6+	1997 04 06	704	0.4+	0.7+	1998 09 18	704	0.3−	1.6−
1995 11 01	411	1.2−	0.1−	1997 04 06	704	0.5−	0.1−	1998 09 18	704	0.9+	1.5−
1995 11 01	411	0.3−	0.3−	1997 04 08	704	0.6−	1.0+	1998 09 20	327	0.1+	0.3−
1995 11 02	411	1.2−	0.3−	1997 04 08	704	0.8−	1.7+	1998 09 20	327	0.0	0.2−
1995 11 02	411	1.0−	0.0	1997 04 30	704	0.5+	0.3−	1998 09 20	327	0.7−	0.8−
1995 11 03	411	0.1−	0.8−	1997 04 30	704	0.7+	0.1−	1998 09 26	704	0.5−	0.8+
1995 11 03	411	0.6+	0.5+	1997 04 30	704	0.7+	0.4−	1998 09 26	704	0.4+	0.6+
1995 11 11	411	0.3−	0.5−	1997 04 30	704	0.1−	0.1−	1998 09 26	704	0.4+	0.1−
1995 11 11	411	0.6−	0.6+	1997 04 30	704	0.2−	0.3−	1998 09 26	704	0.2+	0.0
1995 11 24	587	1.6+	1.7+	1998 08 27	327	0.1−	0.2+	1998 09 27	704	0.3−	0.2+
1995 11 24	587	0.8+	0.8+	1998 08 27	327	0.0	0.2+	1998 09 27	704	0.3−	0.7+
1995 11 24	587	1.6+	0.2+	1998 08 27	327	0.0	0.1+	1998 09 27	704	0.3−	0.2+
1995 11 26	411	0.4+	0.4−	1998 09 04	327	0.6−	0.3+	1998 09 27	704	0.1+	0.3+
1995 11 26	411	0.1−	0.3+	1998 09 04	327	0.7−	0.1+	1998 09 27	704	0.3−	0.1+
1995 11 28	587	0.9+	0.3+	1998 09 04	327	0.3−	0.0	1998 09 29	327	0.7+	0.3+
1995 11 28	587	0.2+	0.1−	1998 09 15	699	0.4−	0.4+	1998 09 29	327	1.5+	0.6+
1995 11 29	587	0.9−	0.1−	1998 09 15	699	0.9−	0.4+	1998 09 29	327	0.8+	0.6+
1995 11 29	587	0.7−	0.4+	1998 09 15	699	0.5+	0.8−	1998 09 30	327	0.3−	0.3+
1995 11 29	587	0.5−	0.3−	1998 09 18	704	0.5−	0.2+	1998 09 30	327	0.2+	0.5+
1997 04 02	704	0.2+	0.1−	1998 09 18	704	(0.2+	2.5−)	1998 09 30	327	0.1−	0.1−
1997 04 02	704	0.0	0.5−	1998 09 18	704	0.1−	0.7−				

(9416)∗ 1995 WS = 1981 UH$_{12}$ = 1987 KY$_2$ = 1993 BU$_{14}$

Discovered 1995 Nov. 17 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 26407)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	308.37496		(2000.0)		**P**	**Q**	
n	0.28345385	ω	102.44799		+0.96537267	−0.25201407	
a	2.2951680	Ω	272.17780		+0.20538710	+0.89355309	
e	0.1688414	i	3.86821		+0.16084698	+0.37155320	
P	3.48	H	15.0	G	0.15	U	1

Residuals in seconds of arc

1981 10 22	095	0.8+	0.2+	1995 11 18	399	1.2−	0.2+	1998 08 17	704	0.4−	0.7−
1981 10 24	095	0.7−	0.2+	1995 11 24	411	0.0	0.3−	1998 08 18	566	0.1−	0.1+
1987 05 30	413	0.6−	0.9+	1995 11 24	411	0.5+	0.0	1998 08 18	566	0.1−	0.2+
1987 05 30	413	0.3+	0.2+	1995 11 25	399	1.3−	0.0	1998 08 18	566	0.2−	0.3+
1993 01 23	809	0.1−	1.8−	1995 11 25	399	(2.3−	0.2−)	1998 08 23	704	0.1+	0.2−
1993 01 28	809	(3.4+	3.7−)	1995 11 28	411	0.3+	0.5−	1998 08 23	704	0.9+	0.0
1993 01 28	809	(1.1+	4.3−)	1995 11 28	411	1.0−	1.6−	1998 08 23	704	0.1+	0.8+
1995 11 17	411	0.1+	1.0+	1998 07 20	566	1.1−	0.5−	1998 08 23	704	1.0+	1.1+
1995 11 17	411	0.6+	0.9+	1998 07 20	566	0.0	0.2−	1998 08 23	704	0.7+	0.8−
1995 11 17	327	0.9+	0.6+	1998 07 20	566	1.0−	0.4−	1998 09 12	411	0.6+	0.0
1995 11 17	327	0.7+	0.4+	1998 08 12	411	0.2−	0.4−	1998 09 12	411	0.2+	0.6−
1995 11 17	327	0.1−	0.2+	1998 08 12	411	0.4−	0.6+	1998 09 17	910	0.3+	0.4−
1995 11 18	411	0.4−	0.1−	1998 08 17	704	0.2+	0.4−	1998 09 17	910	0.2+	0.5−
1995 11 18	411	0.3+	0.0	1998 08 17	704	0.1−	0.4+	1998 09 17	910	0.2+	0.5−
1995 11 18	399	(1.0−	2.2+)	1998 08 17	704	0.2−	0.2+				

(9417)∗ 1995 WU = 1989 DM = 1994 RF$_5$

Discovered 1995 Nov. 17 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 26408)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	215.66940		(2000.0)		**P**	**Q**	
n	0.26891283	ω	219.35472		−0.63230340	−0.76835868	
a	2.3771780	Ω	270.09670		+0.73344354	−0.55250864	
e	0.2192528	i	5.68635		+0.24950549	−0.32304666	
P	3.67	H	13.7	G	0.15	U	2

Residuals in seconds of arc

1989 02 28	809	1.0−	0.8−	1995 11 24	411	0.6+	0.2+	1998 09 14	704	0.0	0.7−
1989 02 28	809	0.8−	0.7−	1995 11 29	411	0.0	0.8+	1998 09 14	704	1.6+	0.9+
1989 02 28	809	0.5−	0.9−	1995 11 29	411	0.6−	0.5+	1998 09 14	704	0.0	0.8−
1989 03 01	809	0.2−	0.1+	1995 12 17	399	1.8−	0.3+	1998 09 14	704	0.1+	0.3+
1989 03 01	809	0.1−	0.0	1995 12 17	399	0.4−	0.3+	1998 09 15	699	0.2−	0.4+
1989 03 01	809	0.2+	0.1−	1995 12 19	399	(2.4−	0.1+)	1998 09 15	699	0.1+	0.4+
1989 03 02	809	0.4+	0.5−	1995 12 19	399	1.2−	0.7−	1998 09 15	699	0.0	0.2+
1989 03 02	809	0.5+	0.6−	1997 06 23	689	1.1−	0.6−	1998 09 18	704	1.1−	0.2+
1989 03 02	809	0.7+	0.7−	1998 08 17	704	1.2+	0.2−	1998 09 18	704	0.9−	0.5−
1993 04 19	675	0.4−	0.3+	1998 08 17	704	0.9+	0.2+	1998 09 18	704	0.4−	1.1−
1993 04 19	675	1.3+	1.7+	1998 08 17	704	0.8+	0.2−	1998 09 18	704	1.0−	1.1−
1994 09 06	691	0.9−	0.4−	1998 08 17	704	(2.3+	0.3+)	1998 09 25	704	0.1−	0.3−
1994 09 06	691	0.7−	0.5−	1998 08 17	704	0.0	1.4+	1998 09 25	704	0.2+	0.3−
1994 09 06	691	0.6−	0.4−	1998 08 23	704	1.1+	0.0	1998 09 25	704	0.7−	0.2−
1994 09 08	691	0.5−	0.3−	1998 08 23	704	0.6+	0.8−	1998 09 25	704	0.3+	0.2+
1994 09 08	691	0.4−	0.5−	1998 08 23	704	(2.2−	0.6+)	1998 09 25	704	0.3−	0.8+
1994 09 08	691	0.4−	0.4−	1998 08 23	704	0.1+	1.1−	1998 09 27	704	0.5−	0.8−
1995 11 17	411	0.1+	0.2+	1998 08 23	704	0.7−	1.3+	1998 09 27	704	0.2−	0.4+
1995 11 17	411	0.9+	0.1−	1998 08 30	699	1.4+	1.0+	1998 09 27	704	0.7+	0.6+
1995 11 18	411	0.0	0.1+	1998 08 30	699	0.1−	0.4−	1998 09 27	704	2.0+	0.4−
1995 11 18	411	0.1+	0.0	1998 08 30	699	0.2+	0.5+	1998 09 27	704	1.1+	0.2−
1995 11 24	411	0.7+	0.2−	1998 09 14	704	0.2+	0.4−				

(9418)∗ 1995 WX$_5$ = 1982 VL$_8$ = 1998 QH$_{46}$

Discovered 1995 Nov. 18 by N. Sato and T. Urata at Chichibu.

Id. G. V. Williams (*MPC* 32466)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	320.63815		(2000.0)		**P**	**Q**	
n	0.30426952	ω	309.90820		+0.96412680	−0.26506230	
a	2.1892587	Ω	65.46667		+0.24805170	+0.88063523	
e	0.2035149	i	0.89406		+0.09449799	+0.39271307	
P	3.24	H	16.1	G	0.15	U	1

Residuals in seconds of arc

1982 11 09	095	0.2+	0.5−	1995 11 29	369	0.8+	0.2−	1998 08 23	704	1.8−	0.5+
1995 11 16	369	(2.3+	2.7−)	1995 11 29	369	0.6+	0.7−	1998 08 23	704	0.6+	0.5−
1995 11 16	369	0.9+	1.1−	1995 12 12	887	0.2+	0.0	1998 08 23	704	0.8−	1.7−
1995 11 16	369	0.1−	0.4+	1995 12 12	887	0.4+	0.4+	1998 08 23	704	0.7+	1.6+
1995 11 18	369	0.4−	0.3+	1995 12 12	887	0.0	1.2+	1998 08 30	699	0.2−	0.2+
1995 11 18	369	0.2−	0.3−	1995 12 12	887	0.5+	0.3+	1998 08 30	699	0.8+	0.1+
1995 11 18	369	0.1+	0.2+	1997 04 10	327	0.8+	0.1+	1998 08 30	699	0.4+	0.2+
1995 11 20	691	0.9−	0.3−	1997 04 10	327	0.5+	0.7+	1998 09 25	704	1.0−	0.1−
1995 11 20	691	0.9−	0.0	1997 04 10	327	0.8+	0.2−	1998 09 25	704	0.4−	0.3−
1995 11 20	691	0.7−	0.0	1997 05 09	691	0.8−	0.3−	1998 09 25	704	0.4+	0.2+
1995 11 24	369	0.6+	0.4+ Y	1997 05 09	691	0.4−	0.0	1998 09 25	704	0.5−	0.2+
1995 11 24	369	0.5−	0.1+ Y	1997 05 09	691	1.3−	0.3−	1998 09 25	704	0.8−	1.6+
1995 11 24	369	0.5+	0.6+	1998 08 17	704	0.0	0.0	1998 09 27	704	0.7+	0.2+
1995 11 27	691	1.0−	0.2+	1998 08 17	704	0.1+	0.3−	1998 09 27	704	1.3+	0.9−
1995 11 27	691	0.9−	0.2−	1998 08 17	704	0.8−	0.9−	1998 09 27	704	0.6+	1.3−
1995 11 27	369	0.2+	0.1+	1998 08 17	704	0.5−	0.4+	1998 09 27	704	1.2+	1.7−
1995 11 27	369	0.3+	0.2+	1998 08 17	704	0.5+	1.6+	1998 09 27	704	0.3+	0.2+
1995 11 27	369	0.2+	0.1−	1998 08 23	704	0.7−	0.6+				

(9419)∗ 1995 XS = 1988 SF$_4$ = 1997 HN$_{11}$

Discovered 1995 Dec. 12 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 29924), S. Nakano (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	300.95029		(2000.0)		**P**	**Q**	
n	0.29373899	ω	163.11354		+0.68572626	−0.72449862	
a	2.2412741	Ω	243.53124		+0.65845613	+0.65838240	
e	0.1401107	i	4.47632		+0.31018547	+0.20404501	
P	3.36	H	14.8	G	0.15	U	1

Residuals in seconds of arc

1988 09 16	095	(1.7+	2.9−)	1997 05 01	704	0.1+	0.2+	1998 09 14	704	1.4−	0.9−
1988 09 16	095	0.4+	1.3−	1997 05 01	704	1.5+	0.4−	1998 09 14	704	0.8+	0.1+
1995 12 12	411	0.1−	0.5+	1997 05 01	704	0.2−	0.8+	1998 09 14	704	0.2−	1.4+
1995 12 12	411	0.1+	0.4+	1997 05 01	704	0.4+	1.0+	1998 09 14	704	1.1+	0.9+
1995 12 14	411	0.6+	0.4−	1997 05 01	704	0.1−	0.3+	1998 09 14	704	1.7+	1.4+
1995 12 14	411	0.3+	0.1+	1997 05 01	704	0.2−	0.7+	1998 09 18	704	0.4+	0.5−
1995 12 14	411	0.2−	0.1−	1997 05 01	704	0.1−	0.3+	1998 09 18	704	0.8−	0.2+
1995 12 20	411	0.6+	0.3−	1997 05 01	704	0.1−	0.8+	1998 09 18	704	0.2+	0.5+
1995 12 20	411	0.2−	0.0	1997 05 05	704	0.0	0.1+	1998 09 18	704	0.8−	0.1+
1995 12 25	411	0.1+	0.7+	1997 05 05	704	1.4+	1.5−	1998 09 18	704	1.0−	0.2+
1995 12 25	411	0.5−	0.1+	1997 05 05	704	0.1+	0.1+	1998 09 26	704	0.4+	0.4−
1995 12 30	411	0.4−	0.0	1997 05 05	704	0.4−	0.0	1998 09 26	704	0.1−	0.3−
1995 12 30	411	0.1+	0.1+	1997 05 05	704	0.5−	0.3−	1998 09 26	704	0.8−	0.2+
1996 01 09	411	1.0−	1.2+	1998 08 23	704	2.1+	0.5+	1998 09 26	704	0.9−	0.9+
1996 01 09	411	0.4+	1.0+	1998 08 23	704	1.0+	1.9+	1998 09 26	704	0.6−	0.4−
1997 04 30	704	0.6−	0.9+	1998 08 23	704	1.2−	0.8+	1998 09 27	704	0.3−	0.8−
1997 04 30	704	0.2−	0.1−	1998 08 23	704	1.1−	0.1+	1998 09 27	704	0.0	0.6−
1997 04 30	704	0.3−	0.0	1998 08 23	704	1.9−	0.2+	1998 09 27	704	0.7+	0.2−
1997 04 30	704	0.0	0.2+	1998 08 27	699	0.5+	0.2+	1998 09 27	704	0.2−	0.7−
1997 04 30	704	0.2−	0.6+	1998 08 27	699	0.5+	0.2+	1998 09 27	704	0.1−	1.2−
1997 05 01	704	0.3+	0.1−	1998 08 27	699	0.8+	0.0				

(9420)∗ 1995 XP$_4$ = 1978 YD$_1$ = 1993 AU

Discovered 1995 Dec. 14 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 26572)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	176.22443		(2000.0)		**P**	**Q**	
n	0.28789638	ω	334.83444		−0.99113926	−0.13038740	
a	2.2714957	Ω	197.72881		+0.13153772	−0.93697996	
e	0.0891370	i	4.77331		+0.01846066	−0.32414146	
P	3.42	H	14.4	G	0.15	U	1

Residuals in seconds of arc

1978 12 22	095	0.1−	1.2−	1997 05 30	691	0.6−	0.3+	1998 09 18	704	0.2+	0.6+
1993 01 01	033	1.7+	0.5−	1997 05 30	691	0.5−	0.3+	1998 09 18	704	0.9+	1.6+
1993 01 01	033	1.3+	0.2−	1997 05 30	691	0.6−	0.6+	1998 09 23	120	1.5+	1.1+
1993 01 02	033	(2.7+	0.9+)	1997 06 08	809	(1.4+	2.0+)	1998 09 23	120	0.7+	0.2+
1994 07 10	675	0.2+	0.7+	1997 06 08	809	(1.9+	2.2+)	1998 09 23	120	0.2+	0.1+
1994 07 10	675	0.8−	0.8+	1997 06 08	809	(1.4+	2.6+)	1998 09 24	120	0.3+	0.4−
1995 12 14	691	0.5−	0.1+	1997 06 09	809	(2.7+	2.1+)	1998 09 24	120	0.4+	0.0
1995 12 14	691	0.6−	0.0	1997 06 09	809	(2.3+	2.5+)	1998 09 24	120	0.2−	0.3−
1995 12 14	691	0.5−	0.0	1997 06 09	809	(2.5+	2.9+)	1998 09 25	704	0.2−	1.0−
1995 12 20	691	0.6−	0.3+	1997 06 11	691	0.0	0.2+	1998 09 25	704	0.5+	0.2+
1995 12 20	691	0.6−	0.1+	1997 06 11	691	0.3−	0.1+	1998 09 25	704	0.5+	0.4−
1995 12 20	691	0.9−	0.4+	1997 06 11	691	1.0−	0.6−	1998 09 25	704	0.3+	0.9−
1995 12 26	691	0.6−	0.1+	1997 07 12	691	0.6−	0.3+	1998 09 26	704	0.3−	0.3−
1995 12 26	691	0.6−	0.1+	1997 07 12	691	0.8−	0.2+	1998 09 26	704	0.0	0.0
1995 12 26	691	0.6−	0.1−	1997 07 12	691	0.7−	0.1−	1998 09 26	704	0.1−	0.5+
1997 05 03	809	0.3+	1.1−	1998 08 28	704	(2.1+	0.4+)	1998 09 26	704	1.1+	0.9−
1997 05 03	809	0.2+	1.4−	1998 08 28	704	0.1+	0.9−	1998 09 26	704	0.1−	0.1−
1997 05 03	809	(0.4−	2.2−)	1998 08 28	704	1.8−	0.1−	1998 09 27	704	0.3+	0.4−
1997 05 04	809	1.1+	0.1+	1998 09 14	704	0.3+	0.3+	1998 09 27	704	(0.9−	2.2−)
1997 05 04	809	0.8+	0.2+	1998 09 14	704	0.0	0.1+	1998 09 27	704	0.3−	0.3+
1997 05 04	809	0.6+	0.4−	1998 09 14	704	0.3+	0.1−	1998 09 27	704	1.5−	0.1+
1997 05 29	691	0.1+	0.3+	1998 09 18	704	1.1+	0.1−	1998 09 27	704	0.7−	0.8+
1997 05 29	691	0.0	0.1+	1998 09 18	704	0.5+	0.2−				
1997 05 29	691	0.1+	0.1−	1998 09 18	704	0.4+	0.6−				

(9421)∗ 1995 YM$_2$ = 1991 VQ$_7$

Discovered 1995 Dec. 24 by S. P. Laurie at Church Stretton.

Id. T. Kobayashi (*MPC* 26573)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	251.48085		(2000.0)		**P**	**Q**	
n	0.26841279	ω	25.46481		−0.11405451	−0.99117206	
a	2.3801295	Ω	71.14423		+0.89884264	−0.13193390	
e	0.1306458	i	4.09622		+0.42317075	+0.01309205	
P	3.67	H	15.2	G	0.15	U	2

Residuals in seconds of arc

1991 10 17	675	1.2+	0.0	1995 12 25	966	0.7+	0.1−	1998 08 27	809	1.0−	1.1−
1991 11 03	691	0.1−	1.0+	1995 12 26	966	0.3+	0.1+	1998 08 27	809	0.7−	1.2−
1991 11 03	691	0.3−	0.8+	1995 12 29	966	0.8−	1.3−	1998 09 14	704	0.0	0.4−
1991 11 03	691	0.4−	0.7+	1995 12 29	966	0.5+	0.6−	1998 09 14	704	0.5−	0.3−
1991 11 08	691	0.6−	0.4+	1997 05 30	589	0.2−	0.6−	1998 09 14	704	0.7−	1.6+
1991 11 08	691	0.6−	0.7+	1997 05 30	589	0.5+	1.4+	1998 09 14	704	0.0	0.9+
1991 11 08	691	0.8−	1.0+	1998 08 26	809	1.1+	1.9−	1998 09 24	699	0.3+	0.0
1995 12 24	966	0.1−	0.6−	1998 08 26	809	0.3−	1.7−	1998 09 24	699	1.4+	0.9+
1995 12 25	966	0.5−	0.1−	1998 08 26	809	0.8+	1.6−	1998 09 24	699	1.4+	0.5+
1995 12 25	966	0.4−	1.1−	1998 08 27	809	(2.8−	1.1−)				

(9422)∗ 1996 AO$_2$ = 1979 SB$_{11}$ = 1979 TU$_1$ = 1987 XY

Discovered 1996 Jan. 13 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 26576)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	272.41804		(2000.0)		**P**	**Q**	
n	0.25512718	ω	43.77481		+0.32416368	−0.94593019	
a	2.4620577	Ω	27.31639		+0.86084994	+0.28988968	
e	0.1571779	i	1.44536		+0.39224392	+0.14553368	
P	3.86	H	14.2	G	0.15	U	2

Residuals in seconds of arc

1979 09 24	095	0.1+	0.2+	1998 08 17	704	0.2−	0.8−	1998 09 18	704	0.2+	0.4−
1979 10 14	095	0.0	0.6−	1998 08 17	704	0.9−	0.4−	1998 09 18	704	1.2−	0.7+
1987 12 15	046	0.3−	0.7−	1998 08 17	704	0.5−	0.1+	1998 09 18	704	1.2−	1.6−
1987 12 15	046	0.5+	0.8−	1998 08 17	704	0.5−	0.0	1998 09 18	699	0.2−	0.5+
1996 01 13	399	0.6−	1.0+	1998 08 17	704	0.5−	0.5−	1998 09 18	704	0.6+	0.3−
1996 01 13	399	(0.2+	2.4+)	1998 08 23	704	0.7+	0.2−	1998 09 18	699	0.4+	0.4+
1996 01 13	411	0.9+	0.8+	1998 08 23	704	0.6+	0.2−	1998 09 18	704	0.3+	0.5+
1996 01 13	411	0.4+	0.1+	1998 08 23	704	0.6−	0.2+	1998 09 18	699	0.3+	0.1+
1996 01 16	411	0.6+	0.0	1998 08 23	704	1.3+	0.0	1998 09 25	704	1.0+	0.7−
1996 01 16	411	1.2+	0.1+	1998 08 23	704	0.6+	0.5+	1998 09 25	704	0.4+	1.0−
1996 01 18	399	0.3−	0.2−	1998 09 12	691	1.6−	1.0+	1998 09 25	704	1.5+	1.0−
1996 01 18	399	1.9−	1.4+	1998 09 12	691	1.5−	0.6+	1998 09 25	704	(2.8+	0.0)
1996 01 25	411	0.4−	0.3+	1998 09 12	691	1.6−	0.6+	1998 09 25	704	(0.1+	2.4−)
1996 01 25	411	0.9+	0.2−	1998 09 14	704	0.0	0.3+	1998 09 27	704	0.1+	1.0+
1996 01 26	411	0.5−	0.1+	1998 09 14	704	0.2+	0.5+	1998 09 27	704	0.1+	0.2−
1996 01 26	411	0.5+	0.1+	1998 09 14	704	0.3+	0.6+	1998 09 27	704	(2.3+	0.1−)
1996 01 30	411	0.2+	0.1−	1998 09 14	704	0.2+	1.3+	1998 09 27	704	1.4+	0.3+
1996 01 30	411	0.0	0.3−	1998 09 14	704	0.3−	0.7+	1998 09 27	704	0.3−	0.4−

(9423)∗ 1996 AT$_7$ = 1974 DU = 1981 US$_{15}$ = 1983 CK$_8$ = 1990 VH$_{15}$ = 1992 DP$_2$

Discovered 1996 Jan. 12 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 26750)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	353.79364		(2000.0)		**P**	**Q**	
n	0.22281346	ω	219.53562		+0.82171654	+0.55053506	
a	2.6946877	Ω	106.45632		−0.47623234	+0.80529078	
e	0.1006517	i	8.83427		−0.31302505	+0.22004068	
P	4.42	H	12.2	G	0.15	U	2

Residuals in seconds of arc

1974 02 16	095	1.2−	2.3−	1992 03 01	033	0.7+	0.2+	1998 08 19	699	0.1+	0.3+
1981 10 23	095	(5.2+	3.4+)	1995 02 02	691	0.3−	0.4+	1998 08 19	699	0.0	0.3+
1983 02 10	095	0.1+	0.6+	1995 02 02	691	0.0	0.3+	1998 08 19	699	0.1−	0.5+
1989 07 05	675	1.0+	2.2+	1995 02 02	691	0.1−	0.1+	1998 09 19	423	0.6+	1.1−
1990 11 14	675	0.9+	0.1−	1996 01 12	691	0.2+	0.6+	1998 09 19	423	0.7+	0.5−
1990 11 14	675	0.9+	0.3+	1996 01 12	691	0.3+	0.5+	1998 09 21	704	0.3+	0.1+
1990 11 15	095	(0.3+	2.7−)	1996 01 12	691	0.1+	0.3+	1998 09 21	704	0.1−	0.3+
1990 11 16	095	1.5−	0.6−	1996 01 18	691	0.1+	0.5+	1998 09 21	704	0.5−	0.8−
1992 02 25	691	1.2−	0.3+	1996 01 18	691	0.1+	0.4+	1998 09 21	704	0.7−	0.3+
1992 02 25	691	1.5−	0.4+	1996 01 18	691	0.1+	0.3+	1998 09 21	704	1.1−	0.0
1992 02 25	691	1.7−	0.3+	1996 01 25	691	0.2+	0.2+	1998 09 24	699	0.1+	0.0
1992 02 29	033	1.5+	0.3−	1996 01 25	691	0.1+	0.3+	1998 09 24	699	0.3−	0.0
1992 02 29	033	1.8+	0.8−	1996 01 25	691	0.3+	0.3+	1998 09 24	699	0.4−	0.4−

(9424)∗ 1996 BN = 1980 XV$_2$ = 1989 EM$_7$

Discovered 1996 Jan. 16 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 26751)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	292.35775		(2000.0)		**P**	**Q**	
n	0.26598089	ω	329.42567		+0.53734778	−0.84227696	
a	2.3946153	Ω	88.03946		+0.78216407	+0.47876230	
e	0.1758246	i	2.45113		+0.31539933	+0.24770181	
P	3.71	H	14.6	G	0.15	U	1

Residuals in seconds of arc

1980 12 10	095	0.4+	1.8−	1996 02 19	411	0.7+	0.2+	1998 09 18	704	0.6+	0.0
1989 03 06	033	0.5−	1.2−	1996 02 19	411	0.1−	0.5−	1998 09 18	704	0.2+	0.1+
1989 03 06	033	1.0−	0.9−	1998 08 23	704	0.3−	0.4−	1998 09 18	704	0.7+	0.1+
1991 12 30	691	0.6−	0.2+	1998 08 23	704	1.1−	0.7+	1998 09 18	704	0.2+	0.4+
1991 12 30	691	0.4−	0.2+	1998 08 23	704	0.8−	0.6−	1998 09 18	704	1.1+	0.7+
1991 12 30	691	0.4−	0.1+	1998 08 23	704	0.7−	0.2−	1998 09 25	704	0.2−	0.5+
1996 01 13	399	0.2−	0.2+	1998 08 23	704	1.8−	1.0−	1998 09 25	704	0.6+	0.3+
1996 01 13	399	0.4−	1.1+	1998 08 30	699	0.2+	0.5−	1998 09 25	704	0.1−	0.2−

1996 01 16	411	0.2−	0.3+	1998 08 30	699	0.1+	0.2−	1998 09 25	704	0.1−	0.1−
1996 01 16	411	1.1+	0.6+	1998 08 30	699	0.4−	0.3+	1998 09 25	704	0.1+	0.4+
1996 01 18	411	0.5−	0.8−	1998 09 14	704	0.4+	1.0−	1998 09 27	704	0.2−	0.6+
1996 01 18	411	0.2−	0.0	1998 09 14	704	0.2+	0.8−	1998 09 27	704	0.2+	0.4+
1996 01 27	411	0.0	0.5−	1998 09 14	704	0.6+	0.4−	1998 09 27	704	1.4+	0.2−
1996 01 27	411	0.0	0.1−	1998 09 14	704	(0.7+	2.4−)	1998 09 27	704	0.2+	0.3+
1996 02 12	411	0.5+	0.6−	1998 09 17	120	0.2+	0.7−	1998 09 27	704	(0.3+	2.8+)
1996 02 12	411	0.4+	0.8+	1998 09 17	120	0.4−	0.4−				

(9425)∗ 1996 CM$_7$

Discovered 1996 Feb. 14 by U. Munari and M. Tombelli at Cima Ekar.

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	333.75068		(2000.0)		**P**	**Q**	
n	0.27872201	ω	55.11537		+0.81466415	−0.57732500	
a	2.3210716	Ω	339.96947		+0.46586795	+0.70790542	
e	0.2264397	i	9.22969		+0.34538295	+0.40689772	
P	3.54	H	13.9	G	0.15	U	1

Residuals in seconds of arc

1991 12 01	675	0.0	0.4−	1996 02 15	098	0.7−	0.2−	1998 08 28	704	0.2+	0.0
1991 12 01	675	(1.0+	2.7−)	1996 02 15	098	0.1+	0.3−	1998 08 28	704	0.2+	1.3−
1994 07 13	675	1.0+	0.1+	1996 02 24	098	1.6−	0.8+	1998 08 28	704	0.7−	0.5−
1994 07 13	675	0.2+	0.1−	1996 02 24	098	1.3+	0.1+	1998 08 28	704	0.8−	0.6−
1994 08 06	675	1.1−	1.1−	1996 03 19	566	0.4+	0.1+	1998 08 31	704	0.3+	0.5−
1994 08 06	675	0.5+	0.5−	1996 03 19	566	0.5+	0.3+	1998 08 31	704	0.6−	1.1+
1996 01 17	098	(1.0−	3.0−)	1996 03 19	566	0.2+	0.3+	1998 08 31	704	0.2−	1.1+
1996 01 17	098	(0.5−	3.2−)	1996 03 24	566	0.3+	0.7−	1998 08 31	704	0.4−	0.4+
1996 01 18	098	1.2−	0.7−	1996 03 24	566	0.6+	1.0−	1998 08 31	704	0.1−	0.4+
1996 01 18	098	0.8+	0.9−	1996 03 24	566	0.5+	0.7−	1998 09 19	108	(0.1−	2.4−)
1996 01 20	098	1.3−	0.3+	1996 03 25	566	0.4−	0.3+	1998 09 19	108	0.4−	0.4+
1996 01 20	098	0.4+	0.3+	1996 03 25	566	0.3−	0.1−	1998 09 19	108	1.9+	0.8−
1996 02 14	098	0.1+	0.3−	1996 03 25	566	0.2−	0.1+				
1996 02 14	098	0.4−	0.7+	1998 08 28	704	0.5+	0.1−				

(9426)∗ 1996 CO$_7$

Discovered 1996 Feb. 14 by U. Munari and M. Tombelli at Cima Ekar.

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	347.08943		(2000.0)		**P**	**Q**	
n	0.20305110	ω	274.14248		+0.94119514	+0.33454567	
a	2.8668116	Ω	66.31796		−0.28590764	+0.86312758	
e	0.0702196	i	2.95638		−0.18002369	+0.37827236	
P	4.85	H	13.4	G	0.15	U	2

Residuals in seconds of arc

1989 11 04	675	0.1+	2.2−	1997 07 31	688	0.3−	0.3−	1998 09 14	704	0.2+	0.9+
1989 11 04	675	0.6+	0.4−	1997 07 31	688	0.1−	0.6−	1998 09 14	704	0.5−	0.5+
1996 01 17	098	0.4+	1.1+	1997 08 01	688	0.3−	0.7−	1998 09 14	704	0.2+	1.6+
1996 01 17	098	0.6+	0.6−	1997 08 01	688	0.4−	0.9−	1998 09 19	108	0.9−	0.7−
1996 01 18	098	0.7−	0.6−	1998 08 15	108	1.5+	1.9−	1998 09 19	108	2.1+	2.0−
1996 01 18	098	(2.1−	2.2−)	1998 08 15	108	1.0+	0.2−	1998 09 19	108	0.3−	1.4−
1996 01 20	098	0.9−	0.9+	1998 08 17	704	0.3+	0.1+	1998 09 25	704	0.6+	1.2+
1996 01 20	098	0.6−	0.6−	1998 08 17	704	0.4+	1.3+	1998 09 25	704	0.8+	0.1+
1996 02 14	098	0.7+	0.4−	1998 08 17	704	0.6−	0.2−	1998 09 25	704	0.4−	0.2+
1996 02 14	098	0.4+	0.1−	1998 08 17	704	0.3−	0.6+	1998 09 25	704	0.0	0.0
1996 02 15	098	1.5+	1.7+	1998 08 17	704	0.0	0.5−	1998 09 25	704	0.4−	1.5+
1996 02 15	098	0.3+	0.5+	1998 08 23	704	0.0	0.6−	1998 09 27	704	0.1+	0.2−
1996 02 24	098	(2.8−	0.7+)	1998 08 23	704	0.2−	0.0	1998 09 27	704	0.2+	0.1+
1996 02 24	098	0.1−	0.1+	1998 08 23	704	1.0−	1.2+	1998 09 27	704	0.9+	1.1+
1996 03 14	098	0.1+	0.6+	1998 08 23	704	0.3−	0.8+	1998 09 27	704	2.9−	0.2−
1996 03 14	098	0.3+	0.8+	1998 08 23	704	1.5−	0.7+	1998 09 27	704	0.0	0.6−
1996 03 20	098	0.7−	0.0	1998 09 14	704	0.1−	0.4−				
1996 03 20	098	(4.6−	0.4+)	1998 09 14	704	0.4−	1.1+				

(9427)∗ 1996 CV$_7$

Discovered 1996 Feb. 14 by U. Munari and M. Tombelli at Cima Ekar.

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	18.44981		(2000.0)		**P**	**Q**	
n	0.18964248	ω	162.08127		+0.57971091	+0.80682359	
a	3.0003987	Ω	143.11338		−0.76888498	+0.58792662	
e	0.0930891	i	10.93779		−0.26972419	+0.05812045	
P	5.20	H	13.2	G	0.15	U	1

Residuals in seconds of arc

1993 09 19	675	0.3−	0.1−	1997 05 08	098	(1.0+	3.7−)	1998 09 18	704	0.0	0.7−
1993 09 19	675	0.5+	0.4−	1997 05 27	108	0.6+	0.7−	1998 09 18	704	0.2−	0.3−
1993 09 23	675	0.1+	1.1−	1997 05 27	108	0.5−	0.9+	1998 09 19	108	0.0	0.5−
1993 09 23	675	0.1+	0.0	1997 05 27	108	0.8+	1.6−	1998 09 19	108	0.2−	0.4−
1993 10 10	675	0.2+	0.5−	1997 05 27	108	0.2+	0.3−	1998 09 19	108	0.1−	1.1−
1993 10 10	675	0.0	0.3−	1998 08 17	704	0.3+	1.0+	1998 09 22	699	0.9+	0.9+
1996 02 14	098	0.2−	0.2+	1998 08 17	704	0.2+	0.4+	1998 09 22	699	0.7+	0.6+
1996 02 14	098	0.4−	0.6+	1998 08 17	704	0.4−	0.5+	1998 09 22	699	1.0+	0.1+
1996 02 15	098	0.4−	0.7+	1998 08 17	704	0.4+	1.1+	1998 09 25	704	0.7−	0.2+
1996 02 15	098	0.4+	0.8−	1998 08 17	704	0.4+	1.0+	1998 09 25	704	0.0	0.6+
1996 02 24	098	(0.4−	2.9−)	1998 09 14	704	0.1−	0.2−	1998 09 25	704	0.9−	0.6+
1996 02 24	098	0.5+	0.7−	1998 09 14	704	0.7−	0.8−	1998 09 25	704	0.2−	1.0+
1996 03 14	098	0.5+	0.3+	1998 09 14	704	0.0	0.2−	1998 09 25	704	0.8−	0.9+
1996 03 14	098	0.7+	0.1−	1998 09 14	704	0.7−	0.1+	1998 09 27	704	0.5+	0.1−
1996 03 20	098	1.0−	1.3+	1998 09 16	699	0.3+	0.1+	1998 09 27	704	0.5−	0.6+
1996 03 20	098	(2.6−	1.1+)	1998 09 16	699	0.2+	0.1+	1998 09 27	704	0.5−	0.1+
1997 05 06	098	0.1−	0.3+	1998 09 16	699	0.5+	0.2+	1998 09 27	704	0.1−	0.4+
1997 05 06	098	(1.3−	2.4−)	1998 09 18	704	0.1+	1.3−	1998 09 27	704	1.1−	0.8−
1997 05 08	098	1.3−	0.3+	1998 09 18	704	0.8+	0.8−				

(9428)∗ 1996 DW$_2$

Discovered 1996 Feb. 26 by S. P. Laurie at Church Stretton.

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	315.01817		(2000.0)		**P**	**Q**	
n	0.22113119	ω	234.85082		+0.92746036	−0.32732801	
a	2.7083371	Ω	143.28195		+0.35572995	+0.92133916	
e	0.1846979	i	17.59783		−0.11521063	+0.20973920	
P	4.46	H	13.1	G	0.15	U	1

Residuals in seconds of arc

1989 08 01	675	0.1+	0.8−	1998 07 26	809	(2.1+	1.6+)	1998 08 25	761	0.3−	0.3−
1989 08 01	675	0.2−	1.1−	1998 07 26	809	(2.6+	2.1+)	1998 08 27	699	0.6+	0.2+
1996 02 26	966	0.9−	1.1−	1998 07 26	699	0.5+	0.5−	1998 08 27	699	0.5+	0.2+
1996 02 26	966	0.1+	0.5+	1998 07 26	699	0.9+	0.4−	1998 08 27	699	0.7+	0.4+
1996 02 26	966	0.2+	0.6+	1998 07 26	699	0.7+	0.2−	1998 09 14	704	0.2+	0.1−
1996 02 27	966	0.4+	0.8+	1998 07 27	809	0.5+	0.1−	1998 09 14	704	0.5+	0.5+
1996 02 27	966	0.1+	0.3−	1998 07 27	809	0.2+	0.2−	1998 09 14	704	1.6−	0.9+
1996 03 10	966	0.3−	0.4+	1998 07 27	809	0.5+	0.3+	1998 09 14	704	0.7−	1.0+
1996 03 10	966	0.3+	0.2−	1998 08 17	704	0.4−	0.3−	1998 09 14	704	0.3−	0.9+
1996 04 03	966	1.7−	0.0	1998 08 17	704	0.9−	0.4−	1998 09 14	699	0.4+	0.6+
1996 04 04	966	0.8+	0.7+	1998 08 17	704	0.2−	0.9−	1998 09 14	699	0.1+	0.9+
1996 04 04	966	1.2+	1.1+	1998 08 17	704	0.6−	0.2−	1998 09 14	699	0.3+	0.8+
1996 04 07	966	0.7+	0.9+	1998 08 17	704	0.2+	0.9−	1998 09 18	704	0.1+	0.4+
1996 04 07	966	0.3+	1.6+	1998 08 23	689	0.0	0.4−	1998 09 18	704	0.4+	0.0
1997 07 01	688	0.1−	0.2+	1998 08 23	704	1.0−	1.4+	1998 09 18	704	0.1−	1.0+
1997 07 01	688	0.3−	0.1+	1998 08 23	704	1.0−	0.1−	1998 09 18	704	0.2−	1.1+
1997 07 01	688	0.6−	0.4+	1998 08 23	704	0.4+	0.9−	1998 09 18	704	0.2+	0.4−
1997 07 01	688	0.1−	0.1−	1998 08 23	704	0.2+	0.5−	1998 09 24	699	0.1−	1.0+
1997 07 02	688	0.3−	0.8+	1998 08 24	761	0.2−	0.4+	1998 09 24	699	0.2+	0.6+
1997 07 02	688	0.0	0.3+	1998 08 24	761	0.2−	0.3+	1998 09 24	699	0.3+	0.6+
1998 07 26	809	(2.4+	1.9+)	1998 08 25	761	0.1+	0.2−				

(9429)∗ 1996 EW$_1$ = 1972 TK$_3$ = 1977 SH = 1983 VG$_3$ = 1993 RQ$_6$

Discovered 1996 Mar. 14 at Višnjan.

Id. G. V. Williams (*MPC* 27114)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	338.39473		(2000.0)		**P**	**Q**	
n	0.18715852	ω	21.79524		+0.99091670	+0.13380455	
a	3.0268877	Ω	330.50542		−0.12705919	+0.89885803	
e	0.0836771	i	1.56338		−0.04404600	+0.41731352	
P	5.27	H	13.3	G	0.15	U	2

Residuals in seconds of arc

1972 10 05	095	0.2+	1.6−	1996 03 18	120	0.8−	1.1−	1998 09 18	704	0.4+	0.7+
1972 10 13	095	0.5+	0.1−	1996 03 19	120	0.3−	1.2−	1998 09 18	704	0.2−	0.3+
1977 09 18	095	(4.2−	0.1+)	1996 03 19	120	1.6−	0.1−	1998 09 18	704	1.5+	1.3−
1983 11 08	381	0.4+	1.5+	1996 03 19	120	0.4+	0.2−	1998 09 18	699	0.2+	0.3+
1983 11 08	381	1.2−	0.2+	1996 03 28	120	0.5+	0.1+	1998 09 18	704	0.4+	0.5−
1983 11 08	381	0.9+	0.7+	1996 03 28	120	0.2+	0.5+	1998 09 18	699	1.0+	0.5+
1988 10 07	675	1.1+	0.5+	1996 03 28	120	0.2−	0.2−	1998 09 18	704	0.8+	0.3−
1988 10 07	675	0.9+	0.2−	1996 04 17	120	0.7+	0.6−	1998 09 18	699	0.5+	0.8+
1993 09 15	809	(3.5+	0.4+)	1996 04 17	120	0.1+	0.5−	1998 09 20	691	0.7−	0.1−
1993 09 15	809	(3.7+	0.7+)	1996 04 17	120	0.9+	0.2+	1998 09 20	691	0.8−	0.2−
1993 09 15	809	(3.5+	1.9+)	1998 08 17	704	0.2+	0.1−	1998 09 20	691	1.0−	0.1+
1993 09 17	809	0.2+	1.3−	1998 08 17	704	0.6+	0.1+	1998 09 21	691	0.9−	0.3−
1993 09 17	809	0.1−	1.5−	1998 08 17	704	0.4+	0.1+	1998 09 21	691	0.9−	0.2−
1993 09 17	809	0.2−	1.1−	1998 08 17	704	0.5−	0.1−	1998 09 21	691	1.5−	0.2+
1993 09 18	809	(2.6+	1.9+)	1998 08 17	704	0.2−	0.0	1998 09 25	704	0.1−	0.0
1993 09 18	809	(2.6+	1.2+)	1998 08 23	120	0.6+	0.2+	1998 09 25	704	0.7+	0.3−
1993 09 18	809	(2.2+	1.2+)	1998 08 23	120	0.2+	0.2+	1998 09 25	691	0.0	0.1+
1993 09 18	675	0.3−	0.2−	1998 08 23	120	0.8−	0.2+	1998 09 25	691	0.2−	0.6−
1993 09 18	675	0.0	0.5−	1998 09 14	704	0.4+	0.1+	1998 09 25	704	0.0	0.2−
1993 09 18	691	0.8−	1.0+	1998 09 14	704	0.5+	0.2+	1998 09 25	691	0.1−	0.4+
1993 09 18	691	1.0−	0.7+	1998 09 14	704	0.6+	0.4−	1998 09 25	704	0.3+	0.5+
1993 09 18	691	1.1−	0.0	1998 09 14	691	1.5−	0.3+	1998 09 25	704	1.3−	0.0
1993 09 22	675	0.1+	1.4−	1998 09 14	704	1.0+	0.0	1998 09 27	704	0.8+	0.3−
1993 09 22	675	0.2+	0.6−	1998 09 14	691	1.5−	0.0	1998 09 27	704	1.4+	0.2+
1996 03 14	120	0.7+	1.1+	1998 09 14	704	0.4+	0.4−	1998 09 27	704	0.5+	0.6−
1996 03 14	120	(3.1−	0.9−)	1998 09 14	691	1.6−	0.1+	1998 09 27	704	0.8+	0.0
1996 03 14	120	0.1−	0.5+	1998 09 14	699	0.1−	1.1+	1998 09 27	704	0.9+	0.4+
1996 03 18	120	0.6−	0.2+	1998 09 14	699	0.3−	0.4+				
1996 03 18	120	0.9−	0.6−	1998 09 14	699	0.9+	1.2+				

(9430)∗ 1996 HU$_{10}$ = 1978 WL$_9$ = 1998 MC$_{43}$

Discovered 1996 Apr. 17 by E. W. Elst at the European Southern Observatory.

Id. K. Ichikawa (*MPC* 32244), B. G. Marsden (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	15.37450		(2000.0)		**P**	**Q**	
n	0.08103201	ω	308.34774		+0.08650309	+0.99620529	
a	5.2888953	Ω	326.61095		−0.90851223	+0.07492518	
e	0.0540364	i	1.00000		−0.40880649	+0.04428595	
P	12.16	H	10.5	G	0.15	U	1

Residuals in seconds of arc

1978 11 29	675	0.1+	0.1−	1996 04 18	809	1.0+	0.5−	1998 06 26	809	0.9+	0.4−
1978 11 29	675	2.3+	1.3−	1996 04 18	809	0.1+	0.7−	1998 06 26	809	0.4+	1.0−
1978 11 30	675	0.5−	0.0	1996 04 18	809	0.2+	0.7−	1998 06 27	809	0.6−	0.3+
1978 11 30	675	1.4−	1.5−	1996 05 19	809	0.1+	1.3+	1998 06 27	809	1.1−	0.3−
1995 04 05	691	0.1+	0.9−	1996 05 19	809	0.2−	0.7+	1998 06 27	809	0.6−	0.7−
1995 04 05	691	1.0−	0.4−	1996 05 19	809	0.4−	1.1+	1998 07 26	704	0.6−	0.7+
1995 04 05	691	0.2+	0.4−	1996 05 22	809	(0.7+	2.5+)	1998 07 26	704	0.5+	1.4−
1996 04 17	809	0.8+	0.8−	1996 05 22	809	(1.0+	2.2+)	1998 07 26	704	1.0−	0.4−
1996 04 17	809	1.0−	1.6−	1996 05 22	809	0.3+	1.9+	1998 07 26	704	1.5+	0.8+
1996 04 17	809	0.8−	0.8−	1998 06 26	809	1.1+	0.3−				

(9431)∗ 1996 PS$_1$

Discovered 1996 Aug. 12 at Farra d'Isonzo.

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	5.62178		(2000.0)		**P**	**Q**	
n	0.08376893	ω	185.00999		+0.89611855	−0.42318135	
a	5.1730587	Ω	201.61950		+0.41876229	+0.90604402	
e	0.0856852	i	21.28556		+0.14700237	−0.00133606	
P	11.77	H	10.5	G	0.15	U	1

Residuals in seconds of arc

1993 06 16	691	0.3+	0.2−	1996 09 10	595	0.0	0.4−	1997 09 21	595	0.4+	0.2+
1993 06 16	691	0.0	0.4+	1996 10 09	595	0.8−	0.1−	1997 10 11	595	0.2−	0.2−
1993 06 16	691	0.2−	0.4+	1996 10 09	595	0.2−	0.0	1997 10 11	595	0.1+	0.4−
1996 08 12	595	0.0	0.1−	1996 10 09	595	0.4−	0.3−	1997 11 03	595	1.1−	0.1−
1996 08 12	595	0.0	0.2+	1996 10 11	595	0.4−	0.1−	1997 11 03	595	0.4+	0.5−
1996 08 13	595	0.6+	0.1+	1996 10 11	595	0.2−	0.1+	1997 12 05	595	0.3−	0.5−
1996 08 14	595	0.0	0.5−	1996 10 11	595	0.0	0.1+	1997 12 05	595	0.8−	0.1−
1996 08 14	595	0.1−	0.4+	1996 11 09	595	0.2+	0.1−	1997 12 06	595	0.6−	0.3−
1996 08 14	595	0.1−	0.6+	1996 11 09	595	0.1+	0.3+	1998 08 24	595	0.3+	0.7−
1996 08 16	595	0.7+	0.1+	1996 12 04	595	0.4−	0.6+	1998 08 24	595	0.4+	0.4−
1996 08 16	595	0.3+	0.3−	1996 12 04	595	0.5+	1.2+	1998 08 25	595	0.1−	0.2−
1996 08 18	595	0.3−	0.2+	1996 12 05	595	0.3+	0.4+	1998 08 25	595	0.1−	0.1−
1996 08 18	595	0.2+	0.4−	1996 12 05	595	0.4−	0.0	1998 09 24	595	0.2+	0.9+
1996 09 04	595	0.0	0.9−	1997 09 10	595	1.3+	0.7+	1998 09 24	595	0.2−	1.0+
1996 09 04	595	0.4−	0.4−	1997 09 10	595	1.2+	1.0+	1998 09 30	595	0.5−	0.2−
1996 09 10	595	0.2+	0.3−	1997 09 21	595	0.0	0.0	1998 09 30	595	0.2−	0.1+

(9432)∗ 1997 CQ = 1991 RH$_{12}$ = 1991 RO$_{40}$ = 1998 MT$_{13}$ = 4390 T-3

Discovered 1997 Feb. 1 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 32251)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	101.18229		(2000.0)		**P**	**Q**	
n	0.27252318	ω	39.55635		−0.99354161	+0.08852447	
a	2.3561363	Ω	145.32525		−0.10592622	−0.94787272	
e	0.0330212	i	7.16733		+0.04067818	−0.30610575	
P	3.62	H	14.7	G	0.15	U	2

Residuals in seconds of arc

1977 10 16	675	1.4−	0.1−	1997 02 11	411	0.3−	0.1−	1998 06 30	108	(3.0+	0.4−)
1977 10 16	675	1.4−	1.2+	1997 02 11	411	1.5−	0.9−	1998 07 16	104	1.1−	1.6−
1977 10 17	675	1.5+	0.1−	1997 03 01	411	1.1+	1.4−	1998 07 16	104	0.7−	0.8−
1977 10 17	675	1.3+	0.9−	1997 03 01	411	(2.3+	0.6−)	1998 07 16	104	0.3−	0.3−
1977 10 21	675	0.3+	1.0−	1998 06 24	704	0.8+	1.4+	1998 07 17	910	0.4+	0.2+
1977 10 21	675	1.3+	0.1−	1998 06 24	704	0.3−	0.7+	1998 07 17	910	0.4+	0.4+
1977 10 22	675	1.5+	0.8−	1998 06 24	704	0.7+	0.0	1998 07 17	910	0.0	0.2+
1977 10 22	675	0.6−	0.5−	1998 06 24	704	0.7−	0.5+	1998 07 17	910	1.0+	0.3+
1991 09 04	809	1.8−	0.3−	1998 06 24	704	0.7−	1.1−	1998 07 17	910	1.3+	0.1+
1991 09 04	809	(2.1−	0.5−)	1998 06 25	104	0.1+	0.7+	1998 07 17	910	0.8+	0.3+
1991 09 04	809	1.7−	0.6−	1998 06 25	104	0.6−	0.0	1998 07 18	104	0.2−	0.7−
1991 09 07	809	0.6−	0.8+	1998 06 25	104	0.4−	0.5−	1998 07 18	104	0.1+	0.2−
1991 09 07	809	0.2−	0.6+	1998 06 26	704	0.4+	0.1+	1998 07 18	104	0.1+	0.3+
1991 09 07	809	0.4−	0.0	1998 06 26	704	0.3+	1.2+	1998 07 21	104	0.2+	0.1+
1994 06 07	691	0.3−	0.2−	1998 06 26	704	1.1−	0.6+	1998 07 21	104	0.4+	0.4−
1994 06 07	691	0.3−	0.4−	1998 06 26	704	(2.4+	0.1−)	1998 07 21	104	0.4−	0.2+
1994 06 07	691	0.3−	1.0−	1998 06 26	704	1.8+	0.6−	1998 07 26	704	0.0	0.7−
1997 02 01	411	1.7+	0.4−	1998 06 27	104	0.2+	0.2−	1998 07 26	704	0.9+	1.7−
1997 02 01	411	0.1−	0.5+	1998 06 27	104	0.5−	0.2−	1998 07 26	704	0.6−	0.9−
1997 02 03	411	0.5−	0.4−	1998 06 30	108	1.6+	1.0+				
1997 02 03	411	1.3−	0.5+	1998 06 30	108	(2.2+	0.2+)				

(9433)∗ 1997 CF$_3$ = 1990 FB$_3$

Discovered 1997 Feb. 3 at Haleakala by the JPL Near-Earth Asteroid Tracking program.

Id. G. V. Williams (*MPC* 29640)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	66.68332		(2000.0)		**P**	**Q**	
n	0.27169162	ω	56.80102		−0.77195383	+0.63500250	
a	2.3609415	Ω	162.56083		−0.61092360	−0.72836064	
e	0.0899672	i	5.61262		−0.17566910	−0.25741525	
P	3.63	H	14.8	G	0.15	U	1

Residuals in seconds of arc

1990 03 17	033	0.4−	0.2−	1997 03 31	704	0.5+	0.8−	1998 07 29	910	0.5+	0.6+
1990 03 18	033	0.3+	0.2−	1997 03 31	704	0.8+	0.8+	1998 07 29	910	0.4+	0.6+
1991 09 05	691	0.2+	0.6−	1997 04 01	704	0.4−	1.0−	1998 07 29	910	0.5+	0.6+
1991 09 05	691	0.1+	0.2−	1997 04 01	704	1.4+	0.4−	1998 07 30	910	0.4+	0.8+
1991 09 05	691	0.0	0.5−	1998 05 27	699	0.6−	0.0	1998 07 30	910	0.4+	0.9+
1997 02 03	566	0.1−	0.8+	1998 05 27	699	0.3−	0.0	1998 07 30	910	0.4+	0.9+
1997 02 03	566	0.1−	0.8+	1998 05 27	699	0.1+	1.1−	1998 08 17	704	0.2+	0.1−
1997 02 03	566	0.2−	0.9+	1998 06 26	704	0.5+	0.3−	1998 08 17	704	1.0−	0.2+
1997 02 04	566	0.8−	0.1+	1998 06 26	704	0.3−	0.4−	1998 08 17	704	1.5−	0.1−
1997 02 04	566	0.1+	0.1+	1998 06 26	704	0.1+	0.7−	1998 08 17	704	0.7+	0.1−
1997 02 04	566	0.2−	0.3+	1998 06 26	704	0.2−	0.5−	1998 08 17	704	0.9−	0.8+

(9434)∗ 1997 CJ$_{20}$ = 1978 WB$_{10}$ = 1995 VH$_{19}$

Discovered 1997 Feb. 12 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 30672), G. V. Williams (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	43.30342		(2000.0)		**P**	**Q**	
n	0.28759240	ω	220.63097		+0.08387235	+0.99573146	
a	2.2730960	Ω	54.21449		−0.90150707	+0.09229481	
e	0.1417844	i	2.72215		−0.42455910	+0.00072995	
P	3.43	H	15.0	G	0.15	U	1

Residuals in seconds of arc

1978 11 29	675	1.5+	0.1+	1997 03 09	411	0.8+	0.1−	1998 09 18	704	0.4−	0.3+
1978 11 30	675	1.6−	0.4+	1997 03 09	411	0.1−	0.2+	1998 09 18	704	0.4−	0.3+
1995 11 14	691	0.0	0.1+	1998 08 26	809	1.6−	0.3−	1998 09 18	704	0.7+	0.3+
1995 11 14	691	0.2+	0.3−	1998 08 26	809	1.4−	0.6−	1998 09 26	704	0.5−	0.1+
1995 11 14	691	0.0	0.3−	1998 08 26	809	1.6−	0.5−	1998 09 26	704	0.1+	0.4−
1997 02 12	411	0.2+	1.1−	1998 08 27	809	1.7−	0.9+	1998 09 26	704	0.7+	0.7−
1997 02 12	411	1.1−	0.2+	1998 08 27	809	1.0−	1.0+	1998 09 26	704	1.6+	0.2−
1997 02 13	411	0.5−	0.6+	1998 08 27	809	0.1+	1.6+	1998 09 26	704	0.4+	0.2+
1997 02 13	411	0.6+	1.6+	1998 09 17	699	0.6+	0.3+	1998 09 27	704	0.3+	0.4−
1997 02 16	411	0.1+	0.4−	1998 09 17	699	0.5+	0.5+	1998 09 27	704	1.7+	0.2−
1997 02 16	411	0.1−	0.6+	1998 09 17	699	0.5+	0.1+	1998 09 27	704	0.7−	0.0
1997 02 26	411	0.2+	0.4+	1998 09 18	704	0.1+	0.3−	1998 09 27	704	0.1−	0.7+
1997 02 26	411	0.6+	0.3+	1998 09 18	704	0.2−	0.6−	1998 09 27	704	1.0+	0.0

(9435)∗ 1997 CK$_{20}$ = 1976 UU$_1$ = 1978 EQ$_2$ = 1978 GB$_1$ = 1994 GQ$_9$

Discovered 1997 Feb. 12 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 29641)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	93.25467		(2000.0)		**P**	**Q**	
n	0.30929648	ω	211.28942		−0.68217846	+0.73092592	
a	2.1654728	Ω	15.72502		−0.65511788	−0.59915397	
e	0.0709183	i	4.12378		−0.32473543	−0.32674427	
P	3.19	H	14.7	G	0.15	U	2

Residuals in seconds of arc

1976 10 26	095	1.5+	0.6−	1997 04 28	704	0.9−	0.3+	1998 09 14	704	0.1+	0.3−
1978 03 05	095	1.3−	1.5−	1997 04 28	704	0.8−	0.9−	1998 09 14	704	0.0	0.3+
1978 04 07	095	1.5−	0.2−	1997 04 28	704	(3.3−	0.7−)	1998 09 18	699	0.1+	0.0
1992 10 27	372	0.2−	0.9−	1997 04 29	704	0.8+	0.2+	1998 09 18	704	0.1+	0.3−
1992 10 27	372	0.9+	1.9+	1997 04 29	704	0.8+	0.0	1998 09 18	699	0.4+	0.1−
1994 04 05	894	0.3−	0.9−	1997 04 29	704	1.6+	0.3+	1998 09 18	704	0.5+	0.6−
1994 04 05	894	1.2+	0.5+	1997 04 29	704	1.4+	0.5−	1998 09 18	699	0.2−	0.0
1994 04 13	894	0.7+	0.5−	1997 04 29	704	0.9+	0.1+	1998 09 18	704	0.2−	0.3−
1994 04 13	894	1.2+	0.4+	1998 08 23	704	0.2+	0.3+	1998 09 18	704	0.8+	0.7−
1997 02 12	411	0.2+	0.3+	1998 08 23	704	0.1+	0.1+	1998 09 18	704	0.1+	1.7−
1997 02 12	411	0.0	0.0	1998 08 23	704	1.2+	0.5+	1998 09 25	704	0.5−	0.4−
1997 02 13	411	0.4−	0.6+	1998 08 23	704	1.3−	0.7+	1998 09 25	704	1.0−	0.5−
1997 02 13	411	0.2+	0.1+	1998 08 23	704	0.4−	0.5+	1998 09 25	704	1.4−	0.9+
1997 02 16	411	0.1+	0.7+	1998 08 30	699	0.7+	0.5+	1998 09 25	704	1.3−	1.3+
1997 02 16	411	0.3−	0.6+	1998 08 30	699	0.9+	0.2+	1998 09 25	704	1.9−	1.3+
1997 02 26	411	0.0	0.5+	1998 08 30	699	1.0+	1.0+	1998 09 27	704	0.3−	0.2−
1997 02 26	411	0.2−	0.9+	1998 09 13	699	0.6+	1.3+	1998 09 27	704	0.8−	0.6−
1997 03 09	411	0.4+	0.0	1998 09 13	699	0.6+	0.8+	1998 09 27	704	0.6+	1.2−
1997 03 09	411	1.3−	0.0	1998 09 13	699	0.9+	0.9+	1998 09 27	704	2.0−	1.2−
1997 04 28	704	0.9−	0.2−	1998 09 14	704	0.4−	0.5−	1998 09 27	704	0.1−	0.9−
1997 04 28	704	0.6−	0.7+	1998 09 14	704	0.1−	0.1+				

(9436)∗ 1997 EB = 1979 SB$_{13}$ = 1984 YX$_6$ = 1989 AR$_3$

Discovered 1997 Mar. 1 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 29642)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	66.35746		(2000.0)		**P**	**Q**	
n	0.25699275	ω	127.65875		−0.48743309	+0.87124694	
a	2.4501282	Ω	113.07487		−0.81958471	−0.43370225	
e	0.1448736	i	3.60040		−0.30114763	−0.22985023	
P	3.84	H	13.6	G	0.15	U	1

Residuals in seconds of arc

1979 09 20	675	0.0	0.4−	1998 08 17	704	0.3+	0.4−	1998 09 18	704	0.1−	0.9−
1979 09 21	675	0.2+	0.1−	1998 08 17	704	0.3+	0.8−	1998 09 18	704	0.2−	0.1+
1984 12 28	010	0.7+	0.2−	1998 08 17	704	0.3+	1.5−	1998 09 18	704	0.1+	0.1−
1989 01 04	413	0.7−	0.4+	1998 08 23	704	0.2−	0.6−	1998 09 18	704	1.4−	0.3−
1989 01 04	413	0.7+	1.6−	1998 08 23	704	0.8−	0.4−	1998 09 22	699	0.2+	0.1+
1989 01 10	413	2.1−	1.8+	1998 08 23	704	0.9−	0.1+	1998 09 22	699	0.0	0.2+
1989 01 10	413	1.2+	0.3−	1998 08 23	704	0.5−	1.0+	1998 09 22	699	0.3+	0.0
1997 03 01	411	0.1−	0.0	1998 08 23	704	0.1−	1.1+	1998 09 25	704	0.4+	0.2−
1997 03 01	411	0.0	0.1+	1998 09 14	704	0.4−	0.1+	1998 09 25	704	0.9+	0.4−
1997 03 02	411	0.3+	0.3−	1998 09 14	704	0.4−	0.2+	1998 09 25	704	1.0+	0.7−
1997 03 02	411	0.1−	0.3−	1998 09 14	704	0.5−	0.7+	1998 09 25	704	0.2+	0.3+
1997 03 07	411	0.4−	0.5−	1998 09 14	704	0.6−	0.3+	1998 09 25	704	0.1−	0.2−
1997 03 07	411	0.6−	0.3+	1998 09 14	704	0.5−	0.6+	1998 09 27	704	0.6+	0.3+
1997 03 12	411	0.8+	0.0	1998 09 16	699	0.1−	0.1+	1998 09 27	704	0.7+	0.3+
1997 03 12	411	0.2+	0.1+	1998 09 16	699	0.1+	0.3+	1998 09 27	704	0.3+	0.4+
1998 08 17	704	0.3+	0.3−	1998 09 16	699	0.5+	0.1+	1998 09 27	704	0.1−	0.5+
1998 08 17	704	0.2+	0.1+	1998 09 18	704	0.4+	0.2−	1998 09 27	704	0.0	0.0

(9437)∗ 1997 EA$_3$ = 1981 RR$_6$ = 1991 NS$_7$

Discovered 1997 Mar. 4 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 29643)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	224.70850		(2000.0)		**P**	**Q**	
n	0.28822102	ω	335.85055		+0.04317899	−0.99511679	
a	2.2697897	Ω	111.57509		+0.93145867	+0.00797144	
e	0.0177495	i	5.47700		+0.36127595	+0.09838205	
P	3.42	H	14.1	G	0.15	U	2

Residuals in seconds of arc

1981 09 01	675	0.3+	0.7−	1997 03 05	411	0.6−	0.3+	1998 08 17	704	0.0	0.0
1981 09 02	675	0.3+	1.0−	1997 03 12	411	0.3+	0.6−	1998 08 17	704	0.1−	0.4−
1991 07 15	809	0.2−	0.6−	1997 03 12	411	0.5+	0.9−	1998 08 17	704	0.3−	0.3+
1991 07 15	809	0.1+	0.7−	1997 04 23	327	0.3+	0.3+	1998 09 14	699	0.2+	0.6+
1991 07 15	809	0.2+	0.7−	1997 04 23	327	0.2−	0.4+	1998 09 14	699	0.2−	0.7−
1991 07 16	809	(0.6−	4.9−)	1997 04 23	327	0.5+	0.7+	1998 09 14	699	0.5+	0.6+
1991 07 16	809	(0.0	5.1−)	1997 05 24	327	0.6+	0.9+	1998 09 24	699	(0.2+	2.1+)
1991 07 16	809	(0.5+	5.1−)	1997 05 24	327	0.3+	0.7+	1998 09 24	699	1.7+	1.8+
1997 03 04	411	1.0−	1.1−	1997 05 24	327	1.2+	0.8+	1998 09 24	699	1.1−	1.0+
1997 03 04	411	0.6−	0.8−	1998 08 17	704	0.5−	0.3−				
1997 03 05	411	0.9−	0.0	1998 08 17	704	0.5−	0.2+				

(9438)∗ 1997 EE$_{16}$ = 1991 PR$_8$ = 1998 QQ$_{55}$

Discovered 1997 Mar. 5 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 32475)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	30.13979		(2000.0)			
n	0.29560370	ω	125.86882		+0.63812263	+0.76992200
a	2.2318387	Ω	183.79210		−0.72623005	+0.59997977
e	0.1994918	i	3.83964		−0.25571355	+0.21735774
P	3.33	H	16.3	G	0.15	U 2

Residuals in seconds of arc

1991 08 05	675	0.1+	1.4−	1997 03 05	691	0.3+	0.2−	1998 08 26	910	0.6+	0.1−
1991 08 08	675	0.4+	0.2+	1997 03 05	691	0.3−	0.1+	1998 08 26	910	0.4+	0.0
1991 08 08	675	(3.7+	2.0+)	1997 03 05	691	0.1−	0.2−	1998 08 26	910	0.7+	0.2−
1994 05 15	691	0.4−	0.0	1997 03 10	691	0.1+	0.3−	1998 08 31	910	0.5+	0.6−
1994 05 15	691	0.1−	0.2+	1997 03 10	691	0.0	0.8−	1998 08 31	910	0.4+	0.7−
1994 05 15	691	0.2−	0.0	1997 03 10	691	0.1+	0.8−	1998 08 31	910	0.2+	0.4−
1994 06 11	691	0.1+	0.3+	1997 03 13	691	0.5−	0.5−	1998 09 17	910	0.3−	0.7−
1994 06 11	691	(1.1+	4.5−)	1997 03 13	691	0.3−	0.6−	1998 09 17	910	0.3−	0.5−
1994 06 11	691	0.2+	0.1−	1997 03 13	691	0.3−	0.8−	1998 09 17	910	1.2−	0.1+

(9439)∗ 1997 EB$_{42}$ = 1980 FH$_7$ = 1991 PL$_{25}$ = 1995 UP$_{23}$

Discovered 1997 Mar. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. K. Ichikawa (*MPC* 29930)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	57.20097		(2000.0)			
n	0.28718919	ω	326.83055		−0.29017752	+0.95625567
a	2.2752231	Ω	286.27744		−0.86939365	−0.27960042
e	0.1165427	i	2.21151		−0.39993961	−0.08601566
P	3.43	H	15.4	G	0.15	U 1

Residuals in seconds of arc

1980 03 23	809	1.0+	0.7−	1997 03 10	704	0.0	1.1+	1998 09 14	704	1.2−	0.3+
1991 08 03	809	(2.7−	0.8+)	1997 03 11	704	0.5+	0.1+	1998 09 18	704	0.7+	0.9+
1991 08 03	809	1.5−	0.5+	1997 03 11	704	0.3+	0.1−	1998 09 18	704	0.7−	0.7−
1991 08 03	809	1.8−	1.1+	1997 03 12	704	0.2−	1.3+	1998 09 18	704	1.1−	1.2−
1995 10 19	691	0.5+	0.2−	1997 03 12	704	0.1−	1.7+	1998 09 25	704	1.1+	0.1+
1995 10 19	691	0.1−	0.2−	1998 08 17	704	0.4−	0.2+	1998 09 25	704	0.9+	1.4+
1995 10 19	691	0.2−	0.1−	1998 08 17	704	(2.0+	0.7+)	1998 09 25	704	0.7+	1.5−
1995 10 24	691	0.1−	0.1−	1998 08 17	704	0.8+	1.2+	1998 09 25	704	0.7+	0.6−
1995 10 24	691	0.0	0.1−	1998 08 17	704	0.7−	0.9+	1998 09 25	704	0.3+	0.6+
1995 10 24	691	0.2+	0.1−	1998 08 17	704	(4.4−	0.1+)	1998 09 27	704	0.1+	1.7−
1995 11 17	691	0.5−	0.6+	1998 09 14	704	1.0+	0.1−	1998 09 27	704	(0.4+	2.3+)
1995 11 17	691	0.6−	0.7+	1998 09 14	704	1.1−	1.0−	1998 09 27	704	0.6+	1.7+
1995 11 17	691	0.9−	0.7+	1998 09 14	704	0.2−	0.1+	1998 09 27	704	1.1+	1.4+
1997 03 10	704	0.2+	0.3+	1998 09 14	704	0.5−	0.8−	1998 09 27	704	1.0+	1.0+

(9440)∗ 1997 FZ$_1$ = 1982 DV$_5$ = 1990 HN$_3$

Discovered 1997 Mar. 29 by the Beijing Schmidt CCD Asteroid Program at Xinglong.

Id. G. V. Williams (*MPC* 29931)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	128.46441		(2000.0)			
n	0.26642605	ω	181.53228		−0.98358439	+0.18044669
a	2.3919472	Ω	8.86364		−0.16549934	−0.90019881
e	0.1424780	i	0.31818		−0.07191460	−0.39633457
P	3.70	H	14.8	G	0.15	U 2

Residuals in seconds of arc

1982 02 25	010	0.8−	0.9+	1997 04 01	809	1.6+	1.9+	1998 08 17	704	0.8+	1.4+
1982 02 26	010	0.2+	0.6+	1997 04 01	809	1.1+	1.3+	1998 09 14	704	0.4+	1.3+
1982 02 27	010	2.0+	1.0−	1997 04 01	809	1.0+	1.3+	1998 09 14	704	0.2+	0.3−
1982 02 28	010	(3.1−	2.8+)	1997 04 02	327	1.4+	0.8−	1998 09 14	704	0.0	1.5−
1990 04 29	413	1.0−	0.5−	1997 04 02	327	0.7+	0.2−	1998 09 14	704	0.1−	0.6+
1990 05 01	413	0.7−	0.2−	1997 04 17	327	0.2−	0.2−	1998 09 18	704	1.4+	0.6+
1990 05 02	413	0.5+	0.2−	1997 04 17	327	0.6−	0.3−	1998 09 18	704	1.9+	0.6+
1991 10 10	691	1.3−	0.3+	1997 04 17	327	0.3−	0.1+	1998 09 18	699	0.3+	1.3+
1991 10 10	691	1.5−	0.3+	1997 05 14	688	0.5−	0.1+	1998 09 18	704	1.2+	1.4+
1991 10 10	691	1.4−	0.1+	1997 05 14	688	0.4−	0.2+	1998 09 18	699	0.3−	0.6+
1996 01 23	327	0.1+	0.1+	1997 05 14	688	0.6−	0.2+	1998 09 18	704	(2.4+	1.0+)
1996 01 23	327	0.1+	0.6+	1997 05 14	688	0.4−	0.0	1998 09 18	704	1.2−	0.6+
1996 01 23	327	0.4+	0.3+	1997 06 26	327	0.3−	0.4+	1998 09 18	699	0.4−	1.3−
1997 02 10	910	0.8−	0.6+	1997 06 26	327	0.5+	0.2−	1998 09 27	704	1.4−	0.1+
1997 02 10	910	0.9−	0.5+	1997 06 26	327	0.7+	0.2+	1998 09 27	704	0.5+	0.1+
1997 02 10	910	0.8−	0.6+	1998 08 17	704	0.4−	0.6+	1998 09 27	704	1.0−	0.0
1997 03 29	327	0.1−	0.2−	1998 08 17	704	0.3−	0.2−	1998 09 27	704	0.5−	0.1−
1997 03 29	327	0.5−	0.2−	1998 08 17	704	0.7+	0.9−	1998 09 27	704	(0.7−	2.1−)
1997 03 29	327	0.2−	0.4−	1998 08 17	704	(2.9−	0.6+)				

(9441)∗ 1997 GN$_8$ = 1981 RO$_6$ = 1987 SB$_{29}$ = 1991 GD$_4$

Discovered 1997 Apr. 2 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 29933)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	357.38535		(2000.0)			
n	0.17314058	ω	285.89282		+0.72172025	+0.69067487
a	3.1881357	Ω	30.46837		−0.59559182	+0.65328852
e	0.1494869	i	5.17044		−0.35269004	+0.31013276
P	5.69	H	13.8	G	0.15	U 2

Residuals in seconds of arc

1981 09 01	675	0.3−	0.6+	1997 04 08	704	0.1−	0.4+	1997 05 05	704	0.1+	1.1−
1981 09 02	675	0.6−	0.8+	1997 04 30	704	0.7−	0.8−	1997 05 05	704	0.2+	0.6−
1987 09 24	095	1.0+	0.9+	1997 04 30	704	0.0	0.1−	1998 08 17	704	0.7−	0.3−
1991 04 08	809	0.0	1.2+	1997 04 30	704	0.4+	0.3−	1998 08 17	704	0.2−	0.8+
1991 04 08	809	0.1+	1.7+	1997 04 30	704	0.5+	0.0	1998 08 17	704	1.1−	1.0+
1991 04 08	809	0.3−	1.3+	1997 04 30	704	0.7−	0.4+	1998 08 17	704	1.5−	0.9−
1991 04 10	809	0.6−	1.2+	1997 05 01	704	0.6+	0.1−	1998 08 17	704	0.9−	0.3+
1991 04 10	809	0.2+	0.0	1997 05 01	704	0.3+	0.6−	1998 08 23	704	1.2+	1.4+
1991 04 10	809	0.6+	0.4+	1997 05 01	704	0.0	0.1−	1998 08 23	704	1.3+	1.4−
1997 04 02	704	0.1+	1.3−	1997 05 01	704	0.1−	0.1+	1998 08 23	704	0.8+	0.4+
1997 04 02	704	0.7−	1.2−	1997 05 01	704	0.2+	0.1−	1998 08 23	704	0.7−	0.5−
1997 04 06	704	0.3−	0.8+	1997 05 05	704	0.1+	0.1−	1998 09 24	699	0.2+	1.7−
1997 04 06	704	0.1−	0.1+	1997 05 05	704	0.7+	0.2−	1998 09 24	704	0.3+	0.2−
1997 04 08	704	0.2+	0.5+	1997 05 05	704	0.4+	1.0−	1998 09 24	699	0.2+	0.2+

(9442)∗ 1997 GQ$_{27}$ = 1990 SA$_{21}$ = 1995 YU$_{25}$

Discovered 1997 Apr. 2 by the Beijing Schmidt CCD Asteroid Program at Xinglong.

Id. T. B. Spahr (*MPC* 30462), G. V. Williams (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	299.67045		(2000.0)			
n	0.23612006	ω	270.21827		+0.89010640	−0.39666088
a	2.5924723	Ω	113.15795		+0.45020953	+0.84184630
e	0.1890336	i	14.12883		−0.07086594	+0.36599857
P	4.17	H	13.1	G	0.15	U 2

Residuals in seconds of arc

1990 09 26	808	1.9−	1.9+	1997 04 27	658	0.8−	0.6−	1998 06 24	699	0.6+	0.8+
1990 09 26	808	1.2+	0.2−	1997 04 27	658	0.1−	0.2+	1998 06 29	704	2.0−	1.2+
1995 12 31	691	0.2+	0.0	1997 04 27	658	0.7−	0.4−	1998 06 29	704	1.7−	0.3+
1995 12 31	691	0.0	0.0	1998 05 26	327	0.0	0.1−	1998 07 02	699	0.2+	0.7+
1995 12 31	691	0.3−	0.0	1998 05 26	327	1.1+	0.2−	1998 07 02	699	0.5+	0.4+
1997 04 02	327	0.3+	0.0	1998 05 26	327	0.4+	0.1+	1998 07 02	699	0.2+	0.6+
1997 04 02	327	0.4−	1.5+	1998 05 29	327	0.3+	0.2+	1998 08 17	704	0.2−	0.1+
1997 04 02	327	0.4+	0.1+	1998 05 29	327	0.2+	0.1+	1998 08 17	704	0.6−	0.3−
1997 04 09	327	0.6+	0.0	1998 05 29	327	0.3+	0.1+	1998 08 17	704	0.7−	0.1+

1997 04 09	327	0.9+	0.0	1998 06 02	699	0.3−	0.8+	1998 08 17	704	0.3−	0.4−
1997 04 09	327	0.5+	0.1−	1998 06 02	699	0.1−	0.2+	1998 08 17	704	0.5−	1.0−
1997 04 16	327	0.4+	0.1−	1998 06 02	699	0.2−	0.2+	1998 08 18	566	0.8+	1.8−
1997 04 16	327	0.4+	0.2−	1998 06 24	699	0.5+	0.9+	1998 08 18	566	0.4+	1.5−
1997 04 16	327	0.9−	0.3−	1998 06 24	699	0.3+	0.1+	1998 08 18	566	0.7+	1.7−

(9443)∗ 1997 HR_9 = 1979 SC_{15} = 1995 YM_{16}

Discovered 1997 Apr. 30 by the Lincoln Near-Earth Asteroid Research Team at Socorro.

Id. K. Ichikawa (*MPC* 30768), S. Nakano (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	346.46958		(2000.0)		**P**	**Q**	
n	0.26036366	ω	301.13620		+0.99958367	+0.01199433	
a	2.4289345	Ω	58.18857		−0.00010102	+0.91094765	
e	0.1519978	i	1.76958		−0.02885261	+0.41234756	
P	3.79	H	15.2	G	0.15	U	1

Residuals in seconds of arc

1979 09 20	675	0.2+	1.2−	1997 05 01	704	0.1+	0.3+	1998 09 18	704	0.0	0.4+
1979 09 21	675	0.9+	1.1−	1997 05 01	704	0.3−	1.3+	1998 09 18	704	0.5−	0.5+
1995 12 20	691	0.1+	0.3−	1997 05 01	704	0.3−	0.1−	1998 09 18	704	1.5+	0.8+
1995 12 20	691	0.0	0.3−	1997 05 05	704	0.3−	0.1−	1998 09 25	699	0.0	1.5+
1995 12 20	691	0.1−	0.4−	1997 05 05	704	0.6+	1.4−	1998 09 25	699	0.6+	0.2+
1995 12 27	691	0.2−	0.1−	1997 05 05	704	0.1+	0.2+	1998 09 25	699	0.5+	0.1−
1995 12 27	691	0.1−	0.2−	1997 05 05	704	0.2+	0.1−	1998 09 26	704	0.3+	0.5−
1995 12 27	691	0.0	0.1−	1997 05 05	704	0.3−	0.2−	1998 09 26	704	0.8−	0.1+
1997 04 06	704	0.4−	0.9+	1997 05 05	704	0.5−	0.6−	1998 09 26	704	1.0−	0.2−
1997 04 06	704	0.0	0.7+	1997 05 05	704	0.2−	0.5−	1998 09 26	704	0.2−	0.5−
1997 04 30	704	0.1−	0.0	1997 05 05	704	0.0	1.0−	1998 09 26	704	1.3−	0.4−
1997 04 30	704	0.6+	0.4−	1997 05 05	704	1.2−	0.6−	1998 09 27	704	0.4−	0.3−
1997 04 30	704	0.4+	0.1−	1998 09 01	691	0.8−	0.4−	1998 09 27	704	0.2+	0.2−
1997 04 30	704	0.3+	0.1−	1998 09 01	691	0.6−	0.3+	1998 09 27	704	0.3+	0.7+
1997 04 30	704	1.0+	0.2+	1998 09 01	691	0.5−	0.5−	1998 09 27	704	0.1−	0.3−
1997 05 01	704	0.2+	0.3+	1998 09 18	704	1.3+	0.3−	1998 09 27	704	0.1−	0.0
1997 05 01	704	0.0	0.5+	1998 09 18	704	1.1+	0.6+				

(9444)∗ 1997 JA = 1991 ET_8 = 1998 MQ_{33}

Discovered 1997 May 1 at Kleť.

Id. G. V. Williams (*MPC* 32253)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	135.75379		(2000.0)		**P**	**Q**	
n	0.17771260	ω	66.70678		−0.88217049	−0.46922413	
a	3.1332177	Ω	85.28862		+0.41605907	−0.81639898	
e	0.0943973	i	2.30305		+0.22061294	−0.33663247	
P	5.55	H	12.9	G	0.15	U	1

Residuals in seconds of arc

1991 03 12	675	0.9−	1.4−	1997 05 02	046	0.3+	0.0	1997 06 10	046	0.9−	0.7+
1991 03 12	675	0.2+	0.2−	1997 05 02	046	0.1+	0.3+	1997 06 10	046	1.1−	0.8+
1994 10 31	691	0.1−	0.2+	1997 05 02	046	0.1−	0.2+	1998 06 24	704	0.0	0.4−
1994 10 31	691	0.1−	0.5+	1997 05 02	046	0.1+	0.2+	1998 06 24	704	0.2+	0.7−
1994 10 31	691	0.3−	0.5+	1997 05 03	046	1.0−	0.9−	1998 06 24	704	0.5+	1.0+
1997 04 06	704	0.3−	0.0	1997 05 03	046	0.5−	0.4−	1998 06 24	704	0.5+	0.6−
1997 04 06	704	0.1+	0.7+	1997 05 03	046	0.1−	0.3+	1998 06 24	704	0.6−	1.2−
1997 04 06	704	0.8+	0.4+	1997 05 04	046	0.0	0.5−	1998 06 26	704	0.8−	0.7−
1997 04 06	704	0.0	1.1+	1997 05 04	046	0.2−	0.6−	1998 06 26	704	0.4−	1.4+
1997 04 07	809	1.6−	1.8−	1997 05 04	046	0.0	0.8−	1998 06 26	704	0.4−	0.1−
1997 04 07	809	(2.1−	2.1−)	1997 05 05	704	1.5+	0.0	1998 06 28	809	0.9+	0.2−
1997 04 07	809	(2.2−	2.2−)	1997 05 05	704	1.0+	0.3+	1998 06 28	809	1.2+	1.4−
1997 04 08	809	(0.5+	4.0+)	1997 05 05	704	0.8+	0.2−	1998 06 28	809	1.1+	0.8−
1997 04 08	809	(0.7+	3.5+)	1997 05 05	704	0.9+	0.1−	1998 07 03	699	(0.9+	2.6+)
1997 04 08	809	(0.2+	3.9+)	1997 05 05	704	0.7+	0.3−	1998 07 03	699	0.4−	1.2+
1997 04 08	704	0.2−	1.0+	1997 05 05	046	0.3−	0.9−	1998 07 03	699	0.9−	0.2+
1997 04 08	704	0.5−	1.6+	1997 05 05	046	0.7−	1.0−	1998 07 19	046	0.4−	0.0
1997 04 30	704	1.1+	0.4+	1997 05 05	046	0.3+	1.1−	1998 07 19	046	0.7−	0.4+
1997 04 30	704	1.1+	0.3−	1997 05 09	046	0.4+	1.0−	1998 07 19	046	0.4−	0.2−
1997 04 30	704	1.0+	0.1+	1997 05 09	046	0.5+	0.9−	1998 07 20	046	0.5−	0.4+
1997 04 30	704	1.0+	0.4+	1997 05 09	046	0.6+	0.8−	1998 07 20	046	0.5−	0.1+
1997 04 30	704	1.2+	0.6+	1997 05 16	046	0.9−	0.5−	1998 07 20	046	0.3−	0.1−
1997 05 01	704	1.4+	0.5+	1997 05 16	046	1.3−	0.6−	1998 07 26	704	0.4−	0.8−
1997 05 01	704	0.2+	0.1+	1997 05 16	046	0.5−	0.7−	1998 07 26	704	1.1+	1.3+
1997 05 01	704	1.2+	0.4+	1997 05 16	046	0.9−	0.8−	1998 07 26	704	0.3+	0.2−
1997 05 01	704	1.1+	0.7+	1997 05 31	046	1.4−	0.9+	1998 07 26	704	1.2+	0.4−
1997 05 01	704	1.3+	0.4+	1997 05 31	046	1.0−	0.5+	1998 08 17	046	0.2+	0.2+
1997 05 01	046	0.7+	0.4+	1997 05 31	046	1.1−	0.4+	1998 08 17	046	0.2−	0.2+
1997 05 01	046	0.7−	0.4+	1997 06 01	046	1.7−	0.1−	1998 08 17	046	0.1+	0.2−
1997 05 01	046	0.7+	0.3+	1997 06 01	046	1.5−	0.7+	1998 08 17	046	0.1−	0.2+
1997 05 01	046	0.2+	0.2+	1997 06 01	046	1.8−	1.4+				
1997 05 02	046	0.2+	0.4+	1997 06 10	046	0.3−	0.7+				

(9445)∗ 1997 JA_8 = 1993 FN_{44}

Discovered 1997 May 8 by P. G. Comba at Prescott.

Id. G. V. Williams (*MPC* 30282)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	307.11633		(2000.0)		**P**	**Q**	
n	0.27536883	ω	208.49705		+0.72669531	−0.68689701	
a	2.3398761	Ω	194.89958		+0.63693620	+0.67878582	
e	0.1345112	i	2.07194		+0.25734452	+0.25965807	
P	3.58	H	15.2	G	0.15	U	2

Residuals in seconds of arc

1991 11 03	691	0.1+	0.2+	1997 06 07	809	(1.5+	3.0−)	1998 09 18	704	0.1−	0.8+
1991 11 03	691	0.4+	0.2+	1997 06 07	809	(0.6+	2.6−)	1998 09 18	704	0.0	0.6+
1991 11 03	691	0.6−	0.3−	1997 06 07	809	0.9+	1.9−	1998 09 18	704	0.5−	0.3−
1993 03 19	809	1.2+	1.7+	1997 06 08	809	0.6+	0.3−	1998 09 18	704	0.1+	1.1−
1993 03 20	809	0.7+	0.7+	1997 06 08	809	1.5+	0.1+	1998 09 18	704	0.5+	0.4−
1993 03 24	809	1.9+	0.1−	1997 06 08	809	0.6+	1.6+	1998 09 25	699	0.3+	1.7+
1993 04 15	691	0.9−	0.3−	1998 08 01	684	0.5−	0.1+	1998 09 25	699	1.2+	1.9+
1993 04 15	691	0.8−	0.0	1998 08 01	684	0.2−	0.1−	1998 09 25	699	0.2+	1.7+
1993 04 15	691	0.8−	0.4−	1998 08 01	684	0.2−	0.5−	1998 09 26	704	0.3−	0.2−
1995 12 18	691	0.3−	0.8−	1998 08 01	684	1.4−	0.2−	1998 09 26	704	1.3−	0.6−
1995 12 18	691	0.8−	0.7−	1998 08 02	684	0.0	0.2+	1998 09 26	704	0.2+	0.3−
1995 12 18	691	0.3+	0.4−	1998 08 02	684	0.1+	0.1+	1998 09 26	704	0.4+	1.0−
1997 05 04	809	0.4−	1.8−	1998 08 02	684	0.1−	0.1+	1998 09 26	704	1.2−	1.1−
1997 05 04	809	(1.1−	2.7−)	1998 09 14	684	0.0	0.0	1998 09 27	704	0.4+	0.0
1997 05 04	809	(1.9−	3.0−)	1998 09 14	684	0.1+	0.1−	1998 09 27	704	0.9+	0.0
1997 05 08	684	0.8−	0.1+	1998 09 14	704	0.4−	0.6−	1998 09 27	704	1.0+	0.5+
1997 05 08	684	1.0−	0.1+	1998 09 14	704	0.8+	0.2−	1998 09 27	704	0.1−	0.4−
1997 05 10	684	0.9−	0.1+	1998 09 14	704	0.7−	0.4+	1998 09 27	704	0.4+	0.9−
1997 05 10	684	0.7−	0.0	1998 09 15	684	0.1+	0.4−				
1997 05 10	684	0.7−	0.8−	1998 09 15	684	0.2+	0.4−				

(9446)∗ 1997 JT_{11} = 1985 DB_1 = 1996 CF_9

Discovered 1997 May 3 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 30086)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	50.77273		(2000.0)		**P**	**Q**	
n	0.17399574	ω	90.91769		−0.26881197	+0.96316458	
a	3.1776811	Ω	163.48306		−0.89368444	−0.24655736	
e	0.1166593	i	1.48271		−0.35926069	−0.10734739	
P	5.66	H	13.5	G	0.15	U	1

Residuals in seconds of arc

1985 02 21	801	0.1+	0.1+	1997 05 04	809	0.8−	0.1−	1998 08 17	704	0.0	0.2+
1996 02 10	327	0.1+	0.3−	1997 05 04	809	0.2−	0.2−	1998 08 23	704	1.3+	0.4−
1996 02 10	327	0.0	0.3+	1997 05 04	809	1.0−	1.5+	1998 08 23	699	1.1+	0.1+
1996 02 10	327	0.0	0.9+	1997 05 07	704	0.3+	0.8−	1998 08 23	704	0.2+	0.5+
1996 02 10	327	0.8+	0.8+	1997 05 07	704	0.0	0.0	1998 08 23	704	0.8−	0.7−
1996 02 12	327	0.1−	0.6+	1997 05 07	704	0.0	0.3−	1998 08 23	699	1.2+	0.3+
1996 02 12	327	0.3−	0.5+	1997 05 07	704	0.1−	0.0	1998 08 23	704	(1.5−	2.5+)

1996 02 12	327	0.3+	0.5+	1998 07 26	809	(1.0+	4.2−)	1998 08 23	704	1.9−	0.5−
1997 04 06	704	1.5+	0.1+	1998 07 26	809	(0.8+	4.2−)	1998 08 23	699	1.0+	1.0+
1997 04 06	704	0.6+	0.9−	1998 07 26	809	(0.9+	4.0−)	1998 09 14	704	0.6−	0.6−
1997 04 06	704	0.6+	1.0−	1998 07 27	809	(3.1+	2.3−)	1998 09 14	704	1.3−	1.2−
1997 04 06	704	0.1+	0.3−	1998 07 27	809	(3.0+	2.7−)	1998 09 14	704	1.6−	1.4+
1997 04 11	704	0.6+	0.1+	1998 07 27	809	(2.9+	2.6−)	1998 09 14	704	1.3+	1.7+
1997 04 11	704	1.0+	0.3−	1998 08 17	704	0.3+	0.2+	1998 09 14	704	1.5−	0.6−
1997 05 03	809	1.0−	1.6+	1998 08 17	704	0.2−	0.3+	1998 09 21	699	0.2−	0.1+
1997 05 03	809	1.2−	1.1+	1998 08 17	704	0.4+	0.3+	1998 09 21	699	0.3+	1.0+
1997 05 03	809	(2.5−	0.3+)	1998 08 17	704	0.1−	0.6−	1998 09 21	699	0.0	1.1+

(9447)∗ 1997 JJ$_{18}$ = 1979 MP = 1982 BZ$_6$

Discovered 1997 May 3 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 30087)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	16.12729		(2000.0)		+0.83675260	+0.52010296
n	0.21573406	ω	240.70140		−0.42382932	+0.81320859
a	2.7533214	Ω	87.47256		−0.34671862	+0.26112200
e	0.1474506	i	9.87215			
P	4.57	H	13.3	G 0.15	U 1	

Residuals in seconds of arc

1979 06 22	805	1.5−	0.2+	1997 05 31	691	1.6+	0.4−	1997 06 26	691	0.1−	0.3−
1979 06 22	805	0.6+	0.2−	1997 06 07	691	0.8−	1.0+	1997 06 26	691	1.1−	0.0
1979 06 25	805	1.1+	0.6+	1997 06 07	691	0.4−	0.2+	1997 06 26	691	0.2−	1.2+
1982 01 26	381	0.4+	1.0+	1997 06 07	691	0.3−	0.6+	1998 08 09	426	0.5+	0.5−
1982 01 26	381	0.4−	0.1−	1997 06 08	809	1.0+	1.1+	1998 08 09	426	0.3−	0.6+
1997 05 03	809	0.3+	1.8−	1997 06 08	809	1.0+	1.1+	1998 08 15	426	0.4+	0.1−
1997 05 03	809	0.8+	1.6−	1997 06 08	809	0.6+	1.3+	1998 08 15	426	0.6+	0.0
1997 05 03	809	0.7+	1.8−	1997 06 09	809	(2.0+	3.3+)	1998 08 15	426	0.4+	0.0
1997 05 04	809	0.4−	1.2−	1997 06 09	809	(1.9+	2.9+)	1998 09 21	699	0.7−	0.5−
1997 05 04	809	0.3+	1.1−	1997 06 09	809	(1.7+	3.6+)	1998 09 21	699	0.3−	0.1−
1997 05 04	809	0.1−	1.0−	1997 06 11	691	0.5−	0.7+	1998 09 21	699	0.1+	0.1+
1997 05 31	691	0.1−	0.8+	1997 06 11	691	0.7−	0.8+				
1997 05 31	691	1.1−	0.2−	1997 06 11	691	1.0−	0.1−				

(9448)∗ 1997 LJ$_3$ = 1992 FE$_3$ = 1995 WT$_{31}$

Discovered 1997 June 5 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 30283)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	223.93014		(2000.0)		−0.24315872	−0.96930489
n	0.22002146	ω	318.19040		+0.90623253	−0.24038171
a	2.7174362	Ω	145.83625		+0.34585610	−0.05162035
e	0.0348974	i	3.71213			
P	4.48	H	14.1	G 0.15	U 1	

Residuals in seconds of arc

1992 03 26	691	0.7+	1.0−	1997 06 26	691	0.3−	0.1+	1998 08 23	699	0.0	0.6+
1992 03 26	691	0.7+	0.9−	1997 06 26	691	0.1−	0.4−	1998 08 23	704	0.2+	1.7+
1992 03 26	691	0.6+	0.9−	1997 06 26	691	0.2−	0.2−	1998 08 23	699	0.0	0.8+
1992 03 26	399	0.6−	1.3−	1997 06 30	910	(2.5+	0.1−)	1998 08 23	704	0.4+	1.5+
1992 03 26	399	(4.0−	0.6+)	1997 06 30	910	(2.4+	0.2−)	1998 09 14	704	0.4+	0.1+
1994 10 05	691	1.0−	0.6−	1997 06 30	910	(2.2+	0.3−)	1998 09 14	704	0.4+	0.9−
1994 10 05	691	0.8−	0.7−	1997 07 01	691	0.5−	0.1−	1998 09 14	704	0.5−	0.4−
1994 10 05	691	1.1−	0.5−	1997 07 01	691	0.6−	0.1−	1998 09 14	704	1.3+	0.5−
1995 11 19	691	0.7+	0.5−	1997 07 01	691	0.3−	0.1−	1998 09 14	704	0.9+	0.5−
1995 11 19	691	0.1+	0.6−	1997 07 01	910	0.9+	0.2+	1998 09 25	704	0.8−	0.4−
1995 11 20	691	0.5−	0.3−	1997 07 01	910	1.1+	0.2+	1998 09 25	704	0.7+	1.7−
1995 11 20	691	0.3−	0.2−	1997 07 01	910	0.9+	0.2+	1998 09 25	704	0.4−	1.2−
1995 11 20	691	0.4−	0.4−	1998 08 17	704	1.0+	1.1−	1998 09 25	704	1.8+	0.2−
1997 06 05	691	0.9−	0.2+	1998 08 17	704	0.0	0.7−	1998 09 27	704	0.7+	1.4+
1997 06 05	691	0.7−	0.2+	1998 08 17	704	0.7+	0.4−	1998 09 27	704	0.2−	0.0
1997 06 05	691	0.9−	0.3−	1998 08 17	704	0.0	0.8−	1998 09 27	704	1.2−	0.5+
1997 06 10	691	0.7−	0.3+	1998 08 17	704	0.2+	0.4+	1998 09 27	704	0.4−	0.9−
1997 06 10	691	0.6−	0.0	1998 08 23	699	0.5−	0.3+	1998 09 27	704	0.5−	0.5−
1997 06 10	691	0.8−	0.3+	1998 08 23	704	0.9+	0.6+				

(9449)∗ 1997 VU$_2$ = 1989 AA$_2$ = 1991 NE$_6$

Discovered 1997 Nov. 4 by L. Šarounová at Ondřejov.

Id. G. V. Williams (*MPC* 30994)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	173.31183		(2000.0)		−0.41758617	+0.89742772
n	0.19086410	ω	311.47502		−0.78064925	−0.43447421
a	2.9875824	Ω	293.31764		−0.46498231	−0.07652214
e	0.0635795	i	8.91336			
P	5.16	H	12.2	G 0.15	U 1	

Residuals in seconds of arc

1989 01 03	046	(2.8+	2.6−)	1991 07 12	809	0.2+	0.3−	1998 02 20	557	0.3+	0.8−
1989 01 03	046	(7.9−	2.4−)	1997 11 04	557	0.1−	0.2−	1998 02 20	557	1.2+	0.8−
1989 01 04	046	0.6−	0.2−	1997 11 04	557	0.4−	0.3−	1998 02 20	557	0.4+	0.7−
1989 01 04	046	0.0	1.3−	1997 11 05	557	0.3−	0.1+	1998 08 15	557	0.4−	0.3+
1989 01 09	046	(4.1+	1.7−)	1997 11 05	557	0.4−	0.2−	1998 08 15	557	0.1+	0.2−
1989 01 09	046	(4.9+	1.1−)	1997 11 05	557	0.1+	0.2−	1998 08 15	557	0.3+	0.6−
1989 01 12	046	1.3−	0.6−	1997 11 13	658	0.0	0.2+	1998 09 01	557	0.1−	0.2−
1989 01 12	046	1.3+	0.5+	1997 11 13	658	0.3+	0.2+	1998 09 01	557	0.1+	0.1−
1991 07 10	809	0.2+	0.4+	1997 11 29	557	0.1+	0.2+	1998 09 20	557	0.2+	0.3+
1991 07 10	809	0.5+	0.2+	1997 11 29	557	0.1−	0.3+	1998 09 20	557	0.1−	0.4+
1991 07 10	809	0.7+	0.5+	1997 11 29	557	0.1−	0.4+	1998 09 20	557	0.0	0.0
1991 07 11	809	0.7−	0.6−	1998 01 07	557	0.2−	0.1+	1998 09 23	557	0.1+	0.5+
1991 07 11	809	0.5−	0.5−	1998 01 07	557	0.1−	0.3+	1998 09 23	557	0.2+	0.7+
1991 07 11	809	0.2−	0.5−	1998 01 07	557	0.2+	0.2−	1998 09 23	557	0.1−	0.5+
1991 07 12	809	0.3+	0.0	1998 01 27	557	0.1−	0.1+				
1991 07 12	809	0.2+	0.1−	1998 01 27	557	0.2+	0.0				

(9450)∗ 1998 BT$_1$ = 1984 WE$_2$ = 1987 RE$_5$ = 1987 SZ$_{12}$ = 1987 UM$_7$

Discovered 1998 Jan. 19 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 31262)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	111.32378		(2000.0)		+0.66037397	−0.75093188
n	0.31072928	ω	50.78732		+0.66409695	+0.58570967
a	2.1588109	Ω	357.87825		+0.35054453	+0.30503359
e	0.1296575	i	4.25268			
P	3.17	H	14.9	G 0.15	U 2	

Residuals in seconds of arc

1984 11 20	675	0.4−	1.2+	1997 12 29	566	0.4−	0.3−	1998 01 31	411	0.2+	0.4−
1984 11 21	675	0.3−	0.7+	1998 01 19	411	0.1+	1.0−	1998 03 23	327	0.0	0.0
1987 09 03	095	0.5−	1.5−	1998 01 19	411	0.4+	0.3+	1998 03 23	327	0.3+	0.5−
1987 09 19	809	0.2+	0.7+	1998 01 20	411	0.6−	0.8−	1998 03 23	327	0.2+	0.0
1987 09 19	809	0.3−	0.1+	1998 01 20	411	0.6−	0.9−	1998 03 23	327	0.2−	0.1−
1987 09 19	809	0.3−	0.5−	1998 01 26	411	0.3−	0.3+	1998 03 23	327	0.1−	0.1+
1987 10 23	095	2.0+	0.9−	1998 01 26	411	0.2+	0.8+	1998 04 14	327	0.4+	0.0
1995 03 04	033	0.2+	1.3−	1998 01 29	566	0.2+	0.7+	1998 04 14	327	0.6+	0.2−
1995 03 04	033	0.9−	0.5+	1998 01 29	566	0.5+	0.8+	1998 04 14	327	0.8+	0.0
1997 12 29	566	0.6−	0.4−	1998 01 29	566	0.1+	0.9+				
1997 12 29	566	0.3−	0.4−	1998 01 31	411	0.4−	0.2+				

(9451)∗ 1998 BE$_2$ = 1976 GG$_4$ = 1995 QV$_{10}$

Discovered 1998 Jan. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 31989)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	301.60106		(2000.0)		**P**	**Q**	
n	0.17344854	ω	66.77930		−0.79608145	+0.60498521	
a	3.1843609	Ω	150.44137		−0.56625093	−0.73544058	
e	0.1262772	i	1.82647		−0.21357483	−0.30515579	
P	5.68	H	12.7	G	0.15	U	1

Residuals in seconds of arc

1976 04 02	095	0.2+	0.5+	1996 11 13	691	0.1−	0.3+	1998 01 20	704	0.0	0.1−
1995 08 24	809	0.4+	0.1+	1996 11 13	691	0.0	0.0	1998 01 20	704	0.1+	0.1+
1995 08 25	809	1.1+	1.2+	1996 11 13	691	0.1−	0.4+	1998 01 20	704	0.2+	0.1−
1995 08 25	809	0.0	0.3+	1997 12 29	566	0.2−	0.5+	1998 01 20	704	0.5+	0.4−
1995 08 26	809	0.3+	0.1+	1997 12 29	566	0.2−	0.3+	1998 01 20	704	0.3+	0.3−
1995 08 27	809	(4.5−	4.6−)	1997 12 29	566	0.5−	0.4+	1998 01 20	704	0.5−	0.2−
1995 08 27	809	0.1+	0.0	1998 01 02	704	0.3+	0.5+	1998 01 22	704	0.7+	0.2+
1995 09 01	809	0.0	0.1−	1998 01 02	704	0.1−	0.0	1998 01 22	704	0.5+	0.2+
1995 09 17	809	1.8−	0.7−	1998 01 02	704	0.0	0.1+	1998 01 22	704	0.4−	0.7+
1995 09 18	809	0.0	0.8−	1998 01 02	704	0.2−	0.1−	1998 01 22	704	0.1−	0.2+
1995 09 20	809	0.8−	0.2+	1998 01 02	704	0.4+	1.1−	1998 04 14	704	(1.1−	2.5−)
1995 09 22	809	0.1+	0.3+	1998 01 08	704	0.2−	0.6−	1998 04 14	704	1.7−	1.6−
1995 09 22	809	0.4+	0.5−	1998 01 08	704	0.2−	0.0	1998 04 14	704	1.5+	1.3+
1995 09 23	809	0.6+	0.2−	1998 01 08	704	0.2+	0.2−	1998 04 14	704	(3.6−	0.5−)
1995 09 24	809	0.3−	0.1−	1998 01 08	704	0.5−	0.2−				

(9452)∗ 1998 DY$_{33}$ = 1981 AG$_1$ = 1984 YZ$_2$

Discovered 1998 Feb. 27 by E. W. Elst at the European Southern Observatory.

Id. A. Gnädig (*MPC* 31991)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	90.27105		(2000.0)		**P**	**Q**	
n	0.23558134	ω	301.91342		+0.30979253	−0.94928093	
a	2.5964231	Ω	129.94316		+0.89432566	+0.27171301	
e	0.3012633	i	4.02380		+0.32281605	+0.15823322	
P	4.18	H	14.2	G	0.15	U	1

Residuals in seconds of arc

1981 01 03	688	1.2−	1.1+	1998 02 25	809	0.4−	1.2+	1998 03 20	704	0.2+	0.8−
1981 01 03	688	1.4+	0.1+	1998 02 25	809	0.4−	0.9+	1998 03 22	704	0.3−	0.1−
1984 12 23	095	2.3+	0.4−	1998 02 26	809	(1.3+	3.5−)	1998 03 22	704	0.0	0.1−
1984 12 27	095	(13.4−	6.4+)	1998 02 26	809	(0.8+	2.9−)	1998 03 22	704	0.3+	0.5+
1984 12 30	095	2.3−	0.6+	1998 02 26	809	(2.2+	2.5−)	1998 03 22	704	0.5+	0.4+
1996 07 21	809	2.0+	1.9+	1998 02 27	809	(2.4+	3.3+)	1998 03 22	704	0.8−	1.1+
1996 07 21	809	1.6+	2.0+	1998 02 27	809	(2.5+	3.8+)	1998 03 26	704	0.1+	0.1+
1996 07 21	809	(1.4+	2.2+)	1998 02 27	809	(2.4+	3.0+)	1998 03 26	704	0.1+	1.2+
1996 08 14	566	0.4−	0.8−	1998 02 28	809	0.6−	0.0	1998 03 26	704	(3.7−	0.7+)
1996 08 14	566	0.4−	0.8−	1998 02 28	809	0.2−	0.9−	1998 03 29	704	1.2+	0.3+
1996 08 14	566	0.2−	0.7−	1998 02 28	809	0.0	1.2−	1998 03 29	704	0.2−	0.1−
1996 09 08	809	0.4−	1.4+	1998 03 20	704	0.3−	0.1−	1998 03 29	704	0.1+	0.4−
1996 09 08	809	1.3−	0.8+	1998 03 20	704	0.6+	0.7−	1998 03 29	704	0.0	0.7+
1996 09 08	809	1.7−	0.1−	1998 03 20	704	0.0	0.1+	1998 03 29	704	0.2+	0.2−
1998 02 25	809	0.2+	1.5+	1998 03 20	704	0.4+	1.5−				

(9453)∗ 1998 FO$_1$ = 1979 QD$_1$ = 1987 DU$_1$ = 1990 VO = 1992 CT$_6$

Discovered 1998 Mar. 19 by A. Lopez and R. Pacheco at the Observatorio Astronómico de Mallorca.

Id. A. Gnädig (*MPC* 32256)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	220.54626		(2000.0)		**P**	**Q**	
n	0.19124213	ω	190.29984		+0.98018980	+0.18672404	
a	2.9836440	Ω	158.59255		−0.16640654	+0.95723928	
e	0.0845014	i	10.42505		−0.10740956	+0.22096853	
P	5.15	H	13.2	G	0.15	U	1

Residuals in seconds of arc

1979 08 22	809	0.9+	0.8+	1990 11 08	413	(5.6+	2.2+)	1998 03 20	620	0.4−	0.0
1979 08 22	809	1.0−	0.3+	1990 11 09	413	0.3−	0.7−	1998 03 21	620	0.2−	0.9+
1979 08 22	809	1.2+	0.5−	1990 11 09	413	0.7+	2.0+	1998 03 21	620	0.8−	1.2+
1979 08 23	809	0.7+	0.6+	1992 01 28	691	0.5−	0.7+	1998 04 19	704	0.1+	0.5−
1979 08 23	809	(3.7+	0.4−)	1992 01 28	691	0.7−	0.1+	1998 04 19	704	0.4+	0.8−
1979 08 26	809	0.3−	1.4+	1992 01 28	691	0.2−	0.1+	1998 04 19	704	0.4−	0.6−
1979 08 26	809	0.7−	1.2+	1992 02 02	809	0.7+	0.9+	1998 04 20	704	0.5+	0.0
1979 08 30	809	1.1−	1.0+	1992 02 02	809	0.3−	1.3+	1998 04 20	704	0.7+	0.0
1979 08 30	809	1.0−	1.1+	1992 02 02	809	1.1−	1.3+	1998 04 20	704	0.3+	0.2−
1987 02 23	010	0.2+	0.1+	1998 03 19	620	0.4+	1.4+	1998 04 20	704	0.0	0.2+
1987 02 23	010	0.4+	0.6+	1998 03 19	620	0.5+	1.2+	1998 04 20	704	0.5−	0.5+
1987 02 23	010	1.1+	1.5−	1998 03 19	620	0.9+	1.0+				

(9454)∗ 1998 FX$_{54}$ = 1994 NO$_2$ = 1997 AY$_{10}$

Discovered 1998 Mar. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 31995)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	223.17150		(2000.0)		**P**	**Q**	
n	0.18877418	ω	262.17062		+0.95976861	+0.28025053	
a	3.0095922	Ω	81.55298		−0.25017885	+0.88166785	
e	0.0465379	i	1.00974		−0.12749414	+0.37963329	
P	5.22	H	13.8	G	0.15	U	1

Residuals in seconds of arc

1989 07 05	675	1.6+	1.0+	1997 01 11	817	0.3+	0.7+	1998 03 28	704	0.3+	0.6−
1989 07 05	675	0.6−	1.6−	1997 01 14	817	0.1−	0.2+	1998 03 28	704	0.3−	0.3+
1989 07 29	675	0.2−	1.1−	1997 01 14	817	0.1+	0.2−	1998 03 28	704	0.1−	0.5−
1992 02 01	691	0.1+	0.0	1998 02 24	566	0.8−	0.4+	1998 03 28	704	0.6−	0.4−
1992 02 01	691	0.2−	0.3−	1998 02 24	566	0.3−	0.6+	1998 03 28	704	0.4−	0.2−
1992 02 01	691	0.4−	0.5−	1998 02 24	566	0.4−	0.8+	1998 03 29	704	0.7+	1.1−
1994 07 08	809	1.3+	0.5+	1998 02 27	910	0.0	0.1−	1998 03 29	704	1.1+	0.0
1994 07 08	809	0.0	0.1+	1998 02 27	910	0.3+	0.0	1998 03 29	704	0.2−	0.0
1994 07 08	809	0.3−	0.5+	1998 02 27	910	0.4+	0.1−	1998 03 29	704	0.5+	0.5−
1994 07 09	809	0.0	0.7−	1998 03 20	704	0.2+	0.1−	1998 03 29	704	0.2−	1.0+
1994 07 09	809	0.9+	1.1−	1998 03 20	704	0.3+	0.1+	1998 04 19	704	0.5−	0.1−
1994 07 09	809	0.3+	0.3−	1998 03 20	704	0.7+	0.5−	1998 04 19	704	0.9−	0.0
1994 07 11	809	1.6−	0.8+	1998 03 20	704	0.1−	1.1+	1998 04 19	704	0.6+	1.3−
1994 07 11	809	(2.2−	0.9+)	1998 03 20	704	0.0	0.3+	1998 04 19	704	0.8−	0.2+
1994 07 11	809	1.0−	0.9+	1998 03 22	704	1.1−	1.0−	1998 04 20	704	0.1−	0.4+
1994 07 12	809	0.2+	1.4+	1998 03 22	704	0.0	0.8+	1998 04 20	704	0.6−	0.6+
1994 07 12	809	0.7+	0.9+	1998 03 22	704	1.0+	1.0+	1998 04 20	704	0.5−	0.8+
1994 07 12	809	1.3−	0.8+	1998 03 22	704	0.4−	0.8+	1998 04 20	704	0.6−	0.8+
1997 01 09	817	0.0	0.6+	1998 03 25	566	0.4+	1.7−	1998 04 20	704	0.5+	0.2−
1997 01 09	817	0.2+	0.6+	1998 03 25	566	0.5+	1.4−				
1997 01 11	817	0.0	0.9+	1998 03 25	566	1.2+	0.5−				

(9455)∗ 1998 FJ$_{56}$ = 1981 SN$_6$ = 1991 XJ$_4$ = 1992 BA$_4$

Discovered 1998 Mar. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 31753)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	274.24322		(2000.0)		**P**	**Q**	
n	0.20988782	ω	251.35710		+0.40187883	+0.91429007	
a	2.8042145	Ω	42.45154		−0.80930117	+0.38052769	
e	0.0093502	i	4.30495		−0.42839822	+0.13882486	
P	4.70	H	13.6	G	0.15	U	1

Residuals in seconds of arc

1981 09 28	095	0.2+	0.3−	1998 02 24	566	0.3−	0.4−	1998 03 28	704	0.0	0.2+
1991 12 01	675	0.6+	0.3−	1998 02 24	566	0.4−	0.5−	1998 03 28	704	0.3+	0.7+
1991 12 01	675	1.2+	0.6−	1998 03 20	704	0.0	0.8−	1998 03 28	704	0.4+	0.1+
1992 01 28	691	0.4−	0.1+	1998 03 20	704	1.3−	0.6−	1998 03 29	704	0.1−	0.1+

1992 01 28	691	0.2−	0.2+	1998 03 20	704	0.1−	0.2−	1998 03 29	704	0.8+	0.1+
1992 01 28	691	0.5−	0.2+	1998 03 20	704	0.5−	0.0	1998 03 29	704	0.1−	0.1+
1992 01 29	691	0.4−	0.1+	1998 03 20	704	0.6−	0.3+	1998 03 29	704	0.6+	0.6−
1992 01 29	691	0.1−	0.0	1998 03 21	691	1.4−	0.1−	1998 03 29	704	0.1−	0.7−
1992 01 29	691	1.0−	0.2+	1998 03 21	691	1.5−	0.2−	1998 04 04	699	0.3+	0.6+
1995 08 25	809	(4.4−	4.0+)	1998 03 21	691	1.4−	0.2−	1998 04 04	699	0.7+	0.2−
1995 08 26	809	(3.4−	3.4+)	1998 03 22	704	0.1+	0.6−	1998 04 04	699	0.0	0.6+
1995 08 28	809	0.9+	0.7−	1998 03 22	704	1.1+	0.2−	1998 04 20	704	0.4+	0.0
1995 08 29	809	1.0+	0.3−	1998 03 22	704	0.5+	0.9−	1998 04 20	704	0.5+	0.2+
1995 08 31	809	0.8−	1.3−	1998 03 22	704	0.1+	1.2−	1998 04 20	704	0.1+	0.8+
1995 09 01	809	(2.4−	2.5−)	1998 03 22	704	0.2−	0.8−	1998 04 20	704	0.9+	1.0+
1995 09 23	809	(5.1+	2.5−)	1998 03 28	704	0.1+	0.0	1998 04 20	704	0.4−	0.9+
1998 02 24	566	0.3−	0.7−	1998 03 28	704	0.4+	0.4+				

(9456)∗ 1998 FQ$_{67}$ = 1992 AX$_{6}$

Discovered 1998 Mar. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32260)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	282.75027		(2000.0)		**P**	**Q**	
n	0.19446889	ω	196.67327		+0.49506752	+0.86669148	
a	2.9505476	Ω	103.03743		−0.78980886	+0.47829565	
e	0.0924673	*i*	3.60578		−0.36209130	+0.14170090	
P	5.07	*H*	13.3	*G*	0.15	*U*	2

Residuals in seconds of arc

1989 07 05	675	0.3+	1.9−	1998 03 22	704	0.4−	0.3+	1998 04 22	704	0.9+	0.5−
1989 07 05	675	1.1−	1.4−	1998 03 22	704	0.2−	0.8+	1998 04 22	704	0.6+	0.3+
1989 07 29	675	0.6+	0.4+	1998 03 22	704	1.0−	1.0+	1998 04 22	704	0.7+	0.3−
1989 07 29	675	0.9+	0.3−	1998 03 25	704	0.5−	0.1−	1998 04 22	704	0.4−	0.1−
1992 01 09	691	0.0	1.0−	1998 03 25	704	0.4+	0.3+	1998 04 22	704	0.3+	0.1+
1992 01 09	691	0.0	1.1−	1998 03 25	704	0.0	0.9−	1998 04 28	699	0.2+	0.5+
1992 01 09	691	0.1−	1.1−	1998 03 25	704	0.2−	0.1+	1998 04 28	699	1.0+	0.3+
1992 01 31	691	0.4−	0.4−	1998 03 25	704	0.0	0.4+	1998 04 28	699	1.3+	0.7−
1992 01 31	691	0.2−	0.3−	1998 04 17	691	1.0−	0.2−	1998 04 28	691	0.0	0.1−
1992 01 31	691	0.1−	0.5+	1998 04 17	691	1.3−	0.2−	1998 04 28	691	0.3−	0.1−
1997 01 06	691	0.1+	0.0	1998 04 17	691	(2.6−	0.1−)	1998 04 28	691	0.0	0.2−
1997 01 06	691	0.1+	0.0	1998 04 18	691	0.2+	0.3+	1998 05 03	691	0.6−	0.3−
1998 03 20	704	0.4−	0.1+	1998 04 18	691	0.1+	0.0	1998 05 03	691	0.5−	0.5−
1998 03 20	704	1.4−	0.5−	1998 04 18	691	0.0	0.1+	1998 05 03	691	0.4−	0.1−
1998 03 20	704	(1.3−	2.3+)	1998 04 20	704	0.7+	0.1−	1998 05 16	704	0.7+	0.5−
1998 03 20	704	1.6−	0.9+	1998 04 20	704	0.9+	0.8−	1998 05 16	704	1.0+	0.3+
1998 03 20	704	1.2−	0.7+	1998 04 20	704	0.8+	0.6−	1998 05 16	704	1.3+	0.4−
1998 03 22	704	0.7−	0.5+	1998 04 20	704	1.0+	0.1+	1998 05 16	704	1.6+	0.8+
1998 03 22	704	0.0	0.0	1998 04 20	704	1.4−	0.3+	1998 05 16	704	0.5+	1.4−

(9457)∗ 1998 FB$_{75}$ = 1926 TP = 1973 YZ$_{1}$ = 1978 RN$_{2}$ = 1990 WL$_{13}$

Discovered 1998 Mar. 24 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32000)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	112.91510		(2000.0)		**P**	**Q**	
n	0.17415364	ω	53.25850		+0.07916471	−0.99685193	
a	3.1757600	Ω	32.20177		+0.91196377	+0.07064830	
e	0.1703317	*i*	0.47074		+0.40256060	+0.03598664	
P	5.66	*H*	12.9	*G*	0.15	*U*	2

Residuals in seconds of arc

1926 10 06	672	0.0	0.4−	1998 03 24	704	1.2+	0.1−	1998 04 20	704	0.3−	0.4+
1926 10 07	672	0.3−	0.1−	1998 03 24	704	0.3+	1.9+	1998 04 20	704	0.2−	0.2−
1973 12 20	095	1.4+	1.4+	1998 03 24	704	0.4+	0.5+	1998 04 20	704	0.5−	0.6−
1978 09 12	095	(3.0−	1.7+)	1998 03 24	704	0.2−	1.6+	1998 04 20	704	0.8+	1.0−
1990 11 20	095	0.1+	0.6−	1998 03 25	704	0.7+	0.3+	1998 04 20	704	1.1−	0.2−
1990 11 20	095	1.3−	0.4−	1998 03 25	704	0.4+	1.2+	1998 04 21	704	0.3−	0.3−
1992 02 28	691	1.0−	0.6−	1998 03 25	704	0.8+	0.8+	1998 04 21	704	1.0+	0.6−
1992 02 28	691	1.0−	0.5−	1998 03 25	704	0.1+	1.2+	1998 04 21	704	0.3−	0.1−
1992 02 28	691	0.7−	0.6−	1998 03 25	704	1.0−	1.5+	1998 04 21	704	0.6−	0.6−
1998 03 22	704	0.4−	0.2−	1998 03 29	704	0.4+	0.7−	1998 04 21	704	0.5+	1.6−
1998 03 22	704	1.3−	0.3−	1998 03 29	704	0.5−	0.3−	1998 04 22	704	0.8−	0.7−
1998 03 22	704	(4.2−	4.7+)	1998 03 29	704	0.3+	0.1−	1998 04 22	704	0.3+	0.7−
1998 03 22	704	0.0	0.6+	1998 03 29	704	0.1+	0.1−	1998 04 22	704	0.1+	0.0
1998 03 24	704	1.1−	1.4+	1998 03 29	704	0.6+	1.0−	1998 04 22	704	0.3−	0.5−
1998 03 24	704	0.2+	0.1+	1998 04 01	704	0.3+	0.3−	1998 04 22	704	(2.2−	4.0+)
1998 03 24	704	0.5−	0.2−	1998 04 01	704	0.2+	0.7−	1998 05 16	704	1.0−	1.4+
1998 03 24	704	0.2−	0.2−	1998 04 01	704	0.4−	0.0	1998 05 16	704	1.4+	0.4−
1998 03 24	704	1.9+	0.2+	1998 04 01	704	1.4+	0.5−	1998 05 16	704	0.7−	1.0+
1998 03 24	704	0.4+	1.3+	1998 04 01	704	1.0+	0.6−	1998 05 16	704	0.2−	0.6−

(9458)∗ 1998 FF$_{97}$ = 1996 VC$_{4}$

Discovered 1998 Mar. 31 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32001)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	359.48313		(2000.0)		**P**	**Q**	
n	0.24104586	ω	319.23593		−0.82937300	+0.55416729	
a	2.5570326	Ω	254.55401		−0.49156285	−0.78418829	
e	0.1608683	*i*	4.22343		−0.26553040	−0.27919051	
P	4.09	*H*	13.9	*G*	0.15	*U*	2

Residuals in seconds of arc

1992 11 28	691	0.3−	0.9−	1996 11 20	327	0.9+	0.3+	1998 04 18	704	0.1−	0.6−
1992 11 28	691	0.2+	0.1+	1996 12 15	691	0.4−	0.6−	1998 04 18	704	0.4−	1.2−
1992 11 28	691	0.3+	0.4−	1996 12 15	691	0.5−	0.6−	1998 04 18	704	0.4+	1.6−
1995 07 25	691	0.0	0.8−	1996 12 15	691	0.4−	1.0−	1998 04 18	704	2.0−	0.3−
1995 07 25	691	0.4+	0.7−	1997 02 06	691	1.0−	0.6−	1998 04 19	704	1.1+	1.2−
1995 07 25	691	0.3+	0.4−	1997 02 06	691	1.5−	0.7−	1998 04 19	704	0.6+	0.1−
1996 11 07	327	0.6+	0.3+	1998 03 31	704	0.4+	0.9+	1998 04 19	704	0.6+	0.5−
1996 11 07	327	0.1+	0.4−	1998 03 31	704	0.4+	0.6+	1998 04 19	704	(2.2+	0.3+)
1996 11 07	327	0.3−	0.2+	1998 03 31	704	0.7+	0.5+	1998 04 19	704	0.1+	0.0
1996 11 09	327	0.0	0.9+	1998 03 31	704	0.8−	0.3−	1998 05 14	704	1.2+	0.3+
1996 11 09	327	0.5+	0.8+	1998 04 01	704	0.6−	1.1+	1998 05 14	704	1.4−	1.5−
1996 11 09	327	0.1−	0.3+	1998 04 01	704	0.4−	1.0+	1998 05 14	704	1.2−	0.0
1996 11 20	327	0.9+	0.3−	1998 04 01	704	0.1+	0.3+	1998 05 14	704	0.7−	0.2−
1996 11 20	327	0.2−	0.1+	1998 04 01	704	1.2+	0.1+				
1996 11 20	327	1.1+	0.0	1998 04 01	704	0.4−	0.0				

(9459)∗ 1998 FW$_{113}$ = 1978 WF$_{20}$ = 1984 HR$_{2}$ = 1995 OT$_{1}$

Discovered 1998 Mar. 31 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 31767)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	345.81485		(2000.0)		**P**	**Q**	
n	0.28158908	ω	289.37356		−0.35286404	+0.93413241	
a	2.3052897	Ω	319.83443		−0.82419336	−0.33747773	
e	0.1672740	*i*	4.77567		−0.44293597	−0.11621281	
P	3.50	*H*	13.8	*G*	0.15	*U*	1

Residuals in seconds of arc

1978 11 28	675	1.1−	0.5−	1998 03 31	704	0.4−	0.0	1998 04 19	704	0.2+	0.8+
1978 11 29	675	1.0−	0.0	1998 03 31	704	(3.3+	0.1−)	1998 04 19	704	0.1−	0.9−
1984 04 27	095	0.6+	0.9−	1998 03 31	704	(3.0−	2.0−)	1998 04 19	704	0.1−	0.8−
1992 09 25	691	0.1+	1.5+	1998 03 31	704	1.2−	1.7−	1998 04 20	704	0.1−	0.0
1992 09 25	691	0.1+	0.8+	1998 04 01	704	0.2−	0.1−	1998 04 20	704	0.4+	0.7−
1992 09 25	691	0.1−	1.1+	1998 04 01	704	0.4+	0.3+	1998 04 20	704	0.6+	0.0
1995 07 19	327	0.1+	0.3−	1998 04 01	704	0.1−	0.2+	1998 04 20	704	0.9+	1.2+
1995 07 19	327	0.1−	0.3+	1998 04 01	704	0.1+	0.2−	1998 04 20	704	0.4+	0.6+
1995 07 19	327	0.1−	0.5−	1998 04 01	704	0.1−	0.4+	1998 06 18	704	0.3−	0.1+
1995 07 19	327	0.1−	0.3−	1998 04 18	704	0.5−	0.7+	1998 06 18	704	0.4+	1.7+
1995 07 21	327	0.2+	0.2+	1998 04 18	704	0.2−	0.0	1998 06 18	704	0.2−	1.1+
1995 07 21	327	0.6+	0.2−	1998 04 18	704	0.2+	0.3−	1998 06 18	704	0.1+	0.2+

1995 07 21	327	0.5+	0.1+	1998 04 18	704	(2.3−	3.4+)	1998 06 18	704	0.1−	1.0+
1995 07 21	327	0.3−	0.2−	1998 04 19	704	0.0	0.4+				
1998 03 31	704	0.3+	0.6+	1998 04 19	704	0.0	0.1−				

(9460)∗ 1998 HS_{30} = 1974 YE = 1978 TY_6 = 1987 XO

Discovered 1998 Apr. 29 at Haleakala by the JPL Near-Earth Asteroid Tracking program.

Id. G. V. Williams (*MPC* 32010)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	168.28900		(2000.0)		**P**		**Q**
n	0.22680218	ω	349.12172		+0.50082774		−0.83628046
a	2.6630004	Ω	70.48811		+0.81083924		+0.36309453
e	0.1545179	*i*	13.69605		+0.30283874		+0.41084955
P	4.35	*H*	13.4	*G*	0.15	*U*	2

Residuals in seconds of arc

1974 12 18	330	0.2−	0.8+	1998 04 23	704	0.2+	0.4+	1998 04 30	566	0.6−	0.1−
1978 10 02	095	1.4−	0.2−	1998 04 23	704	1.6−	0.3+	1998 05 22	704	0.7+	0.6+
1978 10 08	095	1.3+	0.4+	1998 04 24	704	0.1+	0.0	1998 05 22	704	0.1−	0.6+
1987 12 14	046	0.2+	1.0−	1998 04 24	704	0.1−	1.1+	1998 05 22	704	0.6−	0.2+
1987 12 14	046	0.0	0.2+	1998 04 24	704	0.2+	1.6+	1998 05 22	704	0.6+	0.8−
1987 12 15	046	0.5+	0.5−	1998 04 24	704	0.3+	0.4+	1998 05 22	704	0.1+	0.2−
1987 12 15	046	0.8−	0.8−	1998 04 29	566	0.3+	0.2−	1998 05 24	704	0.1−	0.2+
1987 12 22	046	0.7+	0.9+	1998 04 29	566	0.2+	0.0	1998 05 24	704	0.7−	0.5+
1987 12 22	046	0.3−	0.7+	1998 04 29	566	0.3−	0.1−	1998 05 24	704	0.5−	0.9+
1998 04 21	704	0.1−	0.5+	1998 04 30	566	0.8+	1.3−	1998 05 24	704	1.0−	0.9+
1998 04 21	704	0.0	0.2−	1998 04 30	566	0.7+	1.5−	1998 05 24	704	1.1−	0.6+
1998 04 21	704	0.2−	0.1−	1998 04 30	566	0.8+	1.9−	1998 05 27	699	0.3+	0.3−
1998 04 21	704	0.4−	0.1−	1998 04 30	566	1.2+	1.3−	1998 05 27	699	0.2−	0.2+
1998 04 21	704	1.0−	0.1+	1998 04 30	566	0.7+	0.9−	1998 05 27	699	0.2+	0.1+
1998 04 23	704	0.1−	0.7+	1998 04 30	566	1.3+	1.3−	1998 06 02	699	0.1−	0.3+
1998 04 23	704	0.1+	0.4−	1998 04 30	566	0.2+	0.2−	1998 06 02	699	0.0	0.0
1998 04 23	704	0.5+	0.4+	1998 04 30	566	0.2−	0.2+	1998 06 02	699	0.5−	0.4+

(9461)∗ 1998 HV_{33} = 1996 XP_{15} = 2222 T-3

Discovered 1998 Apr. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32265)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	232.45204		(2000.0)		**P**		**Q**
n	0.21723673	ω	52.99467		+0.98017050		+0.19722299
a	2.7406099	Ω	295.62352		−0.18789993		+0.89428464
e	0.0390545	*i*	1.22057		−0.06292384		+0.40169401
P	4.54	*H*	13.8	*G*	0.15	*U*	2

Residuals in seconds of arc

1977 10 07	675	1.6+	1.1−	1996 12 10	327	0.0	0.5+	1998 04 01	704	1.5−	0.7+
1977 10 07	675	(2.0+	3.7−)	1996 12 10	327	0.0	0.4+	1998 04 20	704	0.0	0.9−
1977 10 11	675	0.7+	1.2−	1996 12 11	327	0.1+	0.1−	1998 04 20	704	(0.8+	2.6−)
1977 10 11	675	0.7−	0.2+	1996 12 11	327	0.1+	0.1−	1998 04 20	704	0.3−	0.3+
1977 10 11	675	0.7−	0.8−	1996 12 11	327	0.3−	0.0	1998 04 20	704	1.1+	1.1−
1977 10 11	675	0.9+	0.3+	1996 12 18	327	0.7−	0.0	1998 04 20	704	(0.2−	2.0−)
1977 10 12	675	0.1−	0.8−	1996 12 18	327	1.2+	0.1−	1998 04 22	704	0.8−	0.8−
1977 10 12	675	1.1+	0.1+	1996 12 18	327	0.3−	0.2−	1998 04 22	704	0.1−	0.8−
1977 10 12	675	0.0	1.6−	1998 03 29	704	0.0	0.8+	1998 04 22	704	0.3+	0.6−
1977 10 12	675	0.0	1.7−	1998 03 29	704	0.2−	0.4+	1998 04 22	704	1.4−	0.4+
1977 10 16	675	(0.6−	4.1−)	1998 03 29	704	0.6−	0.1+	1998 04 22	704	0.7−	1.2−
1977 10 16	675	(0.1−	2.7−)	1998 03 29	704	0.7+	0.8−	1998 05 16	704	1.0+	1.3−
1991 12 14	691	0.1+	0.3−	1998 04 01	704	0.0	1.0−	1998 05 16	704	0.4+	1.8−
1991 12 14	691	0.1−	0.9−	1998 04 01	704	0.1−	0.0	1998 05 16	704	0.5−	1.0−
1991 12 14	691	0.2+	0.3−	1998 04 01	704	1.1−	0.5+	1998 05 16	704	1.1+	0.8−
1996 12 10	327	0.2+	0.2−	1998 04 01	704	0.5−	0.9+				

(9462)∗ 1998 HC_{37} = 1984 PC = 1988 VV_2

Discovered 1998 Apr. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32012)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	286.94927		(2000.0)		**P**		**Q**
n	0.26902310	ω	358.59503		+0.78851989		+0.61479056
a	2.3765284	Ω	323.45186		−0.56399102		+0.71221705
e	0.2212108	*i*	1.57809		−0.24525600		+0.33879114
P	3.66	*H*	14.2	*G*	0.15	*U*	2

Residuals in seconds of arc

1984 08 03	046	0.9+	0.7+	1998 03 25	699	0.3−	0.1+	1998 04 20	704	0.1+	0.4+
1984 08 04	046	1.5−	0.6+	1998 03 25	704	0.1+	0.5+	1998 04 20	704	0.1−	0.7+
1988 11 08	399	(6.2−	1.6−)	1998 03 25	704	0.1+	0.2−	1998 04 21	704	0.0	0.2+
1988 11 08	399	(4.6−	1.2−)	1998 03 25	704	0.3+	0.1−	1998 04 21	704	0.5−	0.0
1988 11 08	399	0.9−	1.6−	1998 03 25	704	0.0	0.2−	1998 04 21	704	0.0	0.1−
1988 11 11	399	1.9+	1.3+	1998 03 25	704	0.5−	0.4−	1998 04 21	704	0.1−	0.2−
1988 11 11	399	0.5−	1.0−	1998 03 29	704	0.4+	0.1+	1998 04 21	704	0.4−	0.5+
1988 11 11	399	(3.1−	3.1−)	1998 03 29	704	0.5−	0.3+	1998 04 22	704	0.4−	0.1+
1988 11 14	399	0.4+	1.1−	1998 03 29	704	0.2+	0.6−	1998 04 22	704	0.7+	0.1−
1988 11 14	399	0.3−	1.5+	1998 03 29	704	0.5+	0.7−	1998 04 22	704	0.4−	0.0
1988 11 14	399	0.6−	1.5+	1998 03 29	704	0.1−	1.5−	1998 04 22	704	0.2+	1.8−
1997 01 10	566	0.3+	0.4+	1998 04 01	704	0.4−	0.5+	1998 04 30	699	0.3+	0.4−
1997 01 10	566	0.1+	0.3+	1998 04 01	704	0.2+	0.5+	1998 04 30	699	0.2+	0.4+
1997 01 10	566	0.1+	0.5+	1998 04 01	704	0.8−	0.2+	1998 04 30	699	0.7+	0.7+
1997 02 03	566	0.2−	0.2+	1998 04 01	704	0.2−	0.3+	1998 05 16	704	0.0	0.2+
1997 02 03	566	0.3−	0.2+	1998 04 01	704	0.7−	0.0	1998 05 16	704	1.7+	0.3−
1997 02 03	566	0.3+	0.5+	1998 04 20	704	0.2−	0.5−	1998 05 16	704	0.0	0.2+
1998 03 25	699	0.3−	0.3+	1998 04 20	704	0.4+	0.5+	1998 05 16	704	0.9+	1.7+
1998 03 25	699	0.4+	0.2+	1998 04 20	704	0.5−	0.8−	1998 05 16	704	0.3−	0.7+

(9463)∗ 1998 HW_{38} = 1979 QW = 1997 AA_{16}

Discovered 1998 Apr. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32012)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	315.40842		(2000.0)		**P**		**Q**
n	0.19464111	ω	19.42767		−0.02047207		+0.99969697
a	2.9488070	Ω	249.40119		−0.91921109		−0.02419797
e	0.0489024	*i*	0.83674		−0.39323260		+0.00451940
P	5.06	*H*	14.1	*G*	0.15	*U*	2

Residuals in seconds of arc

1979 08 22	809	0.6−	0.5+	1997 01 15	599	0.1−	0.5+	1998 04 01	704	0.2−	0.4−
1979 08 22	809	0.0	1.3+	1997 01 16	599	0.7+	0.0	1998 04 20	704	0.3+	0.5+
1979 08 22	809	0.1+	0.9+	1997 01 16	599	0.8+	0.1+	1998 04 20	704	1.1+	0.7−
1979 08 23	809	(6.2−	9.3+)	1998 03 22	704	0.8+	0.5−	1998 04 20	704	1.3+	0.8+
1979 08 23	809	1.0+	0.3+	1998 03 22	704	0.5+	0.2+	1998 04 20	704	1.3−	0.3−
1989 07 05	675	1.3−	1.8−	1998 03 22	704	(2.4−	1.5+)	1998 04 20	704	1.7−	1.0−
1992 02 09	691	0.9−	0.7+	1998 03 22	704	(0.7−	2.1+)	1998 04 21	704	0.0	0.3−
1992 02 09	691	1.2−	0.2+	1998 03 25	704	0.5−	1.0+	1998 04 21	704	1.4+	0.2−
1992 02 09	691	1.1−	0.4+	1998 03 25	704	0.8−	0.8+	1998 04 21	704	0.3+	0.0
1997 01 09	691	0.0	0.1+	1998 03 25	704	0.1+	0.2+	1998 04 21	704	0.8+	0.1−
1997 01 09	691	0.0	0.6+	1998 03 25	704	0.4+	1.8+	1998 04 21	704	0.3−	0.1+
1997 01 09	691	0.0	0.6+	1998 03 25	704	0.3−	0.6+	1998 04 22	704	0.9+	1.5−
1997 01 13	566	0.7+	0.0	1998 03 29	704	0.4−	0.4−	1998 04 22	704	0.4+	0.5−
1997 01 13	566	0.2+	0.3+	1998 03 29	704	0.2+	0.6−	1998 04 22	704	0.1−	0.5−
1997 01 13	566	0.5−	0.1+	1998 03 29	704	0.8+	0.6−	1998 04 22	704	0.5−	0.2−
1997 01 14	566	0.2−	0.1−	1998 03 29	704	1.0+	0.5+	1998 04 22	704	0.5−	0.2+
1997 01 14	566	0.5+	0.2−	1998 03 29	704	0.2+	1.2−	1998 05 16	704	1.0−	0.8+
1997 01 14	566	0.3−	0.3−	1998 04 01	704	1.7−	0.5−	1998 05 16	704	0.9−	0.3−
1997 01 14	599	(0.3+	3.2−)	1998 04 01	704	0.3−	0.1−	1998 05 16	704	1.2−	0.5+

1997 01 14	599	0.7+	1.9−	1998 04 01	704	0.4−	0.7+	1998 05 16	704	0.8+	1.9+
1997 01 15	599	0.5+	0.2+	1998 04 01	704	1.4+	0.6+				

(9464)∗ 1998 HL$_{117}$ = 1936 PK = 1980 WO$_3$ = 1992 DQ$_1$ = 1994 TG$_{16}$

Discovered 1998 Apr. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32271)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	278.82382		(2000.0)		**P**	**Q**	
n	0.20407542	ω	242.48434		+0.94591378	+0.29428064	
a	2.8572106	Ω	100.13748		−0.22647914	+0.90037332	
e	0.3005607	*i*	7.97356		−0.23228070	+0.32051020	
P	4.83	*H*	13.1	*G*	0.15	*U*	2

Residuals in seconds of arc

1936 08 09	078	(43.8+	13.7+)X	1998 04 21	704	0.2−	0.7−	1998 04 24	704	(2.3−	0.3+)
1980 11 29	675	0.1−	0.6−	1998 04 21	704	0.5+	0.0	1998 05 22	566	0.4−	0.1−
1980 12 01	675	0.4+	0.6−	1998 04 21	704	0.6+	0.3−	1998 05 22	566	0.5−	0.5−
1992 02 27	033	0.5+	0.3−	1998 04 21	704	0.7−	0.1+	1998 05 22	566	0.1−	0.0
1992 02 27	033	0.4+	0.6+	1998 04 23	704	0.5−	0.5−	1998 05 23	704	0.2+	0.5+
1992 02 28	033	0.2−	0.5+	1998 04 23	704	0.1+	0.7−	1998 05 23	704	0.6+	0.0
1994 10 07	675	1.8+	1.0+	1998 04 23	704	0.1+	0.3+	1998 05 23	704	0.1−	0.4−
1994 10 09	675	0.0	1.3−	1998 04 23	704	0.5−	0.3+	1998 05 23	704	0.2+	0.2+
1994 10 09	675	1.6−	0.3−	1998 04 23	704	0.1−	0.9−	1998 05 23	704	0.8−	1.0−
1997 03 12	691	0.2−	0.2−	1998 04 23	704	0.3+	0.2−	1998 05 27	699	0.4+	0.5+
1997 03 12	691	0.4−	0.5−	1998 04 23	704	0.1+	0.2−	1998 05 27	699	0.0	0.4−
1997 03 12	691	0.4−	0.5−	1998 04 23	704	0.4−	0.1+	1998 05 27	699	0.5+	0.0
1998 03 24	704	1.7+	0.2+	1998 04 23	704	0.2+	0.6−	1998 05 28	704	0.6−	0.1−
1998 03 24	704	0.5+	0.3+	1998 04 23	704	0.3−	0.5−	1998 05 28	704	0.8−	0.9−
1998 03 24	704	0.4+	0.4+	1998 04 24	704	1.6−	0.3+	1998 05 28	704	0.1−	0.4+
1998 03 24	704	1.5+	0.4+	1998 04 24	704	0.3−	0.8+	1998 05 28	704	0.3+	1.6−
1998 03 24	704	0.1+	0.5+	1998 04 24	704	0.9−	0.8+	1998 05 28	704	0.8+	1.8+
1998 04 21	704	0.0	0.3+	1998 04 24	704	0.3−	0.2+				

(9465)∗ 1998 HJ$_{121}$ = 1989 SD$_6$ = 3063 T-1

Discovered 1998 Apr. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32022)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	298.19038		(2000.0)		**P**	**Q**	
n	0.18537585	ω	119.98753		+0.57856322	+0.81543443	
a	3.0462622	Ω	185.46882		−0.79858024	+0.56178289	
e	0.0905315	*i*	11.01004		−0.16593432	+0.13952301	
P	5.32	*H*	13.8	*G*	0.15	*U*	1

Residuals in seconds of arc

1971 03 24	675	1.1−	0.8+	1994 10 08	691	0.0	0.1+	1998 04 29	566	0.1+	0.9−
1971 03 25	675	0.2+	0.5+	1998 04 21	704	0.1+	0.2+	1998 05 22	704	0.1+	0.3−
1971 03 26	675	0.8+	0.8+	1998 04 21	704	0.6−	0.9+	1998 05 22	704	0.0	0.5+
1971 03 26	675	1.1+	0.6−	1998 04 21	704	0.2−	1.4+	1998 05 22	704	0.3+	1.3+
1971 03 27	675	0.3+	1.2+	1998 04 21	704	0.3+	0.3+	1998 05 22	704	0.8−	1.2+
1971 04 02	675	0.6−	0.0	1998 04 21	704	0.1−	1.0+	1998 05 22	704	0.9−	1.0+
1989 09 26	809	1.1−	0.9+	1998 04 23	704	0.8+	0.2+	1998 05 24	704	0.1+	0.7−
1989 09 26	809	1.1−	1.7+	1998 04 23	704	0.0	0.2+	1998 05 24	704	0.4+	1.8−
1989 09 26	809	0.4−	0.5−	1998 04 23	704	0.1+	0.6−	1998 05 24	704	0.3+	1.3+
1989 09 28	809	1.3+	1.5+	1998 04 23	704	0.4−	0.2−	1998 05 24	704	0.5−	0.6+
1989 09 28	809	1.0+	0.8+	1998 04 24	704	0.2−	0.1+	1998 05 24	704	(0.4−	2.1−)
1989 09 28	809	0.3+	0.1+	1998 04 24	704	0.1+	0.3−	1998 05 27	699	0.1−	0.2−
1989 09 29	675	0.9−	0.7−	1998 04 24	704	0.7+	0.3−	1998 05 27	699	0.6−	1.1−
1989 09 29	675	0.2+	0.4−	1998 04 24	704	0.8−	0.5+	1998 05 27	699	0.5+	1.7−
1989 10 03	809	0.3+	0.4+	1998 04 25	699	1.8+	0.2+	1998 06 02	699	0.9−	0.2+
1989 10 03	809	0.2+	0.5+	1998 04 25	699	0.2+	0.2+	1998 06 02	699	0.8−	0.8−
1989 10 03	809	0.5−	0.6−	1998 04 25	699	0.0	0.6+	1998 06 02	699	0.2−	0.0
1994 10 08	691	0.0	0.4+	1998 04 29	566	0.6+	0.7−				
1994 10 08	691	0.2−	0.3+	1998 04 29	566	0.4+	0.5−				

(9466)∗ 1998 KR$_{46}$ = 1988 QM = 1991 LG$_4$ = 1997 EU$_{40}$

Discovered 1998 May 22 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32280)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	271.78037		(2000.0)		**P**	**Q**	
n	0.28233598	ω	167.23990		+0.98833315	−0.14826081	
a	2.3012222	Ω	201.38075		+0.12998346	+0.94040858	
e	0.1772007	*i*	5.48957		+0.07938446	+0.30602358	
P	3.49	*H*	14.5	*G*	0.15	*U*	2

Residuals in seconds of arc

1988 08 19	413	0.9−	1.2+	1997 03 11	704	0.0	1.0−	1998 06 24	704	0.1+	1.4−
1988 08 19	413	0.9+	0.7−	1997 03 11	704	1.9+	0.4+	1998 06 24	704	0.1+	0.6−
1988 08 20	413	0.7−	0.2+	1997 03 12	704	0.1+	0.3+	1998 06 24	704	0.3+	0.4+
1991 06 06	809	2.3+	0.1−	1997 03 12	704	0.4−	0.3+	1998 06 24	704	0.0	0.0
1991 06 06	809	0.7+	0.5−	1998 05 22	704	0.2−	1.7−	1998 06 24	704	0.2−	0.0
1991 06 06	809	0.9+	0.3−	1998 05 22	704	1.2+	0.7+	1998 06 26	704	1.5−	1.7+
1991 06 08	809	0.1−	0.8+	1998 05 22	704	0.0	0.3−	1998 06 26	704	(2.8−	2.8+)
1991 06 08	809	0.2+	1.5+	1998 05 22	704	0.4+	1.1−	1998 06 26	704	0.0	1.2+
1991 06 08	809	1.6−	1.3+	1998 05 22	704	1.4−	0.1−	1998 06 26	704	0.3+	0.5−
1994 04 06	691	1.1−	0.3−	1998 05 24	704	0.2−	0.9−	1998 07 01	699	0.3−	0.7+
1994 04 06	691	0.9−	0.2−	1998 05 24	704	0.1+	0.9−	1998 07 01	699	0.3−	0.6+
1994 04 06	691	1.0−	0.0	1998 05 24	704	0.8+	1.5+	1998 07 01	699	0.8−	0.7+
1997 03 10	704	0.1+	0.8+	1998 05 24	704	0.9+	1.4−				
1997 03 10	704	0.4+	1.4+	1998 05 24	704	0.0	0.3−				

(9467)∗ 1998 KQ$_{47}$ = 1976 SP$_1$ = 1980 FX = 1990 BT$_3$ = 1992 GB$_5$

Discovered 1998 May 22 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32281)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	331.27951		(2000.0)		**P**	**Q**	
n	0.17514678	ω	114.29094		+0.62636893	+0.77917215	
a	3.1637436	Ω	194.56561		−0.74480984	+0.58930057	
e	0.2429922	*i*	5.36403		−0.23004404	+0.21357808	
P	5.63	*H*	13.5	*G*	0.15	*U*	2

Residuals in seconds of arc

1976 09 24	095	1.0−	0.2+	1992 04 06	809	(2.5−	1.2−)	1998 06 23	682	0.3+	0.1+
1976 09 28	095	0.1+	2.0+	1992 04 06	809	(2.6−	1.9−)	1998 06 23	682	0.5−	1.0+
1980 03 16	809	0.6+	0.4+	1992 04 06	809	(3.0−	1.4−)	1998 06 23	682	0.6+	1.3−
1980 03 16	809	0.8+	0.2+	1998 05 22	704	0.4+	0.1+	1998 06 24	704	0.6−	0.1−
1980 03 16	809	0.1+	1.0+	1998 05 22	704	0.4−	1.8−	1998 06 24	704	0.4−	0.2+
1980 03 16	809	0.6+	0.4+	1998 05 22	704	1.6−	0.1+	1998 06 24	704	0.1+	0.5+
1980 03 17	809	0.3−	0.9+	1998 05 22	704	0.3+	0.2+	1998 06 24	704	0.2−	0.4+
1980 03 17	809	0.4+	0.0	1998 05 22	704	0.1−	0.1+	1998 06 24	704	0.3−	0.5+
1980 03 17	809	0.1−	1.2+	1998 05 24	704	0.2−	0.4−	1998 06 26	704	1.0+	0.1+
1980 03 17	809	0.5+	0.3+	1998 05 24	704	0.2+	0.7+	1998 06 26	704	1.0−	0.1−
1990 01 24	033	0.1+	0.8+	1998 05 24	704	0.1−	0.4+	1998 06 26	704	1.0+	0.8−
1990 01 24	033	0.3−	0.6+	1998 05 24	704	0.3+	1.0+	1998 06 26	704	0.8+	0.8+
1992 04 04	809	0.6−	1.9−	1998 05 24	704	0.3+	0.5+	1998 06 26	704	0.0	0.9+
1992 04 04	809	1.3−	1.8−	1998 06 22	682	0.7+	0.1+	1998 07 13	689	0.1+	0.2−
1992 04 04	809	(1.1−	2.6−)	1998 06 22	682	0.1+	0.2+				

(9468)∗ 1998 LT$_2$ = 1981 SA$_9$ = 1981 UP$_{26}$ = 1988 UU = 1997 EB$_{31}$

Discovered 1998 June 1 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 32285)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	291.38693		(2000.0)		**P**	**Q**	
n	0.27890878	ω	158.80224		+0.99626254	+0.06883136	
a	2.3200353	Ω	197.49524		−0.07941123	+0.96755798	
e	0.1435054	i	9.99632		+0.03398243	+0.24309215	
P	3.53	H	14.5	G	0.15	U	1

Residuals in seconds of arc

1981 09 24	033	0.1−	0.1−	1997 03 08	691	0.2+	0.4−	1998 06 02	809	0.9+	0.4+
1981 09 24	033	0.4−	0.0	1997 03 08	691	0.1−	0.5−	1998 06 19	704	0.3−	1.2−
1981 10 25	675	0.8−	0.9−	1997 03 08	691	0.2−	0.3−	1998 06 19	704	0.5+	0.3−
1981 10 26	675	0.0	0.1−	1997 03 16	691	0.0	0.9−	1998 06 19	704	0.6−	0.4+
1988 10 18	046	1.3+	0.1−	1997 03 16	691	0.2−	0.5−	1998 06 19	704	0.3+	0.2−
1988 10 18	046	1.4+	0.0	1997 03 16	691	0.4−	0.3−	1998 06 19	704	0.5+	1.2−
1988 11 05	046	(1.9+	4.5−)	1998 06 01	809	(2.2+	2.4+)	1998 06 25	704	1.4−	0.8−
1988 11 05	046	(1.1−	3.5−)	1998 06 01	809	(1.8+	2.3+)	1998 06 25	704	0.3−	0.3−
1995 10 21	691	0.4−	0.3−	1998 06 01	809	(2.7+	2.0+)	1998 06 25	704	1.0−	0.6−
1995 10 21	691	0.1−	0.4−	1998 06 02	809	0.4+	0.7+				
1995 10 21	691	0.5−	0.5−	1998 06 02	809	1.1+	1.0+				

(9469)∗ 1998 MY$_{34}$ = 1995 TL$_2$ = 2317 T-2

Discovered 1998 June 24 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32287)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	359.55788		(2000.0)		**P**	**Q**	
n	0.27221565	ω	79.03391		+0.39485335	+0.91834748	
a	2.3579105	Ω	214.26257		−0.86054925	+0.35939177	
e	0.1728665	i	2.74839		−0.32178537	+0.16575724	
P	3.62	H	15.5	G	0.15	U	2

Residuals in seconds of arc

1973 09 29	675	1.0+	0.2+	1995 10 14	327	0.5−	0.7+	1998 06 26	704	0.8−	0.9−
1973 09 29	675	0.6−	0.7+	1995 10 14	327	1.6+	0.8+	1998 06 26	704	0.8−	0.8+
1973 09 30	675	0.2−	1.9−	1995 10 14	327	0.1−	1.7+	1998 06 26	704	1.2−	1.8−
1973 09 30	675	0.3−	1.6−	1995 10 15	327	0.5−	0.6−	1998 06 26	704	0.6−	0.1−
1973 10 04	675	1.1+	1.7−	1995 10 15	327	0.8−	1.3+	1998 06 26	704	1.8−	1.2+
1973 10 04	675	1.5+	1.2−	1995 10 15	327	0.5−	0.1+	1998 06 27	809	(3.1+	0.7−)
1973 10 05	675	0.5+	1.1−	1998 06 24	704	0.0	0.3+	1998 06 27	809	2.0+	0.3−
1973 10 05	675	0.3−	0.9−	1998 06 24	704	1.4−	0.5−	1998 06 27	809	(2.7+	0.3−)
1994 04 13	691	0.1−	0.1−	1998 06 24	704	0.1−	1.4+	1998 07 17	910	0.4+	0.4+
1994 04 13	691	0.1+	0.1−	1998 06 24	704	0.9−	1.3−	1998 07 18	910	0.5+	0.4+
1994 04 13	691	0.0	0.3−	1998 06 24	704	(2.8−	1.2+)	1998 07 18	910	0.4+	0.4+
1994 05 05	691	0.2−	1.8−	1998 06 26	809	(3.5+	0.9+)	1998 07 19	910	1.0+	0.8+
1994 05 05	691	0.4−	0.8−	1998 06 26	809	(2.3+	0.3+)	1998 07 19	910	1.1+	1.2+
1994 05 05	691	0.5−	0.9−	1998 06 26	809	(2.2+	0.5+)	1998 07 19	910	1.0+	1.1+

(9470)∗ 1998 OS$_{10}$ = 1981 NL$_1$ = 1982 XO$_3$ = 1984 BT$_4$ = 1987 SU$_{12}$

Discovered 1998 July 26 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 32491)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	342.11458		(2000.0)		**P**	**Q**	
n	0.17612447	ω	177.41908		+0.94291665	+0.33286946	
a	3.1520244	Ω	163.12679		−0.30618015	+0.87865182	
e	0.1817227	i	2.03386		−0.13100348	+0.34229943	
P	5.60	H	14.3	G	0.15	U	1

Residuals in seconds of arc

1981 07 02	805	1.0−	0.8+	1998 07 26	809	1.9+	0.3−	1998 08 22	566	0.7+	0.3+
1981 07 02	805	0.9+	1.4−	1998 07 26	809	1.3+	0.3+	1998 08 22	566	1.5−	0.2+
1982 12 13	381	0.3−	0.4−	1998 07 27	809	(2.3+	1.1−)	1998 08 23	699	0.2−	0.5+
1982 12 14	381	1.3+	0.6−	1998 07 27	809	1.9+	1.5−	1998 08 23	699	0.7−	0.9+
1982 12 14	381	1.3−	0.5−	1998 07 27	809	1.6+	1.5−	1998 08 23	699	0.4−	0.5+
1984 01 25	675	1.0+	1.6−	1998 08 17	704	0.2−	0.2+	1998 09 14	704	0.3−	0.1+
1984 01 26	675	0.3−	0.4−	1998 08 17	704	0.0	0.4+	1998 09 14	704	0.5−	0.5+
1987 09 18	809	0.0	0.1+	1998 08 17	704	0.4−	0.5+	1998 09 14	704	0.6−	0.0
1987 09 18	809	0.1−	0.4+	1998 08 17	704	0.5−	0.7−	1998 09 14	704	0.0	0.2−
1987 09 18	809	0.1−	0.9+	1998 08 17	704	0.1−	0.2−	1998 09 14	704	0.7−	0.7+
1996 03 18	691	0.7−	0.7−	1998 08 21	566	1.0−	0.0	1998 09 21	699	0.9+	1.3−
1996 03 18	691	0.6−	0.5−	1998 08 21	566	0.4−	0.3−	1998 09 21	699	1.0−	1.7−
1996 03 18	691	0.2−	0.3−	1998 08 21	566	0.7+	0.0	1998 09 21	699	0.5−	1.3−
1998 07 26	809	2.0+	0.4+	1998 08 22	566	0.5−	0.3−				

(9471)∗ 1998 OU$_{13}$ = 1979 OE$_3$ = 1980 VK$_4$ = 1989 TP$_{10}$ = 1993 OZ$_5$

Discovered 1998 July 26 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 32492)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	271.74253		(2000.0)		**P**	**Q**	
n	0.21130643	ω	108.03572		+0.51608033	−0.85593493	
a	2.7916496	Ω	310.85098		+0.76888426	+0.47950254	
e	0.0851926	i	2.43936		+0.37746270	+0.19352699	
P	4.66	H	13.5	G	0.15	U	1

Residuals in seconds of arc

1979 07 24	675	1.3−	0.0	1998 07 26	809	1.4+	1.9+	1998 08 23	704	0.2−	0.7+
1979 07 24	413	(4.5−	1.3−)	1998 07 26	699	0.7+	0.2−	1998 09 14	704	0.3−	0.1−
1979 07 25	675	1.3+	2.1+	1998 07 26	699	0.5−	0.5−	1998 09 14	704	0.8−	1.7+
1980 11 01	675	1.4+	0.1+	1998 07 26	699	0.0	0.0	1998 09 14	704	0.3−	0.1+
1980 11 02	675	0.1+	0.1−	1998 07 27	809	(2.3+	2.9+)	1998 09 14	704	0.4+	0.3+
1989 10 02	385	1.8−	1.6−	1998 07 27	809	(1.9+	3.1+)	1998 09 14	704	0.5−	0.4+
1989 10 02	385	1.0−	0.2−	1998 07 27	809	(1.7+	3.1+)	1998 09 15	699	0.1+	0.1−
1993 07 13	809	(2.4+	0.0)	1998 08 17	704	0.1+	0.4−	1998 09 15	699	0.2−	0.1+
1993 07 13	809	1.3+	0.0	1998 08 17	704	0.2+	1.2−	1998 09 15	699	0.3−	0.3+
1993 07 13	809	0.7+	0.4−	1998 08 17	704	0.0	1.0−	1998 09 18	704	0.5+	0.4−
1993 07 20	809	(0.2+	3.0−)	1998 08 17	704	0.3−	0.1−	1998 09 18	704	1.2+	1.4−
1993 07 20	809	(0.1+	2.7−)	1998 08 17	704	0.5+	0.0	1998 09 18	704	1.8+	0.2−
1993 07 20	809	0.4−	2.0−	1998 08 23	699	0.2−	0.2−	1998 09 18	704	0.2−	0.3+
1993 07 24	809	1.9−	1.6−	1998 08 23	704	0.9−	0.1−	1998 09 18	704	0.6−	0.5−
1996 03 25	566	0.0	0.3+	1998 08 23	704	0.9+	0.3+	1998 09 21	699	0.5−	1.1+
1996 03 25	566	0.0	0.0	1998 08 23	699	0.5−	0.3−	1998 09 21	699	0.3+	0.1−
1996 03 25	566	0.0	0.5+	1998 08 23	704	0.2−	0.2+	1998 09 21	699	0.3−	0.1−
1998 07 26	809	(2.4+	1.4+)	1998 08 23	704	0.3−	1.5+				
1998 07 26	809	1.4+	1.9+	1998 08 23	699	0.3−	0.1−				

(9472)∗ 1998 OD$_{14}$ = 1976 KH$_2$ = 1981 JS$_5$ = 3025 T-3

Discovered 1998 July 26 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 32493)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	6.42085		(2000.0)		**P**	**Q**	
n	0.18411167	ω	131.85425		+0.64548596	+0.76377196	
a	3.0601908	Ω	178.34760		−0.70604201	+0.59695913	
e	0.1614551	i	1.04543		−0.29129461	+0.24554469	
P	5.35	H	13.5	G	0.15	U	1

Residuals in seconds of arc

1976 05 29	413	0.5−	0.5−	1998 08 15	120	0.4+	0.7−	1998 08 26	120	0.0	0.0
1976 05 29	413	0.5+	0.3−	1998 08 15	120	0.5+	0.5−	1998 08 26	120	0.5−	0.3+
1977 10 16	675	0.4+	0.5−	1998 08 16	120	1.6+	0.6+	1998 09 13	699	0.5−	0.9+
1977 10 16	675	0.1+	0.9−	1998 08 16	120	0.2+	0.3+	1998 09 13	699	0.8−	0.5+
1977 10 17	675	0.9−	0.1+	1998 08 16	120	0.1+	0.6−	1998 09 13	699	0.0	1.0+
1977 10 17	675	1.2−	0.5−	1998 08 17	704	0.2+	0.8−	1998 09 14	704	1.6−	0.0
1977 10 21	675	0.5+	1.6+	1998 08 17	704	(1.0+	2.5−)	1998 09 14	704	1.1−	0.3+
1977 10 21	675	0.5−	0.8+	1998 08 17	704	0.3+	0.8−	1998 09 14	704	1.0−	0.0
1977 10 22	675	1.0+	2.5−	1998 08 17	704	0.7+	0.6−	1998 09 14	704	0.3−	0.5+
1977 10 22	675	1.6+	0.6−	1998 08 17	704	0.9+	0.7−	1998 09 14	704	0.4−	1.1+
1981 05 08	675	0.5+	0.9−	1998 08 23	699	0.1−	0.2+	1998 09 18	704	1.4+	0.2+

1981 05 09	675	0.7−	0.1+	1998 08 23	704	0.7−	0.1−	1998 09 18	704	1.2+	0.2−
1998 07 26	809	0.8+	0.4+	1998 08 23	704	0.6−	0.2−	1998 09 18	704	0.3−	0.8−
1998 07 26	809	0.1+	0.0	1998 08 23	699	0.4+	0.2−	1998 09 18	704	0.2+	0.8−
1998 07 26	809	0.2−	0.8−	1998 08 23	704	0.5−	0.6+	1998 09 18	704	0.5−	0.6−
1998 07 27	809	0.9+	1.8+	1998 08 23	704	0.6−	0.3+	1998 09 21	699	0.0	1.1+
1998 07 27	809	0.5+	0.7+	1998 08 23	699	0.2+	0.5+	1998 09 21	699	0.3−	1.0+
1998 07 27	809	(0.2+	2.1+)	1998 08 23	704	0.7−	0.2−	1998 09 21	699	0.5−	1.2−
1998 08 15	120	0.4+	0.6−	1998 08 26	120	0.2−	0.6+				

(9473)∗ 1998 OO_{14} = 1993 NR = 1997 LU_{12}

Discovered 1998 July 26 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 32493)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	251.52136		(2000.0)		**P**	**Q**	
n	0.21441010	ω	292.84217		+0.29337557	−0.95484765	
a	2.7646441	Ω	140.00314		+0.90167196	+0.26008004	
e	0.0291756	i	4.18175		+0.31767664	+0.14361174	
P	4.60	H	14.3	G	0.15	U	1

Residuals in seconds of arc

1993 07 12	809	(4.8+	3.1+)	1997 06 07	809	(3.1+	1.3+)	1998 08 17	704	1.1−	0.9−
1993 07 12	809	(5.7+	3.7+)	1997 06 07	809	1.8+	0.8+	1998 08 17	704	0.1+	0.6−
1993 07 12	809	(5.2+	3.0+)	1997 06 07	809	(2.7+	0.8+)	1998 08 17	704	0.2−	0.7+
1993 07 19	809	0.3−	0.4+	1997 06 08	809	(2.9+	0.4+)	1998 08 23	699	0.3+	0.7−
1993 07 19	809	0.3+	0.1−	1997 06 08	809	0.5+	0.1−	1998 08 23	704	0.1−	1.0−
1993 07 19	809	0.1+	0.8−	1997 06 08	809	1.3+	0.5−	1998 08 23	704	0.3−	1.0−
1995 11 30	691	1.6−	0.2−	1997 06 11	691	1.0−	0.5−	1998 08 23	699	0.1+	0.4−
1995 11 30	691	(0.2−	3.0−)	1997 06 11	691	0.9−	0.4−	1998 08 23	704	1.1+	0.5+
1995 11 30	691	1.7−	0.1+	1997 06 11	691	0.7−	1.8+	1998 08 23	704	1.3+	0.6+
1996 02 16	566	1.1+	1.1−	1998 07 26	809	(2.8+	0.3+)	1998 08 23	699	1.0−	0.1+
1996 02 16	566	0.4+	0.9−	1998 07 26	809	(2.3+	0.4+)	1998 08 23	704	1.2−	1.0−
1996 02 16	566	0.3+	0.8−	1998 07 26	809	1.9+	0.7−	1998 09 14	704	1.3−	0.2−
1997 05 09	691	0.4−	0.0	1998 07 27	809	0.6+	0.3+	1998 09 14	704	0.7−	1.4+
1997 05 09	691	0.7−	0.1−	1998 07 27	809	1.2+	0.4−	1998 09 14	704	1.5−	1.5−
1997 05 09	691	0.6−	0.2−	1998 07 27	809	1.6+	1.1+	1998 09 14	704	0.0	0.3+
1997 05 31	691	0.2+	0.5−	1998 08 17	704	0.9+	0.7−	1998 09 14	704	0.4−	1.9+
1997 05 31	691	0.3+	0.3−	1998 08 17	704	(1.5+	2.0−)				

(9474)∗ 1998 QK_{15} = 1981 UE_1 = 1981 UD_{14} = 1988 XG_4 = 1997 EG_{48} = 1997 HB_1

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32497)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	318.20359		(2000.0)		**P**	**Q**	
n	0.28509380	ω	155.45420		+0.99306391	−0.10865175	
a	2.2863578	Ω	210.88671		+0.08812207	+0.94079073	
e	0.1842284	i	5.02142		+0.07783686	+0.32110373	
P	3.46	H	14.9	G	0.15	U	2

Residuals in seconds of arc

1981 10 23	095	1.1+	1.7−	1997 04 27	691	0.1+	0.8−	1998 08 23	704	0.0	0.2+
1981 10 31	704	(0.2+	37.4−)	1997 04 27	691	0.4+	0.6−	1998 08 23	704	0.5+	0.3+
1981 10 31	704	0.6−	0.4−	1997 04 30	691	0.6−	1.2−	1998 08 23	704	0.2+	0.2+
1988 12 07	054	0.2+	0.4+	1997 04 30	691	0.6−	0.4−	1998 08 23	704	0.5−	0.2+
1988 12 07	054	0.0	1.1−	1997 04 30	691	0.7−	0.6−	1998 08 30	699	0.2+	0.1−
1993 04 25	691	0.2−	0.8−	1998 06 19	699	0.8−	0.1−	1998 08 30	699	0.4+	0.1+
1993 04 25	691	0.1−	0.5−	1998 06 19	699	0.1+	0.0	1998 08 30	699	0.2+	0.3−
1993 04 25	691	0.4−	0.8−	1998 06 19	699	0.0	1.0+	1998 09 15	699	0.3+	0.4−
1997 03 11	809	(4.2+	3.7+)	1998 07 24	566	0.3−	1.2−	1998 09 15	699	0.4+	0.3−
1997 03 11	809	(3.6+	3.7+)	1998 07 24	566	0.1+	1.0−	1998 09 15	699	0.3+	0.3−
1997 03 11	809	(4.0+	3.2+)	1998 07 24	566	0.1+	1.2−	1998 09 22	699	0.1−	0.4−
1997 03 12	809	(2.7+	3.5+)	1998 08 17	704	0.4−	0.4+	1998 09 22	699	0.2−	0.3−
1997 03 12	809	(2.6+	3.7+)	1998 08 17	704	0.7−	0.1+	1998 09 22	699	0.1+	0.3−
1997 03 12	809	(1.7+	3.5+)	1998 08 17	704	(2.2−	1.0+)				
1997 04 27	691	0.1+	0.7−	1998 08 17	704	0.9+	0.6+				

(9475)∗ 1998 QC_{19} = 1976 UT_{17} = 1981 RA_6 = 1991 HF_2 = 1993 TB_{25} = 1997 GF_{41}

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32498)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	36.07879		(2000.0)		**P**	**Q**	
n	0.17333217	ω	168.06403		+0.03286250	+0.99761698	
a	3.1857860	Ω	103.79670		−0.92204905	+0.05368416	
e	0.1204059	i	3.58153		−0.38567551	−0.04334016	
P	5.69	H	13.1	G	0.15	U	1

Residuals in seconds of arc

1976 10 22	381	0.4+	0.2+	1993 10 20	809	0.1+	1.4−	1998 08 23	704	0.2+	0.5+
1976 10 22	381	0.9−	0.0	1997 02 07	327	0.1−	0.6−	1998 08 23	704	0.1−	1.1+
1976 10 24	381	0.6−	0.6+	1997 02 07	327	0.8+	0.9−	1998 08 23	704	0.4+	0.9−
1981 09 01	675	0.8+	0.1−	1997 02 07	327	0.0	1.1−	1998 08 27	699	0.1−	0.5+
1981 09 02	675	0.1−	0.1−	1997 04 07	809	0.5−	0.4+	1998 08 27	699	0.4−	0.3−
1991 04 19	809	(0.2+	5.0−)	1997 04 07	809	0.2−	0.5−	1998 08 27	699	0.1−	0.1+
1991 04 19	809	(0.2−	4.9−)	1997 04 07	809	0.7−	1.0−	1998 09 14	704	0.5+	0.4+
1991 04 19	809	(0.2+	5.8−)	1997 04 08	809	0.1−	0.2−	1998 09 14	704	0.7+	0.5−
1993 10 09	809	(1.8−	4.1−)	1997 04 08	809	0.1−	0.5−	1998 09 14	704	0.1+	0.7−
1993 10 09	809	(2.4−	4.3−)	1997 04 08	809	0.2−	0.2−	1998 09 14	704	0.3+	1.8−
1993 10 09	809	(2.6−	4.1−)	1998 08 17	704	0.1+	0.7+	1998 09 14	704	0.2+	1.2−
1993 10 11	809	1.1+	0.2−	1998 08 17	704	0.5−	1.5+	1998 09 14	699	0.1−	0.9+
1993 10 11	809	0.6+	0.4−	1998 08 17	704	0.1−	1.0+	1998 09 14	699	0.2+	0.1+
1993 10 11	809	0.5+	0.6−	1998 08 17	704	0.9−	0.0	1998 09 14	699	(0.9+	2.2+)
1993 10 20	809	0.0	1.3−	1998 08 17	704	0.9−	0.1+				
1993 10 20	809	0.3+	0.8−	1998 08 23	704	0.2−	0.6−				

(9476)∗ 1998 QQ_{36} = 1979 SZ_6 = 1979 TW = 1982 JK_2 = 1997 EO_{51}

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32500), N. S. Chernykh (d, *ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	16.27636		(2000.0)		**P**	**Q**	
n	0.25652860	ω	97.33520		+0.52394364	+0.85114643	
a	2.4530827	Ω	204.34569		−0.80899759	+0.48548489	
e	0.1105803	i	4.47119		−0.26646944	+0.19963509	
P	3.84	H	14.0	G	0.15	U	2

Residuals in seconds of arc

1979 09 23	095	0.0	0.7−	1998 08 17	704	0.9−	0.7+	1998 09 18	704	0.3+	0.5+
1979 10 14	095	0.1−	0.2+	1998 08 17	704	0.3−	0.4−	1998 09 18	704	0.8+	0.3+
1982 05 15	675	1.1+	1.4−	1998 08 17	704	0.8−	1.0−	1998 09 18	704	1.4+	0.6−
1982 05 16	675	0.0	0.4−	1998 08 17	704	1.4−	0.9−	1998 09 18	704	1.0+	0.5−
1982 05 16	675	1.2−	0.6+	1998 08 23	704	1.1−	0.5−	1998 09 18	704	0.3+	0.8+
1982 05 18	675	0.1+	0.6−	1998 08 23	704	0.6−	0.7−	1998 09 21	699	0.4+	0.4+
1997 03 05	809	0.5−	1.1+	1998 08 23	704	1.2−	0.5−	1998 09 21	699	0.7+	0.2+
1997 03 05	809	0.3−	1.3+	1998 08 23	704	0.8−	0.8−	1998 09 21	699	0.7+	0.3+
1997 03 05	809	0.9−	0.9+	1998 08 26	699	1.4−	0.5+	1998 09 25	704	0.2+	0.6+
1997 03 06	809	0.3−	1.3+	1998 08 26	699	1.0−	0.2+	1998 09 25	704	0.2−	0.6+
1997 03 06	809	0.1+	0.3+	1998 08 26	699	0.9−	0.1+	1998 09 25	704	0.2+	0.7+
1997 03 06	809	0.0	1.2+	1998 09 14	704	0.2+	0.5−	1998 09 25	704	1.3+	1.1+
1997 03 08	809	1.2+	0.0	1998 09 14	704	0.1−	0.1+	1998 09 25	704	0.5−	1.2+
1997 03 08	809	1.3+	0.3+	1998 09 14	704	1.0+	0.6−	1998 09 27	704	0.8+	0.6+
1997 03 08	809	1.1+	0.1−	1998 09 14	704	0.3+	1.0−	1998 09 27	704	0.4+	0.8+
1998 08 03	699	0.7−	0.2+	1998 09 14	704	0.8+	1.2−	1998 09 27	704	0.0	1.5+
1998 08 03	699	0.3−	0.1+	1998 09 15	699	0.4−	0.2+	1998 09 27	704	1.0+	1.2+

1998 08 03	699	0.1−	0.1+	1998 09 15	699	0.3−	0.3+	1998 09 27	704	1.5+	1.3+
1998 08 17	704	0.7−	0.3−	1998 09 15	699	0.5−	0.7+				

(9477)∗ 1998 QK$_{41}$ = 1992 YY$_4$ = 4836 P-L

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32501)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	114.31467		(2000.0)		**P**	**Q**	
n	0.28376576	ω	22.84146		−0.89076966	+0.45444939	
a	2.2934858	Ω	184.19015		−0.42160964	−0.82824604	
e	0.0492148	*i*	1.78228		−0.16963116	−0.32784791	
P	3.47	*H*	15.2	*G*	0.15	*U*	2

Residuals in seconds of arc

1960 09 24	675	0.2+	0.9−	1998 08 23	704	0.4+	0.0	1998 09 14	699	0.1+	1.4+
1960 09 26	675	0.4+	0.5−	1998 08 23	704	1.2+	0.0	1998 09 18	704	(0.3−	2.2−)
1960 09 27	675	0.8+	1.0−	1998 08 23	704	1.0−	0.6+	1998 09 18	704	0.7−	0.4+
1960 09 28	675	0.6−	0.4+	1998 08 26	699	1.6+	0.6+	1998 09 18	704	0.5−	1.7−
1992 12 30	033	0.1+	0.9+	1998 08 26	699	0.3+	1.1−	1998 09 18	704	0.3−	1.5−
1992 12 30	033	0.0	0.6−	1998 08 26	699	1.2+	0.2+	1998 09 18	704	0.3+	1.3−
1993 01 01	033	0.1−	0.1−	1998 08 30	699	0.2+	0.2+	1998 09 25	704	0.5−	0.9+
1997 04 14	691	0.3−	0.5−	1998 08 30	699	0.7+	0.5−	1998 09 25	704	0.4−	0.6+
1997 04 14	691	0.1−	0.6−	1998 08 30	699	0.2+	0.4+	1998 09 25	704	(2.0+	2.7+)
1998 08 17	704	0.9−	0.1−	1998 09 14	704	0.6+	0.0	1998 09 25	704	0.5−	1.9+
1998 08 17	704	0.1−	0.4+	1998 09 14	704	0.7−	0.8−	1998 09 27	704	(1.4+	2.3−)
1998 08 17	704	1.0+	0.5+	1998 09 14	704	1.3−	0.8+	1998 09 27	704	1.2+	1.4−
1998 08 17	704	0.0	0.4−	1998 09 14	704	0.9−	1.2+	1998 09 27	704	(2.3+	0.5−)
1998 08 17	704	0.9−	0.1−	1998 09 14	699	0.2−	0.1−	1998 09 27	704	(2.5+	0.4+)
1998 08 23	704	0.2+	0.2+	1998 09 14	699	0.4−	0.2−	1998 09 27	704	0.3−	0.1−

(9478)∗ 2148 P-L = 1996 ET$_8$

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* 27116)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	44.73422		(2000.0)		**P**	**Q**	
n	0.18057975	ω	279.43978		+0.23926622	+0.97093347	
a	3.0999643	Ω	4.41854		−0.85557755	+0.21390505	
e	0.1384627	*i*	4.70139		−0.45906288	+0.10739100	
P	5.46	*H*	14.1	*G*	0.15	*U*	1

Residuals in seconds of arc

1954 08 04	675	1.4−	0.8−	1998 08 26	691	0.1+	0.3+	1998 09 18	704	0.1−	0.4+
1954 08 04	675	1.9+	0.3−	1998 08 31	691	0.4−	0.1+	1998 09 26	704	0.2−	0.2+
1960 09 24	675	0.1+	0.1+	1998 08 31	691	0.4−	0.0	1998 09 26	704	1.4+	0.7+
1960 09 26	675	0.4−	0.1+	1998 08 31	691	0.4−	0.1+	1998 09 26	704	0.5−	1.7−
1960 09 28	675	0.5−	0.2−	1998 09 14	704	1.0+	0.4−	1998 09 26	704	0.7−	1.2−
1960 09 29	675	1.1+	0.5−	1998 09 14	704	0.2+	0.2−	1998 09 26	704	0.8+	0.4+
1960 10 22	675	0.2−	1.2−	1998 09 14	704	0.3+	0.2+	1998 09 27	704	0.5+	0.9−
1960 10 26	675	0.9+	0.2−	1998 09 14	704	0.6+	0.5+	1998 09 27	704	(0.2+	2.1+)
1996 03 12	691	0.7+	0.0	1998 09 14	704	0.1−	0.8+	1998 09 27	691	1.4−	1.2+
1996 03 12	691	0.4+	0.0	1998 09 17	699	0.2−	1.2+	1998 09 27	704	0.0	0.0
1996 03 12	691	0.5+	0.3−	1998 09 17	699	0.6+	0.7−	1998 09 27	704	0.4−	0.4−
1996 03 17	691	0.7−	0.3−	1998 09 17	699	0.1+	0.8+	1998 09 27	691	1.6−	1.0+
1996 03 17	691	0.6−	0.1+	1998 09 18	704	0.2−	0.4−	1998 09 27	704	0.1−	0.1+
1996 03 17	691	0.6−	0.2−	1998 09 18	704	0.7+	0.6−	1998 09 27	691	1.5−	0.9+
1998 08 26	691	0.4+	0.5−	1998 09 18	704	0.4+	0.9+				
1998 08 26	691	0.6+	0.0	1998 09 18	704	0.5−	0.7−				

(9479)∗ 2175 P-L = 1996 AC$_2$

Discovered 1960 Sept. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 26577)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	50.94694		(2000.0)		**P**	**Q**	
n	0.23223044	ω	283.41612		+0.10859172	+0.99403641	
a	2.6213396	Ω	352.79576		−0.87852241	+0.09126839	
e	0.0896996	*i*	4.56108		−0.46519482	+0.05967993	
P	4.24	*H*	15.1	*G*	0.15	*U*	2

Residuals in seconds of arc

1960 09 26	675	0.4+	0.9−	1996 01 21	118	0.1−	0.2+	1998 09 13	691	1.1−	0.3+
1960 09 28	675	0.1+	0.1−	1996 01 21	118	0.4−	0.2+	1998 09 13	691	0.2+	0.5+
1960 09 29	675	(3.4+	0.7+)	1996 01 21	118	0.0	0.5+	1998 09 13	691	0.1−	0.7+
1960 10 22	675	0.5−	1.0−	1996 01 30	118	0.1+	0.8−	1998 09 13	691	0.1+	0.4+
1960 10 25	675	1.5+	0.4−	1996 01 30	118	(0.8−	2.5+)	1998 09 14	704	(2.2+	0.2+)
1960 10 26	675	0.5−	0.5+	1996 01 31	118	0.2−	0.6−	1998 09 14	704	1.2+	1.4−
1990 11 13	675	0.5−	0.1+	1996 01 31	118	0.2+	0.9−	1998 09 14	704	1.1+	0.1−
1990 11 13	675	0.3+	0.6+	1996 02 05	118	1.1+	0.5−	1998 09 14	704	(0.0	2.1+)
1996 01 14	118	0.4+	0.0	1996 02 22	118	0.9−	0.2+	1998 09 20	691	1.2−	0.6+
1996 01 14	118	0.5−	0.2+	1996 02 22	118	0.1−	0.2−	1998 09 20	691	0.6−	0.8+
1996 01 14	118	0.2−	0.0	1996 02 23	118	0.6−	0.2+	1998 09 26	691	0.3−	0.3+
1996 01 15	118	0.3+	0.4+	1996 02 23	118	0.6−	0.0	1998 09 26	691	0.4−	0.2+
1996 01 15	118	0.3+	0.2+	1996 02 24	118	0.5−	0.4+	1998 09 26	691	0.4−	0.2+
1996 01 15	118	0.4+	0.3+	1996 02 25	118	0.1−	0.4+	1998 09 27	704	1.7+	1.0−
1996 01 16	118	0.2+	0.1−	1998 08 26	691	0.7−	0.0	1998 09 27	704	0.8+	0.2−
1996 01 17	118	0.3+	0.2−	1998 08 26	691	1.3−	0.1−	1998 09 27	704	1.4+	1.1+
1996 01 17	118	0.1+	0.1+	1998 08 26	691	0.8−	0.3−	1998 09 27	704	0.2+	0.3−
1996 01 17	118	0.4+	0.1+	1998 09 13	691	1.1−	0.3+	1998 09 27	704	1.4+	0.7−
1996 01 21	118	0.2−	0.3+	1998 09 13	691	1.1−	0.3+				

(9480)∗ 2553 P-L = 1982 SE$_{10}$ = 1993 SF$_7$

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* 23129)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	277.10010		(2000.0)		**P**	**Q**	
n	0.17909349	ω	62.35079		+0.53556546	−0.84449328	
a	3.1170913	Ω	355.26668		+0.77108500	+0.48942625	
e	0.1661069	*i*	0.59783		+0.34437995	+0.21746967	
P	5.50	*H*	13.3	*G*	0.15	*U*	1

Residuals in seconds of arc

1960 09 24	675	0.1+	0.0	1993 09 17	809	(1.0+	2.7+)	1995 01 04	596	0.3−	0.5−
1960 09 26	675	0.2+	0.4−	1993 09 17	809	(0.7+	3.2+)	1995 01 04	596	0.3+	0.2−
1960 09 28	675	0.0	0.4−	1993 09 18	809	0.6+	0.6+	1998 08 17	704	0.5−	0.5−
1960 09 29	675	0.3+	0.3−	1993 09 18	809	0.3−	0.6+	1998 08 17	704	1.1−	0.1+
1960 10 17	675	0.1−	0.3−	1993 09 18	809	0.3−	0.9+	1998 08 17	704	0.2−	0.0
1960 10 22	675	0.3−	1.1+	1993 09 22	809	(0.1−	2.3−)	1998 08 17	704	0.1+	0.3−
1960 10 25	675	0.2+	0.2+	1993 09 22	809	(0.3−	2.8−)	1998 08 17	704	0.4−	0.7+
1960 10 26	675	0.2−	0.4+	1993 09 22	809	(2.8−	2.1−)	1998 08 27	699	0.5+	0.6−
1982 09 24	095	0.9−	0.3+	1993 09 23	095	0.1−	0.2+	1998 08 27	699	0.3+	0.1−
1984 01 25	675	0.1−	0.5+	1993 09 24	809	(1.1+	2.2−)	1998 08 27	699	0.6−	0.7+
1984 01 26	675	0.1+	0.1−	1993 09 24	809	1.1+	1.1−	1998 09 21	699	0.4+	0.9−
1993 09 15	095	(2.3+	0.4−)	1993 09 24	809	0.7−	1.3−	1998 09 21	699	0.8+	0.2−
1993 09 17	809	(1.3+	3.1+)	1995 01 04	596	0.1−	0.2−	1998 09 21	699	1.1+	0.5+

(9481)∗ 2559 P-L = 1981 UF$_{26}$

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. E. Bowell (*MPC* 20514)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	176.18207		(2000.0)		**P**	**Q**	
n	0.28465766	ω	93.77057		−0.97835129	−0.20174521	
a	2.2886926	Ω	74.59464		+0.16576198	−0.89736064	
e	0.0932024	i	2.74237		+0.12390203	−0.39248280	
P	3.46	H	14.0	G	0.15	U	2

Residuals in seconds of arc

1960 09 24	675	0.2+	0.0	1995 11 16	411	0.2−	0.9−	1998 09 26	704	0.5+	0.1−
1960 09 26	675	0.2+	0.2+	1995 12 25	801	0.1−	0.5−	1998 09 26	704	0.2+	0.1−
1960 09 28	675	0.4+	0.2−	1995 12 25	801	0.0	0.5−	1998 09 26	704	0.9+	0.5+
1960 09 29	675	0.8+	0.4−	1998 08 28	704	1.8+	0.7+	1998 09 26	704	0.6+	0.2−
1960 10 17	675	0.3+	0.4−	1998 08 28	704	0.8−	0.9+	1998 09 27	704	0.2−	0.2+
1960 10 22	675	0.2−	2.1−	1998 08 28	704	0.2+	0.8−	1998 09 27	704	0.9+	1.0+
1960 10 25	675	0.0	0.7−	1998 08 28	704	1.2−	1.8+	1998 09 27	704	0.4+	1.3+
1960 10 26	675	0.1−	0.5−	1998 09 14	704	0.0	0.4−	1998 09 27	704	0.2+	1.1+
1981 10 25	675	0.1+	0.7−	1998 09 14	704	0.6−	1.0−	1998 09 27	704	0.5−	0.1+
1981 10 26	675	0.5+	0.1−	1998 09 14	704	0.1−	0.8+	1998 09 29	704	0.8−	0.2−
1993 01 21	385	(2.5−	1.2−)	1998 09 18	704	1.4+	0.2−	1998 09 29	704	1.0+	0.1−
1993 01 21	385	0.3+	0.7+	1998 09 18	704	0.0	0.5−	1998 09 29	704	0.1+	0.6+
1993 03 22	801	0.8−	0.3−	1998 09 18	704	0.6+	0.3+	1998 09 29	704	0.2−	0.0
1993 03 22	801	1.0+	0.7−	1998 09 18	704	1.7−	0.4−	1998 09 29	704	0.7−	0.5+
1994 07 09	675	0.2−	1.0−	1998 09 18	704	0.4−	1.6−	1998 09 29	704	1.3−	0.2−
1994 07 09	675	0.9+	1.0−	1998 09 25	699	0.5+	0.4+	1998 09 29	704	1.6−	1.1+
1994 08 06	675	0.1−	1.5−	1998 09 25	699	0.2+	0.0	1998 09 29	704	1.1−	0.6+
1994 08 06	675	0.3−	0.9−	1998 09 25	699	0.4−	0.0	1998 09 29	704	0.4−	1.5+
1995 11 16	411	0.0	1.7−	1998 09 26	704	0.2+	0.3−	1998 09 29	704	0.4−	1.3+

(9482)∗ 4065 P-L = 1953 TZ$_3$ = 1991 RN$_{41}$ = 1994 EZ$_8$

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. E. Bowell (*MPC* 25075), G. V. Williams (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	359.71096		(2000.0)		**P**	**Q**	
n	0.28448112	ω	14.48398		+0.72569310	+0.68677007	
a	2.2896394	Ω	302.06367		−0.63600860	+0.64665115	
e	0.1860493	i	2.80211		−0.26241680	+0.33194754	
P	3.46	H	15.6	G	0.15	U	2

Residuals in seconds of arc

1953 10 01	675	0.1+	0.1−	1998 08 17	704	0.1+	1.0−	1998 09 18	699	0.1+	0.4+
1953 10 01	675	1.2+	0.1−	1998 08 17	704	0.3+	0.1+	1998 09 18	704	1.5+	1.6−
1960 09 24	675	1.3−	0.8−	1998 08 17	704	0.2−	0.9+	1998 09 18	699	0.5+	0.4+
1960 09 25	675	0.4−	0.6−	1998 08 23	704	0.5−	0.4+	1998 09 18	704	1.0+	0.2+
1960 09 26	675	0.4−	0.6−	1998 08 23	704	0.7−	0.5+	1998 09 18	704	0.3+	0.5−
1960 09 28	675	0.1+	0.3+	1998 08 23	704	1.8−	0.2−	1998 09 18	699	0.2−	1.2+
1960 10 17	675	0.6+	0.1+	1998 08 23	704	1.9−	1.7+	1998 09 25	704	0.8+	0.2+
1960 10 22	675	0.5−	1.1+	1998 08 23	704	1.2−	0.4−	1998 09 25	704	0.9+	0.2+
1960 10 24	675	0.1+	0.9+	1998 09 14	704	0.7−	0.4−	1998 09 25	704	0.5+	0.1−
1960 10 26	675	0.1−	0.7+	1998 09 14	704	0.3−	0.1−	1998 09 25	704	1.0+	0.3−
1991 09 08	691	0.3−	0.4+	1998 09 14	704	0.9−	0.2+	1998 09 25	704	1.1+	0.6−
1991 09 08	691	0.7−	0.1+	1998 09 14	704	0.4−	0.4−	1998 09 27	704	0.9+	0.1−
1991 09 08	691	0.1+	0.4+	1998 09 14	704	0.7−	0.4+	1998 09 27	704	0.3+	0.1−
1994 03 09	691	0.8+	0.2−	1998 09 15	699	0.4−	0.2+	1998 09 27	704	0.6+	1.4+
1994 03 09	691	0.4−	0.2−	1998 09 15	699	0.6−	0.4+	1998 09 27	704	0.9+	0.9−
1994 03 09	691	0.4−	0.3−	1998 09 15	699	0.2−	0.3−	1998 09 27	704	1.0+	1.1−
1998 08 17	704	0.5−	1.3−	1998 09 18	704	0.7+	0.6−				
1998 08 17	704	0.3+	0.4−	1998 09 18	704	0.3+	0.1+				

(9483)∗ 4121 P-L = 1982 UH$_4$ = 1993 TO$_2$

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* 22694)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	318.37505		(2000.0)		**P**	**Q**	
n	0.18061654	ω	183.41010		+0.92406980	−0.37897444	
a	3.0995433	Ω	199.09528		+0.35418228	+0.89791506	
e	0.1802712	i	8.74423		+0.14370079	+0.22389043	
P	5.46	H	13.4	G	0.15	U	1

Residuals in seconds of arc

1960 09 24	675	0.0	1.0−	1996 03 17	691	0.1+	0.5+	1998 09 14	704	1.1−	1.0−
1960 09 25	675	0.0	0.7−	1996 03 17	691	0.0	0.3+	1998 09 14	704	0.2+	1.1−
1960 09 26	675	0.4−	0.5−	1996 03 17	691	0.1+	0.1+	1998 09 14	704	0.1−	0.8−
1960 09 28	675	0.6−	0.4−	1998 08 19	704	0.7+	0.8−	1998 09 14	704	0.2+	0.4−
1960 10 17	675	0.7+	0.1+	1998 08 19	704	1.0+	0.4−	1998 09 18	704	0.6−	0.0
1960 10 17	675	0.5+	0.4+	1998 08 19	704	1.1+	0.3+	1998 09 18	704	0.2−	0.5−
1960 10 22	675	0.8+	2.0−	1998 08 19	704	0.1−	1.1−	1998 09 18	704	0.9−	0.8+
1960 10 24	675	0.6−	1.1+	1998 08 19	704	0.3+	0.1−	1998 09 18	704	1.3−	1.3+
1960 10 25	675	0.5+	0.2−	1998 08 23	704	0.7−	0.7−	1998 09 18	704	1.5−	1.4+
1960 10 26	675	0.1+	0.3−	1998 08 23	704	1.6+	1.0−	1998 09 21	704	0.8−	0.0
1960 10 26	675	0.2+	1.5−	1998 08 23	704	0.1−	0.4+	1998 09 21	704	0.5−	1.1+
1982 10 20	033	0.1−	0.5+	1998 08 23	704	0.4−	0.9+	1998 09 21	704	0.0	0.5+
1993 10 14	675	0.6−	0.1−	1998 08 23	704	0.4+	0.9+	1998 09 21	704	1.0−	1.2+
1993 10 14	675	0.6−	0.1+	1998 08 25	557	0.1+	0.3−	1998 09 21	704	0.4+	1.9+
1993 10 15	400	1.5+	0.6+	1998 08 25	557	0.2+	0.2−	1998 09 25	704	0.4−	0.1−
1993 10 15	400	1.5+	1.2+	1998 08 25	557	0.3+	0.3−	1998 09 25	704	0.3+	0.0
1993 10 16	400	1.4−	1.0+	1998 08 26	699	0.5+	1.0+	1998 09 25	704	0.0	0.3−
1993 10 16	400	0.7−	0.3−	1998 08 26	699	1.0+	1.3+	1998 09 25	704	0.0	0.4−
1993 11 11	400	0.1−	0.4+	1998 08 26	699	0.3+	0.2+	1998 09 25	704	0.1+	0.7−
1993 11 11	400	(0.3−	2.4−)	1998 09 14	704	0.1−	0.1−				

(9484)∗ 4590 P-L = 1954 MY = 1982 UT$_4$ = 1998 QX$_{46}$

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. E. Bowell (*MPC* 32503), G. V. Williams (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	353.16850		(2000.0)		**P**	**Q**	
n	0.18144922	ω	248.90643		+0.93104417	+0.36335778	
a	3.0900534	Ω	89.77453		−0.32109474	+0.85950773	
e	0.1717012	i	1.92459		−0.17336356	+0.35946847	
P	5.43	H	14.0	G	0.15	U	1

Residuals in seconds of arc

1954 06 30	675	0.4−	0.7+	1998 08 17	704	0.1+	0.2−	1998 09 18	699	0.3−	0.2+
1954 06 30	675	1.5−	0.5−	1998 08 17	704	0.3−	0.5+	1998 09 18	699	0.0	0.1+
1960 09 24	675	0.5+	1.1+	1998 08 17	704	1.1+	1.7+	1998 09 18	704	0.2−	1.0−
1960 09 26	675	0.2+	0.5+	1998 08 18	566	0.2−	0.0	1998 09 18	699	0.1−	0.0
1960 09 27	675	0.4+	1.2+	1998 08 18	566	0.8−	0.0	1998 09 18	704	0.4−	0.1+
1960 09 28	675	0.3+	0.1−	1998 08 18	566	0.5−	0.1−	1998 09 18	704	0.5−	0.0
1960 10 17	675	0.7+	1.4−	1998 08 23	704	0.4−	0.5+	1998 09 18	704	1.0+	0.2+
1960 10 22	675	0.8−	0.5−	1998 08 23	704	0.6−	1.5+	1998 09 18	704	1.3−	0.4+
1960 10 25	675	0.5+	0.4+	1998 08 23	704	0.1−	0.5−	1998 09 25	704	0.6−	0.0
1960 10 26	675	0.1+	0.1−	1998 08 23	704	0.3+	0.1+	1998 09 25	704	0.7+	1.3−
1982 10 20	033	0.1−	0.5−	1998 08 23	704	1.6−	0.8+	1998 09 25	704	0.9+	1.2−
1995 01 07	691	0.6−	0.1+	1998 08 30	699	0.2−	0.6+	1998 09 25	704	0.5+	1.6−
1995 01 07	691	0.3−	0.0	1998 08 30	699	0.7+	0.4+	1998 09 25	704	0.9+	1.3−
1997 06 01	566	0.6+	0.3−	1998 08 30	699	0.2−	0.4+	1998 09 27	704	0.5+	0.5+
1997 06 01	566	0.6+	1.4−	1998 09 14	704	0.9−	0.7−	1998 09 27	704	0.9+	0.6+
1997 06 01	566	0.0	1.1−	1998 09 14	704	1.3−	0.3−	1998 09 27	704	1.2+	0.1−
1998 08 17	704	0.3−	0.9+	1998 09 14	704	1.1−	0.7−	1998 09 27	704	1.8+	0.3−
1998 08 17	704	0.6+	0.4+	1998 09 14	704	0.4−	0.4−	1998 09 27	704	0.8+	1.6−

(9485)∗ 6108 P-L = 1998 QA$_{48}$

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* 32504)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	275.47771		(2000.0)		**P**	**Q**	
n	0.23247123	ω	219.00623		+0.19459189	−0.98024295	
a	2.6195292	Ω	219.80903		+0.91324366	+0.19424847	
e	0.1812424	i	3.17547		+0.35793857	+0.03730010	
P	4.24	H	14.8	G	0.15	U	2

Residuals in seconds of arc

1960 09 24	675	0.2+	0.8+	1998 08 17	704	0.5+	0.3+	1998 09 18	704	0.7−	1.2+
1960 09 25	675	0.4+	0.0	1998 08 17	704	1.1−	0.2−	1998 09 18	704	0.4−	0.6+
1960 09 26	675	0.5+	0.1−	1998 08 23	704	0.1−	1.0+	1998 09 18	704	0.5−	0.5+
1960 09 28	675	0.4+	0.5−	1998 08 23	704	0.4−	0.5−	1998 09 18	704	0.5+	0.9+
1960 10 17	675	0.0	0.7−	1998 08 23	704	1.2+	1.7−	1998 09 25	704	1.5+	0.2−
1960 10 22	675	0.9−	0.6−	1998 08 23	704	0.9−	1.4−	1998 09 25	704	0.3+	1.1−
1960 10 24	675	0.1+	0.7−	1998 08 23	704	1.8−	0.1−	1998 09 25	704	0.3+	1.1+
1960 10 26	675	0.2−	0.3+	1998 08 26	699	0.1+	0.0	1998 09 25	704	0.1+	1.1−
1992 05 01	691	0.2−	0.3+	1998 08 26	699	0.2−	0.2+	1998 09 25	704	0.3+	0.6−
1992 05 01	691	0.0	0.0	1998 08 26	699	0.4−	0.7−	1998 09 27	704	0.3+	0.9−
1992 05 01	691	0.2+	0.0	1998 09 14	704	1.0−	0.8−	1998 09 27	704	1.2+	0.1+
1996 03 26	566	0.7−	1.5−	1998 09 14	704	0.2+	0.4+	1998 09 27	704	0.4+	0.1−
1996 03 26	566	0.1−	1.2−	1998 09 14	704	0.4+	0.1−	1998 09 27	704	0.0	0.4+
1996 03 26	566	0.5−	1.3−	1998 09 14	704	0.0	0.6−	1998 09 27	704	1.2+	0.0
1998 08 17	704	0.7−	1.3+	1998 09 18	704	0.4+	0.1−				

(9486)∗ 6130 P-L = 1949 WP$_1$ = 1994 PR$_{37}$

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. E. Bowell (*MPC* 24578), B. G. Marsden (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	214.84894		(2000.0)		**P**	**Q**	
n	0.25840432	ω	293.58117		−0.60105961	−0.79902348	
a	2.4411972	Ω	193.40565		+0.75738395	−0.56269021	
e	0.1040847	i	4.20379		+0.25514094	−0.21199343	
P	3.81	H	14.4	G	0.15	U	2

Residuals in seconds of arc

1949 11 19	675	0.7+	0.9−	1994 09 03	809	0.2+	1.3+	1998 09 18	704	0.4+	0.8+
1949 11 19	675	0.5−	1.8−	1994 09 04	809	(2.7+	4.0+)	1998 09 18	704	1.1−	0.3+
1960 09 24	675	0.8−	0.1−	1994 09 04	809	(2.8+	2.8+)	1998 09 18	704	0.0	0.1+
1960 09 26	675	0.9+	0.4+	1994 09 04	809	(2.9+	4.8+)	1998 09 18	704	1.5−	0.1+
1960 09 28	675	0.2+	1.3+	1994 09 07	675	0.2−	1.4+	1998 09 18	704	0.5−	1.3+
1960 10 17	675	0.2+	0.7+	1994 09 07	675	0.0	0.8+	1998 09 25	704	0.3−	1.2−
1960 10 22	675	1.1−	1.0+	1997 05 29	596	1.2−	0.7−	1998 09 25	704	1.0+	0.1−
1960 10 24	675	0.2+	1.2+	1997 05 29	596	1.1+	1.5−	1998 09 25	704	0.2+	0.9−
1960 10 26	675	0.5−	0.4+	1997 05 29	596	(0.7−	3.0−)	1998 09 25	704	0.7−	1.1−
1994 08 10	809	0.8−	0.8−	1998 08 17	704	1.0+	0.8+	1998 09 25	704	0.9−	1.1−
1994 08 10	809	0.5−	0.5−	1998 08 17	704	1.4+	0.8−	1998 09 27	704	1.0+	1.2−
1994 08 10	809	(1.6−	2.1−)	1998 08 17	704	1.9+	1.2+	1998 09 27	704	0.2+	1.2−
1994 08 11	809	0.0	0.3−	1998 08 17	704	1.1+	0.8+	1998 09 27	704	0.8−	0.0
1994 08 11	809	0.2+	0.6−	1998 09 14	704	0.1+	0.7−	1998 09 27	704	0.9+	1.7−
1994 08 11	809	0.7−	0.1−	1998 09 14	704	0.2+	0.0	1998 09 27	704	0.1−	0.1−
1994 09 03	809	(1.1+	2.2+)	1998 09 14	704	0.1+	0.3−				
1994 09 03	809	(1.1+	2.6+)	1998 09 14	704	0.5−	0.2+				

(9487)∗ 7633 P-L = 1977 DR$_3$

Discovered 1960 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. H. Oishi (*JAM* 735)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	5.49461		(2000.0)		**P**	**Q**	
n	0.20601349	ω	208.26338		+0.73372381	+0.67725454	
a	2.8392629	Ω	108.99903		−0.61201029	+0.69363727	
e	0.0592951	i	3.30738		−0.29511486	+0.24534390	
P	4.78	H	13.5	G	0.15	U	1

Residuals in seconds of arc

1951 12 01	675	0.6+	0.3−	1998 08 17	704	0.2−	0.5+	1998 09 14	704	0.9+	0.8−
1951 12 01	675	1.0+	0.6+	1998 08 17	704	0.3−	0.5+	1998 09 14	704	0.1+	0.9−
1960 10 17	675	0.1+	0.0	1998 08 17	704	0.3+	1.2+	1998 09 18	704	1.6+	0.8−
1960 10 22	675	0.7−	0.5−	1998 08 17	704	0.4+	0.8+	1998 09 18	704	0.0	1.2−
1960 10 25	675	0.9−	0.1−	1998 08 17	704	0.2−	0.5+	1998 09 18	704	1.4−	0.3−
1960 10 26	675	0.1−	0.1+	1998 08 18	566	0.5−	0.0	1998 09 18	704	1.2+	1.1−
1977 02 18	381	0.0	0.2−	1998 08 18	566	0.9−	0.0	1998 09 18	704	0.9−	0.0
1977 02 18	381	1.5+	0.9−	1998 08 18	566	1.5−	0.0	1998 09 25	704	0.7+	0.2+
1977 02 19	381	0.6−	0.8+	1998 08 23	699	0.7+	0.1−	1998 09 25	704	0.3+	0.1+
1977 02 19	381	1.8−	0.3+	1998 08 23	704	0.1−	0.2−	1998 09 25	704	0.5+	0.4+
1977 03 12	381	0.2+	0.3+	1998 08 23	704	0.3+	1.5−	1998 09 25	704	0.4−	0.2−
1977 03 12	381	0.6+	0.2+	1998 08 23	699	1.0+	0.7+	1998 09 25	704	0.2+	0.6−
1985 12 14	675	(7.8−	0.7+)	1998 08 23	704	1.1−	0.5+	1998 09 27	704	0.8+	0.0
1985 12 14	675	(13.3−	0.8+)	1998 08 23	699	0.0	0.5+	1998 09 27	704	0.4−	0.8+
1993 07 25	675	0.6−	1.1+	1998 08 23	704	0.9−	0.6+	1998 09 27	704	0.0	1.0+
1993 07 25	675	0.3+	0.0	1998 09 14	704	0.7+	0.5+	1998 09 27	704	0.5+	0.2−
1994 11 05	675	0.1−	0.4+	1998 09 14	704	0.0	1.1−	1998 09 27	704	0.4−	0.0
1994 11 05	675	1.0−	0.5+	1998 09 14	704	0.4+	0.5−				

(9488)∗ 9523 P-L = 1990 EH = 1990 FF$_4$ = 1995 WF$_{42}$

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* 26415)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	121.63902		(2000.0)		**P**	**Q**	
n	0.28416968	ω	187.46387		−0.95820658	+0.28553533	
a	2.2913119	Ω	9.18467		−0.25644434	−0.83005977	
e	0.1164672	i	6.33015		−0.12679294	−0.47903063	
P	3.47	H	14.8	G	0.15	U	2

Residuals in seconds of arc

1960 09 24	675	0.1−	0.9−	1997 04 03	816	0.0	0.2−	1998 09 14	704	0.3+	0.4+
1960 09 26	675	0.3−	1.2−	1997 04 03	816	0.0	0.3−	1998 09 14	704	0.6−	0.1+
1960 10 17	675	1.1+	0.4+	1997 04 03	816	0.3−	0.2−	1998 09 18	704	0.5−	0.2−
1960 10 22	675	0.9−	0.9−	1997 04 03	816	0.2−	0.2−	1998 09 18	704	0.7−	0.8−
1960 10 24	675	1.6+	0.6−	1997 04 05	816	0.1−	0.2−	1998 09 18	699	0.8+	0.5−
1960 10 26	675	1.4+	1.1−	1997 04 05	816	0.2−	0.2−	1998 09 18	704	0.4−	0.1−
1990 03 15	494	1.0−	0.7−	1997 04 05	816	0.1−	0.3−	1998 09 18	704	1.7+	0.5−
1990 03 25	413	0.3+	0.6−	1997 04 05	816	0.1−	0.2−	1998 09 18	699	0.4−	0.3−
1990 03 25	413	0.4−	0.9−	1998 08 17	704	0.1+	0.0	1998 09 18	704	0.8−	1.5+
1995 10 17	691	0.8−	0.3+	1998 08 17	704	0.7+	0.3+	1998 09 18	699	0.2−	0.4+
1995 10 17	691	1.0−	0.4+	1998 08 17	704	0.2+	0.6+	1998 09 25	704	1.1+	0.3−
1995 10 17	691	0.8−	0.3+	1998 08 17	704	0.3+	1.1+	1998 09 25	704	0.7+	1.0−
1995 11 27	327	0.1+	0.0	1998 08 17	704	0.2+	0.1+	1998 09 25	704	0.5+	0.0
1995 11 27	327	0.2+	0.2−	1998 08 23	704	0.4−	0.7+	1998 09 25	704	0.8+	0.8−
1995 11 27	327	0.4−	0.6+	1998 08 23	704	0.9+	0.5−	1998 09 27	704	0.4−	0.8−
1995 11 27	327	0.1−	0.4−	1998 08 23	704	0.4−	0.5−	1998 09 27	704	0.8−	0.6+
1995 11 28	327	0.6+	0.3+	1998 08 23	704	1.7−	0.3−	1998 09 27	704	1.1−	1.1+
1995 11 28	327	0.7+	0.2+	1998 08 23	704	1.0+	0.2−	1998 09 27	704	1.6−	0.1+
1995 11 28	327	0.2−	0.2+	1998 09 14	704	0.5+	0.7−	1998 09 27	704	0.1−	0.4−
1995 11 28	327	1.5+	0.9−	1998 09 14	704	1.0+	0.2−				

(9489)∗ 1146 T-1 = 1994 TY$_8$

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* 24236)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	50.86121		(2000.0)		**P**	**Q**	
n	0.23009118	ω	79.38529		+0.15766963	+0.98709717	
a	2.6375624	Ω	199.75225		−0.93523667	+0.14019137	
e	0.0954120	i	4.73868		−0.31697424	+0.07736633	
P	4.28	H	14.5	G	0.15	U	1

Residuals in seconds of arc

1971 03 24	675	0.5+	2.5−	1997 04 08	809	(0.8+	2.6−)	1998 09 14	704	0.3+	0.7−
1971 03 25	675	0.6−	0.4−	1997 04 08	809	(0.0	3.0−)	1998 09 14	704	0.1+	0.3−
1971 03 25	675	1.0−	0.6−	1997 04 08	809	(0.5+	3.2−)	1998 09 14	704	0.5+	0.0
1971 03 26	675	(1.6+	2.8−)	1997 04 08	704	1.2−	0.5+	1998 09 14	704	0.3−	0.5+
1971 03 27	675	1.1−	0.5−	1997 04 08	704	0.6+	0.2+	1998 09 16	699	0.2+	0.6−
1971 04 02	675	0.4+	0.3−	1997 04 30	704	0.3+	0.2+	1998 09 16	699	0.0	0.1−
1971 04 16	675	0.6−	2.4−	1997 04 30	704	0.4+	0.6+	1998 09 16	699	0.3−	0.0
1971 04 16	675	0.7+	1.7−	1997 04 30	704	0.2+	0.3+	1998 09 18	704	0.1+	0.3−
1971 05 13	675	1.3−	0.1−	1997 04 30	704	0.0	0.5+	1998 09 18	704	0.2−	0.4−
1971 05 14	675	0.5+	1.3+	1997 04 30	704	0.5+	0.2+	1998 09 18	704	0.4−	1.2−
1971 05 16	675	0.2+	1.3+	1997 05 01	704	0.2+	0.1+	1998 09 18	704	0.7+	0.1+
1994 10 08	691	0.3+	0.4+	1997 05 01	704	0.8+	0.1+	1998 09 18	704	0.4+	0.0
1994 10 08	691	0.8+	1.5+	1997 05 01	704	0.9+	0.5+	1998 09 26	704	0.1+	0.1−
1994 10 08	691	0.1+	0.3+	1997 05 01	704	0.6+	0.4+	1998 09 26	704	0.5−	0.5+
1994 10 10	691	0.1+	0.3+	1997 05 01	704	0.7+	0.7+	1998 09 26	704	0.1−	0.0
1994 10 10	691	0.7−	0.4+	1997 05 29	910	0.4−	0.3−	1998 09 26	704	0.7+	1.2−
1994 10 10	691	0.1−	0.3+	1997 05 29	910	0.5−	0.3−	1998 09 26	704	0.4+	0.2+
1994 10 12	691	0.4−	0.9+	1997 05 29	910	0.6−	0.5−	1998 09 27	704	0.1+	0.3+
1994 10 12	691	0.5−	0.5+	1998 08 23	704	1.4+	0.2−	1998 09 27	704	0.8−	0.9+
1994 10 12	691	0.6−	0.7+	1998 08 23	704	0.4−	1.8−	1998 09 27	704	0.8+	0.0
1997 04 06	704	0.3−	0.1−	1998 08 23	704	0.8−	1.2+	1998 09 27	704	0.6+	1.3−
1997 04 06	704	0.4−	0.1+	1998 08 23	704	0.3+	0.2−	1998 09 27	704	0.3+	0.3−
1997 04 07	704	0.0	1.5+	1998 08 23	704	0.7+	1.7−	1998 09 29	120	0.3−	0.3+
1997 04 07	704	1.1−	0.5+	1998 09 14	704	0.1−	0.7−	1998 09 29	120	1.5−	0.4+

(9490)∗ 1181 T-1 = 1991 EF$_4$ = 2067 T-2

Discovered 1971 Mar. 25 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. S. Nakano (*MPC* 19877), T. Kobayashi (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	134.06737		(2000.0)		**P**	**Q**	
n	0.19440318	ω	230.90852		−0.95752862	+0.28616162	
a	2.9512124	Ω	325.67792		−0.24138586	−0.86263454	
e	0.0888216	i	3.59573		−0.15770801	−0.41710091	
P	5.07	H	13.1	G	0.15	U	1

Residuals in seconds of arc

1971 03 24	675	0.2+	0.6−	1989 11 28	675	0.1−	0.1−	1997 06 11	689	(2.6+	1.4−)
1971 03 25	675	1.3−	0.9−	1989 11 28	675	0.6+	0.3+	1998 08 17	704	0.1+	0.2+
1971 03 25	675	0.1+	1.2−	1991 02 13	675	0.2−	1.2−	1998 08 17	704	0.4+	0.6−
1971 03 26	675	0.4−	0.6−	1991 02 13	675	1.1−	1.6−	1998 08 17	704	1.0+	0.5−
1971 03 27	675	0.3−	0.3−	1991 03 12	809	0.4−	0.9+	1998 08 17	704	1.4−	1.4−
1971 04 02	675	0.5+	0.6−	1991 03 12	809	0.2−	0.8+	1998 08 23	704	1.5−	0.8−
1971 04 16	675	1.3−	1.6−	1991 03 12	809	0.2−	0.7+	1998 08 23	704	(2.6−	0.6+)
1971 04 16	675	(0.1+	2.5−)	1991 03 14	809	0.3+	0.4−	1998 08 23	704	0.8−	0.7−
1971 05 13	675	(1.9+	2.2−)	1991 03 14	809	0.5+	0.3−	1998 08 23	704	0.5−	1.0+
1971 05 14	675	(1.6+	3.2−)	1991 03 14	809	0.7+	0.2−	1998 08 23	704	(2.2−	1.1−)
1973 09 19	675	0.7−	0.6−	1991 03 17	809	0.1−	0.8+	1998 09 14	704	0.9+	0.2+
1973 09 19	675	0.6−	0.6+	1991 03 17	809	0.1+	1.0+	1998 09 14	704	0.1+	0.1−
1973 09 20	675	0.5−	1.2−	1991 03 17	809	0.1+	1.1+	1998 09 14	704	0.2−	0.6+
1973 09 24	675	0.2+	0.2−	1993 09 14	809	(1.6+	3.1+)	1998 09 14	704	0.0	0.7+
1973 09 24	675	0.1+	0.0	1993 09 14	809	0.6+	1.8+	1998 09 18	704	1.2+	0.9+
1973 09 25	675	(0.8+	2.7−)	1993 09 14	809	0.4+	1.1+	1998 09 18	704	0.3+	0.1−
1973 09 25	675	(0.3−	3.0−)	1993 09 15	691	1.6−	0.3−	1998 09 18	704	(2.4+	0.9−)
1973 09 29	675	1.6+	1.9−	1993 09 15	691	1.4−	0.3−	1998 09 18	704	1.1+	0.1+
1973 09 29	675	1.9+	0.7−	1993 09 15	691	1.3−	0.2−	1998 09 18	704	1.1+	0.7−
1973 09 30	675	(1.3+	3.0−)	1993 09 19	809	(2.2+	3.2+)	1998 09 25	704	0.2+	0.8−
1973 09 30	675	(2.2+	2.9−)	1993 09 19	809	(1.5+	2.1+)	1998 09 25	704	0.6+	0.4−
1973 10 04	675	(2.0+	2.7−)	1993 09 19	809	(1.0+	2.7+)	1998 09 25	704	0.9+	0.4−
1973 10 04	675	(2.6+	2.7−)	1996 03 18	801	0.3+	0.3−	1998 09 25	704	1.3+	0.0
1973 10 05	675	(0.7+	2.6−)	1996 03 18	801	0.1+	0.2−	1998 09 25	704	(0.1+	2.2+)
1973 10 05	675	1.4+	1.4−	1996 03 22	801	0.2−	0.1−	1998 09 27	704	0.6+	0.4−
1988 09 10	675	1.1−	1.0+	1996 03 22	801	0.3−	0.1−	1998 09 27	704	0.1+	0.1+
1988 09 10	675	0.6−	0.9+	1996 03 25	566	0.0	0.2−	1998 09 27	704	0.0	1.3−
1988 09 15	675	0.2+	0.3−	1996 03 25	566	0.1+	0.3−	1998 09 27	704	0.7+	0.2−
1988 09 15	675	(0.8−	2.6−)	1996 03 25	566	0.3−	0.5−	1998 09 27	704	1.0−	0.1−
1988 09 16	675	0.9−	0.1−	1997 06 10	689	(3.4+	1.5−)				

(9491)∗ 1205 T-1 = 1997 CR$_4$

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* 29129)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	45.07695		(2000.0)		**P**	**Q**	
n	0.29906476	ω	262.94859		−0.28196602	+0.95931723	
a	2.2145860	Ω	350.63631		−0.84179765	−0.25453925	
e	0.1328703	i	5.05612		−0.46029542	−0.12214835	
P	3.30	H	15.3	G	0.15	U	2

Residuals in seconds of arc

1971 03 24	675	2.2+	2.0−	1995 08 27	691	0.1+	0.1−	1998 08 17	704	0.2−	0.6+
1971 03 25	675	1.1−	0.8+	1995 08 27	691	0.1+	0.1−	1998 08 17	704	0.5+	0.7+
1971 03 25	675	1.8−	0.5+	1997 02 03	566	0.5−	0.6−	1998 08 17	704	0.4+	0.3−
1971 03 26	675	0.2−	1.0−	1997 02 03	566	0.3−	0.6−	1998 08 17	704	0.5−	0.5−
1971 03 27	675	0.2−	0.8−	1997 02 03	566	0.4−	0.7−	1998 08 17	704	0.3+	1.5−
1971 04 02	675	1.2−	2.0+	1997 02 07	566	0.1−	0.6−	1998 09 14	704	0.0	0.1−
1971 04 16	675	0.1−	0.3+	1997 02 07	566	0.9+	0.5−	1998 09 14	704	0.5+	0.1−
1971 04 16	675	0.3−	0.8−	1997 02 07	566	0.8−	0.6−	1998 09 14	704	0.9+	0.6−
1971 05 13	675	0.8+	0.2−	1998 07 31	699	0.3+	1.4−	1998 09 14	704	(1.1+	2.7−)
1971 05 14	675	1.4+	0.8−	1998 07 31	699	(2.3+	0.0)	1998 09 14	704	0.5−	0.9−
1995 08 27	691	0.1+	0.4−	1998 07 31	699	0.2+	0.0				

(9492)∗ 2066 T-1 = 1979 XF$_1$ = 1985 RR$_2$ = 1990 BR$_2$ = 1992 YD$_4$

Discovered 1971 Mar. 25 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. S. Nakano (*MPC* 21807)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	306.10002		(2000.0)		**P**	**Q**	
n	0.30528009	ω	252.77969		+0.87128170	−0.48954325	
a	2.1844246	Ω	136.51368		+0.46733988	+0.80587288	
e	0.1356657	i	2.90403		+0.14987206	+0.33304100	
P	3.23	H	14.7	G	0.15	U	1

Residuals in seconds of arc

1971 03 24	675	(0.7−	2.9−)	1992 12 18	403	(1.4+	2.3−)	1998 08 30	699	0.0	0.2+
1971 03 25	675	0.0	0.5−	1993 01 13	399	0.3−	0.1−	1998 08 30	699	0.3−	0.1+
1971 03 25	675	0.6−	0.0	1993 01 13	399	0.7−	0.1−	1998 09 14	704	0.9−	0.6−
1971 03 26	675	0.3−	0.6−	1995 10 25	372	(3.4+	1.2+)	1998 09 14	704	0.3−	1.1+
1971 03 27	675	0.0	0.7−	1995 10 25	372	(5.1+	1.9+)	1998 09 14	704	1.1−	0.9+
1979 12 14	095	(6.7+	3.4−)	1995 10 26	372	(2.8+	0.5+)	1998 09 14	704	0.7−	0.3+
1979 12 18	095	(6.1+	1.6−)	1998 08 17	704	0.5+	0.3+	1998 09 18	704	0.1−	0.3+
1985 09 05	809	0.1−	1.4−	1998 08 17	704	0.9+	0.1−	1998 09 18	704	0.9−	0.6−
1985 09 05	809	0.4+	0.5−	1998 08 17	704	0.0	0.5−	1998 09 18	699	0.4+	0.4+
1985 09 05	809	0.8+	0.4+	1998 08 17	704	0.3+	0.2+	1998 09 18	704	0.1−	0.0
1985 09 10	809	0.1−	0.7−	1998 08 17	704	0.2−	0.4+	1998 09 18	704	0.3−	0.6+
1985 09 10	809	0.2−	0.3−	1998 08 23	704	0.1−	0.1−	1998 09 18	699	0.2+	0.3+
1985 09 10	809	0.1−	0.2+	1998 08 23	704	1.0−	0.4+	1998 09 18	704	0.1−	0.6−
1990 01 29	046	(2.2−	4.7−)	1998 08 23	704	0.4+	0.0	1998 09 18	699	0.2+	0.2−
1990 01 29	046	(3.1−	1.0−)	1998 08 23	704	0.1−	0.6−	1998 09 25	704	0.6−	0.4−
1990 01 30	046	(2.1+	6.1−)	1998 08 23	704	0.5+	0.7+	1998 09 25	704	0.2−	0.9−
1990 01 30	046	(0.8+	4.3−)	1998 08 26	470	1.3+	1.2+	1998 09 25	704	0.2+	0.8−
1992 12 17	399	0.4+	0.1−	1998 08 26	470	0.4+	0.7+	1998 09 25	704	0.1−	1.3−

1992 12 17	399	0.6+	0.3−	1998 08 26	470	1.7+	0.5+	1998 09 25	704	0.2+	1.9−
1992 12 18	403	(3.6+	0.2+)	1998 08 30	699	0.2−	0.3+				

(9493)∗ 3100 T-1 = 1969 VS = 1990 VG$_4$

Discovered 1971 Mar. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. S. Nakano (*MPC* 19879)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	280.68004		(2000.0)		**P**	**Q**	
n	0.23607392	ω	232.08411		+0.12225199	−0.99031675	
a	2.5928101	Ω	211.08538		+0.94589991	+0.13632618	
e	0.1667416	i	7.31969		+0.30054585	−0.02622803	
P	4.17	H	13.8	G	0.15	U	2

Residuals in seconds of arc

1969 11 11	095	0.2−	1.9−	1990 11 22	364	1.4+	0.6+	1998 09 25	704	0.7+	0.2−
1971 03 25	675	(3.5+	0.3−)	1992 05 01	691	0.8−	0.5−	1998 09 25	704	0.1−	0.8−
1971 03 26	675	1.0+	0.7−	1992 05 01	691	0.5−	0.9−	1998 09 25	704	0.4+	1.3−
1971 03 26	675	0.7−	0.3−	1992 05 01	691	0.7−	0.4−	1998 09 25	704	0.3−	0.1−
1971 03 27	675	0.1−	2.0+	1998 08 27	699	0.3+	0.8+	1998 09 26	704	0.4+	0.0
1971 04 02	675	0.4−	0.8+	1998 08 27	699	0.2+	0.2−	1998 09 26	704	0.1+	0.3−
1971 04 02	675	0.2+	0.8−	1998 08 27	699	0.3−	0.2+	1998 09 26	704	1.1+	0.0
1971 04 16	675	1.3+	1.5−	1998 09 14	704	0.5−	0.2+	1998 09 26	704	0.5+	0.5−
1971 04 16	675	(3.0+	1.7−)	1998 09 14	704	0.4−	0.9+	1998 09 26	704	0.1+	0.4−
1990 11 12	364	(1.7−	3.1−)	1998 09 14	704	0.1−	0.6+	1998 09 27	704	0.7+	0.0
1990 11 12	364	(1.8−	2.4−)	1998 09 18	704	0.5+	0.3+	1998 09 27	704	0.2−	0.1+
1990 11 21	364	1.5−	0.5−	1998 09 18	704	0.3+	0.1+	1998 09 27	704	0.0	0.4+
1990 11 21	364	0.1+	0.2+	1998 09 18	704	1.8−	0.5−	1998 09 27	704	0.4−	0.6+
1990 11 22	364	(0.2−	2.7+)	1998 09 18	704	0.3−	0.3−	1998 09 27	704	0.1−	0.0

(9494)∗ 3212 T-1 = 1992 VE

Discovered 1971 Mar. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. S. Nakano (*MPC* 21278)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	250.20706		(2000.0)		**P**	**Q**	
n	0.30337695	ω	64.92216		+0.32196906	−0.94672254	
a	2.1935506	Ω	6.30886		+0.84317626	+0.28326143	
e	0.0848489	i	3.77570		+0.43056906	+0.15322990	
P	3.25	H	13.7	G	0.15	U	1

Residuals in seconds of arc

1955 05 23	675	0.4−	1.1+	1992 11 02	399	1.0−	1.0−	1998 08 25	426	0.1−	0.3−
1971 03 24	675	0.1+	0.5+	1992 11 18	399	1.8+	0.1+	1998 08 25	426	0.2−	0.3−
1971 03 25	675	0.5−	1.7−	1992 11 18	399	(2.8+	1.2+)	1998 08 25	426	0.3−	0.2−
1971 03 26	675	0.4−	0.7−	1992 11 21	399	0.2−	0.5−	1998 08 26	426	0.1−	0.2+
1971 03 26	675	0.5−	1.6−	1992 11 21	399	0.7+	0.7+	1998 08 26	426	0.0	0.2+
1971 03 27	675	0.1+	1.9−	1997 03 10	809	1.9+	1.5+	1998 08 27	699	0.2−	0.3−
1971 04 02	675	1.5−	0.1+	1997 03 10	809	1.2+	1.0+	1998 08 27	699	0.2−	0.6+
1971 04 16	675	0.1−	0.5−	1997 03 10	809	1.6+	1.2+	1998 08 27	699	0.1+	0.8+
1971 04 16	675	(0.2+	2.3+)	1997 03 11	809	1.3−	0.3−	1998 09 14	704	0.1−	0.7−
1971 04 16	675	0.4+	0.8−	1997 03 11	809	1.4−	0.4−	1998 09 14	704	0.4+	0.3−
1971 04 16	675	0.8+	0.0	1997 03 11	809	1.4−	0.7−	1998 09 14	704	0.3+	0.1+
1971 05 13	675	1.1−	0.4−	1998 08 17	704	0.9+	0.0	1998 09 14	704	0.1−	0.1−
1971 05 14	675	0.0	1.1−	1998 08 17	704	0.1+	0.4−	1998 09 14	704	0.2+	0.0
1992 10 28	399	0.2+	0.8−	1998 08 17	704	0.1−	0.4−	1998 09 24	699	0.1−	0.9+
1992 10 28	399	0.0	1.7−	1998 08 17	704	0.9+	1.7−	1998 09 24	699	0.4−	0.1+
1992 11 02	399	0.8−	0.3−	1998 08 17	704	0.9+	1.5−	1998 09 24	699	0.5−	0.4+

(9495)∗ 4177 T-1 = 1982 SS$_6$ = 1995 UY$_2$

Discovered 1971 Mar. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. B. G. Marsden (*MPC* 25970)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	287.54828		(2000.0)		**P**	**Q**	
n	0.30495569	ω	21.53423		+0.67865652	−0.73360972	
a	2.1859735	Ω	25.76798		+0.66145988	+0.58964647	
e	0.1297871	i	4.65009		+0.31921176	+0.33783697	
P	3.23	H	14.7	G	0.15	U	2

Residuals in seconds of arc

1971 03 24	675	0.2−	0.0	1995 10 26	046	0.3+	0.9−	1998 09 18	704	0.7−	0.2+
1971 03 26	675	0.9−	0.5−	1995 10 26	046	0.8+	0.6−	1998 09 18	704	0.8−	0.3−
1971 03 26	675	0.5−	1.6−	1995 10 26	046	0.6+	0.7−	1998 09 18	704	0.8−	1.0−
1971 03 27	675	0.6−	1.8−	1995 10 26	046	0.1+	0.7−	1998 09 18	704	1.1−	0.2−
1971 04 02	675	0.1+	0.4+	1998 08 17	704	0.6+	0.3+	1998 09 18	704	0.4−	0.4+
1971 04 16	675	0.3+	0.5−	1998 08 17	704	0.5+	1.0+	1998 09 22	699	0.2−	0.5+
1971 04 16	675	1.0+	0.3−	1998 08 17	704	1.9+	0.6−	1998 09 22	699	0.2+	0.7+
1971 05 13	675	0.3−	0.4+	1998 08 17	704	0.2−	1.1+	1998 09 22	699	0.2+	0.3+
1971 05 14	675	0.7−	0.1+	1998 08 17	704	0.2−	0.2+	1998 09 25	704	0.3−	0.1+
1971 05 16	675	1.7−	1.8+	1998 08 23	704	0.6+	0.3+	1998 09 25	704	0.4−	0.1−
1982 09 16	095	1.0+	0.5+	1998 08 23	704	0.7+	0.1−	1998 09 25	704	0.2−	0.4−
1990 01 26	675	0.6+	1.9+	1998 08 23	704	0.1+	1.0−	1998 09 25	704	0.4+	1.7−
1990 01 26	675	0.8+	1.4+	1998 08 23	704	0.3−	0.6+	1998 09 25	704	0.2−	1.1−
1990 02 20	675	0.7+	0.8+	1998 08 23	704	0.0	0.1−	1998 09 27	704	0.6+	0.2+
1990 02 20	675	0.0	1.0+	1998 09 14	704	0.2+	0.7+	1998 09 27	704	0.5−	0.6+
1994 05 10	675	(2.6+	0.5−)	1998 09 14	704	0.5−	0.1−	1998 09 27	704	0.3+	1.2+
1994 05 10	675	1.2+	0.5−	1998 09 14	704	1.4−	0.4+	1998 09 27	704	0.4+	0.5+
1995 10 22	046	0.9+	0.8−	1998 09 14	704	0.7−	0.9+	1998 09 27	704	0.0	0.1−
1995 10 22	046	0.8−	0.9−	1998 09 14	704	0.8−	1.1+				

(9496)∗ 4260 T-1 = 1990 BD$_4$ = 1991 FK$_6$ = 1991 HX$_1$

Discovered 1971 Mar. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 21602)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	281.89662		(2000.0)		**P**	**Q**	
n	0.19750129	ω	322.91013		+0.31652221	−0.94733306	
a	2.9202683	Ω	108.59148		+0.88217600	+0.27509468	
e	0.0527915	i	2.94652		+0.34868208	+0.16396034	
P	4.99	H	13.6	G	0.15	U	1

Residuals in seconds of arc

1971 03 24	675	0.1+	0.1−	1991 04 19	809	0.1+	1.1−	1998 09 18	704	0.0	0.2−
1971 03 26	675	1.3−	0.3−	1991 04 19	809	0.2+	1.8−	1998 09 18	704	0.6−	0.9−
1971 03 26	675	0.8−	0.1+	1991 04 19	809	1.6−	1.4−	1998 09 25	699	0.4+	1.1+
1971 03 27	675	2.1−	2.0−	1993 09 21	675	0.8+	0.8−	1998 09 25	699	0.4−	0.1−
1971 04 02	675	0.0	0.9−	1993 09 21	675	1.1+	0.7−	1998 09 25	699	0.6−	0.9+
1971 04 16	675	1.0+	0.6−	1993 10 15	675	0.3−	0.3−	1998 09 26	704	0.0	0.6+
1971 04 16	675	1.9+	0.8−	1993 10 15	675	1.0+	0.6−	1998 09 26	704	0.0	0.0
1971 05 13	675	0.3−	0.7+	1998 08 31	704	0.1−	0.2−	1998 09 26	704	0.4+	0.6−
1971 05 14	675	0.8−	0.3+	1998 08 31	704	(3.6+	2.4−)	1998 09 26	704	1.1+	0.8−
1971 05 16	675	0.4+	0.8+	1998 08 31	704	0.8+	0.0	1998 09 26	704	0.1−	1.4−
1988 09 10	675	0.7+	1.1−	1998 08 31	704	(2.3+	2.0−)	1998 09 27	704	0.3+	0.1+
1988 09 10	675	0.8+	1.8−	1998 08 31	704	(3.1−	0.2−)	1998 09 27	704	0.3+	0.4+
1990 01 24	033	0.8−	0.4−	1998 09 14	704	0.6−	0.1+	1998 09 27	704	0.2+	1.0+
1990 01 24	033	0.8+	0.8−	1998 09 14	704	0.8−	0.5+	1998 09 27	704	0.5−	0.2+
1991 03 27	809	(2.0−	2.6+)	1998 09 14	704	1.5−	0.3−	1998 09 27	704	0.2+	0.0
1991 03 27	809	0.6+	1.3+	1998 09 18	704	0.5+	0.5−				
1991 03 27	809	(3.2+	0.2−)	1998 09 18	704	0.5−	0.7−				

(9497)∗ 1001 T-2 = 1993 PA$_7$

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* 22597)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	257.11731		(2000.0)		**P**	**Q**	
n	0.19472117	ω	260.08429		+0.18231218	−0.98324062	
a	2.9479985	Ω	179.41079		+0.91675812	+0.16983691	
e	0.1010520	i	2.24471		+0.35541076	+0.06628209	
P	5.06	H	13.3	G	0.15	U	2

Residuals in seconds of arc

1950 03 22	675	0.1+	0.3−	1993 08 15	010	0.3+	1.6−	1998 08 23	704	0.5−	0.5−
1950 03 22	675	0.4−	0.7−	1993 08 16	010	0.5+	0.5−	1998 08 23	704	0.8+	0.5−
1973 09 19	675	1.3+	0.3−	1993 08 17	010	0.2+	1.4−	1998 08 23	704	1.5−	1.3+
1973 09 19	675	1.2−	0.9−	1993 08 17	010	1.2+	0.4−	1998 08 23	704	0.0	0.5+
1973 09 20	675	2.1−	0.8+	1993 08 17	010	(1.2−	2.3−)	1998 08 23	704	1.6+	0.4+
1973 09 24	675	1.0+	0.5−	1993 08 19	010	0.1−	0.2+	1998 08 26	699	0.1+	0.2+
1973 09 24	675	0.7+	0.2−	1993 08 19	010	1.0−	0.6−	1998 08 26	699	0.6+	0.3−
1973 09 25	675	0.8−	0.1+	1993 08 19	010	1.0−	1.1−	1998 08 26	699	0.6+	0.0
1973 09 25	675	0.5+	0.2−	1993 09 18	010	0.1+	0.0	1998 09 14	704	0.2−	0.9−
1973 09 29	675	0.7+	0.3+	1993 09 18	010	0.8−	1.1−	1998 09 14	704	0.3−	0.3+
1973 09 29	675	0.2+	0.2+	1993 09 18	010	0.6−	0.5+	1998 09 14	704	0.3+	0.1−
1973 10 04	675	0.4+	0.6−	1996 03 17	566	0.0	0.2−	1998 09 14	704	1.3−	0.9+
1973 10 04	675	1.0−	1.4+	1996 03 17	566	0.2−	0.3−	1998 09 14	704	1.0−	0.2+
1973 10 04	675	0.5+	0.5−	1996 03 17	566	0.1−	0.3−	1998 09 25	704	0.4−	0.3−
1973 10 04	675	(0.2−	2.8+)	1998 08 17	704	0.7+	0.3+	1998 09 25	704	(2.4+	0.1−)
1993 08 13	675	0.5+	0.0	1998 08 17	704	0.5−	0.1+	1998 09 25	704	0.3−	0.7+
1993 08 13	675	1.2+	0.5+	1998 08 17	704	0.9+	1.1+	1998 09 25	704	0.3−	0.3+
1993 08 15	010	0.3+	0.3−	1998 08 17	704	0.1+	1.0+	1998 09 25	704	0.9−	0.5−
1993 08 15	010	1.5+	0.7−	1998 08 17	704	0.5−	1.0+				

(9498)∗ 1197 T-2 = 1994 GR$_7$

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. T. Kobayashi (*MPC* 24236)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	7.78279		(2000.0)		**P**	**Q**	
n	0.27249472	ω	63.26536		+0.13117412	+0.99120961	
a	2.3563004	Ω	214.28569		−0.92007476	+0.11525230	
e	0.2072030	i	1.75270		−0.36912842	+0.06496470	
P	3.62	H	15.6	G	0.15	U	2

Residuals in seconds of arc

1973 09 19	675	0.7−	2.2−	1973 10 05	675	1.9+	1.1−	1998 06 24	704	0.5−	0.2+
1973 09 19	675	0.8−	1.1−	1973 10 05	675	1.4+	0.7−	1998 06 24	704	0.3+	0.8+
1973 09 20	675	0.9−	0.2−	1994 04 12	691	0.5−	1.1−	1998 06 24	704	0.1−	0.9+
1973 09 24	675	1.9−	0.6−	1994 04 12	691	0.4−	1.1−	1998 06 24	704	1.6−	0.9+
1973 09 24	675	2.0−	0.1+	1994 04 12	691	0.3−	0.9−	1998 06 26	704	0.3+	0.2−
1973 09 25	675	(1.6−	2.7−)	1994 04 15	691	0.7−	1.4−	1998 06 26	704	0.4−	0.1+
1973 09 25	675	1.4−	0.4−	1994 04 15	691	0.3−	1.2−	1998 06 26	704	0.4+	0.4+
1973 09 29	675	2.2+	0.1−	1994 04 15	691	0.3−	1.1−	1998 06 26	704	1.2+	0.7+
1973 09 29	675	1.4+	0.8−	1996 11 12	691	0.1−	0.1−	1998 07 26	704	0.6−	1.5−
1973 09 30	675	1.6+	1.2+	1996 11 12	691	0.0	0.3−	1998 07 26	704	1.3+	0.2+
1973 10 04	675	(3.4+	0.8+)	1996 11 12	691	0.0	0.1−	1998 07 26	704	0.0	1.9−
1973 10 04	675	2.0+	0.6−	1998 06 24	704	0.5−	0.6+	1998 07 26	704	0.2−	0.4+

(9499)∗ 1269 T-2 = 1981 EP$_{24}$

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* 15079)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	268.69649		(2000.0)		**P**	**Q**	
n	0.19508239	ω	128.83137		+0.42168041	−0.90662140	
a	2.9443584	Ω	296.22178		+0.82667539	+0.39116284	
e	0.0059237	i	0.95439		+0.37254991	+0.15820642	
P	5.05	H	13.7	G	0.15	U	2

Residuals in seconds of arc

1956 05 08	675	2.4+	0.8−	1981 03 06	413	0.9−	0.2−	1998 08 17	704	1.0+	0.9−
1971 03 24	675	(2.7−	1.8−)	1981 03 11	413	1.4−	0.3+	1998 08 17	704	0.3−	1.1−
1971 03 25	675	0.6−	0.7−	1981 03 11	413	1.1−	0.3−	1998 08 17	704	0.7−	0.2−
1971 03 26	675	0.4+	1.5−	1981 03 15	413	1.6−	1.4+	1998 08 23	704	1.0−	0.8+
1971 03 26	675	0.3+	1.5−	1981 03 15	413	1.5+	0.6−	1998 08 23	704	0.3−	0.7+
1971 03 27	675	1.0−	0.0	1981 04 05	413	0.4−	0.7+	1998 08 23	704	0.3+	1.6+
1971 04 02	675	(4.2+	3.2−)	1981 04 05	413	1.5+	1.0−	1998 08 23	704	0.4−	0.4+
1971 04 02	675	1.9−	0.4+	1981 04 06	413	0.6+	0.3+	1998 08 23	704	1.5−	1.0−
1971 04 16	675	0.5−	1.7−	1981 04 06	413	0.2+	0.3+	1998 09 14	704	1.1+	0.1+
1971 04 16	675	0.6+	1.5+	1981 04 10	413	1.5−	1.4+	1998 09 14	704	0.4+	0.5−
1971 05 13	675	1.2−	0.2+	1981 05 01	413	0.6−	0.4−	1998 09 14	704	0.0	0.2−
1971 05 14	675	0.8−	1.7−	1981 05 02	413	(4.2−	0.0)	1998 09 14	704	1.2+	0.5−
1973 09 19	675	1.4+	0.3−	1981 05 03	413	1.4−	0.4−	1998 09 14	704	1.2+	1.2−
1973 09 19	675	1.2+	1.5−	1991 02 11	675	(3.0+	2.0−)	1998 09 18	704	0.2+	0.4−
1973 09 20	675	1.8−	0.1−	1991 02 11	675	(3.2+	0.8−)	1998 09 18	704	0.2+	1.4−
1973 09 24	675	1.7−	0.2−	1991 03 09	675	0.1−	1.4−	1998 09 18	704	(0.4−	2.3+)
1973 09 24	675	0.4−	0.8−	1991 03 09	675	1.5+	1.1−	1998 09 18	699	0.2−	0.2+
1973 09 25	675	0.7+	1.1−	1991 04 15	675	(2.2+	0.1+)	1998 09 18	704	0.3+	1.2+
1973 09 25	675	1.3−	0.5−	1991 04 15	675	0.4+	0.5+	1998 09 18	704	1.2−	0.2+
1973 09 29	675	0.6+	0.6+	1993 09 14	691	0.9−	0.2−	1998 09 18	699	0.9+	0.1−
1973 09 29	675	1.1+	0.9−	1993 09 14	691	1.4−	0.3−	1998 09 18	699	0.0	0.4−
1973 09 30	675	0.2−	0.3+	1993 09 14	691	0.8−	0.2−	1998 09 25	704	0.8−	0.6+
1973 09 30	675	0.3+	0.0	1993 09 19	010	1.9+	1.6+	1998 09 25	704	0.3−	0.9−
1973 10 04	675	1.7+	1.8−	1993 09 19	010	1.0+	1.2+	1998 09 25	704	0.2+	0.7−
1973 10 04	675	0.7+	0.1−	1993 09 20	010	(2.4+	1.0+)	1998 09 25	704	0.6+	0.1−
1973 10 05	675	1.5+	2.1−	1993 09 20	010	1.6+	1.1+	1998 09 25	704	0.1+	0.6−
1973 10 05	675	(0.1+	2.7−)	1993 09 20	010	0.4−	0.2−	1998 09 27	704	0.5−	0.2−
1981 02 09	413	0.7+	1.4−	1996 03 11	691	0.6+	0.6−	1998 09 27	704	0.1+	1.0+
1981 02 13	413	1.7+	0.1+	1996 03 11	691	0.5+	0.6−	1998 09 27	704	0.3−	0.1−
1981 03 02	413	1.9−	0.1−	1996 03 11	691	0.5+	0.5−	1998 09 27	704	0.7−	0.5−
1981 03 02	413	0.6+	1.6−	1998 08 17	704	0.4+	0.5−				
1981 03 06	413	1.5−	0.2+	1998 08 17	704	0.8−	0.6−				

(9500)∗ 1281 T-2 = 1990 UA$_4$

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. H. Kaneda (*MPC* 18132)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	263.70520		(2000.0)		**P**	**Q**	
n	0.23548667	ω	260.65699		−0.08304435	−0.99502688	
a	2.5971189	Ω	194.45472		+0.97877214	−0.07106157	
e	0.1664847	i	12.72928		+0.18737322	−0.06979801	
P	4.19	H	14.4	G	0.15	U	1

Residuals in seconds of arc

1971 03 24	675	0.3+	0.5−	1990 10 16	809	0.4+	0.1−	1998 09 18	704	0.1−	0.3+
1971 03 25	675	0.7+	1.1−	1990 10 16	809	0.7−	0.7−	1998 09 18	704	0.1+	0.3−
1971 03 26	675	2.0−	2.0−	1990 10 16	809	1.7−	1.1−	1998 09 18	704	0.9+	0.1+
1971 03 26	675	1.1−	1.6−	1990 10 20	809	1.6+	0.7−	1998 09 18	704	0.1−	0.4−
1971 03 27	675	0.8−	1.4−	1990 10 20	809	1.1+	0.0	1998 09 18	704	0.7+	0.8−
1971 04 02	675	(3.0−	1.4−)	1990 10 20	809	0.3+	0.6−	1998 09 25	699	0.6−	0.0
1971 04 16	675	1.1+	0.7−	1990 10 24	809	0.8+	1.2+	1998 09 25	699	0.5+	0.6−
1971 04 16	675	0.3−	1.2−	1990 10 24	809	0.2−	0.1−	1998 09 25	699	0.4+	0.2+
1971 05 13	675	0.0	1.1−	1990 10 24	809	0.7−	0.3+	1998 09 26	704	0.8−	0.0
1971 05 14	675	0.6+	0.2+	1994 11 07	675	(0.3−	2.2+)	1998 09 26	704	0.3−	0.2−
1973 09 29	675	0.8+	1.6−	1994 11 07	675	1.0−	0.8+	1998 09 26	704	0.8−	0.3−
1973 09 29	675	0.0	1.0−	1998 08 27	699	0.5+	0.2−	1998 09 26	704	0.1−	0.5+
1973 09 30	675	0.1−	0.0	1998 08 27	699	0.5+	0.6+	1998 09 26	704	0.8+	1.5+
1973 09 30	675	0.1−	0.3+	1998 08 27	699	0.9+	0.5+	1998 09 27	704	0.8−	0.1−
1973 10 04	675	0.3+	2.4−	1998 09 14	704	0.3−	0.1+	1998 09 27	704	0.6+	0.8−
1973 10 04	675	(0.1−	2.7−)	1998 09 14	704	0.2−	0.6−	1998 09 27	704	0.9−	1.0+
1973 10 05	675	0.5+	2.2−	1998 09 14	704	0.8+	0.9−	1998 09 27	704	0.6−	0.6−
1973 10 05	675	(0.8+	2.6−)	1998 09 14	704	0.5+	0.3−	1998 09 27	704	1.1−	0.1+

(9501)∗ 2071 T-2 = 1994 VH$_3$

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 24404)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	0.60189		(2000.0)		**P**	**Q**	
n	0.23645777	ω	116.46942		+0.86231279	+0.50553435	
a	2.5900034	Ω	213.18679		−0.48150737	+0.80076190	
e	0.2692363	i	3.05622		−0.15673963	+0.32127153	
P	4.17	H	14.8	G	0.15	U	2

Residuals in seconds of arc

1973 09 19	675	0.2−	0.6+	1994 11 10	399	0.4−	0.5−	1998 09 14	704	0.7−	0.5+
1973 09 19	675	0.2+	0.1+	1994 12 03	675	0.6+	0.5−	1998 09 15	727	0.2−	0.5+
1973 09 20	675	0.5−	1.1−	1997 03 11	809	0.7−	0.5−	1998 09 15	727	0.2−	0.9+
1973 09 24	675	0.4+	0.6−	1997 03 11	809	0.3−	1.7−	1998 09 15	727	0.1−	0.6+
1973 09 24	675	0.3+	0.1−	1997 03 11	809	0.8−	0.9−	1998 09 15	699	0.1−	0.6+
1973 09 25	675	0.3+	2.5−	1997 03 13	809	0.7+	0.5+	1998 09 15	699	0.1+	0.9+
1973 09 25	675	0.2−	2.3−	1997 03 13	809	1.2+	0.1−	1998 09 15	699	0.1−	0.9+
1973 09 29	675	0.0	0.2−	1997 03 13	809	1.0+	0.4+	1998 09 18	704	0.3−	0.4+
1973 09 29	675	1.5+	0.2+	1997 04 03	704	1.1−	1.0+	1998 09 18	704	0.2−	0.2+
1973 09 30	675	1.0+	2.1−	1997 04 03	704	0.7−	1.0+	1998 09 18	704	0.2+	1.1+
1973 09 30	675	1.4+	2.0−	1997 04 05	704	(3.9+	4.9+)	1998 09 18	704	0.8−	1.8+
1973 10 04	675	0.9+	2.2−	1997 04 05	704	0.7+	0.4−	1998 09 18	704	(0.4−	2.3+)
1973 10 04	675	0.6+	1.6−	1997 04 07	704	0.2−	0.2−	1998 09 26	704	0.1+	0.4+
1973 10 05	675	0.7+	2.4−	1997 04 07	704	0.2−	0.2−	1998 09 26	704	0.6−	0.3+
1973 10 05	675	0.8+	2.4−	1998 06 29	704	0.0	0.6−	1998 09 26	704	0.7−	0.7+
1994 10 13	691	0.7−	1.1+	1998 06 29	704	0.2+	0.7−	1998 09 26	704	0.6−	0.3+
1994 10 13	691	1.4−	0.9+	1998 06 29	704	0.9+	1.4+	1998 09 26	704	0.6−	0.9+
1994 10 13	691	1.0−	1.1+	1998 06 29	704	0.7−	1.5−	1998 09 27	704	0.1+	0.3+
1994 11 04	675	0.3+	0.2+	1998 08 02	699	0.2−	0.1+	1998 09 27	704	0.5−	1.5+
1994 11 04	675	1.2+	0.0	1998 08 02	699	0.8−	0.6+	1998 09 27	704	0.8−	1.2+
1994 11 07	399	(2.6−	2.7−)	1998 08 02	699	0.6−	0.1−	1998 09 27	704	1.5+	0.9−
1994 11 07	399	1.0−	0.5−	1998 09 14	704	0.2−	0.7+	1998 09 27	704	1.0−	0.8+
1994 11 10	399	1.3+	1.2+	1998 09 14	704	1.3+	1.1+				

(9502)∗ 2075 T-2 = 1995 XV$_4$

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 26577)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	58.93152		(2000.0)		**P**	**Q**	
n	0.27591153	ω	75.53205		−0.14535866	+0.98933939	
a	2.3368068	Ω	186.13053		−0.93668451	−0.14049371	
e	0.1987056	i	4.75703		−0.31857963	−0.03832876	
P	3.57	H	15.1	G	0.15	U	1

Residuals in seconds of arc

1973 09 19	675	0.6+	1.0−	1995 12 20	691	0.0	0.0	1998 09 17	699	0.2+	1.3+
1973 09 19	675	0.3+	0.6−	1995 12 20	691	0.1−	0.1+	1998 09 17	699	0.3−	0.8+
1973 09 20	675	0.6−	1.1−	1995 12 27	691	0.5+	0.1+	1998 09 18	704	0.3+	0.8−
1973 09 24	675	1.9−	0.6−	1995 12 27	691	0.1−	0.2+	1998 09 18	704	0.3−	0.2+
1973 09 24	675	0.5−	0.0	1995 12 27	691	0.3−	0.1+	1998 09 18	704	0.2+	0.4+
1973 09 25	675	(0.8+	3.8−)	1997 04 28	704	0.9−	0.5+	1998 09 18	704	0.5−	0.1+
1973 09 25	675	(1.3+	3.1−)	1997 04 28	704	0.3−	0.8+	1998 09 18	704	0.0	1.5+
1973 09 29	675	0.9+	0.9+	1997 04 28	704	0.5−	0.2+	1998 09 25	691	1.1−	0.2−
1973 09 29	675	1.3+	0.1−	1997 04 28	704	0.9−	1.9−	1998 09 25	699	0.3+	1.6+
1973 09 30	675	0.8+	0.8−	1997 04 29	704	1.4+	0.4+	1998 09 25	691	0.6−	0.2−
1973 09 30	675	0.3+	1.7−	1997 04 29	704	(2.5+	0.3−)	1998 09 25	699	0.3+	0.2+
1973 10 04	675	1.3+	0.2−	1997 04 29	704	(2.2+	0.3−)	1998 09 25	691	0.6−	0.4−
1973 10 04	675	1.1+	1.6−	1997 04 29	704	1.9+	0.0	1998 09 25	699	0.7−	1.1+
1973 10 05	675	0.5+	1.0−	1998 08 28	704	0.4−	1.2+	1998 09 26	704	0.4+	0.2+
1973 10 05	675	1.3−	1.1+	1998 08 28	704	(1.9−	2.1+)	1998 09 26	704	1.0+	1.2−
1973 10 05	675	1.2+	1.1−	1998 08 28	704	0.2+	1.2−	1998 09 26	704	1.1+	0.2−
1973 10 05	675	1.4−	1.1+	1998 09 14	704	0.6−	0.4+	1998 09 26	704	0.2+	0.9−
1990 04 22	675	(2.0−	0.1−)	1998 09 14	704	0.3−	0.8+	1998 09 26	704	0.6+	0.8−
1990 04 22	675	0.8−	0.8−	1998 09 14	704	0.6+	0.1+	1998 09 27	704	0.1−	0.6−
1995 12 14	691	0.3−	0.0	1998 09 15	699	0.1−	1.2+	1998 09 27	704	0.3−	0.8−
1995 12 14	691	0.1+	0.2−	1998 09 15	699	1.4+	0.9+	1998 09 27	704	0.5−	0.1+
1995 12 14	691	0.0	0.1−	1998 09 15	699	0.6−	0.9+	1998 09 27	704	1.0−	0.5+
1995 12 20	691	0.2−	0.0	1998 09 17	699	0.4−	0.7+	1998 09 27	704	0.2−	0.5−

(9503)∗ 2180 T-2 = 1984 SU$_7$ = 1990 VU$_9$ = 1998 FU$_{26}$

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. A. Gnädig (*MPC* 32037)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	70.39680		(2000.0)		**P**	**Q**	
n	0.17830737	ω	107.36713		−0.41363619	−0.91025513	
a	3.1262463	Ω	7.14903		+0.76884843	−0.36009335	
e	0.0464253	i	8.52944		+0.48762403	−0.20437315	
P	5.53	H	13.1	G	0.15	U	2

Residuals in seconds of arc

1973 09 19	675	0.1−	0.3+	1984 09 21	010	0.0	0.0	1998 03 20	704	0.5−	0.0
1973 09 19	675	0.9+	1.3−	1990 11 11	675	0.9−	0.2−	1998 03 20	704	0.6−	0.5+
1973 09 20	675	0.9−	0.5−	1990 11 11	675	0.7+	0.7+	1998 03 22	704	0.1+	0.0
1973 09 24	675	1.7−	0.6+	1998 02 25	809	(3.2+	0.1+)	1998 03 22	704	0.1+	0.4−
1973 09 24	675	1.6−	2.2+	1998 02 25	809	1.6+	0.4+	1998 03 22	704	0.1−	0.7+
1973 09 25	675	1.3+	1.5−	1998 02 25	809	1.8+	0.1−	1998 03 22	704	1.4−	0.5+
1973 09 25	675	0.3−	0.2−	1998 02 25	566	0.6−	0.4+	1998 03 22	704	0.2−	0.7+
1973 09 29	675	0.0	0.1+	1998 02 25	566	0.8−	0.3−	1998 03 26	704	0.5−	0.1+
1973 09 29	675	0.4+	1.2+	1998 02 25	566	0.5−	0.0	1998 03 26	704	0.2−	0.2+
1973 09 30	675	0.2+	0.5−	1998 02 26	809	1.3+	1.3−	1998 03 26	704	0.4−	0.5+
1973 09 30	675	0.9−	0.6−	1998 02 26	809	0.2+	1.8−	1998 04 18	704	0.0	0.2−
1973 10 04	675	1.4+	0.3+	1998 02 26	809	(2.1+	1.8−)	1998 04 18	704	(2.8−	0.2−)
1973 10 04	675	0.1−	0.7−	1998 03 20	704	0.1−	0.2+	1998 04 18	704	0.5+	0.9+
1973 10 05	675	1.0+	1.4−	1998 03 20	704	0.3+	0.3−	1998 04 18	704	1.0−	1.7−
1973 10 05	675	1.0+	0.8+	1998 03 20	704	0.5+	0.1−				

(9504)∗ 2224 T-2 = 1978 RC$_2$

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* 14965)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Green

M	325.77404		(2000.0)		**P**	**Q**	
n	0.19482042	ω	322.06333		+0.99727731	−0.06823529	
a	2.9469973	Ω	41.87584		+0.07364158	+0.90169961	
e	0.0832481	i	2.40085		+0.00385745	+0.42694467	
P	5.06	H	13.7	G	0.15	U	2

Residuals in seconds of arc

1971 03 24	675	0.1+	2.2−	1973 10 04	675	(0.9−	2.8+)	1998 08 17	704	0.3+	0.8+
1971 03 26	675	2.1−	1.7−	1973 10 04	675	0.4+	0.8+	1998 08 18	566	1.2−	0.1+
1971 03 26	675	2.2−	2.1−	1973 10 04	675	0.7−	1.8+	1998 08 18	566	1.0−	0.2−
1971 03 27	675	0.5−	1.6−	1973 10 05	675	2.1+	1.1−	1998 08 18	566	1.2−	0.2−
1971 04 02	675	1.0+	0.7−	1973 10 05	675	1.6−	1.9+	1998 08 23	704	(0.2−	2.3−)
1971 04 16	675	0.9−	0.5−	1973 10 05	675	0.6+	1.2−	1998 08 23	704	0.6−	1.1+
1971 05 13	675	0.0	0.5+	1973 10 05	675	1.9−	1.5+	1998 08 23	704	1.1−	1.0−
1971 05 14	675	0.7+	0.6+	1978 09 07	095	1.3−	0.3−	1998 08 23	704	(2.1+	1.5+)
1973 09 19	675	0.2−	0.3−	1978 09 12	095	2.0−	1.4−	1998 09 14	704	1.1+	0.7−
1973 09 19	675	1.5−	0.7+	1988 09 10	675	0.6+	0.6−	1998 09 14	704	0.6−	1.4−
1973 09 20	675	0.3+	1.2−	1988 09 10	675	0.2+	0.2−	1998 09 14	704	0.5+	0.9−
1973 09 24	675	0.2−	0.2−	1988 09 12	675	0.4+	0.6−	1998 09 14	704	0.2+	0.2+
1973 09 24	675	0.4+	0.6−	1988 09 12	675	0.2+	1.8−	1998 09 14	704	0.5−	1.8−
1973 09 24	675	0.6−	0.2+	1988 10 07	675	0.5+	0.0	1998 09 18	704	0.6+	0.6+
1973 09 24	675	0.0	0.5+	1988 10 07	675	1.4+	0.4+	1998 09 18	704	0.1+	1.1−
1973 09 25	675	0.6+	2.3−	1988 10 09	675	1.1+	0.1+	1998 09 18	704	0.2+	0.4−
1973 09 25	675	0.6−	1.7+	1988 10 09	675	1.0+	0.3−	1998 09 18	704	1.2−	0.5−

1973 09 25	675	(1.9+	3.2−)	1991 03 09	675	0.8−	0.8−	1998 09 18	704	1.2+	0.6+
1973 09 25	675	0.5−	1.6+	1991 03 09	675	0.8+	0.8+	1998 09 25	704	0.1+	0.1+
1973 09 29	675	0.8+	1.7−	1993 08 13	675	0.4−	0.7+	1998 09 25	704	0.2+	0.6−
1973 09 29	675	1.8+	1.3−	1993 08 13	675	0.0	0.7+	1998 09 25	704	0.6+	0.3−
1973 09 29	675	0.4−	0.9−	1996 01 26	691	0.2−	0.4−	1998 09 25	704	0.1−	0.6−
1973 09 29	675	(2.3+	2.5−)	1996 01 26	691	0.1+	0.2−	1998 09 25	704	0.4+	1.5−
1973 09 30	675	0.7+	2.2−	1996 01 26	691	0.1+	0.2−	1998 09 27	704	0.3−	0.2−
1973 09 30	675	2.1+	1.7+	1998 08 17	704	0.7−	0.7+	1998 09 27	704	0.9+	0.0
1973 09 30	675	0.9+	1.9−	1998 08 17	704	0.0	0.7+	1998 09 27	704	1.6−	1.5+
1973 09 30	675	(2.5+	3.0+)	1998 08 17	704	0.5+	0.9+	1998 09 27	704	0.7+	1.0+
1973 10 04	675	0.7+	0.7−	1998 08 17	704	0.9+	1.5+	1998 09 27	704	0.0	0.4+

(9505)∗ 4131 T-2 = 1996 YN = 1998 KS$_{45}$

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* 32505)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	47.25164		(2000.0)		**P**	**Q**	
n	0.18475471	ω	137.75405		−0.98680308	+0.15552769	
a	3.0530859	Ω	51.24931		−0.15967739	−0.88845237	
e	0.2375435	*i*	3.31264		−0.02688529	−0.43181423	
P	5.33	*H*	14.0	*G*	0.15	*U*	1

Residuals in seconds of arc

1973 09 19	675	0.2+	0.8+	1992 02 26	691	0.5−	1.1−	1998 05 24	704	0.8−	0.7+
1973 09 19	675	(2.8−	2.1−)	1992 02 26	691	0.2−	1.3−	1998 05 24	704	0.0	0.8+
1973 09 24	675	0.1−	0.5−	1996 12 20	411	0.2−	0.1+	1998 05 24	704	1.7+	1.0+
1973 09 24	675	1.1−	0.6−	1996 12 20	411	0.4+	0.4−	1998 06 24	704	(2.4−	0.0)
1973 09 29	675	(1.8+	3.3−)	1996 12 21	411	0.4−	0.3−	1998 06 24	704	1.4−	0.6−
1973 09 29	675	(2.2+	3.4−)	1996 12 21	411	0.0	0.3+	1998 06 24	704	0.3+	1.3−
1973 09 30	675	0.8+	1.9−	1998 05 22	704	0.2−	1.1−	1998 06 24	704	0.4−	2.0−
1973 09 30	675	0.5+	1.7−	1998 05 22	704	0.1−	0.4−	1998 06 24	704	(4.7−	0.4−)
1973 10 04	675	0.7−	0.1+	1998 05 22	704	0.8+	0.8−	1998 06 26	704	0.5+	0.2−
1973 10 04	675	1.4+	1.3+	1998 05 22	704	0.6−	0.5−	1998 06 26	704	1.6+	1.0−
1973 10 05	675	0.2+	0.3−	1998 05 22	704	0.7−	0.4−	1998 06 26	704	0.3+	0.8+
1973 10 05	675	1.0+	1.8−	1998 05 24	704	0.2−	0.2+	1998 06 26	704	1.2−	1.5+
1992 02 26	691	0.6−	1.1−	1998 05 24	704	0.3−	0.6+				

(9506)∗ 5200 T-2 = 1991 AZ$_2$

Discovered 1973 Sept. 25 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. H. Kaneda (*MPC* 17978)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	103.64695		(2000.0)		**P**	**Q**	
n	0.19040506	ω	245.56615		−0.98457438	+0.13313910	
a	2.9923821	Ω	301.90259		−0.06686732	−0.88589472	
e	0.0289582	*i*	7.68466		−0.16168503	−0.44436980	
P	5.18	*H*	13.0	*G*	0.15	*U*	1

Residuals in seconds of arc

1973 09 24	675	(3.6+	1.5−)	1991 01 15	033	0.4+	0.3+	1998 06 28	809	(0.2−	2.6−)
1973 09 24	675	(3.1+	2.0−)	1991 01 16	033	0.3−	0.4+	1998 06 28	809	(0.2+	2.2−)
1973 09 25	675	0.8+	1.2−	1991 01 22	675	0.7+	0.4+	1998 07 01	809	(0.2+	2.7−)
1973 09 25	675	0.2+	2.2−	1991 01 22	675	1.5−	0.9−	1998 07 01	809	(0.2+	2.9−)
1973 09 29	675	0.2−	0.5−	1992 04 04	675	1.5−	1.2+	1998 07 01	809	(0.2−	3.0−)
1973 09 29	675	0.1−	0.5+	1992 04 04	675	1.4+	1.8−	1998 07 03	699	0.5−	0.2+
1973 09 30	675	0.7+	0.6−	1998 06 24	704	(2.7+	0.4−)	1998 07 03	699	0.2+	0.7−
1973 09 30	675	1.4+	0.3+	1998 06 24	704	1.0+	0.3−	1998 07 03	699	0.1−	0.3−
1973 10 04	675	0.9−	1.9+	1998 06 24	704	1.0+	0.7−	1998 07 16	699	0.3−	0.3−
1973 10 04	675	1.0−	0.6+	1998 06 24	704	0.3+	0.8+	1998 07 16	699	0.3−	0.0
1973 10 05	675	0.5−	0.3−	1998 06 26	704	0.3+	0.5−	1998 07 16	699	0.5−	0.1−
1973 10 05	675	0.3+	0.2+	1998 06 26	704	0.7+	0.9−	1998 08 15	704	0.6−	0.8+
1991 01 15	033	0.5−	1.2−	1998 06 26	704	0.5−	0.0	1998 08 15	704	0.1−	0.3+
1991 01 15	033	0.0	0.8−	1998 06 26	704	0.2−	0.3+	1998 08 15	704	0.4+	0.3−
1991 01 15	033	0.1+	0.8−	1998 06 28	809	(0.1−	2.3−)				

(9507)∗ 5447 T-2 = 1990 EH$_2$

Discovered 1973 Sept. 30 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. H. Kaneda (*MPC* 16589)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	24.94012		(2000.0)		**P**	**Q**	
n	0.27523638	ω	334.24603		+0.32337793	+0.94047072	
a	2.3406267	Ω	314.41881		−0.84090814	+0.23491910	
e	0.2317321	*i*	8.42133		−0.43393572	+0.24561725	
P	3.58	*H*	14.5	*G*	0.15	*U*	2

Residuals in seconds of arc

1973 09 29	675	0.0	0.1−	1990 03 02	809	0.5+	0.1+	1998 08 23	704	0.6−	1.2−
1973 09 29	675	1.4−	0.1+	1990 03 04	809	0.3−	0.1+	1998 08 23	704	0.7−	0.2−
1973 09 30	675	0.4−	0.2−	1990 03 04	809	0.0	0.4+	1998 08 23	704	0.7+	0.8+
1973 09 30	675	0.0	0.7−	1990 03 04	809	0.5−	0.2−	1998 08 23	704	0.2−	0.2−
1973 10 04	675	0.7+	0.0	1997 03 10	704	0.6+	0.7+	1998 08 23	704	0.6−	1.0+
1973 10 04	675	1.3−	0.1+	1997 03 10	704	0.8+	0.2+	1998 08 23	704	0.3+	2.0+
1973 10 05	675	1.2+	0.1−	1997 03 11	704	0.9+	0.7+	1998 08 23	704	0.7−	0.1−
1973 10 05	675	1.6+	0.4+	1997 03 11	704	0.1−	0.1−	1998 08 23	704	0.8−	0.5−
1990 02 24	809	0.7−	0.4−	1998 06 29	704	(2.4−	0.9+)	1998 08 23	704	0.6−	0.8−
1990 02 24	809	1.1−	0.3−	1998 06 29	704	0.6+	0.6+	1998 09 19	704	0.1−	0.5−
1990 02 24	809	0.8−	0.3−	1998 06 29	704	0.1+	0.2−	1998 09 19	704	0.1−	0.2+
1990 03 02	809	0.8+	0.4−	1998 06 29	704	1.2+	0.4+	1998 09 19	704	0.6+	0.2−
1990 03 02	809	0.3+	0.3−	1998 08 23	704	0.9+	0.1+				

(9508)∗ 3395 T-3 = 1980 PO$_3$ = 1988 YO

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. E. Bowell (*MPC* 18134), G. V. Williams (*MPC* 19331)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	171.31661		(2000.0)		**P**	**Q**	
n	0.27880698	ω	344.86466		−0.96104034	−0.27640507	
a	2.3206000	Ω	179.08651		+0.26132674	−0.91012883	
e	0.0494022	*i*	4.68511		+0.09005439	−0.30865152	
P	3.54	*H*	14.3	*G*	0.15	*U*	2

Residuals in seconds of arc

1949 11 19	675	0.5−	0.4+	1991 10 04	033	0.2+	0.2+	1998 09 14	704	0.0	0.2−
1949 11 19	675	0.4−	0.5−	1991 10 05	033	1.1+	0.7−	1998 09 14	704	0.3+	0.2−
1977 10 07	675	0.4+	1.3+	1993 03 03	691	0.1−	0.1+	1998 09 14	704	0.8+	0.3−
1977 10 11	675	2.3−	1.4+	1993 03 03	691	0.2−	0.3+	1998 09 14	704	0.3−	0.5+
1977 10 11	675	1.2−	1.1+	1993 03 03	691	0.3−	0.2+	1998 09 16	691	1.9−	0.1+
1977 10 12	675	2.1+	1.3−	1993 03 04	691	0.1−	0.0	1998 09 16	691	1.7−	0.2+
1977 10 12	675	(2.7+	1.2−)	1993 03 04	691	0.1+	0.2+	1998 09 16	691	1.8−	0.3+
1977 10 16	675	0.7+	2.3−	1993 03 04	691	0.2+	0.1+	1998 09 18	704	0.3+	0.2+
1977 10 16	675	0.9+	0.8−	1997 04 02	704	1.6+	0.6−	1998 09 18	704	0.7−	0.4+
1977 10 17	675	0.2+	0.7−	1997 04 02	704	0.9+	0.7+	1998 09 18	704	0.5+	0.1+
1977 10 17	675	0.8+	0.2−	1997 04 02	704	0.5+	0.4+	1998 09 18	704	1.0−	0.0
1977 10 21	675	2.1+	0.5+	1997 04 02	704	1.2+	0.6+	1998 09 18	704	0.2+	1.8+
1977 10 21	675	0.2−	0.1+	1997 04 06	704	0.2−	0.4+	1998 09 21	691	0.3−	0.5+
1977 10 22	675	(3.3+	0.9−)	1997 04 06	704	0.1−	1.0+	1998 09 21	691	0.8−	0.5+
1977 10 22	675	2.4+	1.5−	1997 04 07	809	0.3−	1.2+	1998 09 21	691	0.7−	0.6+
1980 08 03	675	0.2−	1.4−	1997 04 07	809	1.0−	0.7+	1998 09 26	704	0.5−	1.7+
1980 08 05	675	0.5−	1.6−	1997 04 07	809	0.7−	0.6+	1998 09 26	704	1.0+	0.5+
1988 12 27	372	0.9−	2.6+	1997 04 08	809	0.5+	0.1+	1998 09 26	704	1.0+	1.3+
1988 12 27	372	(4.4+	1.7+)	1997 04 08	809	0.1−	0.1+	1998 09 26	691	1.0−	0.3+
1991 09 10	675	0.7+	0.2−	1997 04 08	809	0.4+	0.3−	1998 09 26	691	1.1−	0.0
1991 09 10	675	1.1−	0.7−	1997 04 08	704	0.1−	0.2−	1998 09 26	691	1.0−	0.4+
1991 09 15	691	0.8−	0.0	1997 04 08	704	0.0	0.4+	1998 09 27	704	1.3+	2.4+
1991 09 15	691	1.0−	0.1−	1998 08 23	704	1.0+	0.3−	1998 09 27	704	1.3+	1.6+
1991 09 15	691	0.8−	0.3−	1998 08 23	704	0.7−	0.1−	1998 09 27	704	1.0+	0.7+
1991 09 17	675	0.2−	0.2+	1998 08 23	704	1.0+	0.3−	1998 09 27	704	1.1+	0.1−

1991 09 17	675	0.7−	0.2−	1998 08 23	704	1.0−	0.4−	
1991 10 04	033	0.0	0.1+	1998 08 23	704	0.5+	1.1−	

(9509)∗ 3453 T-3 = 1990 EQ$_4$

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 16590)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	58.92391		(2000.0)		**P**		**Q**
n	0.27940353	ω	72.68700		−0.16842630		+0.98559199
a	2.3172957	Ω	187.66696		−0.94280287		−0.16567055
e	0.1505155	i	6.68227		−0.28767226		−0.03408373
P	3.53	H	14.7	G	0.15	U	2

Residuals in seconds of arc

1977 10 07	675	1.2−	0.1−	1991 10 05	691	1.9−	0.2−	1998 09 18	120	1.2−	0.5+
1977 10 11	675	0.4−	0.8+	1991 10 05	691	2.0−	0.0	1998 09 18	120	0.6+	0.3+
1977 10 11	675	0.6−	0.0	1997 04 28	704	1.1−	0.9−	1998 09 18	120	1.3+	0.5−
1977 10 12	675	1.2+	1.3−	1997 04 28	704	1.2−	0.7−	1998 09 21	120	0.8+	0.2+
1977 10 12	675	1.2+	0.6−	1997 04 28	704	1.5−	1.5−	1998 09 21	120	0.3+	0.0
1977 10 16	675	0.7+	0.6−	1997 04 28	704	0.4−	1.5−	1998 09 21	120	0.1−	0.0
1977 10 16	675	0.8+	0.8−	1997 04 28	704	1.9−	1.5−	1998 09 22	120	0.1+	0.1+
1977 10 17	675	1.7−	0.0	1997 04 29	704	0.8+	0.5−	1998 09 22	120	0.3+	0.0
1977 10 17	675	0.5−	0.3+	1997 04 29	704	1.4+	1.4−	1998 09 22	120	0.6+	0.2+
1977 10 21	675	0.9+	1.5+	1997 04 29	704	0.0	0.3+	1998 09 23	120	0.2+	0.1−
1977 10 21	675	0.9−	0.9+	1997 04 29	704	0.6+	0.2−	1998 09 23	120	0.2−	0.6+
1977 10 22	675	(3.4+	0.2−)	1998 08 23	704	0.1−	0.9−	1998 09 23	120	0.7+	0.3−
1977 10 22	675	2.3+	0.2−	1998 08 23	704	1.4+	0.5+	1998 09 24	120	0.4+	0.4+
1990 03 02	809	1.1+	0.3−	1998 08 23	704	1.4−	0.5+	1998 09 24	120	0.2−	0.4+
1990 03 02	809	0.7+	0.1−	1998 08 23	704	0.1+	0.2+	1998 09 24	120	0.1+	0.3+
1990 03 02	809	0.9+	1.3−	1998 08 23	704	0.9+	0.8−	1998 09 25	699	(0.1−	2.6+)
1990 03 04	809	0.9+	0.6−	1998 09 14	704	0.8+	0.1−	1998 09 25	699	0.7+	1.5+
1990 03 04	809	0.7+	0.3−	1998 09 14	704	0.6−	0.6+	1998 09 25	699	1.3−	1.5+
1990 03 04	809	0.8+	0.5−	1998 09 14	704	0.2−	0.4+	1998 09 26	704	0.5−	0.1−
1990 04 04	809	(0.6+	2.2−)	1998 09 14	704	0.4−	0.1−	1998 09 26	704	0.2−	1.2−
1990 04 04	809	0.4−	1.4−	1998 09 14	704	0.6−	1.4+	1998 09 26	704	0.7+	0.5−
1990 04 04	809	(2.5−	1.2−)	1998 09 16	699	0.6+	0.5−	1998 09 26	704	0.8+	1.7−
1990 04 15	809	0.2−	1.1+	1998 09 16	699	0.6+	0.2−	1998 09 26	704	0.9+	1.6−
1990 04 16	809	1.4−	1.4+	1998 09 16	699	0.3+	0.4−	1998 09 27	704	0.7−	0.6−
1990 04 16	809	1.2−	0.0	1998 09 18	704	0.3+	0.1−	1998 09 27	704	0.4+	1.4−
1990 04 16	809	1.6−	1.5+	1998 09 18	704	0.9+	0.1+	1998 09 27	704	0.9−	0.5−
1990 04 17	809	(2.4−	1.7+)	1998 09 18	704	0.1−	1.1−	1998 09 27	704	0.3−	1.0−
1990 04 17	809	(3.6−	1.5+)	1998 09 18	704	0.4+	1.1−	1998 09 27	704	0.2−	1.3−
1991 10 05	691	1.7−	0.1−	1998 09 18	704	0.2−	0.5−				

(9510)∗ 5022 T-3 = 1997 LQ$_5$

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 30286)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	119.27787		(2000.0)		**P**		**Q**
n	0.18189400	ω	55.41845		−0.93884851		+0.32800789
a	3.0850139	Ω	143.41039		−0.34422632		−0.90155508
e	0.0078734	i	10.12205		+0.00846804		−0.28215114
P	5.42	H	13.9	G	0.15	U	1

Residuals in seconds of arc

1977 10 11	675	0.1−	0.8−	1997 06 08	691	0.3+	0.5−	1998 08 23	704	0.2+	0.7−
1977 10 11	675	1.2+	0.5−	1997 06 08	691	0.3+	1.0−	1998 08 23	704	1.2+	0.3−
1977 10 12	675	0.1+	1.6−	1997 06 13	691	0.1+	0.4−	1998 08 23	704	0.7−	0.8+
1977 10 12	675	0.6+	0.2+	1997 06 13	691	0.1−	1.0−	1998 08 23	704	(2.3+	1.3+)
1977 10 16	675	0.9−	0.1−	1997 06 13	691	0.1+	1.1−	1998 08 27	699	0.3−	1.9+
1977 10 16	675	0.6−	2.2−	1997 06 28	691	0.8−	0.7−	1998 08 27	699	0.5+	1.7+
1977 10 17	675	0.8−	1.2−	1997 06 28	691	0.6−	1.0−	1998 08 27	699	(1.4−	2.2+)
1977 10 17	675	0.5−	2.0−	1997 06 28	691	1.3−	1.4−	1998 09 14	704	0.9−	0.6+
1977 10 21	675	1.2+	0.7+	1998 08 17	704	0.0	0.5+	1998 09 14	704	0.7+	1.6−
1977 10 21	675	0.2+	1.0−	1998 08 17	704	(0.1+	2.2+)	1998 09 14	704	0.1−	0.6+
1977 10 22	675	0.6+	0.9−	1998 08 17	704	0.9−	0.2+	1998 09 14	704	0.2+	1.4−
1977 10 22	675	2.0+	0.8−	1998 08 17	704	0.9−	1.4+	1998 09 21	699	0.9+	0.7+
1996 02 24	566	0.1+	0.3−	1998 08 17	704	0.5−	0.3+	1998 09 21	699	0.0	0.8+
1996 02 24	566	0.1−	0.0	1998 08 18	566	0.2+	0.4+	1998 09 21	699	1.3−	0.6+
1996 02 24	566	0.5−	0.1−	1998 08 18	566	0.1−	0.5+				
1997 06 08	691	0.3+	1.5−	1998 08 18	566	0.5+	0.6+				

(9511)∗ 5051 T-3 = 1973 YQ$_2$ = 1982 VC$_{12}$ = 1994 LU$_3$ = 1998 HO$_{105}$

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 32038)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	142.60338		(2000.0)		**P**		**Q**
n	0.21403762	ω	1.30491		+0.38224994		−0.90902389
a	2.7678506	Ω	66.24341		+0.84615599		+0.27212958
e	0.1401314	i	10.45034		+0.37135565		+0.31562803
P	4.60	H	12.9	G	0.15	U	2

Residuals in seconds of arc

1973 12 20	095	0.0	0.6−	1994 06 03	809	1.2+	0.0	1998 04 23	704	0.2−	1.2−
1977 10 11	675	0.2+	0.3−	1994 06 03	809	(2.5+	0.2−)	1998 04 23	704	0.2−	0.3−
1977 10 11	675	0.4+	0.2+	1994 06 04	809	0.3−	0.4+	1998 04 23	704	0.2−	0.9−
1977 10 12	675	1.2+	0.7−	1994 06 04	809	0.1−	0.5−	1998 04 23	704	0.6+	0.7−
1977 10 12	675	0.6+	2.1−	1994 06 04	809	0.3−	0.2+	1998 04 23	704	0.7+	1.5−
1977 10 16	675	1.9+	1.8−	1998 03 24	704	1.2−	0.0	1998 04 24	704	0.3−	1.2−
1977 10 16	675	1.6+	2.2−	1998 03 24	704	(2.3−	1.3−)	1998 04 24	704	0.5+	0.7−
1977 10 17	675	0.9+	2.4−	1998 03 24	704	0.4−	0.9−	1998 04 24	704	0.4+	0.7−
1977 10 17	675	0.8+	1.2−	1998 03 24	704	0.6−	0.3−	1998 04 24	704	0.2−	0.3−
1977 10 21	675	0.0	0.5+	1998 03 24	704	1.1−	0.5+	1998 04 24	704	0.5−	1.2−
1977 10 21	675	0.1+	0.0	1998 04 21	704	0.3+	1.3−	1998 05 16	704	0.5+	0.1+
1977 10 22	675	1.1−	0.1−	1998 04 21	704	1.3−	1.2−	1998 05 16	704	1.3−	0.1−
1977 10 22	675	0.4−	1.6−	1998 04 21	704	0.9−	0.8−	1998 05 16	704	1.0−	0.2−
1982 11 13	095	(2.3−	4.2−)	1998 04 21	704	0.8−	0.0	1998 05 16	704	0.5−	0.3+
1994 06 03	809	1.4+	0.6+	1998 04 21	704	1.2−	0.5−				

1968 OK = 1997 YY$_4$

Id. G. V. Williams, A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	82.81629		(2000.0)		**P**		**Q**
n	0.24088448	ω	82.66208		+0.96247909		−0.03380022
a	2.5581745	Ω	279.00103		−0.08630973		+0.90255197
e	0.2623677	i	15.81901		+0.25726372		+0.42925223
P	4.09	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1968 07 18	805	1.0+	0.4+	1968 08 21	805	2.0−	0.7+	1997 12 26	566	0.6+	0.2+
1968 07 19	805	2.7+	0.0	1997 12 25	566	0.5+	0.7−	1997 12 26	566	0.6+	0.1+
1968 07 25	805	0.8+	0.2+	1997 12 25	566	0.6+	0.6−	1997 12 29	566	1.1−	0.6+
1968 07 28	805	0.6−	0.6+	1997 12 25	566	0.4+	0.8−	1997 12 29	566	1.0−	0.2+
1968 07 30	805	1.2−	1.6−	1997 12 26	566	0.6+	0.1+	1997 12 29	566	1.2−	0.7+

1977 TU$_3$ = 1977 VQ = 1998 QB$_{90}$

Id. B. G. Marsden (d, *MPC* 9153), T. Urata, S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	326.29385		(2000.0)		**P**		**Q**
n	0.18525572	ω	174.93028		+0.86273219		−0.48384414
a	3.0475790	Ω	215.25404		+0.45452802		+0.86935856
e	0.1982043	i	14.74709		+0.22157942		+0.10055124
P	5.32	H	13.1	G	0.15	U	4

Residuals in seconds of arc

1977 10 12	330	0.5+	0.2+	1998 08 24	704	(3.0−	1.0−)	1998 09 08	888	0.0	0.1−
1977 11 11	805	0.9−	0.6−	1998 08 27	704	0.0	0.6−	1998 09 08	888	0.0	0.2−
1977 11 12	805	0.5−	0.1+	1998 08 27	704	0.9+	0.6−	1998 09 08	888	0.4+	0.1−
1977 11 12	330	0.9+	0.3+	1998 08 27	704	0.1+	1.6+	1998 09 08	888	0.2+	0.0
1998 08 24	704	1.2+	0.1−	1998 08 27	704	0.8−	0.2+	1998 09 09	888	0.2−	0.1+
1998 08 24	704	1.1+	1.9−	1998 08 27	704	1.8−	0.8+	1998 09 09	888	0.0	0.0
1998 08 24	704	0.2−	1.1−	1998 08 27	905	0.0	1.3+	1998 09 09	888	0.1+	0.1+
1998 08 24	704	1.2−	0.6+	1998 08 27	905	0.1+	0.2−				

1978 UD$_7$ = 1998 SW$_{33}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	26.17643		(2000.0)	**P**	**Q**	
n	0.29398361	ω	280.90057	+0.33804344	+0.94084939	
a	2.2400307	Ω	8.95928	−0.79546500	+0.29869784	
e	0.2117353	i	8.49353	−0.50295335	+0.15994384	
P	3.35	H	15.0	G 0.15	U 5	

Residuals in seconds of arc

1978 10 27	675	0.0	0.1+	1998 09 25	699	0.0	0.3−	1998 09 26	704	0.3−	1.0+
1978 10 28	675	0.7+	0.4+	1998 09 25	699	0.3+	0.4−	1998 09 27	704	0.1+	1.1−
1978 10 29	675	0.7−	0.5−	1998 09 26	704	0.4−	0.1+	1998 09 27	704	1.0+	0.2−
1978 11 28	675	0.2+	0.1+	1998 09 26	704	0.1+	1.0+	1998 09 27	704	0.3−	0.0
1978 11 29	675	0.1−	0.1−	1998 09 26	704	0.7−	0.1−	1998 09 27	704	0.2+	0.5+
1998 09 25	699	0.1+	0.3−	1998 09 26	704	0.7−	0.4−	1998 09 27	704	0.7+	0.2+

1979 MZ$_1$ = 1998 RR$_{34}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	347.42440		(2000.0)	**P**	**Q**	
n	0.21225679	ω	210.18827	+0.97273083	+0.22153160	
a	2.7833104	Ω	136.83706	−0.18760925	+0.92566003	
e	0.0783503	i	5.76305	−0.13637265	+0.30672017	
P	4.64	H	15.0	G 0.15	U 5	

Residuals in seconds of arc

1979 06 24	413	1.5+	1.2+	1979 07 25	675	0.3+	0.1+	1998 09 18	704	0.5+	0.8−
1979 06 25	413	1.0−	0.9+	1998 09 14	704	0.2+	0.3−	1998 09 18	704	0.3+	1.0−
1979 06 29	413	0.6−	2.1−	1998 09 14	704	1.9−	0.1−	1998 09 18	704	0.3+	0.3−
1979 07 24	675	0.9−	0.2−	1998 09 14	704	0.0	0.3+	1998 09 18	704	0.5+	0.5+
1979 07 24	413	0.7+	0.3+	1998 09 14	704	0.0	0.6+	1998 09 18	704	0.0	1.1+

1981 EU$_4$

Id. V. Goretti (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	22.86447		(2000.0)	**P**	**Q**	
n	0.19095847	ω	31.36946	+0.38410371	+0.91024734	
a	2.9865980	Ω	261.61206	−0.87617295	+0.30653167	
e	0.0720140	i	8.99301	−0.29117914	+0.27836687	
P	5.16	H	12.5	G 0.15	U 4	

Residuals in seconds of arc

1981 02 02	413	1.0−	1.1+	1981 04 07	413	0.8−	1.2+	1998 09 09	610	0.9+	0.2+
1981 02 09	413	0.9+	0.4−	1981 04 07	413	1.3+	0.2−	1998 09 14	610	0.1+	0.3−
1981 03 02	413	1.2−	1.0+	1981 04 08	413	1.7−	0.9+	1998 09 14	610	0.4−	0.4−
1981 03 02	413	1.3+	0.2−	1981 04 08	413	1.7+	1.4−	1998 09 14	610	0.8−	0.4−
1981 03 07	413	0.6−	0.4+	1981 04 09	413	0.5−	0.2−	1998 09 14	610	1.3−	0.4−
1981 03 07	413	0.7+	0.5−	1981 04 09	413	0.2−	0.2+	1998 09 17	699	0.1−	0.0
1981 03 10	413	0.8−	0.0	1981 05 02	413	0.1+	0.2−	1998 09 17	699	0.3−	0.0
1981 03 10	413	0.1+	0.7−	1981 05 03	413	0.7+	0.9−	1998 09 17	699	0.2−	0.1+
1981 03 12	413	1.2−	0.5+	1998 09 09	610	1.0+	1.0+				
1981 03 12	413	1.2+	0.4−	1998 09 09	610	1.0+	0.6+				

1981 QJ$_2$ = 1957 TF = 1998 QL$_8$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	316.05270		(2000.0)	**P**	**Q**	
n	0.28754087	ω	210.82737	+0.99714717	−0.05950873	
a	2.2733676	Ω	152.46900	+0.07112466	+0.94674449	
e	0.1889853	i	5.76564	−0.02527476	+0.31643892	
P	3.43	H	15.0	G 0.15	U 4	

Residuals in seconds of arc

1957 10 02	760	0.5−	2.6+	1981 10 04	688	2.0+	1.5+	1998 08 17	704	1.0+	0.8−
1981 08 30	688	1.1−	1.3−	1998 07 24	910	0.2+	0.6+	1998 08 17	704	1.1−	1.6−
1981 08 30	688	2.0−	1.1−	1998 07 24	910	0.3+	0.7+	1998 08 23	704	0.4+	0.1+
1981 09 05	095	0.9−	1.6−	1998 07 24	910	0.3+	0.6+	1998 08 23	704	0.7+	0.7+
1981 09 26	688	1.6+	0.6+	1998 08 17	704	0.3−	0.3−	1998 08 23	704	0.4+	1.1+
1981 09 26	688	0.1−	0.4+	1998 08 17	704	1.0−	0.2−	1998 08 23	704	(0.5+	3.3+)
1981 10 04	688	1.0+	1.5−	1998 08 17	704	0.5−	0.1−				

1985 CD = 1978 PP$_4$ = 1998 KD$_{54}$

Id. T. Urata

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	41.19070		(2000.0)	**P**	**Q**	
n	0.23810355	ω	53.49568	−0.88982682	+0.44044691	
a	2.5780547	Ω	152.05279	−0.45559336	−0.87210715	
e	0.1309350	i	14.73792	+0.02535582	−0.21315637	
P	4.14	H	13.5	G 0.15	U 3	

Residuals in seconds of arc

1978 08 02	414	0.1−	0.1+	1985 02 19	809	0.7−	0.3+	1985 02 25	809	0.8+	0.7−
1978 08 02	414	(3.9−	3.6−)	1985 02 19	809	0.4−	0.3+	1985 02 26	809	0.5+	0.2+
1985 02 12	809	0.4−	0.7+	1985 02 19	809	0.1+	0.2+	1985 02 26	809	0.5+	0.1+
1985 02 12	809	0.3−	0.6+	1985 02 20	809	1.2+	0.3+	1985 02 26	809	0.7+	0.1+
1985 02 12	809	0.1−	0.6+	1985 02 20	809	1.4+	0.4+	1985 02 27	809	0.4−	0.2−
1985 02 14	809	0.1−	0.1+	1985 02 20	809	1.9+	0.3+	1985 02 27	809	0.4−	0.1+
1985 02 14	809	0.2+	0.2−	1985 02 21	809	0.6−	0.0	1985 02 28	809	0.4−	0.4+
1985 02 14	809	0.4+	0.3−	1985 02 21	809	0.7−	0.2+	1985 02 28	809	0.1−	0.6−
1985 02 14	881	1.1−	0.1+	1985 02 21	809	0.8−	0.5+	1998 05 23	704	0.9+	0.3+
1985 02 14	881	1.5−	1.7+	1985 02 24	809	1.4+	0.4+	1998 05 23	704	1.3+	0.5+
1985 02 15	809	0.5−	0.1+	1985 02 24	809	1.3+	0.7+	1998 05 23	704	0.7−	0.0
1985 02 15	809	0.5−	0.0	1985 02 24	809	1.1+	0.2+	1998 05 23	704	0.8+	0.4−
1985 02 15	809	0.2−	0.1+	1985 02 24	809	1.1+	0.1+	1998 05 23	704	0.3−	1.2−
1985 02 16	809	0.8−	0.9−	1985 02 24	809	1.0+	0.2+	1998 05 26	704	0.3+	0.6+
1985 02 16	809	0.6−	1.3−	1985 02 24	809	0.7+	0.2+	1998 05 26	704	0.3−	0.3−
1985 02 16	809	0.3−	1.1−	1985 02 24	881	1.0+	0.2−	1998 05 26	704	0.7−	0.6+
1985 02 17	809	0.5−	0.4−	1985 02 24	881	0.4−	0.2−	1998 05 26	704	0.9−	0.4+
1985 02 17	809	0.4−	0.4−	1985 02 25	809	0.1+	0.3−	1998 05 26	704	0.9−	0.6−
1985 02 17	809	0.2+	0.6−	1985 02 25	809	0.3+	0.1+	1998 09 19	385	0.5+	0.1+
1985 02 18	809	1.6−	0.3−	1985 02 25	809	0.1+	0.5+	1998 09 19	385	0.9+	0.3+
1985 02 18	809	1.4−	0.3−	1985 02 25	809	0.4+	0.6−	1998 09 20	385	0.9−	1.0−
1985 02 18	809	1.4−	0.4−	1985 02 25	809	0.4+	0.6−	1998 09 20	385	0.5+	0.4+

1986 PL$_1$

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	30.90210		(2000.0)	**P**	**Q**	
n	0.17076426	ω	184.63020	+0.68209743	+0.72618597	
a	3.2176445	Ω	128.40751	−0.66734559	+0.66624640	
e	0.1515429	i	6.30124	−0.29898655	+0.16961628	
P	5.77	H	12.5	G 0.15	U 4	

Residuals in seconds of arc

1986 08 01	675	0.5−	0.7−	1986 08 29	809	0.1+	0.6−	1986 09 08	809	0.4−	0.2−
1986 08 01	675	0.2+	0.9+	1986 09 01	809	0.3−	0.2+	1986 09 08	809	0.4−	0.1−
1986 08 02	675	(2.7−	0.5+)	1986 09 01	809	0.1−	0.1+	1986 09 10	809	1.6−	0.3−
1986 08 02	675	0.2−	1.4+	1986 09 01	809	0.1+	0.1−	1986 09 10	809	1.6−	0.4−
1986 08 04	675	0.3+	0.2−	1986 09 02	809	0.7+	0.4−	1986 09 10	809	1.7−	0.3−

1986 08 04	675	0.7−	0.3+	1986 09 02	809	0.8+	0.2−	1998 09 17	699	0.7+	0.3+
1986 08 27	809	0.9+	0.2+	1986 09 02	809	0.8+	0.2−	1998 09 17	699	0.6+	0.1−
1986 08 27	809	1.2+	0.1+	1986 09 06	809	0.4+	0.6+	1998 09 17	699	0.6+	0.2−
1986 08 27	809	1.2+	0.1+	1986 09 06	809	0.5+	0.6+	1998 09 25	699	0.5−	0.5+
1986 08 29	809	0.0	0.7−	1986 09 06	809	0.5+	0.5+	1998 09 25	699	0.7−	0.1+
1986 08 29	809	0.1−	0.7−	1986 09 08	809	0.4−	0.2−	1998 09 25	699	0.7−	0.4−

1987 BF = 1998 MF$_{20}$

Id. T. Urata

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	24.97482		(2000.0)		**P**	**Q**	
n	0.28652680	ω	301.13222		−0.57588416	+0.81350257	
a	2.2787283	Ω	293.49059		−0.71675689	−0.55009963	
e	0.1283737	i	5.07080		−0.39321368	−0.18869014	
P	3.44	H	14.1	G	0.15	U	5

Residuals in seconds of arc

1987 01 28	887	0.4−	1.2+	1987 02 20	887	(4.5+	0.9−)Y	1998 06 24	704	0.8+	0.4−
1987 01 28	887	1.0+	1.0+	1987 02 20	887	0.3−	0.8+ Y	1998 06 26	704	0.9+	1.1+
1987 01 28	887	0.1−	0.5−	1998 06 24	704	0.9−	1.0+	1998 06 26	704	0.0	0.4+
1987 02 04	887	1.1+	0.9− Y	1998 06 24	704	0.5+	0.1−	1998 06 26	704	1.3−	1.0−
1987 02 04	887	(4.3−	2.7+)Y	1998 06 24	704	0.4+	1.2−	1998 06 26	704	(1.7−	2.6−)
1987 02 04	887	1.4−	1.5− Y	1998 06 24	704	0.2+	0.3+	1998 06 26	704	0.7−	0.2−

1987 UR = 1961 VD

Epoch 1998 July 6.0 TT = JDT 2451000.5 Urata

M	5.41972		(2000.0)		**P**	**Q**	
n	0.18829912	ω	19.31627		+0.72956622	−0.68259472	
a	3.0146520	Ω	23.89531		+0.61289866	+0.62504926	
e	0.2664535	i	6.00809		+0.30346066	+0.37865270	
P	5.23	H	13.0	G	0.15	U	5

Residuals in seconds of arc

1961 11 04	760	1.0−	0.9−	1987 10 17	675	1.2−	1.8+	1987 10 27	881	1.9+	0.5−
1961 11 04	760	0.4−	0.8−	1987 10 17	675	0.6−	1.1+	1987 10 27	881	1.3+	0.3−
1961 11 10	760	0.2−	1.2+	1987 10 22	881	0.9−	1.1−	1987 10 28	881	0.5−	0.3−
1961 11 10	760	1.4+	0.9+	1987 10 22	881	0.2+	1.0−				

1987 UX = 1998 SU$_{13}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	343.80133		(2000.0)		**P**	**Q**	
n	0.26753904	ω	159.92322		+0.98259158	−0.05590281	
a	2.3853088	Ω	205.35223		+0.05336442	+0.99839311	
e	0.2445977	i	24.44183		+0.17794950	+0.00927771	
P	3.68	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1987 10 18	675	2.4−	0.4+ Y	1987 11 23	675	0.3−	0.1−	1998 09 27	704	0.1+	0.6−
1987 10 18	675	2.7+	3.0+ Y	1987 11 24	675	1.1−	0.5+	1998 09 27	704	0.5−	0.3−
1987 10 19	675	(0.1+	7.0−)Y	1998 09 26	704	0.2−	0.9−	1998 09 27	704	0.4+	0.1+
1987 10 19	675	0.9−	0.8+ Y	1998 09 26	704	0.3−	0.4+	1998 09 27	704	0.1−	0.5−
1987 10 20	675	0.5+	0.7−	1998 09 26	704	0.2+	0.0	1998 09 27	704	0.4+	0.1−
1987 10 28	675	0.4+	3.6− Y	1998 09 26	704	0.1+	0.8+				
1987 10 28	675	1.1+	0.4+ Y	1998 09 26	704	0.2−	0.4+				

1988 DE

Id. L. Lai (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	170.23837		(2000.0)		**P**	**Q**	
n	0.23728487	ω	173.01694		−0.97054644	−0.23925564	
a	2.5839812	Ω	352.94783		+0.20842676	−0.77514268	
e	0.0965858	i	13.28832		+0.12082173	−0.58473119	
P	4.15	H	13.0	G	0.15	U	5

Residuals in seconds of arc

1988 02 17	552	0.4+	0.6+	1988 03 20	552	0.4+	0.2−	1998 09 15	560	1.1−	0.6−
1988 02 17	552	0.6+	0.4+	1988 03 20	552	0.4+	1.5−	1998 09 15	560	0.5−	0.4−
1988 02 21	552	0.3+	0.9−	1988 03 21	675	0.1−	0.2+	1998 09 18	704	(2.2−	3.3+)
1988 02 21	552	1.3−	1.4−	1988 03 21	675	1.1−	0.0	1998 09 18	704	0.4+	0.1−
1988 02 22	552	1.1+	0.8−	1988 03 22	675	0.3+	0.7+	1998 09 18	704	0.3+	0.8+
1988 02 22	552	0.5−	0.7+	1988 03 22	675	0.4−	0.1−	1998 09 18	704	1.2+	0.0
1988 03 10	552	0.5−	1.9+	1998 09 14	704	1.0+	1.2−	1998 09 18	704	0.0	0.5+
1988 03 10	552	1.4−	0.9+	1998 09 14	704	0.8−	1.6+	1998 09 18	560	0.0	0.2+
1988 03 17	675	0.4+	1.3+	1998 09 14	704	0.9+	0.1−	1998 09 18	560	0.3−	0.8−
1988 03 17	552	0.5+	1.0−	1998 09 14	704	0.7−	0.5+				
1988 03 17	552	0.9+	0.9−	1998 09 15	560	0.5−	0.4−				

1988 SS$_2$

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	340.34846		(2000.0)		**P**	**Q**	
n	0.29647698	ω	207.41514		+0.99978133	+0.01214593	
a	2.2274539	Ω	151.87330		−0.00502366	+0.92969311	
e	0.1397246	i	2.06934		−0.02029912	+0.36813476	
P	3.32	H	16.0	G	0.15	U	4

Residuals in seconds of arc

1988 09 12	675	(3.3−	2.4−)	1988 10 05	807	0.9+	0.1−	1998 09 17	699	0.1+	0.7+
1988 09 12	675	2.2−	2.0−	1988 10 08	807	0.0	1.2−	1998 09 17	699	0.6+	0.6+
1988 09 15	675	0.4+	0.5−	1988 11 04	807	0.3−	0.2+	1998 09 25	699	0.8−	0.3+
1988 09 15	675	0.4−	0.2+	1988 11 05	807	0.8+	0.6−	1998 09 25	699	0.7−	0.4+
1988 09 16	807	1.3+	0.5+	1988 11 06	807	1.6−	0.6−	1998 09 25	699	0.9−	0.4+
1988 09 18	807	2.0+	0.5+	1988 11 07	807	1.2+	0.3+				
1988 10 04	807	0.8−	0.4−	1998 09 17	699	0.4+	1.1+				

1989 RX

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	339.11701		(2000.0)		**P**	**Q**	
n	0.22329569	ω	131.72383		+0.98309920	−0.15010554	
a	2.6908066	Ω	237.16240		+0.10759352	+0.93690612	
e	0.2011064	i	7.16561		+0.14812023	+0.31571387	
P	4.41	H	13.0	G	0.15	U	5

Residuals in seconds of arc

1989 08 30	675	0.2+	0.3−	1989 09 05	511	1.2+	0.4+	1998 09 18	699	1.0+	0.2−
1989 08 30	675	0.3+	0.1+	1989 09 06	511	2.2−	0.7−	1998 09 18	699	0.6+	0.0
1989 09 01	511	1.6+	1.2−	1989 09 06	511	0.5+	1.3−	1998 09 25	699	0.7−	0.1+
1989 09 01	511	0.8+	1.9+	1989 09 06	511	1.5−	0.7+	1998 09 25	699	0.7−	0.2+
1989 09 03	511	2.0−	0.3+	1989 09 29	071	1.1+	2.1−	1998 09 25	699	0.6−	0.4+
1989 09 03	511	0.2−	1.1+	1989 09 29	071	0.4−	0.4+				
1989 09 05	511	0.7+	0.3+	1998 09 18	699	0.4+	0.2−				

1989 SK$_3$ = 1975 TP$_3$ = 1975 TN$_4$ = 1998 QP$_{48}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	241.94582		(2000.0)		**P**	**Q**	
n	0.21005946	ω	293.22656		−0.38302963	−0.92373460	
a	2.8026867	Ω	179.28870		+0.88848259	−0.36889737	
e	0.1817746	i	7.59869		+0.25275875	−0.10309763	
P	4.69	H	13.5	G	0.15	U	5

Residuals in seconds of arc

1975 10 03	095	0.6+	2.6−	1989 10 07	809	0.6+	0.1−	1998 08 23	704	1.3−	1.1−
1975 10 13	095	0.3+	1.1−	1989 10 08	809	0.2−	0.5+	1998 08 23	704	0.3−	1.2−
1989 09 26	809	0.1+	0.2+	1989 10 08	809	0.5−	0.4+	1998 09 14	704	0.4+	0.5+
1989 09 26	809	0.8+	0.4+	1989 10 08	809	0.4−	0.2+	1998 09 14	704	0.0	0.8+
1989 09 26	809	0.5+	0.4−	1998 08 17	704	0.5−	0.1+	1998 09 14	704	1.2+	0.9+
1989 09 28	809	1.9−	1.1+	1998 08 17	704	0.4+	0.6−	1998 09 14	704	1.2+	1.0+
1989 09 28	809	2.6−	0.1+	1998 08 17	704	0.2−	0.3+	1998 09 18	704	0.1−	0.1+

1989 09 28	809	1.3−	0.7+	1998 08 17	704	0.5−	0.4−	1998 09 18	704	0.9−	0.3+
1989 09 29	675	0.8+	0.7−	1998 08 17	704	0.0	0.8+	1998 09 18	704	0.0	0.3+
1989 10 07	809	1.7+	0.9+	1998 08 23	704	0.2−	1.4−	1998 09 18	704	0.0	0.1+
1989 10 07	809	1.4+	0.4+	1998 08 23	704	0.3+	0.3−	1998 09 18	704	0.4+	0.4−

1989 TN_{16} = 1991 EP_8 = 1998 KV_{64}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	91.99590		(2000.0)		**P**	**Q**	
n	0.29763788	ω	325.56244		−0.91493047	−0.40354423	
a	2.2216582	Ω	190.64522		+0.37870039	−0.85200285	
e	0.0821227	i	2.28608		+0.13960034	−0.33353139	
P	3.31	H	14.9	G	0.15	U	6

Residuals in seconds of arc

1989 10 04	809	0.4−	0.3−	1991 03 12	675	0.3−	1.0−	1998 05 24	704	0.8+	0.4+
1989 10 04	809	0.4−	0.1−	1991 03 12	675	0.2−	0.4−	1998 05 24	704	0.6+	1.4−
1989 10 04	809	0.0	0.2−	1998 05 22	704	1.0−	0.3−	1998 05 24	704	(1.4+	2.3−)
1989 10 06	809	0.4+	1.1+	1998 05 22	704	1.1−	0.1+	1998 06 03	704	1.3−	0.7+
1989 10 06	809	0.8+	1.2+	1998 05 22	704	0.2+	0.2+	1998 06 03	704	1.0−	0.3−
1989 10 06	809	1.2+	1.3+	1998 05 22	704	1.1+	1.5−	1998 06 03	704	0.3+	0.6+
1989 10 08	809	0.4−	1.6−	1998 05 22	704	0.0	1.8+	1998 06 03	704	(2.0+	3.2+)
1989 10 08	809	0.5−	1.6−	1998 05 24	704	0.7+	0.2−	1998 06 03	704	0.1+	0.7−
1989 10 08	809	0.1−	1.5−	1998 05 24	704	0.5+	0.0				

1989 WZ_2 = 1998 HX_{87}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Urata

M	215.41953		(2000.0)		**P**	**Q**	
n	0.17645192	ω	354.90840		+0.94285868	−0.31856542	
a	3.1481237	Ω	24.37468		+0.31344295	+0.74864038	
e	0.1194334	i	13.68521		+0.11300900	+0.58142381	
P	5.59	H	12.0	G	0.15	U	6

Residuals in seconds of arc

1989 11 21	888	(1.9−	4.2−)	1989 11 29	888	0.9+	1.2+	1998 04 21	704	0.8+	0.4−
1989 11 21	888	(2.0−	3.3−)	1989 11 29	888	0.3+	0.5+	1998 04 21	704	0.1−	0.5−
1989 11 24	888	0.6−	0.4+	1989 12 01	888	0.2−	0.1−	1998 04 21	704	0.1−	0.3+
1989 11 24	888	1.1+	0.0	1989 12 01	888	0.0	0.2−	1998 04 22	704	0.0	0.6−
1989 11 26	888	0.1+	0.5+	1989 12 03	888	0.2+	0.2−	1998 04 22	704	0.1−	1.8+
1989 11 26	888	0.4+	0.3+	1989 12 03	888	0.6−	0.4−	1998 04 22	704	0.3+	0.4+
1989 11 26	888	0.3−	1.1−	1998 04 21	704	0.3+	0.1−	1998 04 22	704	0.2−	0.8+
1989 11 26	888	1.4−	0.9−	1998 04 21	704	0.2−	1.1−	1998 04 22	704	0.8−	0.7−

1990 FD_3 = 1998 QN_{103}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	83.30146		(2000.0)		**P**	**Q**	
n	0.17591970	ω	100.66782		−0.17341032	+0.97987859	
a	3.1544699	Ω	158.56652		−0.97577674	−0.15735591	
e	0.0338259	i	15.69090		−0.13337399	−0.12278871	
P	5.60	H	12.0	G	0.15	U	5

Residuals in seconds of arc

1990 02 18	399	0.8−	1.8−	1990 03 17	809	0.5−	0.1−	1998 08 26	809	0.8−	0.2−
1990 02 18	399	0.7+	1.8+	1990 03 17	809	0.1−	0.4−	1998 08 27	809	0.3+	0.6+
1990 03 16	809	0.3+	0.0	1990 03 17	046	(2.7+	2.1+)	1998 08 27	809	0.6+	0.1−
1990 03 16	809	0.6+	0.1+	1990 03 17	046	(1.9−	3.5+)	1998 08 27	809	0.2+	0.0
1990 03 16	809	0.5+	0.2+	1998 08 26	809	0.2−	0.1+				
1990 03 17	809	0.8−	0.3+	1998 08 26	809	0.0	0.2−				

1990 RC_2 = 1997 EN_{41} = 1998 KP_{64}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	253.83598		(2000.0)		**P**	**Q**	
n	0.21884742	ω	166.31935		+0.99519613	−0.09474133	
a	2.7271463	Ω	199.16900		+0.08126134	+0.93993674	
e	0.0511261	i	4.30929		+0.05460092	+0.32793750	
P	4.50	H	13.9	G	0.15	U	4

Residuals in seconds of arc

1990 09 14	675	0.3−	0.4+	1997 03 11	704	0.6−	0.0	1998 05 24	704	0.5−	0.3+
1990 09 14	675	0.0	0.0	1997 03 11	704	0.2−	0.6−	1998 05 24	704	0.3+	0.8+
1990 09 15	675	0.2+	1.7+	1997 03 12	704	0.3+	0.4−	1998 05 24	704	1.9+	1.0−
1990 09 15	675	0.3+	0.4+	1997 03 12	704	0.3+	0.3−	1998 06 03	704	1.2−	0.6−
1990 09 18	675	0.1+	1.2−	1998 05 22	704	(2.5+	2.7−)	1998 06 03	704	0.8−	0.5−
1990 09 18	675	0.8+	1.9−	1998 05 22	704	0.6+	0.8−	1998 06 03	704	1.0−	0.4+
1990 09 20	675	1.2−	0.2−	1998 05 22	704	0.5−	1.7−	1998 06 03	704	0.3−	1.7+
1990 09 20	675	0.5+	0.3−	1998 05 22	704	0.9+	0.0	1998 06 03	704	0.8+	1.5+
1997 03 10	704	0.3+	0.5−	1998 05 24	704	0.4−	0.3+				
1997 03 10	704	0.4−	0.9+	1998 05 24	704	0.1+	1.0−				

1990 UE_5 = 1990 VF = 1998 SG_9

Id. B. G. Marsden (d, *MPC* 17796), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	7.72104		(2000.0)		**P**	**Q**	
n	0.36678917	ω	130.78914		+0.86563251	+0.48292956	
a	1.9328214	Ω	201.38787		−0.49339731	+0.86764754	
e	0.0882712	i	21.24330		+0.08508497	+0.11818117	
P	2.69	H	16.0	G	0.15	U	6

Residuals in seconds of arc

1990 10 16	809	0.1−	0.5+	1990 10 24	809	0.7−	0.4+	1998 09 26	704	0.4−	1.1+
1990 10 16	809	0.4−	0.7+	1990 11 08	413	(5.0+	1.9+)	1998 09 27	704	0.9−	1.1−
1990 10 16	809	0.4−	0.9+	1990 11 09	413	(2.6−	8.6−)	1998 09 27	704	0.5+	0.7−
1990 10 19	809	1.0+	0.4−	1990 11 09	413	1.7−	1.0−	1998 09 27	704	0.3+	0.4−
1990 10 19	809	1.3+	1.6−	1998 09 26	704	0.0	0.4+	1998 09 27	704	0.2+	0.0
1990 10 19	809	0.4+	0.5+	1998 09 26	704	0.1−	0.8+	1998 09 27	704	0.7+	0.4+
1990 10 24	809	0.6+	0.6+	1998 09 26	704	0.5+	0.4+	1998 09 27	691	0.5−	1.0−
1990 10 24	809	0.1+	0.1+	1998 09 26	704	0.3+	0.4+	1998 09 27	691	0.5−	1.0−

1990 VH_3 = 1998 QJ_{52}

Id. T. Urata

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	294.97713		(2000.0)		**P**	**Q**	
n	0.23697521	ω	164.71997		+0.31098178	−0.94838972	
a	2.5862318	Ω	267.13099		+0.86534990	+0.30953117	
e	0.2721276	i	3.56060		+0.39301384	+0.06890129	
P	4.16	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1990 11 11	385	(2.7+	2.8−)	1998 08 23	704	0.8−	0.3−	1998 09 18	704	0.2−	0.4+
1990 11 11	385	(5.2+	3.0−)	1998 08 23	704	0.5+	1.9−	1998 09 18	704	0.1+	0.4−
1990 11 15	881	1.6+	0.1+	1998 08 23	704	0.2+	1.1+	1998 09 18	704	0.2−	0.1−
1990 11 15	881	0.4+	1.1−	1998 08 23	704	(1.6−	2.6−)	1998 09 18	704	0.1+	0.1+
1990 11 16	881	0.2−	0.8−	1998 09 14	704	(0.4−	2.3−)	1998 09 25	699	0.1−	0.0
1990 11 16	881	0.7+	0.2−	1998 09 14	704	(0.2+	3.1−)	1998 09 25	699	0.3−	0.9+
1990 11 22	385	0.7−	1.1+	1998 09 14	704	(0.7−	2.5−)	1998 09 25	699	0.1−	0.7+
1990 11 23	889	0.9−	0.1+	1998 09 14	704	(1.2−	3.6−)	1998 09 29	327	0.7−	0.1+
1990 11 23	889	0.8−	0.0	1998 09 16	699	0.4+	0.3+	1998 09 29	327	0.9−	0.1−
1998 08 17	704	0.8+	0.2−	1998 09 16	699	0.1+	0.2−	1998 09 29	327	0.8−	0.2−
1998 08 17	704	1.4−	1.4−	1998 09 16	699	0.5+	0.6+	1998 10 01	327	0.5−	0.6+
1998 08 17	704	0.7+	1.5−	1998 09 16	699	0.4+	0.1−	1998 10 01	327	0.2−	0.5+
1998 08 17	704	0.6+	0.3−	1998 09 16	699	0.7+	0.9+	1998 10 01	327	0.4−	0.3+
1998 08 17	704	0.2+	1.6+	1998 09 16	699	0.3+	0.1−				
1998 08 23	704	1.1+	0.9−	1998 09 18	704	0.5−	0.2−				

1991 EC = 1970 WB$_1$ = 1981 CH$_1$ = 1998 QU$_{25}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	201.96588		(2000.0)		**P**	**Q**	
n	0.20094799	ω	129.00807		−0.66175470	−0.74969972	
a	2.8867794	Ω	2.44745		+0.64120103	−0.56980401	
e	0.2481806	i	7.49790		+0.38851249	−0.33656162	
P	4.90	H	13.3	G	0.15	U	3

Residuals in seconds of arc

1970 11 27	095	0.1−	0.3+	1991 03 09	402	0.6+	0.5+	1998 08 17	704	(2.3+	1.3+)
1981 02 03	330	0.2+	0.5+	1991 03 09	402	0.6−	0.7−	1998 08 17	704	1.2−	0.5−
1991 02 20	402	0.4−	0.4−	1991 03 10	399	1.5+	0.9+	1998 08 17	704	(0.4−	3.0−)
1991 02 20	402	0.4−	0.8−	1991 03 10	399	(3.3−	3.8+)	1998 08 23	704	0.7−	1.2+
1991 03 07	399	(2.9−	1.6+)	1991 03 12	402	1.6−	0.9+	1998 08 23	704	(3.4+	0.7−)
1991 03 07	399	(2.0−	2.3+)	1991 03 12	402	0.3+	0.1−	1998 08 23	704	1.2+	0.2−
1991 03 09	675	0.6+	0.4−	1998 08 17	704	0.3−	0.1−	1998 08 23	704	0.9−	0.2+
1991 03 09	675	0.4+	1.0+	1998 08 17	704	1.0+	1.1+				

1991 FL$_2$ = 1984 WY$_4$ = 1998 RZ

Id. S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	324.76983		(2000.0)		**P**	**Q**	
n	0.20859238	ω	46.92138		+0.81987054	−0.57108798	
a	2.8158127	Ω	347.71602		+0.45346049	+0.69126938	
e	0.0933028	i	11.07675		+0.34955098	+0.44272470	
P	4.73	H	12.5	G	0.15	U	4

Residuals in seconds of arc

1984 11 21	010	0.3+	0.5−	1991 03 21	809	0.7+	0.1−	1991 03 23	809	1.2+	0.4+
1991 03 09	675	0.1−	0.8−	1991 03 21	809	0.5+	0.3+	1998 09 12	411	0.4−	0.8+
1991 03 09	675	0.0	0.4−	1991 03 21	809	0.7+	0.4+	1998 09 12	411	0.6−	0.0
1991 03 12	675	0.3−	0.6+	1991 03 22	809	0.9−	0.4−	1998 09 13	411	0.9−	0.5−
1991 03 12	675	0.1−	0.0	1991 03 22	809	0.7−	0.5−	1998 09 13	411	0.5−	0.4+
1991 03 20	809	1.1−	0.6+	1991 03 22	809	0.4−	0.3−	1998 09 25	699	0.5+	0.4+
1991 03 20	809	0.7−	0.5+	1991 03 23	809	1.2+	0.1+	1998 09 25	699	0.5+	0.2+
1991 03 20	809	0.3−	0.5+	1991 03 23	809	0.9+	0.3+	1998 09 25	699	0.4+	0.0

1991 OV

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	14.37428		(2000.0)		**P**	**Q**	
n	0.28883208	ω	146.15933		+0.67308336	+0.73925091	
a	2.2665872	Ω	166.10415		−0.69691043	+0.64376990	
e	0.1898977	i	5.16200		−0.24753714	+0.19765732	
P	3.41	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1991 07 16	675	0.2−	0.4−	1991 08 10	675	0.5−	0.7+	1998 09 17	699	0.1−	0.1−
1991 07 16	675	0.3+	1.1−	1991 08 10	675	0.4−	1.1+	1998 09 17	699	0.6−	0.2−
1991 07 18	675	1.0−	0.3−	1998 08 02	699	0.3+	0.1+	1998 09 25	699	0.0	0.0
1991 07 18	675	0.4+	0.2−	1998 08 02	699	0.3+	0.1+	1998 09 25	699	0.7+	0.4−
1991 08 07	675	0.7+	0.1−	1998 08 02	699	0.2−	0.1+	1998 09 25	699	0.7+	0.3+
1991 08 07	675	0.5+	0.2+	1998 09 17	699	0.8−	0.3−				

1991 PV = 1998 SS$_{47}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	19.50762		(2000.0)		**P**	**Q**	
n	0.29264432	ω	94.89520		+0.72360144	+0.68988735	
a	2.2468598	Ω	221.48594		−0.64535773	+0.66527052	
e	0.2037830	i	1.84813		−0.24477410	+0.28543052	
P	3.37	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1991 08 05	675	0.3−	0.3−	1991 08 10	809	0.1−	0.1−	1998 09 26	691	0.5+	0.1−
1991 08 05	675	0.6+	0.6+	1991 08 11	809	0.1+	0.2−	1998 09 26	691	0.5+	0.2−
1991 08 06	809	(2.2−	1.3−)	1991 08 11	809	0.3−	0.2−	1998 09 26	691	0.6+	0.0
1991 08 06	809	1.3−	0.7−	1991 08 11	809	0.1−	1.0−	1998 09 30	691	0.7+	0.2−
1991 08 06	809	1.7−	1.7−	1991 08 14	809	0.7+	2.0+	1998 09 30	691	0.5+	0.1−
1991 08 08	675	1.7−	0.7−	1991 08 14	809	0.9+	1.9+	1998 09 30	691	0.2+	0.5+
1991 08 08	675	0.7+	0.7−	1991 08 14	809	1.5+	2.0+	1998 10 01	691	1.0−	0.1−
1991 08 10	809	1.6+	0.2+	1991 09 13	675	0.8−	0.8−	1998 10 01	691	1.1−	0.0
1991 08 10	809	0.0	0.3−	1991 09 13	675	(5.1−	1.6−)	1998 10 01	691	1.0−	0.1+

1991 PO$_{12}$ = 1998 QA$_{102}$

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	289.85563		(2000.0)		**P**	**Q**	
n	0.28830192	ω	273.45757		+0.50819729	−0.85978321	
a	2.2693651	Ω	145.84983		+0.82136121	+0.46635437	
e	0.1716988	i	5.11858		+0.25903914	+0.20805394	
P	3.42	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1991 08 05	675	0.2+	0.0	1991 09 07	809	0.4+	1.8+	1998 09 14	704	0.7−	0.1−
1991 08 05	675	0.2+	1.7−	1991 09 07	809	0.1+	1.0+	1998 09 14	704	0.5−	0.4+
1991 08 06	675	0.0	0.3+	1991 09 07	809	0.7+	0.5+	1998 09 14	704	0.0	0.0
1991 08 06	675	0.2−	0.3−	1998 08 26	809	0.2+	0.0	1998 09 18	704	0.7+	0.2+
1991 09 04	809	0.6−	0.3+	1998 08 26	809	0.1−	0.0	1998 09 18	704	0.7+	0.9−
1991 09 04	809	0.4−	0.8+	1998 08 26	809	0.9−	0.2−	1998 09 18	704	0.5+	0.3+
1991 09 04	809	1.1−	0.5+	1998 08 27	809	(0.1−	3.0+)	1998 09 18	704	0.3+	0.0
1991 09 06	809	0.1+	1.3−	1998 08 27	809	(0.8+	3.7+)	1998 09 18	704	0.2−	0.3+
1991 09 06	809	0.1+	0.4−	1998 08 27	809	(0.9+	2.9+)				
1991 09 06	809	0.6+	0.7−	1998 09 14	704	0.2+	0.6−				

1991 PB$_{20}$ = 1995 WO$_2$ = 1998 SW$_{14}$

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	233.33043		(2000.0)		**P**	**Q**	
n	0.28759274	ω	344.35805		−0.21873595	−0.97156323	
a	2.2730942	Ω	118.20274		+0.90593597	−0.23671994	
e	0.0868525	i	5.90472		+0.36253909	+0.00534370	
P	3.43	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1991 08 14	809	1.1+	0.1+	1995 11 16	399	(2.6+	0.9−)	1998 09 18	704	0.2+	0.5+
1991 08 14	809	0.6+	0.4+	1995 11 17	399	0.4−	0.4−	1998 09 18	704	1.2+	1.0+
1991 08 14	809	0.6+	0.8+	1995 11 17	399	0.0	1.0+	1998 09 23	046	0.1+	0.7−
1991 09 04	809	(3.2−	1.5+)	1998 09 14	704	0.7−	0.3−	1998 09 23	046	0.3+	0.7−
1991 09 04	809	(2.9−	1.8+)	1998 09 14	704	1.1−	0.2+	1998 09 23	046	0.3+	0.8−
1991 09 04	809	(3.3−	2.5+)	1998 09 14	704	1.0−	0.5+	1998 09 24	046	0.2−	0.5−
1991 09 07	809	0.1+	1.3+	1998 09 14	704	1.1−	0.2−	1998 09 24	046	0.0	0.7−
1991 09 07	809	1.7−	0.4−	1998 09 18	704	1.3+	0.2−	1998 09 24	046	0.0	0.6−
1991 09 07	809	1.3−	0.3−	1998 09 18	704	0.9+	0.1−				
1995 11 16	399	0.1+	0.1+	1998 09 18	704	0.4+	0.7+				

1991 RU$_2$

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Bowell

M	191.42602		(2000.0)		**P**	**Q**	
n	0.28645436	ω	271.73381		−0.97037538	−0.22957246	
a	2.2791125	Ω	254.99952		+0.24081465	−0.89391300	
e	0.0913166	i	4.47033		+0.01949179	−0.38498837	
P	3.44	H	14.8	G	0.15	U	5

Residuals in seconds of arc

1991 09 09	033	0.3−	0.1+	1991 10 03	033	0.1+	0.1−	1998 09 14	699	(2.4−	1.3+)
1991 09 10	033	0.4+	1.3+	1991 10 03	033	1.6+	0.4−	1998 09 14	699	0.1−	0.2+
1991 09 12	033	0.3−	0.4−	1991 10 04	033	0.4−	0.4+	1998 09 17	699	0.7−	0.4+
1991 09 12	033	0.2−	0.3+	1991 10 07	033	1.5−	0.6−	1998 09 17	699	0.4+	0.4+
1991 09 13	033	0.0	0.9−	1991 10 07	033	0.5+	0.4−	1998 09 17	699	0.4−	0.3+
1991 09 14	033	0.4+	0.1+	1998 09 14	699	0.6+	0.8−				

1991 RO$_3$ = 1998 RU$_{23}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	58.04753		(2000.0)	**P**	**Q**	
n	0.27550891	ω	290.76794	−0.17297509	+0.98331351	
a	2.3390829	Ω	329.10255	−0.85793013	−0.17852121	
e	0.0746036	i	6.29895	−0.48377216	−0.03499586	
P	3.58	H	15.0	G 0.15	U 5	

Residuals in seconds of arc

1991 09 12	033	0.9−	0.7+	1991 10 02	033	1.6−	1.3+	1998 09 14	704	0.0	0.0
1991 09 12	033	1.1−	0.2−	1991 10 03	033	1.6−	0.5+	1998 09 14	704	0.2+	0.4−
1991 09 13	675	0.1−	0.4−	1991 10 08	033	1.2+	0.6+	1998 09 14	704	0.4−	0.8−
1991 09 13	675	1.9+	1.3−	1991 10 08	033	0.8+	1.1−	1998 09 18	704	0.4−	1.2−
1991 09 13	033	0.9−	0.1−	1991 10 09	033	1.5+	1.7−	1998 09 18	704	1.4+	1.0+
1991 09 14	033	1.4+	0.9+	1998 09 14	704	0.3−	0.9+	1998 09 18	704	1.4−	1.1−
1991 10 02	033	0.7−	1.0+	1998 09 14	704	0.4+	0.4+	1998 09 18	704	0.4+	1.1+

1991 RL$_8$ = 1998 SF$_5$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	347.79927		(2000.0)	**P**	**Q**	
n	0.28314287	ω	337.72196	+0.99878149	+0.01389943	
a	2.2968482	Ω	21.64349	+0.01187527	+0.86363717	
e	0.1910863	i	7.37645	−0.04790108	+0.50392226	
P	3.48	H	14.7	G 0.15	U 5	

Residuals in seconds of arc

1991 09 12	675	0.3+	0.1+	1991 10 07	691	0.1+	0.2−	1998 09 19	358	0.5+	0.9+
1991 09 12	675	0.2+	0.1−	1998 09 16	358	(2.6−	0.3−)	1998 09 20	358	1.6−	0.5−
1991 09 14	675	0.2−	0.1−	1998 09 16	358	0.2+	1.3−	1998 09 20	358	0.4−	1.3+
1991 09 14	675	0.4−	0.6+	1998 09 16	358	0.2+	1.2−	1998 09 20	358	1.8+	0.1−
1991 10 07	691	0.2−	0.0	1998 09 19	358	1.1−	0.4+				
1991 10 07	691	0.0	0.0	1998 09 19	358	0.6+	0.2+				

1991 RR$_{10}$ = 1998 RE$_8$

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	322.75891		(2000.0)	**P**	**Q**	
n	0.28025669	ω	20.92713	+0.89905549	−0.43770970	
a	2.3125904	Ω	5.06772	+0.38299942	+0.77465346	
e	0.1229551	i	6.80168	+0.21215718	+0.45642331	
P	3.52	H	15.5	G 0.15	U 4	

Residuals in seconds of arc

1991 09 10	675	0.1−	0.5+	1991 09 16	095	1.4+	0.5−	1998 09 12	691	0.0	0.2+
1991 09 10	675	0.3+	0.2−	1991 10 10	691	0.1−	0.1+	1998 09 12	691	0.1−	0.1+
1991 09 16	675	0.4+	0.6−	1991 10 10	691	0.0	0.1+	1998 09 18	691	0.0	0.1−
1991 09 16	675	0.8+	0.6−	1991 10 10	691	0.0	0.0	1998 09 18	691	0.1+	0.2−
1991 09 16	095	2.6−	1.0+	1998 09 12	691	0.1−	0.3+	1998 09 18	691	0.0	0.0

1991 RX$_{40}$ = 1998 SA$_{57}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	314.39297		(2000.0)	**P**	**Q**	
n	0.28074617	ω	239.84292	+0.83760570	−0.54585889	
a	2.3099016	Ω	153.22311	+0.51606934	+0.77788657	
e	0.1832712	i	2.71309	+0.17913437	+0.31133673	
P	3.51	H	16.5	G 0.15	U 6	

Residuals in seconds of arc

1991 09 10	033	0.1+	0.0	1991 10 04	033	0.7−	0.7+	1998 09 17	699	1.1−	0.7+
1991 09 10	033	0.6+	0.6+	1991 10 04	033	0.2−	0.4+	1998 09 25	699	0.8+	0.5−
1991 09 13	033	0.8−	0.4−	1991 10 05	033	0.6+	0.4−	1998 09 25	699	0.6+	0.8−
1991 09 17	675	1.3−	0.8+	1998 09 17	699	0.4+	0.1+	1998 09 25	699	0.7−	1.7−
1991 09 17	675	1.1+	0.0	1998 09 17	699	0.5+	0.6+				

1991 RJ$_{41}$ = 1991 TM$_{13}$

Id. S. Nakano (d, *MPC* 22572), T. Kobayashi (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	333.07258		(2000.0)	**P**	**Q**	
n	0.28555209	ω	8.69306	+0.93010836	−0.36607096	
a	2.2839109	Ω	12.90241	+0.32843298	+0.79260041	
e	0.1278113	i	7.68014	+0.16440870	+0.48762346	
P	3.45	H	14.6	G 0.15	U 4	

Residuals in seconds of arc

1991 09 10	033	0.3−	0.6−	1991 09 17	675	0.5+	0.7+	1998 09 16	411	0.3−	0.8+
1991 09 10	033	0.5+	0.1−	1991 10 04	033	0.2−	0.1−	1998 09 16	411	0.1+	0.4−
1991 09 13	033	0.5−	0.4−	1991 10 04	033	0.2−	0.4+	1998 09 20	411	0.2+	0.1−
1991 09 17	675	0.1−	0.6+	1991 10 05	033	0.4+	0.6−	1998 09 20	411	0.0	0.3−

1991 UR = 1998 SD$_{22}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	1.50846		(2000.0)	**P**	**Q**	
n	0.27901558	ω	331.34536	+0.95061004	+0.30958060	
a	2.3194432	Ω	10.69224	−0.25679294	+0.82490566	
e	0.1287462	i	6.92498	−0.17435004	+0.47295931	
P	3.53	H	14.0	G 0.15	U 6	

Residuals in seconds of arc

1991 10 07	675	0.2+	0.3−	1991 10 28	399	1.1−	0.2+	1998 09 23	120	0.4−	0.7+
1991 10 07	675	0.4+	1.5+	1991 10 28	399	0.5−	1.2−	1998 09 24	120	0.5+	0.1−
1991 10 18	399	0.3−	0.6−	1991 10 29	399	0.9+	1.1+	1998 09 24	120	0.3+	0.7−
1991 10 18	399	1.0+	1.9−	1991 10 29	399	1.5+	1.5+	1998 09 24	120	0.6+	0.7−
1991 10 19	399	1.5−	0.5−	1998 09 23	120	0.5−	0.3+				
1991 10 19	399	0.5−	0.3+	1998 09 23	120	0.5−	0.5+				

1991 XL = 1997 JD$_{17}$ = 1997 LW$_{11}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	63.87426		(2000.0)	**P**	**Q**	
n	0.27987888	ω	224.51767	+0.53795474	+0.83837746	
a	2.3146712	Ω	78.21553	−0.74620793	+0.52211814	
e	0.1395058	i	5.15218	−0.39214592	+0.15657548	
P	3.52	H	14.0	G 0.15	U 5	

Residuals in seconds of arc

1991 12 04	399	1.0+	1.0−	1997 05 03	809	0.6+	0.3−	1997 05 04	809	0.2−	0.6−
1991 12 04	399	0.2+	0.7−	1997 05 03	809	0.4+	0.5−	1997 06 07	809	0.4−	0.9+
1991 12 05	399	(3.1−	0.0)	1997 05 03	809	0.1−	0.9−	1997 06 07	809	0.3−	0.1+
1991 12 05	399	0.5−	0.6+	1997 05 04	809	0.0	0.7+	1997 06 07	809	0.1+	0.5+
1991 12 07	691	0.1+	0.1+	1997 05 04	809	0.3+	0.5+	1997 06 08	809	0.7+	1.0−
1991 12 07	691	(2.7−	2.2−)	1997 05 04	809	0.4+	0.1+	1997 06 08	809	0.1−	0.5−
1991 12 14	399	1.0−	0.4+	1997 05 04	809	0.8−	1.1+	1997 06 08	809	0.1−	0.5−
1991 12 14	399	0.3+	0.2+	1997 05 04	809	0.7−	0.1−				

1991 XH$_1$ = 1983 RM$_4$ = 1987 WP$_5$ = 1998 RD$_{35}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	290.88507		(2000.0)		**P**	**Q**	
n	0.26280393	ω	11.27987		+0.51605414	−0.85619446	
a	2.4138752	Ω	47.65767		+0.78323218	+0.45991921	
e	0.1775041	i	1.92923		+0.34674988	+0.23538343	
P	3.75	H	14.5	G	0.15	U	2

Residuals in seconds of arc

1983 09 10	688	0.4+	1.6−	1991 12 12	033	0.4+	0.5+	1998 09 14	704	0.1+	0.7+
1983 09 10	688	0.3−	0.4−	1992 01 02	033	0.8−	0.3−	1998 09 18	704	0.4−	0.7−
1983 09 11	095	0.2+	1.4+	1992 01 03	033	0.4−	0.5−	1998 09 18	704	0.7−	0.1+
1987 11 16	327	0.5+	1.3−	1998 09 14	704	0.2+	0.1+	1998 09 18	704	0.1+	0.8+
1991 12 10	033	0.3+	0.1+	1998 09 14	704	0.5+	0.2−	1998 09 18	704	0.2+	0.1−
1991 12 10	033	0.6+	1.1+	1998 09 14	704	0.4−	0.1+	1998 09 18	704	0.1−	0.7+

1992 CK = 1994 UX$_{11}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	348.40934		(2000.0)		**P**	**Q**	
n	0.28357188	ω	303.05728		+0.13592873	−0.98807944	
a	2.2945311	Ω	138.93709		+0.94169830	+0.10619819	
e	0.1513094	i	6.31606		+0.30777865	+0.11144934	
P	3.48	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1992 02 04	372	1.4+	0.3−	1992 02 29	033	0.1−	0.3−	1994 10 30	675	(3.7−	2.1−)
1992 02 04	372	1.7−	0.1−	1992 02 29	033	0.1+	0.6−	1994 10 30	675	0.5−	0.5−
1992 02 13	372	1.7+	0.3+	1992 03 01	033	0.1+	0.4+				
1992 02 13	372	1.5−	0.6+	1994 10 29	675	0.5+	0.5+				

1992 DA$_4$ = 1996 FB$_{17}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	250.24642		(2000.0)		**P**	**Q**	
n	0.26428340	ω	182.75254		−0.95312456	−0.30228833	
a	2.4048581	Ω	339.63723		+0.27833193	−0.85874391	
e	0.1459015	i	2.18086		+0.11867985	−0.41373984	
P	3.73	H	16.5	G	0.15	U	4

Residuals in seconds of arc

1992 02 25	675	1.2+	0.4−	1992 03 08	809	0.6+	0.7+	1996 03 22	809	0.1+	0.3+
1992 02 25	675	0.5−	0.7−	1992 03 09	809	1.3+	0.5+	1996 03 22	809	1.1−	0.2−
1992 02 29	691	1.2−	0.8−	1992 03 11	691	0.2+	0.0	1996 03 26	809	0.2+	0.5+
1992 02 29	691	0.7−	0.1+	1992 03 11	691	0.0	0.0	1996 03 26	809	0.0	0.4−
1992 02 29	691	0.9−	0.2+	1992 03 11	691	0.1−	0.1−	1996 03 26	809	0.1−	0.0
1992 03 06	809	0.2+	0.5+	1996 03 22	809	0.8+	0.4−				

1992 EX = 1998 RM$_{29}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	170.92615		(2000.0)		**P**	**Q**	
n	0.22708688	ω	23.77221		−0.93962067	−0.31998560	
a	2.6607742	Ω	136.96292		+0.27850926	−0.92104894	
e	0.0893372	i	10.24093		+0.19886073	−0.22198663	
P	4.34	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1992 02 28	675	0.4+	0.5+	1992 03 11	372	1.3−	1.8−	1998 09 18	704	0.4+	0.1−
1992 02 28	675	1.2+	1.7−	1992 03 11	372	0.9+	0.9+	1998 09 18	704	0.2+	0.5+
1992 03 07	372	2.5−	2.3+	1998 09 14	704	1.1−	0.1−	1998 09 18	704	0.0	0.7+
1992 03 07	372	0.4−	0.6+	1998 09 14	704	0.6−	0.3+	1998 09 18	704	0.5+	1.3+
1992 03 10	372	1.2+	0.3−	1998 09 14	704	0.0	0.1+	1998 09 18	704	1.0+	1.1−
1992 03 10	372	0.4+	0.4−	1998 09 14	704	0.4−	1.6−				

1992 EG$_{11}$ = 1998 RJ$_2$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	64.07210		(2000.0)		**P**	**Q**	
n	0.21985071	ω	105.42215		−0.08706099	+0.99290345	
a	2.7188430	Ω	159.06713		−0.97867387	−0.07005748	
e	0.1544106	i	13.10600		−0.18605872	−0.09609725	
P	4.48	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1992 02 25	675	0.7+	0.3+	1992 04 06	809	0.0	0.0	1998 09 16	910	0.5−	0.2−
1992 02 25	675	0.0	0.6−	1998 09 15	910	0.2−	0.1−	1998 09 16	910	0.3+	0.2+
1992 03 06	809	0.8−	0.5+	1998 09 15	910	0.1+	0.0	1998 09 17	910	0.0	0.1+
1992 03 08	809	0.6+	0.4−	1998 09 15	910	0.2+	0.1+	1998 09 18	910	0.1+	0.1+
1992 03 09	809	0.5−	0.1+	1998 09 16	910	0.2+	0.1−	1998 09 18	910	0.1−	0.0

1992 HG = 1950 TB$_1$ = 1998 MS$_{25}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	328.49208		(2000.0)		**P**	**Q**	
n	0.18101200	ω	93.64854		+0.63670661	+0.76671799	
a	3.0950272	Ω	216.32388		−0.75103981	+0.59246363	
e	0.1142474	i	7.97153		−0.17476811	+0.24724559	
P	5.45	H	13.0	G	0.15	U	4

Residuals in seconds of arc

1950 10 13	024	0.0	1.2−	1992 04 25	809	1.1+	1.0−	1998 06 24	704	2.0−	0.3+
1992 04 04	809	1.0+	0.1−	1992 04 25	809	0.1+	0.7−	1998 06 24	704	0.6−	0.5−
1992 04 04	809	0.2+	0.3+	1992 04 27	894	0.0	0.7+	1998 06 24	704	0.3+	0.1−
1992 04 04	809	0.3+	0.0	1992 04 27	894	0.8−	0.1+	1998 06 24	704	0.7+	0.6−
1992 04 06	809	1.1+	1.4−	1992 05 03	894	(0.7−	3.2−)	1998 06 26	704	0.1+	0.3−
1992 04 06	809	1.4+	0.4−	1992 05 03	894	1.2−	0.9+	1998 06 26	704	0.4−	0.0
1992 04 06	809	0.7+	1.1−	1992 05 05	894	1.6−	0.2+	1998 06 26	704	0.4−	0.4+
1992 04 24	691	1.1−	1.2+	1992 05 05	894	(2.6−	1.5+)	1998 06 26	704	0.1−	0.3+
1992 04 24	691	1.2−	1.0+	1992 05 08	691	2.1−	0.0	1998 06 26	704	0.7−	0.7+
1992 04 24	691	1.6+	0.9+	1992 05 08	691	2.3−	0.3+				
1992 04 25	809	1.3+	1.3−	1992 05 08	691	2.0−	0.2−				

1992 PB$_1$ = 1998 SM$_{23}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	339.52150		(2000.0)		**P**	**Q**	
n	0.17615645	ω	221.10049		+0.97957851	−0.18818931	
a	3.1516429	Ω	149.52846		+0.20063951	+0.93774744	
e	0.1176972	i	8.02400		−0.01302768	+0.29191528	
P	5.60	H	13.5	G	0.15	U	5

Residuals in seconds of arc

1992 07 24	809	0.6+	0.7−	1992 07 30	809	1.7−	0.8+	1992 08 09	010	0.4−	0.2+
1992 07 24	809	0.1−	1.0−	1992 07 30	809	0.7−	0.9+	1998 09 17	699	0.1+	0.4−
1992 07 24	809	1.8−	1.0−	1992 08 08	010	0.7+	0.2+	1998 09 17	699	0.0	0.1−
1992 07 26	809	2.0+	1.2+	1992 08 08	010	1.6+	0.4+	1998 09 17	699	0.0	0.1+
1992 07 26	809	0.7+	1.0+	1992 08 08	010	1.1+	0.2+	1998 09 24	699	0.3−	0.4−
1992 07 26	809	0.4−	1.3−	1992 08 09	010	0.2−	0.7−	1998 09 24	699	0.1+	0.5+
1992 07 30	809	1.3−	0.1+	1992 08 09	010	0.3−	0.2−	1998 09 24	699	0.1+	0.3+

1992 YW$_1$ = 1990 EK$_{10}$

Id. E. Bowell (1998 observations), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	128.70707		(2000.0)		**P**	**Q**	
n	0.28951153	ω	260.45443		−0.91880682	+0.39075869	
a	2.2630395	Ω	302.52828		−0.33126000	−0.84011889	
e	0.1110328	i	3.78743		−0.21461790	−0.37617535	
P	3.40	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1990 03 08	809	0.3+	0.8+	1993 01 16	010	1.8−	1.2−	1998 09 16	699	0.1+	0.5+
1990 03 08	809	0.3+	0.7+	1993 01 16	010	1.9−	1.1−	1998 09 16	699	0.2−	0.5+
1990 03 08	809	0.5+	0.8+	1993 01 17	010	0.8−	0.2−	1998 09 18	704	0.4−	0.7−
1992 12 18	010	1.6+	0.1+	1993 01 17	010	1.6−	0.3−	1998 09 18	704	1.0−	0.4+
1992 12 19	010	1.4+	0.1+	1993 01 17	010	0.4+	0.4+	1998 09 18	704	0.5−	0.1+
1992 12 19	010	0.7+	0.1+	1998 09 14	704	1.0+	0.4−	1998 09 18	704	0.1+	0.3+
1992 12 19	010	1.0+	0.6+	1998 09 14	704	0.7+	0.1+	1998 09 18	704	0.3+	0.0
1992 12 19	010	1.1+	0.4+	1998 09 14	704	0.2−	0.1−	1998 09 25	699	0.3−	0.6+
1992 12 20	010	0.2+	0.6+	1998 09 14	704	0.2−	0.3+	1998 09 25	699	0.3+	0.1+
1993 01 16	010	0.5−	0.9−	1998 09 16	699	0.1+	0.1−	1998 09 25	699	0.7−	0.4+

1993 BJ_2 = 1998 QH_{19}

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	22.67495		(2000.0)			
n	0.26395562	ω	159.37448		+0.21146923	+0.97201483
a	2.4068486	Ω	122.70509		−0.91290860	+0.23382455
e	0.1357667	i	6.98384		−0.34911123	−0.02265527
P	3.73	H	13.0	G	0.15	U 4

Residuals in seconds of arc

1993 01 19	372	1.0−	0.9−	1993 02 10	399	1.9−	0.4−	1998 08 23	704	0.1+	0.2+
1993 01 19	372	0.5+	0.9+	1993 02 13	399	1.4+	1.8−	1998 08 23	704	0.2−	0.4−
1993 01 22	372	0.6+	0.0	1993 02 13	399	0.6+	0.5−	1998 08 23	704	1.3−	0.5+
1993 01 22	372	1.0+	0.8−	1998 07 31	699	(0.2+	2.2−)	1998 08 23	704	0.5+	0.3−
1993 01 25	372	(1.7+	2.8−)	1998 07 31	699	0.7+	0.5−	1998 09 14	699	0.3−	0.1+
1993 01 25	372	0.0	0.2−	1998 07 31	699	0.2−	0.5+	1998 09 14	699	0.0	0.1+
1993 01 28	372	0.7+	0.8+	1998 08 17	704	0.3+	1.5−	1998 09 14	699	0.5−	0.2+
1993 01 30	372	(1.9−	4.3+)	1998 08 17	704	0.4+	0.4+	1998 09 24	699	0.2−	0.0
1993 01 30	372	(3.9−	2.5+)	1998 08 17	704	0.1−	0.7−	1998 09 24	699	0.2+	0.0
1993 02 02	372	0.1−	0.5+	1998 08 17	704	0.5+	0.2−	1998 09 24	699	0.2+	0.3−
1993 02 02	372	0.8−	1.9+	1998 08 17	704	0.2+	1.2+				
1993 02 10	399	1.1−	0.3−	1998 08 23	704	0.1−	0.1+				

1993 BM_3 = 1998 SK_{23}

Id. E. Bowell, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	118.91588		(2000.0)			
n	0.27604921	ω	185.64050		−0.81684961	+0.57407670
a	2.3360298	Ω	29.62046		−0.52468023	−0.69869456
e	0.0579593	i	6.56449		−0.23972354	−0.42692137
P	3.57	H	15.0	G	0.15	U 6

Residuals in seconds of arc

1993 01 26	695	0.7−	0.8−	1993 01 29	695	0.4+	0.7+	1993 02 05	695	0.9−	0.1+
1993 01 26	695	1.7−	0.3+	1993 01 29	695	0.6+	0.6+	1993 02 05	695	1.0−	0.2−
1993 01 26	695	0.2−	0.1+	1993 01 31	695	0.3+	0.1+	1993 02 05	695	0.2+	0.1+
1993 01 26	695	0.2−	0.4−	1993 01 31	695	0.1+	0.0	1998 09 17	699	0.3−	0.0
1993 01 26	695	0.3+	0.3−	1993 01 31	695	0.0	0.1+	1998 09 17	699	0.2+	0.0
1993 01 26	695	0.1−	0.2−	1993 01 31	695	0.0	0.2+	1998 09 17	699	0.5+	0.3−
1993 01 29	695	0.4+	0.4+	1993 02 04	695	0.9+	0.5−	1998 09 24	699	0.3−	1.0−
1993 01 29	695	0.6+	0.4+	1993 02 04	695	0.4+	0.9−	1998 09 24	699	0.2+	1.0+
1993 01 29	695	0.6+	0.5+	1993 02 04	695	0.0	0.4−	1998 09 24	699	0.2−	0.3+

1993 DX_2 = 1998 QD_{17}

Id. S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	347.16096		(2000.0)			
n	0.27278598	ω	196.30417		+0.83809211	+0.53647768
a	2.3546229	Ω	130.82715		−0.48477343	+0.81559393
e	0.1352130	i	7.51481		−0.25019259	+0.21679077
P	3.61	H	15.0	G	0.15	U 4

Residuals in seconds of arc

1993 01 29	691	0.7−	0.0	1998 07 15	699	1.0−	0.9+	1998 08 23	704	0.1−	0.7+
1993 01 29	691	0.7−	0.1−	1998 07 15	699	0.5−	0.6+	1998 08 23	704	0.7+	0.2+
1993 01 29	691	0.5−	0.2−	1998 08 17	704	0.4+	0.2−	1998 08 27	699	0.6+	0.0
1993 02 20	010	0.6+	1.5+	1998 08 17	704	0.2−	0.4+	1998 08 27	699	0.4+	0.2+
1993 02 20	010	1.8+	1.5+	1998 08 17	704	0.3+	1.3−	1998 08 27	699	0.6+	0.2+
1993 02 20	010	(2.6+	0.3+)	1998 08 17	704	0.8−	0.2−	1998 09 14	699	0.1−	0.3+
1993 02 22	010	0.0	0.9+	1998 08 17	704	0.2−	0.2−	1998 09 14	699	0.5−	0.8+
1993 02 23	010	0.2+	0.3+	1998 08 23	704	0.5+	0.6−	1998 09 14	699	0.6−	0.8+
1998 07 15	699	0.5−	0.9+	1998 08 23	704	0.0	0.0				

1993 FY_5 = 1998 ST_{28}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	225.75209		(2000.0)			
n	0.27791716	ω	102.79717		−0.61830134	−0.78519442
a	2.3255507	Ω	25.49213		+0.68669298	−0.56090803
e	0.0774499	i	4.56459		+0.38230380	−0.26239646
P	3.55	H	15.0	G	0.15	U 6

Residuals in seconds of arc

1993 03 17	809	0.5−	1.2+	1993 04 16	413	0.5+	0.5−	1998 09 25	691	0.6+	0.2+
1993 03 18	809	0.6+	0.4+	1998 09 18	691	0.2−	0.1−	1998 09 30	691	0.2+	0.4−
1993 03 23	809	0.7+	0.2−	1998 09 18	691	0.2−	0.0	1998 09 30	691	0.2−	0.7+
1993 03 23	691	0.9−	0.3−	1998 09 18	691	0.3+	0.4+	1998 09 30	691	0.3+	0.3−
1993 03 23	691	0.6−	0.9−	1998 09 25	691	0.6−	0.6−				
1993 03 23	691	0.1−	0.4−	1998 09 25	691	0.2+	0.7−				

1993 FK_9 = 1998 RE_{52}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	269.95288		(2000.0)			
n	0.27453174	ω	37.35896		+0.26252634	−0.96299084
a	2.3446301	Ω	37.53154		+0.85934705	+0.20455171
e	0.0887224	i	5.75260		+0.43886508	+0.17551990
P	3.59	H	14.5	G	0.15	U 6

Residuals in seconds of arc

1993 03 17	809	1.1−	0.2+	1998 09 14	704	0.4+	1.1+	1998 09 18	704	0.6−	0.5−
1993 03 18	809	0.2+	0.1−	1998 09 14	704	2.1+	0.6−	1998 09 18	704	0.5+	0.5−
1993 03 23	809	0.9+	0.1−	1998 09 14	704	0.4−	0.6−	1998 09 18	704	1.0−	1.5+
1993 04 16	413	0.1−	0.1+	1998 09 18	704	0.1+	0.5−	1998 09 18	704	1.2−	0.1+

1993 FN_9

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	254.60932		(2000.0)			
n	0.27546787	ω	48.99951		−0.10544827	−0.99307701
a	2.3393153	Ω	47.13305		+0.88985683	−0.11746430
e	0.0518429	i	4.04931		+0.44388679	−0.00043220
P	3.58	H	14.0	G	0.15	U 5

Residuals in seconds of arc

1993 03 17	809	0.5−	0.5+	1998 09 17	699	0.4−	0.2+	1998 09 25	699	0.6+	0.1+
1993 03 18	809	0.0	0.5−	1998 09 17	699	0.7+	0.5−	1998 09 25	699	0.4−	0.3+
1993 03 23	809	0.8+	0.1−	1998 09 17	699	0.3−	0.4+				
1993 04 16	413	0.4−	0.2+	1998 09 25	699	0.2−	0.4−				

1993 FE_{20} = 1998 RY_{18}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	245.27023		(2000.0)			
n	0.26180664	ω	339.24638		+0.11129111	−0.98970511
a	2.4200013	Ω	104.27832		+0.92437113	+0.06984313
e	0.0635465	i	5.32803		+0.36490039	+0.12492288
P	3.76	H	14.5	G	0.15	U 5

Residuals in seconds of arc

1993 03 17	809	1.2−	0.4−	1998 09 14	704	1.8−	1.7−	1998 09 18	704	0.7+	0.1+
1993 03 18	809	0.2+	0.1+	1998 09 14	704	0.6−	0.2+	1998 09 18	704	1.0+	1.7−
1993 03 23	809	2.1+	0.9+	1998 09 14	704	1.7−	2.1+	1998 09 18	704	2.1+	0.1+
1993 04 16	413	1.1−	0.5−	1998 09 14	704	0.2+	0.4−				
1998 09 14	704	0.6+	0.6+	1998 09 18	704	0.5−	0.9+				

1993 FF$_{22}$ = 1991 UX$_4$ = 1998 QQ$_{102}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	289.84599		(2000.0)		**P**	**Q**
n	0.27166275	ω	50.13298		+0.54896536	−0.83578953
a	2.3611088	Ω	6.59228		+0.73895868	+0.47991135
e	0.1289611	i	4.81590		+0.39061119	+0.26672262
P	3.63	H	15.0	G	0.15	U 5

Residuals in seconds of arc

1991 10 31	399	1.0−	1.3+	1993 03 26	809	1.0+	0.3−	1998 08 26	809	0.5+	0.2−
1991 10 31	399	0.5+	0.1−	1993 04 16	413	0.4−	0.2+	1998 08 27	809	0.2−	1.7+
1993 03 21	809	0.1−	1.4+	1998 08 26	809	0.2+	1.5−	1998 08 27	809	0.9−	1.0+
1993 03 22	809	0.9+	1.2+	1998 08 26	809	0.9−	1.4−	1998 08 27	809	0.6+	1.9+

1993 FC$_{37}$ = 1998 RX$_{11}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	117.77064		(2000.0)		**P**	**Q**
n	0.26194990	ω	45.38494		−0.71722979	+0.69683313
a	2.4191189	Ω	178.78190		−0.66546053	−0.68397795
e	0.1090296	i	6.04953		−0.20674550	−0.21586515
P	3.76	H	15.0	G	0.15	U 5

Residuals in seconds of arc

1993 03 19	809	0.3+	0.4+	1993 04 29	691	0.3−	0.1+	1998 09 18	691	0.5+	1.0+
1993 03 20	809	0.9+	0.5+	1993 04 29	691	0.3−	0.0	1998 09 18	691	0.5−	0.4+
1993 03 24	809	1.2−	1.2+	1998 09 13	691	0.1+	0.0	1998 09 18	691	0.6−	0.1+
1993 04 21	413	1.6+	0.0	1998 09 13	691	0.1−	0.4+				
1993 04 29	691	0.4−	0.1−	1998 09 13	691	0.1−	0.4+				

1993 FV$_{45}$

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	14.49587		(2000.0)		**P**	**Q**
n	0.24317223	ω	139.30972		+0.63614924	+0.77138404
a	2.5421045	Ω	170.15571		−0.73088456	+0.60942478
e	0.2730467	i	5.62476		−0.24722846	+0.18321600
P	4.05	H	14.0	G	0.15	U 5

Residuals in seconds of arc

1993 03 19	809	0.5−	1.0+	1998 08 02	699	0.2−	0.7−	1998 09 25	699	0.3−	0.1−
1993 03 20	809	0.6+	0.1+	1998 08 02	699	0.4−	0.1−	1998 09 25	699	0.4−	0.0
1993 03 24	809	0.4−	1.0−	1998 09 17	699	0.5+	0.4+	1998 09 25	699	0.4−	0.5−
1993 04 16	413	0.4+	0.2+	1998 09 17	699	0.3+	0.3+				
1998 08 02	699	0.5+	0.7+	1998 09 17	699	0.4+	0.3+				

1993 FE$_{76}$ = 1998 SU$_{47}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	11.57569		(2000.0)		**P**	**Q**
n	0.24240521	ω	114.64781		+0.77826463	+0.62726108
a	2.5474642	Ω	206.53299		−0.59711477	+0.72492013
e	0.3150137	i	3.73701		−0.19431448	+0.28466532
P	4.07	H	15.0	G	0.15	U 5

Residuals in seconds of arc

1993 03 21	809	0.4−	0.5−	1998 09 26	691	0.1−	0.6−	1998 09 30	691	0.1+	0.8+
1993 03 22	809	0.3+	0.8−	1998 09 26	691	0.1−	0.6−	1998 09 30	691	0.1+	0.8+
1993 04 16	413	0.3+	2.0+	1998 09 26	691	0.3−	0.7−	1998 09 30	691	0.2+	0.8+

1993 FE$_{78}$ = 1994 NJ$_{10}$ = 1995 UM$_{43}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	240.13241		(2000.0)		**P**	**Q**
n	0.17059002	ω	90.45936		+0.47237208	+0.88134062
a	3.2198352	Ω	207.73624		−0.81710724	+0.43356286
e	0.1524029	i	1.25149		−0.33045480	+0.18778165
P	5.78	H	14.5	G	0.15	U 4

Residuals in seconds of arc

1993 03 21	809	0.2+	1.7+	1994 07 08	809	0.2+	0.4+	1995 10 24	691	0.1−	0.4+
1993 03 22	809	1.1+	0.6+	1994 07 08	809	0.7−	0.3+	1995 10 24	691	0.1−	0.6+
1993 04 18	691	0.0	0.1+	1994 07 09	809	0.9+	0.5+	1995 10 28	691	0.1+	0.3+
1993 04 18	691	0.3−	0.2−	1994 07 09	809	0.5+	0.2−	1995 10 28	691	0.4−	0.6+
1993 04 18	691	0.2−	0.0	1994 07 09	809	0.1−	0.2−	1995 10 28	691	0.4−	0.3+
1994 07 08	809	0.9−	0.1−	1995 10 24	691	0.1+	0.1+				

1993 PC$_7$ = 1988 RV$_{13}$ = 1998 QQ$_{19}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	293.81071		(2000.0)		**P**	**Q**
n	0.19341675	ω	241.48071		+0.77283631	−0.63292718
a	2.9612381	Ω	157.68642		+0.61640187	+0.73139994
e	0.1138462	i	6.97735		+0.15090652	+0.25388446
P	5.10	H	13.0	G	0.15	U 4

Residuals in seconds of arc

1988 09 15	095	2.1+	0.7−	1998 08 17	704	0.2−	0.1−	1998 09 14	704	0.1+	0.6+
1988 09 15	095	(5.6+ | 11.3+)	1998 08 17	704	0.4−	0.6−	1998 09 14	704	0.6−	0.6+
1993 08 13	675	0.7+	1.9+	1998 08 17	704	0.2−	1.0−	1998 09 14	704	0.8−	0.3+
1993 08 13	675	(0.7+ | 2.4+)	1998 08 17	704	0.0	0.0	1998 09 14	704	0.2−	0.2+
1993 08 15	010	0.1−	1.6−	1998 08 17	704	0.0	0.3−	1998 09 18	704	0.3+	0.5−
1993 08 15	010	0.2−	0.2−	1998 08 23	699	0.2+	0.9+	1998 09 18	704	0.8−	0.5−
1993 08 15	010	0.7−	1.3−	1998 08 23	704	0.4−	0.2−	1998 09 18	704	0.5+	1.0−
1993 08 17	010	0.1−	1.7−	1998 08 23	704	0.4+	0.1−	1998 09 18	704	0.3+	0.6−
1993 09 18	010	0.3−	1.4+	1998 08 23	699	0.0	0.9+	1998 09 18	704	1.0−	1.0−
1993 09 18	010	1.6−	0.6+	1998 08 23	704	0.6+	0.5+	1998 09 21	699	0.5+	0.0
1993 09 18	010	1.7−	1.2+	1998 08 23	704	0.1+	0.2+	1998 09 21	699	0.9+	0.5−
1998 07 26	699	0.1+	0.6+	1998 08 23	699	0.4+	1.0+	1998 09 21	699	0.8+	0.8+
1998 07 26	699	1.3+	0.4+	1998 08 23	704	0.2−	0.5−				
1998 07 26	699	0.0	0.2+	1998 09 14	704	0.1+	0.1+				

1993 QU$_3$ = 1979 TK$_2$ = 1998 RQ$_{12}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	311.08964		(2000.0)		**P**	**Q**
n	0.20541390	ω	216.12730		+0.69619985	−0.71783035
a	2.8447853	Ω	189.75332		+0.66538782	+0.64793832
e	0.0701231	i	1.70344		+0.26937859	+0.25474599
P	4.80	H	13.5	G	0.15	U 5

Residuals in seconds of arc

1979 10 14	095	0.1+	0.4−	1993 09 19	010	0.3−	0.7+	1998 09 14	691	0.2−	0.1+
1993 08 18	010	0.7−	1.0−	1993 09 20	010	1.4+	0.0	1998 09 19	691	0.1−	0.1+
1993 08 19	010	0.2+	0.6+	1993 09 20	010	0.4−	0.0	1998 09 19	691	0.2+	0.0
1993 08 19	010	0.3−	0.6−	1993 09 20	010	0.4−	0.4−	1998 09 19	691	0.2+	0.0
1993 08 19	010	0.0	0.3−	1998 09 14	691	0.2−	0.0				
1993 09 19	010	0.6+	0.7+	1998 09 14	691	0.0	0.2+				

1993 TM$_{15}$

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	4.72840		(2000.0)	**P**		**Q**	
n	0.19335411	ω	270.03048	+0.95526005		+0.29121100	
a	2.9618776	Ω	73.03910	−0.24528247		+0.87770589	
e	0.0737190	i	3.09927	−0.16527172		+0.38056342	
P	5.10	H	14.5	G	0.15	U	7

Residuals in seconds of arc

1993 10 09	809	1.8+	0.3−	1993 10 11	809	0.4−	1.7+	1998 09 17	699	0.4+	0.1−
1993 10 09	809	0.3+	0.7−	1993 10 20	809	2.0−	1.3−	1998 09 17	699	0.1+	0.0
1993 10 09	809	0.3−	0.5−	1993 10 20	809	1.4−	1.0−	1998 09 25	699	0.8+	1.0−
1993 10 11	809	1.8+	2.4+	1993 10 20	809	1.8−	1.9−	1998 09 25	699	0.2+	0.1−
1993 10 11	809	1.8+	1.8+	1998 09 17	699	1.0−	1.0+	1998 09 25	699	0.4−	0.1−

1993 TZ_{15} = 1998 RO_7

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	338.12307		(2000.0)	**P**		**Q**	
n	0.18590701	ω	202.13561	+0.99664125		+0.08133197	
a	3.0404571	Ω	153.19386	−0.07159971		+0.92207344	
e	0.1676417	i	1.21429	−0.03974552		+0.37837242	
P	5.30	H	15.5	G	0.15	U	6

Residuals in seconds of arc

1993 10 09	809	0.7−	0.9+	1993 10 20	809	0.3−	1.6−	1998 09 19	691	0.3−	0.0
1993 10 09	809	0.8−	0.9+	1993 10 20	809	0.2+	0.9−	1998 09 19	691	0.8−	0.2+
1993 10 09	809	0.8−	0.4−	1993 10 20	809	0.8−	1.4−	1998 09 19	691	0.5−	0.0
1993 10 11	809	1.9+	1.5+	1998 09 12	691	0.3+	0.3−	1998 09 24	691	0.2+	0.1−
1993 10 11	809	0.5+	0.0	1998 09 12	691	0.4+	0.2−	1998 09 24	691	0.2+	0.1+
1993 10 11	809	0.7+	1.1+	1998 09 12	691	0.4+	0.1+	1998 09 24	691	0.4+	0.1+

1993 TJ_{27} = 1998 RP_{11}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	237.28677		(2000.0)	**P**		**Q**	
n	0.19188793	ω	297.98097	−0.53573160		−0.84426771	
a	2.9769459	Ω	184.49120	+0.82453024		−0.51941363	
e	0.0400535	i	10.50136	+0.18204815		−0.13199061	
P	5.14	H	14.5	G	0.15	U	6

Residuals in seconds of arc

1993 10 09	809	0.1−	1.2+	1993 10 11	809	0.2+	0.8−	1998 09 13	691	0.2+	0.2−
1993 10 09	809	1.0−	0.0	1993 10 20	809	0.4+	0.2−	1998 09 13	691	0.3+	0.2+
1993 10 09	809	1.2−	0.1−	1993 10 20	809	1.0+	0.4+	1998 09 18	691	0.1+	0.0
1993 10 11	809	0.5+	0.4−	1993 10 20	809	0.2+	0.2−	1998 09 18	691	0.2−	0.1−
1993 10 11	809	0.1+	0.2+	1998 09 13	691	0.1−	0.2−	1998 09 18	691	0.2−	0.2+

1993 TJ_{31} = 1998 RT_{40}

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	324.89865		(2000.0)	**P**		**Q**	
n	0.18311357	ω	260.38509	+0.95838396		−0.27354584	
a	3.0713009	Ω	115.45345	+0.28429272		+0.88839010	
e	0.0547891	i	5.19059	+0.02603539		+0.36869460	
P	5.38	H	14.0	G	0.15	U	6

Residuals in seconds of arc

1993 10 09	809	1.9+	0.3+	1993 10 21	809	0.4+	0.3+	1998 09 14	704	0.3−	0.2−
1993 10 09	809	0.8+	0.2−	1993 10 21	809	0.2+	0.0	1998 09 18	704	0.4+	0.2+
1993 10 09	809	1.0−	0.1−	1993 10 21	809	0.5−	0.3+	1998 09 18	704	1.4−	0.4+
1993 10 11	809	0.2−	0.0	1998 09 14	704	0.2+	0.9−	1998 09 18	704	0.5−	0.2+
1993 10 11	809	0.3−	0.3−	1998 09 14	704	1.0+	0.2+	1998 09 18	704	0.4+	0.0
1993 10 11	809	1.3−	0.4−	1998 09 14	704	0.2+	0.4+	1998 09 18	704	0.1−	0.2−

1993 TK_{37} = 1972 TU_{10}

Id. E. Bowell (1998 observations), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	321.54442		(2000.0)	**P**		**Q**	
n	0.18814457	ω	211.87512	+0.83957728		−0.54322801	
a	3.0163027	Ω	181.04981	+0.53081805		+0.82178847	
e	0.1476281	i	11.48785	+0.11550838		+0.17195069	
P	5.24	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1972 10 09	033	0.5+	0.4−	1993 10 11	809	1.0+	0.5+	1998 09 16	699	0.1−	0.4+
1972 10 09	033	0.4+	0.6−	1993 10 11	809	0.3+	0.5+	1998 09 16	699	0.7−	0.7−
1972 10 09	033	0.2−	1.4−	1993 10 11	809	0.0	0.8+	1998 09 25	699	0.0	0.5+
1972 10 09	033	0.0	1.2−	1993 10 21	809	0.5+	2.1+	1998 09 25	699	0.6−	0.9+
1993 10 09	809	0.3−	1.6−	1993 10 21	809	0.7+	1.5+	1998 09 25	699	1.0+	0.3+
1993 10 09	809	0.7−	0.6−	1993 10 21	809	1.0−	0.6+				
1993 10 09	809	0.9−	1.5−	1998 09 16	699	0.0	0.0				

1993 TX_{38} = 1998 QR_{103}

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	20.04654		(2000.0)	**P**		**Q**	
n	0.18360287	ω	214.36716	+0.76780190		+0.62992690	
a	3.0658418	Ω	106.15175	−0.55709375		+0.74654753	
e	0.0571638	i	6.99218	−0.31642817		+0.21414689	
P	5.37	H	13.5	G	0.15	U	5

Residuals in seconds of arc

1993 10 09	809	1.0+	0.3+	1993 10 21	809	(4.4+	1.5+)	1998 08 27	809	1.0+	0.6+
1993 10 09	809	0.8−	1.3−	1993 10 21	809	(3.0+	0.9−)	1998 08 27	809	0.8+	1.0+
1993 10 09	809	0.1−	0.1+	1993 10 21	809	(3.6+	0.9+)	1998 08 27	809	0.5+	1.1+
1993 10 11	809	0.4+	0.5+	1998 08 26	809	0.5−	1.2−	1998 09 24	699	0.3+	0.2+
1993 10 11	809	0.2−	0.2+	1998 08 26	809	(0.8−	2.4−)	1998 09 24	699	0.0	0.2+
1993 10 11	809	0.2−	0.1+	1998 08 26	809	1.6−	1.5−	1998 09 24	699	0.5−	0.5−

1993 UQ_2 = 1982 SH_{12}

Id. E. Bowell (1998 observations), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	351.84260		(2000.0)	**P**		**Q**	
n	0.18431746	ω	168.80007	+0.98226231		+0.18750832	
a	3.0579125	Ω	180.39826	−0.18245580		+0.95430894	
e	0.1050389	i	9.75047	−0.04325088		+0.23266947	
P	5.35	H	13.0	G	0.15	U	4

Residuals in seconds of arc

1982 09 16	095	0.2−	0.8+	1993 10 20	675	1.5+	0.5−	1998 09 16	699	0.1+	0.8−
1993 10 09	809	0.8+	0.7+	1993 11 11	033	0.1−	0.9+	1998 09 18	704	1.2+	0.9−
1993 10 09	809	1.2−	0.1+	1993 11 11	033	0.4−	0.5+	1998 09 18	704	0.8−	0.5+
1993 10 09	809	1.7−	0.2−	1993 11 12	033	0.1−	0.6+	1998 09 18	704	0.6−	0.2−
1993 10 11	809	(2.7+	2.8+)	1998 09 14	704	0.3+	0.8−	1998 09 18	704	0.5−	0.3−
1993 10 11	809	(1.4+	2.6+)	1998 09 14	704	0.4+	0.1+	1998 09 18	704	1.1−	0.0
1993 10 11	809	(2.0+	3.0+)	1998 09 14	704	0.5+	0.1−	1998 09 25	699	0.4+	0.3+
1993 10 17	033	0.8+	0.1−	1998 09 14	704	0.2+	0.0	1998 09 25	699	0.6−	0.8+
1993 10 18	033	0.4−	0.3−	1998 09 14	704	0.0	0.8+	1998 09 25	699	0.2+	0.7+
1993 10 19	675	(2.3+	2.4−)	1998 09 16	699	0.6+	0.0				
1993 10 19	675	0.8+	1.9−	1998 09 16	699	0.3−	0.5−				

1993 WH = 1998 SD_5

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	322.19358		(2000.0)	**P**		**Q**	
n	0.37857549	ω	119.23421	+0.94218859		−0.08108940	
a	1.8924935	Ω	247.08372	−0.00149260		+0.96925151	
e	0.0401720	i	20.66985	+0.33507974		+0.23232741	
P	2.60	H	15.5	G	0.15	U	5

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

1993 11 16	675	0.2+	0.3−	1993 12 09	675	(3.3−	0.3+)	1998 09 21	703	0.6−	1.1+
1993 11 18	675	0.7+	0.4+	1993 12 09	675	(5.6−	3.3−)	1998 09 21	703	0.3−	0.9+
1993 11 19	675	0.8+	0.3+	1993 12 11	675	0.7−	0.9−	1998 09 28	704	0.5+	0.3+
1993 11 19	675	0.3+	0.1+	1993 12 11	675	0.6−	0.4−	1998 09 28	704	1.8+	1.8−
1993 11 20	675	1.6−	0.1+	1998 09 20	703	0.1+	0.6+	1998 09 28	704	1.0+	0.2−
1993 12 07	675	(0.03+	0.00+)	1998 09 20	703	0.9−	0.3+	1998 09 28	704	0.1−	0.8+
1993 12 07	675	0.7+	0.8+	1998 09 20	703	0.1+	1.0−	1998 09 28	704	1.5−	1.3−

1994 BH_4 = 1977 RC_8 = 1998 FZ_{128}

Id. A. Doppler, T. Kobayashi

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	74.29280		(2000.0)	**P**	**Q**	
n	0.26304023	ω	293.54671	−0.39625752	−0.91813940	
a	2.4124293	Ω	179.79757	+0.85545466	−0.36925594	
e	0.1192445	i	2.14812	+0.33343260	−0.14377097	
P	3.75	H	16.5	G 0.15	U 5	

Residuals in seconds of arc

1977 09 08	675	0.7+	1.0+	1994 01 17	010	1.0−	0.1+	1998 03 22	704	0.5+	0.2−
1977 09 08	675	1.6−	1.5+	1994 01 30	010	(2.6−	2.3−)	1998 03 22	704	0.0	1.3+
1977 09 09	675	0.4+	1.6−	1994 01 30	010	(1.7−	2.6−)	1998 03 22	704	0.2−	1.9+
1977 09 09	675	(1.7−	3.2+)	1994 01 31	010	0.4+	0.8−	1998 03 26	704	0.7+	0.9−
1994 01 16	010	1.1+	0.3+	1994 01 31	010	0.5+	0.7−	1998 03 26	704	0.5−	0.3+
1994 01 16	010	0.7+	0.1−	1994 01 31	010	0.4−	0.4−	1998 03 26	704	0.2+	0.2+
1994 01 17	010	1.1−	1.1+	1998 03 22	704	0.8−	0.2+				
1994 01 17	010	0.2−	0.7+	1998 03 22	704	0.4+	1.9−				

1994 DP = 1988 QJ_1 = 1998 CY_2

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	142.74133		(2000.0)	**P**	**Q**	
n	0.25093045	ω	241.52721	+0.86214150	−0.50655908	
a	2.4894332	Ω	148.90432	+0.47166837	+0.79485775	
e	0.1537445	i	1.16322	+0.18504318	+0.33406444	
P	3.93	H	14.5	G 0.15	U 5	

Residuals in seconds of arc

1988 08 18	511	0.5−	0.7+	1994 02 16	691	0.5−	0.5+	1998 02 06	809	0.5+	1.5+
1988 08 19	511	0.5+	0.5−	1994 02 19	691	0.7−	0.2+	1998 02 06	809	1.1+	0.1+
1988 08 19	511	(2.5+	1.6+)	1994 02 19	691	0.7−	0.1+	1998 02 07	809	0.8−	1.1−
1994 02 14	675	0.9+	0.5−	1994 02 19	691	0.7−	0.1+	1998 02 07	809	1.3−	0.2+
1994 02 14	675	1.4+	1.1−	1994 03 04	033	0.7+	0.0	1998 02 07	809	0.1−	0.4−
1994 02 16	691	0.3−	0.2+	1994 03 04	033	0.4+	0.8−				
1994 02 16	691	0.7−	0.7+	1998 02 06	809	0.9+	0.4+				

1994 EW = 1998 SJ_8

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	16.48462		(2000.0)	**P**	**Q**	
n	0.31662491	ω	60.15161	+0.60331422	+0.79749246	
a	2.1319286	Ω	246.95662	−0.73326471	+0.55263370	
e	0.1978531	i	0.26215	−0.31358383	+0.24207803	
P	3.11	H	17.5	G 0.15	U 6	

Residuals in seconds of arc

1994 03 06	691	0.2−	0.4+	1994 03 18	691	0.4+	0.4−	1998 09 23	691	0.5−	0.1−
1994 03 06	691	0.0	0.6+	1994 03 18	691	0.1−	0.3−	1998 09 23	691	0.5−	0.1−
1994 03 06	691	1.0−	0.1+	1998 09 20	691	0.1−	0.1−	1998 09 24	120	(4.0+	0.8+)
1994 03 10	691	0.4+	0.5+	1998 09 20	691	0.0	0.3+	1998 09 24	120	(4.4+	1.4−)
1994 03 10	691	0.3−	0.1−	1998 09 20	691	0.3+	0.4−	1998 09 24	120	1.1+	0.3+
1994 03 11	691	0.1+	0.9−	1998 09 21	691	0.2+	0.2−	1998 09 27	691	0.0	0.1+
1994 03 11	691	0.5+	0.1+	1998 09 21	691	0.1+	0.1+	1998 09 27	691	0.2−	0.1−
1994 03 11	691	0.4+	0.3+	1998 09 21	691	0.1+	0.0	1998 09 27	691	0.0	0.1+
1994 03 18	691	0.3−	0.4−	1998 09 23	691	0.7−	0.0				

1994 GB_1 = 1998 MH_{48}

Id. E. Bowell, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	31.16552		(2000.0)	**P**	**Q**	
n	0.28794020	ω	238.43314	+0.15097329	+0.98657136	
a	2.2712652	Ω	40.39855	−0.87125456	+0.16258211	
e	0.1969492	i	5.51814	−0.46703592	+0.01562090	
P	3.42	H	14.0	G 0.15	U 5	

Residuals in seconds of arc

1994 04 08	400	(2.3+	0.2−)	1994 05 06	400	(3.0−	1.2−)	1998 09 13	699	0.4+	0.4+
1994 04 08	400	1.5+	0.4+	1998 06 29	704	0.9−	1.4−	1998 09 13	699	0.5+	0.6+
1994 04 09	400	(3.2+	0.5+)	1998 06 29	704	2.0+	0.1−	1998 09 14	704	0.6+	0.7−
1994 04 11	399	0.8−	0.3+	1998 06 29	704	0.9−	0.4+	1998 09 14	704	0.4−	0.0
1994 04 11	399	(3.1−	1.7+)	1998 06 29	704	0.4+	0.0	1998 09 14	704	0.7+	0.2−
1994 04 13	400	1.0+	1.8+	1998 06 29	704	0.3+	0.9+	1998 09 14	704	0.8+	0.0
1994 04 13	400	1.3+	0.3−	1998 08 25	809	(0.2+	2.6−)	1998 09 18	704	0.0	1.1+
1994 04 16	400	0.3+	1.0−	1998 08 25	809	(0.6−	2.8−)	1998 09 18	704	0.2−	0.5+
1994 04 16	400	0.1−	0.9−	1998 08 25	809	(1.3−	3.3−)	1998 09 18	704	0.0	0.5+
1994 05 03	691	0.5−	0.1−	1998 08 26	809	1.5−	0.8−	1998 09 18	704	0.0	0.6+
1994 05 03	691	0.7−	0.3−	1998 08 26	809	0.7−	1.1−	1998 09 18	704	0.2+	1.0+
1994 05 03	691	0.5−	0.2−	1998 08 26	809	1.7−	1.5−				
1994 05 06	400	1.0−	1.2+	1998 09 13	699	0.4+	0.4+				

1994 GB_9 = 1980 GM = 1992 WH_6

Id. K. Ichikawa (*MPC* 23678); 1994 GB_9 = 1992 WH_6 (*ibid.*) is invalid

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	79.24172		(2000.0)	**P**	**Q**	
n	0.28236830	ω	25.34982	−0.93679044	+0.34987271	
a	2.3010467	Ω	175.12555	−0.32775350	−0.87390038	
e	0.1280673	i	2.40951	−0.12247986	−0.33747180	
P	3.49	H	14.5	G 0.15	U 2	

Residuals in seconds of arc

1980 04 08	675	1.4+	0.8−	1980 04 16	046	0.3+	0.2−	1994 04 16	400	1.1+	0.7−
1980 04 09	675	1.5+	1.0−	1992 11 20	691	0.0	0.4+	1994 05 06	399	1.9−	0.3−
1980 04 12	046	(4.2−	0.0)	1992 11 20	691	0.1−	0.3+	1994 05 06	399	0.1+	1.6−
1980 04 12	046	1.6+	1.0+	1992 11 20	691	0.2−	0.4+	1994 05 13	399	(2.6−	2.4−)
1980 04 13	046	0.0	1.4+	1994 04 08	400	0.2+	1.3−	1994 05 13	399	1.8−	1.5−
1980 04 13	046	(0.6−	2.8+)	1994 04 08	400	(5.2+	0.4+)	1998 05 27	699	0.4+	0.1+
1980 04 14	046	0.1−	0.3+	1994 04 09	400	0.9+	0.7+	1998 05 27	699	0.2+	0.2+
1980 04 14	046	1.6−	0.4+	1994 04 11	399	0.7+	0.0	1998 05 27	699	0.4+	1.0+
1980 04 15	046	0.2−	1.6+	1994 04 11	399	0.1+	0.2+	1998 07 20	566	0.2−	0.5+
1980 04 15	046	1.2−	2.3+	1994 04 13	399	0.7−	0.2−	1998 07 20	566	0.3−	0.2+
1980 04 16	046	(2.9+	3.3+)	1994 04 13	399	0.6−	0.5+	1998 07 20	566	0.4−	0.0

1994 PB_3 = 1994 RM_{13} = 1998 SC_{23}

Id. S. Nakano (d, *MPC* 27543), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	248.85303		(2000.0)	**P**	**Q**	
n	0.25970573	ω	301.01146	−0.16154243	−0.98607363	
a	2.4330350	Ω	158.18008	+0.93782077	−0.16586240	
e	0.0952035	i	6.10549	+0.30723973	−0.01218440	
P	3.80	H	15.5	G 0.15	U 6	

Residuals in seconds of arc

1994 08 10	809	1.1+	1.8+	1994 09 04	809	1.7−	1.8+	1998 09 17	699	1.1+	1.0−
1994 08 10	809	1.0−	0.2+	1994 09 04	809	0.2−	0.3−	1998 09 18	704	0.5+	0.2+
1994 08 10	809	0.3−	0.1+	1994 09 04	809	1.1−	0.6+	1998 09 18	704	0.1−	1.4−
1994 08 11	809	0.5+	0.7−	1998 09 14	704	0.1−	1.2+	1998 09 18	704	0.3−	0.7+
1994 08 11	809	0.0	1.0−	1998 09 14	704	1.5−	1.1−	1998 09 18	704	0.5−	0.5−
1994 08 11	809	0.9+	0.1+	1998 09 14	704	1.9−	0.6−	1998 09 18	704	0.1+	0.6+
1994 09 03	809	0.5+	1.5−	1998 09 14	704	(4.3−	1.2+)	1998 09 24	699	0.9+	0.2+

1994 09 03	809	(0.3−	2.3−)	1998 09 17	699	1.0+	0.2+	1998 09 24	699	0.6+	0.8+
1994 09 03	809	1.3+	1.1−	1998 09 17	699	0.3+	0.4+	1998 09 24	699	0.0	0.5+

1994 PK$_8$ = 1998 SW$_{45}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	96.76484		(2000.0)		**P**	**Q**	
n	0.27538487	ω	350.41028		−0.36504664	+0.93082355	
a	2.3397852	Ω	258.17765		−0.85297244	−0.34195590	
e	0.1539443	i	1.02816		−0.37306697	−0.12897162	
P	3.58	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1994 08 10	809	1.0+	0.2−	1994 09 03	809	0.5−	1.1+	1998 09 25	691	0.0	0.4−
1994 08 10	809	0.1−	0.1−	1994 09 03	809	1.1−	0.7+	1998 09 25	691	0.2−	0.7−
1994 08 10	809	0.0	0.2−	1994 09 03	809	1.1−	0.2+	1998 09 25	691	0.2−	0.9−
1994 08 11	809	0.1+	1.4−	1994 09 04	809	0.3+	0.8+	1998 09 30	691	0.4+	0.4+
1994 08 11	809	0.2+	0.9−	1994 09 04	809	0.1+	0.7+	1998 09 30	691	0.3+	0.5+
1994 08 11	809	0.6+	1.2−	1994 09 04	809	0.1+	1.0+	1998 09 30	691	0.1−	0.2+

1994 PL$_{12}$ = 1998 RU$_{50}$

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	171.32695		(2000.0)		**P**	**Q**	
n	0.26023939	ω	268.13343		−0.98163076	−0.18907606	
a	2.4297077	Ω	260.96708		+0.18370910	−0.90059779	
e	0.1310254	i	1.48073		+0.05149767	−0.39137432	
P	3.79	H	14.5	G	0.15	U	7

Residuals in seconds of arc

1994 08 10	809	0.9+	0.6−	1994 09 03	809	1.2−	0.9−	1998 09 14	704	0.2+	0.9+
1994 08 10	809	0.4+	0.9−	1994 09 04	809	1.0+	0.7+	1998 09 18	704	1.3+	0.1+
1994 08 10	809	0.4−	0.9−	1994 09 04	809	1.1+	0.0	1998 09 18	704	1.0+	0.6−
1994 08 11	809	0.0	1.8+	1994 09 04	809	0.0	0.1−	1998 09 18	704	0.2+	0.3−
1994 08 11	809	0.6−	0.5+	1998 09 14	704	0.5+	0.7−	1998 09 18	704	1.4+	0.1−
1994 08 11	809	0.3−	0.6+	1998 09 14	704	2.4−	0.2+	1998 09 18	704	1.0+	0.1+
1994 09 03	809	0.7−	0.7−	1998 09 14	704	1.0−	0.9+				
1994 09 03	809	0.1−	0.5+	1998 09 14	704	2.2−	0.4−				

1994 PC$_{13}$ = 1978 RM$_8$ = 1998 RP$_{18}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	353.45174		(2000.0)		**P**	**Q**	
n	0.24623381	ω	90.72212		+0.85889083	+0.51177868	
a	2.5209888	Ω	238.49569		−0.47861919	+0.78834068	
e	0.0905073	i	1.32574		−0.18229153	+0.34146970	
P	4.00	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1978 09 02	809	0.4+	1.4−	1994 08 11	809	1.0+	1.5+	1998 09 14	704	0.5−	0.9−
1978 09 02	809	0.3+	1.8−	1994 08 11	809	1.1+	1.2+	1998 09 14	704	1.3+	0.8+
1978 09 02	809	1.4+	1.2−	1994 08 11	809	0.3+	0.7+	1998 09 14	704	1.1+	0.9−
1978 09 02	809	0.3+	0.8−	1994 09 03	809	0.6+	2.4+	1998 09 14	704	0.1+	0.2−
1978 09 02	809	0.3−	1.1−	1994 09 03	809	0.1+	2.7+	1998 09 18	704	0.3−	0.6+
1978 09 06	809	0.7+	1.0−	1994 09 03	809	0.5−	2.8+	1998 09 18	704	0.9+	0.4−
1994 08 10	809	0.0	1.2−	1994 09 04	809	0.2−	1.9+	1998 09 18	704	2.4−	1.3−
1994 08 10	809	1.3−	2.4−	1994 09 04	809	1.4−	1.3+	1998 09 18	704	0.9+	2.1−
1994 08 10	809	0.7−	2.0−	1994 09 04	809	2.5−	1.2+	1998 09 18	704	0.4−	1.3+

1994 PG$_{18}$ = 1998 SE$_{23}$

Id. E. Bowell, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	181.46449		(2000.0)		**P**	**Q**	
n	0.25602800	ω	1.63466		−0.93258213	−0.35834040	
a	2.4562793	Ω	157.21736		+0.32988791	−0.89491962	
e	0.0663406	i	6.43359		+0.14650781	−0.26591544	
P	3.85	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1994 08 12	809	0.3−	0.9+	1994 09 05	809	(3.6+	2.8−)	1998 09 17	699	0.2−	0.2+
1994 08 12	809	0.7−	0.0	1994 09 05	809	(4.4+	2.7−)	1998 09 17	699	0.2+	0.1−
1994 08 12	809	0.8−	0.5+	1994 09 05	809	(3.6+	3.3−)	1998 09 18	704	0.0	0.3−
1994 08 13	809	1.6+	0.2−	1998 09 14	704	0.4−	0.0	1998 09 18	704	0.6+	0.6−
1994 08 13	809	1.0+	0.1−	1998 09 14	704	0.5+	0.2+	1998 09 18	704	0.9+	0.7−
1994 08 13	809	0.8+	1.3−	1998 09 14	704	1.1−	0.5+	1998 09 18	704	0.3+	0.9−
1994 09 03	809	0.4−	1.3+	1998 09 14	704	1.0−	0.0	1998 09 18	704	0.4+	0.6−
1994 09 03	809	0.5−	0.8+	1998 09 14	704	0.9−	0.1+	1998 09 24	699	0.1+	0.5−
1994 09 03	809	0.6−	1.2+	1998 09 14	704	0.2+	0.6+	1998 09 24	699	0.5+	0.7−
1994 09 04	809	0.5+	1.5−	1998 09 14	704	0.3−	1.4+	1998 09 24	699	0.3+	0.5+
1994 09 04	809	0.3−	1.5−	1998 09 14	704	0.1−	1.3+				
1994 09 04	809	0.3−	0.4−	1998 09 17	699	0.1−	0.2−				

1994 PP$_{37}$ = 1998 RY$_{48}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	62.03624		(2000.0)		**P**	**Q**	
n	0.25842004	ω	331.25723		−0.19610560	+0.98038153	
a	2.4410982	Ω	287.42764		−0.89563737	−0.18732878	
e	0.1405813	i	1.19309		−0.39921960	−0.06131874	
P	3.81	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1994 08 10	809	1.2+	0.3−	1994 09 03	809	0.4−	1.5−	1998 09 14	704	0.1+	1.9+
1994 08 10	809	0.0	0.6−	1994 09 04	809	1.1+	1.4+	1998 09 18	704	1.6+	1.1−
1994 08 10	809	0.1−	0.7−	1994 09 04	809	1.2+	1.6+	1998 09 18	704	0.3−	0.4+
1994 08 11	809	0.8−	0.3+	1994 09 04	809	0.1−	1.2+	1998 09 18	704	0.3+	0.5+
1994 08 11	809	0.5−	0.3−	1998 09 14	704	0.5+	1.7−	1998 09 18	704	0.1+	0.7+
1994 08 11	809	0.1+	2.2+	1998 09 14	704	1.3+	0.3−	1998 09 18	704	1.7−	0.8+
1994 09 03	809	0.5−	1.2−	1998 09 14	704	1.3−	0.1+				
1994 09 03	809	1.2−	2.1−	1998 09 14	704	0.5−	1.2−				

1994 PV$_{37}$ = 1979 OR$_{16}$ = 1998 SE$_{27}$

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	40.10091		(2000.0)		**P**	**Q**	
n	0.26390175	ω	119.23803		+0.36470730	+0.93110524	
a	2.4071761	Ω	172.14533		−0.86793178	+0.34213666	
e	0.1829253	i	2.35769		−0.33716912	+0.12643388	
P	3.73	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1979 07 30	095	0.5−	2.0+	1994 09 03	809	1.7−	1.3−	1998 09 20	327	0.3−	0.2+
1994 08 10	809	0.9+	0.8+	1994 09 03	809	0.8−	1.2−	1998 09 20	327	0.1−	0.3+
1994 08 10	809	1.0+	0.2−	1994 09 04	809	0.1−	0.2−	1998 09 20	327	0.4−	0.4+
1994 08 10	809	1.9+	0.3+	1994 09 04	809	0.7−	0.7−	1998 09 23	327	0.7+	0.1+
1994 08 11	809	0.5+	0.0	1994 09 04	809	0.2−	0.6+	1998 09 23	327	0.4+	0.0
1994 08 11	809	0.6+	0.1+	1998 09 15	699	0.8−	0.1+	1998 09 23	327	0.4+	0.0
1994 08 11	809	0.3+	0.0	1998 09 15	699	0.3−	0.2+				
1994 09 03	809	0.9−	0.9−	1998 09 15	699	0.1+	0.0				

1994 RT$_2$

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	7.32208		(2000.0)		**P**		**Q**
n	0.25858372	ω	158.62922		+0.83542129		+0.54933797
a	2.4400680	Ω	168.00315		−0.51554926		+0.79416442
e	0.1899570	i	4.77241		−0.19047368		+0.25986663
P	3.81	H	16.5	G	0.15	U	4

Residuals in seconds of arc

1994 08 10	809	0.5+	1.3+	1994 09 02	691	0.9+	0.0	1994 09 08	691	0.1−	0.6−
1994 08 10	809	0.0	0.2−	1994 09 02	691	1.0+	0.3+	1994 09 08	691	0.3−	0.1−
1994 08 10	809	0.4−	0.2+	1994 09 02	691	1.0+	0.3+	1994 09 08	691	0.6−	0.0
1994 08 11	809	0.1−	0.1+	1994 09 03	809	0.5−	0.1−	1998 09 25	699	0.2−	1.2+
1994 08 11	809	0.7−	1.0−	1994 09 03	809	1.1−	0.6−	1998 09 25	699	0.6+	1.2−
1994 08 11	809	0.4+	0.1−	1994 09 03	809	0.0	0.2+	1998 09 25	699	0.5−	0.2+

1994 ST$_7$ = 1997 JM$_{18}$ = 1997 LR$_{15}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	77.47985		(2000.0)		**P**		**Q**
n	0.27181286	ω	128.13925		+0.28579646		+0.95814209
a	2.3602394	Ω	158.44901		−0.89294660		+0.27265133
e	0.1619735	i	2.63008		−0.34780275		+0.08732114
P	3.63	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1994 09 28	691	0.2+	0.2+	1994 10 06	691	0.2−	0.2−	1997 05 04	809	0.1−	0.8+
1994 09 28	691	0.1−	0.4+	1994 10 13	691	0.4+	0.3−	1997 05 04	809	0.6−	0.4+
1994 09 28	691	0.7+	0.5+	1994 10 13	691	0.4+	0.5−	1997 06 08	809	0.8+	0.3+
1994 09 29	691	0.4−	0.4+	1994 10 13	691	0.4+	0.4−	1997 06 08	809	0.8+	0.0
1994 09 29	691	0.2−	0.1+	1997 05 03	809	0.7+	0.8−	1997 06 08	809	0.3+	0.3−
1994 09 29	691	0.2−	0.2+	1997 05 03	809	0.1+	0.8−	1997 06 09	809	0.7−	0.3−
1994 10 06	691	0.7−	0.0	1997 05 03	809	0.2−	0.1−	1997 06 09	809	0.3−	0.1−
1994 10 06	691	0.4−	0.2−	1997 05 04	809	0.0	1.3+	1997 06 09	809	0.9−	0.4−

1994 SM$_8$ = 1998 RB$_{45}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	340.88239		(2000.0)		**P**		**Q**
n	0.24342321	ω	350.82761		+0.99830050		+0.05691177
a	2.5403568	Ω	5.95290		−0.04279563		+0.86196138
e	0.2415701	i	6.94269		−0.03955553		+0.50376943
P	4.05	H	16.5	G	0.15	U	5

Residuals in seconds of arc

1994 09 28	691	0.5+	0.3−	1994 10 11	691	0.4−	0.1+	1998 09 14	704	0.6+	1.0+
1994 09 28	691	0.7+	0.3−	1994 10 11	691	0.6−	0.0	1998 09 18	704	0.0	0.6+
1994 09 28	691	0.5+	0.3−	1994 10 11	691	0.3−	0.3+	1998 09 18	704	1.6−	0.3+
1994 10 06	691	0.1+	0.3−	1998 09 14	704	0.7+	2.2−	1998 09 18	704	0.9+	0.0
1994 10 06	691	0.1−	0.4+	1998 09 14	704	0.9−	1.1−	1998 09 18	704	0.2−	1.0+
1994 10 06	691	0.1−	0.2−	1998 09 14	704	0.0	1.0+				

1994 SE$_{12}$ = 1998 SD$_{31}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	53.32974		(2000.0)		**P**		**Q**
n	0.23228591	ω	115.05141		+0.01552393		+0.99978537
a	2.6209223	Ω	155.82614		−0.92902152		+0.01949571
e	0.0354490	i	1.91989		−0.36969990		−0.00700929
P	4.24	H	17.0	G	0.15	U	6

Residuals in seconds of arc

1994 09 29	691	0.3−	0.1−	1994 10 06	691	0.5+	0.2+	1998 09 20	691	0.3−	0.1−
1994 09 29	691	0.3+	0.5−	1994 10 06	691	0.6+	1.1−	1998 09 20	691	0.3+	0.2−
1994 09 29	691	0.2+	0.3+	1994 10 12	691	0.4−	0.0	1998 09 25	691	0.0	0.4+
1994 10 04	691	0.4+	0.0	1994 10 12	691	0.5−	0.4−	1998 09 25	691	0.2−	0.2−
1994 10 04	691	0.8−	1.3+	1994 10 12	691	0.9−	0.2+	1998 09 25	691	0.2+	0.2+
1994 10 06	691	0.9+	0.1−	1998 09 20	691	0.0	0.2−				

1994 TX = 1998 SA$_{14}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	317.22223		(2000.0)		**P**		**Q**
n	0.23588051	ω	343.62899		+0.90188096		−0.43031005
a	2.5942272	Ω	41.92413		+0.40244161		+0.80497336
e	0.2360757	i	3.26037		+0.15700789		+0.40847417
P	4.18	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1994 10 02	400	1.0+	0.5−	1994 10 11	397	(1.2+	2.3+)	1998 09 16	699	0.3+	0.9+
1994 10 02	400	1.1+	0.6−	1994 10 11	397	0.5+	0.2+	1998 09 18	704	0.6−	0.3+
1994 10 03	400	0.8−	0.2−	1994 10 25	400	0.8−	1.4−	1998 09 18	704	0.5−	0.5−
1994 10 03	400	0.1−	1.1−	1994 10 25	400	0.2+	1.4+	1998 09 18	704	0.4+	0.5−
1994 10 07	400	1.1−	0.5−	1998 09 14	704	0.7−	0.3+	1998 09 18	704	0.8−	1.3−
1994 10 07	400	1.4+	0.3+	1998 09 14	704	0.0	0.3−	1998 09 18	704	0.4+	1.6−
1994 10 08	691	0.4−	0.9+	1998 09 14	704	0.1+	0.2−	1998 09 22	699	0.1−	1.0+
1994 10 08	691	0.5−	0.7+	1998 09 14	704	0.1−	0.1−	1998 09 22	699	0.1−	0.9+
1994 10 08	691	0.5−	0.5+	1998 09 16	699	1.2+	0.5+	1998 09 22	699	0.1+	0.2+
1994 10 11	397	(2.7+	1.5+)	1998 09 16	699	0.2+	0.4+				

1994 TJ$_1$ = 1986 XM$_4$

Id. E. Bowell (1998 observations), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	330.79487		(2000.0)		**P**		**Q**
n	0.23995165	ω	194.30708		+0.95918281		−0.28275688
a	2.5648003	Ω	182.13091		+0.26909991		+0.91712698
e	0.2466045	i	6.34312		+0.08691126		+0.28093887
P	4.11	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1986 12 05	010	1.1+	1.1+	1994 10 07	400	(2.4+	0.5+)	1998 09 25	699	0.1+	0.5+
1986 12 05	010	1.2−	1.1+	1994 10 26	400	0.8+	0.4+	1998 09 29	120	0.5−	0.2+
1986 12 05	010	(4.1−	0.5+)	1994 10 26	400	0.2−	0.7−	1998 09 29	120	0.6−	0.1+
1994 10 02	400	0.0	1.1−	1998 09 16	699	0.1+	0.3+	1998 10 02	120	0.5+	0.6+
1994 10 02	400	0.4−	1.0−	1998 09 16	699	0.1+	0.5+	1998 10 02	120	0.0	0.4−
1994 10 03	400	0.0	0.8−	1998 09 16	699	0.2+	0.7+	1998 10 02	120	0.9−	0.8+
1994 10 03	400	0.9−	1.6−	1998 09 25	699	0.0	0.5+				
1994 10 07	400	1.8+	0.4−	1998 09 25	699	0.2−	0.6+				

1994 TQ$_3$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	12.45071		(2000.0)		**P**		**Q**
n	0.24438070	ω	322.90470		+0.94794717		+0.30960482
a	2.5337170	Ω	19.46415		−0.21111372		+0.78606946
e	0.1213018	i	12.90834		−0.23838448		+0.53501369
P	4.03	H	12.5	G	0.15	U	5

Residuals in seconds of arc

1990 10 22	675	0.3−	0.2+	1994 10 05	400	1.4+	0.7−	1994 11 03	400	0.9+	1.3+
1990 10 22	675	0.1+	0.5+	1994 10 06	400	0.7−	0.4−	1994 11 03	400	0.2−	0.2−
1994 10 03	675	0.0	0.1+	1994 10 06	400	1.3−	1.1+	1998 09 30	120	0.1−	0.3+
1994 10 03	675	0.1+	0.0	1994 10 28	400	0.2+	0.4−	1998 09 30	120	0.1+	0.2+
1994 10 05	400	0.5+	0.5−	1994 10 28	400	0.7−	1.3−				

1994 TO$_4$ = 1998 SR$_{53}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	15.93295		(2000.0)		**P**		**Q**
n	0.24101165	ω	124.36079		+0.67691460		+0.73520139
a	2.5572746	Ω	188.52132		−0.72921740		+0.66326116
e	0.1320505	i	13.89131		−0.10014297		+0.13986977
P	4.09	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1994 10 02	691	0.1−	0.1−	1994 10 12	691	0.1−	0.5−	1998 09 16	699	0.1+	0.2+
1994 10 02	691	0.2−	0.0	1994 10 12	691	0.3−	0.1−	1998 09 18	704	0.8+	0.1−
1994 10 02	691	0.4−	0.0	1994 10 12	691	0.4−	1.6+	1998 09 18	704	0.2−	1.1−
1994 10 06	691	0.3+	0.3−	1998 09 14	704	0.4−	0.3+	1998 09 18	704	0.2−	0.6−
1994 10 06	691	0.4+	0.3−	1998 09 14	704	0.3−	0.5−	1998 09 18	704	0.3−	0.3−
1994 10 06	691	0.0	0.1+	1998 09 14	704	0.1−	0.9+	1998 09 18	704	0.2−	0.0
1994 10 11	691	0.3+	0.1−	1998 09 14	704	0.5−	0.2−	1998 09 25	699	0.2+	0.1−
1994 10 11	691	0.4+	0.1−	1998 09 16	699	0.0	0.5+	1998 09 25	699	0.0	0.6+
1994 10 11	691	0.1+	0.1−	1998 09 16	699	0.7+	0.2+	1998 09 25	699	0.2+	0.2+

1994 VL = 1998 SR_{46}

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	306.54927		(2000.0)		**P**	**Q**	
n	0.24268018	ω	50.06240		+0.29007012	−0.95624420	
a	2.5455395	Ω	23.16062		+0.84578532	+0.23749710	
e	0.2198550	i	5.56805		+0.44777954	+0.17085710	
P	4.06	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1994 11 01	411	0.2−	0.3−	1994 11 08	411	0.2+	0.9−	1998 09 25	691	0.5−	0.0
1994 11 01	411	1.1−	0.4+	1994 11 23	411	0.1−	0.3−	1998 09 25	691	0.4−	0.0
1994 11 02	411	0.8−	0.1−	1994 11 23	411	0.9−	0.8+	1998 09 25	691	0.0	0.1−
1994 11 02	411	0.3+	0.6+	1994 11 30	675	0.5+	0.4−	1998 09 30	691	0.4+	0.0
1994 11 07	675	2.0+	0.0	1994 11 30	675	0.4−	0.3−	1998 09 30	691	0.2+	0.0
1994 11 07	675	0.4−	0.4+	1994 12 02	675	1.2−	0.9−	1998 09 30	691	0.4+	0.1−
1994 11 08	411	0.5+	0.3+	1994 12 02	675	1.4+	0.7+				

1994 WJ = 1998 SU_{22}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	351.50295		(2000.0)		**P**	**Q**	
n	0.24212776	ω	316.93095		+0.98060724	−0.17939247	
a	2.5494098	Ω	53.56854		+0.19562712	+0.87169842	
e	0.2858859	i	5.62893		+0.01181005	+0.45602654	
P	4.07	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1994 11 24	905	0.5+	0.5−	1994 11 26	411	0.1−	0.4+	1998 09 24	120	0.2+	0.0
1994 11 24	905	0.8+	0.3−	1994 12 04	411	0.0	0.0	1998 09 24	120	0.1+	0.0
1994 11 25	411	0.2−	0.2−	1994 12 04	411	0.8−	0.2−	1998 09 25	120	0.2−	0.2−
1994 11 25	411	0.2−	0.3−	1994 12 22	411	0.0	0.4+	1998 09 25	120	0.1−	0.4+
1994 11 26	411	0.1−	0.7+	1994 12 22	411	0.0	0.1−				

1994 WA$_4$

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	263.56607		(2000.0)		**P**	**Q**	
n	0.22138870	ω	251.46559		−0.17398995	−0.97978969	
a	2.7062365	Ω	209.11275		+0.96259153	−0.14807994	
e	0.0839976	i	11.70332		+0.20771386	−0.13447860	
P	4.45	H	13.0	G	0.15	U	4

Residuals in seconds of arc

1994 10 05	033	0.0	0.0	1994 11 28	399	0.1−	0.7−	1998 09 17	699	0.1−	0.8−
1994 10 05	033	0.4+	0.2−	1994 11 28	399	1.4−	0.1+	1998 09 17	699	0.3+	0.3+
1994 10 06	033	0.1+	0.5+	1994 11 29	399	0.6+	0.6+	1998 09 25	699	0.4−	0.3+
1994 10 28	033	0.4+	0.1+	1994 11 29	399	0.2−	0.7+	1998 09 25	699	0.2+	0.3+
1994 10 28	033	0.9+	0.2−	1994 12 09	399	0.3−	0.9−	1998 09 25	699	0.1+	0.2+
1994 11 01	033	1.0+	0.3+	1994 12 09	399	1.3−	0.9−				
1994 11 02	033	0.2+	0.6+	1998 09 17	699	0.1−	0.5−				

1994 YU = 1998 QG_{76}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Kobayashi

M	352.06753		(2000.0)		**P**	**Q**	
n	0.19140362	ω	59.97386		+0.96246061	+0.21724457	
a	2.9819655	Ω	287.06886		−0.26774233	+0.85827548	
e	0.1226711	i	9.79983		+0.04453777	+0.46493870	
P	5.15	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1994 12 28	411	0.9+	0.2+	1995 01 07	411	0.9−	0.1−	1998 08 24	704	0.9+	1.3−
1994 12 28	411	0.3−	0.2−	1995 01 07	411	1.2−	0.1+	1998 08 24	704	1.3+	0.1−
1994 12 29	411	0.9−	1.1+	1995 01 20	411	0.7+	0.0	1998 08 27	704	0.3−	0.1−
1994 12 29	411	0.0	0.0	1995 01 20	411	0.2−	0.3+	1998 08 27	704	0.4−	0.2−
1995 01 02	411	(3.6+	0.8−)	1998 08 24	704	0.4+	0.1−	1998 08 27	704	0.4+	0.0
1995 01 05	411	0.9+	1.5−	1998 08 24	704	1.0−	0.6+	1998 08 27	704	0.4−	0.7+
1995 01 05	411	0.9+	0.2+	1998 08 24	704	0.3+	0.1+	1998 08 27	704	0.9−	0.4+

1994 YF_1 = 1998 QC_{76}

Id. T. Kobayashi

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	252.25875		(2000.0)		**P**	**Q**	
n	0.18994362	ω	160.23225		−0.02998897	−0.98899195	
a	2.9972265	Ω	291.26653		+0.89488150	+0.03801565	
e	0.0290596	i	8.94502		+0.44529513	−0.14300257	
P	5.19	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1994 12 28	411	0.8−	1.3−	1995 01 05	411	0.6+	0.2−	1998 08 24	704	0.6−	1.6−
1994 12 28	411	0.5+	0.6−	1995 01 07	411	0.3+	0.0	1998 08 27	704	1.2−	0.2+
1995 01 01	411	0.4−	0.4+	1995 01 07	411	0.6+	0.1+	1998 08 27	704	0.7+	1.3+
1995 01 01	411	0.7−	0.5−	1995 01 19	411	0.6+	0.2−	1998 08 27	704	0.1−	0.3+
1995 01 02	010	0.1+	1.8+	1995 01 19	411	0.1+	1.2−	1998 08 27	704	0.1−	0.5+
1995 01 02	010	(0.4−	2.7+)	1998 08 24	704	1.2+	0.1−	1998 08 27	704	1.2+	0.4+
1995 01 03	010	1.0−	0.6+	1998 08 24	704	1.6−	0.6+	1998 09 19	699	0.0	0.2+
1995 01 04	010	0.4−	0.8+	1998 08 24	704	0.5+	1.7−	1998 09 19	699	0.5−	0.6−
1995 01 05	411	0.5+	0.1+	1998 08 24	704	(0.6−	2.4−)	1998 09 19	699	0.6+	0.4+

1995 DG = 1998 QP_{49}

Id. T. Kobayashi

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	277.48249		(2000.0)		**P**	**Q**	
n	0.17763144	ω	291.75083		+0.13927079	−0.97871863	
a	3.1341720	Ω	149.02904		+0.98179248	+0.11661854	
e	0.2145360	i	17.02963		+0.12917887	+0.16884893	
P	5.55	H	12.5	G	0.15	U	4

Residuals in seconds of arc

1995 02 20	411	1.0+	0.4+	1995 03 06	399	1.4−	0.5+	1998 08 23	704	0.2+	0.9−
1995 02 20	411	0.4+	0.4+	1995 03 06	399	1.9−	0.3+	1998 08 23	704	0.7−	0.3+
1995 02 21	411	0.8+	0.2+	1995 03 07	411	0.3−	0.1+	1998 09 14	704	0.5+	0.3+
1995 02 21	411	0.4+	0.2−	1995 03 07	411	0.0	1.3−	1998 09 14	704	0.5−	0.4+
1995 02 22	411	0.1+	0.1−	1995 03 11	411	0.4+	0.4−	1998 09 14	704	0.4+	0.5+
1995 02 22	411	0.6+	0.1+	1995 03 11	411	0.7+	0.2+	1998 09 14	704	0.7+	0.7+
1995 02 22	365	(0.6−	3.2−)	1995 03 20	411	0.5+	0.3+	1998 09 16	699	0.2−	0.5+
1995 02 22	365	1.2−	1.6−	1995 03 20	411	0.6−	0.1−	1998 09 16	699	0.3+	0.2+
1995 02 24	365	(2.2−	0.5+)	1998 08 17	704	0.2−	0.1+	1998 09 16	699	0.2+	0.1+
1995 02 24	365	(4.0−	3.3−)	1998 08 17	704	0.3−	0.2−	1998 09 18	704	0.8+	0.2+
1995 03 01	411	0.1−	0.5+	1998 08 17	704	0.5+	0.8−	1998 09 18	704	0.3−	0.5−
1995 03 01	411	0.4+	0.2−	1998 08 17	704	0.1−	0.1−	1998 09 18	704	0.6−	0.3+
1995 03 05	399	1.4−	0.9+	1998 08 17	704	0.0	0.5−	1998 09 18	704	0.0	0.8−
1995 03 05	399	1.0+	0.1−	1998 08 23	704	0.1+	0.6−	1998 09 18	704	0.2+	1.6−
1995 03 06	411	0.2+	0.2−	1998 08 23	704	0.9−	1.4+				
1995 03 06	411	0.3+	0.1+	1998 08 23	704	0.1−	1.0+				

1995 DZ$_{11}$ = 1990 EH$_7$
Id. A. Doppler
Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	297.36564		(2000.0)	**P**		**Q**	
n	0.19514233	ω	308.75239	+0.00554586		−0.99949510	
a	2.9437555	Ω	140.89516	+0.93216807		−0.00615797	
e	0.0365089	i	2.84311	+0.36198334		+0.03117085	
P	5.05	H	13.5	G 0.15		U 5	

Residuals in seconds of arc

1990 03 03	809	0.1−	0.3+	1990 03 06	809	0.1−	1.0−	1995 02 24	098	0.3+	0.9−
1990 03 03	809	0.4+	0.1+	1990 03 06	809	0.1−	1.0−	1995 02 24	098	(2.7−	0.7−)
1990 03 03	809	0.5+	0.0	1990 03 06	809	0.0	1.0−	1995 02 25	098	0.5+	0.1−
1990 03 03	809	0.5−	1.0+	1995 02 04	691	0.1−	0.1−	1995 02 26	098	0.7+	0.6+
1990 03 03	809	0.1−	0.8+	1995 02 04	691	0.0	0.1−	1995 02 27	098	1.3−	0.6+
1990 03 03	809	0.0	1.0+	1995 02 04	691	0.2−	0.0	1995 02 27	098	(4.0−	0.4+)

1995 EF$_8$ = 1982 VU$_{10}$
Id. E. Bowell (1998 observations), G. V. Williams
Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	267.10291		(2000.0)	**P**		**Q**	
n	0.17730736	ω	349.88983	−0.19203982		−0.98009824	
a	3.1379899	Ω	111.16812	+0.90412817		−0.19661479	
e	0.1397145	i	3.09082	+0.38167127		−0.02738725	
P	5.56	H	14.0	G 0.15		U 3	

Residuals in seconds of arc

1982 11 12	095	0.0	0.1+	1995 03 05	033	0.6+	0.7−	1998 09 17	699	0.4−	0.6−
1995 02 03	691	0.4−	0.2+	1995 03 07	033	0.1+	0.2+	1998 09 17	699	0.2+	0.1+
1995 02 03	691	0.2−	0.1+	1995 03 23	033	0.1+	0.1−	1998 09 25	699	0.8−	0.2−
1995 02 03	691	0.1−	0.2+	1995 03 23	033	0.0	0.3+	1998 09 25	699	0.7−	0.4+
1995 03 04	033	0.2−	0.4−	1998 09 17	699	0.2+	0.8−	1998 09 25	699	1.6+	0.7+

1995 FM$_3$ = 1998 SD$_{10}$
Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	175.81979		(2000.0)	**P**		**Q**	
n	0.17070404	ω	154.67620	−0.92535732		+0.37552095	
a	3.2184012	Ω	47.48275	−0.35870247		−0.82298719	
e	0.0294704	i	4.04093	−0.12266366		−0.42623480	
P	5.77	H	14.0	G 0.15		U 5	

Residuals in seconds of arc

1995 03 23	691	0.0	0.0	1995 03 29	691	0.2−	0.5−	1998 09 16	910	0.0	0.1−
1995 03 23	691	0.2+	0.1−	1995 04 04	691	0.2+	0.2+	1998 09 16	910	0.4+	0.2−
1995 03 23	691	0.2−	0.1+	1995 04 04	691	0.1+	0.1−	1998 09 22	910	0.2−	0.1+
1995 03 29	691	0.6+	0.4+	1995 04 04	691	0.6−	0.0	1998 09 22	910	0.2−	0.3+
1995 03 29	691	0.1−	0.0	1998 09 16	910	0.1+	0.4−	1998 09 22	910	0.1−	0.2+

1995 TG$_2$ = 1994 LY$_6$
Id. T. Kobayashi, A. Doppler
Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	266.87649		(2000.0)	**P**		**Q**	
n	0.21731347	ω	112.49266	+0.87067052		+0.49110582	
a	2.7399646	Ω	218.10931	−0.46599847		+0.80581049	
e	0.1978265	i	2.53976	−0.15741114		+0.33088447	
P	4.54	H	15.5	G 0.15		U 5	

Residuals in seconds of arc

1994 06 03	809	(2.4−	0.5+)	1994 06 04	809	0.6+	1.3−	1995 10 15	327	0.1+	0.5+
1994 06 03	809	0.4−	0.7+	1995 10 14	327	0.2+	0.4+	1995 10 15	327	0.1−	0.3−
1994 06 03	809	0.7−	0.9+	1995 10 14	327	0.1+	0.4+	1995 10 28	327	0.4−	0.7−
1994 06 04	809	0.1+	0.1−	1995 10 14	327	0.4+	0.3−	1995 10 28	327	0.3+	0.1−
1994 06 04	809	0.3+	0.3−	1995 10 15	327	0.5−	0.3−	1995 10 28	327	0.0	0.4+

1995 UB$_8$ = 1998 QC$_{107}$
Id. T. Kagawa, E. Bowell
Epoch 1998 July 6.0 TT = JDT 2451000.5 Urata

M	226.11897		(2000.0)	**P**		**Q**	
n	0.27649629	ω	27.42057	−0.05133822		−0.99650885	
a	2.3335109	Ω	65.58515	+0.90251817		−0.07451892	
e	0.1236581	i	4.14624	+0.42758081		+0.03764362	
P	3.56	H	14.0	G 0.15		U 4	

Residuals in seconds of arc

1995 10 25	905	0.3−	0.5+	1995 11 03	385	0.5+	0.4+	1996 01 13	385	0.1+	0.6−
1995 10 25	905	0.5−	0.2−	1995 11 03	385	0.2+	0.5+	1996 01 13	385	0.0	0.1−
1995 10 26	905	(2.7−	1.2+)	1995 11 12	905	0.1+	0.5+	1998 08 23	888	0.3−	0.2−
1995 10 26	905	1.3+	1.0−	1995 11 12	905	0.7−	0.3+	1998 08 23	888	0.5+	0.7+
1995 10 26	905	0.7−	1.0−	1995 12 17	385	0.2−	0.3+	1998 09 20	385	0.6−	0.7−
1995 10 30	905	0.6+	0.6−	1995 12 17	385	0.1−	0.3+	1998 09 20	385	0.4+	0.0
1995 10 30	905	0.1+	0.6+	1995 12 17	385	0.5−	0.3+				
1995 11 03	385	0.6−	0.4+	1996 01 13	385	0.8+	0.8−				

1995 UZ$_{45}$ = 1998 MJ$_9$
Id. A. Doppler
Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	86.74033		(2000.0)	**P**		**Q**	
n	0.21588236	ω	315.82732	−0.93687755		−0.34319895	
a	2.7520603	Ω	204.33972	+0.34854747		−0.90141921	
e	0.1608080	i	9.34094	+0.02784095		−0.26392780	
P	4.57	H	13.5	G 0.15		U 4	

Residuals in seconds of arc

1995 10 01	691	0.1−	0.0	1995 10 23	010	0.6+	1.2+	1998 06 19	704	0.7+	1.1+
1995 10 01	691	0.2−	0.1+	1995 10 23	010	0.1+	0.0	1998 06 19	704	0.7+	1.3−
1995 10 01	691	0.1−	0.0	1995 10 23	010	0.8−	0.1−	1998 06 25	704	(2.5−	1.4−)
1995 10 20	010	0.3−	0.2−	1998 06 19	704	0.0	0.3−	1998 06 25	704	1.0−	0.0
1995 10 20	010	0.2+	0.4−	1998 06 19	704	0.6+	0.1−	1998 06 25	704	0.8+	0.0
1995 10 20	010	0.7+	0.7−	1998 06 19	704	0.5−	0.5+	1998 06 25	704	1.4−	0.0

1995 VT = 1998 KX$_{21}$
Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	79.33159		(2000.0)	**P**		**Q**	
n	0.18465290	ω	283.99724	−0.90335530		−0.41182323	
a	3.0542081	Ω	231.82290	+0.42819380		−0.85004580	
e	0.0446156	i	8.76550	+0.02447991		−0.32836530	
P	5.34	H	12.5	G 0.15		U 4	

Residuals in seconds of arc

1995 11 01	894	0.7−	1.6−	1995 11 16	894	0.5−	0.7−	1998 05 22	704	0.4+	0.1−
1995 11 01	894	0.3+	1.2+	1995 11 16	894	0.5+	0.7+	1998 05 24	704	0.3−	0.5−
1995 11 02	894	0.5+	0.2+	1998 05 22	704	0.4−	0.1+	1998 05 24	704	0.0	0.5−
1995 11 02	894	0.1−	0.2+	1998 05 22	704	0.3+	0.1−	1998 05 24	704	0.2+	0.2−
1995 11 12	894	(1.8+	1.3−)	1998 05 22	704	0.3+	0.0	1998 05 24	704	0.0	0.7+
1995 11 12	894	(3.6+	2.7+)	1998 05 22	704	0.3−	0.0	1998 05 24	704	0.3−	0.5+

1995 VW$_1$ = 1989 EY$_8$
Id. E. Bowell (1998 observations), G. V. Williams
Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	259.74807		(2000.0)	**P**		**Q**	
n	0.27286488	ω	188.60572	−0.20789615		−0.96823939	
a	2.3541689	Ω	273.47850	+0.90551496		−0.13681083	
e	0.1480081	i	7.99871	+0.36989438		−0.20927320	
P	3.61	H	14.5	G 0.15		U 2	

Residuals in seconds of arc

1989 03 07	413	0.3−	0.8+	1995 11 28	327	0.1−	0.1+	1996 04 11	327	0.8+	0.7+
1989 03 07	413	0.4+	0.5−	1995 11 28	327	0.3−	0.4+	1996 04 11	327	0.8+	0.5−
1995 11 04	327	0.1−	1.4−	1995 11 28	327	0.6−	0.2+	1996 04 11	327	1.0−	0.2−
1995 11 04	327	0.0	0.7−	1995 11 29	327	0.1−	0.6+	1998 09 19	699	0.2−	0.4−
1995 11 04	327	0.5−	0.2−	1995 11 29	327	0.0	0.2+	1998 09 19	699	0.1+	0.6+
1995 11 05	327	1.4−	0.7−	1995 11 29	327	0.4−	0.4+	1998 09 19	699	0.2−	0.4+
1995 11 05	327	0.0	0.5−	1995 11 30	327	0.5+	0.6+	1998 09 25	699	0.3−	0.3+
1995 11 05	327	0.1−	1.1−	1995 11 30	327	0.3+	0.1−	1998 09 25	699	0.3+	0.1+
1995 11 18	327	0.6+	0.5+	1995 11 30	327	0.5−	0.5−	1998 09 25	699	0.4−	0.6+
1995 11 18	327	0.8+	0.4+	1996 04 09	327	0.8+	0.4+				
1995 11 18	327	0.7+	0.6+	1996 04 09	327	0.1+	0.9+				

1995 WX_2 = 1998 RW_{23}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	171.95586		(2000.0)		**P**	**Q**	
n	0.28433925	ω	286.66354		−0.90403680	−0.42374281	
a	2.2904009	Ω	228.30378		+0.41524677	−0.83938974	
e	0.0798717	i	4.31725		+0.10142774	−0.34039225	
P	3.47	H	15.5	G	0.15	U	6

Residuals in seconds of arc

1995 11 16	691	0.3+	0.3−	1995 11 20	658	0.1+	0.5+	1998 09 14	704	0.3−	1.5+
1995 11 16	691	0.0	0.3−	1995 11 20	658	0.3+	0.5+	1998 09 18	704	0.1−	0.7+
1995 11 16	691	0.3−	0.3−	1995 11 20	658	0.3+	0.4+	1998 09 18	704	0.7+	0.3−
1995 11 18	691	0.2−	0.1−	1998 09 14	704	1.6+	1.9−	1998 09 18	704	0.6−	0.3+
1995 11 18	691	0.2−	0.1−	1998 09 14	704	1.3+	1.4+	1998 09 18	704	1.4−	0.3−
1995 11 18	691	0.2−	0.2−	1998 09 14	704	1.1−	1.3−				

1995 WE_5 = 1998 SC_{14}

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	279.63457		(2000.0)		**P**	**Q**	
n	0.28668012	ω	1.59619		+0.54130746	−0.83675987	
a	2.2779158	Ω	55.63898		+0.77032898	+0.45416168	
e	0.1123565	i	5.74115		+0.33701558	+0.30589226	
P	3.44	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1995 11 17	358	1.1+	0.4+	1995 12 12	358	0.2+	0.0	1998 09 16	699	0.5−	0.6+
1995 11 17	358	1.7−	0.4−	1995 12 13	358	0.8+	0.3−	1998 09 22	699	0.5+	0.4−
1995 11 21	358	0.3−	0.3−	1995 12 13	358	1.3−	0.7+	1998 09 22	699	1.0+	0.4+
1995 11 21	358	1.0+	0.2+	1998 09 16	699	1.0+	1.0−	1998 09 22	699	0.9−	0.0
1995 12 12	358	0.2+	0.3−	1998 09 16	699	1.1−	0.4+				

1995 WH_5

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	287.37547		(2000.0)		**P**	**Q**	
n	0.27995686	ω	150.09005		+0.66221159	−0.74621168	
a	2.3142413	Ω	258.35063		+0.67294656	+0.63225486	
e	0.1072026	i	3.98984		+0.32957357	+0.20837925	
P	3.52	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1995 11 24	411	1.0−	0.7+	1995 12 17	411	0.5+	0.0	1998 09 15	699	0.5+	1.1−
1995 11 24	411	0.6−	0.5+	1995 12 17	411	0.4+	0.4+	1998 09 15	699	1.0+	1.0−
1995 11 26	411	0.1−	0.2−	1995 12 20	411	1.8−	0.2+	1998 09 15	699	0.9+	0.5−
1995 11 26	411	0.2−	0.4−	1995 12 20	411	0.2−	0.1+	1998 09 18	704	0.1−	0.6+
1995 11 28	411	0.9+	0.2−	1998 08 26	699	0.6−	0.3−	1998 09 18	704	0.4−	0.7+
1995 11 28	411	0.1−	0.3−	1998 08 26	699	0.5+	0.1−	1998 09 18	704	0.0	0.0
1995 11 29	411	0.6−	0.8+	1998 08 26	699	0.0	1.1−	1998 09 18	704	1.3−	0.8+
1995 11 29	411	0.3−	0.3−	1998 09 14	704	1.1−	0.8−	1998 09 18	704	0.9+	1.2+
1995 12 01	411	0.3+	0.5+	1998 09 14	704	0.8−	0.2−	1998 09 21	699	0.1+	0.8+
1995 12 01	411	0.2+	0.6−	1998 09 14	704	0.3−	0.5+	1998 09 21	699	0.3+	0.7+
1995 12 09	411	0.9+	0.0	1998 09 14	704	0.0	0.5+	1998 09 21	699	0.6+	0.1−
1995 12 09	411	1.8+	1.3−	1998 09 14	704	0.1+	0.6−				

1995 WR_7 = 1983 RN_6 = 1987 KM_3

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	211.43359		(2000.0)		**P**	**Q**	
n	0.17513307	ω	118.64669		+0.91934117	−0.36750733	
a	3.1639087	Ω	263.21078		+0.29313044	+0.87799242	
e	0.0896438	i	8.13626		+0.26246211	+0.30670454	
P	5.63	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1983 09 05	095	0.1−	0.4+	1995 11 27	411	0.1+	0.2−	1995 12 01	411	0.9+	0.3−
1987 05 30	413	0.8−	0.0	1995 11 28	411	1.1+	0.3−	1995 12 17	411	0.0	1.8+
1987 05 30	413	0.9+	0.7+	1995 11 28	411	0.1−	0.6−	1995 12 17	411	1.8−	0.7+
1995 11 27	411	0.4−	0.2+	1995 12 01	411	0.2+	0.7−				

1995 WR_{17} = 1998 SC_{19}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	192.08816		(2000.0)		**P**	**Q**	
n	0.27934346	ω	140.03241		−0.77753639	−0.62883743	
a	2.3176279	Ω	1.00424		+0.56457007	−0.69863486	
e	0.1743957	i	2.63381		+0.27694367	−0.34128116	
P	3.53	H	17.0	G	0.15	U	4

Residuals in seconds of arc

1995 10 19	691	0.2+	0.2+	1995 11 17	691	0.3+	0.2−	1998 09 19	691	0.5−	0.1+
1995 10 19	691	0.1+	0.1−	1995 11 23	691	0.1−	0.3+	1998 09 19	691	0.5−	0.2−
1995 10 24	691	0.1−	0.1−	1995 11 23	691	0.3−	0.0	1998 09 19	691	0.2+	0.1−
1995 10 24	691	0.1−	0.2−	1995 11 23	691	0.3+	0.1−	1998 09 24	691	0.3+	0.0
1995 10 24	691	0.2−	0.0	1995 11 30	691	0.1−	0.0	1998 09 24	691	0.4+	0.3+
1995 11 17	691	0.1+	0.3−	1995 11 30	691	0.2+	0.3+				
1995 11 17	691	0.1+	0.2−	1995 11 30	691	0.3−	0.3+				

1995 WL_{42} = 1996 DZ_3 = 1998 SH_6

Id. G. V. Williams (d, *MPC* 27110; unpublished)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	143.40716		(2000.0)		**P**	**Q**	
n	0.19970820	ω	44.87447		−0.99930395	+0.03510525	
a	2.8987145	Ω	137.13257		−0.03725664	−0.92206602	
e	0.1223400	i	1.06286		−0.00188807	−0.38543725	
P	4.94	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1995 11 28	327	0.1+	1.2−	1996 01 14	327	0.4−	1.1−	1996 02 17	010	0.8+	2.1+
1995 11 28	327	0.3−	1.3−	1996 01 14	327	0.6−	0.6−	1998 09 20	691	0.1−	1.0+
1995 11 28	327	0.0	2.1−	1996 02 16	010	0.1+	2.4+	1998 09 20	691	0.3−	1.0+
1995 11 29	327	1.1−	0.9−	1996 02 16	010	0.1+	2.2+	1998 09 20	691	0.6−	1.4+
1995 11 29	327	0.2−	1.4−	1996 02 16	010	0.2−	2.7+	1998 09 21	691	0.5−	0.8+
1995 11 29	327	0.2−	0.5−	1996 02 17	010	2.0+	2.0+	1998 09 21	691	0.5−	0.9+
1996 01 14	327	0.6−	1.5−	1996 02 17	010	1.3+	2.0+	1998 09 21	691	0.4−	1.1+

1995 XH_1 = 1988 VB_{14}

Id. T. Kobayashi (1998 observations), S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	330.58008		(2000.0)		**P**	**Q**	
n	0.29087265	ω	92.21911		+0.98814509	−0.13576683	
a	2.2559742	Ω	275.58964		+0.09580001	+0.91009250	
e	0.1609189	i	4.12961		+0.11996515	+0.39153418	
P	3.39	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1988 11 04	327(12.6−		42.2−)	1995 12 25	411	0.4+	0.1−	1998 09 13	411	0.1−	0.3−
1988 11 04	327	0.1−	0.2+	1995 12 30	411	0.6+	1.3−	1998 09 16	699	0.2+	0.3+

1995 12 15	411	0.4−	1.0+	1995 12 30	411	1.6−	0.3+	1998 09 16	699	0.2+	0.7+
1995 12 15	411	0.1+	0.0	1996 01 09	411	0.2+	0.1−	1998 09 16	699	0.2+	0.4+
1995 12 16	411	0.2+	0.1−	1996 01 09	411	0.2+	0.9+	1998 09 20	127	0.3−	0.1+
1995 12 16	411	0.5+	0.2−	1998 09 12	411	0.0	0.5−	1998 09 20	127	0.1+	1.1−
1995 12 22	411	0.6+	0.9−	1998 09 12	411	0.1−	0.0	1998 09 21	127	0.1+	0.3+
1995 12 22	411	0.7+	0.3−	1998 09 13	411	0.2−	0.1−	1998 09 21	127	0.0	0.2+
1995 12 25	411	1.5−	0.5+	1998 09 13	411	0.1−	0.1−				

1995 XX_4 = 1998 RP_{32}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	53.95299		(2000.0)		**P**	**Q**	
n	0.26704165	ω	77.03011		−0.15459543	+0.98796104	
a	2.3882698	Ω	184.08974		−0.93489612	−0.14817353	
e	0.1410905	i	4.63583		−0.31948317	−0.04446997	
P	3.69	H	15.5	G	0.15	U	6

Residuals in seconds of arc

1995 12 14	691	0.0	0.1−	1995 12 27	691	0.3−	0.2+	1998 09 18	704	0.7+	0.4−
1995 12 14	691	0.3+	0.6−	1995 12 27	691	0.4−	0.3+	1998 09 18	704	0.3+	1.1+
1995 12 14	691	0.3+	0.3−	1998 09 14	704	0.1+	0.7−	1998 09 18	704	0.3+	0.9−
1995 12 20	691	0.2−	0.1+	1998 09 14	704	0.1−	0.1+	1998 09 18	704	0.7−	1.0+
1995 12 20	691	0.1+	0.1+	1998 09 14	704	0.3−	0.5+	1998 09 18	704	0.3+	0.1−
1995 12 27	691	0.1+	0.2+	1998 09 14	704	0.6−	0.6−				

1995 YD_7 = 1998 SH_{35}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	229.27954		(2000.0)		**P**	**Q**	
n	0.26907642	ω	231.78373		−0.14085720	−0.98671019	
a	2.3762144	Ω	226.52003		+0.93965316	−0.10747312	
e	0.1268555	i	6.40987		+0.31178710	−0.12187094	
P	3.66	H	17.0	G	0.15	U	4

Residuals in seconds of arc

1995 12 16	691	0.2+	0.1+	1996 01 15	691	0.3−	0.3−	1998 09 25	954	0.3+	0.0
1995 12 16	691	0.0	0.4−	1996 01 15	691	0.4+	0.1+	1998 09 26	954	0.1−	0.2+
1995 12 16	691	0.1+	0.2−	1996 01 15	691	0.0	0.1−	1998 09 26	954	0.3−	0.0
1995 12 27	691	0.0	0.2+	1998 09 25	954	0.2+	0.0	1998 09 26	954	0.1−	0.0
1995 12 27	691	0.1−	0.3+	1998 09 25	954	0.1+	0.2−	1998 09 26	954	0.2−	0.0
1995 12 27	691	0.3−	0.2+	1998 09 25	954	0.1+	0.1−				

1995 YL_{23} = 4676 T-1

Id. E. Bowell (1998 observations), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	36.69673		(2000.0)		**P**	**Q**	
n	0.26342171	ω	207.10564		−0.01890126	+0.99547719	
a	2.4100997	Ω	61.93992		−0.89713593	+0.02421874	
e	0.1529266	i	6.05614		−0.44135005	−0.09186194	
P	3.74	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1971 05 13	675	0.3+	0.3+	1995 12 24	566	0.2−	0.0	1998 08 19	699	0.1+	0.2+
1971 05 14	675	0.2−	1.0−	1995 12 24	566	0.1+	0.0	1998 08 19	699	0.5−	0.6+
1971 05 16	675	0.1−	0.6+	1995 12 24	566	0.7+	0.1−	1998 08 19	699	0.2−	0.5−
1995 12 21	566	0.1−	0.2+	1995 12 25	566	0.3+	0.2−	1998 09 17	699	0.4+	0.7−
1995 12 21	566	0.6−	0.0	1995 12 25	566	0.0	0.3−	1998 09 17	699	0.3+	0.2+
1995 12 21	566	0.3−	0.2+	1995 12 25	566	0.1+	0.1+	1998 09 17	699	0.0	0.3+

1996 AR

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	245.04254		(2000.0)		**P**	**Q**	
n	0.26165510	ω	21.30783		−0.31357592	−0.94708536	
a	2.4209356	Ω	87.01869		+0.86098421	−0.31402959	
e	0.1845136	i	3.93620		+0.40047015	−0.06644350	
P	3.77	H	16.0	G	0.15	U	3

Residuals in seconds of arc

1996 01 12	046	0.6+	0.1−	1996 01 17	046	0.3+	0.3+	1996 02 24	046	0.4+	0.1−
1996 01 12	046	0.8+	0.4−	1996 01 17	046	0.2+	0.5+	1996 02 24	046	0.1+	0.1−
1996 01 12	046	0.6+	0.0	1996 01 17	046	0.3+	0.3+	1996 02 25	046	0.1−	0.1+
1996 01 12	046	0.1+	0.1−	1996 01 18	691	1.0−	0.2−	1996 02 25	046	0.2−	0.0
1996 01 12	046	0.3+	0.0	1996 01 18	691	0.7−	0.0	1996 02 25	046	0.1+	0.1+
1996 01 12	691	0.9−	0.1−	1996 01 18	691	0.9−	0.3+	1996 03 19	046	0.3−	0.0
1996 01 12	691	0.8−	0.0	1996 01 25	691	1.0−	0.0	1996 03 19	046	0.3−	0.1+
1996 01 12	691	1.3−	0.1−	1996 01 25	691	1.1−	0.1−	1996 03 19	046	0.2+	0.3−
1996 01 12	046	0.7+	0.3−	1996 01 25	691	1.0−	0.2−	1996 03 20	046	0.2+	0.0
1996 01 12	046	0.5+	0.0	1996 01 31	046	0.9−	0.2+	1996 03 20	046	0.1+	0.3+
1996 01 12	046	0.9+	0.1−	1996 01 31	046	0.1+	0.1−	1996 03 20	046	0.1−	0.6+
1996 01 12	046	0.3+	0.1+	1996 01 31	046	0.4−	0.3−	1998 09 23	046	0.1+	0.3−
1996 01 12	046	0.6+	0.3−	1996 02 01	046	0.3+	0.4−	1998 09 23	046	0.3+	1.0−
1996 01 14	046	0.4+	0.3+	1996 02 01	046	0.4−	0.0	1998 09 23	046	0.9+	0.4−
1996 01 14	046	0.6+	0.4−	1996 02 01	046	0.3−	0.5−	1998 09 24	046	0.8−	0.1+
1996 01 14	046	0.2+	0.2+	1996 02 09	046	1.1+	0.2+	1998 09 24	046	0.4−	0.9+
1996 01 16	046	0.3+	0.4+	1996 02 09	046	0.3+	0.4+	1998 09 24	046	0.3−	1.0+
1996 01 16	046	0.1+	0.0	1996 02 09	046	1.1+	0.2−				
1996 01 16	046	0.1+	0.1+	1996 02 24	046	0.3+	0.2+				

1996 AW = 1951 AA_1 = 1998 QH_{32}

Id. T. Kobayashi

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	248.84053		(2000.0)		**P**	**Q**	
n	0.24115702	ω	341.41923		+0.13988579	−0.98919684	
a	2.5562468	Ω	100.52151		+0.91401867	+0.11197581	
e	0.0840546	i	2.55541		+0.38079107	+0.09460990	
P	4.09	H	15.0	G	0.15	U	3

Residuals in seconds of arc

1951 01 09	012	0.2+	1.5+	1996 01 18	411	0.4−	0.5−	1998 08 23	704	1.2−	0.5−
1995 11 18	327	0.4+	1.5−	1996 01 18	411	0.5+	0.6+	1998 08 23	704	0.6−	0.6−
1995 11 18	327	0.1+	0.9−	1998 08 17	704	0.7+	1.4+	1998 08 23	699	0.2+	0.0
1995 11 18	327	0.5−	1.3−	1998 08 17	704	1.2+	1.0+	1998 08 23	704	(3.4−	0.6−)
1996 01 11	411	0.8−	1.0+	1998 08 17	704	0.1−	0.7−	1998 08 23	699	0.6+	1.4+
1996 01 11	411	0.2+	0.4+	1998 08 17	704	1.7+	0.9−	1998 09 21	699	(3.1−	0.0)
1996 01 13	411	0.8+	0.1+	1998 08 17	704	1.2−	0.5+	1998 09 21	699	(3.0−	2.3−)
1996 01 13	411	0.6−	0.4+	1998 08 23	699	(0.2−	2.4+)	1998 09 21	699	1.7−	0.7−

1996 AX_3

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	104.66526		(2000.0)		**P**	**Q**	
n	0.22731320	ω	265.56291		−0.53022457	+0.84675156	
a	2.6590078	Ω	332.28036		−0.73631605	−0.48518144	
e	0.0737317	i	5.33966		−0.42035769	−0.21819894	
P	4.34	H	13.0	G	0.15	U	4

Residuals in seconds of arc

1995 12 27	691	0.4+	0.1−	1996 01 18	399	0.8+	0.6−	1998 08 27	699	0.3+	1.0+
1995 12 27	691	0.2+	0.0	1996 02 10	399	(4.3+	0.2+)	1998 08 27	699	0.6+	0.1−
1995 12 27	691	0.1+	0.3+	1996 02 10	399	(5.3+	0.4+)	1998 09 15	699	0.0	0.4−
1996 01 13	399	0.5+	0.0	1996 02 12	399	0.6−	0.5+	1998 09 15	699	0.6−	0.0
1996 01 13	399	1.6−	1.2−	1996 02 12	399	(0.9−	2.8+)	1998 09 15	699	0.1+	0.5−
1996 01 18	399	0.3+	1.2+	1998 08 27	699	0.3−	0.0				

1996 AA_6 = 1998 QY_{100}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	316.66614		(2000.0)		**P**	**Q**	
n	0.27610906	ω	20.99325		+0.87528629	−0.48356702	
a	2.3356922	Ω	7.93354		+0.43719638	+0.78586264	
e	0.2132173	i	2.52055		+0.20672019	+0.38546445	
P	3.57	H	16.5	G	0.15	U	5

Residuals in seconds of arc

1996 01 12	691	0.1−	0.0	1996 01 18	691	0.1−	0.3−	1998 08 26	809	0.8+	0.1−
1996 01 12	691	0.2+	0.0	1996 01 25	691	0.0	0.5+	1998 08 26	809	0.5+	1.1−
1996 01 12	691	0.3+	0.2+	1996 01 25	691	0.1+	0.0	1998 08 27	809	1.0−	0.6+
1996 01 18	691	0.3−	0.4−	1996 01 25	691	0.0	0.3+	1998 08 27	809	0.9−	0.2−
1996 01 18	691	0.3−	0.5−	1998 08 26	809	0.4+	0.2+	1998 08 27	809	0.1+	0.6+

1996 BZ

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	208.86788		(2000.0)		**P**	**Q**	
n	0.25754267	ω	26.29391		−0.83924007	−0.53522514	
a	2.4466391	Ω	121.01852		+0.47707866	−0.80944784	
e	0.1376872	i	6.42964		+0.26090621	−0.24151243	
P	3.83	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1996 01 21	540	0.4+	0.2−	1996 01 30	540	(0.6+	2.2−)	1996 04 06	540	0.4−	0.3+
1996 01 21	540	0.2+	0.6−	1996 01 30	540	0.7−	0.1+	1996 04 06	540	0.5+	0.2+
1996 01 21	540	0.2+	0.0	1996 02 06	540	0.2+	1.4+	1998 09 20	540	(3.1+	3.4+)
1996 01 21	540	0.7−	1.4−	1996 02 06	540	(2.1+	0.8+)	1998 09 20	540	(0.7+	2.3+)
1996 01 21	540	0.3+	0.2−	1996 02 06	540	(3.4+	0.4+)	1998 09 20	540	(4.3−	0.6−)
1996 01 22	540	0.5−	0.3−	1996 02 06	540	(3.2+	0.3−)	1998 09 20	540	0.1+	1.1+
1996 01 22	540	0.0	0.3−	1996 02 23	540	1.1+	0.5−	1998 09 23	540	1.3+	0.9−
1996 01 22	540	0.8−	0.1+	1996 02 23	540	0.5+	0.2−	1998 09 23	540	(3.5−	0.1+)
1996 01 23	540	0.6+	0.5+	1996 02 23	540	0.3−	0.1+	1998 09 23	540	0.4−	0.8−
1996 01 23	540	0.4+	0.0	1996 02 23	540	0.5−	0.3−	1998 09 27	704	0.6−	0.3−
1996 01 23	540	0.5+	0.1+	1996 03 08	540	0.2−	0.3−	1998 09 27	704	0.1−	0.4+
1996 01 30	540	(2.8−	1.4+)	1996 03 08	540	0.3−	0.4−	1998 09 27	704	0.0	0.6+
1996 01 30	540	0.1+	1.9+	1996 03 08	540	0.3−	0.4−	1998 09 27	704	0.3−	0.1−
1996 01 30	540	0.4−	0.3+	1996 04 06	540	0.1+	0.2+				

1996 BH_2

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Bowell

M	281.00014		(2000.0)		**P**	**Q**	
n	0.23511948	ω	105.40377		+0.39544812	−0.91389117	
a	2.5998222	Ω	320.89793		+0.77700246	+0.38614357	
e	0.0381470	i	8.36747		+0.48978360	+0.12528398	
P	4.19	H	12.8	G	0.15	U	4

Residuals in seconds of arc

1996 01 24	887	0.2+	0.3−	1996 02 01	887	0.1−	0.2−	1996 04 12	385	0.1−	0.1−
1996 01 24	887	0.1−	0.4−	1996 02 01	887	0.1−	0.2−	1996 04 13	385	0.2+	0.3+
1996 01 24	887	0.0	0.2−	1996 02 09	887	0.0	0.9+	1996 04 13	385	0.0	0.5−
1996 01 24	887	0.3−	0.1+	1996 02 09	887	1.2−	0.3+	1996 04 13	385	0.4+	0.3+
1996 01 26	887	0.1+	0.1+	1996 02 09	887	0.1−	0.4+	1998 08 27	699	0.1+	0.4+
1996 01 26	887	0.2+	0.3−	1996 02 21	887	0.1+	0.4+	1998 08 27	699	0.3+	0.7+
1996 01 26	887	0.2−	0.1+	1996 02 21	887	0.3−	0.0	1998 08 27	699	0.3−	0.8+
1996 01 30	887	0.5+	0.3−	1996 02 21	887	0.6−	0.1+	1998 09 18	699	0.0	0.3−
1996 01 30	887	0.8+	0.2−	1996 02 21	887	0.2−	0.1−	1998 09 18	699	0.3−	0.8−
1996 01 30	887	0.6+	0.4−	1996 04 12	385	0.2+	0.1−	1998 09 18	699	0.0	0.2−
1996 02 01	887	0.2+	0.0	1996 04 12	385	0.2+	0.6+				

1996 BM_{17}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	247.08199		(2000.0)		**P**	**Q**	
n	0.24607189	ω	49.94827		−0.06345601	−0.99621344	
a	2.5220947	Ω	43.80228		+0.88750146	−0.08356600	
e	0.1319417	i	4.92562		+0.45641483	+0.02398963	
P	4.01	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1996 01 25	704	0.2+	0.3+	1996 03 21	704	0.5+	0.4−	1998 09 12	426	0.4+	0.3−
1996 01 25	704	0.1−	0.3+	1996 03 21	704	0.5−	0.5−	1998 09 14	704	0.5−	0.8+
1996 01 25	704	(2.6−	1.3+)	1996 04 18	704	0.3+	1.0+	1998 09 14	704	0.7−	1.3+
1996 01 25	704	0.3−	1.0+	1996 04 19	704	0.3−	0.5+	1998 09 14	704	0.8−	0.3+
1996 01 26	704	0.0	0.3−	1996 04 19	704	0.4+	0.2+	1998 09 14	704	0.6−	1.3−
1996 01 26	704	0.1−	0.5−	1996 04 19	704	0.0	0.8+	1998 09 18	704	1.6−	0.6+
1996 01 26	704	0.3−	0.2−	1996 04 19	704	0.2+	0.1+	1998 09 18	704	0.1−	0.2−
1996 03 20	704	0.4+	0.3−	1996 04 19	704	0.3−	0.5+	1998 09 18	704	0.5+	1.2+
1996 03 20	704	0.0	0.7−	1998 09 01	426	0.3+	0.9−	1998 09 18	704	1.6+	0.8−
1996 03 20	704	0.1−	0.2−	1998 09 01	426	0.7+	1.0−	1998 09 18	704	0.6−	1.4+
1996 03 21	704	0.3+	0.6−	1998 09 12	426	1.0+	0.7−				
1996 03 21	704	0.2+	0.6−	1998 09 12	426	0.4+	0.2−				

1996 CO_2 = 1998 RZ_{16}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	21.51454		(2000.0)		**P**	**Q**	
n	0.19002040	ω	164.91734		+0.39738274	+0.90564923	
a	2.9964192	Ω	128.26901		−0.86023141	+0.42377711	
e	0.0642931	i	10.86133		−0.31951351	−0.01457529	
P	5.19	H	12.5	G	0.15	U	5

Residuals in seconds of arc

1996 02 12	411	0.2+	0.0	1996 02 23	411	0.2−	0.2−	1998 09 18	704	1.2+	0.7−
1996 02 12	411	1.2−	0.5+	1996 02 23	411	0.1+	0.3+	1998 09 18	704	0.2+	1.8−
1996 02 13	411	0.4−	0.6+	1998 09 14	704	0.4−	1.1+	1998 09 18	704	1.6−	1.1+
1996 02 13	411	0.9+	0.5−	1998 09 14	704	0.0	0.9+	1998 09 18	704	1.3−	0.4−
1996 02 15	411	0.2−	0.0	1998 09 14	704	0.5+	0.1+	1998 09 24	699	0.3−	0.7+
1996 02 18	411	0.1−	0.8−	1998 09 14	704	0.4+	0.2−	1998 09 24	699	0.4+	0.1+
1996 02 18	411	0.4+	0.2+	1998 09 14	704	0.6+	0.6−	1998 09 24	699	0.8−	0.0
1996 02 18	411	0.5+	0.2−	1998 09 18	704	1.1+	0.4−				

1996 CX_8 = 1998 RL_1

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	329.92628		(2000.0)		**P**	**Q**	
n	0.23540410	ω	12.01104		+0.92516149	−0.37896318	
a	2.5977261	Ω	10.33689		+0.33757055	+0.79553651	
e	0.0459586	i	6.88833		+0.17355790	+0.47276692	
P	4.19	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1996 02 14	098	0.4+	1.3−	1996 03 20	098	0.3+	0.4−	1998 09 19	108	0.0	0.5+
1996 02 14	098	0.1−	0.3−	1996 03 20	098	1.5−	0.2+	1998 09 20	691	0.5−	0.5−
1996 02 15	098	1.0+	0.2+	1998 09 15	684	0.7+	0.2−	1998 09 20	691	1.4−	0.5−
1996 02 15	098	(2.5+	0.5+)	1998 09 15	684	0.8+	0.2−	1998 09 20	691	0.3−	0.5−
1996 02 18	691	0.3−	0.9+	1998 09 15	699	0.5+	0.4−	1998 09 21	691	0.6−	0.2−
1996 02 18	691	1.0−	0.6+	1998 09 15	699	1.1+	0.1+	1998 09 21	691	0.5−	0.3−
1996 02 18	691	0.9−	0.7+	1998 09 15	699	1.4+	0.3+	1998 09 21	691	0.6−	0.5−
1996 02 24	098	1.4+	0.2−	1998 09 16	684	0.8+	0.0	1998 09 23	691	0.8−	0.0
1996 02 24	098	0.8−	0.7−	1998 09 16	684	0.8+	0.0	1998 09 23	691	1.0−	0.3−
1996 03 14	098	0.6+	0.3+	1998 09 19	108	0.7+	1.6+	1998 09 23	691	0.8−	0.2−
1996 03 14	098	0.9+	0.1−	1998 09 19	108	0.1−	1.0+				

1996 DT = 1998 QJ_{101}

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	98.71573		(2000.0)		**P**		**Q**
n	0.18973123	ω	83.30721		−0.56335462		+0.82160942
a	2.9994629	Ω	151.84412		−0.81207168		−0.53119765
e	0.0490340	i	10.63909		−0.15222074		−0.20685023
P	5.19	H	13.0	G	0.15	U	4

Residuals in seconds of arc

1996 02 19	411	0.5−	0.2−	1998 08 26	809	1.2+	0.6+	1998 09 14	704	1.6−	1.0−
1996 02 19	411	0.2−	0.2−	1998 08 26	809	0.5+	0.1−	1998 09 14	704	0.7−	1.3−
1996 02 21	411	1.8−	0.3+	1998 08 26	809	1.0+	1.5+	1998 09 14	704	0.1−	1.1−
1996 02 21	411	1.2−	1.3+	1998 08 27	809	0.2+	0.5+	1998 09 18	704	0.7−	0.7+
1996 02 27	411	0.4+	0.9+	1998 08 27	809	0.9+	0.7+	1998 09 18	704	0.9−	0.5+
1996 02 27	411	0.7−	0.4+	1998 08 27	809	1.4+	0.6+	1998 09 18	704	0.8+	0.8+
1996 03 09	411	1.2+	0.4−	1998 09 13	699	(2.7−	0.5+)	1998 09 18	704	0.9−	0.3−
1996 03 09	411	0.4+	1.2−	1998 09 13	699	0.6−	0.1−	1998 09 18	704	0.3+	0.3+
1996 03 22	411	1.6+	0.4−	1998 09 13	699	0.2−	0.9−				
1996 03 22	411	1.2+	0.7+	1998 09 14	704	0.6−	0.2−				

1996 DL$_1$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	226.61730		(2000.0)		**P**		**Q**
n	0.24429033	ω	167.70795		−0.57664119		−0.81516839
a	2.5343418	Ω	317.47367		+0.74256871		−0.49504645
e	0.1555210	i	4.63660		+0.34070022		−0.30071501
P	4.03	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1996 02 16	010	1.4−	1.0+	1996 02 27	046	0.8+	0.4+	1998 09 01	046	0.4+	0.5−
1996 02 16	010	1.2−	0.0	1996 02 27	046	0.1+	0.2+	1998 09 01	046	0.6+	0.7−
1996 02 16	010	0.4−	0.4+	1996 02 28	046	0.7+	0.1+	1998 09 01	046	0.4+	1.0−
1996 02 16	691	0.8−	0.3−	1996 02 28	046	0.8+	0.2+	1998 09 14	704	0.7+	0.3−
1996 02 16	691	0.8−	0.5−	1996 02 28	046	0.4+	1.2+	1998 09 14	704	1.1+	1.2+
1996 02 16	691	0.8−	0.4−	1996 03 10	046	0.5+	0.0	1998 09 14	704	0.5−	0.5+
1996 02 17	010	1.3−	1.4+	1996 03 10	046	1.0+	0.8−	1998 09 14	704	(2.4−	0.3−)
1996 02 17	010	0.2−	0.5+	1996 03 10	046	0.2−	1.1+	1998 09 18	704	0.2+	0.4+
1996 02 17	010	1.4−	0.9+	1996 03 19	046	0.3+	0.5+	1998 09 18	704	0.1+	0.1−
1996 02 22	046	0.3+	0.4−	1996 03 19	046	0.1+	0.1+	1998 09 18	704	(0.1+	3.0−)
1996 02 22	046	0.0	0.4−	1996 03 19	046	0.5+	0.0	1998 09 18	704	(2.5−	2.2−)
1996 02 22	046	0.2+	0.8−	1996 03 27	046	0.2−	0.5−	1998 09 23	046	1.3−	0.6−
1996 02 24	046	0.5+	0.9−	1996 03 27	046	0.1−	0.5+	1998 09 23	046	0.5−	0.7−
1996 02 24	046	0.1+	0.6−	1996 03 27	046	1.2+	0.1+	1998 09 23	046	1.0−	0.4−
1996 02 24	046	0.6+	0.5−	1996 04 06	046	0.2−	0.9−	1998 09 23	046	0.5−	0.5−
1996 02 24	046	0.3+	0.7−	1996 04 06	046	0.4−	0.5−	1998 09 24	046	0.1+	0.2+
1996 02 25	046	0.7+	0.8−	1996 04 06	046	0.5+	0.1−	1998 09 24	046	0.2+	0.0
1996 02 25	046	0.7+	0.4−	1996 04 07	046	1.1−	1.1+	1998 09 24	046	0.2−	0.1−
1996 02 25	046	0.5+	0.3−	1996 04 07	046	1.1−	0.8+	1998 09 25	046	0.3−	0.6+
1996 02 26	046	0.3+	0.0	1996 04 18	046	0.0	0.5−	1998 09 25	046	0.1+	1.0+
1996 02 26	046	0.1+	0.2+	1996 04 18	046	0.2−	0.7−	1998 09 25	046	0.2+	0.3+
1996 02 26	046	0.1+	0.2+	1996 04 18	046	0.3−	0.6−	1998 09 25	046	0.1−	0.4+
1996 02 27	046	0.2+	0.1−	1998 08 31	046	0.6+	0.4−				

1996 EL$_1$

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	258.60349		(2000.0)		**P**		**Q**
n	0.23716706	ω	119.65127		−0.19099393		−0.97873331
a	2.5848369	Ω	340.91932		+0.80274206		−0.11185524
e	0.1502617	i	13.23630		+0.56491283		−0.17195789
P	4.16	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1996 03 10	400	1.5−	0.5−	1998 08 02	699	0.9+	0.2−	1998 09 16	699	0.0	0.5+
1996 03 10	400	(3.0+	0.0)	1998 08 02	699	1.9+	0.2−	1998 09 16	699	0.3−	0.4+
1996 03 13	400	0.7+	0.1−	1998 08 02	699	0.0	0.3−	1998 09 16	699	0.1−	0.3+
1996 03 13	400	0.2+	1.0−	1998 09 14	704	0.1+	0.3−	1998 09 18	704	0.2−	0.1−
1996 03 20	400	0.5−	0.0	1998 09 14	704	0.3−	0.2+	1998 09 18	704	0.4+	0.9−
1996 03 20	400	0.6−	0.1−	1998 09 14	704	0.6−	0.8+	1998 09 18	704	0.3+	0.7−
1996 04 12	400	0.7+	0.2+	1998 09 14	704	0.2+	0.2+	1998 09 18	704	0.1−	0.8−
1996 04 12	400	0.7+	0.8+	1998 09 14	704	0.3−	0.7+	1998 09 18	704	0.6−	0.6−

1996 ES$_1$ = 1998 SY$_{26}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	83.90263		(2000.0)		**P**		**Q**
n	0.17198098	ω	83.00634		−0.19895877		+0.97999855
a	3.2024506	Ω	175.51082		−0.91931012		−0.18512431
e	0.1854084	i	3.12812		−0.33953542		−0.07301934
P	5.73	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1996 03 15	566	0.2+	0.5+	1996 03 19	566	0.3+	0.3−	1996 04 17	566	1.0−	0.9−
1996 03 15	566	0.1−	0.6+	1996 03 19	566	0.2−	0.3−	1998 09 17	327	0.5−	0.1−
1996 03 15	566	0.0	0.2+	1996 03 19	566	0.2+	0.5−	1998 09 17	327	0.6−	0.5+
1996 03 18	566	0.1+	0.6−	1996 03 20	098	0.7−	0.4+	1998 09 17	327	0.7−	0.2−
1996 03 18	566	0.0	0.2+	1996 03 20	098	0.6−	0.6−	1998 09 23	327	0.6+	0.1−
1996 03 18	566	0.4+	0.2−	1996 04 16	098	0.4+	0.3+	1998 09 23	327	0.9+	0.0
1996 03 18	566	0.3+	0.6+	1996 04 16	098	0.0	0.8+	1998 09 23	327	0.2+	0.1−
1996 03 18	566	0.5+	0.2−	1996 04 17	566	0.1−	0.6−				
1996 03 18	566	0.2−	0.1+	1996 04 17	566	0.4+	0.5+				

1996 EY$_5$ = 1986 XM$_5$

Id. E. Bowell (1998 observations), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	295.66405		(2000.0)		**P**		**Q**
n	0.23774741	ω	40.07938		+0.49091068		−0.87110308
a	2.5806287	Ω	20.53140		+0.78902642		+0.43790764
e	0.1579880	i	2.22938		+0.36938328		+0.22229785
P	4.15	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1986 12 07	046	1.5−	0.9−	1996 03 18	691	0.4+	0.0	1998 09 16	699	0.2+	0.6+
1986 12 07	046	1.5+	1.0+	1996 03 18	691	0.3+	0.0	1998 09 16	699	0.4+	0.7−
1996 03 11	691	0.1+	0.0	1996 03 26	691	0.5−	0.1−	1998 09 25	699	0.5+	0.1+
1996 03 11	691	0.1−	0.1+	1996 03 26	691	0.1+	0.2−	1998 09 25	699	0.9−	0.3−
1996 03 11	691	0.0	0.0	1996 03 26	691	0.4−	0.1−	1998 09 25	699	0.3−	0.6−
1996 03 18	691	0.0	0.0	1998 09 16	699	0.4+	0.7+				

1996 GP$_1$ = 1998 SV$_{33}$

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	272.15689		(2000.0)		**P**		**Q**
n	0.22750283	ω	73.09215		+0.24084977		−0.97033383
a	2.6575301	Ω	3.20379		+0.68330485		+0.15411369
e	0.0444662	i	22.14030		+0.68926473		+0.18628264
P	4.33	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1996 04 08	327	0.1+	0.2−	1996 04 13	327	0.3+	0.1+	1998 09 25	699	0.4+	0.4+
1996 04 08	327	0.1−	0.1−	1996 04 18	327	0.2−	0.1−	1998 09 26	704	0.0	0.2−
1996 04 08	327	0.0	0.2+	1996 04 18	327	0.2+	0.6+	1998 09 26	704	0.1−	0.1−
1996 04 09	327	0.2+	0.1−	1996 04 18	327	0.2−	0.3+	1998 09 26	704	0.8−	0.6+
1996 04 09	327	0.2−	0.4+	1996 04 20	327	0.2+	0.4−	1998 09 26	704	0.5+	0.3−
1996 04 09	327	0.1−	0.1−	1996 04 20	327	0.1+	0.2−	1998 09 26	704	0.3−	0.4−
1996 04 11	327	0.4−	0.5−	1996 04 20	327	0.3+	0.3−	1998 09 27	704	0.0	0.7−
1996 04 11	327	0.2+	0.2+	1998 09 16	699	0.0	0.4−	1998 09 27	704	0.4+	0.1+
1996 04 11	327	0.7−	0.0	1998 09 16	699	0.2−	0.7−	1998 09 27	704	0.0	0.1+
1996 04 13	327	0.1+	0.4+	1998 09 16	699	0.7−	0.3+	1998 09 27	704	0.2+	0.7+
1996 04 13	327	0.2+	0.0	1998 09 25	699	0.5+	0.3+	1998 09 27	704	0.5−	0.3−
1996 04 13	327	0.1−	0.3−	1998 09 25	699	0.6+	0.5+				

1996 HE$_1$ = 1998 SY$_{27}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	162.35603		(2000.0)	**P**		**Q**	
n	0.17097014	ω	126.84952	−0.96151891		+0.05292657	
a	3.2150609	Ω	57.70455	−0.19484995		−0.82315172	
e	0.1269843	i	18.59821	+0.19368758		−0.56534947	
P	5.76	H	13.0	G	0.15	U	4

Residuals in seconds of arc

1996 04 21	367	0.4+	0.3−	1996 05 12	367	1.6−	0.2+	1998 09 25	683	0.2+	0.2+
1996 04 21	367	0.5+	0.2−	1996 05 12	367	1.5−	0.4−	1998 09 25	683	0.2−	0.1+
1996 04 21	367	0.7+	0.0	1996 06 05	367	1.5−	0.6−	1998 09 26	683	0.0	0.0
1996 04 22	367	0.1+	0.0	1996 06 05	367	1.3−	0.1+	1998 09 26	683	0.2+	0.2+
1996 04 22	367	0.3+	0.5−	1996 06 08	809	1.2+	1.2+	1998 09 26	683	0.2+	0.0
1996 04 22	900	0.2−	0.1−	1996 06 08	809	1.0+	1.2+	1998 10 02	683	0.2−	0.7−
1996 04 22	900	0.5+	0.6+	1996 06 08	809	1.2+	1.3+	1998 10 02	683	0.1−	0.2−
1996 04 26	367	0.3−	0.2+	1996 06 10	809	1.5+	1.3−	1998 10 02	683	0.3+	0.9−
1996 04 26	367	0.1+	0.0	1996 06 10	809	1.0+	1.1−	1998 10 03	683	0.2−	0.5+
1996 05 09	897	1.3−	0.1−	1996 06 10	809	0.9+	0.7−	1998 10 03	683	0.1+	0.4+
1996 05 09	897	1.3−	0.1+	1998 09 25	683	0.1+	0.1−	1998 10 03	683	0.3−	0.1+

1996 HR$_{10}$ = 1976 YC$_7$ = 1998 SS$_{46}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	346.82698		(2000.0)	**P**		**Q**	
n	0.17628253	ω	343.38907	+0.92556065		−0.37856733	
a	3.1501401	Ω	38.85705	+0.34824469		+0.84617695	
e	0.2180010	i	0.44979	+0.14853657		+0.37506178	
P	5.59	H	13.0	G	0.15	U	4

Residuals in seconds of arc

1976 12 20	095	0.2−	1.2+	1996 05 19	809	0.5+	0.6+	1998 09 25	691	0.3−	0.2+
1996 04 17	809	0.8−	1.2+	1996 05 19	809	0.1+	0.2−	1998 09 25	691	0.1−	0.3+
1996 04 17	809	0.6+	0.7+	1996 05 19	809	0.5−	0.5−	1998 09 30	691	0.1−	0.7+
1996 04 17	809	0.6+	0.8+	1996 05 22	809	0.5+	0.5+	1998 09 30	691	0.1−	0.6+
1996 04 18	809	0.2−	1.0+	1996 05 22	809	0.4−	0.0	1998 09 30	691	0.1−	0.7+
1996 04 18	809	0.4+	0.0	1996 05 22	809	0.2+	0.3+				
1996 04 18	809	0.3+	0.2−	1998 09 25	691	0.3−	0.3+				

1996 HT$_{16}$ = 1998 SJ$_{49}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	346.69387		(2000.0)	**P**		**Q**	
n	0.19661859	ω	211.33748	+0.83727684		−0.54677837	
a	2.9290020	Ω	181.80963	+0.50766597		+0.77802599	
e	0.0549379	i	1.72029	+0.20308312		+0.30936867	
P	5.01	H	14.0	G	0.15	U	6

Residuals in seconds of arc

1996 04 18	809	1.1+	2.0+	1996 05 19	809	0.2−	0.8−	1996 05 22	809	0.6+	1.6−
1996 04 18	809	1.0+	1.3+	1996 05 19	809	0.5−	0.6−	1998 09 29	910	0.2−	0.1−
1996 04 18	809	0.1+	1.9+	1996 05 19	809	0.2+	1.9+	1998 09 29	910	0.6−	0.1−
1996 04 20	809	0.3−	1.6−	1996 05 19	809	1.2−	2.7+	1998 09 29	910	0.4−	0.2−
1996 04 20	809	0.7−	2.1−	1996 05 19	809	1.1−	2.1+	1998 10 02	910	0.5+	0.6+
1996 04 20	809	0.9−	0.9−	1996 05 22	809	1.8+	2.8−	1998 10 02	910	0.3+	0.5+
1996 05 19	809	1.4−	0.2+	1996 05 22	809	1.7+	1.0−	1998 10 02	910	0.2+	0.4+

1996 HV$_{19}$ = 1976 YT$_4$ = 1998 QE$_{48}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	277.36803		(2000.0)	**P**		**Q**	
n	0.17207865	ω	218.55362	+0.23698176		−0.96864664	
a	3.2012386	Ω	217.90490	+0.91873792		+0.24840680	
e	0.1201909	i	6.97341	+0.31584852		+0.00421353	
P	5.73	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1976 12 18	095	0.2+	2.1−	1996 05 22	809	0.4−	0.2−	1998 08 17	704	0.8+	2.1−
1996 04 18	809	0.8+	0.3−	1996 05 22	809	0.9−	1.5−	1998 08 17	704	0.6−	1.6+
1996 04 18	809	0.1−	0.2−	1996 05 23	809	0.3+	0.8+	1998 08 23	704	0.3+	1.6+
1996 04 18	809	0.2−	0.7−	1996 05 23	809	0.2+	1.0+	1998 08 23	704	0.4−	0.3−
1996 04 20	809	0.3+	0.7−	1996 05 23	809	0.5−	1.0+	1998 08 23	704	(1.4+	2.3+)
1996 04 20	809	1.0−	0.3−	1998 08 17	704	0.7+	0.5+	1998 08 23	704	1.3−	0.5+
1996 04 20	809	0.2+	0.9−	1998 08 17	704	(2.7+	0.7−)	1998 08 23	704	0.1+	1.6−
1996 05 22	809	0.8+	0.6−	1998 08 17	704	0.7+	1.4−				

1996 RQ$_{16}$ = 1998 DO$_4$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	189.14813		(2000.0)	**P**		**Q**	
n	0.27874123	ω	170.39579	+0.97271254		+0.23188407	
a	2.3209649	Ω	176.16998	−0.21982742		+0.93179314	
e	0.2047308	i	6.66408	−0.07420388		+0.27926927	
P	3.54	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1996 09 12	894	1.0+	0.5+	1996 09 17	894	(3.1−	0.6−)	1998 02 22	566	0.4+	0.4−
1996 09 12	894	(2.0+	1.4+)	1996 09 17	894	0.2+	0.4−	1998 02 22	566	0.3+	0.5−
1996 09 13	691	0.4−	0.2−	1996 10 06	809	(3.0+	3.4+)	1998 02 22	566	0.1−	0.2−
1996 09 13	691	0.3−	0.1−	1996 10 06	809	(3.5+	3.1+)	1998 02 23	566	0.4−	0.5+
1996 09 13	691	0.1−	0.0	1996 10 06	809	(3.2+	3.1+)	1998 02 23	566	0.1−	0.4+
1996 09 15	691	0.2−	0.1−	1996 10 07	809	0.3+	0.5+	1998 02 23	566	0.1−	0.1+
1996 09 15	691	0.1−	0.2+	1996 10 07	809	0.0	0.5−				
1996 09 15	691	0.1−	0.2−	1996 10 07	809	0.2−	0.3+				

1996 SW$_7$ = 1998 BH$_{46}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	216.15368		(2000.0)	**P**		**Q**	
n	0.26165515	ω	127.95660	+0.68226376		+0.73104293	
a	2.4209353	Ω	185.09644	−0.70013130		+0.64951541	
e	0.1106415	i	6.21193	−0.21055240		+0.20905972	
P	3.77	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1996 09 18	327	0.0	0.3+	1996 09 21	327	0.2+	0.1−	1998 01 26	691	0.0	0.0
1996 09 18	327	0.3−	0.2−	1996 09 23	327	0.3−	0.0	1998 01 26	691	0.3−	0.3−
1996 09 18	327	0.0	0.1+	1996 09 23	327	0.1−	0.0	1998 01 26	691	0.4−	0.1−
1996 09 21	327	0.6+	0.1+	1996 09 23	327	0.3−	0.3−	1998 01 28	691	0.2+	0.1+
1996 09 21	327	0.2+	0.2−	1996 09 23	327	0.0	0.3+	1998 01 28	691	0.5+	0.3+

1996 TR$_6$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	12.00299		(2000.0)	**P**		**Q**	
n	0.49389569	ω	117.57617	+0.67606028		+0.72914542	
a	1.5850607	Ω	196.40718	−0.73549889		+0.67648779	
e	0.1804703	i	22.09626	+0.04454090		+0.10349505	
P	2.00	H	18.5	G	0.15	U	4

Residuals in seconds of arc

1996 10 09	691	0.1−	0.4−	1996 10 13	046	0.7+	0.3−	1996 11 12	599	(1.1+	3.3+)
1996 10 09	691	0.3−	0.3−	1996 10 13	046	0.7+	0.6+	1996 11 12	599	0.1−	1.0+
1996 10 09	691	0.3−	0.5−	1996 10 14	673	(2.4+	0.5−)	1996 11 17	711	1.5+	0.4−
1996 10 10	691	1.2−	0.3−	1996 10 14	673	1.7+	0.6−	1996 11 17	711	1.3+	0.4−
1996 10 10	691	1.1−	0.1−	1996 10 15	046	1.3+	0.4−	1996 11 18	711	1.0+	0.8−
1996 10 10	691	1.0−	0.2−	1996 10 15	046	0.7+	0.7−	1996 11 18	711	1.3+	0.7−
1996 10 11	691	1.6−	0.3−	1996 10 20	422	0.5−	0.9−	1996 12 05	711	0.2−	0.2−
1996 10 11	691	1.0−	0.3+	1996 10 20	422	0.5+	0.2−	1996 12 05	711	0.0	0.0
1996 10 11	691	1.4−	0.3−	1996 10 31	118	0.2−	0.3−	1996 12 06	711	0.6+	0.0
1996 10 11	691	0.4−	0.2+	1996 10 31	118	0.1+	0.3+	1996 12 06	711	0.0	0.2−
1996 10 11	691	0.3−	0.2−	1996 11 01	118	0.1−	0.2−	1998 09 25	046	0.4+	0.4−
1996 10 11	691	0.5−	0.0	1996 11 01	413	0.7−	0.3+	1998 09 25	046	1.2−	0.4+
1996 10 11	557	1.4+	0.4+	1996 11 01	413	0.2−	0.5+	1998 09 25	046	0.6+	0.5−

1996 10 11	557	0.6+	1.2+	1996 11 02	413	0.5−	0.0	1998 09 25	046	0.9−	0.8+
1996 10 11	557	1.2+	1.1+	1996 11 02	413	0.5−	0.1+	1998 09 26	046	0.2−	0.7−
1996 10 11	557	1.5+	0.3−	1996 11 04	557	0.6−	0.8+	1998 09 26	046	1.1+	0.3+
1996 10 11	046	1.4+	0.1+	1996 11 04	557	0.3−	0.8−	1998 09 26	046	0.3+	0.1+
1996 10 13	046	1.0+	0.4−	1996 11 07	691	1.7−	0.5+	1998 09 26	046	0.1−	0.3+
1996 10 13	046	0.1−	0.2−	1996 11 07	691	1.7−	1.0+				
1996 10 13	046	0.2+	0.8+	1996 11 07	691	1.7−	0.7+				

1996 TQ$_{10}$ = 1982 BM$_{15}$ = 1990 OV$_3$ = 1993 BM$_{13}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	144.43579		(2000.0)		**P**	**Q**	
n	0.17977947	ω	207.23729		+0.93244630	+0.33688348	
a	3.1091570	Ω	132.44419		−0.29084093	+0.91429188	
e	0.0773648	i	10.19303		−0.21437221	+0.22489973	
P	5.48	H	13.5	G	0.15	U	2

Residuals in seconds of arc

1982 01 30	675	0.2−	1.2−	1993 01 22	809	1.5+	0.5−	1996 10 09	399	0.2−	0.3+
1982 01 31	675	0.0	0.8−	1993 01 22	809	0.5+	0.6+	1996 10 09	399	0.1−	0.8+
1990 07 27	675	0.7+	0.2−	1993 01 22	809	0.6+	0.0	1996 10 10	399	0.5+	0.3−
1990 07 27	675	0.0	0.7−	1993 01 28	809	0.7−	0.6+	1996 10 10	399	0.5+	0.3+
1990 07 30	675	1.4−	0.0	1993 01 28	809	1.2−	0.2+	1996 10 16	399	0.1+	0.4−
1990 07 30	675	0.8+	0.6−	1993 01 28	809	0.7−	0.2−	1996 10 16	399	0.9−	0.5−

1996 TH$_{52}$ = 1973 SP

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	355.21472		(2000.0)		**P**	**Q**	
n	0.08381478	ω	52.66825		+0.54497019	−0.83836877	
a	5.1711717	Ω	4.36134		+0.71039499	+0.45405111	
e	0.0562129	i	9.12003		+0.44536102	+0.30162127	
P	11.76	H	13.0	G	0.15	U	5

Residuals in seconds of arc

1973 09 19	675	1.5+	1.1−	1973 09 30	675	0.9−	0.2+	1996 09 22	809	0.3+	1.0+
1973 09 19	675	0.9−	1.1+	1973 10 04	675	0.0	0.5−	1996 09 22	809	0.3+	1.1+
1973 09 20	675	0.9−	0.6+	1973 10 04	675	0.4−	0.1−	1996 10 05	809	0.0	0.7−
1973 09 24	675	0.6−	0.6+	1973 10 05	675	0.7+	1.1−	1996 10 05	809	0.0	0.1+
1973 09 24	675	0.5+	1.2+	1973 10 05	675	0.8+	0.5+	1996 10 05	809	0.7−	0.6−
1973 09 25	675	0.9+	1.2−	1996 09 14	809	0.3−	0.7−	1996 10 06	809	0.2+	0.2−
1973 09 25	675	1.2−	1.1+	1996 09 15	809	0.1+	0.1+	1996 10 06	809	0.0	0.6−
1973 09 29	675	1.6+	0.8−	1996 09 15	809	0.3+	0.2+	1996 10 06	809	0.7−	0.4−
1973 09 29	675	0.8−	1.0+	1996 09 16	809	0.4+	0.2+				
1973 09 30	675	0.7−	1.4−	1996 09 16	809	0.4+	0.4+				

1996 XM$_5$ = 1998 MX$_{25}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	46.86402		(2000.0)		**P**	**Q**	
n	0.28951400	ω	290.92919		−0.71618575	+0.69510355	
a	2.2630267	Ω	293.16691		−0.61239563	−0.66887309	
e	0.1090609	i	3.89947		−0.33473805	−0.26351441	
P	3.40	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1996 12 07	411	0.3−	0.3−	1996 12 14	411	0.8−	0.7+	1998 06 24	704	1.0+	0.3−
1996 12 07	411	0.3+	0.1+	1996 12 28	411	0.3+	0.1−	1998 06 26	704	0.3−	0.5+
1996 12 08	411	0.4−	0.3+	1996 12 28	411	0.3−	0.1+	1998 06 26	704	0.5−	1.0−
1996 12 08	411	0.4+	0.0	1998 06 24	704	(2.8−	2.7+)	1998 06 26	704	0.2−	0.6+
1996 12 14	411	0.9+	1.0−	1998 06 24	704	0.0	0.2+				

1997 AK$_{22}$ = 1998 ML$_{46}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	24.04252		(2000.0)		**P**	**Q**	
n	0.21719210	ω	109.58452		−0.62952317	+0.74963598	
a	2.7409853	Ω	119.68648		−0.77140392	−0.57155425	
e	0.1754546	i	13.60273		−0.09293320	−0.33372390	
P	4.54	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1997 01 13	566	0.1+	0.3+	1997 01 15	599	0.5+	0.4+	1998 06 25	704	0.1−	0.1+
1997 01 13	566	0.9+	0.0	1997 01 15	599	0.0	0.4+	1998 06 25	704	0.2−	0.1−
1997 01 13	566	0.4−	0.4+	1997 01 16	599	0.4−	0.2−	1998 06 25	704	0.9+	0.4−
1997 01 14	599	1.1−	0.6−	1997 01 16	599	0.1+	0.5−	1998 06 27	699	0.1−	0.2+
1997 01 14	599	0.1+	0.4−	1997 02 03	566	0.1+	0.1+	1998 06 27	699	0.5−	0.2+
1997 01 14	910	0.0	0.1−	1997 02 03	566	0.1+	0.1+	1998 06 27	699	0.5+	0.0
1997 01 14	910	0.0	0.2+	1997 02 03	566	0.2−	0.1−				
1997 01 14	910	0.1+	0.0	1998 06 25	704	0.4−	0.0				

1997 CG$_6$ = 1954 JE

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	131.71015		(2000.0)		**P**	**Q**	
n	0.29810407	ω	146.69399		−0.91999135	+0.37425428	
a	2.2193414	Ω	55.71043		−0.38329538	−0.79708090	
e	0.1216188	i	8.09931		−0.08185698	−0.47391536	
P	3.31	H	13.5	G	0.15	U	3

Residuals in seconds of arc

1954 05 06	760	(1.4−	3.0−)	1997 02 20	327	0.0	0.1−	1998 09 12	426	0.0	0.3−
1954 05 06	760	0.4−	0.7−	1997 02 20	327	0.4−	0.4+	1998 09 12	426	0.4−	0.0
1997 02 02	327	0.1−	0.0	1997 04 15	689	1.1−	0.1+	1998 09 12	426	0.2−	0.5−
1997 02 02	327	0.4+	0.1+	1997 04 15	689	1.4+	0.1+	1998 09 17	699	0.6−	0.3+
1997 02 02	327	0.8+	0.1+	1997 04 15	689	0.0	0.1+	1998 09 17	699	0.5−	0.0
1997 02 04	327	0.6+	0.0	1997 04 16	689	0.2−	0.2+	1998 09 17	699	0.6−	0.1−
1997 02 04	327	0.2+	0.1−	1997 04 16	689	0.2−	0.2+	1998 09 24	699	0.2+	1.1+
1997 02 04	327	0.1+	0.0	1997 04 16	689	0.1−	0.6+	1998 09 24	699	0.1−	1.1+
1997 02 19	327	0.4+	0.1−	1997 04 16	689	0.2−	0.5+	1998 09 24	699	0.2+	2.0+
1997 02 19	327	0.3+	0.4−	1998 09 01	426	0.1−	0.3−	1998 09 28	910	0.5+	0.1−
1997 02 19	327	0.4+	0.2+	1998 09 01	426	0.0	0.5−	1998 09 28	910	0.5+	0.3−
1997 02 20	327	0.0	0.7+	1998 09 01	426	0.4−	0.3−	1998 09 28	910	0.5+	0.3−

1997 CT$_{16}$ = 1991 LU$_6$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	61.67239		(2000.0)		**P**	**Q**	
n	0.30468105	ω	135.47025		−0.09669499	+0.99335585	
a	2.1872869	Ω	128.87972		−0.93408664	−0.06891736	
e	0.1671823	i	4.59791		−0.34370370	−0.09216587	
P	3.23	H	15.5	G	0.15	U	2

Residuals in seconds of arc

1991 06 06	809	0.0	0.2+	1997 02 10	596	0.8+	0.2+	1997 05 01	589	0.1+	0.7+
1991 06 06	809	0.3+	0.6−	1997 02 10	596	1.2−	0.5+	1997 05 01	589	0.6−	0.3+
1991 06 06	809	0.4−	0.2−	1997 02 27	596	0.7+	1.8−	1998 09 17	699	1.1−	0.7+
1997 02 09	596	0.6−	0.5+	1997 02 27	596	0.6+	0.9−	1998 09 17	699	0.3−	0.0
1997 02 09	596	0.1−	1.5−	1997 02 27	596	0.2+	0.6+	1998 09 17	699	0.5−	0.2+
1997 02 09	596	0.6−	0.5−	1997 03 07	596	0.3+	1.4+	1998 09 20	596	1.6+	0.2+
1997 02 09	596	0.7−	1.1−	1997 03 07	596	0.1+	1.1+	1998 09 20	596	0.8+	0.4−
1997 02 10	596	0.7+	0.6−	1997 03 07	596	0.2−	1.0+	1998 09 20	596	0.4−	0.8−

1997 EM$_4$ = 1998 SS$_{20}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	72.88091		(2000.0)	**P**	**Q**	
n	0.26561145	ω	89.40297	−0.36831738	+0.92963355	
a	2.3968353	Ω	158.97451	−0.86484208	−0.33820709	
e	0.1389182	i	1.77688	−0.34116049	−0.14627857	
P	3.71	H	18.0	G 0.15	U 4	

Residuals in seconds of arc

1997 03 02	691	0.2+	0.1+	1997 03 09	691	0.5−	0.2−	1998 09 23	691	0.4−	0.1−
1997 03 02	691	0.2+	0.3+	1997 03 09	691	0.3−	0.1−	1998 09 26	691	0.7+	0.4+
1997 03 02	691	0.1−	0.4+	1998 09 21	691	0.1−	0.1+	1998 09 26	691	0.6+	0.1+
1997 03 07	691	0.3+	0.2+	1998 09 21	691	0.3+	0.3+	1998 09 26	691	0.1+	0.2+
1997 03 07	691	0.4+	0.2+	1998 09 21	691	0.0	0.1−	1998 09 30	691	0.4+	1.0−
1997 03 07	691	0.4+	0.4−	1998 09 23	691	0.5−	0.3+	1998 09 30	691	0.4−	0.3−
1997 03 09	691	0.3−	0.1−	1998 09 23	691	0.7−	0.5+	1998 09 30	691	0.1−	0.1+

1997 FC$_1$ = 1998 RE$_{20}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	140.49617		(2000.0)	**P**	**Q**	
n	0.27425418	ω	50.25145	−0.99430201	−0.03939288	
a	2.3462118	Ω	127.26401	+0.00502892	−0.94551418	
e	0.0919490	i	7.14972	+0.10648105	−0.32318902	
P	3.59	H	14.5	G 0.15	U 4	

Residuals in seconds of arc

1997 03 28	327	0.2+	0.6+	1997 04 17	327	0.6+	0.7+	1998 09 14	704	1.3−	0.5−
1997 03 28	327	0.1−	0.0	1997 04 27	658	0.1−	0.9−	1998 09 14	704	0.5+	0.1−
1997 03 28	327	0.2+	0.2−	1997 04 27	658	0.2−	1.0−	1998 09 14	704	1.7−	1.3+
1997 03 30	327	0.1−	0.1−	1997 04 27	658	0.6−	0.3−	1998 09 18	704	0.1+	1.1−
1997 03 30	327	0.4+	0.5−	1997 05 08	327	0.1−	0.2−	1998 09 18	704	0.1−	0.8+
1997 03 30	327	0.1−	0.2−	1997 05 08	327	0.0	0.3−	1998 09 18	704	0.5−	0.5+
1997 04 15	327	0.2+	0.0	1997 05 08	327	0.0	0.2+	1998 09 18	704	1.8−	0.9+
1997 04 15	327	0.1−	0.2+	1997 05 09	327	0.4−	0.3−	1998 09 22	699	1.4+	0.4−
1997 04 15	327	0.0	0.3+	1997 05 09	327	0.1−	0.3−	1998 09 22	699	1.3+	0.4−
1997 04 17	327	0.1−	1.2+	1997 05 09	327	0.1+	0.2+	1998 09 22	699	1.9+	0.2+
1997 04 17	327	0.6+	0.7+	1998 09 14	704	0.2+	0.9−				

1997 FM$_1$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	194.70435		(2000.0)	**P**	**Q**	
n	0.36048269	ω	325.26135	−0.88378888	−0.46522084	
a	1.9552987	Ω	187.53679	+0.46666261	−0.88415937	
e	0.0904141	i	22.34590	−0.03381164	−0.04279935	
P	2.73	H	15.5	G 0.15	U 3	

Residuals in seconds of arc

1997 03 31	596	0.5+	0.1−	1997 04 03	596	0.5−	0.1+	1998 09 20	596	0.9−	1.3−
1997 03 31	596	0.4−	0.3−	1997 04 06	596	0.2+	0.7−	1998 09 21	691	1.2−	0.2−
1997 03 31	596	0.3+	0.6+	1997 04 06	596	0.3+	0.3+	1998 09 21	691	1.0−	0.1−
1997 03 31	596	0.1+	0.2−	1997 04 10	596	0.1+	1.1+	1998 09 21	691	1.2−	0.2−
1997 04 01	596	0.1−	0.1−	1997 04 10	596	0.6+	0.9+	1998 09 26	704	0.4+	0.2−
1997 04 01	596	0.3−	0.1−	1997 04 25	596	0.2−	0.8−	1998 09 26	704	0.0	0.1+
1997 04 01	587	0.1+	0.7−	1997 04 25	596	0.1+	0.2−	1998 09 26	704	0.3+	0.6+
1997 04 01	587	0.0	0.8−	1997 04 25	596	0.5+	0.5−	1998 09 26	704	(2.3+	0.4+)
1997 04 01	596	0.5−	0.5+	1997 05 08	587	0.3−	0.5+	1998 09 26	704	0.7−	0.3−
1997 04 02	691	0.8−	0.3−	1997 05 08	587	0.4−	0.2+	1998 09 27	704	0.3+	0.1+
1997 04 02	691	0.1+	1.2−	1998 09 15	699	0.3+	0.1−	1998 09 27	704	0.3+	0.7+
1997 04 02	587	0.0	0.3+	1998 09 15	699	1.1+	0.8+	1998 09 27	704	0.5+	0.9+
1997 04 02	587	0.5+	0.2+	1998 09 15	699	0.6−	0.5+	1998 09 27	704	1.3+	0.4+
1997 04 02	587	0.4+	1.0+	1998 09 20	596	(2.3+	1.8−)	1998 09 27	704	0.4+	0.2−
1997 04 03	596	0.0	0.6+	1998 09 20	596	1.0+	0.1−				
1997 04 03	596	0.3−	0.1+	1998 09 20	596	0.3−	0.9−				

1997 FY$_2$ = 1998 SR$_{52}$

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	98.89993		(2000.0)	**P**	**Q**	
n	0.28103469	ω	235.53247	−0.63404868	+0.77324996	
a	2.3083204	Ω	355.09416	−0.67445455	−0.55814608	
e	0.0972707	i	5.48323	−0.37827679	−0.30092767	
P	3.51	H	15.0	G 0.15	U 4	

Residuals in seconds of arc

1997 03 11	809	0.8+	0.6−	1997 04 03	704	0.1+	0.5−	1998 09 29	327	1.0+	0.2−
1997 03 11	809	0.3+	0.2+	1997 04 05	704	0.5+	0.6−	1998 09 29	327	0.8+	0.5−
1997 03 11	809	0.2+	0.1−	1997 04 05	704	0.3−	0.6+	1998 10 01	691	1.0−	0.4+
1997 03 13	809	0.8−	0.8+	1998 09 25	699	0.3+	0.8−	1998 10 01	691	1.1−	0.6+
1997 03 13	809	0.1−	0.6+	1998 09 25	699	0.1+	0.8−	1998 10 01	691	1.2−	0.7+
1997 03 13	809	0.3−	0.6+	1998 09 25	699	0.6−	0.4−	1998 10 01	327	0.8+	0.8+
1997 03 31	704	0.3+	0.2−	1998 09 29	691	1.3−	0.3−	1998 10 01	327	1.2+	1.0+
1997 03 31	704	0.2−	0.1+	1998 09 29	691	1.2−	0.3−	1998 10 01	327	0.4+	0.8+
1997 04 03	704	0.0	0.1−	1998 09 29	327	1.0+	0.2−				

1997 FX$_3$ = 1972 NU = 1172 T-1

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	5.47676		(2000.0)	**P**	**Q**	
n	0.22891332	ω	104.59503	+0.84985766	+0.52631083	
a	2.6466022	Ω	223.65753	−0.49741575	+0.78402145	
e	0.3383248	i	2.25658	−0.17412504	+0.32910071	
P	4.31	H	14.0	G 0.15	U 5	

Residuals in seconds of arc

1971 03 24	675	1.9−	1.1+	1997 03 13	809	0.1+	1.9+	1997 04 05	704	0.9+	0.1−
1971 03 25	675	1.2−	0.5+	1997 03 13	809	0.4+	2.2+	1997 04 05	704	1.0+	1.0−
1971 03 25	675	0.5+	0.2+	1997 03 29	327	1.1−	0.2−	1997 04 06	704	0.5+	0.6−
1971 03 26	675	0.6+	1.5−	1997 03 29	327	0.5+	0.0	1997 04 06	704	0.1+	0.6−
1971 03 27	675	1.5+	0.9−	1997 03 29	327	1.2−	0.4−	1997 04 07	704	0.4−	0.0
1971 04 02	675	0.1+	0.6−	1997 03 29	327	0.0	0.0	1997 04 07	704	0.5+	0.2+
1972 07 13	805	0.1−	0.4+	1997 03 31	704	0.1−	0.3−	1997 04 07	704	0.2−	1.5+
1972 07 13	805	0.2−	0.2+	1997 03 31	704	1.1−	0.2−	1997 04 07	704	0.4+	0.6−
1972 07 13	805	0.6+	0.5−	1997 04 03	704	0.2+	0.9−				
1997 03 13	809	(0.1+	3.2+)	1997 04 03	704	0.0	0.1+				

1997 FP$_4$ = 1997 GT$_{19}$ = 1998 RM$_{32}$

Id. G. V. Williams (d, *MPC* 31295; unpublished)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	78.24417		(2000.0)	**P**	**Q**	
n	0.24358115	ω	290.94571	−0.51275672	+0.85802499	
a	2.5392586	Ω	308.17201	−0.77306323	−0.47641102	
e	0.1350491	i	2.15469	−0.37343512	−0.19190011	
P	4.05	H	15.5	G 0.15	U 6	

Residuals in seconds of arc

1997 03 31	704	0.8+	0.2+	1997 04 06	704	0.1−	0.4−	1998 09 18	704	1.5+	0.7+
1997 03 31	704	0.4−	1.1−	1997 04 07	704	0.3−	0.4+	1998 09 18	704	1.8−	0.2+
1997 04 03	704	0.3+	0.3+	1997 04 07	704	0.2−	1.6+	1998 09 18	704	1.7+	0.4−
1997 04 03	704	0.3−	0.4−	1998 09 14	704	0.5−	0.2+	1998 09 18	704	1.0+	0.7−
1997 04 05	704	0.1+	0.1+	1998 09 14	704	0.4−	0.0	1998 09 18	704	0.7−	1.0−
1997 04 05	704	0.4−	0.1−	1998 09 14	704	0.5−	0.6+				
1997 04 06	704	0.4+	0.7−	1998 09 14	704	0.4−	0.2+				

1997 GB

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	153.83797		(2000.0)	**P**	**Q**	
n	0.27083059	ω	126.76624	−0.91042419	−0.40997761	
a	2.3659428	Ω	29.14823	+0.33418211	−0.80753552	
e	0.0840103	i	6.50639	+0.24382394	−0.42403390	
P	3.64	H	15.0	G 0.15	U 4	

Residuals in seconds of arc

1997 04 01	611	0.7+	0.2−	1997 04 08	611	0.7−	0.3−	1997 05 31	611	0.5−	0.5−
1997 04 01	611	1.0+	0.1+	1997 04 13	611	0.2−	0.0	1998 07 30	611	1.6−	0.2+
1997 04 01	611	0.1−	0.2−	1997 04 15	611	0.8−	0.4+	1998 07 31	611	0.1−	0.9+
1997 04 02	611	1.0+	0.3+	1997 04 16	611	0.5−	0.7−	1998 09 11	426	0.2−	0.1−
1997 04 02	611	0.0	0.2−	1997 04 16	611	1.1−	0.4+	1998 09 11	426	0.2+	1.2−
1997 04 02	611	0.2+	0.1−	1997 04 16	611	0.4−	0.5+	1998 09 11	426	0.4−	1.2−
1997 04 02	611	0.6+	0.1−	1997 05 01	611	0.4+	0.2+	1998 09 12	426	0.1−	0.0
1997 04 06	611	0.1−	0.5+	1997 05 01	611	0.5−	0.3−	1998 09 12	426	0.3−	0.2+
1997 04 06	611	1.7+	0.2+	1997 05 01	611	1.2−	0.5−	1998 09 12	426	0.1+	0.9−
1997 04 07	611	0.2−	0.2+	1997 05 02	611	0.2−	0.2−	1998 09 16	429	1.0+	1.2+
1997 04 07	611	0.1−	0.0	1997 05 02	611	0.2−	0.1+	1998 09 16	429	1.4+	1.0+
1997 04 08	611	0.3+	0.1+	1997 05 31	611	0.8+	0.4+				

1997 GY

Id. M. Tichý (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	163.15492		(2000.0)	**P**	**Q**	
n	0.31440929	ω	339.18198	−0.99972306	+0.01603554	
a	2.1419326	Ω	201.75827	−0.00881415	−0.93377385	
e	0.0951673	i	2.66313	−0.02181982	−0.35750420	
P	3.13	H	16.5	G 0.15	U 5	

Residuals in seconds of arc

1997 04 03	046	0.0	0.5+	1997 04 10	046	0.0	0.1−	1998 09 25	046	0.3−	0.5+
1997 04 03	046	0.0	0.6+	1997 04 10	046	0.0	0.4−	1998 09 25	046	0.1+	0.1−
1997 04 03	046	0.0	0.6+	1997 04 10	046	0.0	0.4−	1998 09 26	046	0.3−	0.1−
1997 04 03	046	0.3−	0.3+	1997 05 03	046	0.1−	0.3−	1998 09 26	046	0.7−	0.2+
1997 04 08	046	0.1−	0.3−	1997 05 03	046	0.2+	0.4+	1998 09 26	046	0.4+	0.1+
1997 04 08	046	0.1−	0.5−	1997 05 03	046	0.4+	0.1+	1998 09 27	704	1.7+	0.4−
1997 04 08	046	0.6+	0.1+	1997 05 04	046	0.0	0.2+	1998 09 27	704	0.6−	1.3−
1997 04 08	046	0.3+	0.4−	1997 05 04	046	0.6−	0.2+	1998 09 27	704	1.1+	0.4+
1997 04 09	046	0.2−	0.2−	1997 05 04	046	0.1+	0.3+	1998 09 27	704	0.4−	1.4+
1997 04 09	046	0.1−	0.3−	1998 09 25	046	0.7−	0.4−				
1997 04 09	046	0.1−	0.4−	1998 09 25	046	0.2−	0.5−				

1997 GV$_3$ = 1998 QH$_{106}$

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	130.10346		(2000.0)	**P**	**Q**	
n	0.28368503	ω	170.22328	−0.95719010	+0.28375263	
a	2.2939209	Ω	26.47807	−0.27348653	−0.82180284	
e	0.0644510	i	7.37062	−0.09482734	−0.49408961	
P	3.47	H	15.5	G 0.15	U 4	

Residuals in seconds of arc

1997 04 03	704	1.5+	0.6+	1997 04 15	400	0.1+	0.9−	1998 09 14	704	0.6+	1.1+
1997 04 03	704	0.1+	0.1+	1997 04 15	400	0.2−	0.4−	1998 09 14	704	0.8−	0.3−
1997 04 03	400	0.2+	0.6+	1997 05 03	400	(3.4−	2.5+)	1998 09 14	704	1.3−	0.5−
1997 04 03	400	0.0	0.1−	1997 05 03	400	0.2+	0.6+	1998 09 14	704	0.2+	1.3−
1997 04 04	400	0.5−	0.7−	1998 08 25	809	0.5+	0.8+	1998 09 18	704	(2.1+	2.1+)
1997 04 04	400	0.4−	1.1−	1998 08 25	809	0.3+	1.2+	1998 09 18	704	1.9+	0.2+
1997 04 10	400	0.7−	0.1−	1998 08 25	809	1.5−	0.0	1998 09 18	704	0.3−	1.6−
1997 04 10	400	1.2−	0.4+	1998 08 26	809	(0.4+	3.3+)	1998 09 18	704	0.2−	1.0+
1997 04 11	704	0.1+	0.1−	1998 08 26	809	(0.4+	3.7+)	1998 09 18	704	0.7+	1.0−
1997 04 11	704	0.4+	0.7+	1998 08 26	809	(0.9+	3.5+)				

1997 GL$_6$ = 1998 QX$_{45}$

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	293.73779		(2000.0)	**P**	**Q**	
n	0.28698112	ω	216.44189	+0.68415642	−0.72926251	
a	2.2763227	Ω	190.40254	+0.68191381	+0.64462027	
e	0.1353140	i	3.27174	+0.25869588	+0.22943605	
P	3.43	H	15.5	G 0.15	U 4	

Residuals in seconds of arc

1997 04 02	704	0.0	1.3+	1997 05 01	704	0.3−	0.3+	1998 08 23	704	0.6−	0.3−
1997 04 02	704	0.1+	0.4+	1997 05 01	704	0.2−	0.2+	1998 08 23	704	1.7−	0.3+
1997 04 06	704	0.3+	0.4−	1997 05 01	704	0.2−	0.3−	1998 09 14	704	0.3+	0.0
1997 04 06	704	0.2+	0.3−	1997 05 01	704	0.1−	0.2+	1998 09 14	704	0.4+	0.2−
1997 04 08	704	0.4+	0.0	1998 08 17	704	0.3+	0.1−	1998 09 14	704	0.2+	0.1−
1997 04 08	704	0.4−	0.1+	1998 08 17	704	0.6−	1.2−	1998 09 14	704	0.1+	1.2−
1997 04 30	704	0.3−	0.1+	1998 08 17	704	0.7+	0.3−	1998 09 18	704	0.2+	0.2+
1997 04 30	704	0.3+	0.2+	1998 08 17	704	0.7+	0.4−	1998 09 18	704	0.8−	0.1+
1997 04 30	704	0.0	0.9−	1998 08 17	704	1.0−	0.8+	1998 09 18	704	0.2−	0.0
1997 04 30	704	1.0+	0.4−	1998 08 23	704	1.6+	1.1+	1998 09 18	704	0.4−	1.6+
1997 04 30	704	1.2−	0.1−	1998 08 23	704	0.7+	0.8−	1998 09 18	704	0.0	0.2+
1997 05 01	704	0.6+	0.0	1998 08 23	704	0.0	0.6+				

1997 GB$_7$ = 1998 SF$_{23}$

Id. E. Bowell, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	103.47414		(2000.0)	**P**	**Q**	
n	0.26890549	ω	185.45914	−0.60604126	+0.79430350	
a	2.3772212	Ω	47.24544	−0.72759420	−0.53203796	
e	0.0113231	i	3.30868	−0.32143532	−0.29328751	
P	3.67	H	15.0	G 0.15	U 4	

Residuals in seconds of arc

1997 04 02	704	0.9+	0.5−	1997 04 27	816	0.7−	0.2+	1997 05 01	704	0.5+	0.4−
1997 04 02	704	0.6−	0.1+	1997 04 27	816	1.0−	0.0	1997 05 01	704	0.3+	0.3−
1997 04 06	704	0.5+	0.4+	1997 04 27	816	0.9−	0.2+	1997 05 01	704	0.3+	0.2−
1997 04 06	704	1.0+	0.1−	1997 04 30	704	0.6+	0.1+	1998 09 17	699	0.4+	0.1+
1997 04 07	704	0.1−	0.2−	1997 04 30	704	0.4+	0.0	1998 09 17	699	0.3+	0.1+
1997 04 07	704	0.3−	0.2+	1997 04 30	704	0.7+	0.6−	1998 09 17	699	0.1+	0.1+
1997 04 08	704	0.7−	0.7−	1997 04 30	704	0.5+	0.3+	1998 09 24	699	0.4−	0.4−
1997 04 08	704	0.4−	0.7+	1997 04 30	704	0.2+	0.2+	1998 09 24	699	0.2−	0.5+
1997 04 27	816	1.0−	0.4+	1997 05 01	704	0.2+	0.1−	1998 09 24	699	0.3−	0.3−
1997 04 27	816	0.7−	0.1+	1997 05 01	704	0.2+	0.1+				

1997 GZ$_{14}$ = 1998 SE$_{38}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	131.13539		(2000.0)	**P**	**Q**	
n	0.27423144	ω	205.30598	−0.98652452	+0.16318124	
a	2.3463415	Ω	344.07210	−0.14178462	−0.88889707	
e	0.0986822	i	2.48219	−0.08164861	−0.42805826	
P	3.59	H	16.0	G 0.15	U 5	

Residuals in seconds of arc

1997 03 11	809	0.1+	0.2−	1997 04 05	704	0.3−	0.2−	1998 09 23	691	0.6−	0.5−
1997 03 11	809	0.1+	0.2−	1997 04 05	704	0.7−	0.5−	1998 09 23	691	0.8+	0.1+
1997 03 11	809	0.3−	0.0	1997 04 06	704	0.7+	0.5−	1998 09 23	691	0.9+	0.0
1997 03 13	809	0.9+	0.2−	1997 04 06	704	0.1+	0.5+	1998 09 27	691	0.3−	0.1+
1997 03 13	809	0.9−	0.0	1997 04 06	704	1.4+	0.3+	1998 09 27	691	0.5−	0.2+
1997 03 13	809	0.0	0.4+	1997 04 06	704	1.2−	0.2−	1998 09 27	691	0.3−	0.1+
1997 04 03	704	0.1−	0.2−	1997 04 07	704	0.2−	0.1+				
1997 04 03	704	0.0	0.9+	1997 04 07	704	0.6+	0.1+				

1997 GC$_{19}$ = 1998 QG$_{26}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	15.50696		(2000.0)		**P**	**Q**	
n	0.26132636	ω	318.10863		+0.70021541	+0.71388873	
a	2.4229655	Ω	356.31006		−0.61846411	+0.60106852	
e	0.1203369	i	6.98583		−0.35665184	+0.35927638	
P	3.77	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1997 04 03	704	0.6+	0.5+	1997 04 07	704	1.3−	1.5+	1998 09 25	699	0.6+	0.3−
1997 04 03	704	0.5−	0.7−	1998 08 26	120	0.7−	0.2+	1998 09 25	327	0.6+	0.4−
1997 04 05	704	1.2+	1.0−	1998 08 26	120	0.3−	0.0	1998 09 25	327	1.3+	0.1+
1997 04 05	704	0.4−	0.1−	1998 08 27	120	(2.9+	4.3−)	1998 09 25	327	0.9+	0.0
1997 04 06	704	0.2−	0.5−	1998 08 27	120	(0.9−	3.5−)	1998 09 29	327	1.1−	0.1+
1997 04 06	704	0.2+	0.7+	1998 09 25	699	0.1+	0.2−	1998 09 29	327	0.8−	0.1+
1997 04 07	704	0.4+	0.6−	1998 09 25	699	0.5+	0.1−	1998 09 29	327	1.1−	0.3+

1997 GR$_{21}$

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	47.70362		(2000.0)		**P**	**Q**	
n	0.22513348	ω	76.76520		+0.27832268	+0.95493602	
a	2.6761431	Ω	210.01973		−0.94159919	+0.25008517	
e	0.1703951	i	11.89487		−0.18954536	+0.15985811	
P	4.38	H	15.0	G	0.15	U	3

Residuals in seconds of arc

1997 04 02	704	0.1−	0.1+	1997 04 30	704	0.2+	0.3+	1997 05 05	704	0.1−	0.6−
1997 04 02	704	0.1+	0.4+	1997 04 30	704	0.3+	0.2+	1997 05 05	704	0.1−	0.3−
1997 04 06	704	0.1−	0.2−	1997 04 30	704	0.5+	0.2+	1997 05 05	704	0.3−	0.3−
1997 04 06	704	0.0	0.0	1997 05 01	704	0.2−	0.2−	1998 09 17	699	0.3+	0.6+
1997 04 07	704	0.9+	0.4−	1997 05 01	704	0.1−	0.3+	1998 09 17	699	0.7−	0.1+
1997 04 07	704	0.3−	0.2−	1997 05 01	704	0.0	0.3+	1998 09 17	699	1.2−	0.1−
1997 04 08	704	0.1−	0.0	1997 05 01	704	0.1+	0.5+	1998 09 25	699	0.3+	0.3−
1997 04 08	704	0.5−	0.3−	1997 05 01	704	0.2−	0.1+	1998 09 25	699	0.1−	0.6−
1997 04 30	704	0.2−	0.2−	1997 05 05	704	0.3+	0.0	1998 09 25	699	1.3+	0.2+
1997 04 30	704	0.3+	0.0	1997 05 05	704	0.3−	0.2+				

1997 GX$_{21}$ = 1998 QY$_{8}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	309.18093		(2000.0)		**P**	**Q**	
n	0.19985506	ω	263.41387		+0.99696021	−0.04592749	
a	2.8972944	Ω	99.20529		+0.06682363	+0.91939822	
e	0.0717306	i	3.65553		−0.04006182	+0.39063741	
P	4.93	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1997 04 06	704	(0.4+	2.7−)	1997 04 30	704	0.1−	0.6−	1998 08 17	704	0.4+	0.8+
1997 04 06	704	0.3+	1.5−	1997 04 30	704	0.4−	0.7−	1998 08 17	704	0.2−	1.2+
1997 04 07	809	0.3−	1.1+	1997 04 30	704	0.1−	0.1+	1998 08 17	704	0.1−	1.1+
1997 04 07	809	0.5−	0.5+	1997 04 30	704	0.2−	0.2−	1998 08 17	704	0.0	0.5+
1997 04 07	809	0.6−	1.6+	1997 04 30	704	0.1−	0.2−	1998 08 17	704	0.5+	1.0+
1997 04 08	809	1.4+	1.8+	1997 05 01	704	0.1+	0.5−	1998 08 23	704	0.7−	0.8−
1997 04 08	809	(0.7+	2.3+)	1997 05 01	704	0.0	0.2−	1998 08 23	704	1.6+	0.3+
1997 04 08	809	1.3+	1.4+	1997 05 01	704	0.3+	0.3−	1998 08 23	704	0.3−	1.8−
1997 04 08	704	1.0−	1.1−	1997 05 01	704	0.1+	0.4−	1998 08 23	704	1.7−	0.0
1997 04 08	704	0.3−	0.7−	1997 05 01	704	0.1−	0.1+	1998 08 23	704	0.4+	2.1−

1997 GJ$_{22}$ = 1998 RS$_{36}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	103.06663		(2000.0)		**P**	**Q**	
n	0.24540935	ω	4.62457		−0.71576661	+0.69614306	
a	2.5266320	Ω	219.68526		−0.64346155	−0.68823993	
e	0.0772122	i	4.97202		−0.27135841	−0.20423182	
P	4.02	H	16.0	G	0.15	U	4

Residuals in seconds of arc

1997 04 02	704	0.5+	0.9−	1997 04 30	704	1.0+	0.1−	1997 05 05	704	0.1+	0.4−
1997 04 02	704	0.8−	0.3+	1997 04 30	704	0.1+	0.1−	1997 05 05	704	1.1+	0.3+
1997 04 02	704	0.0	0.2+	1997 04 30	704	0.9+	0.3−	1998 09 14	704	0.4+	0.2−
1997 04 02	704	1.7−	1.0+	1997 05 01	704	2.5−	0.8+	1998 09 14	704	0.6+	0.1+
1997 04 06	704	0.3+	1.1−	1997 05 01	704	0.2+	0.3−	1998 09 14	704	0.3+	0.3+
1997 04 06	704	0.4+	0.8+	1997 05 01	704	0.4+	0.5+	1998 09 14	704	1.0−	0.6+
1997 04 08	704	0.8+	0.1+	1997 05 01	704	0.1+	0.6−	1998 09 18	704	0.6+	0.2+
1997 04 08	704	0.4+	0.0	1997 05 05	704	0.4−	0.0	1998 09 18	704	1.3+	1.1−
1997 04 30	704	0.7+	0.2+	1997 05 05	704	1.0−	0.3−	1998 09 18	704	2.3−	0.1+
1997 04 30	704	0.3+	0.1−	1997 05 05	704	1.0−	0.2+				

1997 GQ$_{23}$ = 1998 QR$_{32}$

Id. A. Doppler, S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	19.63524		(2000.0)		**P**	**Q**	
n	0.21485316	ω	331.36967		+0.51823756	+0.85505213	
a	2.7608420	Ω	329.83435		−0.77777108	+0.46255499	
e	0.0619329	i	2.02633		−0.35567117	+0.23436881	
P	4.59	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1997 04 06	704	0.2+	0.0	1997 05 05	704	0.1−	0.1+	1998 09 01	691	0.7−	0.2+
1997 04 06	704	0.9+	0.1+	1997 05 05	704	0.3−	0.1+	1998 09 01	691	1.1−	0.3+
1997 04 08	704	0.3+	0.1−	1997 05 05	704	0.5−	0.2−	1998 09 01	691	1.2−	0.5+
1997 04 08	704	0.3−	0.1−	1997 05 05	704	0.6−	0.3−	1998 09 14	704	0.4−	0.4+
1997 04 30	704	0.1−	0.0	1997 05 05	704	0.4−	0.6−	1998 09 14	704	0.6+	0.0
1997 04 30	704	0.2+	0.0	1998 08 17	704	0.2+	0.0	1998 09 14	704	1.1+	0.8−
1997 04 30	704	0.4+	0.3−	1998 08 17	704	0.1−	0.6+	1998 09 14	704	1.0+	0.1−
1997 04 30	704	0.3+	0.1+	1998 08 17	704	0.2+	0.5−	1998 09 14	704	1.2+	0.6−
1997 04 30	704	0.3+	0.3−	1998 08 17	704	0.0	0.4−	1998 09 18	704	0.3+	0.1+
1997 05 01	704	0.1−	0.3+	1998 08 17	704	0.3−	0.8−	1998 09 18	704	1.0−	0.3−
1997 05 01	704	0.2−	0.2+	1998 08 23	704	0.8+	0.6+	1998 09 18	704	1.0+	0.1−
1997 05 01	704	0.3−	0.1+	1998 08 23	704	1.4−	0.8−	1998 09 18	704	0.6−	0.4−
1997 05 01	704	0.2+	0.4+	1998 08 23	704	0.7+	0.9+				
1997 05 01	704	0.1+	0.4+	1998 08 23	704	0.2−	1.0+				

1997 GW$_{29}$ = 1996 AN$_{20}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	240.03928		(2000.0)		**P**	**Q**	
n	0.19198189	ω	256.06198		+0.77011378	−0.62665431	
a	2.9759745	Ω	142.53288		+0.63431766	+0.73246539	
e	0.1245788	i	11.30872		+0.06757122	+0.26608051	
P	5.13	H	12.5	G	0.15	U	5

Residuals in seconds of arc

1996 01 13	399	0.8−	1.0+	1997 03 18	327	0.1+	0.0	1997 04 13	327	0.3−	0.2+
1996 01 13	399	0.3−	1.4−	1997 03 18	327	0.2+	0.1+	1997 04 13	327	0.4−	0.1−
1996 01 18	399	1.0−	1.3+	1997 03 18	327	0.3+	0.0	1997 04 13	327	0.2−	0.1−
1996 01 18	399	0.3−	0.5+	1997 04 02	327	0.2−	0.4+	1997 04 15	327	0.5−	0.4−
1996 01 21	399	1.4+	1.3−	1997 04 02	327	0.3+	0.2−	1997 04 15	327	0.3+	0.2+
1996 01 21	399	0.9+	0.2−	1997 04 02	327	0.6+	0.3+	1997 04 15	327	0.2−	0.4−

1997 GZ$_{31}$

Id. F. B. Zoltowski (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	66.97685		(2000.0)	**P**		**Q**	
n	0.18546386	ω	145.47220	−0.49393378		+0.84841639	
a	3.0452984	Ω	94.24144	−0.83457958		−0.40119518	
e	0.2803139	i	11.00156	−0.24393924		−0.34529996	
P	5.31	H	13.5	G	0.15	U	3

Residuals in seconds of arc

1997 04 13	327	0.2−	0.5−	1997 05 03	327	0.8+	0.1−	1997 05 11	327	1.0−	0.6+
1997 04 13	327	0.2−	0.5−	1997 05 03	327	0.5+	0.4+	1997 06 09	327	0.3−	0.7−
1997 04 13	327	0.1−	0.4−	1997 05 03	587	0.6+	0.7+	1997 06 09	327	0.3−	0.6−
1997 04 13	327	0.1−	0.5−	1997 05 03	587	0.5+	0.4+	1997 06 09	327	0.4−	0.4−
1997 04 16	327	0.4−	0.1−	1997 05 03	587	0.8+	0.1+	1998 09 01	426	0.7−	0.3+
1997 04 16	327	0.4−	0.2−	1997 05 08	327	0.6+	0.1+	1998 09 01	426	0.4+	0.5+
1997 04 16	327	0.4−	0.2−	1997 05 08	327	0.5+	0.1−	1998 09 12	426	0.2−	0.4−
1997 05 02	587	1.0−	0.1−	1997 05 08	327	0.6+	0.2+	1998 09 12	426	0.8+	0.3−
1997 05 02	587	0.6−	0.5−	1997 05 08	327	0.5+	0.0	1998 09 12	426	0.4−	0.1−
1997 05 03	327	0.2+	0.3+	1997 05 11	327	0.3−	0.9+				
1997 05 03	327	0.7+	0.3+	1997 05 11	327	1.0−	0.5+				

1997 GM$_{33}$ = 1998 QP$_{68}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	5.72479		(2000.0)	**P**		**Q**	
n	0.23501607	ω	113.94131	+0.65522314		+0.75224255	
a	2.6005847	Ω	197.55824	−0.74933973		+0.63554534	
e	0.1131967	i	13.29633	−0.09577369		+0.17381963	
P	4.19	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1997 03 11	809	1.5−	0.4+	1997 04 03	704	1.4+	0.9+	1998 08 24	704	0.1+	0.2−
1997 03 11	809	0.6−	0.4+	1997 04 11	816	0.9−	0.1+	1998 08 24	704	0.0	0.3−
1997 03 11	809	1.0−	0.3−	1997 04 11	816	1.0−	0.2+	1998 08 24	704	0.0	1.3+
1997 03 12	809	0.7+	1.3−	1997 04 11	816	1.0−	0.0	1998 08 24	704	0.1−	0.5−
1997 03 12	809	0.3+	0.1+	1997 04 11	816	0.9−	0.0	1998 08 27	704	0.1−	0.5−
1997 03 12	809	0.2+	0.2+	1997 04 11	704	1.5+	0.6−	1998 08 27	704	0.8+	0.6−
1997 03 13	809	0.8+	0.5+	1997 04 11	704	1.9+	0.6−	1998 08 27	704	0.2−	0.2+
1997 03 13	809	1.0+	0.5−	1997 04 12	816	0.9−	0.2+	1998 08 27	704	0.9−	1.1+
1997 03 13	809	0.5−	0.4+	1997 04 12	816	0.7−	0.2+				
1997 04 03	704	1.3+	0.2−	1998 08 24	704	0.4+	0.4−				

1997 GP$_{36}$ = 1998 QR$_{81}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	128.03602		(2000.0)	**P**		**Q**	
n	0.22870002	ω	322.64804	−0.99166528		−0.03270989	
a	2.6482475	Ω	216.08506	+0.06116330		−0.97081686	
e	0.2127022	i	12.21515	−0.11339759		−0.23758089	
P	4.31	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1997 04 06	704	0.2−	0.6−	1997 05 03	809	1.1−	0.7+	1998 08 24	704	0.0	0.1+
1997 04 06	704	0.0	0.2+	1997 05 04	809	1.3+	1.3+	1998 08 24	704	1.6−	0.4−
1997 04 07	704	0.1+	0.1−	1997 05 04	809	0.8+	1.0+	1998 08 24	704	1.3+	1.6−
1997 04 07	704	0.7+	0.3−	1997 05 04	809	0.8+	2.5+	1998 08 24	704	(5.3−	1.1+)
1997 04 07	704	0.4−	0.4−	1997 05 07	704	0.2−	1.0−	1998 08 27	704	0.1−	0.3+
1997 04 07	704	0.0	0.4+	1997 05 07	704	0.6−	0.2−	1998 08 27	704	0.3−	0.2+
1997 04 11	704	0.2+	0.3+	1997 05 07	704	0.5−	1.4−	1998 08 27	704	1.0+	0.5+
1997 04 11	704	0.3−	0.3−	1997 05 07	704	0.4+	2.9−	1998 08 27	704	0.1−	1.0+
1997 05 03	809	0.4+	0.6+	1997 05 07	704	0.5−	1.2−	1998 08 27	704	0.5+	0.9+
1997 05 03	809	0.8−	1.3+	1998 08 24	704	0.6−	1.0−				

1997 GC$_{38}$ = 1998 SZ$_{31}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	315.99855		(2000.0)	**P**		**Q**	
n	0.28881108	ω	204.55408	+0.85324792		−0.52137445	
a	2.2666970	Ω	186.90521	+0.49310630		+0.81387701	
e	0.0445624	i	5.57998	+0.16974735		+0.25646226	
P	3.41	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1997 04 06	704	1.0−	2.1+	1997 04 08	809	1.7−	1.3−	1997 04 30	704	0.5−	0.1+
1997 04 06	704	0.9−	0.1−	1997 04 11	704	0.5+	0.0	1998 09 20	691	0.2−	0.1+
1997 04 07	809	1.9+	0.1+	1997 04 11	704	0.5+	0.1−	1998 09 20	691	0.7−	0.3+
1997 04 07	809	1.0+	0.1+	1997 04 30	704	0.1+	0.1−	1998 09 20	691	0.3−	0.2−
1997 04 07	809	1.6+	0.2−	1997 04 30	704	0.3−	0.5+	1998 09 26	691	0.4+	0.0
1997 04 08	809	0.4−	1.0−	1997 04 30	704	0.0	0.4+	1998 09 26	691	0.5+	0.0
1997 04 08	809	1.7−	0.3−	1997 04 30	704	0.8+	0.1−	1998 09 26	691	0.3+	0.3−

1997 HW$_{7}$ = 1996 BX$_{3}$ = 1998 QC$_{18}$

Id. A. Gnädig, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	327.67208		(2000.0)	**P**		**Q**	
n	0.21872425	ω	121.91647	+0.99844847		−0.04152543	
a	2.7281699	Ω	240.48743	+0.02443774		+0.92542240	
e	0.1899101	i	2.44325	+0.05003458		+0.37665504	
P	4.51	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1996 01 25	658(15.3+	3.9+)		1997 04 30	704	(0.3−	2.7−)	1998 09 14	704	0.5−	0.7−
1996 01 25	658(14.8+	4.2+)		1997 05 01	704	0.2+	0.5+	1998 09 14	704	0.2−	0.1+
1996 01 25	413	0.2+	0.0	1997 05 01	704	0.2−	0.1+	1998 09 14	704	0.7−	1.1+
1996 01 25	413	0.0	0.1+	1997 05 01	704	0.3−	0.4+	1998 09 14	704	0.2+	0.8−
1996 01 26	413	0.1−	0.2−	1997 05 01	704	0.3+	0.5−	1998 09 14	704	0.9−	1.3−
1996 01 26	413	0.1−	0.0	1997 05 01	704	0.0	0.6−	1998 09 15	699	0.9−	0.9+
1997 04 02	704	0.7+	0.1−	1998 08 17	704	0.3−	1.3−	1998 09 15	699	0.5−	0.1+
1997 04 02	704	1.2+	1.1+	1998 08 17	704	0.6+	0.3+	1998 09 15	699	0.0	0.5+
1997 04 08	704	0.1−	0.1−	1998 08 17	704	0.6+	0.8−	1998 09 17	910	0.3−	0.3+
1997 04 08	704	0.8−	0.5+	1998 08 17	704	0.2+	0.3+	1998 09 17	910	0.1−	0.5+
1997 04 08	704	0.5−	0.1−	1998 08 17	704	0.7+	0.0	1998 09 17	910	0.0	0.5+
1997 04 08	704	1.1−	1.1+	1998 08 23	704	0.7+	0.6+	1998 09 18	704	0.4−	1.6+
1997 04 30	704	0.4+	0.3+	1998 08 23	704	0.5−	0.1−	1998 09 18	704	0.5−	0.0
1997 04 30	704	0.4+	0.8−	1998 08 23	704	0.3−	0.5−	1998 09 18	704	0.4+	1.7−
1997 04 30	704	0.4+	1.1−	1998 08 23	704	(1.8+	2.1+)	1998 09 18	704	1.2+	1.1+
1997 04 30	704	0.4−	0.1−	1998 08 23	704	0.6−	0.0	1998 09 18	704	1.8+	0.5−

1997 HV$_{11}$ = 1998 QL$_{106}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	287.25473		(2000.0)	**P**		**Q**	
n	0.28151314	ω	17.67854	+0.59516479		−0.80059633	
a	2.3057043	Ω	35.88644	+0.72223912		+0.49500537	
e	0.1062964	i	6.80509	+0.35234857		+0.33766137	
P	3.50	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1997 04 06	704	0.5+	0.1−	1997 05 01	704	0.2+	0.5+	1997 05 05	704	0.5−	0.1+
1997 04 06	704	0.3−	0.2+	1997 05 01	704	0.2−	0.1+	1998 08 25	809	1.6+	0.1−
1997 04 30	704	0.3+	0.3−	1997 05 01	704	0.3−	0.1+	1998 08 25	809	0.0	0.9−
1997 04 30	704	0.3−	0.1−	1997 05 01	704	0.2+	0.0	1998 08 25	809	1.8−	1.5−
1997 04 30	704	0.0	0.0	1997 05 05	704	0.3+	0.0	1998 08 26	809	0.0	1.5+
1997 04 30	704	1.5−	0.2−	1997 05 05	704	0.7+	0.3+	1998 08 26	809	0.3+	0.8+
1997 04 30	704	0.7+	0.0	1997 05 05	704	0.1−	0.2−	1998 08 26	809	0.2−	0.3+
1997 05 01	704	0.1+	0.2−	1997 05 05	704	0.3+	0.2−				

1997 HS_{13} = 1998 SD_{62}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	8.60299		(2000.0)	**P**		**Q**	
n	0.18327741	ω	112.28788	+0.79370062		+0.59792538	
a	3.0694702	Ω	211.32043	−0.60657738		+0.76406282	
e	0.2638523	i	12.43258	−0.04586064		+0.24226688	
P	5.38	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1997 04 06	704	0.4−	2.1+	1997 04 30	704	0.2+	0.3−	1997 05 07	704	0.5+	0.8−
1997 04 06	704	0.3+	2.8+	1997 04 30	704	0.0	0.4+	1997 05 07	704	0.1+	0.6−
1997 04 07	809	0.0	1.9−	1997 04 30	704	0.0	0.1+	1997 05 07	704	0.3−	2.5+
1997 04 07	809	1.2−	2.2−	1997 04 30	704	0.1−	0.2−	1997 05 07	704	0.0	1.0−
1997 04 07	809	1.3−	3.5−	1997 04 30	704	0.0	0.2−	1998 09 18	699	0.4−	0.6+
1997 04 08	809	1.2+	1.3−	1997 05 01	704	0.0	0.1+	1998 09 18	699	1.4−	0.6+
1997 04 08	809	1.1+	0.6−	1997 05 01	704	0.1+	0.0	1998 09 18	699	0.3−	0.5+
1997 04 08	809	1.2+	0.9−	1997 05 01	704	0.3−	0.2+	1998 09 25	699	0.4+	0.8−
1997 04 11	704	1.2−	3.0+	1997 05 01	704	0.0	0.2−	1998 09 25	699	0.8+	0.2−
1997 04 11	704	0.2−	2.0+	1997 05 01	704	0.2+	0.1+	1998 09 25	699	0.9+	0.9−

1997 JH_6 = 1998 RN_2

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	22.66866		(2000.0)	**P**		**Q**	
n	0.20176904	ω	208.36104	+0.66610133		+0.74023131	
a	2.8789428	Ω	103.56341	−0.66530510		+0.64511145	
e	0.1565043	i	5.39915	−0.33716191		+0.18944348	
P	4.88	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1997 05 03	809	(1.9−	7.6−)	1997 05 04	809	(4.8+	1.2−)	1998 09 15	910	0.1−	0.4−
1997 05 03	809	(3.0−	6.9−)	1997 05 08	691	0.1+	0.4+	1998 09 16	910	0.2−	0.3−
1997 05 03	809	(1.8−	6.8−)	1997 05 08	691	0.2+	0.0	1998 09 16	910	0.1−	0.1+
1997 05 03	691	0.0	0.1−	1997 05 08	691	0.1+	0.1−	1998 09 16	910	0.2+	0.0
1997 05 03	691	0.1+	0.1−	1997 06 07	809	0.5−	0.6−	1998 09 16	910	0.3−	0.1+
1997 05 03	691	0.1−	0.1−	1997 06 07	809	0.7−	1.0−	1998 09 17	910	0.3+	0.4−
1997 05 04	809	(0.4+	3.6−)	1997 06 07	809	0.6−	0.9−	1998 09 18	910	0.3+	0.4−
1997 05 04	809	(0.5+	3.6−)	1997 06 08	809	0.1−	0.7+	1998 09 18	910	0.3+	0.3−
1997 05 04	809	(0.3+	3.9−)	1997 06 08	809	0.5+	0.7+	1998 09 24	699	0.1−	0.9+
1997 05 04	809	(5.7+	0.9−)	1997 06 08	809	1.0+	1.1+	1998 09 24	699	0.2−	0.6+
1997 05 04	809	(5.4+	1.3−)	1998 09 15	910	0.3−	0.3−	1998 09 24	699	0.1+	0.4+

1997 JV_7

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	203.65019		(2000.0)	**P**		**Q**	
n	0.28249958	ω	330.22009	−0.76477886		−0.64395025	
a	2.3003337	Ω	169.61302	+0.61175852		−0.73600509	
e	0.0888280	i	6.69156	+0.20215047		−0.20886498	
P	3.49	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1997 05 03	327	0.1+	0.2−	1997 05 31	360	0.2+	0.1+	1997 06 04	327	0.1+	0.6+
1997 05 03	327	0.6−	0.7−	1997 05 31	360	0.5+	0.1+	1997 06 04	327	0.5−	0.2+
1997 05 03	327	0.2+	0.8−	1997 05 31	360	0.3+	0.4−	1997 06 04	327	0.2+	0.7+
1997 05 08	327	0.0	0.0	1997 05 31	327	0.4+	0.3−	1998 09 16	699	0.9+	0.4+
1997 05 08	327	0.1+	0.1−	1997 05 31	327	0.1+	0.3−	1998 09 16	699	0.3+	0.1+
1997 05 08	327	0.1+	0.2−	1997 05 31	327	0.0	0.1−	1998 09 16	699	0.1+	0.7+
1997 05 08	327	0.2−	0.3+	1997 06 02	327	0.1−	0.5+	1998 09 25	699	0.1−	0.2−
1997 05 18	327	0.6−	0.4+	1997 06 02	327	0.2+	0.0	1998 09 25	699	0.7−	0.7−
1997 05 18	327	0.2−	0.7+	1997 06 02	327	0.1+	0.7−	1998 09 25	699	0.5−	0.5−
1997 05 18	327	0.3−	0.2+	1997 06 04	327	0.1−	0.2−				

1997 JF_{16} = 1998 SJ_1

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	17.62691		(2000.0)	**P**		**Q**	
n	0.27823544	ω	152.07892	+0.92140302		+0.38855216	
a	2.3237768	Ω	185.07024	−0.36902080		+0.86950190	
e	0.0476217	i	4.28910	−0.12182004		+0.30494862	
P	3.54	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1997 05 03	809	0.9−	0.4−	1997 06 07	809	0.4+	0.3−	1998 09 16	910	0.2+	0.0
1997 05 03	809	0.4+	2.0+	1997 06 07	809	0.6+	0.4−	1998 09 16	910	0.1+	0.1+
1997 05 03	809	1.3+	1.8−	1997 06 07	809	0.4+	0.0	1998 09 16	910	0.1+	0.1+
1997 05 04	809	0.5−	0.1−	1997 06 08	809	0.6−	0.8+	1998 09 18	910	0.3−	0.1+
1997 05 04	809	0.6−	0.7+	1997 06 08	809	0.8−	0.1+	1998 09 18	910	0.2−	0.2−
1997 05 04	809	0.2+	0.3−	1997 06 08	809	0.0	0.1−	1998 09 18	910	0.1+	0.0

1997 JR_{17} = 1997 LG_{14} = 1979 YW_1 = 1988 RX_5 = 1998 OT_{13} = 1998 QC_{22}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	7.54275		(2000.0)	**P**		**Q**	
n	0.19674975	ω	152.08205	+0.69051533		+0.72320507	
a	2.9277001	Ω	161.57930	−0.67092891		+0.64699771	
e	0.0125676	i	2.31559	−0.27026464		+0.24159549	
P	5.01	H	13.5	G	0.15	U	2

Residuals in seconds of arc

1979 12 23	095	0.3−	1.7+	1998 07 26	809	1.7+	1.1+	1998 08 23	704	0.4−	0.7−
1988 09 03	809	0.5+	0.1+	1998 07 26	809	1.4+	1.7+	1998 08 23	699	0.5−	0.4+
1988 09 03	809	0.0	0.2+	1998 07 26	699	0.1−	0.2−	1998 08 23	704	0.6−	1.1−
1988 09 03	809	0.7−	0.1+	1998 07 26	699	0.3−	0.5+	1998 09 13	699	0.0	1.1+
1997 05 03	809	(2.4−	1.6−)	1998 07 26	699	0.0	0.3+	1998 09 13	699	0.5−	0.1+
1997 05 03	809	1.5−	1.1−	1998 07 27	809	(2.2+	3.1+)	1998 09 13	699	1.4−	1.4+
1997 05 03	809	1.7−	0.5−	1998 07 27	809	(1.3+	3.0+)	1998 09 14	704	0.5−	0.1−
1997 05 04	809	0.4−	0.9+	1998 07 27	809	(1.9+	3.5+)	1998 09 14	704	0.7+	0.5−
1997 05 04	809	0.1+	0.3+	1998 08 17	704	(1.8+	2.7−)	1998 09 14	704	0.6−	0.2+
1997 05 04	809	0.7−	0.1+	1998 08 17	704	0.3+	1.5−	1998 09 14	704	1.0+	0.7−
1997 06 08	809	1.6+	0.1−	1998 08 17	704	0.4−	0.6−	1998 09 14	704	0.6+	0.9−
1997 06 08	809	0.8+	0.1+	1998 08 17	704	0.4+	0.5−	1998 09 18	704	0.1−	0.5−
1997 06 08	809	0.8+	0.3+	1998 08 23	699	0.1−	0.5−	1998 09 18	704	0.7+	0.2−
1997 06 09	809	(2.2+	2.2+)	1998 08 23	704	0.2+	0.2−	1998 09 18	704	0.9+	0.6+
1997 06 09	809	(1.5+	2.8+)	1998 08 23	704	0.3−	0.1−	1998 09 18	704	1.3−	0.3+
1997 06 09	809	1.5+	1.5+	1998 08 23	699	0.2−	0.2+	1998 09 18	704	0.3−	1.5+
1998 07 26	809	(1.5+	2.3+)	1998 08 23	704	0.2−	1.2−				

1997 KW_1 = 1998 RX_{26}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	2.59107		(2000.0)	**P**		**Q**	
n	0.19301401	ω	159.93996	+0.85020079		+0.52426369	
a	2.9653559	Ω	168.08283	−0.50916975		+0.84203700	
e	0.0694125	i	13.44780	−0.13380877		+0.12696954	
P	5.11	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1997 05 28	691	0.2−	0.1+	1997 06 09	691	0.2−	0.2−	1998 09 14	704	0.4−	1.4+
1997 05 28	691	0.1−	0.1+	1997 06 09	691	0.3−	0.0	1998 09 14	704	0.5−	0.5+
1997 05 28	691	0.1−	0.1+	1997 06 09	691	0.2−	0.1+	1998 09 18	704	0.0	0.9−
1997 06 02	691	0.2+	0.0	1998 09 14	704	0.0	0.0	1998 09 18	704	0.6−	0.0
1997 06 02	691	0.4+	0.1−	1998 09 14	704	0.1−	0.0	1998 09 18	704	0.9+	1.0+
1997 06 02	691	0.5+	0.1−	1998 09 14	704	0.7+	2.1−				

1997 LZ_4

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	344.01651		(2000.0)		**P**	**Q**	
n	0.22324427	ω	140.60277		+0.98776717	−0.14430723	
a	2.6912198	Ω	227.80001		+0.11518165	+0.93063374	
e	0.1695238	i	4.57491		+0.10511519	+0.33629789	
P	4.41	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1997 06 11	684	0.0	0.2+	1997 06 30	684	0.5−	0.5−	1998 09 17	699	0.0	0.1+
1997 06 11	684	0.1+	0.1−	1997 06 30	684	0.4+	0.6−	1998 09 17	699	0.5+	0.4−
1997 06 11	684	0.0	0.1+	1997 06 30	684	0.2−	0.6−	1998 09 17	699	0.1+	0.3−
1997 06 12	684	0.2−	0.6+	1997 07 01	684	0.4−	0.3+	1998 09 25	699	0.7−	0.0
1997 06 12	684	0.2+	0.6+	1997 07 01	684	0.4+	0.3+	1998 09 25	699	0.1+	0.1−
1997 06 12	684	0.0	0.4+	1997 07 01	684	0.3+	0.7−	1998 09 25	699	0.0	0.7+

1997 MR$_1$

Id. P. G. Comba (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	116.57845		(2000.0)		**P**	**Q**	
n	0.28256524	ω	349.61179		−0.45126746	+0.80613312	
a	2.2999773	Ω	252.63179		−0.78729244	−0.56158334	
e	0.0939073	i	23.64369		−0.42015271	+0.18647664	
P	3.49	H	15.0	G	0.15	U	3

Residuals in seconds of arc

1997 06 30	684	0.1+	0.1+	1997 07 02	684	0.1−	0.1−	1997 08 25	684	0.7−	0.6−
1997 06 30	684	0.2+	0.1+	1997 07 04	684	0.0	0.2−	1997 08 25	684	0.2+	0.7−
1997 06 30	684	0.3+	0.1+	1997 07 04	684	0.2−	0.1+	1997 08 25	684	0.3−	0.4−
1997 07 01	684	0.0	0.1−	1997 07 04	684	0.1+	0.4−	1998 09 16	684	0.2+	0.0
1997 07 01	684	0.1+	0.1−	1997 07 29	684	0.4+	0.6+	1998 09 16	684	0.1+	0.1+
1997 07 01	684	0.2+	0.1−	1997 07 29	684	0.3+	0.5+	1998 09 16	684	0.0	0.1−
1997 07 02	684	0.2−	0.3+	1997 08 22	684	0.7−	0.8+	1998 09 17	684	0.1−	0.0
1997 07 02	684	0.6−	0.3−	1997 08 22	684	1.0+	0.4+	1998 09 17	684	0.2−	0.1−

1997 PM$_1$ = 1991 PW$_{25}$ = 1997 PP$_5$

Id. G. V. Williams (d, *MPC* 30696; unpublished), P. G. Comba (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	251.21106		(2000.0)		**P**	**Q**	
n	0.17493894	ω	6.96402		−0.68253775	−0.72479061	
a	3.1662489	Ω	126.13036		+0.66480911	−0.66909629	
e	0.0904528	i	6.67763		+0.30359690	−0.16428245	
P	5.63	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1991 08 05	809	0.7+	0.1−	1997 08 11	684	0.2+	0.4+	1997 09 02	118	0.4+	0.6−
1991 08 05	809	0.1−	1.3−	1997 08 11	684	0.1+	0.4+	1997 09 22	684	0.2−	0.6+
1991 08 05	809	0.4−	0.4−	1997 08 11	684	0.2+	0.3+	1997 09 22	684	0.2−	0.0
1997 07 31	691	1.1−	0.3+	1997 08 23	684	0.4+	0.4+	1997 09 22	684	0.1+	0.3−
1997 07 31	691	1.9−	0.7+	1997 08 23	684	0.6+	0.1+	1997 09 23	684	0.4−	0.4−
1997 07 31	691	1.7−	0.4+	1997 08 23	684	0.3+	0.3+	1997 09 23	684	0.3−	0.1−
1997 08 04	684	0.0	0.2+	1997 09 01	684	0.3+	0.0	1997 10 02	684	0.1−	0.3−
1997 08 04	684	0.2+	0.6+	1997 09 01	684	0.4+	0.2−	1997 10 02	684	0.0	0.1−
1997 08 05	684	0.0	0.1+	1997 09 01	684	0.4+	0.0	1997 10 02	684	0.4−	0.2−
1997 08 05	684	0.1+	0.1+	1997 09 01	118	0.6+	0.0	1998 09 17	684	0.2+	0.2+
1997 08 05	684	0.1+	0.4+	1997 09 01	118	0.9+	0.4−	1998 09 17	684	0.0	0.0
1997 08 10	684	0.1−	0.3+	1997 09 01	118	0.7+	0.4−	1998 09 18	684	0.1−	0.3−
1997 08 10	684	0.4−	0.4−	1997 09 02	118	0.1+	0.2−	1998 09 18	684	0.0	0.3−
1997 08 10	684	0.0	0.4+	1997 09 02	118	0.1+	0.6−				

1997 PU$_2$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	244.41035		(2000.0)		**P**	**Q**	
n	0.28648038	ω	5.54312		−0.91003577	−0.36710627	
a	2.2789745	Ω	150.49581		+0.36372127	−0.92994367	
e	0.1412342	i	23.01266		+0.19885104	+0.02092247	
P	3.44	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1997 08 12	046	0.3−	0.2−	1997 08 26	046	0.6+	0.4−	1997 10 05	046	0.1−	0.3−
1997 08 12	046	0.5−	0.1+	1997 08 26	046	0.1+	0.6−	1997 10 05	046	0.2+	0.0
1997 08 12	046	0.3−	0.1+	1997 08 26	046	0.2+	0.3−	1997 10 05	046	0.0	0.3−
1997 08 12	046	0.1−	0.0	1997 08 31	046	0.4+	0.4−	1997 10 06	046	0.1+	0.4−
1997 08 12	046	0.5−	0.7+	1997 08 31	046	0.5+	0.4−	1997 10 06	046	0.3+	0.6−
1997 08 13	046	0.1+	0.8+	1997 08 31	046	0.3+	0.2−	1997 10 06	046	0.0	0.6−
1997 08 13	046	0.3−	0.2+	1997 09 08	046	0.6+	0.9+	1997 10 19	046	0.7−	1.1+
1997 08 13	046	0.9−	0.6+	1997 09 08	046	1.1+	0.5−	1997 10 19	046	0.8−	1.2+
1997 08 13	046	0.2−	0.4+	1997 09 08	046	0.6+	0.0	1997 10 19	046	1.7−	0.5+
1997 08 14	046	1.0−	0.2+	1997 09 09	046	(2.2+	0.2−)	1997 10 22	046	0.7−	0.2−
1997 08 14	046	0.2+	0.2+	1997 09 09	046	1.0+	0.7−	1997 10 22	046	1.0−	0.0
1997 08 14	046	0.4+	0.7+	1997 09 18	046	1.3+	0.7+	1998 09 25	046	0.3−	0.1−
1997 08 21	046	0.3−	0.1−	1997 09 18	046	1.3+	0.2−	1998 09 25	046	0.5−	0.1−
1997 08 21	046	0.1−	0.2−	1997 09 21	046	0.4+	0.6−	1998 09 25	046	0.6−	0.0
1997 08 21	046	0.1−	0.2+	1997 09 21	046	0.5+	0.1−	1998 09 30	046	0.4+	0.3+
1997 08 22	046	0.5−	0.0	1997 09 25	046	0.6−	0.9−	1998 09 30	046	0.2+	0.3+
1997 08 22	046	0.0	0.5+	1997 09 25	046	0.1−	0.9−	1998 09 30	046	0.7+	0.1+
1997 08 22	046	0.1−	0.1+	1997 09 25	046	0.2+	0.8−				

1997 UT$_6$ = 1981 UU$_5$ = 1994 WC$_3$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	290.31876		(2000.0)		**P**	**Q**	
n	0.30559675	ω	341.06276		−0.98543175	+0.16812156	
a	2.1829154	Ω	208.65369		−0.14830747	−0.92337682	
e	0.1340766	i	3.06977		−0.08324157	−0.34512372	
P	3.23	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1981 10 30	381	0.2−	1.1−	1997 10 22	704	(3.2+	0.0)	1997 10 23	691	0.4−	0.2+
1981 10 30	381	0.7+	0.1+	1997 10 22	704	1.1+	1.6+	1997 10 28	691	0.5−	0.2+
1994 11 28	399	0.3+	0.9+	1997 10 22	704	0.8+	0.3−	1997 10 28	691	0.9−	0.2+
1994 11 28	399	1.5+	0.4+	1997 10 22	704	(1.8+	3.1−)	1997 10 28	691	0.4−	0.2+
1994 11 29	399	0.6−	0.7−	1997 10 23	691	0.5−	0.1+				
1994 11 29	399	1.2−	0.2−	1997 10 23	691	0.3+	1.7−				

1997 UC$_{25}$ = 1997 TU$_{25}$ = 1977 PU$_1$ = 1980 LL = 1983 GQ$_1$ = 1987 SB$_{19}$ = 1987 WY$_2$ = 1993 HJ

Id. A. Doppler, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	142.79427		(2000.0)		**P**	**Q**	
n	0.29849774	ω	108.08234		+0.38127874	+0.92444470	
a	2.2173897	Ω	184.34169		−0.87261916	+0.35798416	
e	0.1895988	i	4.04581		−0.30522503	+0.13133675	
P	3.30	H	14.0	G	0.15	U	2

Residuals in seconds of arc

1977 08 14	095	1.0−	0.8+	1993 04 20	400	2.1+	2.5−	1997 10 26	894	0.3−	0.5−
1977 08 21	095	1.2−	1.6+	1993 04 20	400	1.4−	0.4−	1997 10 29	566	0.0	0.1−
1980 06 10	675	0.3−	2.0−	1993 05 08	400	1.7−	2.9+	1997 10 29	566	0.0	0.1−
1980 06 11	675	0.9+	1.8−	1993 05 08	400	0.6+	0.5+	1997 10 29	566	0.1−	0.2−
1980 06 12	675	(12.2+	9.5−)	1997 10 08	894	0.0	1.0+	1997 10 29	894	1.4−	1.2−
1983 04 09	095	1.4+	1.1+	1997 10 08	894	0.6−	0.9+	1997 10 29	894	0.5−	0.1+
1987 09 16	095	2.0+	1.7+	1997 10 12	894	1.4+	0.5−	1997 10 30	704	0.1+	0.3−
1987 11 17	010	2.2−	0.4+	1997 10 12	894	0.9+	2.0−	1997 10 30	704	0.1+	0.0
1987 11 17	010	0.8−	0.3+	1997 10 25	894	1.4+	0.5−	1997 10 30	704	0.2+	0.1+

1993 04 16	400	(2.6−	3.6+)	1997 10 25	894	0.2−	0.8+	1997 10 30	704	0.4+	1.0−
1993 04 16	400	0.6−	2.5+	1997 10 26	894	0.4−	0.6+	1997 10 30	704	0.3+	0.0

1997 WZ$_{36}$ = 1997 XN$_{13}$ = 1993 SR$_4$

Id. A. Doppler, G. V. Williams (d)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	89.69168		(2000.0)		**P**	**Q**	
n	0.26853422	ω	203.22740		+0.93528130	−0.35389888	
a	2.3794119	Ω	177.49569		+0.33181593	+0.87481316	
e	0.1774086	i	2.77174		+0.12307343	+0.33084365	
P	3.67	H	15.5	G	0.15	U	6

Residuals in seconds of arc

1993 09 19	010	0.1−	1.2−	1997 11 29	704	0.2−	0.5+	1997 12 04	704	0.8+	0.8−
1993 09 19	010	0.4−	1.1−	1997 11 29	704	0.7+	1.2+	1997 12 04	704	0.2+	0.9+
1993 09 20	010	1.4+	0.7+	1997 11 29	704	0.4−	0.2−	1997 12 05	704	0.6+	0.3−
1993 09 20	010	0.7−	0.5+	1997 11 29	704	0.6−	0.2−	1997 12 05	704	0.3−	0.7+
1993 09 20	010	0.1−	1.1+	1997 11 29	704	0.2−	0.3−	1997 12 05	704	1.6−	1.3−
1997 11 26	704	(6.0−	0.8−)	1997 12 04	704	0.7+	0.4−	1997 12 05	704	0.9−	0.3+
1997 11 26	704	(6.6−	0.7−)	1997 12 04	704	0.7+	0.2+	1997 12 05	704	0.7−	0.8+
1997 11 26	704	(7.3−	0.9−)	1997 12 04	704	1.2+	1.0−				

1997 YT = 1996 TQ$_{60}$

Id. S. Nakano, A. Doppler

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	194.98240		(2000.0)		**P**	**Q**	
n	0.22903720	ω	35.84896		+0.62719948	+0.77594736	
a	2.6456478	Ω	273.09268		−0.72936731	+0.55484826	
e	0.0754113	i	3.86337		−0.27321079	+0.30008184	
P	4.30	H	13.5	G	0.15	U	5

Residuals in seconds of arc

1996 10 03	809	0.1+	0.9+	1997 12 20	411	0.3+	0.0	1998 01 02	704	0.3+	0.1+
1996 10 03	809	0.2+	0.8+	1997 12 20	411	0.3−	0.4−	1998 01 02	704	0.3−	0.2−
1996 10 03	809	0.2−	0.5+	1997 12 21	411	0.0	0.5+	1998 01 02	704	0.2+	0.4−
1996 10 04	809	0.0	1.6−	1997 12 21	411	0.3+	0.1−	1998 01 02	704	0.3+	0.1+
1996 10 04	809(	1.2−	2.4−)	1997 12 28	411	0.4−	0.3+	1998 01 04	411	0.1+	0.1+
1996 10 04	809	0.1−	0.6−	1997 12 28	411	0.5−	0.2+	1998 01 04	411	0.1+	0.3−

1998 BF$_{11}$ = 1975 XG$_6$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	69.77679		(2000.0)		**P**	**Q**	
n	0.18421623	ω	315.39778		+0.43610399	−0.87861798	
a	3.0590327	Ω	107.84500		+0.87215543	+0.35940529	
e	0.0958892	i	11.79245		+0.22171654	+0.31441736	
P	5.35	H	14.0	G	0.15	U	6

Residuals in seconds of arc

1975 12 06	809	0.4−	0.4+	1998 01 02	704	0.3+	0.1−	1998 01 24	704	0.8−	0.4−
1975 12 06	809	0.1+	0.3+	1998 01 23	704	0.1+	0.2−	1998 01 24	704	1.3−	0.3+
1975 12 07	809	0.0	0.4−	1998 01 23	704	1.1−	0.5−	1998 01 25	704	0.3+	0.0
1975 12 07	809	0.2+	0.3−	1998 01 23	704	0.3−	0.0	1998 01 25	704	0.5−	0.6+
1998 01 02	704	0.4+	0.3+	1998 01 23	704	0.1−	0.6−	1998 01 25	704	1.1+	0.6+
1998 01 02	704	0.5+	0.4+	1998 01 23	704	0.4−	0.1−	1998 01 25	704	0.1+	0.1+
1998 01 02	704	0.4+	0.3−	1998 01 24	704	0.2−	0.2−				
1998 01 02	704	0.3+	0.3−	1998 01 24	704	0.1−	0.0				

1998 BX$_{13}$ = 1952 HK$_1$ = 1977 RC$_1$ = 1987 UJ$_8$ = 1997 WX$_{36}$

Id. A. Doppler, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	149.78607		(2000.0)		**P**	**Q**	
n	0.20496009	ω	180.82006		+0.42861626	+0.90039411	
a	2.8489829	Ω	114.56250		−0.82846456	+0.42466251	
e	0.2248190	i	4.71049		−0.36046439	+0.09461606	
P	4.81	H	13.0	G	0.15	U	3

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

1952 04 29	760(0.04+	0.03−)X		1997 12 04	704	0.3+	0.6+	1998 01 27	691	0.1+	0.5+
1977 09 07	095	0.4−	0.9+	1997 12 04	704	0.7−	0.3−	1998 01 27	691	0.0	0.7+
1987 10 23	095	0.4+	0.7−	1997 12 04	704	0.2−	0.2−	1998 01 27	691	0.0	0.6+
1997 11 29	704	1.2+	0.8−	1997 12 04	704	0.4+	0.3−	1998 02 02	691	0.3−	0.8+
1997 11 29	704	0.0	0.1−	1997 12 04	704	0.6−	0.3−	1998 02 02	691	0.5−	0.9+
1997 11 29	704	0.2+	0.4−	1998 01 26	691	0.6−	0.1−	1998 02 02	691	0.3−	0.6+
1997 11 29	704	0.3+	0.3−	1998 01 26	691	0.6−	0.2+				
1997 11 29	704	1.1+	1.0−	1998 01 26	691	0.6−	0.2+				

1998 BA$_{20}$ = 1996 TS$_{64}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	148.88031		(2000.0)		**P**	**Q**	
n	0.21068852	ω	151.08960		+0.99902694	+0.04406756	
a	2.7971052	Ω	206.38488		−0.04120213	+0.91799212	
e	0.0694033	i	0.23153		−0.01573402	+0.39414275	
P	4.68	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1996 10 10	566	0.1−	0.7−	1996 10 19	910	0.0	0.6+	1998 01 29	691	1.0−	0.8−
1996 10 10	566	0.0	0.7−	1998 01 22	691	0.5+	0.2−	1998 01 29	691	0.5−	0.0
1996 10 10	566	0.1+	0.5−	1998 01 22	691	0.4+	0.0	1998 02 03	691	0.3+	0.3+
1996 10 19	910	0.1+	0.8+	1998 01 22	691	0.3+	0.4−	1998 02 03	691	0.4+	0.2+
1996 10 19	910	0.0	0.4+	1998 01 29	691	0.6−	0.2+	1998 02 03	691	0.2+	0.6+

1998 DU$_2$ = 1995 LH$_1$

Id. G. V. Williams, A. Doppler

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	82.64262		(2000.0)		**P**	**Q**	
n	0.24411730	ω	340.48840		+0.15120091	−0.97319190	
a	2.5355393	Ω	100.51691		+0.92874244	+0.07982378	
e	0.2710409	i	10.15255		+0.33849043	+0.21569815	
P	4.04	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1995 06 05	327	0.8−	0.3−	1995 06 06	327	0.5+	0.6−	1998 02 21	327	0.3+	0.3−
1995 06 05	327	0.6−	0.2−	1995 06 06	327	0.5+	0.2−	1998 02 21	327	0.2−	0.4−
1995 06 06	327	0.4−	0.2+	1998 02 16	327	0.4−	0.3+	1998 02 23	327	0.1−	0.2+
1995 06 06	327	0.3+	0.5+	1998 02 16	327	0.1+	0.0	1998 02 23	327	0.0	0.2+
1995 06 06	327	0.5+	0.6+	1998 02 16	327	0.1−	0.0	1998 02 23	327	0.2+	0.2+
1995 06 06	327	0.1+	0.0	1998 02 21	327	0.1+	0.1−				

1998 DV$_4$ = 1996 NT$_2$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	105.58342		(2000.0)		**P**	**Q**	
n	0.28491290	ω	284.30784		+0.39882241	−0.91700708	
a	2.2873255	Ω	142.18567		+0.84521915	+0.36495231	
e	0.1271881	i	0.58132		+0.35573202	+0.16095906	
P	3.46	H	16.0	G	0.15	U	5

Residuals in seconds of arc

1996 07 14	809	0.1−	0.2+	1998 02 22	566	0.1+	0.9+	1998 03 03	704	1.0−	0.6+
1996 07 14	809	0.8+	0.6+	1998 02 23	566	0.4+	0.8+	1998 03 04	704	0.5−	0.3−
1996 07 14	809	0.6+	0.2−	1998 02 23	566	0.2+	0.8+	1998 03 04	704	1.1−	0.7−
1996 07 16	809	0.5−	1.2+	1998 02 23	566	0.6+	0.7+	1998 03 04	704	0.3+	0.9−
1996 07 16	809	0.4−	0.1−	1998 03 03	704	0.1+	1.0−	1998 03 04	704	1.5+	1.1−
1996 07 16	809	0.8−	0.8−	1998 03 03	704	1.2−	1.3−	1998 03 04	704	0.7−	1.2−

1998 02 22	566	0.1+	1.3+	1998 03 03	704	0.1+	0.3+
1998 02 22	566	0.4+	0.8+	1998 03 03	704	0.8+	0.9+

1998 DE$_5$ = 1976 UP$_4$ = 1980 VB$_4$ = 1988 VO$_{13}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	192.98122		(2000.0)		**P**		**Q**
n	0.24607915	ω	327.78081		+0.94275040		+0.33299028
a	2.5220451	Ω	12.80821		−0.28565112		+0.83475911
e	0.1837407	i	4.76521		−0.17211951		+0.43851419
P	4.01	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1976 10 30	095	1.1−	3.1+	1998 02 23	566	0.1+	1.1−	1998 03 03	704	0.5+	0.7+
1980 11 01	675	0.9+	1.2−	1998 02 23	566	0.3+	0.7−	1998 03 03	704	0.7+	0.7−
1980 11 02	675	0.2+	1.5−	1998 02 23	566	0.6+	0.5−	1998 03 03	704	0.1+	0.9+
1988 11 04	327	0.1+	0.6−	1998 02 27	566	0.2−	0.8+	1998 03 04	704	0.8−	0.3+
1988 11 04	327	0.0	0.3+	1998 02 27	566	0.1−	0.8+	1998 03 04	704	0.0	1.6+
1998 02 22	566	0.3−	0.3−	1998 02 27	566	0.1−	0.4+	1998 03 04	704	0.6−	0.4+
1998 02 22	566	0.8−	0.2−	1998 03 03	704	0.1+	0.9−	1998 03 04	704	0.0	0.6+
1998 02 22	566	0.5−	0.5−	1998 03 03	704	1.0+	1.6−				

1998 DD$_6$ = 1996 PK$_3$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	122.03049		(2000.0)		**P**		**Q**
n	0.26153839	ω	252.73542		+0.67949089		−0.73336114
a	2.4216558	Ω	154.41977		+0.69083696		+0.62953939
e	0.1793321	i	2.88899		+0.24705551		+0.25663515
P	3.77	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1996 08 06	327	0.1+	0.5+	1998 02 23	566	0.1+	0.1+	1998 03 03	704	0.1+	0.6+
1996 08 06	327	0.3+	0.1+	1998 02 23	566	0.2+	0.1−	1998 03 04	809	1.4+	0.2−
1996 08 06	327	0.5+	0.2+	1998 02 23	566	0.1−	0.2+	1998 03 04	809	1.2+	0.1−
1996 08 06	327	0.1−	0.1−	1998 03 03	809	0.0	1.6−	1998 03 04	809	(2.2+	0.5−)
1996 08 13	327	0.3−	0.6−	1998 03 03	809	0.3+	1.0−	1998 03 04	704	1.2−	0.6−
1996 08 13	327	0.5−	0.2+	1998 03 03	809	(1.1+	1.8−)	1998 03 04	704	1.6−	0.9+
1998 02 22	566	0.1−	0.3+	1998 03 03	704	0.4−	1.2+	1998 03 04	704	1.8−	0.7−
1998 02 22	566	0.2−	0.4+	1998 03 03	704	1.3+	1.1+	1998 03 04	704	0.4−	0.8−
1998 02 22	566	0.1−	0.4+	1998 03 03	704	1.4+	0.2+				

1998 ES$_1$ = 1972 AN = 1979 WQ$_6$ = 1981 EF$_{43}$ = 1983 RA$_6$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	152.33490		(2000.0)		**P**		**Q**
n	0.23461560	ω	220.39806		+0.63638509		−0.77121346
a	2.6035432	Ω	190.11263		+0.72866757		+0.60767296
e	0.2337832	i	5.10216		+0.25309603		+0.18964012
P	4.20	H	14.5	G	0.15	U	2

Residuals in seconds of arc

1972 01 14	029	1.4+	1.5−	1998 03 02	910	0.4+	0.0	1998 03 20	704	0.4−	0.9−
1972 01 15	029	0.4+	0.4+	1998 03 02	910	0.5+	0.0	1998 03 20	704	1.9−	0.6+
1972 01 17	029	1.9−	0.5+	1998 03 02	910	0.4+	0.0	1998 03 25	704	1.0−	0.7−
1979 11 17	095	0.3−	0.5−	1998 03 03	910	0.6+	0.2−	1998 03 25	704	0.4−	0.8−
1981 02 12	413	0.4−	1.4−	1998 03 03	910	0.5+	0.3−	1998 03 25	704	0.1+	1.1+
1981 03 02	413	0.5−	1.5+	1998 03 03	910	0.3+	0.2−	1998 03 25	704	0.8+	1.1−
1981 03 06	413	(7.5+	4.2−)	1998 03 20	704	0.6+	0.4−	1998 03 25	704	0.7−	0.7+
1981 03 15	413	0.3−	0.7−	1998 03 20	704	(3.6−	1.2−)				
1983 09 03	095	0.9+	2.3−	1998 03 20	704	0.4+	0.1−				

1998 FR = 1995 SO$_{43}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	235.34254		(2000.0)		**P**		**Q**
n	0.20399213	ω	210.49702		+0.91328167		+0.40505773
a	2.8579883	Ω	125.54696		−0.36225095		+0.85590034
e	0.0750382	i	3.02601		−0.18625478		+0.32150094
P	4.83	H	16.5	G	0.15	U	5

Residuals in seconds of arc

1995 09 25	691	0.1+	0.2−	1998 03 18	691	0.2−	0.2+	1998 03 21	691	0.6+	0.0
1995 09 25	691	0.4−	0.3−	1998 03 18	691	0.1+	0.4−	1998 03 25	691	0.3−	0.3+
1995 09 25	691	0.0	0.3−	1998 03 18	691	0.9−	0.3−	1998 03 25	691	0.5−	0.0
1995 09 30	691	0.2+	0.3+	1998 03 21	691	0.8+	0.1−	1998 03 25	691	0.3−	0.1+
1995 09 30	691	0.2+	0.4+	1998 03 21	691	0.7+	0.2+				

1998 FN$_{10}$ = 1996 TH$_{20}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	49.65821		(2000.0)		**P**		**Q**
n	0.26590603	ω	214.65801		−0.91399690		−0.40476269
a	2.3950647	Ω	301.44226		+0.37924130		−0.82791421
e	0.1341625	i	1.87210		+0.14417250		−0.38823346
P	3.71	H	18.0	G	0.15	U	5

Residuals in seconds of arc

1996 10 05	691	0.5−	0.1−	1998 03 24	910	0.2−	0.2+	1998 04 01	704	(3.0+	0.5−)
1996 10 05	691	0.5−	0.1+	1998 03 24	910	0.1+	0.1+	1998 04 01	704	0.6−	0.1−
1996 10 05	691	0.6−	0.3−	1998 03 25	910	0.0	0.0	1998 04 01	704	0.3+	0.6−
1996 10 08	691	0.4+	0.0	1998 03 25	910	0.4+	0.3+	1998 04 01	704	0.9−	0.0
1996 10 08	691	0.6+	0.3+	1998 03 25	910	0.2+	0.2+	1998 04 01	704	(4.2−	0.3+)
1996 10 08	691	0.7+	0.2−	1998 03 26	910	0.5+	0.1−				

1998 FM$_{15}$ = 1984 CP$_1$ = 1993 AV

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	173.24943		(2000.0)		**P**		**Q**
n	0.21599873	ω	187.38766		+0.96220022		−0.27231016
a	2.7510718	Ω	188.41773		+0.25132547		+0.89382388
e	0.0597155	i	1.65690		+0.10491068		+0.35626682
P	4.56	H	13.3	G	0.15	U	5

Residuals in seconds of arc

1984 02 02	801	0.2+	0.7+	1998 03 22	704	0.2+	0.7+	1998 03 30	426	0.0	0.5+
1993 01 13	399	0.3−	0.8+	1998 03 22	704	0.7−	0.3−	1998 03 30	426	0.3−	0.3+
1993 01 13	399	0.2+	1.3−	1998 03 22	704	0.0	0.6−	1998 03 30	426	0.5+	0.3−
1998 02 24	566	0.4−	0.0	1998 03 22	704	0.7+	0.4+	1998 04 04	426	0.2+	0.1−
1998 02 24	566	0.2−	0.2−	1998 03 26	704	0.1−	0.3−	1998 04 04	426	0.1−	0.1+
1998 02 24	566	0.3−	0.2+	1998 03 26	704	0.3−	0.1+	1998 04 04	426	0.3+	0.5−
1998 03 18	905	0.8+	0.5−	1998 03 26	704	0.5+	0.6−	1998 04 14	426	0.3−	0.1−
1998 03 20	704	0.1−	0.4−	1998 03 27	426	0.3+	0.2−	1998 04 14	426	0.0	0.1+
1998 03 20	704	0.2−	0.1−	1998 03 27	426	0.4−	0.0	1998 04 14	426	0.0	0.8+
1998 03 20	704	0.0	0.4−	1998 03 27	426	0.1+	0.8+	1998 04 22	426	0.3−	0.1+
1998 03 20	704	0.4+	0.0	1998 03 28	426	0.0	0.7+	1998 04 22	426	0.1+	0.2−
1998 03 20	704	0.0	0.1+	1998 03 28	426	0.0	0.1+	1998 04 22	426	1.1−	0.1−
1998 03 22	704	0.5+	0.3−	1998 03 28	426	0.1−	0.1−				

1998 FC$_{28}$ = 1996 TQ$_{14}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	172.77923		(2000.0)		**P**		**Q**
n	0.26917603	ω	197.60432		+0.93549582		−0.35328853
a	2.3756282	Ω	183.10308		+0.33587657		+0.89432451
e	0.1283398	i	6.25545		+0.10970191		+0.27453759
P	3.66	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1996 10 09	399	0.3−	0.7+	1998 03 20	704	0.5+	0.2−	1998 03 26	704	0.5−	0.5−
1996 10 09	399	0.3−	0.9+	1998 03 20	704	0.0	0.5−	1998 03 26	704	0.9−	0.3−
1996 10 10	399	(3.2+	1.0+)	1998 03 20	704	0.7−	0.1−	1998 03 26	704	0.5−	0.3−
1996 10 10	399	0.8+	0.4−	1998 03 22	704	0.3−	0.6+	1998 04 01	704	0.3+	1.3+
1996 10 16	399	0.2+	0.6−	1998 03 22	704	0.3+	0.3+	1998 04 01	704	0.8+	1.3−
1996 10 16	399	0.4−	0.4−	1998 03 22	704	0.0	0.0	1998 04 01	704	1.3+	0.6−
1998 03 20	704	1.3+	0.5+	1998 03 22	704	1.2−	0.6−	1998 04 01	704	(2.4+	0.3+)
1998 03 20	704	1.1+	0.1+	1998 03 22	704	1.1−	0.4+	1998 04 01	704	0.2−	1.3+

1998 FC$_{30}$ = 1979 QC$_6$ = 1991 NF$_8$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	105.12092		(2000.0)		**P**	**Q**	
n	0.24103525	ω	110.30027		−0.04450972	−0.99603911	
a	2.5571076	Ω	341.73455		+0.80025336	+0.01057397	
e	0.0404061	i	14.21691		+0.59800789	−0.08828525	
P	4.09	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1979 08 19	095	0.4+	0.6−	1998 03 22	704	0.3+	0.9−	1998 03 31	704	0.7−	0.3+
1991 07 13	675	1.6−	0.1+	1998 03 22	704	0.0	1.1−	1998 03 31	704	1.0−	0.4−
1991 07 13	675	1.5+	0.2+	1998 03 22	704	0.3+	0.4−	1998 04 01	704	0.2−	0.5+
1998 03 20	704	(2.6+	1.9−)	1998 03 22	704	0.2+	0.5+	1998 04 01	704	0.4+	0.2+
1998 03 20	704	(2.9+	1.8−)	1998 03 22	704	0.2+	0.3−	1998 04 01	704	0.9+	0.1+
1998 03 20	704	(2.4+	1.2−)	1998 03 31	704	0.6−	0.8+	1998 04 01	704	0.8+	0.1+
1998 03 20	704	(2.3+	2.0−)	1998 03 31	704	0.7−	0.0				
1998 03 20	704	(2.1+	2.5−)	1998 03 31	704	0.4−	0.3+				

1998 FK$_{30}$ = 1930 UV = 1974 RD$_2$ = 1980 BH$_5$ = 1983 SS = 1983 TZ$_1$

Id. A. Doppler, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	98.72464		(2000.0)		**P**	**Q**	
n	0.22345550	ω	88.98321		+0.44981882	−0.89198655	
a	2.6895235	Ω	334.13551		+0.77293911	+0.41402755	
e	0.3227419	i	5.91789		+0.44746861	+0.18149708	
P	4.41	H	13.5	G	0.15	U	2

Residuals in seconds of arc

1930 10 15	690	0.2+	0.8+	1998 03 20	704	0.8+	0.4−	1998 03 26	704	0.2−	0.4−
1930 10 17	690	(7.8−	1.9−)	1998 03 20	704	0.4+	1.1−	1998 03 26	704	0.1−	0.6−
1930 10 19	690	0.4+	0.7−	1998 03 20	704	0.8+	1.5−	1998 03 26	704	(2.9−	1.4−)
1974 09 11	095	2.0−	1.2−	1998 03 20	704	0.8+	0.9−	1998 04 01	704	0.0	0.3−
1980 01 22	095	0.6−	2.1+	1998 03 22	704	0.7−	0.0	1998 04 01	704	0.3+	0.9+
1983 09 17	095	1.0+	0.1+	1998 03 22	704	0.2+	0.2−	1998 04 01	704	0.4−	0.3−
1983 10 12	688	2.0+	2.0−	1998 03 22	704	0.4−	0.4−	1998 04 01	704	1.3−	0.0
1983 10 12	688	(1.0+	3.9−)	1998 03 22	704	0.7−	0.1+	1998 04 01	704	0.1−	0.4+
1998 03 20	704	0.2−	0.4−	1998 03 22	704	0.6−	0.2−				

1998 FK$_{35}$ = 1980 FF$_4$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	91.22136		(2000.0)		**P**	**Q**	
n	0.27409715	ω	107.41649		−0.13139976	−0.99130716	
a	2.3471078	Ω	350.12688		+0.89417534	−0.11562355	
e	0.1779474	i	2.22239		+0.42800067	−0.06277979	
P	3.60	H	16.5	G	0.15	U	6

Residuals in seconds of arc

1980 03 16	809	0.3−	0.5+	1998 03 20	704	0.9+	0.0	1998 03 29	704	0.6−	1.0+
1980 03 16	809	0.1−	0.5+	1998 03 22	704	0.2−	0.7+	1998 03 29	704	1.5−	0.6+
1980 03 16	809	0.3−	0.0	1998 03 22	704	(1.1−	1.9+)	1998 03 29	704	0.3+	0.3−
1980 03 16	809	0.1+	0.2+	1998 03 22	704	(1.9+	0.6+)	1998 03 29	704	0.1+	0.8−
1980 03 17	809	0.1−	0.7+	1998 03 22	704	1.1−	1.4−	1998 04 01	704	0.8−	0.7+
1980 03 17	809	0.1+	0.4−	1998 03 28	704	0.2+	0.8−	1998 04 01	704	1.3+	0.7+
1980 03 17	809	0.2+	0.1−	1998 03 28	704	0.1−	0.6−	1998 04 01	704	0.1+	0.5−
1980 03 17	809	0.9+	0.4−	1998 03 28	704	0.2−	0.2+	1998 04 01	704	0.5+	1.1+
1998 03 20	704	1.2−	0.2+	1998 03 28	704	0.0	1.0−	1998 04 01	704	0.5+	0.1+
1998 03 20	704	0.6−	0.4+	1998 03 28	704	(1.1−	2.0−)				
1998 03 20	704	1.4+	1.1−	1998 03 29	704	0.5+	0.3−				

1998 FN$_{43}$ = 1976 SY$_1$ = 1986 VF$_3$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	230.21011		(2000.0)		**P**	**Q**	
n	0.29961241	ω	351.93313		+0.98026859	+0.19754957	
a	2.2118866	Ω	356.64950		−0.17412710	+0.84646051	
e	0.1924490	i	6.78322		−0.09355874	+0.49444795	
P	3.29	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1976 09 24	095	0.4+	0.6−	1998 03 22	704	0.5+	0.3+	1998 03 29	704	0.0	0.1+
1986 11 04	010	(4.3−	0.6−)	1998 03 22	704	0.5−	0.7+	1998 03 29	704	0.8−	1.1+
1986 11 04	010	0.4+	0.2+	1998 03 22	704	0.4+	0.2+	1998 03 29	704	0.5+	0.6+
1986 11 04	010	0.3−	0.2−	1998 03 22	704	(2.0+	0.3+)	1998 03 29	704	0.2+	0.5−
1998 03 20	704	0.0	0.6−	1998 03 22	704	0.7−	1.7+	1998 04 01	704	0.5−	0.8+
1998 03 20	704	0.6−	1.4−	1998 03 28	704	0.9+	0.2+	1998 04 01	704	0.4+	0.2−
1998 03 20	704	0.2−	0.0	1998 03 28	704	0.0	1.0−	1998 04 01	704	(1.6+	2.2−)
1998 03 20	704	0.8+	1.1−	1998 03 28	704	0.5−	1.2+	1998 04 01	704	1.1+	0.6−
1998 03 20	704	1.0−	1.3−	1998 03 29	704	0.5−	1.2−	1998 04 01	704	(0.9−	2.6−)

1998 FV$_{53}$ = 1996 XQ$_{12}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	123.07883		(2000.0)		**P**	**Q**	
n	0.24627292	ω	100.81191		+0.17477723	−0.98405189	
a	2.5207220	Ω	339.03475		+0.86337630	+0.16932557	
e	0.0682676	i	5.30602		+0.47332260	+0.05450443	
P	4.00	H	16.0	G	0.15	U	5

Residuals in seconds of arc

1996 12 06	691	0.5−	0.1−	1998 03 20	704	0.5+	0.2+	1998 03 25	910	1.3+	0.3−
1996 12 06	691	0.6−	0.0	1998 03 20	704	(4.4−	3.9−)	1998 03 26	910	1.5+	0.3−
1996 12 06	691	0.2−	0.2−	1998 03 22	704	0.9−	0.8+	1998 04 01	704	0.1−	0.4−
1996 12 09	691	0.3+	0.3+	1998 03 22	704	1.0+	1.4−	1998 04 01	704	0.9−	0.7+
1996 12 09	691	0.4+	0.1+	1998 03 22	704	1.6−	0.7+	1998 04 01	704	0.3+	0.7+
1996 12 09	691	0.5+	0.1−	1998 03 22	704	0.6−	0.9+	1998 04 01	704	1.2−	1.1−
1998 03 20	704	0.0	0.0	1998 03 22	704	(5.8−	2.0+)	1998 04 01	704	(5.8−	2.8−)
1998 03 20	704	0.9−	0.1−	1998 03 25	910	1.4+	0.3−				

1998 FL$_{57}$ = 1998 HE$_{130}$ = 2091 T-2

Id. G. V. Williams (d, *MPC* 32344), A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	318.62542		(2000.0)		**P**	**Q**	
n	0.30731889	ω	301.47258		+0.24559483	+0.96936783	
a	2.1747527	Ω	342.74363		−0.88587824	+0.22317008	
e	0.2184409	i	0.58566		−0.39357709	+0.10257257	
P	3.21	H	17.0	G	0.15	U	4

Residuals in seconds of arc

1973 09 19	675	0.9−	1.6−	1998 03 22	704	1.0−	1.2+	1998 03 29	704	1.7+	0.5−
1973 09 19	675	0.0	1.5−	1998 03 22	704	2.2+	1.5+	1998 03 29	704	0.9+	0.5+
1973 09 24	675	1.5−	0.3−	1998 03 22	704	0.6−	1.0+	1998 03 29	704	1.6+	0.8−
1973 09 24	675	0.3+	0.6+	1998 03 22	704	0.9−	1.3−	1998 03 29	704	0.4−	1.1+
1973 09 25	675	0.5−	1.4−	1998 03 24	704	0.2−	1.2−	1998 04 01	704	0.5+	0.1+
1973 09 25	675	0.2+	2.9−	1998 03 24	704	0.4+	0.6+	1998 04 01	704	1.0+	0.4−
1973 09 29	675	0.5+	0.3+	1998 03 24	704	0.2−	0.8−	1998 04 01	704	0.3+	0.8−
1973 09 29	675	1.6+	0.2−	1998 03 24	704	0.0	0.3−	1998 04 01	704	1.1+	1.9−
1973 09 30	675	1.0+	1.2+	1998 03 24	704	1.2−	0.7+	1998 04 01	704	1.7−	2.8−
1973 09 30	675	0.1−	0.1+	1998 03 24	704	0.2−	0.6−	1998 04 19	704	0.5−	0.8−
1973 10 04	675	0.3−	2.0−	1998 03 24	704	1.9−	0.1+	1998 04 19	704	1.0+	1.1+
1973 10 04	675	1.4+	1.1−	1998 03 24	704	0.6−	0.7−	1998 04 19	704	0.6+	1.6+
1973 10 05	675	0.1−	0.3−	1998 03 24	704	3.9−	1.0−	1998 04 19	704	1.3−	0.0
1973 10 05	675	2.3+	0.0	1998 03 28	704	2.4+	2.6−	1998 04 20	704	0.4−	1.0−

1998 03 20	704	0.1+	0.8+	1998 03 28	704	0.1+	0.4−	1998 04 20	704	0.7−	0.5+
1998 03 20	704	0.8−	1.4−	1998 03 28	704	0.7−	0.8−	1998 04 20	704	0.5+	1.5+
1998 03 20	704	0.4−	0.6+	1998 03 28	704	0.2−	0.8−	1998 04 20	704	1.8−	0.7−
1998 03 20	704	0.1+	0.7−	1998 03 29	704	0.4+	0.2+				

1998 FR$_{101}$ = 1990 TS$_5$ = 1995 UO$_{38}$

Id. A. Doppler, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	306.07176		(2000.0)		**P**	**Q**	
n	0.21337848	ω	69.01976		+0.06595894	+0.99378189	
a	2.7735477	Ω	205.27328		−0.97565250	+0.04538683	
e	0.1424440	i	12.12899		−0.20916886	+0.10167397	
P	4.62	H	14.0	G	0.15	U	3

Residuals in seconds of arc

1990 10 09	413	0.0	0.7−	1998 03 31	704	0.6+	0.3+	1998 04 18	704	0.3−	0.6−
1990 10 11	413	0.3+	0.4−	1998 03 31	704	1.2+	0.4+	1998 04 18	704	0.5−	0.7+
1995 10 22	691	0.1−	0.3−	1998 03 31	704	0.7+	0.3+	1998 04 18	704	0.8−	0.6−
1995 10 22	691	0.0	0.2−	1998 03 31	704	1.0+	0.8+	1998 04 18	704	0.6−	0.9−
1995 10 22	691	0.0	0.2−	1998 04 01	704	0.3−	0.8−	1998 04 19	704	0.4+	0.3−
1995 10 27	691	0.2+	0.1−	1998 04 01	704	0.1+	0.3−	1998 04 19	704	0.4−	1.1+
1995 10 27	691	0.1−	0.1+	1998 04 01	704	0.6+	0.7−	1998 04 19	704	0.4−	0.2+
1995 10 27	691	0.1+	0.0	1998 04 01	704	0.8+	1.0−	1998 04 19	704	1.0−	0.3−
1998 03 31	704	0.3+	0.0	1998 04 01	704	0.2+	0.7−	1998 04 19	704	2.3−	0.8+

1998 FS$_{103}$ = 1978 WL$_{15}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	122.48778		(2000.0)		**P**	**Q**	
n	0.27104478	ω	209.79562		+0.12777717	−0.98793557	
a	2.3646962	Ω	233.00121		+0.93024501	+0.14997642	
e	0.0762026	i	6.28998		+0.34397269	−0.03860541	
P	3.64	H	15.5	G	0.15	U	6

Residuals in seconds of arc

1978 11 30	675	0.3+	0.2−	1998 04 01	704	0.0	0.3−	1998 04 18	704	0.3+	1.3−
1978 12 01	675	0.3−	0.2+	1998 04 01	704	1.4+	0.4−	1998 04 19	704	0.5+	0.2+
1998 03 31	704	0.4−	0.6−	1998 04 01	704	0.8+	0.5−	1998 04 19	704	0.1+	0.9+
1998 03 31	704	0.9−	1.1+	1998 04 01	704	1.4+	1.2−	1998 04 19	704	0.1−	0.0
1998 03 31	704	1.5−	0.9+	1998 04 18	704	0.0	0.8−	1998 04 19	704	0.3−	0.2+
1998 03 31	704	0.6−	1.2+	1998 04 18	704	0.2+	0.5+	1998 04 19	704	0.2−	0.4+
1998 04 01	704	0.3−	0.3+	1998 04 18	704	0.3−	0.3−				

1998 FT$_{109}$ = 1986 TY$_6$ = 1986 VQ$_5$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	129.16229		(2000.0)		**P**	**Q**	
n	0.28858135	ω	147.41506		+0.26523481	−0.95956462	
a	2.2678999	Ω	287.05489		+0.86215574	+0.27980326	
e	0.1507164	i	5.65873		+0.43166882	+0.03075495	
P	3.42	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1986 10 05	092	0.2−	0.9+	1998 03 31	704	0.0	0.5+	1998 04 18	704	0.4+	0.1−
1986 10 05	092	0.7−	0.2−	1998 04 01	704	0.3+	0.4+	1998 04 18	704	0.7+	0.5+
1986 11 05	688	(3.9+	0.4+)	1998 04 01	704	0.3−	0.6+	1998 04 18	704	0.0	0.4+
1986 11 05	688	0.9+	0.9−	1998 04 01	704	0.4−	0.7+	1998 04 19	704	0.5+	0.5−
1998 03 31	704	0.0	0.1+	1998 04 01	704	0.4+	0.9+	1998 04 19	704	0.2+	1.0−
1998 03 31	704	0.3−	0.2+	1998 04 01	704	0.3−	1.2+	1998 04 19	704	0.3+	0.9−
1998 03 31	704	0.3−	0.4+	1998 04 18	704	0.1−	0.6−	1998 04 19	704	0.4−	1.0−
1998 03 31	704	0.4−	0.6+	1998 04 18	704	0.5−	1.1−	1998 04 19	704	0.1+	1.7−

1998 FD$_{110}$ = 1979 ON$_7$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	308.98585		(2000.0)		**P**	**Q**	
n	0.25094909	ω	350.69012		+0.20211037	+0.97311345	
a	2.4893099	Ω	290.90826		−0.89076713	+0.13577658	
e	0.1299907	i	6.79095		−0.40704461	+0.18605089	
P	3.93	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1979 07 24	413	0.1−	0.6+	1998 04 01	704	0.2+	0.8−	1998 04 19	704	1.2+	0.3−
1979 07 27	675	0.2+	0.6−	1998 04 01	704	0.2−	0.5−	1998 04 19	704	0.3−	0.4+
1998 03 31	704	(0.9−	4.0+)	1998 04 18	704	1.6+	1.4−	1998 04 20	704	0.8−	0.2−
1998 03 31	704	0.4+	0.1−	1998 04 18	704	0.2+	0.4−	1998 04 20	704	0.9−	0.8+
1998 03 31	704	0.4−	1.4+	1998 04 18	704	0.6−	0.7+	1998 04 20	704	(0.7−	2.3+)
1998 03 31	704	0.9−	0.7+	1998 04 18	704	0.7−	0.8−	1998 04 20	704	0.5+	0.9−
1998 04 01	704	0.3+	0.2−	1998 04 19	704	0.2+	1.0+	1998 04 20	704	0.7−	0.5+
1998 04 01	704	0.7+	0.4+	1998 04 19	704	0.1−	0.2−				
1998 04 01	704	0.1−	1.2−	1998 04 19	704	0.6+	1.3+				

1998 FP$_{123}$ = 1987 GM$_1$ = 1990 RL$_5$ = 1990 SD$_{27}$

Id. A. Doppler, S. Nakano (d, *MPC* 20912)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	136.13920		(2000.0)		**P**	**Q**	
n	0.18636817	ω	58.09144		+0.61174020	−0.79103276	
a	3.0354394	Ω	354.18065		+0.70276189	+0.54716107	
e	0.2352326	i	3.62475		+0.36317991	+0.27364563	
P	5.29	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1987 04 01	675	0.7+	0.4+	1998 03 20	704	0.2+	0.9+	1998 03 29	704	1.0+	0.5+
1987 04 01	675	(2.9+	1.3−)	1998 03 22	704	0.1+	0.2+	1998 03 29	704	1.0−	0.3−
1987 04 03	675	1.0−	0.6+	1998 03 22	704	0.6+	0.8−	1998 03 29	704	(0.3−	2.1+)
1987 04 03	675	0.3+	1.2−	1998 03 22	704	0.0	0.8−	1998 03 29	704	(0.1+	2.4+)
1990 09 15	675	0.0	0.4−	1998 03 22	704	0.5−	0.9−	1998 04 01	704	0.1+	0.0
1990 09 17	675	0.2−	0.1−	1998 03 28	704	1.1−	0.5+	1998 04 01	704	0.8+	0.3−
1990 09 17	675	0.2+	0.4+	1998 03 28	704	0.5+	1.0+	1998 04 01	704	0.5+	0.3−
1990 09 23	095	(2.1−	5.2+)	1998 03 28	704	0.5−	0.6−	1998 04 01	704	(1.8+	2.6+)
1998 03 20	704	0.1−	0.6+	1998 03 28	704	0.8−	1.0+	1998 04 01	704	(5.1−	1.9+)
1998 03 20	704	0.2+	0.8+	1998 03 28	704	0.0	1.7−				

1998 FM$_{135}$ = 1978 WU$_5$

Id. S. Nakano, A. Doppler

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	232.16731		(2000.0)		**P**	**Q**	
n	0.17335018	ω	117.68433		+0.93980128	+0.33806694	
a	3.1855654	Ω	222.60849		−0.33369780	+0.87649842	
e	0.1192246	i	4.22219		−0.07361604	+0.34272621	
P	5.69	H	14.0	G	0.15	U	6

Residuals in seconds of arc

1978 11 29	675	0.4+	0.1+	1998 03 23	691	0.1−	0.2+	1998 03 29	704	0.8+	0.7+
1978 11 30	675	0.3−	0.1−	1998 03 28	704	(1.4+	3.5−)	1998 03 29	704	0.1−	0.3+
1998 03 22	704	0.4+	1.7−	1998 03 28	704	0.5+	0.7−	1998 03 29	704	0.6−	1.1+
1998 03 22	704	0.7+	0.9−	1998 03 28	704	1.8−	0.2−	1998 04 01	704	0.1+	0.8+
1998 03 22	704	(2.1+	2.3−)	1998 03 28	704	1.2+	0.2−	1998 04 01	704	0.5+	0.8−
1998 03 22	704	0.2−	1.1+	1998 03 28	704	(2.3−	2.1−)	1998 04 01	704	0.7−	0.1+
1998 03 23	691	0.3−	0.6+	1998 03 29	704	0.0	0.5−	1998 04 01	704	2.2+	0.3+
1998 03 23	691	0.3−	0.5+	1998 03 29	704	0.4−	0.6+	1998 04 01	704	1.7−	1.4−

1998 HU$_1$ = 1981 UV$_6$ = 1992 SL$_{26}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	208.06270	(2000.0)	**P**	**Q**	
n	0.26627069	ω	306.54307	+0.98376355	−0.16884998
a	2.3928775	Ω	63.24967	+0.17858593	+0.88741162
e	0.1879247	i	3.90534	+0.01778620	+0.42894091
P	3.70	H	16.0	G 0.15	U 3

Residuals in seconds of arc

1981 10 30	381	0.8−	0.4−	1998 04 18	691	0.8−	0.3+	1998 04 29	691	0.4+	0.5−
1981 10 30	381	0.9+	0.5+	1998 04 18	691	0.5−	0.2+	1998 04 29	691	0.6+	0.6−
1992 09 23	033	1.1+	0.6+	1998 04 18	691	0.2−	0.2+	1998 04 30	691	0.0	0.3−
1992 09 25	033	0.2+	0.2+	1998 04 20	691	0.5+	0.1−	1998 04 30	691	0.1−	0.3−
1992 09 25	033	0.2−	0.3−	1998 04 20	691	0.5+	0.0	1998 04 30	691	0.0	0.5−
1992 09 27	033	0.9−	0.7−	1998 04 20	691	0.3+	0.2−				
1992 09 28	033	0.1−	0.0	1998 04 29	691	0.8−	1.4+				

1998 HY$_8$ = 1983 YF = 1997 AV$_{24}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	310.48387	(2000.0)	**P**	**Q**	
n	0.23689992	ω	190.62584	+0.41819118	+0.90502009
a	2.5867796	Ω	104.13097	−0.82740708	+0.41487255
e	0.1654334	i	4.60239	−0.37485152	+0.09391168
P	4.16	H	14.5	G 0.15	U 5

Residuals in seconds of arc

1983 12 28	046	0.4−	0.5−	1998 04 21	704	1.3+	0.3−	1998 04 22	704	0.3+	0.2+
1983 12 28	046	0.4+	0.5+	1998 04 21	704	0.4−	0.4+	1998 04 22	704	0.3+	1.2+
1997 01 02	327	0.6+	0.3+	1998 04 21	704	0.3−	1.1−	1998 04 25	691	1.1−	0.6−
1997 01 02	327	1.2−	0.3−	1998 04 21	704	0.6−	0.1−	1998 04 25	691	0.9−	0.0
1997 01 02	327	0.6+	0.0	1998 04 21	704	0.6+	0.9+	1998 04 25	691	1.1−	0.0
1998 04 17	691	(3.8+	1.2−)	1998 04 22	704	0.1+	1.3+	1998 04 27	691	0.7+	1.1−
1998 04 17	691	(3.9+	1.3−)	1998 04 22	704	0.8+	0.1+	1998 04 27	691	0.0	0.8−
1998 04 17	691	(3.8+	1.4−)	1998 04 22	704	0.1+	0.6+	1998 04 27	691	0.1+	0.7−

1998 HA$_{34}$ = 1989 UN$_5$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	181.65985	(2000.0)	**P**	**Q**	
n	0.17206659	ω	188.08688	+0.85590982	−0.50535678
a	3.2013883	Ω	203.29377	+0.48862246	+0.85978107
e	0.1040463	i	16.10478	+0.16931174	+0.07342367
P	5.73	H	12.5	G 0.15	U 4

Residuals in seconds of arc

1989 10 30	807	0.2+	0.2−	1998 04 01	704	0.0	0.6+	1998 04 22	704	0.5−	0.1−
1989 11 01	807	0.1−	0.0	1998 04 01	704	0.8+	0.2−	1998 04 22	704	0.1+	0.8−
1998 03 22	704	0.6−	1.2−	1998 04 20	704	0.4−	0.2−	1998 04 22	704	0.2+	0.5−
1998 03 22	704	0.9+	0.3+	1998 04 20	704	0.1+	0.1−	1998 04 22	704	0.9−	0.0
1998 03 22	704	0.4−	1.0+	1998 04 20	704	0.3−	0.2+	1998 04 22	704	0.3−	0.2−
1998 03 22	704	0.8−	1.5+	1998 04 20	704	0.1+	0.3+	1998 05 16	704	0.7−	0.2−
1998 03 22	704	1.0−	0.2+	1998 04 20	704	1.6−	0.8−	1998 05 16	704	0.3−	0.3+
1998 03 24	860	0.7+	0.6−	1998 04 21	704	0.2+	0.5−	1998 05 16	704	0.4+	1.4+
1998 03 24	860	0.8+	0.0	1998 04 21	704	0.2+	0.1−	1998 05 16	704	(0.5−	3.1+)
1998 03 24	860	0.8+	0.7−	1998 04 21	704	0.5+	0.2−	1998 05 28	699	0.4+	0.7−
1998 04 01	704	0.0	1.0+	1998 04 21	704	0.0	0.1−	1998 05 28	699	0.3+	0.7+
1998 04 01	704	0.4+	0.1+	1998 04 21	704	0.0	0.5−	1998 05 28	699	0.8+	0.1+

1998 JT = 1985 QD$_2$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	282.63644	(2000.0)	**P**	**Q**	
n	0.29120284	ω	86.02962	+0.91758741	+0.38450826
a	2.2542685	Ω	251.33399	−0.39372958	+0.84398625
e	0.2200733	i	6.11550	−0.05486680	+0.37395268
P	3.38	H	15.0	G 0.15	U 4

Residuals in seconds of arc

1985 08 16	675	(3.2−	3.7+)	1998 04 21	704	0.2−	0.9+	1998 04 25	699	0.1−	0.5+
1985 08 16	675	(1.4−	4.5+)	1998 04 21	704	0.3−	1.3−	1998 05 01	566	0.0	0.1+
1985 08 17	675	0.4−	0.4−	1998 04 22	704	0.1+	0.6+	1998 05 01	566	0.4+	0.3−
1985 08 17	675	0.2+	0.8+	1998 04 22	704	0.1−	0.2+	1998 05 01	566	0.7+	0.3+
1985 08 23	675	0.1−	0.7−	1998 04 22	704	0.5−	0.2+	1998 05 02	566	0.3+	0.3−
1985 08 23	675	0.4+	0.4+	1998 04 22	704	0.0	0.3−	1998 05 02	566	0.7−	0.1+
1998 04 21	704	0.2+	0.1+	1998 04 22	704	0.1+	0.4+	1998 05 02	566	0.4−	0.4−
1998 04 21	704	0.1−	0.1−	1998 04 25	699	0.2−	0.1+				
1998 04 21	704	0.3+	0.2−	1998 04 25	699	0.7+	0.7−				

1998 KC$_8$ = 1998 HV$_{149}$ = 1978 WY$_{19}$

Id. A. Doppler, G. V. Williams (d)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	124.53578	(2000.0)	**P**	**Q**	
n	0.27998763	ω	218.68346	−0.50482137	−0.85782928
a	2.3140717	Ω	261.83125	+0.81422391	−0.43611771
e	0.0735032	i	5.58617	+0.28669636	−0.27190120
P	3.52	H	15.0	G 0.15	U 5

Residuals in seconds of arc

1978 11 28	675	0.4−	0.1−	1998 05 22	704	1.9−	0.4+	1998 05 25	699	1.6+	0.2−
1978 11 29	675	0.4+	0.1−	1998 05 23	699	1.2+	0.2+	1998 05 25	699	0.4+	0.2+
1998 04 25	809	0.0	0.2+	1998 05 23	699	0.1+	0.4+	1998 05 25	699	0.8+	0.5−
1998 04 25	809	0.0	0.6+	1998 05 23	699	0.8+	0.3+	1998 06 03	704	1.2−	0.9+
1998 04 25	809	0.5+	0.5−	1998 05 24	704	1.7−	0.4+	1998 06 03	704	2.7−	0.9−
1998 05 22	704	0.3−	0.8−	1998 05 24	704	0.3+	0.8−	1998 06 03	704	0.3+	1.6+
1998 05 22	704	0.8−	0.3+	1998 05 24	704	0.4−	0.8+	1998 06 03	704	0.7+	1.0+
1998 05 22	704	0.8−	0.8−	1998 05 24	704	0.3+	0.4+				
1998 05 22	704	2.8+	2.8−	1998 05 24	704	0.1−	0.6−				

1998 KN$_{32}$ = 1994 GM$_2$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	112.77341	(2000.0)	**P**	**Q**	
n	0.27015122	ω	56.14387	−0.50192691	−0.86343685
a	2.3699077	Ω	64.06167	+0.77385141	−0.47437545
e	0.1683363	i	3.21668	+0.38629442	−0.17159471
P	3.65	H	15.0	G 0.15	U 6

Residuals in seconds of arc

1994 04 05	691	0.1−	0.0	1998 05 22	704	0.3+	0.3−	1998 06 01	691	0.3−	0.1−
1994 04 05	691	0.1+	0.1+	1998 05 23	699	1.4+	0.8+	1998 06 01	691	1.2−	0.2−
1994 04 05	691	0.5+	0.3−	1998 05 23	699	1.1+	0.4+	1998 06 01	691	0.8−	0.1−
1994 04 06	691	0.2−	0.0	1998 05 23	699	0.3−	0.4−	1998 06 03	704	1.1+	1.2−
1994 04 06	691	0.0	0.0	1998 05 24	704	0.7−	1.0+	1998 06 03	704	1.1−	0.3−
1994 04 06	691	0.3−	0.1+	1998 05 24	704	0.1−	0.4−	1998 06 03	704	(1.1+	2.9−)
1998 05 22	704	0.0	1.3+	1998 05 24	704	(0.5−	1.8+)	1998 06 03	704	(1.0−	2.0−)
1998 05 22	704	0.0	0.5−	1998 05 24	704	0.4+	0.4−				
1998 05 22	704	0.5+	0.9−	1998 05 24	704	0.4−	1.2+				

1998 KR$_{33}$ = 1996 VO$_{25}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	57.57106		(2000.0)	**P**		**Q**	
n	0.29739150	ω	118.29861	−0.99662884		+0.06916014	
a	2.2228851	Ω	65.69625	−0.08126898		−0.90591099	
e	0.1383343	i	2.77569	+0.01123905		−0.41778242	
P	3.31	H	17.0	G	0.15	U	5

Residuals in seconds of arc

1996 11 10	691	0.2−	0.2−	1998 05 21	428	0.6+	0.1−	1998 05 22	428	0.8−	0.8+
1996 11 10	691	0.2+	0.1+	1998 05 22	704	0.9−	0.1+	1998 05 24	704	0.4−	1.3+
1996 11 10	691	0.0	0.2+	1998 05 22	704	0.2−	0.4−	1998 05 24	704	1.0−	0.2+
1996 11 18	691	0.0	0.1−	1998 05 22	704	0.5+	1.2−	1998 05 24	704	0.6+	1.0−
1996 11 18	691	0.1−	0.0	1998 05 22	704	0.0	0.9−	1998 05 24	704	0.6+	0.6+
1996 11 18	691	0.0	0.0	1998 05 22	704	(3.0−	1.5−)	1998 05 25	428	0.1+	0.3+
1998 05 21	428	0.4+	0.3+	1998 05 22	428	0.4+	0.3+	1998 06 02	428	0.0	0.3−

1998 KV$_{37}$ = 1995 XM$_3$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	327.07810		(2000.0)	**P**		**Q**	
n	0.24335496	ω	196.31051	+0.59079143		+0.79923790	
a	2.5408318	Ω	110.03256	−0.72650231		+0.58648225	
e	0.2054421	i	6.74731	−0.35094142		+0.13136719	
P	4.05	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1995 12 14	691	0.1+	0.2+	1998 05 08	910	0.2+	0.1+	1998 05 24	704	0.7+	0.2+
1995 12 14	691	0.1−	0.0	1998 05 08	910	0.0	0.3+	1998 05 24	704	0.9+	1.1−
1995 12 14	691	0.3+	0.3−	1998 05 22	704	1.0+	0.5−	1998 05 25	699	0.8−	0.4+
1995 12 20	691	(1.0−	4.8−)	1998 05 22	704	1.9−	0.2+	1998 05 25	699	0.5−	0.6−
1995 12 20	691	(2.0−	4.2−)	1998 05 22	704	0.3−	0.3−	1998 05 25	699	0.5−	0.2+
1995 12 26	691	0.1−	0.1+	1998 05 22	704	0.2+	0.8−	1998 06 03	704	1.5+	0.4+
1995 12 26	691	0.1−	0.2+	1998 05 22	704	0.2+	0.2−	1998 06 03	704	0.6−	1.1+
1995 12 26	691	0.1−	0.0	1998 05 24	704	0.7−	0.6+	1998 06 03	704	0.6+	0.1+
1998 05 08	910	0.4+	0.3+	1998 05 24	704	0.3+	0.4+	1998 06 03	704	0.6−	0.5−

1998 KM$_{41}$ = 1975 UB$_1$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	102.10567		(2000.0)	**P**		**Q**	
n	0.28759766	ω	92.44628	−0.85384473		−0.50950969	
a	2.2730683	Ω	56.94186	+0.41262917		−0.78728736	
e	0.0646998	i	7.30254	+0.31731112		−0.34724414	
P	3.43	H	15.5	G	0.15	U	6

Residuals in seconds of arc

1975 10 29	033	0.6+	0.0	1998 05 22	704	0.2+	0.4+	1998 05 24	704	0.3−	0.1−
1975 10 30	033	(3.1+	1.1+)	1998 05 22	704	0.3−	0.1−	1998 06 03	704	0.2−	1.1−
1975 10 31	033	0.6−	0.0	1998 05 24	704	0.1−	0.2+	1998 06 03	704	0.0	0.4−
1998 05 22	704	0.3−	0.0	1998 05 24	704	0.4−	0.5−	1998 06 03	704	0.2−	0.5+
1998 05 22	704	0.4+	0.3+	1998 05 24	704	0.3+	0.6−	1998 06 03	704	0.5+	1.1+
1998 05 22	704	0.7−	0.3−	1998 05 24	704	1.0+	0.5+	1998 06 03	704	0.1−	0.1−

1998 KJ$_{48}$ = 1992 HW

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	318.47848		(2000.0)	**P**		**Q**	
n	0.18134463	ω	155.11220	+0.72269637		+0.69057485	
a	3.0912414	Ω	161.12127	−0.64799674		+0.69135936	
e	0.1588894	i	5.06593	−0.24043747		+0.21243498	
P	5.44	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1992 04 23	691	0.0	0.4+	1998 05 22	704	1.1+	0.2−	1998 05 24	704	0.2−	0.6−
1992 04 23	691	0.2−	0.1+	1998 05 22	704	(0.5+	4.3+)	1998 06 03	704	0.6−	0.6−
1992 04 23	691	0.2−	0.0	1998 05 22	704	0.3−	1.4+	1998 06 03	704	0.4+	1.0+
1992 04 28	691	0.2+	0.1−	1998 05 24	704	0.5+	0.4−	1998 06 03	704	0.5+	1.7+
1992 04 28	691	0.0	0.1−	1998 05 24	704	0.7−	1.3−	1998 06 03	704	0.3+	0.4−
1992 04 28	691	0.2+	0.1−	1998 05 24	704	0.2+	0.2+				
1998 05 22	704	(1.6+	2.2+)	1998 05 24	704	0.9−	1.0−				

1998 MN$_4$ = 1992 CT$_3$ = 1997 EE$_{34}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	68.28791		(2000.0)	**P**		**Q**	
n	0.20564854	ω	51.21154	−0.95250678		+0.19348349	
a	2.8426210	Ω	138.37500	−0.22793784		−0.96506127	
e	0.1606267	i	20.73249	+0.20192865		−0.17669432	
P	4.79	H	15.0	G	0.15	U	3

Residuals in seconds of arc

1992 02 02	809	0.8+	0.7+	1997 03 05	704	0.1−	0.0	1998 06 19	704	0.4−	0.7−
1992 02 02	809	0.9+	1.1−	1997 03 06	704	0.3+	0.3+	1998 06 19	704	(6.1−	0.1+)
1992 02 02	809	0.8−	0.2+	1997 03 06	704	0.3+	0.3+	1998 06 23	620	1.5+	0.8−
1992 02 06	809	0.1+	0.1+	1998 06 18	620	(0.4+	3.5+)	1998 06 23	620	0.5+	0.8−
1992 02 06	809	0.8−	0.6+	1998 06 18	620	0.9+	1.9+	1998 06 23	620	1.3−	0.8−
1992 02 06	809	0.1−	0.6−	1998 06 18	620	0.7+	1.9+	1998 06 25	704	0.5+	1.3+
1997 03 04	704	0.4+	0.7−	1998 06 19	704	0.5−	0.2+	1998 06 25	704	1.7+	0.7−
1997 03 04	704	0.4−	0.7−	1998 06 19	704	(2.4−	0.9+)	1998 06 25	704	0.8−	0.7+
1997 03 05	704	0.4−	0.8+	1998 06 19	704	1.3−	1.3−	1998 06 25	704	1.5−	1.0−

1998 MS$_7$ = 1995 YY$_{15}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	246.72893		(2000.0)	**P**		**Q**	
n	0.17466033	ω	252.86767	+0.86150994		−0.47745095	
a	3.1696151	Ω	135.23884	+0.50646683		+0.83216842	
e	0.1007406	i	14.20102	−0.03594390		+0.28202183	
P	5.64	H	17.0	G	0.15	U	4

Residuals in seconds of arc

1995 12 20	691	0.0	0.2−	1995 12 26	691	0.0	0.0	1998 06 20	910	0.1−	0.1+
1995 12 20	691	0.3+	0.0	1998 06 19	910	0.0	0.2+	1998 06 20	910	0.1−	0.2+
1995 12 20	691	0.1−	0.0	1998 06 19	910	0.0	0.2−	1998 06 25	910	0.1−	0.0
1995 12 26	691	0.2−	0.0	1998 06 19	910	0.0	0.1−	1998 06 25	910	0.1+	0.1−
1995 12 26	691	0.0	0.1+	1998 06 20	910	0.0	0.2+	1998 06 26	910	0.3+	0.3−

1998 MJ$_{14}$ = 1983 AY$_4$ = 1989 BV = 1997 MB

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	36.43432		(2000.0)	**P**		**Q**	
n	0.17488994	ω	37.66317	+0.76260074		+0.56064319	
a	3.1668403	Ω	285.13677	−0.64437496		+0.61463368	
e	0.0123263	i	19.52832	−0.05675408		+0.55489156	
P	5.64	H	10.5	G	0.15	U	1

Residuals in seconds of arc

1983 01 14	095	0.0	0.3−	1997 06 17	327	0.1−	0.5+	1998 06 30	704	0.9−	0.2+
1989 01 28	897	1.0+	0.3+	1997 06 17	327	0.1−	0.7+	1998 06 30	704	0.1+	1.7+
1989 01 28	897	1.9−	0.2+	1997 06 17	327	0.1+	0.2−	1998 06 30	704	0.9−	1.9+
1989 02 01	897	1.5+	0.9+	1998 06 26	703	0.6−	0.2−	1998 09 16	703	0.2−	0.5+
1989 02 01	897	(4.1+	2.4+)	1998 06 26	703	0.5−	0.0	1998 09 16	703	0.3−	0.6+
1997 06 16	327	0.1+	0.1+	1998 06 27	703	0.6+	1.3−	1998 09 16	703	1.8+	1.1−
1997 06 16	327	0.0	0.2−	1998 06 27	703	0.8+	1.0−				
1997 06 16	327	0.4−	0.1+	1998 06 30	704	0.7−	1.2−				

1998 MC$_{45}$ = 1986 RA$_{12}$ = 1995 YW$_3$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	249.53729		(2000.0)	**P**		**Q**	
n	0.23402089	ω	186.79374	+0.81781192		−0.56491733	
a	2.6079522	Ω	208.49043	+0.53823605		+0.81834765	
e	0.1635525	i	13.30561	+0.20368017		+0.10571437	
P	4.21	H	13.5	G	0.15	U	3

Residuals in seconds of arc

1986 09 09	095	0.0	0.0	1998 06 03	704	1.0−	0.5+	1998 06 25	704	0.5+	0.5−
1995 12 29	385	0.5−	0.0	1998 06 03	704	0.0	0.2+	1998 06 25	704	0.5−	0.0
1995 12 29	385	0.0	0.2−	1998 06 03	704	0.5+	1.7−	1998 06 25	704	0.7+	0.9−
1995 12 29	385	0.1−	0.1+	1998 06 03	704	0.3+	1.0−	1998 06 25	704	0.0	0.5−
1995 12 30	385	0.5+	0.1−	1998 06 03	704	0.6+	0.0	1998 06 25	704	0.9−	0.3+
1995 12 30	385	0.3+	0.1+	1998 06 19	704	1.1+	2.3+	1998 06 25	910	0.6+	0.7−
1995 12 30	385	0.1−	0.0	1998 06 19	704	1.2−	2.7+	1998 06 25	910	0.3+	0.8−
1995 12 30	385	0.1−	0.1−	1998 06 19	704	1.1−	0.3+	1998 06 25	910	0.3+	0.3−

1998 OZ_8 = 1997 CA_5

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	14.70485			(2000.0)	**P**	**Q**	
n	0.28840566	ω	338.35813		+0.31345380	+0.94840139	
a	2.2688208	Ω	309.87626		−0.86185876	+0.26301211	
e	0.1391292	i	3.56842		−0.39868056	+0.17708595	
P	3.42	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1997 02 04	566	0.6−	0.1+	1998 07 15	699	0.3−	0.1+	1998 07 26	809	0.9+	0.6+
1997 02 04	566	0.2−	0.0	1998 07 15	699	0.6−	0.6+	1998 07 26	809	0.9+	0.4+
1997 02 04	566	0.1−	0.5+	1998 07 15	699	0.7−	0.4+	1998 07 26	809	0.3+	0.5+
1997 02 07	566	0.2+	0.6−	1998 07 24	566	0.0	0.6+	1998 07 27	809	0.1−	1.7−
1997 02 07	566	0.2+	0.5−	1998 07 24	566	0.7+	0.7+	1998 07 27	809	0.3−	1.9−
1997 02 07	566	0.1−	0.5−	1998 07 24	566	0.1+	0.6+	1998 07 27	809	0.4−	1.6−

1998 OV_{12} = 1995 WX_{34}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	354.39974			(2000.0)	**P**	**Q**	
n	0.21168783	ω	179.09115		+0.81095477	+0.58298180	
a	2.7882955	Ω	145.09479		−0.53737498	+0.77579061	
e	0.0658054	i	4.99731		−0.23147459	+0.24141488	
P	4.66	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1995 11 20	691	0.1−	0.0	1998 07 26	699	0.4−	0.9−	1998 09 14	704	0.4+	0.1−
1995 11 20	691	0.1+	0.0	1998 07 26	699	0.4+	0.6−	1998 09 14	704	0.7+	0.4−
1995 11 20	691	0.1−	0.0	1998 07 26	699	0.5+	1.1−	1998 09 14	704	0.4+	0.4−
1995 11 29	691	0.1+	0.0	1998 07 27	809	0.6+	1.5+	1998 09 14	704	1.3+	0.5+
1995 11 29	691	0.0	0.0	1998 07 27	809	0.1−	1.7+	1998 09 14	704	0.4+	0.9−
1995 11 29	691	0.1−	0.0	1998 07 27	809	(0.4−	2.8+)	1998 09 18	704	0.9−	0.1+
1998 07 26	809	1.4−	0.4−	1998 09 13	699	0.1−	0.7−	1998 09 18	704	0.1+	0.3−
1998 07 26	809	(2.8−	0.7−)	1998 09 13	699	0.3+	0.4+	1998 09 18	704	0.7−	0.7+
1998 07 26	809	(2.7−	0.7−)	1998 09 13	699	0.1−	0.2+	1998 09 18	704	1.5−	0.5+

1998 PQ = 1996 DR_3

Id. G. V. Williams, S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	75.14123			(2000.0)	**P**	**Q**	
n	0.18155162	ω	79.41751		−0.49746626	+0.86745769	
a	3.0888914	Ω	160.74560		−0.80359909	−0.45792205	
e	0.1263954	i	1.15881		−0.32673510	−0.19448535	
P	5.43	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1996 02 16	010	0.3−	1.3+	1998 08 15	684	0.0	0.2−	1998 09 14	704	0.4+	0.7+
1996 02 16	010	1.2−	0.7+	1998 08 16	684	0.0	0.2−	1998 09 18	704	0.6+	0.2−
1996 02 16	010	0.1−	1.3+	1998 08 16	684	0.2−	0.3−	1998 09 18	704	0.2−	1.4−
1996 02 17	010	(2.9+	2.8+)	1998 08 23	684	0.4+	0.2−	1998 09 18	704	1.6+	1.2+
1996 02 17	010	(1.3+	3.0+)	1998 08 23	684	0.3+	0.3−	1998 09 18	704	1.7+	1.7+
1996 02 17	010	(2.6+	3.0+)	1998 08 24	684	0.3+	0.3−	1998 09 19	684	0.6+	0.0
1996 02 20	566	0.3+	1.3−	1998 08 24	684	0.5+	0.0	1998 09 19	684	0.1+	0.4+
1996 02 20	566	0.7+	1.2−	1998 09 14	704	0.8−	0.2+	1998 09 20	691	1.5−	0.4+
1996 02 20	566	0.4+	1.4−	1998 09 14	704	0.4−	1.3−	1998 09 20	691	1.4−	0.3+
1998 08 15	684	0.1+	0.3−	1998 09 14	704	0.0	0.5−	1998 09 20	691	1.8−	0.2−

1998 PS = 1996 GF_9

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	313.90981			(2000.0)	**P**	**Q**	
n	0.17808033	ω	229.49295		+0.85340056	−0.52120783	
a	3.1289028	Ω	161.91685		+0.48486110	+0.78876821	
e	0.1911043	i	1.30384		+0.19135622	+0.32586363	
P	5.53	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1996 04 13	691	0.2−	0.1−	1998 08 15	684	0.3+	0.5+	1998 09 25	691	0.4−	0.3+
1996 04 13	691	0.0	0.1+	1998 08 16	684	0.8+	0.1−	1998 09 25	691	0.3−	0.0
1996 04 13	691	0.2−	0.5+	1998 08 16	684	1.0−	1.2−	1998 09 30	691	0.1+	0.1−
1996 04 19	691	0.2+	0.3−	1998 09 19	691	0.3+	0.0	1998 09 30	691	0.4+	0.4−
1996 04 19	691	0.0	0.2+	1998 09 19	691	0.1−	0.5+	1998 09 30	691	0.5+	0.4−
1996 04 19	691	0.2+	0.3−	1998 09 19	691	0.2+	0.2+				
1998 08 15	684	0.1+	0.5+	1998 09 25	691	0.9−	0.1+				

1998 PD_1 = 1993 RS_{13}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	35.95991			(2000.0)	**P**	**Q**	
n	0.18823735	ω	104.46370		+0.12710835	+0.99158055	
a	3.0153115	Ω	172.70291		−0.96844078	+0.12945369	
e	0.1152799	i	11.22656		−0.21439663	+0.00312476	
P	5.24	H	13.0	G	0.15	U	5

Residuals in seconds of arc

1993 09 14	809	1.8+	0.7+	1998 08 17	704	0.0	0.1+	1998 09 14	704	0.0	0.0
1993 09 14	809	0.7−	0.3+	1998 08 17	704	0.1−	0.0	1998 09 14	704	1.0−	0.4−
1993 09 14	809	1.2−	0.1+	1998 08 17	704	1.0+	0.7+	1998 09 14	704	0.4−	0.1−
1993 09 19	809	0.8+	0.2−	1998 08 17	704	0.4−	0.4+	1998 09 18	704	0.8−	0.2−
1993 09 19	809	0.4−	0.4+	1998 08 17	704	0.2+	1.7+	1998 09 18	704	0.4+	1.0+
1993 09 19	809	0.4−	1.2−	1998 08 23	704	0.6+	0.5+	1998 09 18	704	0.4+	0.5+
1998 08 15	120	0.5+	0.6−	1998 08 23	704	0.4+	1.3−	1998 09 18	704	0.1+	0.5−
1998 08 15	120	0.7−	0.8−	1998 08 23	704	0.7+	0.3−	1998 09 18	704	(2.2−	0.1+)
1998 08 15	120	0.3−	0.5−	1998 08 23	704	0.2−	0.4+	1998 09 22	120	0.3+	0.2−
1998 08 16	120	0.6+	0.5−	1998 08 23	704	0.4−	0.9+	1998 09 22	120	0.4−	0.2+
1998 08 16	120	0.0	0.4+	1998 09 14	704	0.0	0.1+	1998 09 22	120	0.2+	0.3−
1998 08 16	120	0.4−	0.7−	1998 09 14	704	0.1−	0.4−				

1998 QW = 1990 TA_4

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	353.06725			(2000.0)	**P**	**Q**	
n	0.23455901	ω	109.87896		+0.77524688	+0.61742488	
a	2.6039620	Ω	212.40887		−0.63138043	+0.75118315	
e	0.1522221	i	14.40551		−0.01873598	+0.23347459	
P	4.20	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1990 10 11	033	0.7−	0.6+	1998 08 20	566	0.6+	0.9−	1998 08 27	704	0.1+	1.0−
1990 10 12	033	0.3+	0.8−	1998 08 20	566	0.6+	0.3−	1998 08 27	704	0.1+	0.9−
1990 10 12	033	0.2−	0.0	1998 08 20	566	2.1+	0.8−	1998 08 27	704	0.0	1.0−
1990 10 13	033	0.0	0.4+	1998 08 24	704	3.9−	0.9+	1998 08 27	704	0.2−	0.5−
1990 10 14	033	0.3−	0.1−	1998 08 24	704	0.6−	0.4+	1998 09 18	699	0.3+	0.1+
1990 10 18	033	0.9+	0.1−	1998 08 24	704	0.2−	2.8+	1998 09 18	699	0.1+	0.2+
1998 08 19	566	0.6+	0.6+	1998 08 24	704	0.7−	0.6+	1998 09 18	699	0.0	0.1−
1998 08 19	566	1.3+	0.4+	1998 08 24	704	1.0−	0.4−				
1998 08 19	566	0.6+	1.0+	1998 08 27	704	0.2+	1.2−				

1998 QX = 1989 RB$_1$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	351.79431		(2000.0)		**P**	**Q**	
n	0.21850016	ω	156.22248		+0.80553578	+0.57370735	
a	2.7300350	Ω	165.57422		−0.59252945	+0.77796789	
e	0.2010558	i	36.51256		+0.00457853	−0.25617539	
P	4.51	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1989 09 05	675	0.9−	1.6+	1998 08 20	566	0.5−	0.5−	1998 08 27	704	0.6+	0.8−
1989 09 05	675	1.2+	0.1−	1998 08 20	566	0.2+	0.4−	1998 08 27	704	0.4+	0.1−
1989 09 07	675	0.2−	2.1−	1998 08 20	566	0.5−	0.5−	1998 08 27	704	0.4+	0.6−
1989 09 07	675	0.2−	0.1+	1998 08 24	704	0.1+	0.1−	1998 08 27	704	2.1−	1.6+
1998 08 19	566	0.1+	0.9−	1998 08 24	704	0.4−	2.1+	1998 09 17	699	0.3+	0.2−
1998 08 19	566	1.2+	0.4+	1998 08 24	704	1.2−	0.2−	1998 09 17	699	0.3+	0.2+
1998 08 19	566	0.6+	0.1−	1998 08 24	704	0.4+	0.3+	1998 09 17	699	0.2+	0.2+

1998 QZ = 1993 RH$_{12}$

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	77.80255		(2000.0)		**P**	**Q**	
n	0.20489482	ω	93.25099		−0.00985100	+0.99994940	
a	2.8495879	Ω	176.18280		−0.92915789	−0.00840090	
e	0.0667578	i	1.75294		−0.36955185	−0.00553301	
P	4.81	H	13.5	G	0.15	U	5

Residuals in seconds of arc

1993 09 14	809	1.7+	1.5+	1998 08 26	684	0.3−	0.9−	1998 09 18	684	0.6+	0.2+
1993 09 14	809	0.2+	1.2+	1998 08 27	684	0.3−	0.2−	1998 09 20	691	0.9−	0.2−
1993 09 14	809	0.5−	0.5+	1998 08 27	684	0.2−	0.2−	1998 09 20	691	1.2−	0.3−
1993 09 19	809	0.3−	0.3−	1998 09 15	684	0.3+	0.1+	1998 09 20	691	0.1−	0.3−
1993 09 19	809	0.0	1.5−	1998 09 15	684	0.4+	0.0	1998 09 21	691	0.7−	0.3+
1993 09 19	809	1.4−	0.6−	1998 09 15	684	0.2+	0.1+	1998 09 21	691	0.7−	0.0
1998 08 19	684	0.1+	0.1−	1998 09 15	699	1.2+	0.2+	1998 09 21	691	1.1−	0.0
1998 08 19	684	0.2+	0.3−	1998 09 15	699	1.2+	0.3+	1998 09 27	691	0.3−	0.1+
1998 08 19	684	0.2+	0.2−	1998 09 15	699	0.7+	0.0	1998 09 27	691	0.3−	0.3+
1998 08 20	684	0.2+	0.4−	1998 09 16	684	0.5+	0.3+	1998 09 27	691	0.4−	0.3+
1998 08 20	684	0.2+	0.7−	1998 09 16	684	0.4+	0.3+				
1998 08 26	684	0.2−	0.6−	1998 09 18	684	0.9+	0.3+				

1998 QK$_1$ = 1991 PN$_{15}$

Id. S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	333.58101		(2000.0)		**P**	**Q**	
n	0.28310936	ω	39.49580		+0.98244786	+0.16595555	
a	2.2970295	Ω	310.73606		−0.18651424	+0.86674771	
e	0.1400233	i	6.45428		−0.00293813	+0.47032666	
P	3.48	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1991 08 06	675	0.4+	0.7−	1998 08 20	120	0.8−	0.0	1998 08 27	691	0.4−	0.1−
1991 08 06	675	0.6−	1.5−	1998 08 20	120	0.0	0.5+	1998 09 14	704	0.6−	0.8−
1991 08 10	675	0.7+	2.0+	1998 08 23	704	0.5+	1.0−	1998 09 14	704	0.8−	1.3−
1991 08 10	675	0.2−	0.7−	1998 08 23	704	0.4+	1.0−	1998 09 14	704	0.6−	0.7−
1991 08 10	675	0.2−	0.8+	1998 08 23	704	0.8+	0.4−	1998 09 14	704	1.6−	0.1+
1991 08 10	675	(0.0	3.0−)	1998 08 23	704	0.9+	0.1−	1998 09 14	704	0.0	0.1+
1998 08 17	704	0.4−	0.3+	1998 08 26	699	0.1+	0.2−	1998 09 15	699	0.1+	0.1−
1998 08 17	704	0.7−	0.6+	1998 08 26	699	0.5+	0.2+	1998 09 15	699	0.3+	0.8+
1998 08 17	704	0.3+	0.8+	1998 08 26	699	0.3+	0.4−	1998 09 15	699	0.2+	0.3+
1998 08 17	704	0.5+	1.0+	1998 08 26	120	0.5+	0.2−	1998 09 18	704	0.7+	0.1−
1998 08 17	704	1.1−	0.1−	1998 08 26	120	0.5+	0.0	1998 09 18	704	0.3−	0.1+
1998 08 17	120	0.2+	0.3−	1998 08 26	120	0.3+	0.0	1998 09 18	704	1.7+	1.5+
1998 08 17	120	0.8−	0.0	1998 08 27	691	0.5−	0.1+	1998 09 18	704	0.2+	0.3+
1998 08 17	120	0.1+	0.3+	1998 08 27	691	0.4−	0.1−	1998 09 18	704	0.3−	0.1−

1998 QP$_1$ = 1997 CA$_{21}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	4.20088		(2000.0)		**P**	**Q**	
n	0.29068697	ω	326.83235		+0.58194157	+0.81193883	
a	2.2569348	Ω	338.64340		−0.71606693	+0.48489187	
e	0.1838300	i	7.22788		−0.38547653	+0.32501570	
P	3.39	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1997 02 03	691	0.0	0.4+	1998 08 17	704	0.1+	0.3+	1998 08 23	699	0.4+	0.6+
1997 02 03	691	0.2−	0.0	1998 08 17	120	1.0+	0.7+	1998 08 23	704	0.1−	0.9+
1997 02 03	691	0.1+	0.6+	1998 08 18	120	0.2+	0.0	1998 09 14	704	0.2−	0.4+
1997 02 13	691	0.1−	0.4−	1998 08 18	120	0.1+	0.1−	1998 09 14	704	0.3+	0.4+
1997 02 13	691	0.4+	0.1+	1998 08 20	120	1.2−	0.7−	1998 09 14	704	0.4−	1.4−
1997 02 13	691	0.0	0.1−	1998 08 20	120	0.7−	0.5−	1998 09 14	704	0.5+	1.0−
1998 07 31	699	0.1−	0.8−	1998 08 20	120	0.4+	0.2+	1998 09 14	704	0.8+	0.4−
1998 07 31	699	1.5−	0.3+	1998 08 23	699	0.7+	0.6+	1998 09 15	699	0.6−	1.0+
1998 07 31	699	1.0+	0.2−	1998 08 23	704	0.3−	0.5−	1998 09 15	699	0.6−	1.4+
1998 08 17	704	0.2+	0.5+	1998 08 23	704	1.0−	0.2−	1998 09 15	699	0.4−	0.3+
1998 08 17	704	0.5+	0.2+	1998 08 23	699	0.3+	0.4−	1998 09 18	704	1.5+	0.5−
1998 08 17	704	0.7−	0.2+	1998 08 23	704	0.3−	0.1+	1998 09 18	704	0.1+	0.8−
1998 08 17	704	0.7+	0.1−	1998 08 23	704	0.1+	0.5−	1998 09 18	704	1.0−	0.3+

1998 QR$_1$ = 1995 YZ$_{25}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	139.02270		(2000.0)		**P**	**Q**	
n	0.25567584	ω	289.70380		−0.97749095	+0.18851720	
a	2.4585342	Ω	261.25196		−0.13908270	−0.91339700	
e	0.0865856	i	5.49963		−0.15864250	−0.36078689	
P	3.85	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1995 12 24	566	0.2−	0.4−	1998 08 20	557	0.5+	0.1−	1998 09 14	704	1.0−	0.6−
1995 12 24	566	0.1−	0.1+	1998 08 20	557	0.1−	0.4−	1998 09 14	704	1.0−	0.7−
1995 12 24	566	0.1+	0.0	1998 08 20	557	0.3+	0.6−	1998 09 14	704	0.5−	1.0+
1995 12 25	566	0.1−	0.2−	1998 08 23	704	0.1+	0.7−	1998 09 14	704	1.1+	0.6+
1995 12 25	566	0.0	0.2+	1998 08 23	704	0.4−	0.9+	1998 09 18	704	0.6−	1.0+
1995 12 25	566	0.2+	0.1+	1998 08 23	704	0.7−	0.9+	1998 09 18	704	0.2−	1.5+
1998 08 17	704	0.9−	0.1−	1998 08 23	704	1.1+	1.5−	1998 09 18	704	0.2−	0.4+
1998 08 17	704	(1.3+	2.5−)	1998 08 25	557	0.2+	0.1−	1998 09 18	704	1.1+	1.2−
1998 08 17	704	0.7+	0.3−	1998 08 25	557	0.1+	0.0	1998 09 20	557	0.3+	0.1+
1998 08 17	704	0.9+	1.1−	1998 08 31	557	0.0	0.6+	1998 09 20	557	0.2+	0.7−
1998 08 17	704	0.5−	0.3−	1998 08 31	557	0.3+	0.2+	1998 09 25	699	0.6+	0.6+
1998 08 19	557	0.7−	0.7+	1998 09 14	557	0.0	0.4−	1998 09 25	699	0.4+	0.1+
1998 08 19	557	0.6−	0.9+	1998 09 14	557	0.7−	0.5−	1998 09 25	699	0.2+	0.1−

1998 QS$_1$ = 1982 HM = 1989 AD$_9$ = 1996 CD

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	144.89420		(2000.0)		**P**	**Q**	
n	0.26318616	ω	101.27517		−0.99482705	−0.08471375	
a	2.4115375	Ω	73.88367		+0.05424045	−0.90958572	
e	0.1456263	i	3.34530		+0.08589018	−0.40678913	
P	3.74	H	14.0	G	0.15	U	2

Residuals in seconds of arc

1982 04 18	688	1.3+	1.5−	1996 02 08	327	0.5−	0.3+	1998 09 13	557	0.1+	0.2−
1982 04 18	688	2.2−	0.2−	1996 02 08	327	0.1−	0.2+	1998 09 13	557	0.1+	0.3−
1989 01 15	399	0.1−	1.1−	1996 02 08	327	0.4−	0.5+	1998 09 14	704	1.4+	0.9+
1989 01 15	399	0.0	1.2−	1996 02 11	327	1.0−	1.5+	1998 09 14	704	0.1+	1.3−
1989 01 15	399	0.0	1.0−	1996 02 11	327	0.3−	0.2+	1998 09 14	704	0.5−	0.1−
1989 01 15	399	0.0	0.5−	1996 02 11	327	0.4−	0.6+	1998 09 14	704	0.2−	0.4−
1996 02 01	327	0.1−	0.2+	1998 08 19	557	0.3−	0.3−	1998 09 18	704	0.3−	0.4+
1996 02 01	327	0.1−	0.2−	1998 08 19	557	0.3−	0.3−	1998 09 18	704	0.9−	0.8−
1996 02 01	327	0.4+	0.1+	1998 08 19	557	0.1−	0.1+	1998 09 18	704	0.8+	0.8−
1996 02 02	327	0.2+	0.2−	1998 08 20	557	0.2+	0.1−	1998 09 18	704	1.2+	1.1+

1996 02 02	327	1.0+	0.6−	1998 08 20	557	0.2+	0.2−	1998 09 18	704	1.1+	0.4+
1996 02 02	327	0.1−	1.1−	1998 08 25	557	0.0	0.3−	1998 09 24	557	0.5−	0.2−
1996 02 04	327	0.3−	0.1+	1998 08 25	557	0.0	0.3−	1998 09 24	557	0.1+	0.4−
1996 02 04	327	0.1+	0.2−	1998 08 27	557	0.0	0.4−	1998 09 24	557	0.2−	0.2−
1996 02 04	327	0.1+	0.3+	1998 08 27	557	0.1+	0.4−				

1998 QV$_1$ = 1993 TB$_{37}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	338.73026		(2000.0)		**P**	**Q**	
n	0.17873369	ω	206.07237		+0.96845278	+0.23879646	
a	3.1212731	Ω	139.90256		−0.20490389	+0.92578415	
e	0.1584121	i	6.35045		−0.14182248	+0.29308696	
P	5.51	H	14.1	G	0.15	U	5

Residuals in seconds of arc

1993 10 09	809	0.8+	1.2−	1993 10 21	809	1.3+	0.6−	1998 08 21	566	0.2+	0.1+
1993 10 09	809	0.8+	1.2−	1993 10 21	809	0.3+	0.4−	1998 08 21	566	0.4+	0.2+
1993 10 09	809	0.9−	2.1−	1993 10 21	809	1.6−	0.6−	1998 08 21	566	0.5+	0.2+
1993 10 11	809	0.7+	2.2+	1998 08 19	566	0.4−	0.5−	1998 08 27	699	0.0	0.5+
1993 10 11	809	0.7−	1.8+	1998 08 19	566	0.2−	0.1−	1998 08 27	699	0.3−	0.7−
1993 10 11	809	0.7−	2.1+	1998 08 19	566	0.7−	0.2−	1998 08 27	699	0.3+	0.5+

1998 QF$_3$ = 1981 QO$_4$ = 1988 RF

Id. A. Doppler

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	272.03539		(2000.0)		**P**	**Q**	
n	0.28776729	ω	87.70698		+0.47938383	−0.86181588	
a	2.2721749	Ω	331.67930		+0.59991707	+0.45963006	
e	0.2218693	i	20.44633		+0.64053934	+0.21450779	
P	3.43	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1981 08 30	675	0.8+	0.4−	1998 08 23	704	0.0	0.8+	1998 08 30	699	0.5−	0.1+
1981 08 31	675	0.0	0.3−	1998 08 23	704	1.0−	1.1+	1998 08 30	699	0.1−	0.2+
1988 09 05	675	0.2−	0.2+	1998 08 23	704	1.3+	0.3+	1998 08 30	699	0.7−	0.2−
1988 09 07	675	0.1+	0.3−	1998 08 23	704	(2.4−	0.8−)	1998 09 14	699	0.0	0.5+
1998 08 17	704	0.3+	0.2−	1998 08 23	704	(2.2−	1.3−)	1998 09 14	699	1.0−	0.7+
1998 08 17	704	0.6+	0.6−	1998 08 29	699	0.1+	0.3+	1998 09 14	699	1.1−	0.4−
1998 08 17	704	0.3+	1.0−	1998 08 29	699	0.2+	0.2−				
1998 08 17	704	1.0+	0.6−	1998 08 29	699	0.2−	0.3+				

1998 QQ$_5$ = 1977 RR$_{13}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	47.70687		(2000.0)		**P**	**Q**	
n	0.37421023	ω	85.53778		−0.12337231	+0.99219349	
a	1.9071826	Ω	177.17483		−0.99194411	−0.12276850	
e	0.0910140	i	21.67376		−0.02874276	−0.02190851	
P	2.63	H	16.0	G	0.15	U	5

Residuals in seconds of arc

1977 09 09	675	0.1+	0.4+	1998 08 27	704	0.0	0.1+	1998 09 18	704	0.1−	1.0+
1977 09 10	675	0.1−	0.5+	1998 08 27	704	0.1−	0.2−	1998 09 18	704	0.8+	1.3+
1998 08 19	704	0.2+	0.8−	1998 08 27	704	0.8−	1.4−	1998 09 18	704	0.2+	0.3+
1998 08 19	704	0.3+	0.9+	1998 08 30	699	0.0	1.6+	1998 09 25	704	0.2+	0.5−
1998 08 19	704	0.4+	0.9−	1998 08 30	699	0.0	1.4+	1998 09 25	704	0.6−	1.4−
1998 08 19	704	0.2+	0.0	1998 08 30	699	0.2+	1.2+	1998 09 25	704	0.5−	0.1−
1998 08 19	704	0.6+	0.1+	1998 09 14	704	0.6−	0.3−	1998 09 25	704	0.2−	0.4−
1998 08 24	704	0.4−	0.3−	1998 09 14	704	0.8−	0.7+	1998 09 25	704	0.2+	0.8+
1998 08 24	704	0.4+	0.2−	1998 09 14	704	0.1+	0.8−	1998 09 27	704	0.2−	0.4+
1998 08 24	704	1.6+	0.6+	1998 09 14	704	1.0−	1.2−	1998 09 27	704	0.3−	0.3+
1998 08 24	704	0.1+	0.8−	1998 09 14	704	0.0	0.5+	1998 09 27	704	0.7+	0.5−
1998 08 27	704	0.1−	0.3−	1998 09 18	704	0.9−	1.2−	1998 09 27	704	0.3−	0.1−
1998 08 27	704	0.5−	0.1+	1998 09 18	704	0.3+	0.2−	1998 09 27	704	0.9+	0.8−

1998 QH$_8$ = 1993 SF$_5$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	337.03430		(2000.0)		**P**	**Q**	
n	0.18558991	ω	169.09783		+0.90770728	+0.41637447	
a	3.0439193	Ω	165.94772		−0.39928344	+0.89516953	
e	0.1214402	i	12.35656		−0.12899698	+0.15907170	
P	5.31	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1993 08 18	010	0.9+	1.5+	1993 09 20	010	0.2+	0.1+	1998 08 23	704	0.6+	1.2−
1993 08 19	010	0.1+	1.3+	1998 08 17	704	0.0	0.3+	1998 08 23	704	1.0−	0.5+
1993 08 19	010	0.5+	0.7+	1998 08 17	704	1.5−	1.1−	1998 08 23	704	0.5+	0.1+
1993 08 19	010	3.6−	3.7−	1998 08 17	704	0.5−	0.1−	1998 09 14	699	0.7+	1.0+
1993 09 19	010	1.0+	0.4−	1998 08 17	704	0.1−	0.1−	1998 09 14	699	0.4+	1.0+
1993 09 19	010	1.8+	0.4+	1998 08 17	704	0.3+	0.2−	1998 09 14	699	0.6+	0.5+
1993 09 20	010	0.3+	0.3+	1998 08 23	704	0.8+	1.2−				
1993 09 20	010	1.2−	0.5−	1998 08 23	704	0.6−	0.9+				

1998 QQ$_8$ = 1997 GW$_{38}$

Id. S. Nakano, A. Doppler

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	315.37870		(2000.0)		**P**	**Q**	
n	0.21036441	ω	233.10963		+0.99052410	+0.09193108	
a	2.7999774	Ω	121.40421		−0.05242657	+0.93976622	
e	0.0736222	i	6.86582		−0.12693878	+0.32922352	
P	4.69	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1997 04 07	809	1.1−	0.6−	1998 08 17	704	0.5+	0.2−	1998 08 23	704	0.4+	0.7+
1997 04 07	809	0.5−	1.1−	1998 08 17	704	0.1+	0.6+	1998 08 23	704	0.7−	0.4−
1997 04 07	809	0.8−	1.1−	1998 08 17	704	0.2+	0.2+	1998 08 23	704	1.6+	0.3−
1997 04 08	809	0.7+	0.5+	1998 08 17	704	0.3−	0.0	1998 08 29	699	0.1+	0.7−
1997 04 08	809	0.9+	1.5+	1998 08 17	704	0.7−	0.4−	1998 08 29	699	0.2−	0.2+
1997 04 08	809	0.8+	0.8+	1998 08 23	704	0.6−	0.2−	1998 08 29	699	0.3−	0.7+

1998 QT$_8$ = 1981 UV$_{26}$ = 1992 EP$_{20}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	324.46486		(2000.0)		**P**	**Q**	
n	0.22366117	ω	283.73212		+0.97588616	+0.20472855	
a	2.6878745	Ω	64.49848		−0.15337556	+0.88994191	
e	0.1172805	i	4.81193		−0.15531302	+0.40754094	
P	4.41	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1981 10 25	675	0.6+	0.3−	1998 08 17	704	0.9+	0.1+	1998 08 23	704	0.3−	0.1+
1981 10 26	675	0.6−	0.2+	1998 08 17	704	0.7+	0.4−	1998 08 23	704	0.4+	0.7+
1992 03 02	809	1.0+	1.5+	1998 08 17	704	0.2−	0.0	1998 08 23	704	0.6−	1.3−
1992 03 05	809	0.1−	0.1+	1998 08 17	704	1.5+	0.6−	1998 08 29	699	0.7−	0.0
1992 03 06	809	0.9−	1.7−	1998 08 23	704	0.2+	1.2+	1998 08 29	699	0.4+	1.2−
1998 08 17	704	0.5−	0.5+	1998 08 23	704	1.1−	0.6+	1998 08 29	699	0.6−	0.2+

1998 QX$_9$ = 1971 SD$_3$ = 1987 OG$_1$ = 1997 KJ$_3$

Id. A. Doppler, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	311.28886		(2000.0)		**P**	**Q**	
n	0.18035301	ω	262.64401		+0.94075622	−0.32805245	
a	3.1025618	Ω	116.47461		+0.33643896	+0.87151590	
e	0.2223546	i	5.49948		+0.04226768	+0.36447445	
P	5.46	H	14.0	G	0.15	U	2

Residuals in seconds of arc

1971 09 26	805	0.4+	0.6+	1997 06 07	691	0.0	0.4−	1998 08 23	704	1.5+	1.0+
1971 09 26	805	0.1−	1.5−	1997 06 07	691	0.1+	0.4−	1998 08 23	704	2.5−	0.3−
1987 07 28	010	1.1+	0.3+	1998 08 17	704	0.6+	1.2−	1998 08 23	704	0.1+	1.3−

1987 07 28	010	1.2−	0.8+	1998 08 17	704	0.9+	0.2−	1998 08 29	699	0.2+	0.2+
1997 05 31	691	0.6−	0.3+	1998 08 17	704	0.1+	0.1+	1998 08 29	699	0.7−	0.6−
1997 05 31	691	0.1+	0.3−	1998 08 17	704	0.4−	0.4+	1998 08 29	699	0.8−	0.9+
1997 05 31	691	0.1+	0.2−	1998 08 17	704	0.6+	0.6−				
1997 06 07	691	0.1−	0.1−	1998 08 23	704	0.4+	1.5+				

1998 QR$_{10}$ = 1996 DT$_5$ = 1997 HP$_6$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	335.31319		(2000.0)		**P**	**Q**	
n	0.19691485	ω	35.38861		+0.92885289	+0.37017110	
a	2.9260634	Ω	302.87906		−0.34369280	+0.84667399	
e	0.0859511	i	0.97847		−0.13823015	+0.38225189	
P	5.01	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1996 02 16	010	1.0−	0.3+	1997 05 01	704	0.2+	0.1−	1998 08 23	704	0.8+	0.8+
1996 02 16	010	0.2+	0.4+	1997 05 01	704	0.1+	0.3+	1998 08 23	704	0.3−	0.6−
1996 02 16	010	0.9+	0.6+	1997 05 01	704	0.5+	0.1+	1998 08 27	699	0.4−	0.6−
1996 02 17	010	0.9−	3.0−	1997 05 01	704	0.2+	0.1−	1998 08 27	699	0.6+	1.1−
1996 02 17	010	1.0−	2.1−	1998 08 17	704	0.4+	0.4−	1998 08 27	699	0.3+	1.1−
1996 02 17	010	0.5−	2.5−	1998 08 17	704	0.7+	0.4−	1998 08 28	691	0.8−	0.3+
1997 04 30	704	0.1−	0.6+	1998 08 17	704	0.9+	0.4−	1998 08 28	691	0.9−	0.1+
1997 04 30	704	0.3−	0.1−	1998 08 17	704	0.8+	0.7−	1998 08 28	691	0.9−	0.1−
1997 04 30	704	0.2−	0.0	1998 08 17	704	0.5+	0.2−	1998 09 14	699	0.8+	0.3+
1997 04 30	704	0.2+	0.5+	1998 08 23	704	0.9−	1.3−	1998 09 14	699	0.6+	0.1+
1997 04 30	704	0.9−	0.7−	1998 08 23	704	0.2+	0.2+	1998 09 14	699	0.0	0.6+
1997 05 01	704	0.5+	0.2+	1998 08 23	704	0.7−	1.0−				

1998 QT$_{10}$ = 1992 EN$_{24}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	325.52286		(2000.0)		**P**	**Q**	
n	0.22734291	ω	215.66753		+0.98532467	+0.06124713	
a	2.6587761	Ω	139.88739		−0.02646015	+0.97693084	
e	0.1906986	i	14.31692		−0.16862727	+0.20458477	
P	4.34	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1992 03 02	809	0.2−	0.6+	1998 08 17	704	0.4−	0.6+	1998 08 23	704(	2.9−	0.6−)
1992 03 07	809	0.2+	0.6−	1998 08 17	704	0.1+	0.8+	1998 08 23	704	0.5−	1.1−
1998 08 17	704	0.2+	0.2−	1998 08 23	704	0.0	0.0	1998 08 27	699	0.5+	0.0
1998 08 17	704	0.5+	0.6−	1998 08 23	704	0.6+	0.1−	1998 08 27	699	0.1−	0.5+
1998 08 17	704	0.2−	0.1+	1998 08 23	704	0.5−	0.4−	1998 08 27	699	0.3−	0.5+

1998 QS$_{11}$ = 1995 YE$_2$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	158.03594		(2000.0)		**P**	**Q**	
n	0.27954451	ω	236.59726		−0.86379313	−0.49823381	
a	2.3165165	Ω	273.41684		+0.48362328	−0.77813816	
e	0.0650652	i	4.30870		+0.14131504	−0.38244486	
P	3.53	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1995 12 19	608	0.0	0.3−	1998 08 17	704	1.3+	0.0	1998 08 23	704	1.8−	0.2−
1995 12 19	608	0.1+	0.3−	1998 08 17	704	0.6−	0.6+	1998 08 23	704	1.0−	0.3−
1995 12 20	608	1.1−	0.1+	1998 08 17	704	0.2−	0.7+	1998 09 17	910	0.2+	0.6−
1995 12 20	608	1.2−	0.1+	1998 08 17	704	0.4+	1.0+	1998 09 17	910	0.3+	0.3−
1995 12 21	608	1.1+	0.2+	1998 08 23	704	0.4+	0.6+	1998 09 17	910	0.3+	0.7−
1995 12 21	608	1.0+	0.5+	1998 08 23	704	0.7+	1.2−				

1998 QJ$_{13}$ = 1994 WJ$_7$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	39.37821		(2000.0)		**P**	**Q**	
n	0.19607033	ω	129.82365		−0.18278542	+0.97822860	
a	2.9344596	Ω	129.36346		−0.93640035	−0.14276269	
e	0.1477481	i	7.30285		−0.29957283	−0.15062413	
P	5.03	H	13.5	G	0.15	U	5

Residuals in seconds of arc

1994 11 28	691	0.0	0.1−	1998 08 17	704	0.2−	0.1+	1998 08 23	704	0.4−	1.1+
1994 11 28	691	0.0	0.2−	1998 08 17	704	0.2+	0.4+	1998 09 14	699	0.2+	0.1+
1994 11 28	691	0.0	0.1−	1998 08 17	704	0.4−	0.3−	1998 09 14	699	0.2+	0.2−
1994 12 03	691	0.0	0.2+	1998 08 17	704	0.2+	0.1+	1998 09 14	699	0.3−	0.7+
1994 12 03	691	0.1−	0.2+	1998 08 23	704	0.3+	1.4−	1998 09 24	699	0.1−	0.1−
1994 12 03	691	0.2+	0.1+	1998 08 23	704	0.0	0.5+	1998 09 24	699	0.2−	1.3+
1998 08 17	704	0.1−	0.7+	1998 08 23	704	0.5+	1.6−	1998 09 24	699	0.3+	1.3−

1998 QT$_{13}$ = 1991 RU$_{30}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	299.95728		(2000.0)		**P**	**Q**	
n	0.27847231	ω	246.42196		+0.80717047	−0.58998934	
a	2.3224589	Ω	149.72336		+0.55485913	+0.74686580	
e	0.2487871	i	2.24025		+0.20151223	+0.30676384	
P	3.54	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1991 09 05	691	1.0−	0.7+	1998 08 17	704	0.7+	0.2+	1998 08 27	699	1.4+	0.8+
1991 09 05	691	1.0−	0.2+	1998 08 17	704	0.5−	0.6+	1998 08 27	699	0.4+	0.6+
1991 09 05	691	0.9−	0.3+	1998 08 17	704	0.3+	0.6+	1998 08 27	699	0.6+	0.0
1991 09 10	675	1.0+	1.3−	1998 08 23	704	1.6−	0.3+	1998 09 14	699	0.6−	2.2+
1991 09 10	675	2.1+	0.5−	1998 08 23	704	0.4−	0.4−	1998 09 14	699	1.0−	0.0
1998 08 17	704	0.0	0.9−	1998 08 23	704	0.8+	3.1−	1998 09 14	699	0.7+	0.2−
1998 08 17	704	0.4+	0.4+	1998 08 23	704	1.4−	0.3−				

1998 QU$_{13}$ = 1981 QN$_4$

Id. A. Doppler

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	286.10577		(2000.0)		**P**	**Q**	
n	0.28865027	ω	78.71682		+0.76782347	−0.63743517	
a	2.2675389	Ω	320.83640		+0.54096786	+0.69877432	
e	0.1410838	i	5.83592		+0.34322134	+0.32463958	
P	3.41	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1981 08 30	675	0.9+	0.2+	1998 08 17	704	0.5+	0.4−	1998 08 27	699	0.5−	1.3+
1981 08 31	675	0.8−	0.3−	1998 08 23	704	0.2+	0.8−	1998 08 27	699	0.6+	0.8+
1998 08 17	704	0.0	0.3−	1998 08 23	704	0.2+	0.2+	1998 08 27	699	1.0−	0.0
1998 08 17	704	0.5+	0.3+	1998 08 23	704	0.3+	0.7+	1998 09 14	699	1.2−	0.7−
1998 08 17	704	0.1−	0.3−	1998 08 23	704	(2.8+	0.5−)	1998 09 14	699	1.1+	0.2−
1998 08 17	704	0.4−	0.1−	1998 08 23	704	0.5−	0.9−	1998 09 14	699	0.4+	0.2+

1998 QB$_{14}$ = 1975 SD$_2$

Id. A. Doppler

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	307.84097		(2000.0)		**P**	**Q**	
n	0.25463887	ω	206.92613		+0.87827414	−0.47814880	
a	2.4652043	Ω	181.64683		+0.45475069	+0.83712435	
e	0.2373155	i	5.74271		+0.14777127	+0.26570010	
P	3.87	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1975 09 30	675	0.2−	0.7−	1998 08 17	704	0.0	0.7−	1998 08 28	699	0.8−	0.7−
1975 10 01	675	0.3+	0.4+	1998 08 23	699	0.2+	0.5+	1998 08 28	699	0.1+	0.5+
1975 10 15	675	0.3−	0.6+	1998 08 23	699	0.2−	0.4+	1998 08 28	699	0.1−	1.1+

1975 10 16	675	0.3+	0.3−	1998 08 23	699	0.0	0.3+	1998 09 15	699	0.0	0.1−
1998 08 17	704	0.3−	0.4−	1998 08 23	704	1.0−	0.6+	1998 09 15	699	0.1−	0.0
1998 08 17	704	0.4+	0.5+	1998 08 23	704	0.3+	1.4−	1998 09 15	699	0.4+	0.5−
1998 08 17	704	0.0	0.3−	1998 08 23	704	0.3−	1.3+				
1998 08 17	704	0.6+	0.8−	1998 08 23	704	0.9+	0.4−				

1998 QU$_{15}$ = 1980 FW$_4$ = 1990 SZ$_{21}$ = 1998 SF$_{24}$ = 1992 CO$_3$

Id. A. Doppler

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	176.15935		(2000.0)		**P**	**Q**	
n	0.23934264	ω	352.87215		−0.92368585	−0.38112315	
a	2.5691492	Ω	164.54468		+0.35842243	−0.89581085	
e	0.1316000	i	8.49471		+0.13541719	−0.22862208	
P	4.12	H	14.0	G	0.15	U	2

Residuals in seconds of arc

1980 03 16	809	1.1+	1.3−	1992 02 12	809	0.4−	1.4−	1998 08 27	106	0.3+	0.1+
1980 03 16	809	0.6+	0.7−	1998 08 17	704	0.3−	0.8−	1998 08 27	106	1.1+	0.8−
1980 03 16	809	1.0−	0.6+	1998 08 17	704	0.8+	1.4−	1998 09 14	704	0.1−	0.2−
1980 03 16	809	1.4−	0.3+	1998 08 17	704	1.1+	1.2−	1998 09 14	704	1.9−	0.6+
1980 03 16	095	(3.6−	2.8−)	1998 08 17	704	1.0+	0.8+	1998 09 14	704	0.9−	0.0
1980 03 17	809	(1.3+	2.7−)	1998 08 17	704	1.4−	0.3−	1998 09 14	704	0.6+	0.9−
1980 03 17	809	(0.8+	3.1−)	1998 08 23	704	0.3−	0.3−	1998 09 18	699	0.5−	0.4−
1980 03 17	809	0.2+	0.1+	1998 08 23	704	0.6−	1.2+	1998 09 18	699	0.0	0.8−
1980 03 17	809	0.4−	2.2−	1998 08 23	704	0.7+	1.5+	1998 09 18	704	0.0	0.0
1990 09 22	809	1.3+	0.1+	1998 08 23	704	1.6+	0.4+	1998 09 18	699	0.1+	0.5−
1990 09 22	809	0.4+	0.3−	1998 08 23	704	1.0+	1.3+	1998 09 18	704	0.4−	0.0
1990 09 22	809	1.0−	1.5−	1998 08 23	106	0.2+	0.7−	1998 09 18	704	0.1+	0.7−
1990 09 25	809	0.8−	0.7+	1998 08 23	106	0.2+	0.1−	1998 09 18	704	0.1+	0.4−
1990 09 25	809	0.3+	1.5+	1998 08 23	106	0.7+	0.5+	1998 09 18	704	0.9−	0.9+
1990 09 25	809	0.4−	0.5+	1998 08 23	106	1.0+	0.2−	1998 09 26	327	0.4+	0.7−
1992 02 02	809	(4.1+	2.7+)	1998 08 25	106	0.5+	0.1−	1998 09 26	327	0.6+	0.3−
1992 02 02	809	(4.0+	2.1+)	1998 08 25	106	0.2+	0.0	1998 09 26	327	0.2+	0.8−
1992 02 02	809	(2.8+	2.4+)	1998 08 26	106	0.5−	0.1−	1998 09 29	327	1.6−	0.3−
1992 02 02	385	(1.2−	2.4+)	1998 08 26	699	0.4−	1.4+	1998 09 29	327	1.1−	0.9−
1992 02 02	385	0.3−	1.5+	1998 08 26	699	0.3−	0.3−	1998 09 29	327	1.0−	0.5−
1992 02 12	809	0.6+	1.6−	1998 08 26	699	0.3+	0.2+				
1992 02 12	809	(0.3−	2.2−)	1998 08 26	106	1.0+	1.1−				

1998 QW$_{15}$ = 1978 WR$_2$ = 1993 RW$_4$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	333.87178		(2000.0)		**P**	**Q**	
n	0.19080648	ω	138.66631		+0.99812502	−0.06002715	
a	2.9881837	Ω	224.77944		+0.05074288	+0.92082699	
e	0.1481911	i	0.97342		+0.03422883	+0.38532377	
P	5.17	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1978 11 29	675	0.3−	0.3−	1998 08 17	704	0.3−	0.5+	1998 09 16	132	0.4−	0.4+
1978 11 30	675	0.4+	0.6−	1998 08 17	704	0.7−	0.8+	1998 09 16	132	(2.9−	1.4+)
1993 09 15	809	1.0−	0.4−	1998 08 17	704	1.0−	1.2+	1998 09 16	132	0.2−	0.9−
1993 09 15	809	0.4+	0.7−	1998 08 17	704	0.9+	0.3+	1998 09 18	704	0.6+	1.4+
1993 09 15	809	0.5−	0.4−	1998 08 17	704	0.6+	0.4−	1998 09 18	704	1.7−	0.5−
1993 09 17	809	0.1−	1.1+	1998 08 22	132	0.9+	1.0+	1998 09 18	699	0.2+	0.3+
1993 09 17	809	1.1−	1.5+	1998 08 22	132	(2.6+	0.5+)	1998 09 18	704	0.0	0.1−
1993 09 17	809	0.9−	0.8+	1998 08 22	132	0.4+	1.4−	1998 09 18	699	1.5+	0.1−
1993 09 18	809	1.2−	0.8−	1998 08 25	132	(2.3+	2.8−)	1998 09 18	704	0.4−	0.5−
1993 09 18	809	1.2−	1.1−	1998 08 25	132	(1.8−	3.0−)	1998 09 18	704	0.7+	1.7−
1993 09 18	809	(1.8−	2.1−)	1998 08 25	132	1.1−	1.9−	1998 09 18	699	0.0	0.3+
1993 09 18	675	1.0−	0.2+	1998 08 29	132	1.7+	0.3+	1998 09 19	958	0.3+	0.8+
1993 09 18	675	0.5+	1.0+	1998 08 29	132	0.9−	1.3−	1998 09 20	958	0.2+	0.4+
1993 09 22	675	0.8+	1.0−	1998 09 14	704	0.5+	0.3−	1998 09 20	958	1.2−	0.1+
1993 09 22	675	0.3−	0.4−	1998 09 14	704	0.3+	0.1+	1998 09 20	958	1.6−	0.4−
1993 09 23	809	1.5+	1.9+	1998 09 14	704	0.2−	0.1−	1998 09 20	958	(5.5−	2.7−)
1993 09 23	809	1.2+	0.5+	1998 09 14	704	0.7+	0.4−				
1993 09 23	809	1.7+	0.6+	1998 09 14	704	1.0+	0.2−				

1998 QM$_{16}$ = 1990 QA$_{18}$ = 1997 ET$_{15}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	6.26853		(2000.0)		**P**	**Q**	
n	0.24500944	ω	112.55004		+0.56342183	+0.82601913	
a	2.5293805	Ω	191.78173		−0.78351791	+0.52818929	
e	0.1495343	i	4.42561		−0.26202201	+0.19674471	
P	4.02	H	14.0	G	0.15	U	3

Residuals in seconds of arc

1990 08 26	095	1.1+	0.8−	1997 03 10	691	0.1−	0.0	1998 08 17	704	0.0	0.0
1990 08 26	095	0.4−	1.4−	1998 06 30	699	0.2−	0.2+	1998 08 23	704	0.1+	0.2−
1990 08 30	095	(1.8−	6.4+)	1998 06 30	699	0.2+	0.1−	1998 08 23	704	0.2−	0.5−
1997 03 05	691	0.2−	0.3−	1998 06 30	699	0.2−	0.7+	1998 08 23	704	0.1+	0.0
1997 03 05	691	0.0	0.2−	1998 08 17	704	0.2−	0.5+	1998 08 23	704	0.3−	1.5−
1997 03 05	691	0.0	0.3−	1998 08 17	704	0.5−	0.0	1998 09 10	910	0.5+	0.5+
1997 03 10	691	0.0	0.2−	1998 08 17	704	0.2+	1.0+	1998 09 11	910	0.4+	0.5+
1997 03 10	691	0.1−	0.0	1998 08 17	704	0.7−	0.1+	1998 09 11	910	0.4+	0.5+

1998 QP$_{16}$ = 4243 T-1

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	16.90332		(2000.0)		**P**	**Q**	
n	0.19306315	ω	129.93672		+0.50213249	+0.86432074	
a	2.9648528	Ω	170.08384		−0.83532574	+0.49329164	
e	0.0439023	i	9.52841		−0.22381659	+0.09804597	
P	5.11	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1971 03 24	675	0.2+	0.7+	1998 08 17	704	0.9+	0.5+	1998 08 23	704	1.0−	2.0−
1971 03 26	675	1.0+	0.5−	1998 08 17	704	0.3−	0.4−	1998 09 10	910	0.2+	0.1−
1971 03 26	675	0.7+	0.2−	1998 08 17	704	0.1−	0.4−	1998 09 11	910	0.1+	0.1−
1971 03 27	675	1.8−	0.3+	1998 08 23	704	0.9+	1.3+	1998 09 11	910	0.2+	0.2+
1971 04 02	675	0.0	0.3−	1998 08 23	704	1.0−	2.1+				
1998 08 17	704	0.4+	0.5−	1998 08 23	704	0.3−	0.6−				

1998 QT$_{16}$ = 1986 TM$_{12}$ = 1990 SO$_{20}$

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	315.28290		(2000.0)		**P**	**Q**	
n	0.24218756	ω	33.48150		+0.96389702	−0.26567810	
a	2.5489902	Ω	341.90039		+0.22998138	+0.86438512	
e	0.2034581	i	3.28892		+0.13420541	+0.42691159	
P	4.07	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1986 10 05	095	0.1−	0.2−	1998 08 17	704	0.2−	0.1+	1998 08 23	704	0.8−	0.1−
1990 09 20	675	0.4+	0.2+	1998 08 17	704	0.2+	1.0−	1998 08 23	704	0.6+	0.6−
1990 09 20	675	0.2+	0.8−	1998 08 17	704	0.1+	0.4−	1998 08 27	699	0.9−	0.7+
1998 07 31	699	0.7+	0.1+	1998 08 21	566	0.4+	0.8−	1998 08 27	699	0.1+	0.1+
1998 07 31	699	0.5−	0.4+	1998 08 21	566	0.3+	0.5−	1998 08 27	699	0.6−	0.2−
1998 07 31	699	0.3+	0.0	1998 08 21	566	0.3+	0.3−	1998 09 21	699	0.4−	0.6+
1998 08 17	704	0.2+	0.1+	1998 08 23	704	0.1+	0.0	1998 09 21	699	0.2−	1.0+
1998 08 17	704	0.3−	0.4+	1998 08 23	704	1.2+	0.5+	1998 09 21	699	1.2−	0.7+

1998 QC$_{17}$ = 1982 DG$_1$ = 1982 DG$_3$

Id. A. Doppler, F. N. Bowman (d, *MPC* 7055)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	122.68826		(2000.0)		**P**	**Q**	
n	0.26615727	ω	59.44740		−0.98685541	+0.13064372	
a	2.3935573	Ω	127.89040		−0.15493113	−0.93225222	
e	0.0542123	i	6.92295		+0.04596466	−0.33739890	
P	3.70	H	14.5	G	0.15	U	6

Residuals in seconds of arc

1982 02 20	033	1.1−	0.5+	1998 08 17	704	0.9+	0.6+	1998 08 23	704	0.9−	1.5−
1982 02 20	033	0.6−	0.4+	1998 08 17	704	0.2+	0.3+	1998 08 27	699	0.1−	0.8+
1982 02 20	033	0.3−	0.1+	1998 08 17	704	0.8−	0.3+	1998 08 27	699	0.6+	0.1+
1982 02 21	688	(2.6+	6.1+)	1998 08 23	704	0.2+	0.8−	1998 08 27	699	0.7−	0.8+
1982 02 21	688	2.0+	1.1−	1998 08 23	704	0.3+	0.2−				
1998 08 17	704	0.6+	0.2+	1998 08 23	704	0.2−	0.6−				

1998 QU$_{17}$ = 1993 VZ$_5$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	328.79145		(2000.0)		**P**	**Q**	
n	0.17271118	ω	65.99178		+0.99565401	−0.03178013	
a	3.1934178	Ω	295.72996		−0.00946532	+0.90057398	
e	0.1648051	i	5.57646		+0.09264722	+0.43353954	
P	5.71	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1993 11 08	691	0.3+	0.1−	1998 08 17	704	1.4+	0.2−	1998 08 23	704	(0.9+	2.9−)
1993 11 08	691	0.4+	0.4−	1998 08 17	704	1.0−	0.0	1998 08 29	327	0.5−	0.1+
1993 11 08	691	0.6+	0.2−	1998 08 19	566	0.2−	0.2+	1998 08 29	327	0.2−	0.0
1993 11 09	691	0.1−	0.2+	1998 08 19	566	0.7−	0.0	1998 08 29	327	0.2−	0.0
1993 11 09	691	0.5−	0.2+	1998 08 19	566	0.6−	0.6+	1998 08 31	327	0.3+	0.3+
1993 11 09	691	0.6−	0.3+	1998 08 23	704	1.5+	1.3−	1998 08 31	327	0.1+	0.2+
1998 08 17	704	1.0−	1.0−	1998 08 23	704	1.1+	0.4+	1998 08 31	327	0.4−	0.2−
1998 08 17	704	0.5+	1.1+	1998 08 23	704	(1.1+	2.1−)				

1998 QA$_{19}$ = 3170 T-3 = 1987 KQ$_3$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	9.77327		(2000.0)		**P**	**Q**	
n	0.27785371	ω	266.66126		+0.39444766	+0.91841489	
a	2.3259047	Ω	26.63459		−0.81385543	+0.36452664	
e	0.1885685	i	3.89036		−0.42667363	+0.15373488	
P	3.55	H	15.5	G	0.15	U	3

Residuals in seconds of arc

1977 10 07	675	2.6+	1.0−	1977 10 22	675	1.1+	0.0	1998 08 23	704	0.3−	1.1−
1977 10 11	675	1.9−	0.8+	1987 05 30	413	1.8−	0.4+	1998 08 23	704	0.9−	0.2+
1977 10 11	675	0.4−	0.2−	1987 05 30	413	1.7+	0.7−	1998 08 23	704	1.6−	1.9+
1977 10 12	675	0.3−	0.2−	1998 07 31	699	0.9+	0.4−	1998 08 23	704	0.4−	1.5+
1977 10 12	675	1.0+	0.9−	1998 07 31	699	0.7−	0.3−	1998 08 27	699	0.1−	0.9+
1977 10 16	675	0.1+	0.2−	1998 07 31	699	0.8−	1.7−	1998 08 27	699	0.1+	0.7+
1977 10 16	675	1.5+	0.2−	1998 08 17	704	0.6+	0.2−	1998 08 27	699	0.2+	0.5+
1977 10 17	675	0.9−	0.6+	1998 08 17	704	1.8+	0.4+	1998 09 14	699	0.4−	1.2+
1977 10 17	675	0.9−	0.3−	1998 08 17	704	1.9+	0.2−	1998 09 14	699	0.3−	0.8+
1977 10 21	675	2.2−	1.1+	1998 08 17	704	0.9+	1.1−	1998 09 14	699	0.6−	0.3−
1977 10 21	675	0.5−	0.6−	1998 08 17	704	0.3+	1.5−				
1977 10 22	675	1.5+	0.2−	1998 08 23	704	1.0−	0.4−				

1998 QK$_{19}$ = 1983 RK$_9$ = 1983 RO$_9$ = 1989 AS$_4$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	6.52741		(2000.0)		**P**	**Q**	
n	0.26203736	ω	181.91453		+0.56246323	+0.81899864	
a	2.4185806	Ω	122.32951		−0.75679885	+0.56523063	
e	0.1129071	i	7.71762		−0.33300243	+0.09877026	
P	3.76	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1983 09 03	808	(5.2−	5.1−)	1998 08 17	704	0.4+	0.6−	1998 08 27	699	0.9+	0.6−
1983 09 03	808	0.1−	0.2−	1998 08 17	704	0.2+	0.5+	1998 08 27	699	0.4+	0.3+
1983 09 09	808	0.1+	0.2+	1998 08 17	704	0.5+	0.8−	1998 09 14	699	0.3+	0.0
1983 09 09	808	0.1−	0.7+	1998 08 23	704	1.0+	0.1+	1998 09 14	699	0.2−	0.2+
1989 01 04	413	0.1−	0.1−	1998 08 23	704	(0.3+	2.8+)	1998 09 14	699	0.3−	0.4+
1989 01 04	413	0.0	0.4−	1998 08 23	704	1.3−	0.6−	1998 09 24	699	0.2−	0.0
1998 08 17	704	0.9−	0.0	1998 08 23	704	0.3−	0.1−	1998 09 24	699	0.2+	0.3−
1998 08 17	704	1.3−	0.1+	1998 08 27	699	0.8+	0.1+	1998 09 24	699	0.1+	0.2+

1998 QT$_{19}$ = 1987 GZ = 1993 OB$_{14}$ = 1997 GZ$_{40}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	35.27285		(2000.0)		**P**	**Q**	
n	0.20948058	ω	116.27787		+0.19947497	+0.97958705	
a	2.8078477	Ω	165.16487		−0.93013945	+0.19727180	
e	0.0463889	i	5.57611		−0.30830234	+0.03864004	
P	4.71	H	14.0	G	0.15	U	1

Residuals in seconds of arc

1987 04 01	675	0.2−	1.4+	1997 04 08	809	0.3+	0.1−	1998 08 23	704	(1.3−	3.2+)
1987 04 01	675	0.7+	0.3+	1998 07 26	699	0.7+	1.0+	1998 09 14	704	0.6−	1.1−
1987 04 03	675	(12.4−	1.2+)	1998 07 26	699	0.7−	1.6+	1998 09 14	704	1.9+	0.8+
1987 04 03	675	(10.6−	0.2+)	1998 07 26	699	1.7+	0.9+	1998 09 14	704	0.2−	1.8−
1993 07 23	010	0.9−	0.4−	1998 08 17	704	0.3+	0.5−	1998 09 14	704	0.4−	0.7+
1993 07 23	010	0.0	0.7−	1998 08 17	704	1.0+	0.1−	1998 09 18	704	0.6+	0.8+
1993 07 23	010	0.9+	1.2+	1998 08 17	704	0.7−	1.3−	1998 09 18	704	1.1−	0.4−
1997 04 07	809	1.0−	0.1+	1998 08 17	704	0.1−	0.1+	1998 09 18	704	0.3+	1.0−
1997 04 07	809	1.0−	0.5+	1998 08 17	704	0.3−	1.0+	1998 09 18	704	(3.0−	1.3+)
1997 04 07	809	1.2−	0.0	1998 08 23	704	0.3−	0.1−	1998 09 21	699	0.6−	0.6−
1997 04 08	809	1.6+	1.4−	1998 08 23	704	0.0	0.2+	1998 09 21	699	0.8−	0.3−
1997 04 08	809	1.0+	0.2−	1998 08 23	704	0.7−	1.0+	1998 09 21	699	0.5−	0.1+

1998 QV$_{19}$ = 1997 EV$_{56}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	20.68072		(2000.0)		**P**	**Q**	
n	0.23494558	ω	127.76905		+0.35978718	+0.93270269	
a	2.6011049	Ω	163.26582		−0.88091309	+0.34835463	
e	0.1123510	i	4.95651		−0.30748223	+0.09335276	
P	4.20	H	14.0	G	0.15	U	3

Residuals in seconds of arc

1997 03 10	809	0.2+	0.4+	1998 08 17	704	0.3+	0.7−	1998 09 14	704	0.5−	0.2+
1997 03 10	809	0.4+	0.5+	1998 08 17	704	0.2+	1.2−	1998 09 14	704	0.1−	0.6+
1997 03 10	809	0.0	0.3+	1998 08 17	704	0.4+	1.4−	1998 09 14	704	0.2−	0.1+
1997 03 11	809	0.4−	0.8−	1998 08 17	704	0.6+	0.6−	1998 09 14	704	0.0	0.8+
1997 03 11	809	0.2−	0.1+	1998 08 23	699	0.6−	0.3+	1998 09 18	704	0.7+	0.3+
1997 03 11	809	0.1−	1.1−	1998 08 23	704	0.9−	0.2−	1998 09 18	704	1.9+	1.6−
1998 06 30	699	0.3+	0.4+	1998 08 23	704	0.1−	0.1+	1998 09 18	704	0.3+	0.8−
1998 06 30	699	0.3−	0.4+	1998 08 23	699	0.5−	0.3+	1998 09 18	704	1.2+	0.7−
1998 06 30	699	0.5−	1.1+	1998 08 23	704	0.1−	0.5+	1998 09 18	704	1.3−	1.3−
1998 07 26	699	0.6+	0.1+	1998 08 23	704	0.3−	0.7+	1998 09 21	699	0.1+	0.7+
1998 07 26	699	0.7+	0.0	1998 08 23	699	0.3−	0.0	1998 09 21	699	0.4−	0.4+
1998 07 26	699	0.4+	0.2+	1998 08 23	704	1.3−	0.6+	1998 09 21	699	0.4−	0.4+
1998 08 17	704	0.4+	0.7−	1998 09 14	704	0.1+	0.8+				

1998 QF$_{20}$ = 2244 T-3

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	313.14991		(2000.0)		**P**	**Q**	
n	0.27936443	ω	138.11331		+0.91899106	−0.38733944	
a	2.3175119	Ω	244.81469		+0.33667859	+0.86813205	
e	0.2113307	i	4.66798		+0.20519008	+0.31034641	
P	3.53	H	16.0	G	0.15	U	5

Residuals in seconds of arc

1977 10 11	675	0.0	1.5+	1998 08 17	704	0.5+	0.9+	1998 09 14	704	(0.2+	2.4−)
1977 10 11	675	1.1−	1.2+	1998 08 17	704	0.2−	0.7+	1998 09 14	704	0.6−	0.7−
1977 10 12	675	0.8−	0.3+	1998 08 17	704	0.7+	0.4+	1998 09 14	704	0.5+	0.7−
1977 10 12	675	0.2+	0.2−	1998 08 17	704	0.7+	1.2+	1998 09 14	704	0.3−	1.2−
1977 10 16	675	0.1+	1.5−	1998 08 23	704	1.0+	0.2−	1998 09 17	699	0.7−	0.9+
1977 10 16	675	0.3−	0.3−	1998 08 23	704	0.5−	0.1+	1998 09 17	699	0.5+	0.1−
1977 10 17	675	0.6+	1.5+	1998 08 23	704	0.8−	1.4−	1998 09 17	699	0.2+	1.6+
1977 10 17	675	0.9+	1.0+	1998 08 23	704	0.6−	0.4+	1998 09 18	704	1.0+	1.0−
1977 10 21	675	0.9+	0.4−	1998 08 23	704	1.2−	0.1−	1998 09 18	704	(0.1+	2.1−)
1977 10 21	675	0.2−	0.1+	1998 08 26	699	0.4−	0.7+	1998 09 18	704	0.4+	0.9−
1977 10 22	675	0.5−	0.1−	1998 08 26	699	0.4−	0.7−	1998 09 18	704	0.6+	1.7−

1977 10 22	675	0.2−	2.0−	1998 08 26	699	0.4−	0.3−
1998 08 17	704	0.0	0.7+	1998 09 14	704	0.5+	0.5+

1998 QY$_{20}$ = 1979 QO$_2$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	346.70104	(2000.0)	**P**	**Q**	
n	0.25956951	ω	64.12029	+0.89037560	+0.45485816
a	2.4338862	Ω	268.81919	−0.42394369	+0.81386332
e	0.2206687	i	1.04951	−0.16584042	+0.36156679
P	3.80	H	16.0	G 0.15	U 5

Residuals in seconds of arc

1979 08 22	809	0.3−	0.3+	1998 08 23	699	0.7+	0.5−	1998 09 14	704	0.2+	0.7+
1979 08 22	809	1.1−	1.0+	1998 08 23	704	0.4+	0.3−	1998 09 14	704	0.0	0.5−
1979 08 22	809	0.1−	0.2+	1998 08 23	704	0.1−	1.5−	1998 09 14	704	0.4+	1.1+
1979 08 23	809	0.2−	1.5+	1998 08 23	699	0.5+	0.9−	1998 09 15	699	0.6−	0.2−
1979 08 23	809	0.1+	1.1+	1998 08 23	704	1.3−	0.0	1998 09 15	699	0.1+	0.0
1998 08 17	704	0.9+	0.8+	1998 08 23	704	1.0−	0.1−	1998 09 15	699	(0.3+	2.2+)
1998 08 17	704	0.6−	0.8−	1998 08 23	699	0.3+	0.3−	1998 09 18	704	1.6+	1.2−
1998 08 17	704	0.5+	0.9−	1998 08 23	704	0.6+	0.4+	1998 09 18	704	1.0−	1.5−
1998 08 17	704	0.2+	0.6−	1998 09 14	704	0.3+	1.2+	1998 09 18	704	0.3−	0.4+
1998 08 17	704	0.5+	0.5−	1998 09 14	704	0.8+	0.6+	1998 09 18	704	1.7−	0.4+

1998 QJ$_{21}$ = 1982 SW$_5$ = 1993 TN$_{43}$ = 1997 HD$_{16}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	10.85372	(2000.0)	**P**	**Q**	
n	0.18196731	ω	156.18158	+0.54055222	+0.84125405
a	3.0841853	Ω	146.53729	−0.77469791	+0.50223568
e	0.1631945	i	1.01245	−0.32809519	+0.20012731
P	5.42	H	13.5	G 0.15	U 1

Residuals in seconds of arc

1982 09 16	095	0.4−	1.0+	1998 08 17	704	0.4−	0.4+	1998 09 15	587	1.2−	0.6−
1993 10 10	809	(2.5+	1.7+)	1998 08 17	704	0.1+	0.4+	1998 09 15	587	0.2+	0.6−
1993 10 10	809	1.0+	0.8+	1998 08 23	704	0.4+	0.2−	1998 09 16	587	0.2+	0.2+
1993 10 10	809	0.4−	0.8+	1998 08 23	699	0.4−	0.5+	1998 09 16	587	0.3+	1.1−
1993 10 22	809	1.5+	1.3−	1998 08 23	704	0.1−	1.0−	1998 09 17	587	0.4+	0.3−
1993 10 22	809	0.3+	1.7−	1998 08 23	704	0.8−	1.3+	1998 09 17	587	0.4+	0.1+
1993 10 22	809	1.4−	1.3−	1998 08 23	699	0.2−	0.5+	1998 09 18	704	0.3+	0.0
1997 04 29	691	0.2−	0.5−	1998 08 23	704	0.6−	1.1+	1998 09 18	704	(1.1+	2.4−)
1997 04 29	691	0.4−	0.9−	1998 08 23	704	0.0	0.1+	1998 09 18	704	1.9+	1.5−
1997 04 29	691	0.3−	0.4−	1998 08 23	699	0.5−	0.1+	1998 09 18	704	0.4−	0.1−
1997 05 08	691	0.2−	0.1−	1998 09 14	704	0.2+	1.2−	1998 09 18	704	0.7−	1.1−
1997 05 08	691	0.0	0.2−	1998 09 14	704	0.3+	0.7+	1998 09 21	699	0.0	0.5+
1997 05 08	691	0.3+	0.2−	1998 09 14	704	0.1−	0.6+	1998 09 21	699	0.5+	0.1−
1998 08 17	704	0.8+	0.5+	1998 09 14	704	0.4+	0.2+	1998 09 21	699	0.2+	0.2−
1998 08 17	704	0.3−	0.2+	1998 09 14	704	0.3−	0.3+				
1998 08 17	704	0.4−	0.5+	1998 09 15	587	0.2+	0.4−				

1998 QL$_{22}$ = 1987 QY$_3$ = 1987 SD$_9$ = 1990 EL$_1$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	322.49847	(2000.0)	**P**	**Q**	
n	0.17415983	ω	90.84474	+0.96851820	−0.21353847
a	3.1756848	Ω	281.49231	+0.14253091	+0.89708405
e	0.1332225	i	7.50300	+0.20410155	+0.38683529
P	5.66	H	13.5	G 0.15	U 3

Residuals in seconds of arc

1987 08 31	010	1.5+	0.8+	1990 03 04	809	1.2−	0.2+	1998 08 23	704	0.1+	1.6+
1987 08 31	010	0.1−	0.1−	1990 03 04	809	1.7−	0.3−	1998 09 14	704	0.0	0.3+
1987 08 31	010	0.6−	0.6−	1990 03 04	809	0.7−	0.7−	1998 09 14	704	0.3−	0.8+
1987 09 21	010	1.2−	0.1+	1998 08 17	704	0.1−	0.5−	1998 09 14	704	0.3+	0.6−
1987 09 22	010	0.0	0.5+	1998 08 17	704	0.1−	0.2+	1998 09 14	704	0.5+	0.7−
1990 02 24	809	0.9+	0.6+	1998 08 17	704	0.1+	1.0+	1998 09 14	704	0.7+	0.8−
1990 02 24	809	0.2+	0.8+	1998 08 17	704	0.4+	0.3+	1998 09 18	704	0.1+	0.4+
1990 02 24	809	0.3−	0.9+	1998 08 17	704	0.3+	0.0	1998 09 18	704	1.0−	0.2−
1990 03 02	809	0.9+	0.3−	1998 08 23	704	0.5+	0.8−	1998 09 18	704	1.3+	2.1−
1990 03 02	809	1.1+	0.2−	1998 08 23	704	1.2−	1.0+	1998 09 18	704	0.8−	0.7+
1990 03 02	809	1.0+	0.4−	1998 08 23	704	1.1−	0.1+	1998 09 18	704	0.4+	0.9−

1998 QV$_{22}$ = 1993 SW$_5$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	247.79930	(2000.0)	**P**	**Q**	
n	0.17967038	ω	67.81847	+0.11275981	−0.99357961
a	3.1104154	Ω	15.71545	+0.89865095	+0.09802392
e	0.0886347	i	1.94820	+0.42392417	+0.05648785
P	5.49	H	13.5	G 0.15	U 6

Residuals in seconds of arc

1993 09 17	809	1.1+	2.6+	1993 09 22	809	2.3−	0.7−	1998 08 17	704	0.1+	0.1−
1993 09 17	809	0.2+	2.9+	1993 09 22	675	0.9+	0.2+	1998 08 23	704	0.4−	0.3+
1993 09 17	809	0.8−	2.4+	1993 09 22	675	0.2−	1.9−	1998 08 23	704	1.1−	1.2−
1993 09 18	809	1.5−	0.4−	1993 09 24	809	2.2+	0.3−	1998 08 23	704	1.2−	1.9+
1993 09 18	809	1.5−	1.0−	1993 09 24	809	1.9+	0.7−	1998 08 23	704	2.1+	0.1+
1993 09 18	809	1.7−	0.3−	1993 09 24	809	0.2+	1.5−	1998 09 13	699	0.7−	0.5−
1993 09 18	675	0.6+	0.8+	1998 08 17	704	0.2+	0.3+	1998 09 13	699	0.0	1.0−
1993 09 18	675	1.4+	0.6+	1998 08 17	704	0.7−	0.6−	1998 09 13	699	0.2+	0.7+
1993 09 22	809	0.2+	1.1−	1998 08 17	704	0.7+	0.4−				
1993 09 22	809	0.7−	1.3−	1998 08 17	704	1.0+	0.3+				

1998 QW$_{22}$ = 1953 UJ$_1$ = 1991 PP$_{31}$

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	240.69932	(2000.0)	**P**	**Q**	
n	0.28247065	ω	70.31437	+0.09497591	−0.99534048
a	2.3004908	Ω	14.26618	+0.88617863	+0.07692065
e	0.0912767	i	3.87202	+0.45350525	+0.05814250
P	3.49	H	14.5	G 0.15	U 4

Residuals in seconds of arc

1953 10 31	675	0.4−	0.1+	1998 08 17	704	1.2−	0.7+	1998 09 14	704	1.1+	1.8−
1953 10 31	675	0.2−	1.0+	1998 08 23	704	0.9−	1.4+	1998 09 14	704	0.1−	0.3−
1991 08 14	809	0.0	0.6+	1998 08 23	704	0.2−	0.5+	1998 09 18	704	0.2−	1.5−
1991 08 14	809	1.0−	0.6+	1998 08 23	704	1.1−	0.3−	1998 09 18	704	1.5+	0.8−
1991 08 14	809	0.1−	1.0+	1998 08 23	704	0.6−	1.4+	1998 09 18	704	0.1+	0.2−
1998 07 31	699	0.9−	0.1−	1998 08 23	704	1.5+	1.0+	1998 09 18	704	0.4−	0.4+
1998 07 31	699	0.2+	0.3−	1998 08 27	699	0.3+	0.1−	1998 09 18	704	0.8+	0.3+
1998 07 31	699	0.3+	0.0	1998 08 27	699	0.2−	0.5+	1998 09 24	699	(0.4−	2.4+)
1998 08 17	704	0.4−	0.4−	1998 08 27	699	0.4+	0.2−	1998 09 24	699	0.9+	0.4−
1998 08 17	704	0.7−	0.4−	1998 09 14	704	0.2+	0.7−	1998 09 24	699	0.2+	1.1−
1998 08 17	704	0.2−	0.6−	1998 09 14	704	0.9+	0.6−				
1998 08 17	704	0.3−	0.1+	1998 09 14	704	0.4+	0.0				

1998 QA$_{23}$ = 1977 XG$_2$ = 1991 RH$_{20}$ = 1993 FF$_{39}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	283.08705	(2000.0)	**P**	**Q**	
n	0.27578068	ω	356.18088	+0.54246971	−0.83840662
a	2.3375459	Ω	60.95991	+0.77234904	+0.47296356
e	0.2132444	i	3.47048	+0.33045965	+0.27088707
P	3.57	H	15.0	G 0.15	U 4

Residuals in seconds of arc

1977 12 07	675	0.2−	0.4+	1998 08 17	704	0.1+	0.9+	1998 09 14	704	(2.4+	0.8+)
1977 12 08	675	0.2+	0.9+	1998 08 17	704	0.6+	0.4+	1998 09 14	704	1.0+	0.6+
1991 09 14	675	(1.3+	2.2−)	1998 08 17	704	0.7+	1.0+	1998 09 18	704	0.9−	0.5−
1991 09 14	675	(1.2+	2.3−)	1998 08 23	704	(1.5+	2.3−)	1998 09 18	704	0.7+	1.3−
1991 09 16	675	0.5+	1.5−	1998 08 23	704	1.2−	0.4+	1998 09 18	704	1.0−	0.1−
1991 09 16	675	0.3+	1.9−	1998 08 23	704	1.5−	0.3−	1998 09 18	704	0.1−	0.3−
1993 03 19	809	(3.7−	5.0−)	1998 08 23	704	1.6−	1.4+	1998 09 18	704	1.3−	0.6−
1993 03 20	809	(3.3−	0.4−)	1998 08 23	704	0.2−	1.5+	1998 09 24	699	0.3+	0.9−

1993 03 24	809	0.6−	0.8−	1998 09 14	704	0.9+	0.0	1998 09 24	699	0.1−	0.7−
1998 08 17	704	0.3+	0.2−	1998 09 14	704	1.8+	0.8+	1998 09 24	699	0.3−	0.0
1998 08 17	704	0.9+	0.5−	1998 09 14	704	0.4+	1.3+				

1998 QE$_{23}$ = 1980 WM$_1$

Id. S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	246.47426		(2000.0)		**P**	**Q**	
n	0.26436126	ω	30.06683		+0.01534756	−0.99869211	
a	2.4043859	Ω	59.09361		+0.90567399	−0.00678360	
e	0.1705435	i	3.25851		+0.42369692	+0.05067589	
P	3.73	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1980 11 30	095	2.0−	0.5+	1998 08 23	704	(1.3−	2.2+)	1998 09 14	699	0.1+	0.5−
1980 12 10	095	2.0+	0.3−	1998 08 27	699	0.1−	0.4+	1998 09 18	704	0.7+	1.8−
1998 08 17	704	0.1+	0.0	1998 08 27	699	0.7−	0.4+	1998 09 18	704	0.2−	0.0
1998 08 17	704	0.4+	0.3−	1998 08 27	699	0.7−	1.0+	1998 09 18	704	(0.8+	2.7−)
1998 08 17	704	0.4−	0.8−	1998 09 14	704	(1.8+	2.3−)	1998 09 18	704	0.1−	1.0−
1998 08 17	704	0.4−	0.2+	1998 09 14	704	1.5+	0.2+	1998 09 18	704	1.5−	0.6+
1998 08 17	704	1.2−	0.5+	1998 09 14	704	0.8+	0.7−	1998 09 24	699	0.3+	1.3−
1998 08 23	704	0.3+	0.3−	1998 09 14	704	0.4−	0.6+	1998 09 24	699	1.2−	1.2+
1998 08 23	704	1.6+	0.1+	1998 09 14	704	0.5+	0.1+	1998 09 24	699	0.9+	1.0+
1998 08 23	704	1.2−	0.5+	1998 09 14	699	1.0+	0.3−				

1998 QP$_{23}$ = 1555 T-2 = 1991 SC$_5$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	266.49050		(2000.0)		**P**	**Q**	
n	0.27381040	ω	76.08010		+0.40971272	−0.91211588	
a	2.3487462	Ω	349.70235		+0.80528046	+0.36855662	
e	0.1282449	i	4.30544		+0.42855438	+0.17947323	
P	3.60	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1973 09 19	675	0.8+	0.2−	1998 08 17	704	0.2+	0.8−	1998 09 13	699	(2.8−	0.5+)
1973 09 19	675	0.1−	0.4+	1998 08 17	704	0.6+	0.0	1998 09 13	699	0.5−	0.4+
1973 09 20	675	0.3−	0.1−	1998 08 17	704	1.1+	0.8+	1998 09 14	704	1.6−	0.7+
1973 09 24	675	0.9+	0.6−	1998 08 17	704	0.7+	0.6+	1998 09 14	704	0.2+	0.0
1973 09 24	675	0.1+	0.7−	1998 08 23	699	0.0	0.2−	1998 09 14	704	1.1−	1.2+
1973 09 25	675	0.3−	1.2−	1998 08 23	704	0.8+	0.1+	1998 09 14	704	0.9−	1.4+
1973 09 25	675	0.1+	0.1+	1998 08 23	704	1.6−	1.0−	1998 09 14	704	0.4−	1.5+
1991 09 17	675	1.9−	1.1+	1998 08 23	699	0.0	0.2−	1998 09 18	704	(2.4−	1.5+)
1991 09 17	675	1.3+	0.0	1998 08 23	704	0.4+	0.2+	1998 09 18	704	1.3+	1.1−
1998 07 31	699	0.3−	0.6−	1998 08 23	704	0.6+	0.7−	1998 09 18	704	0.7+	0.1+
1998 07 31	699	0.4−	0.5−	1998 08 23	699	0.2−	0.6−	1998 09 18	704	0.2+	0.1−
1998 07 31	699	1.4+	0.3+	1998 08 23	704	0.7−	1.2−	1998 09 18	704	0.6−	1.0+
1998 08 17	704	0.9+	0.0	1998 09 13	699	0.9−	0.0				

1998 QA$_{24}$ = 1988 XH$_2$ = 1997 HU$_{14}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	282.34790		(2000.0)		**P**	**Q**	
n	0.28170074	ω	200.77857		+0.61867516	−0.78419383	
a	2.3046805	Ω	211.05927		+0.73325026	+0.59817518	
e	0.1253910	i	5.31164		+0.28210831	+0.16500452	
P	3.50	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1988 12 15	372	0.5−	1.6−	1998 08 17	704	1.1+	0.5−	1998 09 14	704	0.2+	0.2−
1988 12 16	372	0.7+	1.9−	1998 08 17	704	(1.0+	2.9−)	1998 09 14	704	0.5−	0.4+
1997 04 28	691	0.4−	1.0−	1998 08 23	704	0.5−	1.4−	1998 09 14	704	0.8−	1.3+
1997 04 28	691	0.7−	0.8−	1998 08 23	704	0.5−	0.4−	1998 09 15	699	0.7−	0.4+
1997 04 28	691	0.5−	1.2−	1998 08 23	704	(1.4−	2.2+)	1998 09 15	699	1.2−	0.2+
1997 05 08	691	0.2+	0.3−	1998 08 23	704	(1.5−	2.6+)	1998 09 15	699	0.3+	0.2+
1997 05 08	691	0.1+	0.3−	1998 08 26	699	0.5+	0.3+	1998 09 18	704	1.2+	0.1−
1997 05 08	691	0.2+	0.3−	1998 08 26	699	0.2+	0.1−	1998 09 18	704	0.0	0.3−
1998 08 17	704	0.9+	1.4−	1998 08 26	699	0.2−	0.1+	1998 09 18	704	0.1+	0.2−
1998 08 17	704	0.1−	0.3−	1998 09 14	704	0.3+	1.2+	1998 09 18	704	1.0+	0.7−
1998 08 17	704	0.3+	0.3−	1998 09 14	704	0.7−	0.3−				

1998 QL$_{24}$ = 1982 JP

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	204.22373		(2000.0)		**P**	**Q**	
n	0.26012722	ω	276.75444		−0.47801887	−0.87799149	
a	2.4304061	Ω	201.85644		+0.83013863	−0.44226820	
e	0.0274443	i	3.86250		+0.28699792	−0.18311138	
P	3.79	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1982 05 15	675	0.2+	0.3−	1998 08 23	704	0.4−	1.5−	1998 09 15	699	1.4−	0.6+
1982 05 16	675	2.2−	0.4−	1998 08 23	704	0.6−	0.7+	1998 09 15	699	0.4−	0.1+
1982 05 17	675	2.0+	0.5+	1998 08 23	704	0.9+	0.6+	1998 09 15	699	0.1−	1.1+
1998 08 17	704	0.2−	0.6−	1998 09 14	704	0.5−	0.0	1998 09 18	704	(2.7−	0.1+)
1998 08 17	704	0.2−	0.5+	1998 09 14	704	0.1−	0.4−	1998 09 18	704	0.2+	0.1+
1998 08 17	704	0.1+	0.1−	1998 09 14	704	0.2+	0.2−	1998 09 18	704	1.2+	0.2+
1998 08 17	704	1.6+	1.7+	1998 09 14	704	0.2+	1.6−	1998 09 18	704	(2.5−	0.2+)
1998 08 23	704	0.7−	0.5−	1998 09 14	704	0.1+	0.6−				

1998 QQ$_{24}$ = 1990 EQ$_1$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	25.53952		(2000.0)		**P**	**Q**	
n	0.16764691	ω	348.07348		+0.48678532	+0.86606047	
a	3.2574094	Ω	310.93898		−0.78853263	+0.37955493	
e	0.0360373	i	8.67415		−0.37584085	+0.32538793	
P	5.88	H	14.5	G	0.15	U	6

Residuals in seconds of arc

1990 03 02	809	0.7+	0.1+	1998 08 17	704	0.9−	0.7−	1998 08 23	704	0.4+	1.2−
1990 03 02	809	0.5+	0.9+	1998 08 17	704	0.2−	1.6+	1998 08 26	699	0.9+	0.7+
1990 03 02	809	0.2+	0.2+	1998 08 17	704	0.4+	0.8−	1998 08 26	699	1.1+	0.2−
1990 03 04	809	0.3−	0.2+	1998 08 17	704	(0.4−	3.1−)	1998 08 26	699	0.6+	0.2−
1990 03 04	809	0.4−	0.4−	1998 08 23	704	1.5+	0.8+	1998 08 28	691	1.0−	0.6+
1990 03 04	809	0.6−	1.0−	1998 08 23	704	1.1+	1.5−	1998 08 28	691	1.1−	0.3+
1998 08 17	704	1.9−	0.3+	1998 08 23	704	(1.1+	2.6−)	1998 08 28	691	1.0−	0.5+

1998 QE$_{25}$ = 1994 PQ$_{21}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	336.72499		(2000.0)		**P**	**Q**	
n	0.24337404	ω	200.66444		+0.97721631	+0.18145368	
a	2.5406990	Ω	148.24556		−0.15320313	+0.96206112	
e	0.1784904	i	12.07614		−0.14689138	+0.20374730	
P	4.05	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1994 08 12	809	0.2−	0.3+	1998 08 17	704	0.3−	0.8+	1998 09 14	704	0.1+	0.5+
1994 08 12	809	0.1−	0.8+	1998 08 17	704	0.4−	0.3−	1998 09 14	704	0.2+	0.1−
1994 08 12	809	0.4−	0.5+	1998 08 17	704	1.4−	0.3−	1998 09 14	704	0.5−	0.5−
1994 08 13	809	0.3+	0.7−	1998 08 23	699	0.1+	0.9+	1998 09 14	704	0.0	0.0
1994 08 13	809	0.4+	0.8−	1998 08 23	704	0.4+	0.5−	1998 09 14	704	0.6−	0.3+
1994 08 13	809	0.0	0.6−	1998 08 23	704	1.0+	1.0−	1998 09 18	704	0.4−	0.6+
1998 07 26	699	0.5−	0.2+	1998 08 23	699	0.4+	0.1−	1998 09 18	704	0.6+	0.9+
1998 07 26	699	0.2+	0.3−	1998 08 23	704	0.2−	0.2−	1998 09 18	704	0.1−	0.1+
1998 07 26	699	0.6+	0.5−	1998 08 23	704	0.2−	0.0	1998 09 18	704	1.0+	1.8−
1998 08 17	704	0.3−	0.3+	1998 08 23	699	0.3+	0.7+				
1998 08 17	704	0.1+	0.4+	1998 08 23	704	0.2−	0.2+				

1998 QJ$_{25}$ = 1989 EG$_{9}$ = 1997 JA$_{18}$ = 1997 LV$_{13}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	235.04438		(2000.0)	**P**		**Q**	
n	0.26649369	ω	330.92825	−0.17514331		−0.98377027	
a	2.3915425	Ω	129.13101	+0.91273959		−0.17709219	
e	0.1613210	i	2.88175	+0.36909520		−0.02888610	
P	3.70	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1989 03 05	033	0.3+	0.9+	1998 08 17	704	0.1+	0.1−	1998 09 14	704	0.9−	0.8+
1989 03 05	033	0.3+	0.7+	1998 08 17	704	0.3−	0.2+	1998 09 14	704	0.2+	0.6−
1997 05 03	809	(0.6−	2.1−)	1998 08 17	704	0.5−	0.1+	1998 09 14	704	0.3+	0.5+
1997 05 03	809	1.7−	1.3−	1998 08 17	704	0.1+	0.3+	1998 09 14	704	0.1−	0.1+
1997 05 03	809	(2.0−	2.2−)	1998 08 17	704	0.2+	1.0−	1998 09 18	704	0.5−	0.2+
1997 05 04	809	1.2−	0.2−	1998 08 23	699	0.1−	0.5+	1998 09 18	704	1.3−	0.1−
1997 05 04	809	0.4−	0.4−	1998 08 23	704	1.6+	0.2+	1998 09 18	704	1.7−	1.0−
1997 05 04	809	0.6−	1.4−	1998 08 23	704	0.9+	0.9+	1998 09 18	704	1.3+	1.5+
1997 06 08	809	(1.8+	3.9+)	1998 08 23	699	0.8+	0.3+	1998 09 18	704	0.5+	1.2+
1997 06 08	809	(1.6+	4.1+)	1998 08 23	704	0.1−	0.6−	1998 09 21	699	0.2+	1.0−
1997 06 08	809	(2.3+	3.3+)	1998 08 23	704	1.2−	0.1+	1998 09 21	699	0.2−	0.7−
1997 06 09	809	1.7+	1.4+	1998 08 23	699	0.5−	0.3+	1998 09 21	699	0.4+	0.4−
1997 06 09	809	1.3+	1.6+	1998 08 23	704	(3.0−	1.3+)				
1997 06 09	809	1.1+	0.1−	1998 09 14	704	0.5+	0.4−				

1998 QF$_{26}$ = 1997 EK$_{25}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	56.08592		(2000.0)	**P**		**Q**	
n	0.27141801	ω	101.13512	−0.20621857		+0.97835215	
a	2.3625279	Ω	156.94195	−0.91416333		−0.18630520	
e	0.2061267	i	2.53871	−0.34896891		−0.09009685	
P	3.63	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1997 03 01	358	0.0	1.1+	1998 08 26	120	0.0	0.5+	1998 09 16	699	0.4+	0.3+
1997 03 01	358	1.8+	1.8−	1998 08 27	120	0.3−	1.0+	1998 09 16	699	0.4+	0.2−
1997 03 03	358	0.6−	0.2+	1998 08 27	120	2.3+	2.2−	1998 09 25	699	0.3−	0.4+
1997 03 03	358	1.3−	0.2+	1998 08 27	120	2.4−	0.2−	1998 09 25	699	0.3−	0.5−
1998 08 26	120	0.3−	0.3+	1998 09 16	699	0.5+	0.1−	1998 09 25	699	0.2−	0.6+

1998 QK$_{26}$ = 1982 VE$_{7}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	303.75373		(2000.0)	**P**		**Q**	
n	0.17749958	ω	186.91621	+0.83808920		−0.54552427	
a	3.1357239	Ω	206.14504	+0.50085593		+0.77170972	
e	0.2157216	i	0.40623	+0.21621709		+0.32690576	
P	5.55	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1982 11 09	095	0.6+	0.7+	1998 08 23	426	0.1+	0.5−	1998 09 11	426	0.2−	0.4−
1982 11 14	095	0.6−	0.7−	1998 08 23	426	0.4−	0.5+	1998 09 11	426	0.1+	0.5−
1998 08 17	704	0.2−	0.8+	1998 08 23	426	0.1−	0.1+	1998 09 11	426	0.4+	0.3+
1998 08 17	704	0.4+	0.3−	1998 08 26	426	0.3−	0.4−	1998 09 12	426	0.0	0.4+
1998 08 17	704	0.6−	1.2−	1998 08 26	426	0.2+	0.1−	1998 09 12	426	0.3+	0.1+
1998 08 17	704	0.8+	0.9+	1998 08 26	426	0.1+	0.1−	1998 09 12	426	0.5−	0.4+

1998 QO$_{26}$ = 1996 HM$_{15}$ = 1996 KG$_{7}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	236.24251		(2000.0)	**P**		**Q**	
n	0.17156028	ω	252.77930	−0.26571129		−0.96319532	
a	3.2076839	Ω	212.71683	+0.91061651		−0.23691739	
e	0.1566380	i	4.31310	+0.31650448		−0.12698394	
P	5.74	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1996 04 17	809	0.1−	1.8+	1996 05 19	809	0.9+	0.4+	1998 08 23	704	2.8+	0.2+
1996 04 17	809	1.3−	0.7+	1996 05 19	809	0.9+	0.7+	1998 08 23	704	0.4+	1.1−
1996 04 17	809	0.8−	0.9+	1996 05 22	809	0.2+	0.3−	1998 08 26	699	0.3+	0.2+
1996 04 18	809	0.4−	0.7−	1996 05 22	809	0.1−	0.2+	1998 08 26	699	0.5−	0.1+
1996 04 18	809	0.3+	0.5−	1996 05 22	809	0.3−	0.0	1998 08 26	699	0.5+	0.1−
1996 04 18	809	0.0	0.8−	1998 08 17	704	0.8+	0.4+	1998 08 28	691	1.9−	0.0
1996 04 18	809	0.0	0.7−	1998 08 17	704	0.1+	1.2+	1998 08 28	691	1.8−	0.1+
1996 04 18	809	0.3+	1.3−	1998 08 17	704	1.0−	1.1−	1998 09 15	699	0.2−	0.6−
1996 04 18	809	0.1+	1.8−	1998 08 23	704	1.5+	0.8−	1998 09 15	699	0.8−	1.4+
1996 05 19	809	0.5+	1.3+	1998 08 23	704	0.3+	0.5−	1998 09 15	699	0.5−	0.4+

1998 QF$_{27}$ = 1979 SC$_{14}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	270.51160		(2000.0)	**P**		**Q**	
n	0.36185778	ω	247.09163	+0.46035355		−0.88711373	
a	1.9503420	Ω	175.09801	+0.88771877		+0.46025318	
e	0.1146873	i	22.88016	−0.00547704		+0.03458659	
P	2.72	H	16.0	G	0.15	U	5

Residuals in seconds of arc

1979 09 20	675	0.1−	0.2−	1998 08 27	704	0.7+	0.6−	1998 09 18	704	1.2−	0.6+
1979 09 21	675	0.1+	0.2−	1998 08 27	704	0.2−	0.8−	1998 09 18	704	1.4−	0.7+
1998 08 19	704	(0.1−	3.3−)	1998 08 30	699	0.2−	0.5+	1998 09 18	704	0.4−	0.6−
1998 08 19	704	1.1+	0.1+	1998 08 30	699	0.3+	0.5+	1998 09 18	704	0.5−	0.6+
1998 08 19	704	0.8+	0.3−	1998 08 30	699	0.1+	0.8+	1998 09 25	704	(0.6−	2.4+)
1998 08 19	704	0.8−	0.5−	1998 09 14	704	0.7−	0.4+	1998 09 25	704	0.3−	0.2+
1998 08 24	704	0.3+	0.6−	1998 09 14	704	0.4+	0.5−	1998 09 25	704	0.8+	0.3+
1998 08 24	704	0.7+	0.9+	1998 09 14	704	0.2−	0.9+	1998 09 25	704	0.7+	0.7−
1998 08 24	704	0.3−	0.6−	1998 09 14	704	0.0	0.2+	1998 09 25	704	0.8+	1.1−
1998 08 24	704	(3.0−	0.8−)	1998 09 14	704	0.3+	1.1−	1998 09 27	704	0.4+	0.0
1998 08 24	704	1.3−	0.9−	1998 09 15	699	1.5−	0.8+	1998 09 27	704	0.2+	0.2+
1998 08 27	704	0.5−	0.5−	1998 09 15	699	0.7−	1.0+	1998 09 27	704	1.3+	0.6+
1998 08 27	704	0.2−	0.5+	1998 09 15	699	0.2+	1.2+	1998 09 27	704	1.0+	0.8−
1998 08 27	704	1.1+	0.6+	1998 09 18	704	0.4−	1.9−				

1998 QN$_{30}$ = 1981 EB$_{46}$ = 1982 UL$_{5}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	354.00012		(2000.0)	**P**		**Q**	
n	0.30515661	ω	157.53347	+0.78937204		+0.61384814	
a	2.1850138	Ω	164.58788	−0.56831600		+0.73624758	
e	0.2067822	i	1.95548	−0.23218248		+0.28483321	
P	3.23	H	15.0	G	0.15	U	3

Residuals in seconds of arc

1981 03 02	413	(1.4+	4.6−)	1998 08 26	120	0.1+	0.1−	1998 09 15	120	0.5+	0.5−
1981 03 03	413	0.4+	1.5−	1998 08 26	120	0.1−	0.0	1998 09 15	120	0.0	0.6−
1981 03 07	413	1.2−	0.6−	1998 08 26	120	0.3−	0.2−	1998 09 15	120	0.5+	0.4−
1982 10 20	033	0.1+	0.3−	1998 08 26	120	0.2+	0.0	1998 09 18	704	0.7+	0.6+
1998 08 17	704	0.8−	0.0	1998 08 28	120	0.0	0.2−	1998 09 18	704	0.9+	0.1−
1998 08 17	704	0.7−	0.8+	1998 08 28	120	0.1−	0.1+	1998 09 18	704	0.1−	0.6−
1998 08 17	704	0.1−	0.4−	1998 08 28	120	0.1−	0.0	1998 09 18	699	0.5+	0.1+
1998 08 17	704	0.3−	0.2+	1998 08 28	120	0.1+	0.3+	1998 09 18	704	0.1+	0.2+
1998 08 17	704	1.4−	1.1−	1998 09 14	704	0.4+	0.3−	1998 09 18	699	0.5+	0.3−
1998 08 23	704	0.6+	0.3−	1998 09 14	704	0.5+	0.5−	1998 09 18	704	0.2+	0.1+
1998 08 23	704	0.7+	0.6−	1998 09 14	704	1.2+	1.7−	1998 09 18	699	0.2+	0.4+
1998 08 23	704	0.3+	0.0	1998 09 14	691	1.2−	0.2+	1998 09 20	691	0.9−	0.3+
1998 08 23	704	0.6+	0.1−	1998 09 14	704	0.4+	0.4−	1998 09 20	691	1.2−	0.2+
1998 08 23	704	0.9+	0.1+	1998 09 14	691	1.4−	0.3+	1998 09 20	691	1.1−	0.2+
1998 08 23	120	0.0	0.3+	1998 09 14	704	(0.8+	2.1−)	1998 09 25	691	0.7−	0.3+
1998 08 23	120	0.1+	0.5+	1998 09 14	691	1.4−	0.1+	1998 09 25	691	0.6−	0.4+
1998 08 24	120	0.4+	0.1+	1998 09 14	699	0.5+	0.2+	1998 09 25	691	0.5−	0.1+
1998 08 24	120	0.2−	0.1+	1998 09 14	699	0.4+	0.3+	1998 09 30	691	0.1−	0.2+
1998 08 26	699	0.3−	0.0	1998 09 14	699	0.8+	0.2+	1998 09 30	691	0.1−	0.1−
1998 08 26	699	0.3+	0.9+	1998 09 15	120	0.6+	0.5−	1998 09 30	691	0.1−	0.1+
1998 08 26	699	0.0	0.4+	1998 09 15	120	0.4+	0.5−				

1998 QR$_{30}$ = 1949 WQ = 1986 VO$_2$ = 1989 MC

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	121.24768		(2000.0)	**P**	**Q**		
n	0.23459078	ω	14.45375	−0.96161850	+0.27432356		
a	2.6037268	Ω	181.50844	−0.26897854	−0.94677362		
e	0.0815911	i	13.25813	−0.05422555	−0.16842298		
P	4.20	H	13.0	G 0.15	U 4		

Residuals in seconds of arc

1949 11 30	675	0.2−	0.8−	1998 08 17	704	0.2−	0.5−	1998 09 14	704	0.9−	1.1−
1949 11 30	675	0.1+	0.0	1998 08 17	704	0.2+	0.2−	1998 09 14	704	0.3−	1.1−
1986 11 03	010	(1.0+	5.3−)	1998 08 17	704	0.7+	0.2−	1998 09 14	704	0.7−	0.6−
1986 11 03	010	(0.7+	5.5−)	1998 08 17	704	1.0+	0.0	1998 09 18	704	0.3+	0.7+
1989 06 30	675	0.4+	0.3+	1998 08 17	704	(2.3+	0.1−)	1998 09 18	704	0.1−	0.5+
1989 06 30	675	0.9+	0.2−	1998 08 23	704	0.2+	0.5−	1998 09 18	704	0.2+	1.4+
1989 07 03	675	1.3−	0.2+	1998 08 23	704	0.1−	0.5+	1998 09 18	704	0.6−	1.7+
1989 07 03	675	0.2−	0.6−	1998 08 23	704	0.2+	0.4+	1998 09 18	704	0.9−	0.8+
1998 08 04	699	0.0	0.6−	1998 08 23	704	0.8+	0.3+	1998 09 21	699	0.4+	0.5−
1998 08 04	699	0.7+	0.4−	1998 09 14	704	1.0−	0.1+	1998 09 21	699	0.1−	0.2−
1998 08 04	699	1.0+	0.6−	1998 09 14	704	1.0−	0.2−	1998 09 21	699	0.4+	0.1−

1998 QY$_{30}$ = 1992 GN$_4$ = 1996 CZ$_7$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	343.47844		(2000.0)	**P**	**Q**		
n	0.20345934	ω	20.15959	+0.95008720	+0.31157575		
a	2.8629754	Ω	321.67455	−0.28965354	+0.86191614		
e	0.0857380	i	1.47517	−0.11591002	+0.40002641		
P	4.84	H	14.0	G 0.15	U 4		

Residuals in seconds of arc

1992 04 04	809	1.4+	1.0+	1998 08 17	704	0.5−	0.7−	1998 09 14	704	0.8+	0.4−
1992 04 04	809	0.1−	0.2+	1998 08 17	704	0.5−	0.7−	1998 09 14	704	0.2+	0.7−
1992 04 04	809	0.2+	0.7−	1998 08 17	704	0.1−	0.8−	1998 09 14	704	0.3−	1.0−
1992 04 06	809	0.5+	0.3−	1998 08 17	704	0.6−	0.5−	1998 09 14	704	0.1+	0.5−
1992 04 06	809	0.6−	0.3−	1998 08 23	699	0.5+	0.2+	1998 09 14	704	0.2+	0.2+
1992 04 06	809	1.6−	0.6−	1998 08 23	704	0.1+	0.1+	1998 09 15	699	0.3+	0.2+
1996 02 15	566	1.1−	1.5−	1998 08 23	704	0.7+	0.5−	1998 09 15	699	1.0+	0.6−
1996 02 15	566	0.9−	1.5−	1998 08 23	699	0.8+	0.3−	1998 09 15	699	0.1−	0.3+
1996 02 15	566	0.9−	1.8−	1998 08 23	704	0.9+	1.4+	1998 09 18	704	0.6+	0.2+
1996 02 24	552	0.3+	0.8−	1998 08 23	704	0.5−	0.4+	1998 09 18	704	0.1+	0.3−
1996 02 24	552	0.3+	0.0	1998 08 23	699	0.4−	0.0	1998 09 18	704	0.3+	0.3+
1998 08 17	704	0.6−	0.3−	1998 08 23	704	0.1−	0.9−	1998 09 18	704	0.9−	0.5−

1998 QF$_{31}$ = 1981 NG$_1$ = 1990 UO$_7$ = 1994 RC$_5$ = 1995 YS$_9$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	347.01687		(2000.0)	**P**	**Q**		
n	0.23439077	ω	199.68252	+0.90277060	+0.42781225		
a	2.6052079	Ω	134.90506	−0.38573031	+0.85104420		
e	0.1584536	i	3.60370	−0.19030861	+0.30446747		
P	4.20	H	14.5	G 0.15	U 1		

Residuals in seconds of arc

1981 07 02	805	0.7−	2.3+	1995 12 23	691	0.3−	0.3+	1998 09 13	699	0.8−	1.0+
1981 07 02	805	0.2+	0.1−	1998 08 17	704	0.2+	0.4−	1998 09 14	704	0.1+	0.7−
1990 10 16	809	0.2+	1.4+	1998 08 17	704	0.4−	0.6−	1998 09 14	704	0.2−	0.2−
1990 10 16	809	1.0+	0.1−	1998 08 17	704	0.4+	1.0−	1998 09 14	704	0.1−	0.1+
1990 10 16	809	0.1+	0.4+	1998 08 17	704	0.1+	0.5−	1998 09 14	704	0.1−	0.7−
1994 09 05	691	0.5−	0.1−	1998 08 17	704	0.8−	1.9−	1998 09 14	704	0.1−	0.1+
1994 09 05	691	0.1−	0.3−	1998 08 23	699	0.1+	0.4−	1998 09 18	704	0.5−	0.0
1994 09 05	691	0.1−	0.2−	1998 08 23	704	0.8+	0.3−	1998 09 18	704	0.3+	0.2−
1994 09 09	691	0.4−	0.7−	1998 08 23	704	0.9−	0.3+	1998 09 18	704	1.9+	0.2−
1994 09 09	691	0.5−	0.4−	1998 08 23	699	0.5+	0.1−	1998 09 18	704	1.0−	1.5+
1994 09 09	691	0.5−	0.2−	1998 08 23	704	0.3+	0.9+	1998 09 18	704	1.5−	0.4+
1995 12 18	691	0.1+	0.0	1998 08 23	704	0.7+	1.5+	1998 09 21	699	0.0	0.0
1995 12 18	691	0.0	0.2+	1998 08 23	699	0.6+	0.3+	1998 09 21	699	0.3+	0.2+
1995 12 18	691	0.2+	0.1+	1998 08 23	704	1.2+	0.6+	1998 09 21	699	0.1+	0.5+
1995 12 23	691	0.1+	0.4+	1998 09 13	699	0.6+	0.6−				
1995 12 23	691	0.3−	0.1+	1998 09 13	699	0.4−	0.0				

1998 QW$_{31}$ = 1991 RU$_{11}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	321.33390		(2000.0)	**P**	**Q**		
n	0.28481322	ω	21.14240	+0.98272876	−0.18383015		
a	2.2878592	Ω	349.38383	+0.14891170	+0.85368898		
e	0.2202957	i	6.61690	+0.10986124	+0.48725928		
P	3.46	H	15.5	G 0.15	U 4		

Residuals in seconds of arc

1991 09 04	809	0.5+	0.5+	1998 07 31	699	0.2−	0.2−	1998 08 23	699	0.4+	1.4−
1991 09 04	809	0.1−	0.7+	1998 07 31	699	0.2−	0.1−	1998 08 23	704	0.5−	1.4+
1991 09 04	809	1.0−	0.7+	1998 08 17	704	0.7−	0.1−	1998 09 14	704	0.1−	0.2+
1991 09 05	809	1.1−	1.0+	1998 08 17	704	0.9+	0.2+	1998 09 14	704	0.1+	0.1+
1991 09 05	809	(2.2−	0.3−)	1998 08 17	704	0.3−	0.5+	1998 09 14	704	1.5−	0.8+
1991 09 05	809	(2.7−	0.6+)	1998 08 17	704	1.1−	0.4+	1998 09 14	704	0.2−	1.1+
1991 09 06	809	0.7+	0.7+	1998 08 17	704	0.2−	0.0	1998 09 14	704	0.2−	0.3+
1991 09 06	809	0.5+	0.2+	1998 08 23	699	0.0	0.8−	1998 09 18	704	0.1+	0.6+
1991 09 06	809	0.3−	0.4−	1998 08 23	704	1.3+	0.3+	1998 09 18	704	0.8+	0.8−
1991 09 07	809	0.4+	1.2−	1998 08 23	704	0.1−	0.0	1998 09 18	704	0.4+	0.3−
1991 09 07	809	0.3+	1.1−	1998 08 23	699	0.1−	0.8−	1998 09 18	704	0.4+	1.0−
1991 09 07	809	0.2+	1.5−	1998 08 23	704	0.3+	0.2+	1998 09 18	704	0.4−	0.7−
1998 07 31	699	0.1+	0.3−	1998 08 23	704	0.5+	0.8+				

1998 QV$_{32}$ = 1987 QX$_1$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	341.16386		(2000.0)	**P**	**Q**		
n	0.18056327	ω	46.58579	+0.98155657	+0.18323432		
a	3.1001529	Ω	302.78512	−0.18872590	+0.88329412		
e	0.1727290	i	3.71790	−0.03048322	+0.43152831		
P	5.46	H	13.5	G 0.15	U 5		

Residuals in seconds of arc

1987 08 21	809	0.8+	1.1+	1998 08 23	691	0.7−	0.2−	1998 09 14	704	0.3+	0.5−
1987 08 21	809	0.1+	1.2+	1998 08 23	704	0.0	0.8−	1998 09 14	704	0.1−	0.1−
1987 08 21	809	0.7+	0.3+	1998 08 23	691	0.7−	0.2−	1998 09 14	704	0.5−	1.1+
1987 08 26	809	(1.0−	3.0−)	1998 08 23	704	0.6+	0.4−	1998 09 15	699	0.7+	0.5+
1987 08 26	809	1.8−	2.0−	1998 08 23	704	0.1+	0.4−	1998 09 15	699	0.2+	0.4+
1987 08 26	809	0.3+	0.9−	1998 08 23	704	1.0−	0.6+	1998 09 15	699	0.3+	0.7+
1998 08 17	704	0.2+	0.3−	1998 08 23	704	0.2+	0.6+	1998 09 18	704	0.1−	0.5+
1998 08 17	704	0.3+	0.0	1998 08 26	699	0.9+	0.3+	1998 09 18	704	0.1−	1.3−
1998 08 17	704	0.0	0.0	1998 08 26	699	0.1−	0.2+	1998 09 18	704	1.0+	0.5+
1998 08 17	704	0.1−	0.2+	1998 08 26	699	0.0	0.8+	1998 09 18	704	0.4−	0.7−
1998 08 17	704	0.4+	0.1−	1998 09 14	704	0.4+	0.7−	1998 09 18	704	0.1−	0.1+
1998 08 23	691	0.8−	0.1−	1998 09 14	704	0.9−	0.2−				

1998 QW$_{32}$ = 1993 PT$_3$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	327.52163		(2000.0)	**P**	**Q**		
n	0.20228660	ω	199.69450	+0.99735554	−0.03808236		
a	2.8740301	Ω	162.14716	+0.05049073	+0.97569092		
e	0.0882424	i	11.64870	−0.05227436	+0.21581697		
P	4.87	H	14.0	G 0.15	U 5		

Residuals in seconds of arc

1993 08 14	010	0.2−	1.2+	1998 08 17	704	0.3+	1.2−	1998 09 14	704	0.6+	0.4+
1993 08 14	010	0.1+	1.3+	1998 08 17	704	0.6−	1.5−	1998 09 14	704	0.5+	0.7−
1993 08 14	010	0.5+	0.3+	1998 08 23	704	0.6+	0.1+	1998 09 14	699	0.0	0.1+
1993 08 15	010	1.2−	0.2−	1998 08 23	704	0.1+	0.3−	1998 09 14	699	1.5−	0.8+
1993 08 18	010	1.3+	0.2−	1998 08 23	704	0.4−	1.8+	1998 09 14	699	1.3+	1.1+
1993 08 18	010	0.3−	1.0−	1998 08 23	704	1.0+	0.1−	1998 09 18	704	0.4+	0.2+
1993 08 18	010	0.2−	1.5−	1998 08 23	704	0.6−	1.3+	1998 09 18	704	1.8−	0.3−

1998 08 17	704	0.6−	0.1−	1998 09 14	704	0.2−	0.6+	1998 09 18	704	1.4+	1.4−
1998 08 17	704	0.3+	0.2+	1998 09 14	704	0.4+	0.1−	1998 09 18	704	1.6−	0.2+
1998 08 17	704	0.4−	0.4−	1998 09 14	704	0.9+	0.8−				

1998 QE$_{33}$ = 1993 DW

Id. G. V. Williams; 1993 DW = 1982 XS$_2$ (*MPC* 24108) is invalid

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	231.82994		(2000.0)		**P**	**Q**	
n	0.27914801	ω	233.35668		−0.18589493	−0.98160614	
a	2.3187096	Ω	227.41682		+0.91929722	−0.15812280	
e	0.1143753	*i*	3.38717		+0.34689434	−0.10698864	
P	3.53	*H*	14.5	*G*	0.15	*U*	5

Residuals in seconds of arc

1993 02 15	399	3.5−	0.6−	1998 08 17	704	1.0−	2.2−	1998 09 14	704	2.0+	0.5−
1993 02 15	399	(6.3−	0.9−)	1998 08 23	704	0.2+	0.8+	1998 09 14	704	0.8−	1.2−
1993 02 21	399	0.2+	0.8−	1998 08 23	704	(3.9+	1.7−)	1998 09 14	704	0.8−	0.8+
1993 02 21	399	0.4+	0.2+	1998 08 23	704	2.0+	0.2−	1998 09 15	699	0.5+	1.6+
1993 02 25	399	1.5+	0.6+	1998 08 23	704	0.6−	0.1−	1998 09 15	699	0.8−	1.2+
1993 02 25	399	1.6+	0.9+	1998 08 26	699	1.0+	1.2+	1998 09 15	699	0.4+	0.5+
1998 08 17	704	0.1+	0.3+	1998 08 26	699	0.6+	0.0	1998 09 18	704	0.4+	0.3−
1998 08 17	704	0.4+	1.2+	1998 08 26	699	0.1+	0.7+	1998 09 18	704	1.0−	0.2−
1998 08 17	704	0.6+	0.9−	1998 09 14	704	0.6+	1.3−	1998 09 18	704	0.1−	0.2−
1998 08 17	704	2.4−	0.6−	1998 09 14	704	1.0−	0.3+	1998 09 18	704	0.6−	0.3−

1998 QJ$_{33}$ = 1117 T-3

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	320.28635		(2000.0)		**P**	**Q**	
n	0.27888638	ω	64.73277		+0.98354434	−0.15764508	
a	2.3201595	Ω	304.22051		+0.10172866	+0.88692365	
e	0.1321811	*i*	6.12685		+0.14930443	+0.43418252	
P	3.53	*H*	15.0	*G*	0.15	*U*	5

Residuals in seconds of arc

1977 10 07	675	0.0	1.3−	1977 10 22	675	1.2+	1.9−	1998 08 23	704	0.7−	0.8+
1977 10 11	675	0.2−	1.0+	1998 08 17	704	0.3+	0.0	1998 09 14	704	0.3+	0.6−
1977 10 11	675	0.4+	0.4+	1998 08 17	704	0.2+	0.0	1998 09 14	704	0.3+	0.3−
1977 10 12	675	0.6−	1.1+	1998 08 17	704	0.1−	0.2−	1998 09 14	704	0.1+	0.0
1977 10 12	675	1.1−	0.8+	1998 08 17	704	0.2+	0.4−	1998 09 14	704	0.2+	0.3+
1977 10 16	675	0.0	0.1+	1998 08 17	704	0.7−	0.4−	1998 09 18	704	0.4−	0.8+
1977 10 16	675	0.9−	0.8−	1998 08 23	704	0.6+	0.3−	1998 09 18	704	0.9+	1.4−
1977 10 17	675	1.0+	1.8+	1998 08 23	704	0.9−	0.1−	1998 09 18	704	0.4+	0.0
1977 10 17	675	0.0	1.2+	1998 08 23	704	0.3+	0.7+	1998 09 18	704	0.7−	0.1−
1977 10 22	675	0.1+	2.1−	1998 08 23	704	0.4−	0.9+	1998 09 18	704	0.2+	0.2−

1998 QL$_{33}$ = 1986 TH$_4$ = 1994 PF$_{32}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	64.15580		(2000.0)		**P**	**Q**	
n	0.24481931	ω	292.19489		−0.34476439	+0.92897128	
a	2.5306899	Ω	316.87809		−0.77221034	−0.36228237	
e	0.0997746	*i*	11.36685		−0.53369345	−0.07592003	
P	4.03	*H*	14.0	*G*	0.15	*U*	4

Residuals in seconds of arc

1986 10 04	675	(7.2−	0.5−)	1998 08 04	699	1.2−	0.2+	1998 09 14	704	0.4+	0.5−
1986 10 04	675	0.7−	1.0+	1998 08 17	704	0.2−	0.8−	1998 09 14	704	0.5+	0.9−
1986 10 05	675	(6.1−	0.8−)	1998 08 17	704	1.0−	0.0	1998 09 14	704	0.9+	0.8−
1986 10 05	675	1.6−	0.3−	1998 08 17	704	0.7−	0.4−	1998 09 14	704	0.5+	0.1+
1994 08 12	809	0.9+	0.9+	1998 08 17	704	1.0−	0.8−	1998 09 15	699	1.1+	0.6−
1994 08 12	809	0.6+	0.2+	1998 08 17	704	1.4−	0.9−	1998 09 15	699	0.0	0.1−
1994 08 12	809	0.1+	0.6+	1998 08 23	704	0.5+	0.8+	1998 09 15	699	1.8+	0.2+
1994 08 13	809	0.9+	0.4−	1998 08 23	704	0.3−	1.4+	1998 09 18	704	0.4+	0.6+
1994 08 13	809	1.1+	0.3−	1998 08 23	704	0.4+	0.3−	1998 09 18	704	0.4−	0.1−
1994 08 13	809	1.0+	0.1−	1998 08 23	704	0.2+	0.1−	1998 09 18	704	0.0	0.7+
1998 08 04	699	0.9−	0.0	1998 08 23	704	0.8−	0.2−	1998 09 18	704	0.4+	0.2+
1998 08 04	699	1.7−	0.2+	1998 09 14	704	0.1+	0.3+	1998 09 18	704	0.0	0.6+

1998 QL$_{34}$ = 1987 SM$_2$ = 1991 KJ$_2$ = 1996 FK$_{20}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	292.14716		(2000.0)		**P**	**Q**	
n	0.17337129	ω	295.61711		+0.62034533	−0.78339558	
a	3.1853067	Ω	115.98788		+0.73400851	+0.56266854	
e	0.1640094	*i*	2.43880		+0.27641124	+0.26399900	
P	5.68	*H*	13.0	*G*	0.15	*U*	4

Residuals in seconds of arc

1987 09 19	071	(3.7+	2.7+)	1996 03 26	809	(8.1+	3.4+)	1998 08 23	704	0.1−	1.3+
1987 09 19	071	1.5−	0.4+	1996 03 26	809	(8.6+	2.7+)	1998 09 14	704	0.8+	0.0
1987 09 19	071	0.0	0.5−	1996 03 26	809	(7.9+	2.0+)	1998 09 14	704	0.4−	0.4−
1987 09 20	071	(4.1+	2.8+)	1998 08 17	704	0.0	1.2−	1998 09 14	704	0.3+	0.0
1987 09 21	071	(4.4+	3.7+)	1998 08 17	704	0.4+	1.0−	1998 09 14	704	0.0	1.1+
1987 09 21	071	0.1+	0.6−	1998 08 17	704	0.0	0.1−	1998 09 14	704	0.1+	0.7+
1987 09 22	071	(5.0+	1.9−)	1998 08 17	704	0.2+	0.2−	1998 09 16	699	0.4−	0.7+
1987 09 22	071	1.3+	1.0+	1998 08 17	704	0.6+	0.1+	1998 09 16	699	0.2+	0.7−
1987 09 22	071	(0.6+	4.3−)	1998 08 23	699	0.3−	0.3−	1998 09 16	699	0.3+	0.5−
1991 05 17	809	0.0	0.0	1998 08 23	704	0.8+	0.0	1998 09 18	704	0.3−	0.3−
1991 05 17	809	0.0	0.2+	1998 08 23	704	0.3−	0.3+	1998 09 18	704	0.5+	0.1−
1991 05 17	809	0.0	0.0	1998 08 23	699	0.5−	0.1−	1998 09 18	704	0.7+	0.9−
1996 03 24	809	(6.9+	0.8+)	1998 08 23	704	1.2−	1.0+	1998 09 21	699	0.3−	0.1+
1996 03 24	809	(7.0+	1.7+)	1998 08 23	704	0.3−	0.9+	1998 09 21	699	0.5−	0.2−
1996 03 24	809	(5.7+	1.0+)	1998 08 23	699	0.2+	0.2−	1998 09 21	699	0.5−	0.4−

1998 QM$_{34}$ = 1992 DB$_1$ = 1997 KB

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	87.13512		(2000.0)		**P**	**Q**	
n	0.21000446	ω	84.39006		−0.74419445	+0.66103349	
a	2.8031760	Ω	136.93811		−0.65489600	−0.69378837	
e	0.1402536	*i*	8.07963		−0.13147568	−0.28581887	
P	4.69	*H*	13.5	*G*	0.15	*U*	4

Residuals in seconds of arc

1992 02 27	372	(1.7+	2.5−)	1998 08 17	704	1.1+	0.2+	1998 09 14	704	1.2+	1.9−
1992 02 27	372	1.7+	0.9−	1998 08 17	704	0.1−	1.4+	1998 09 14	704	0.7+	1.9−
1992 03 03	372	0.4−	1.2+	1998 08 17	704	0.9+	0.7+	1998 09 14	704	0.7+	1.2−
1992 03 03	372	0.7−	1.4+	1998 08 23	699	1.1−	0.0	1998 09 18	704	1.6−	1.3+
1997 05 22	327	0.7+	0.2−	1998 08 23	704	0.8−	0.6+	1998 09 18	704	(3.5−	0.1−)
1997 05 22	327	0.3+	0.2−	1998 08 23	704	1.4−	1.2−	1998 09 18	704	1.2+	1.0+
1997 05 22	327	0.1+	0.4+	1998 08 23	699	0.8−	0.7+	1998 09 18	704	1.0−	1.1−
1997 05 23	327	0.5−	0.4−	1998 08 23	704	0.4+	0.6+	1998 09 21	699	0.9+	0.1+
1997 05 23	327	0.5−	0.1+	1998 08 23	699	0.7−	0.4+	1998 09 21	699	0.8+	1.7+
1997 05 23	327	0.2−	0.4−	1998 08 23	704	0.5−	0.1−	1998 09 21	699	0.4+	1.6+
1998 08 17	704	0.2+	0.5−	1998 09 14	704	0.9+	0.7−				
1998 08 17	704	0.9−	0.1+	1998 09 14	704	0.7−	0.4−				

1998 QS$_{34}$ = 1992 CF$_7$ = 1997 EX$_{46}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	23.37899		(2000.0)		**P**	**Q**	
n	0.23599375	ω	98.99990		+0.39829405	+0.91687589	
a	2.5933973	Ω	194.55791		−0.87750844	+0.37247346	
e	0.0948725	*i*	6.04401		−0.26709697	+0.14353442	
P	4.18	*H*	14.5	*G*	0.15	*U*	3

Residuals in seconds of arc

1992 02 06	809	0.2+	0.6−	1998 08 17	704	0.2+	0.1+	1998 09 14	704	0.5+	0.6−
1992 02 06	809	0.9−	0.4−	1998 08 17	704	0.1+	1.1−	1998 09 14	704	0.7−	1.0−
1992 02 06	809	0.5+	0.1+	1998 08 17	704	0.4+	1.2−	1998 09 14	704	0.2−	0.1−
1997 03 12	809	0.2−	1.0−	1998 08 23	704	0.8−	0.6+	1998 09 15	699	0.7+	0.3+
1997 03 12	809	0.1+	0.4−	1998 08 23	704	0.5+	1.2+	1998 09 15	699	0.4+	0.1−
1997 03 12	809	0.7−	0.8−	1998 08 23	704	0.7+	1.8+	1998 09 15	699	0.5+	0.4−

1997 03 13	809	0.3−	0.4+	1998 08 23	704	0.7−	1.3+	1998 09 18	704	0.3+	0.5−
1997 03 13	809	1.1+	0.3−	1998 08 23	704	1.3−	1.0+	1998 09 18	704	0.5−	1.5−
1997 03 13	809	0.6−	0.2+	1998 09 14	704	1.4+	0.6−	1998 09 18	704	(0.3−	2.1−)
1998 08 17	704	0.3−	0.3+	1998 09 14	704	0.0	0.5−	1998 09 18	704	0.6−	1.2−

1998 QV$_{34}$ = 1979 OV$_3$ = 1987 QZ$_3$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	82.74140		(2000.0)		**P**	**Q**	
n	0.26328689	ω	305.32305		−0.61255972	+0.78506117	
a	2.4109223	Ω	286.64027		−0.69049832	−0.58808669	
e	0.0791300	i	5.50538		−0.38468516	−0.19450707	
P	3.74	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1979 07 24	675	0.2−	0.2+	1998 08 17	704	1.4−	0.9−	1998 09 18	704	(0.2+	2.6−)
1979 07 24	413	1.0−	1.0−	1998 08 23	704	0.6−	0.3+	1998 09 18	704	0.0	0.3+
1979 07 25	675	1.4+	0.0	1998 08 23	704	(3.1−	1.1+)	1998 09 18	704	0.2−	0.1−
1979 07 27	675	(4.0+	2.5−)	1998 08 23	704	0.7+	0.6+	1998 09 18	704	0.4−	1.0−
1987 08 31	010	0.5−	0.0	1998 08 23	704	0.7−	0.4+	1998 09 18	704	0.6−	1.3+
1987 08 31	010	0.9+	1.0−	1998 09 14	704	1.2+	0.0	1998 09 21	699	0.2−	0.3−
1998 08 17	704	1.2+	0.6+	1998 09 14	704	0.2+	0.0	1998 09 21	699	0.1+	0.0
1998 08 17	704	1.2−	1.2+	1998 09 14	704	1.3+	0.5−	1998 09 21	699	0.1+	0.6−
1998 08 17	704	0.7−	0.4−	1998 09 14	704	0.6+	0.4+				

1998 QW$_{34}$ = 1992 EO$_{34}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	9.42444		(2000.0)		**P**	**Q**	
n	0.21336424	ω	130.59095		+0.59250722	+0.80532646	
a	2.7736711	Ω	175.60647		−0.79457131	+0.58825563	
e	0.1999053	i	14.83080		−0.13263344	+0.07351606	
P	4.62	H	13.5	G	0.15	U	5

Residuals in seconds of arc

1992 03 03	809	0.9−	0.6−	1998 08 23	704	1.0+	1.6−	1998 09 15	699	0.0	0.4+
1992 03 06	809	0.8+	0.3−	1998 08 23	704	0.1−	0.7+	1998 09 15	699	0.1+	0.6+
1998 08 17	704	0.2−	1.1+	1998 08 23	704	0.7−	0.5+	1998 09 18	704	0.6−	0.8+
1998 08 17	704	0.2−	0.2+	1998 09 14	704	0.3+	0.5−	1998 09 18	704	0.3−	0.1−
1998 08 17	704	0.2+	0.4−	1998 09 14	704	0.6+	0.2+	1998 09 18	704	0.9−	0.8−
1998 08 17	704	0.1−	0.6−	1998 09 14	704	0.8+	0.5−	1998 09 18	704	0.4−	0.1−
1998 08 17	704	0.4−	0.5−	1998 09 14	704	0.4+	0.4−	1998 09 18	704	0.6−	0.3+
1998 08 23	704	0.1−	0.3+	1998 09 14	704	1.1+	1.8−				
1998 08 23	704	0.0	0.5+	1998 09 15	699	0.2+	0.6+				

1998 QD$_{35}$ = 1997 HB$_8$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	332.43154		(2000.0)		**P**	**Q**	
n	0.23042178	ω	292.17569		+0.99732026	+0.07282988	
a	2.6350389	Ω	63.64835		−0.06394820	+0.91387946	
e	0.1051625	i	0.44351		−0.03553776	+0.39939972	
P	4.28	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1997 04 30	704	0.9+	0.1−	1998 08 17	704	0.2+	1.0−	1998 09 14	704	1.6−	0.0
1997 04 30	704	0.1+	0.3+	1998 08 17	704	0.7+	1.3+	1998 09 14	704	1.0−	0.7+
1997 04 30	704	0.4+	0.2−	1998 08 17	704	1.0−	1.6−	1998 09 14	699	0.4−	0.2+
1997 04 30	704	2.0−	0.3+	1998 08 23	704	0.0	0.5+	1998 09 14	699	0.5+	0.6+
1997 05 01	704	0.4+	0.1−	1998 08 23	704	0.3−	0.1−	1998 09 14	699	0.2−	1.1+
1997 05 01	704	(0.6+	2.5+)	1998 08 23	704	0.2+	0.2+	1998 09 18	704	0.8+	0.4−
1997 05 01	704	0.1+	0.2−	1998 08 23	704	0.3−	1.0+	1998 09 18	704	1.2−	0.1+
1997 05 01	704	0.2−	0.0	1998 09 14	704	1.4+	0.4+	1998 09 18	704	1.7+	0.7−
1997 05 01	704	0.2+	0.2−	1998 09 14	704	0.7+	0.3−	1998 09 18	704	0.3−	1.1−
1998 08 17	704	0.4+	0.4+	1998 09 14	704	0.1−	1.3−				

1998 QE$_{35}$ = 1993 FB$_{39}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	311.23646		(2000.0)		**P**	**Q**	
n	0.26638825	ω	243.09658		+0.90663726	−0.42023187	
a	2.3921735	Ω	141.72001		+0.40542846	+0.84308245	
e	0.1795903	i	3.47998		+0.11677603	+0.33558479	
P	3.70	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1993 03 19	809	0.5−	0.6−	1998 08 23	699	0.3+	0.3+	1998 09 14	704	0.8−	0.7+
1993 03 20	809	1.1−	0.5+	1998 08 23	704	0.8−	0.1−	1998 09 14	704	0.2−	0.2+
1993 03 24	809	1.6+	0.1+	1998 08 23	704	0.5+	0.9−	1998 09 18	704	1.3+	0.2−
1998 08 17	704	1.5+	0.2−	1998 08 23	699	0.7+	0.5+	1998 09 18	704	0.1+	0.3−
1998 08 17	704	0.0	0.0	1998 08 23	704	1.4−	1.2+	1998 09 18	704	0.7−	0.2+
1998 08 17	704	0.1+	0.1+	1998 08 23	699	0.3+	1.0+	1998 09 18	704	0.4−	0.6−
1998 08 17	704	1.1−	1.2−	1998 09 14	704	0.2−	0.0	1998 09 18	704	0.6−	0.1−
1998 08 17	704	0.1−	0.5−	1998 09 14	704	1.5+	0.1−				

1998 QP$_{35}$ = 1987 SK$_2$ = 1993 YR$_1$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	328.41190		(2000.0)		**P**	**Q**	
n	0.17542616	ω	285.13037		+0.97968105	−0.19535353	
a	3.1603837	Ω	86.15078		+0.19701876	+0.89501344	
e	0.2217484	i	2.60857		+0.03753199	+0.40098371	
P	5.62	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1987 09 19	071	1.1+	2.3−	1993 12 17	691	0.0	0.6+	1998 09 14	704	0.1−	0.4+
1987 09 19	071	3.4−	0.8−	1993 12 17	691	0.0	0.6+	1998 09 14	704	0.1−	0.5+
1987 09 19	071	1.2−	1.4−	1993 12 17	691	0.2−	0.6+	1998 09 14	704	1.0−	0.6+
1987 09 20	071	0.2+	1.5−	1998 08 17	704	1.1−	0.5+	1998 09 14	704	0.6−	0.6+
1987 09 21	071	0.6+	0.6−	1998 08 17	704	0.8−	1.7+	1998 09 14	704	0.4−	0.1−
1987 09 21	071	(30.1−	13.4−)	1998 08 17	704	0.5−	0.9+	1998 09 18	704	0.1+	0.5+
1987 09 22	071	(26.7−	10.8−)	1998 08 17	704	0.8−	0.4+	1998 09 18	704	0.8+	0.3+
1987 09 22	071	2.4+	0.3+	1998 08 17	704	1.1−	0.1−	1998 09 18	704	0.7+	0.9+
1987 09 22	071	3.4+	0.6−	1998 08 23	704	1.1+	0.1−	1998 09 18	704	0.3+	0.8+
1993 12 16	691	0.1−	0.5+	1998 08 23	704	0.6+	1.1−	1998 09 18	704	0.2+	1.8+
1993 12 16	691	0.4−	0.8+	1998 08 23	704	0.0	0.7−				
1993 12 16	691	0.4−	0.4+	1998 08 23	704	0.3+	1.2−				

1998 QX$_{35}$ = 1991 EM$_6$ = 1996 EO$_8$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	230.46059		(2000.0)		**P**	**Q**	
n	0.20462955	ω	89.18662		−0.16519602	−0.98623988	
a	2.8520501	Ω	10.32867		+0.89004422	−0.15188010	
e	0.0369878	i	2.05125		+0.42489006	−0.06529428	
P	4.82	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1991 03 06	372	1.5+	1.8+	1998 08 17	704	0.2+	1.9+	1998 09 14	704	1.2+	1.1+
1991 03 06	372	1.6−	1.9−	1998 08 17	704	0.1+	1.0+	1998 09 14	704	3.2−	0.4−
1996 03 12	691	0.5+	0.2+	1998 08 17	704	0.4+	0.7+	1998 09 14	704	1.2+	0.6+
1996 03 12	691	0.8+	0.4+	1998 08 17	704	0.5+	0.1−	1998 09 18	704	1.2+	0.4+
1996 03 12	691	0.4+	0.2−	1998 08 23	704	0.1+	1.4−	1998 09 18	704	0.6+	1.5−
1996 03 17	691	0.2−	0.2+	1998 08 23	704	2.2−	1.2−	1998 09 18	704	0.1−	1.0+
1996 03 17	691	0.7−	0.0	1998 08 23	704	2.7+	2.8−	1998 09 18	704	0.6−	1.0−
1996 03 17	691	0.7−	0.0	1998 08 23	704	0.7−	0.7−	1998 09 18	704	1.9−	1.5+
1998 08 17	704	0.8−	1.1+	1998 09 14	704	1.4+	0.4+				

1998 QZ$_{35}$ = 1980 TV$_5$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	332.49380		(2000.0)			
n	0.21612695	ω	21.34833		+0.99844767	+0.01088124
a	2.7499836	Ω	337.81622		−0.03758046	+0.85546201
e	0.1589796	i	8.31822		+0.04110915	+0.51775124
P	4.56	H	14.0	G	0.15	U 5

Residuals in seconds of arc

1980 10 08	675	0.2−	0.1+	1998 08 23	704	0.2−	1.4−	1998 09 14	699	0.7+	0.4+
1980 10 09	675	1.5+	1.5−	1998 08 23	704	0.4−	0.3+	1998 09 14	699	0.6+	0.4+
1980 10 10	675	1.4−	1.6+	1998 08 23	704	0.2−	0.3+	1998 09 18	704	0.4−	0.6−
1998 08 17	704	0.3−	0.6−	1998 09 14	704	0.3+	0.2+	1998 09 18	704	0.7+	0.3−
1998 08 17	704	0.1−	0.1+	1998 09 14	704	0.2+	0.2−	1998 09 18	704	0.5+	0.5−
1998 08 17	704	0.1−	0.1+	1998 09 14	704	0.1−	0.2−	1998 09 18	704	0.5−	0.3+
1998 08 17	704	0.2+	0.2+	1998 09 14	704	0.7−	0.3+	1998 09 18	704	0.4−	0.7+
1998 08 17	704	1.1−	1.0+	1998 09 14	704	0.1+	0.4−				
1998 08 23	704	0.5+	0.3−	1998 09 14	699	0.8+	0.1+				

1998 QK$_{36}$ = 1981 QV$_3$ = 1982 UF$_3$ = 1997 JR$_{10}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	27.97949		(2000.0)			
n	0.17498526	ω	126.25936		+0.39729125	+0.91608290
a	3.1656902	Ω	166.81939		−0.89973135	+0.40048803
e	0.1055082	i	13.78436		−0.18067416	+0.02003656
P	5.63	H	13.0	G	0.15	U 1

Residuals in seconds of arc

1981 08 30	675	1.5−	2.1−	1998 08 17	704	0.7−	1.6−	1998 09 14	699	0.1−	0.5+
1981 08 31	675	1.8+	0.4+	1998 08 23	704	0.4−	1.4−	1998 09 14	699	0.8+	0.6+
1982 10 24	695	(7.6+	4.3−)	1998 08 23	704	0.2−	0.2−	1998 09 18	704	1.2+	0.2+
1982 10 25	807	0.1−	1.8−	1998 08 23	704	0.5−	1.0+	1998 09 18	704	0.5+	0.4+
1982 10 26	695	(4.5−	1.7−)	1998 08 23	704	(0.0	2.3+)	1998 09 18	704	1.5+	0.9+
1982 10 27	807	0.4+	0.6−	1998 08 23	704	0.4−	1.5+	1998 09 18	704	0.1+	0.8+
1997 05 05	691	0.5−	0.2−	1998 08 26	699	0.2+	0.0	1998 09 18	704	0.8+	0.9+
1997 05 05	691	0.5−	0.4−	1998 08 26	699	0.1+	0.6+	1998 09 20	691	0.1−	0.1−
1997 05 14	691	0.3+	0.4−	1998 08 26	699	0.5−	1.1+	1998 09 20	691	0.1−	0.1−
1997 05 14	691	0.2+	0.2−	1998 09 14	704	0.3+	0.9−	1998 09 20	691	0.0	0.2+
1997 05 14	691	0.2+	0.3−	1998 09 14	704	0.1+	0.9−	1998 09 23	691	1.2−	0.3+
1998 08 17	704	0.2−	0.4−	1998 09 14	704	0.1+	0.1−	1998 09 23	691	0.9−	0.2+
1998 08 17	704	2.0+	0.3−	1998 09 14	704	0.0	0.3+	1998 09 23	691	1.0−	0.1+
1998 08 17	704	1.3−	0.5−	1998 09 14	704	0.4−	0.3−				
1998 08 17	704	0.7−	1.1−	1998 09 14	699	0.6+	0.5+				

1998 QL$_{36}$ = 1992 JN$_3$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	10.41131		(2000.0)			
n	0.20971840	ω	71.68879		+0.70323351	+0.70899954
a	2.8057245	Ω	243.11778		−0.67258766	+0.63940130
e	0.0581129	i	3.39034		−0.23040937	+0.29746535
P	4.70	H	13.5	G	0.15	U 4

Residuals in seconds of arc

1992 05 01	809	0.1−	0.4+	1998 08 17	704	0.3+	0.3+	1998 09 18	704	0.3+	0.3−
1992 05 01	809	0.3−	0.4+	1998 08 23	704	0.6−	1.0+	1998 09 18	704	0.4−	0.8−
1992 05 01	809	0.2−	0.3+	1998 08 23	704	0.0	0.4−	1998 09 18	704	0.2−	0.6−
1992 05 02	809	0.1+	0.5−	1998 08 23	704	0.7−	1.0+	1998 09 18	704	0.0	0.3−
1992 05 02	809	0.1+	0.5−	1998 08 23	704	0.5−	0.2−	1998 09 18	704	0.0	0.1−
1992 05 02	809	0.3+	0.2−	1998 09 14	704	1.0+	0.1+	1998 09 21	699	0.8−	0.2+
1998 08 17	704	0.2−	0.0	1998 09 14	704	0.3−	0.2+	1998 09 21	699	0.2+	0.2+
1998 08 17	704	0.3+	0.9−	1998 09 14	704	0.4+	0.5+	1998 09 21	699	0.6−	0.8+
1998 08 17	704	0.3+	0.3−	1998 09 14	704	0.4+	0.3−				
1998 08 17	704	0.2+	0.2−	1998 09 14	704	1.0+	0.5+				

1998 QO$_{36}$ = 1995 WL$_{31}$ = 1997 HN$_6$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	315.88065		(2000.0)			
n	0.25741540	ω	128.67424		+0.92142246	−0.38385652
a	2.4474455	Ω	253.97194		+0.33417601	+0.86202476
e	0.1899372	i	3.59641		+0.19826005	+0.33100980
P	3.83	H	15.0	G	0.15	U 4

Residuals in seconds of arc

1995 11 19	691	0.4+	0.2+	1997 05 01	704	1.2+	0.3+	1998 08 23	704	0.3−	0.8+
1995 11 19	691	0.3+	0.2+	1997 05 01	704	0.3−	0.4−	1998 09 14	704	0.5+	0.8−
1995 11 19	691	0.1−	0.1−	1997 05 01	704	0.0	0.9+	1998 09 14	704	0.7+	0.4+
1995 11 20	691	0.5−	0.2+	1997 05 01	704	1.7−	0.0	1998 09 14	704	1.0+	0.5−
1995 11 20	691	0.2−	0.1+	1998 08 17	704	0.3−	0.1−	1998 09 14	704	1.2+	0.3+
1995 11 20	691	0.2−	0.1+	1998 08 17	704	0.7−	0.1+	1998 09 14	704	1.1+	0.2−
1995 11 30	691	0.1+	0.2−	1998 08 17	704	0.3−	0.2+	1998 09 18	704	1.6+	0.5−
1995 11 30	691	0.1−	0.1+	1998 08 17	704	0.9−	0.0	1998 09 18	704	0.3+	0.4−
1995 11 30	691	0.3+	0.0	1998 08 17	704	0.7−	1.1−	1998 09 18	704	0.0	0.6+
1997 04 30	704	0.1−	0.7−	1998 08 23	704	1.3−	0.7−	1998 09 18	704	0.5+	0.6+
1997 04 30	704	0.8+	0.1+	1998 08 23	704	1.4−	0.7−	1998 09 18	704	0.8+	0.5+
1997 04 30	704	0.8+	0.5+	1998 08 23	704	1.3−	1.9+				
1997 04 30	704	0.6−	1.0−	1998 08 23	704	0.8−	0.4−				

1998 QV$_{36}$ = 1996 CY$_3$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	345.49466		(2000.0)			
n	0.23272719	ω	26.20342		+0.95178556	+0.27073581
a	2.6176082	Ω	317.25878		−0.30528671	+0.78986254
e	0.3057316	i	12.27088		−0.03007121	+0.55029019
P	4.24	H	16.5	G	0.15	U 4

Residuals in seconds of arc

1996 02 10	691	0.1+	0.3−	1998 08 17	704	0.6−	0.3+	1998 08 24	704	0.7+	0.6+
1996 02 10	691	0.7+	0.1+	1998 08 17	704	0.4−	0.2+	1998 08 24	704	1.0−	0.5+
1996 02 10	691	0.0	0.0	1998 08 17	704	0.5−	1.6−	1998 08 24	704	0.8−	0.6−
1996 02 16	691	0.3−	0.1−	1998 08 23	704	0.4+	0.2−	1998 08 24	704	0.2−	0.4−
1996 02 16	691	0.3−	0.4+	1998 08 23	704	0.9+	0.3−	1998 09 18	699	0.1+	0.2−
1996 02 16	691	0.0	0.2+	1998 08 23	704	1.9+	0.1−	1998 09 18	699	1.0−	0.7+
1998 08 17	704	0.0	0.6−	1998 08 23	704	0.8+	1.3+	1998 09 18	699	0.8+	1.0−
1998 08 17	704	0.6−	0.9+	1998 08 24	704	0.5−	0.8+				

1998 QF$_{37}$ = 1990 WK$_3$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	323.07043		(2000.0)			
n	0.23968262	ω	181.23761		+0.90281380	−0.42877678
a	2.5667192	Ω	204.23574		+0.39523025	+0.85741460
e	0.3069812	i	4.58705		+0.16947060	+0.28458862
P	4.11	H	16.0	G	0.15	U 4

Residuals in seconds of arc

1990 11 12	809	0.4−	0.5−	1998 08 17	704	0.0	0.3−	1998 09 14	704	0.5−	0.7+
1990 11 12	809	0.5+	0.5+	1998 08 17	704	0.2+	1.2−	1998 09 14	704	0.8−	0.1+
1990 11 12	809	0.3−	1.1−	1998 08 17	704	0.6−	1.6−	1998 09 14	704	0.1−	0.2+
1990 11 19	809	1.4+	0.5+	1998 08 23	704	0.0	0.0	1998 09 14	704	0.6−	0.1+
1990 11 19	809	0.8+	0.3−	1998 08 23	704	1.1+	0.7−	1998 09 14	704	0.2+	0.2+
1990 11 19	809	0.8+	0.7−	1998 08 23	704	0.0	1.1+	1998 09 18	704	0.3+	0.2−
1990 11 22	809	0.6−	1.4+	1998 08 23	704	0.1+	0.3+	1998 09 18	704	0.1+	0.6+
1990 11 22	809	1.5−	0.1+	1998 08 23	704	0.2+	0.4−	1998 09 18	704	0.7+	0.4+
1990 11 22	809	0.7−	0.1−	1998 08 26	699	0.2+	0.1+	1998 09 18	704	0.6−	0.4−
1998 08 17	704	0.2−	0.1+	1998 08 26	699	0.5−	0.2+	1998 09 18	704	0.6+	0.4−
1998 08 17	704	0.1+	0.4+	1998 08 26	699	0.0	0.6+				

1998 QH$_{37}$ = 1980 PZ$_3$ = 1990 ER$_1$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	57.21967		(2000.0)	**P**	**Q**		
n	0.27626413	ω	12.28697	−0.33929517	+0.93895885		
a	2.3348181	Ω	237.90387	−0.86864079	−0.33594400		
e	0.1582807	i	3.84970	−0.36102903	−0.07414790		
P	3.57	H	15.5	G 0.15	U 2		

Residuals in seconds of arc

1980 08 04	675	0.7+	0.3+	1998 08 17	704	0.6+	0.4+	1998 09 14	704	(4.9−	0.5−)
1980 08 05	675	0.9−	0.3+	1998 08 17	704	1.1+	1.3−	1998 09 15	699	0.4−	0.2+
1990 03 02	809	0.6−	0.2+	1998 08 17	704	0.7−	1.5−	1998 09 15	699	0.1+	0.4+
1990 03 02	809	0.3+	0.7+	1998 08 23	704	0.1+	0.3−	1998 09 15	699	0.5+	2.0+
1990 03 02	809	0.2+	0.1−	1998 08 23	704	1.2+	0.1−	1998 09 18	704	0.6−	1.1−
1990 03 04	809	0.0	0.1+	1998 08 23	704	1.5−	0.6−	1998 09 18	704	0.5−	0.5−
1990 03 04	809	0.3+	0.3−	1998 08 23	704	(2.5−	1.0+)	1998 09 18	704	0.5+	0.2+
1990 03 04	809	0.1−	0.2−	1998 09 14	704	0.1−	0.3−	1998 09 18	704	1.4−	0.9+
1998 08 17	704	1.0+	0.2+	1998 09 14	704	1.0+	1.1+	1998 09 18	704	0.2−	0.2+
1998 08 17	704	0.7−	0.8+	1998 09 14	704	0.2+	0.9−				

1998 QJ$_{37}$ = 1976 UH$_{14}$ = 1993 TY$_{36}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	88.30391		(2000.0)	**P**	**Q**		
n	0.17391164	ω	54.61985	−0.50595866	+0.86244360		
a	3.1787054	Ω	185.04611	−0.83406807	−0.49332863		
e	0.0268797	i	9.17896	−0.21985516	−0.11321616		
P	5.67	H	13.5	G 0.15	U 4		

Residuals in seconds of arc

1976 10 22	381	0.5−	1.1+	1998 08 17	704	1.3−	0.0	1998 08 26	699	0.0	0.3+
1976 10 22	381	0.3−	0.9+	1998 08 17	704	0.6−	0.4−	1998 08 26	699	0.0	0.3+
1976 10 24	381	0.1+	1.3+	1998 08 17	704	0.9−	0.6−	1998 09 14	704	0.7+	0.5+
1993 10 09	809	2.6−	1.4−	1998 08 17	704	0.1−	1.0−	1998 09 14	704	0.5−	0.5+
1993 10 09	809	2.1−	2.2−	1998 08 21	566	0.2−	0.2−	1998 09 14	704	0.1+	0.3+
1993 10 09	809	2.6−	1.9−	1998 08 21	566	0.7+	0.5−	1998 09 14	704	0.1−	0.1−
1993 10 11	809	2.8+	1.6+	1998 08 21	566	0.7+	0.9−	1998 09 14	704	0.2−	0.7−
1993 10 11	809	2.1+	0.6+	1998 08 23	704	0.5−	0.9+	1998 09 18	704	0.9+	0.7+
1993 10 11	809	1.9+	0.4+	1998 08 23	704	0.7+	0.8−	1998 09 18	704	0.4−	0.2+
1993 10 21	809	0.7+	0.2+	1998 08 23	704	0.8−	0.7+	1998 09 18	704	0.3−	0.7−
1993 10 21	809	0.4+	0.4−	1998 08 23	704	0.5+	0.8+	1998 09 18	704	0.3−	0.9+
1993 10 21	809	0.3+	0.2−	1998 08 23	704	0.8+	0.0	1998 09 18	704	0.5+	0.5+
1998 08 17	704	0.3−	0.4−	1998 08 26	699	0.6+	0.4−				

1998 QL$_{37}$ = 1978 WP$_{21}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	127.08397		(2000.0)	**P**	**Q**		
n	0.29039586	ω	344.71843	−0.98103344	+0.19096777		
a	2.2584429	Ω	206.36099	−0.16907223	−0.92687946		
e	0.0888968	i	4.29283	−0.09480491	−0.32314979		
P	3.39	H	15.0	G 0.15	U 5		

Residuals in seconds of arc

1978 11 28	675	0.2+	0.2+	1998 08 23	704	(1.6+	2.2+)	1998 09 15	699	0.7−	0.4+
1978 11 29	675	0.2−	0.4−	1998 08 23	704	1.1−	1.8+	1998 09 18	704	1.5−	1.1+
1998 08 17	704	0.2+	1.0−	1998 09 14	704	0.2−	0.3−	1998 09 18	704	1.0−	1.3−
1998 08 17	704	0.2−	1.2+	1998 09 14	704	0.5−	0.8+	1998 09 18	704	1.3+	0.3−
1998 08 17	704	0.7+	0.0	1998 09 14	704	0.3+	1.5−	1998 09 18	704	0.4−	0.6+
1998 08 17	704	0.4−	0.2−	1998 09 14	704	0.2−	1.1−	1998 09 21	699	0.9+	1.7+
1998 08 17	704	0.1+	0.6−	1998 09 14	704	0.9−	0.9+	1998 09 21	699	0.9+	0.2+
1998 08 23	704	0.3+	1.4−	1998 09 15	699	0.4+	0.1−	1998 09 21	699	1.5+	0.0
1998 08 23	704	0.4+	0.6−	1998 09 15	699	0.2−	0.3−				

1998 QR$_{37}$ = 1971 QT = 1982 RT$_2$ = 1991 GQ$_{11}$ = 1993 TD$_{13}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	28.90986		(2000.0)	**P**	**Q**		
n	0.18382956	ω	15.22376	+0.32328360	+0.94517713		
a	3.0633208	Ω	273.65482	−0.87297192	+0.27906225		
e	0.1565792	i	2.64934	−0.36525025	+0.16960088		
P	5.36	H	12.5	G 0.15	U 2		

Residuals in seconds of arc

1971 08 18	095	1.0+	1.9−	1998 08 17	704	1.2+	0.8−	1998 09 14	704	0.4−	1.3+
1971 08 24	095	0.1+	0.1−	1998 08 17	704	0.0	0.4−	1998 09 14	704	0.6−	1.2+
1982 09 12	095	0.3−	1.1−	1998 08 17	704	0.4+	0.6−	1998 09 15	699	0.6−	0.9+
1991 04 11	033	0.4+	0.9+	1998 08 17	704	1.2+	1.7−	1998 09 15	699	0.5−	0.7+
1991 04 11	033	0.4+	1.1+	1998 08 23	704	0.6+	0.5−	1998 09 15	699	0.6−	0.9+
1993 10 13	675	0.9+	0.1−	1998 08 23	704	0.3−	0.7−	1998 09 18	704	0.0	1.3+
1993 10 13	675	0.2−	1.4−	1998 08 23	704	0.1−	0.2−	1998 09 18	704	0.2+	0.2+
1993 10 15	675	0.3+	0.3−	1998 08 23	704	0.5−	0.4+	1998 09 18	704	0.6−	0.3−
1998 08 03	699	1.7+	0.1+	1998 08 23	704	0.9−	0.6+	1998 09 18	704	0.1−	0.4+
1998 08 03	699	(2.5+	0.3−)	1998 09 14	704	0.6−	0.7+	1998 09 18	704	0.8−	0.2+
1998 08 03	699	(2.9+	0.4−)	1998 09 14	704	1.0−	1.0+				
1998 08 17	704	0.5+	0.5−	1998 09 14	704	0.6−	1.9+				

1998 QT$_{37}$ = 1996 EC$_4$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	329.84326		(2000.0)	**P**	**Q**		
n	0.22700387	ω	210.65721	+0.96408308	−0.26227751		
a	2.6614228	Ω	164.38068	+0.26411529	+0.93003963		
e	0.3320345	i	8.94946	+0.02805204	+0.25736511		
P	4.34	H	15.5	G 0.15	U 4		

Residuals in seconds of arc

1996 03 11	691	0.2+	0.1+	1998 08 23	704	0.2+	0.1+	1998 09 15	120	0.2+	0.7+
1996 03 11	691	0.2+	0.2+	1998 08 23	704	0.6−	0.5+	1998 09 17	120	0.3+	0.4−
1996 03 11	691	0.7+	0.3+	1998 08 23	704	0.1−	0.6−	1998 09 17	120	0.2−	0.8−
1996 03 18	691	0.2−	0.4+	1998 08 23	704	0.3−	0.0	1998 09 17	120	0.1+	0.3−
1996 03 18	691	0.6−	0.3−	1998 08 23	704	1.6−	0.7+	1998 09 17	120	1.1+	0.1−
1996 03 18	691	0.3−	0.2−	1998 09 14	699	0.7+	0.8+	1998 09 17	120	0.1+	0.3−
1998 08 17	704	0.2+	0.4−	1998 09 14	699	0.4−	1.4+	1998 09 17	120	0.5+	0.5−
1998 08 17	704	0.4+	0.1+	1998 09 14	699	0.3+	0.6+	1998 09 18	699	0.5−	0.1+
1998 08 17	704	0.1−	0.1+	1998 09 15	120	0.3−	0.4−	1998 09 18	699	0.2−	0.2−
1998 08 17	704	0.9+	0.1−	1998 09 15	120	0.9−	0.3+	1998 09 18	699	0.1−	0.1+
1998 08 17	704	0.4+	0.8−	1998 09 15	120	0.2−	0.3−				

1998 QY$_{37}$ = 1991 PV$_{15}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	336.11772		(2000.0)	**P**	**Q**		
n	0.28364073	ω	15.02467	+0.98675787	+0.15697423		
a	2.2941597	Ω	335.82958	−0.15719817	+0.86346638		
e	0.1790039	i	5.72453	−0.03997053	+0.47935885		
P	3.47	H	15.5	G 0.15	U 4		

Residuals in seconds of arc

1991 08 06	675	0.5+	0.9+	1998 08 23	704	0.6+	0.5−	1998 09 14	699	0.4+	0.5+
1991 08 06	675	0.1+	0.2−	1998 08 23	704	0.8+	0.5−	1998 09 14	699	0.1+	0.1−
1991 08 10	675	0.7−	0.9−	1998 08 23	704	0.7−	0.4+	1998 09 18	704	0.2+	0.2+
1991 08 10	675	0.3+	0.2−	1998 08 23	704	0.6−	0.0	1998 09 18	704	0.7−	0.4+
1998 08 17	704	0.3−	0.4+	1998 09 14	704	0.4−	0.1+	1998 09 18	699	0.1−	0.0
1998 08 17	704	0.3+	0.5+	1998 09 14	704	0.0	0.4−	1998 09 18	704	0.4−	0.2−
1998 08 17	704	0.2−	0.3+	1998 09 14	704	0.8+	0.2+	1998 09 18	699	0.3+	0.2−
1998 08 17	704	0.1−	0.1+	1998 09 14	704	0.1+	0.4+	1998 09 18	704	0.3+	0.8−
1998 08 17	704	0.6−	0.1−	1998 09 14	704	0.4−	0.0	1998 09 18	704	0.6−	0.0
1998 08 23	704	0.0	0.5−	1998 09 14	699	0.2+	0.0	1998 09 18	699	0.7+	0.0

1998 QF$_{38}$ = 1991 PD

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	352.81216		(2000.0)	**P**	**Q**		
n	0.28440267	ω	188.63245	+0.82356650	+0.55903232		
a	2.2900604	Ω	136.91396	−0.51166077	+0.80524747		
e	0.1526404	i	8.08115	−0.24482950	+0.19763448		
P	3.47	H	15.5	G 0.15	U 4		

Residuals in seconds of arc

1991 08 05	675	0.2+	0.2−	1998 08 23	704	0.8+	1.9−	1998 09 16	699	0.0	0.7+
1991 08 05	675	0.1−	0.3+	1998 08 23	704	0.0	0.1+	1998 09 16	699	0.1−	0.9+
1991 08 08	675	0.1+	0.3−	1998 08 23	704	0.4−	0.3+	1998 09 18	704	0.1−	0.4+
1991 08 08	675	0.1−	0.4−	1998 08 23	704	0.2+	1.1+	1998 09 18	704	1.3−	0.5+
1998 08 17	704	0.1−	0.6+	1998 09 14	704	0.3+	0.2−	1998 09 18	704	1.3−	0.1−
1998 08 17	704	1.0+	0.7+	1998 09 14	704	0.1+	1.1−	1998 09 18	704	0.1−	0.5−
1998 08 17	704	0.0	0.7+	1998 09 14	704	0.5+	1.1−	1998 09 18	704	0.3+	0.3+
1998 08 17	704	0.5−	0.2+	1998 09 14	704	0.8+	1.3−	1998 09 22	699	0.0	0.8+
1998 08 17	704	0.5−	0.2−	1998 09 14	704	0.6+	1.1−	1998 09 22	699	0.0	0.2+
1998 08 23	704	0.5−	0.2+	1998 09 16	699	0.4−	0.3+	1998 09 22	699	0.4+	0.1+

1998 QL$_{38}$ = 1991 PN$_{9}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	322.80782		(2000.0)	**P**	**Q**		
n	0.28669261	ω	36.88465	+0.98702222	−0.15390857		
a	2.2778496	Ω	331.86538	+0.11407496	+0.87282744		
e	0.1548960	i	5.57599	+0.11302234	+0.46312461		
P	3.44	H	15.5	G 0.15	U 4		

Residuals in seconds of arc

1991 08 05	675	0.4+	0.7−	1998 08 17	704	0.1+	1.0+	1998 09 14	704	0.4−	0.4+
1991 08 05	675	0.8−	0.7+	1998 08 17	704	0.2−	0.4+	1998 09 14	704	0.6−	0.9+
1991 08 07	675	1.6+	0.1+	1998 08 23	704	0.5−	0.1−	1998 09 18	704	0.9−	0.2+
1991 08 07	675	1.1−	0.2−	1998 08 23	704	1.1+	1.2−	1998 09 18	704	0.0	1.5−
1998 08 01	699	0.2+	0.1+	1998 08 23	704	1.2−	0.7−	1998 09 18	699	0.1+	0.4+
1998 08 01	699	0.1+	0.0	1998 08 23	704	1.2+	0.2−	1998 09 18	704	0.8+	0.6−
1998 08 01	699	0.6−	0.4+	1998 08 23	704	0.4+	0.9−	1998 09 18	699	0.8+	0.1+
1998 08 17	704	0.1+	0.0	1998 09 14	704	0.1+	0.0	1998 09 18	704	0.5+	0.6+
1998 08 17	704	0.4−	0.4+	1998 09 14	704	1.1−	0.1+	1998 09 18	704	0.2−	0.3−
1998 08 17	704	0.1−	0.3+	1998 09 14	704	0.6+	0.0	1998 09 18	699	0.1−	0.4+

1998 QO$_{38}$ = 1980 FS$_{7}$ = 1991 PY$_{8}$ = 1995 UV$_{23}$ = 1997 ER$_{42}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	56.47366		(2000.0)	**P**	**Q**		
n	0.28696546	ω	333.79386	−0.28159969	+0.95887150		
a	2.2764055	Ω	279.83348	−0.87388572	−0.27160824		
e	0.1221879	i	2.07035	−0.39626425	−0.08242821		
P	3.43	H	15.0	G 0.15	U 1		

Residuals in seconds of arc

1980 03 23	809	1.1+	0.2−	1997 03 12	704	0.2−	0.5+	1998 09 14	704	0.4+	0.5+
1991 08 05	675	0.2−	0.6−	1997 03 12	704	0.6−	0.2−	1998 09 14	704	0.5−	0.5+
1991 08 05	675	0.5−	0.7−	1998 08 17	704	0.1−	0.1−	1998 09 14	699	0.1−	1.4+
1991 08 08	675	0.8−	0.9−	1998 08 17	704	0.0	0.1+	1998 09 14	699	0.4−	0.5+
1991 08 08	675	0.5−	1.0+	1998 08 17	704	0.3−	0.1−	1998 09 14	699	0.1+	1.1+
1995 10 19	691	0.4+	0.3−	1998 08 17	704	0.5−	0.7+	1998 09 18	704	0.4+	0.3−
1995 10 19	691	0.0	0.1−	1998 08 17	704	0.0	0.6−	1998 09 18	704	0.8+	0.9−
1995 10 19	691	0.2−	0.0	1998 08 23	704	0.4+	0.9−	1998 09 18	699	0.5+	1.5+
1995 10 24	691	0.4−	0.2−	1998 08 23	704	0.6−	0.3+	1998 09 18	704	1.7+	1.5−
1995 10 24	691	0.3−	0.2−	1998 08 23	704	1.0−	1.4−	1998 09 18	699	0.2+	0.5+
1995 10 24	691	0.1−	0.2−	1998 08 23	704	1.3−	1.0+	1998 09 18	704	0.6+	1.4+
1997 03 10	704	1.0+	1.0+	1998 08 23	704	(2.3−	0.3+)	1998 09 18	704	0.3−	0.8+
1997 03 10	704	1.0+	1.0+	1998 09 14	704	0.2+	0.3+	1998 09 18	699	0.7+	0.8+
1997 03 11	704	0.0	1.2+	1998 09 14	704	0.8−	0.2+				
1997 03 11	704	0.4−	1.0+	1998 09 14	704	0.2+	0.1+				

1998 QQ$_{38}$ = 1990 JP$_{1}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	60.53747		(2000.0)	**P**	**Q**		
n	0.25946302	ω	355.13535	−0.40536646	+0.91304366		
a	2.4345521	Ω	250.94485	−0.83710429	−0.39055035		
e	0.1714687	i	2.73171	−0.36733424	−0.11756570		
P	3.80	H	15.0	G 0.15	U 5		

Residuals in seconds of arc

1990 05 01	413	0.2−	0.2+	1998 08 17	704	0.5+	0.5+	1998 09 14	704	0.1−	1.7−
1990 05 02	413	0.1+	0.1+	1998 08 23	704	0.8+	0.1+	1998 09 14	704	0.5−	0.6−
1998 08 03	699	0.2+	0.8−	1998 08 23	704	0.6+	0.8−	1998 09 18	704	0.8+	0.8+
1998 08 03	699	0.2−	1.0−	1998 08 23	704	1.6−	1.4−	1998 09 18	704	0.5−	0.7+
1998 08 03	699	0.3+	0.9−	1998 08 23	704	0.1−	0.2+	1998 09 18	704	1.1−	0.6+
1998 08 17	704	0.1+	0.9+	1998 08 23	704	1.2+	1.9+	1998 09 18	704	0.2−	0.5+
1998 08 17	704	0.0	0.8+	1998 09 14	704	0.2+	0.3+	1998 09 18	704	0.2−	0.8+
1998 08 17	704	0.5+	0.6−	1998 09 14	704	0.4−	0.2−				
1998 08 17	704	0.9−	1.0+	1998 09 14	704	0.4+	1.3−				

1998 QV$_{38}$ = 1978 WU$_{16}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	248.94564		(2000.0)	**P**	**Q**		
n	0.28891642	ω	203.03398	−0.03617711	−0.99674953		
a	2.2661461	Ω	249.10158	+0.92845662	−0.00687828		
e	0.1380864	i	4.41915	+0.36967488	−0.08026872		
P	3.41	H	14.5	G 0.15	U 5		

Residuals in seconds of arc

1978 11 30	675	0.7+	0.2+	1998 08 23	704	(2.4+	0.0)	1998 09 18	699	0.1+	0.0
1978 12 01	675	0.7−	0.1−	1998 08 23	704	0.7−	0.8+	1998 09 18	699	0.9+	0.5+
1998 08 17	704	0.2−	0.2−	1998 09 14	704	0.4−	0.5+	1998 09 18	704	0.1+	1.2−
1998 08 17	704	0.2−	0.3+	1998 09 14	704	0.5+	0.3+	1998 09 18	699	0.4+	0.3+
1998 08 17	704	0.2+	0.3−	1998 09 14	704	0.6+	0.2+	1998 09 18	704	0.4+	1.2−
1998 08 17	704	0.4−	0.1+	1998 09 14	704	0.5+	1.0+	1998 09 18	704	0.6−	1.3−
1998 08 17	704	0.4+	0.2+	1998 09 14	704	0.0	0.4+	1998 09 18	704	2.0−	1.0−
1998 08 23	704	0.7+	0.3−	1998 09 15	699	0.1−	0.4+	1998 09 18	704	(2.6−	0.7−)
1998 08 23	704	0.4+	1.1−	1998 09 15	699	0.0	0.4+				
1998 08 23	704	0.5−	0.7+	1998 09 15	699	0.1+	0.2+				

1998 QW$_{38}$ = 5476 T-2

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	16.32858		(2000.0)	**P**	**Q**		
n	0.23488565	ω	4.89752	+0.50202502	+0.85777329		
a	2.6015473	Ω	295.27484	−0.79757690	+0.40980606		
e	0.1864931	i	7.01481	−0.33442781	+0.31029658		
P	4.20	H	15.0	G 0.15	U 5		

Residuals in seconds of arc

1973 09 29	675	0.6−	0.1+	1998 08 17	704	0.4+	0.1−	1998 08 30	699	0.2−	0.1+
1973 09 29	675	0.2−	0.4−	1998 08 17	704	0.8−	0.2+	1998 08 30	699	0.6+	0.1+
1973 09 30	675	0.9+	0.5−	1998 08 17	704	0.4+	0.7+	1998 08 30	699	0.4−	0.2−
1973 09 30	675	0.8+	0.8+	1998 08 17	704	0.2+	0.6−	1998 09 26	327	1.8+	0.5−
1973 10 04	675	0.4−	0.2+	1998 08 23	704	0.3+	0.2−	1998 09 26	327	1.4+	0.3+
1973 10 04	675	0.8−	0.5−	1998 08 23	704	1.6−	0.6+	1998 09 26	327	(2.5+	0.2+)
1973 10 05	675	0.3−	0.2−	1998 08 23	704	(0.8−	3.2−)	1998 09 29	327	1.3−	0.6+
1973 10 05	675	0.8+	0.1+	1998 08 23	704	(0.6+	2.2−)	1998 09 29	327	1.3−	0.2+
1998 08 17	704	0.1+	0.6−	1998 08 23	704	1.0+	0.2−	1998 09 29	327	0.8−	0.1−

1998 QY$_{38}$ = 1977 RH$_{11}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	316.02558		(2000.0)	**P**		**Q**	
n	0.28071576	ω	209.97515	+0.92063103		−0.39019532	
a	2.3100685	Ω	172.95051	+0.37666563		+0.87842633	
e	0.2182203	i	6.38240	+0.10276924		+0.27588911	
P	3.51	H	16.0	G 0.15		U 5	

Residuals in seconds of arc

1977 09 09	675	0.6+	0.4−	1998 08 26	699	0.0	0.7+	1998 09 18	704	0.6+	0.2+
1977 09 10	675	0.2−	0.8−	1998 09 13	684	0.1−	0.4−	1998 09 18	704	0.3+	0.1−
1998 08 17	704	0.1−	1.7−	1998 09 13	684	0.1−	0.2−	1998 09 18	704	0.5+	0.1+
1998 08 17	704	0.6−	0.9−	1998 09 14	704	1.0+	0.2−	1998 09 18	704	1.0+	0.6−
1998 08 17	704	0.5−	0.8−	1998 09 14	704	0.8+	0.3−	1998 09 18	704	0.3+	0.2+
1998 08 17	704	1.0+	0.4−	1998 09 14	704	0.7+	0.3+	1998 09 23	691	0.8−	0.5+
1998 08 23	704	0.2+	0.8+	1998 09 14	704	0.1−	0.2+	1998 09 23	691	0.7−	0.1+
1998 08 23	704	0.5+	0.8+	1998 09 14	684	0.3−	0.1−	1998 09 23	691	0.9−	0.2+
1998 08 23	704	1.8−	0.6+	1998 09 14	684	0.2−	0.3−	1998 09 26	691	0.7−	0.0
1998 08 23	704	0.5−	0.3−	1998 09 14	704	0.2+	0.1−	1998 09 26	691	0.6−	0.2+
1998 08 23	704	0.6−	1.2+	1998 09 14	699	0.8+	0.3+	1998 09 26	691	0.7−	0.2+
1998 08 26	699	0.1+	0.4−	1998 09 14	699	0.5+	0.3+				
1998 08 26	699	0.4−	0.5+	1998 09 14	699	0.7+	0.7+				

1998 QE$_{39}$ = 1982 SW$_{9}$

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	329.32514		(2000.0)	**P**		**Q**	
n	0.18220203	ω	352.72650	+0.97704753		−0.21300399	
a	3.0815360	Ω	19.57260	+0.19585082		+0.89318598	
e	0.2142705	i	0.46620	+0.08378894		+0.39604052	
P	5.41	H	14.5	G 0.15		U 4	

Residuals in seconds of arc

1982 09 21	095	0.1−	1.4−	1998 08 23	704	0.9+	0.5+	1998 09 14	699	0.6+	0.8+
1982 09 28	095	0.5+	0.5+	1998 08 23	704	0.1−	0.6−	1998 09 18	704	0.1+	0.5+
1998 08 01	699	0.0	0.4+	1998 08 23	704	0.3+	1.1+	1998 09 18	704	0.7−	0.0
1998 08 01	699	0.2−	0.6+	1998 09 13	684	(0.3−	2.6−)	1998 09 18	704	0.9+	1.9−
1998 08 01	699	0.4+	0.7+	1998 09 13	684	(0.3−	2.8−)	1998 09 18	704	1.4+	0.1+
1998 08 17	704	0.2−	0.5+	1998 09 14	704	0.3+	0.4−	1998 09 18	704	0.3−	0.6−
1998 08 17	704	0.0	0.1+	1998 09 14	704	0.3−	0.1−	1998 09 21	691	0.8−	0.7+
1998 08 17	704	0.2−	0.2−	1998 09 14	704	0.6+	0.1−	1998 09 21	691	1.2−	0.6+
1998 08 17	704	0.0	0.8−	1998 09 14	704	0.6+	0.5+	1998 09 21	691	1.1−	0.6+
1998 08 17	704	0.2−	1.2−	1998 09 14	704	0.0	0.2−	1998 09 25	691	0.3−	0.9+
1998 08 21	566	0.4−	1.0−	1998 09 14	684	0.0	0.2−	1998 09 25	691	0.4−	0.8+
1998 08 21	566	1.0−	1.4−	1998 09 14	684	0.0	0.1−	1998 09 25	691	0.3−	1.1+
1998 08 21	566	0.7+	1.8−	1998 09 14	699	0.0	1.0+				
1998 08 23	704	0.2−	0.7+	1998 09 14	699	0.7+	0.4−				

1998 QK$_{39}$ = 1990 UB$_{5}$ = 1992 EB$_{35}$

Id. A. Doppler

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	325.26332		(2000.0)	**P**		**Q**	
n	0.23580185	ω	249.16020	+0.98791058		−0.12587601	
a	2.5948041	Ω	117.97566	+0.14994490		+0.92406906	
e	0.1531109	i	5.88084	−0.03936009		+0.36090386	
P	4.18	H	15.0	G 0.15		U 4	

Residuals in seconds of arc

1990 10 16	809	1.1+	0.6+	1998 08 17	704	0.8+	0.4−	1998 09 14	704	0.1−	0.9+
1990 10 16	809	0.1−	0.2−	1998 08 17	704	0.4+	0.6−	1998 09 14	704	0.7−	0.1+
1990 10 16	809	0.5−	1.2−	1998 08 17	704	0.3+	0.4−	1998 09 14	704	0.1−	0.8+
1990 10 19	809	0.8−	0.8−	1998 08 17	704	0.3−	1.5−	1998 09 14	704	1.0−	1.3+
1990 10 19	809	(2.0−	1.2−)	1998 08 17	704	0.1−	1.5−	1998 09 18	704	0.3−	1.0−
1990 10 19	809	1.6−	0.3−	1998 08 23	704	0.3+	0.7+	1998 09 18	704	0.6+	0.2−
1990 10 24	809	(3.3+	1.2+)	1998 08 23	704	1.3−	0.2−	1998 09 18	704	0.5+	1.5−
1990 10 24	809	1.6+	0.4+	1998 08 23	704	0.4+	0.8−	1998 09 18	704	0.2−	1.6−
1990 10 24	809	0.5+	0.8+	1998 08 23	704	0.4+	1.1+	1998 09 18	704	(1.0−	2.1−)
1992 02 27	691	0.5−	0.6−	1998 08 23	704	1.6−	1.5−	1998 09 22	699	0.1−	0.8+
1992 02 27	691	0.2−	1.0−	1998 08 28	699	0.4+	0.9+	1998 09 22	699	0.1+	1.6+
1992 02 27	691	0.1−	0.6−	1998 08 28	699	0.5+	0.6−	1998 09 22	699	0.1+	1.6+
1992 03 01	809	(2.3+	0.9+)	1998 08 28	699	1.0+	0.3+				
1992 03 06	809	0.3+	0.8+	1998 09 14	704	0.5+	0.9+				

1998 QM$_{39}$ = 1987 SA$_{10}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	294.56570		(2000.0)	**P**		**Q**	
n	0.26517864	ω	340.81016	+0.64693150		−0.76073672	
a	2.3994426	Ω	68.84262	+0.70678249		+0.57233796	
e	0.2075890	i	3.22893	+0.28624839		+0.30611909	
P	3.72	H	15.5	G 0.15		U 6	

Residuals in seconds of arc

1987 09 29	033	0.4−	0.0	1998 08 17	704	0.0	0.4+	1998 09 14	704	0.3−	0.6+
1987 09 29	033	0.2+	0.5+	1998 08 23	704	2.3+	0.7−	1998 09 14	704	0.3+	0.1+
1987 09 30	033	0.8+	0.7+	1998 08 23	704	1.7−	1.0−	1998 09 18	704	1.8+	1.2−
1987 09 30	033	0.0	0.1−	1998 08 23	704	1.1+	0.7−	1998 09 18	704	0.1−	1.6+
1987 10 01	033	0.7−	1.0−	1998 08 23	704	0.1−	0.3−	1998 09 18	704	0.3−	0.4−
1998 08 17	704	0.5+	0.9+	1998 08 23	704	1.7−	0.1−	1998 09 18	704	1.2−	2.3+
1998 08 17	704	0.3−	0.3−	1998 09 14	704	0.7+	0.9−	1998 09 18	704	1.0−	0.4+
1998 08 17	704	0.2+	0.6+	1998 09 14	704	0.4+	0.6−				
1998 08 17	704	0.6−	1.6+	1998 09 14	704	0.1−	2.1−				

1998 QO$_{39}$ = 1991 SJ$_{3}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	310.77908		(2000.0)	**P**		**Q**	
n	0.27804188	ω	283.07202	+0.84110929		−0.53669388	
a	2.3248552	Ω	109.42349	+0.51969524		+0.76761397	
e	0.2483965	i	4.07657	+0.14983997		+0.35032623	
P	3.54	H	16.0	G 0.15		U 5	

Residuals in seconds of arc

1991 09 30	691	0.2−	0.1−	1998 08 17	704	0.0	0.7+	1998 09 14	704	0.3−	0.0
1991 09 30	691	0.2−	0.1+	1998 08 23	704	0.5+	1.4−	1998 09 16	699	0.6−	0.3+
1991 09 30	691	0.5−	0.1+	1998 08 23	704	(0.2+	2.7−)	1998 09 16	699	0.1−	0.9+
1991 10 02	691	0.2+	0.1+	1998 08 23	704	(1.2−	2.6−)	1998 09 16	699	0.0	0.1−
1991 10 02	691	0.4+	0.2−	1998 08 23	704	0.4−	0.8−	1998 09 18	704	1.1+	1.6−
1991 10 02	691	0.4+	0.0	1998 09 14	704	0.7+	0.2+	1998 09 18	704	0.6+	1.4−
1998 08 17	704	0.0	0.1+	1998 09 14	704	0.4−	0.6+	1998 09 18	704	0.0	0.5−
1998 08 17	704	0.0	0.8+	1998 09 14	704	0.5+	0.6+	1998 09 18	704	0.3−	0.2+
1998 08 17	704	0.0	0.1−	1998 09 14	704	0.2−	0.7+	1998 09 18	704	1.0−	0.9+

1998 QS$_{39}$ = 1994 NR$_{4}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	15.35380		(2000.0)	**P**		**Q**	
n	0.26078703	ω	181.90324	+0.43176618		+0.90032484	
a	2.4263050	Ω	113.67991	−0.82676437		+0.41927972	
e	0.1893293	i	3.42486	−0.36060872		+0.11670345	
P	3.78	H	15.5	G 0.15		U 5	

Residuals in seconds of arc

1994 07 11	809	0.4−	0.1−	1998 08 17	704	0.5−	0.4+	1998 09 14	704	1.0+	0.2+
1994 07 11	809	0.2+	0.1+	1998 08 17	704	0.8−	1.6−	1998 09 14	704	1.2+	0.3+
1994 07 11	809	0.2+	0.2−	1998 08 23	704	1.2+	0.3−	1998 09 18	704	0.6+	0.4+
1994 07 12	809	0.1+	0.2−	1998 08 23	704	0.7+	2.0−	1998 09 18	704	1.3−	1.0+
1994 07 12	809	0.0	0.6+	1998 08 23	704	0.9+	1.0−	1998 09 18	704	0.3−	0.2−
1994 07 12	809	0.1−	0.5+	1998 08 23	704	0.1−	0.2+	1998 09 18	704	1.4−	1.4−
1998 08 17	704	0.1−	0.0	1998 09 14	704	0.8+	0.1+	1998 09 18	704	1.3−	1.9+
1998 08 17	704	0.3−	0.4+	1998 09 14	704	0.3−	0.7+				
1998 08 17	704	0.3−	0.2+	1998 09 14	704	0.3+	0.4+				

1998 QT$_{39}$ = 1992 DC$_6$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	304.88399		(2000.0)	**P**	**Q**		
n	0.24154853	ω	255.54042	+0.77734978	−0.62387713		
a	2.5534838	Ω	142.96018	+0.61633990	+0.72967492		
e	0.1939161	i	7.69444	+0.12590647	+0.27991399		
P	4.08	H	14.0	G 0.15	U 4		

Residuals in seconds of arc

1992 02 29	809	0.6+	0.0	1998 08 23	704	0.2+	0.4−	1998 09 16	699	0.1−	0.4+
1992 03 03	809	0.8−	0.9+	1998 08 23	704	0.4+	0.0	1998 09 18	704	0.1+	0.0
1992 03 07	809	0.2+	0.7−	1998 08 23	704	0.8−	0.5+	1998 09 18	704	0.9−	0.2+
1998 08 17	704	0.2+	0.6−	1998 09 14	704	0.2+	0.4−	1998 09 18	704	0.1−	0.6−
1998 08 17	704	0.4−	0.4+	1998 09 14	704	0.2+	0.3+	1998 09 18	704	0.1+	0.1−
1998 08 17	704	0.5−	0.1+	1998 09 14	704	0.0	0.2−	1998 09 18	704	0.3−	0.8+
1998 08 17	704	0.2−	0.6+	1998 09 14	704	0.7+	0.1−	1998 09 22	699	0.4−	0.1−
1998 08 17	704	0.1−	0.6−	1998 09 14	704	0.3+	0.4+	1998 09 22	699	0.1+	0.3−
1998 08 23	704	0.8+	0.4+	1998 09 16	699	0.4+	0.1−	1998 09 22	699	0.1+	0.1−
1998 08 23	704	0.1+	0.6−	1998 09 16	699	0.3−	0.2+				

1998 QZ$_{39}$ = 1996 BZ$_{14}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	37.52007		(2000.0)	**P**	**Q**		
n	0.21081968	ω	307.40566	+0.20648516	+0.97735846		
a	2.7959450	Ω	334.39562	−0.86054389	+0.15893021		
e	0.1062390	i	6.13683	−0.46564804	+0.13968404		
P	4.68	H	14.5	G 0.15	U 4		

Residuals in seconds of arc

1996 01 18	691	0.3+	0.0	1998 08 17	704	0.1−	0.3−	1998 08 23	704	0.6−	1.7+
1996 01 18	691	0.1+	0.0	1998 08 17	704	0.2+	1.0−	1998 09 14	699	0.1+	0.8−
1996 01 25	691	0.0	0.0	1998 08 17	704	0.4−	1.6−	1998 09 14	699	0.3−	0.1+
1996 01 25	691	0.2−	0.2+	1998 08 23	704	0.5+	0.9+	1998 09 14	699	0.1−	1.0−
1996 01 25	691	0.2−	0.1−	1998 08 23	704	0.9+	1.0+	1998 09 18	699	0.0	0.2−
1998 08 17	704	0.4−	0.7−	1998 08 23	704	0.2+	1.2+	1998 09 18	699	0.2−	0.6+
1998 08 17	704	0.4+	0.6−	1998 08 23	704	1.1−	0.4+	1998 09 18	699	0.9+	0.3+

1998 QB$_{40}$ = 1971 UD$_4$ = 1997 GZ$_{39}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	347.89840		(2000.0)	**P**	**Q**		
n	0.21714782	ω	178.93850	+0.94305659	+0.32805354		
a	2.7413578	Ω	161.61746	−0.30645503	+0.92117701		
e	0.1875715	i	10.04421	−0.12934291	+0.20931745		
P	4.54	H	14.5	G 0.15	U 3		

Residuals in seconds of arc

1971 10 22	805	(1.0−	3.2+)	1998 08 17	704	0.1+	0.6−	1998 09 14	704	0.2−	0.4−
1971 10 22	805	0.8−	1.9+	1998 08 17	704	0.1−	0.1−	1998 09 14	704	0.5+	0.6+
1971 10 22	805	0.1+	0.6+	1998 08 17	704	0.1+	0.2−	1998 09 14	699	0.5+	0.4+
1997 04 07	809	1.0+	0.8+	1998 08 23	704	1.2−	1.1+	1998 09 14	699	0.1+	0.7+
1997 04 07	809	0.5+	0.9+	1998 08 23	704	0.2−	1.7+	1998 09 14	699	0.4+	0.1+
1997 04 07	809	0.0	1.0+	1998 08 23	704	0.6−	0.9+	1998 09 18	704	0.1−	0.3−
1997 04 08	809	0.8−	0.0	1998 08 23	704	0.9−	1.1+	1998 09 18	704	0.0	1.5−
1997 04 08	809	0.1+	0.6−	1998 08 23	704	(0.6−	2.3+)	1998 09 18	704	0.3+	1.0−
1997 04 08	809	0.2−	0.4−	1998 09 14	704	0.3+	1.8−	1998 09 18	704	0.8+	0.8−
1998 08 17	704	0.2−	0.3−	1998 09 14	704	0.3−	0.5−	1998 09 18	704	0.2+	0.7−
1998 08 17	704	0.3+	0.3−	1998 09 14	704	0.6+	0.8+				

1998 QC$_{40}$ = 1995 WF$_{35}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	314.51208		(2000.0)	**P**	**Q**		
n	0.25294567	ω	190.30762	+0.90723352	−0.42056641		
a	2.4761934	Ω	194.56906	+0.38791486	+0.84313516		
e	0.1784819	i	1.63043	+0.16263270	+0.33503283		
P	3.90	H	15.0	G 0.15	U 4		

Residuals in seconds of arc

1995 11 20	691	0.3+	0.2+	1998 08 17	704	0.1+	0.2+	1998 09 14	704	0.3−	0.6−
1995 11 20	691	0.2+	0.0	1998 08 17	704	0.6+	0.3−	1998 09 14	704	0.0	0.1−
1995 11 20	691	0.1+	0.1−	1998 08 23	704	1.0+	0.8−	1998 09 14	704	0.1−	0.1+
1995 11 30	691	0.1−	0.0	1998 08 23	704	0.0	1.5−	1998 09 18	704	0.4−	0.0
1995 11 30	691	0.2−	0.3−	1998 08 23	704	0.3−	0.5−	1998 09 18	704	0.6+	0.8+
1995 11 30	691	0.3−	0.2−	1998 08 23	704	0.6+	0.1−	1998 09 18	699	0.5−	0.2+
1998 08 03	699	0.1−	0.3−	1998 08 23	704	0.0	0.1+	1998 09 18	704	0.3+	0.6−
1998 08 03	699	0.4−	0.2−	1998 08 30	699	0.1+	0.7+	1998 09 18	699	0.4−	0.4+
1998 08 03	699	0.5−	0.0	1998 08 30	699	0.4−	0.2+	1998 09 18	704	0.0	0.8+
1998 08 17	704	0.3−	0.5+	1998 08 30	699	0.8−	0.3+	1998 09 18	704	0.3−	0.1+
1998 08 17	704	0.5+	0.7+	1998 09 14	704	0.1−	0.0	1998 09 18	699	0.2−	0.0
1998 08 17	704	0.8+	0.1+	1998 09 14	704	0.5+	0.5−				

1998 QD$_{40}$ = 1996 BJ$_3$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	36.54260		(2000.0)	**P**	**Q**		
n	0.21136542	ω	345.30344	+0.33494420	+0.94099742		
a	2.7911301	Ω	304.24389	−0.85847869	+0.28362446		
e	0.0346529	i	3.35202	−0.38836415	+0.18461044		
P	4.66	H	14.5	G 0.15	U 5		

Residuals in seconds of arc

1996 01 26	369	0.6−	0.7−	1998 08 17	704	0.8+	0.6−	1998 09 14	704	0.1−	1.0−
1996 01 26	369	0.5+	0.4+	1998 08 17	704	1.9+	1.4−	1998 09 14	704	0.0	0.2−
1996 01 26	369	0.4+	0.7−	1998 08 17	704	0.3+	2.0+	1998 09 14	704	1.3+	1.3−
1996 01 27	369	0.1+	1.1−	1998 08 17	704	0.1+	1.5+	1998 09 14	704	0.3+	2.7−
1996 01 27	369	0.6−	0.2+	1998 08 17	704	2.6−	0.9+	1998 09 18	704	2.4−	0.4+
1996 01 27	369	0.4+	1.0+	1998 08 23	704	0.1+	1.5−	1998 09 18	704	0.4−	1.2+
1996 01 31	369	0.1−	0.6−	1998 08 23	704	1.4−	1.0+	1998 09 18	704	0.6+	0.7−
1996 01 31	369	0.5−	0.7+	1998 08 23	704	0.0	0.8−	1998 09 18	704	0.3+	0.6+
1996 02 10	385	0.0	0.2−	1998 08 23	704	0.5+	0.4+	1998 09 18	704	0.9+	2.3+
1996 02 10	385	0.4+	1.4+	1998 09 14	704	0.4−	0.3+				

1998 QG$_{40}$ = 1993 FJ$_{43}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	13.86127		(2000.0)	**P**	**Q**		
n	0.23788067	ω	120.53339	+0.46571226	+0.88490880		
a	2.5796648	Ω	177.19517	−0.85284639	+0.45091060		
e	0.2342953	i	8.18197	−0.23614639	+0.11668777		
P	4.14	H	15.0	G 0.15	U 5		

Residuals in seconds of arc

1993 03 19	809	0.0	0.1−	1998 08 23	704	0.3+	0.4+	1998 09 14	704	0.2+	0.9+
1993 03 20	809	(2.9+	0.3−)	1998 08 23	704	0.4−	0.5−	1998 09 15	699	0.9−	0.9+
1993 03 24	809	(2.3−	1.1−)	1998 08 23	704	0.5−	1.2+	1998 09 15	699	0.8+	0.6+
1998 08 17	704	0.1−	0.2+	1998 08 26	699	0.1−	0.3+	1998 09 18	704	0.4+	0.3−
1998 08 17	704	0.4+	0.3+	1998 08 26	699	0.2+	0.6−	1998 09 18	704	0.3+	0.8−
1998 08 17	704	1.1+	0.4−	1998 08 26	699	0.2+	0.1−	1998 09 18	704	0.5−	0.8−
1998 08 17	704	0.2−	0.4−	1998 09 14	704	0.3+	0.1−	1998 09 18	704	0.3+	0.1−
1998 08 17	704	0.0	0.0	1998 09 14	704	0.0	0.2−	1998 09 18	704	0.7−	0.1+
1998 08 23	704	0.8−	0.7−	1998 09 14	704	0.7+	0.1+				
1998 08 23	704	0.4−	0.2+	1998 09 14	704	0.5−	0.3−				

1998 QJ$_{40}$ = 1991 TR$_{12}$ = 1997 EV$_{47}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	331.13881		(2000.0)	P		Q	
n	0.27373510	ω	170.71159	+0.99975581		+0.01318360	
a	2.3491769	Ω	188.59276	−0.01772490		+0.95768120	
e	0.1352025	i	6.81693	+0.01319666		+0.28752896	
P	3.60	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1991 10 07	046	1.5+	0.4+	1998 08 23	704	1.2+	0.3−	1998 09 14	620	0.3+	0.3−
1991 10 07	046	1.6−	0.0	1998 08 23	704	0.7−	0.3+	1998 09 14	620	0.4−	0.6−
1997 03 12	809	0.2−	0.1−	1998 08 23	704	1.1−	0.8+	1998 09 14	620	0.1+	0.4−
1997 03 12	809	0.6+	0.3−	1998 08 23	704	0.9−	1.0+	1998 09 15	699	0.5+	0.1+
1997 03 12	809	0.6−	0.4−	1998 08 23	704	0.4−	1.1+	1998 09 15	699	0.7+	0.0
1997 03 13	809	0.0	0.0	1998 08 26	699	0.1+	0.3+	1998 09 15	699	0.8+	0.1+
1997 03 13	809	0.6+	0.1−	1998 08 26	699	0.6+	1.1+	1998 09 18	704	0.3−	0.6−
1997 03 13	809	0.5−	0.5+	1998 08 26	699	0.9+	1.0+	1998 09 18	704	0.4−	0.1−
1998 08 17	704	0.5+	1.0−	1998 09 14	704	0.4−	0.8−	1998 09 18	704	0.1−	0.7−
1998 08 17	704	0.7−	0.2+	1998 09 14	704	0.2+	0.1−	1998 09 18	704	0.2+	0.2+
1998 08 17	704	1.1+	0.2+	1998 09 14	704	0.5−	0.0	1998 09 18	704	0.0	0.0
1998 08 17	704	1.5+	0.4−	1998 09 14	704	1.3−	1.0−				
1998 08 17	704	0.9−	0.6−	1998 09 14	704	0.1−	0.0				

1998 QP$_{40}$ = 1975 EF = 1975 FH = 1979 BK = 1982 YE$_{1}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	235.89400		(2000.0)	P		Q	
n	0.23384982	ω	147.16229	−0.30257402		−0.94298721	
a	2.6092240	Ω	319.95783	+0.82139159		−0.18418820	
e	0.1147363	i	12.44566	+0.48349231		−0.27721803	
P	4.21	H	13.0	G	0.15	U	4

Residuals in seconds of arc

1975 03 04	095	1.2+	0.9−	1998 08 23	704	0.5+	1.2−	1998 09 14	704	0.5−	0.5−
1975 03 17	095	1.1−	1.7+	1998 08 23	704	0.7−	1.1−	1998 09 16	699	0.5−	0.2+
1979 01 18	330	1.3+	1.1+	1998 08 23	704	0.4−	0.9−	1998 09 16	699	0.8−	0.8+
1979 01 24	095	(2.2+	4.1+)	1998 08 23	704	0.4−	0.1+	1998 09 16	699	0.8+	0.4−
1982 12 23	095	0.6−	1.0−	1998 08 23	888	0.1+	0.2+	1998 09 18	704	0.1−	0.1−
1998 08 17	704	0.1+	0.2+	1998 08 23	888	0.1−	0.2−	1998 09 18	704	0.7+	0.6−
1998 08 17	704	0.4−	0.7+	1998 08 23	888	0.5−	0.2−	1998 09 18	704	0.1−	0.4+
1998 08 17	704	0.5+	0.8+	1998 09 14	704	0.1+	0.5+	1998 09 18	704	0.2+	0.1−
1998 08 17	704	0.4−	1.0+	1998 09 14	704	0.3+	0.3+	1998 09 18	704	0.7−	1.0+
1998 08 17	704	0.4−	0.2+	1998 09 14	704	1.6+	0.5+				
1998 08 23	704	0.2−	0.2+	1998 09 14	704	0.5+	0.4−				

1998 QU$_{40}$ = 1994 SR$_{6}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	13.97643		(2000.0)	P		Q	
n	0.23689460	ω	122.37621	+0.52898599		+0.84863000	
a	2.5868184	Ω	179.55727	−0.81468319		+0.50814502	
e	0.1938598	i	7.21343	−0.23762392		+0.14702300	
P	4.16	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1994 09 28	691	0.3−	0.2+	1998 08 23	704	0.9−	0.2+	1998 09 14	704	0.4−	0.2−
1994 09 28	691	0.5−	0.2−	1998 08 23	704	0.4−	0.2+	1998 09 14	704	0.6−	0.1−
1994 09 28	691	0.3−	0.2−	1998 08 23	704	0.6+	0.7−	1998 09 15	699	0.1−	0.1+
1994 10 04	691	0.5+	0.1+	1998 08 23	704	0.4−	1.0−	1998 09 15	699	0.6+	0.5+
1994 10 04	691	0.6+	0.1−	1998 08 23	704	0.8−	0.6−	1998 09 15	699	0.3−	0.4+
1994 10 04	691	0.1+	0.2+	1998 08 26	699	0.2+	0.0	1998 09 18	704	0.6+	0.1+
1998 08 17	704	0.3+	0.3−	1998 08 26	699	0.0	0.1−	1998 09 18	704	0.3−	0.6−
1998 08 17	704	0.5+	0.3+	1998 08 26	699	0.7+	0.6−	1998 09 18	704	0.1+	0.5−
1998 08 17	704	0.1+	0.7+	1998 09 14	704	0.2−	0.4+	1998 09 18	704	(2.3+	0.9−)
1998 08 17	704	0.7+	0.8+	1998 09 14	704	0.6+	0.5+	1998 09 18	704	0.5−	0.7−
1998 08 17	704	0.8−	0.4+	1998 09 14	704	0.4+	0.7+				

1998 QV$_{40}$ = 1978 JP = 1989 TG$_{11}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	341.46708		(2000.0)	P		Q	
n	0.21295011	ω	126.36539	+0.98465107		+0.16737159	
a	2.7772660	Ω	224.06032	−0.17404949		+0.92049523	
e	0.0460250	i	4.08077	−0.01300188		+0.35309386	
P	4.63	H	13.5	G	0.15	U	5

Residuals in seconds of arc

1978 05 05	095	0.1+	0.4+	1998 08 23	704	0.1+	0.2−	1998 09 15	699	0.9+	0.7−
1989 10 03	046	1.2−	1.3−	1998 08 23	704	0.2+	0.5−	1998 09 15	699	0.8+	0.2−
1989 10 03	046	1.1+	1.5+	1998 08 23	704	0.1+	0.4−	1998 09 15	699	0.0	0.6−
1998 08 17	704	0.8−	0.3−	1998 08 23	704	0.5−	0.2+	1998 09 18	704	0.2+	0.4−
1998 08 17	704	0.5+	0.1−	1998 08 26	699	1.2+	0.1+	1998 09 18	704	0.6−	0.6−
1998 08 17	704	0.5−	0.2−	1998 08 26	699	0.9+	0.6+	1998 09 18	704	0.1+	0.3−
1998 08 17	704	0.2+	0.3+	1998 08 26	699	0.9+	0.4+	1998 09 18	704	0.5+	0.9−
1998 08 17	704	0.6−	0.0	1998 09 14	704	0.5−	0.8+	1998 09 18	704	0.1−	0.2−
1998 08 18	566	0.1−	0.3−	1998 09 14	704	0.5+	0.7+	1998 09 30	691	0.9−	0.1−
1998 08 18	566	0.3−	0.2−	1998 09 14	704	1.0−	1.2+	1998 09 30	691	1.1−	0.1−
1998 08 18	566	0.4+	0.2−	1998 09 14	704	1.0−	0.2+	1998 09 30	691	1.0−	0.0
1998 08 23	704	1.0+	0.4+	1998 09 14	704	0.4+	1.5+				

1998 QX$_{40}$ = 3246 T-3 = 1991 RT$_{15}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	355.27174		(2000.0)	P		Q	
n	0.28013164	ω	139.51110	+0.79404886		+0.60783515	
a	2.3132786	Ω	183.06750	−0.57821576		+0.75288391	
e	0.2605339	i	5.12322	−0.18749118		+0.25239305	
P	3.52	H	16.0	G	0.15	U	4

Residuals in seconds of arc

1977 10 07	675	1.9−	0.5+	1977 10 21	675	1.0−	1.3+	1998 08 23	704	0.3+	0.2−
1977 10 11	675	0.2+	1.5+	1977 10 22	675	0.6−	2.8−	1998 08 23	704	0.9+	1.3−
1977 10 11	675	1.0−	1.3+	1977 10 22	675	1.6+	0.3−	1998 08 23	704	0.7+	0.9−
1977 10 12	675	1.0+	0.7+	1977 10 22	675	1.7+	4.0−	1998 08 23	704	0.4−	0.7−
1977 10 12	675	0.6+	0.8−	1977 10 22	675	1.4+	0.1−	1998 08 23	704	0.4−	0.3−
1977 10 16	675	0.5+	1.5+	1991 09 11	675	1.3+	0.4−	1998 09 14	704	0.2+	0.7−
1977 10 16	675	0.7−	0.7+	1991 09 11	675	0.2−	2.1−	1998 09 14	704	0.2−	0.8−
1977 10 17	675	0.0	1.0+	1991 09 15	675	0.3+	1.0−	1998 09 14	704	0.4−	0.5−
1977 10 17	675	0.1−	1.4+	1991 09 15	675	1.5+	2.4−	1998 09 14	704	0.5−	0.4−
1977 10 17	675	1.7−	0.3−	1998 08 17	704	0.1−	1.0+	1998 09 18	704	0.7+	0.1−
1977 10 17	675	1.1−	2.1+	1998 08 17	704	0.7+	1.0+	1998 09 18	704	1.0−	2.3+
1977 10 21	675	0.5+	1.4−	1998 08 17	704	0.4−	0.8+	1998 09 18	704	1.3+	2.3+
1977 10 21	675	0.6−	1.2+	1998 08 17	704	0.6−	0.8+	1998 09 18	704	2.1−	0.7+
1977 10 21	675	0.1+	1.6−	1998 08 17	704	1.2−	0.3+	1998 09 18	704	0.3+	0.8+

1998 QB$_{41}$ = 1994 PD$_{33}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	332.53371		(2000.0)	P		Q	
n	0.24733037	ω	177.36166	+0.99997728		−0.00579277	
a	2.5135320	Ω	182.97680	+0.00429727		+0.94182536	
e	0.1408308	i	3.80636	+0.00519371		+0.33605272	
P	3.98	H	16.0	G	0.15	U	5

Residuals in seconds of arc

1994 08 12	809	1.0+	1.4+	1998 08 17	704	0.4+	1.5−	1998 09 14	704	1.0−	0.8+
1994 08 12	809	1.3−	0.2+	1998 08 17	704	(3.7−	1.3−)	1998 09 14	704	0.0	0.7+
1994 08 12	809	1.2−	1.2−	1998 08 23	704	0.3−	0.3+	1998 09 18	704	0.6−	1.3−
1994 08 13	809	0.9+	0.8+	1998 08 23	704	(0.2−	2.3−)	1998 09 18	704	1.0−	0.7−
1994 08 13	809	0.2−	0.5+	1998 08 23	704	(1.1−	2.8−)	1998 09 18	699	1.8+	0.1+
1994 08 13	809	0.2−	1.4+	1998 08 23	704	0.1+	0.5−	1998 09 18	704	0.2+	0.7−
1998 08 17	704	0.2−	1.5−	1998 09 14	704	0.7+	0.2−	1998 09 18	699	0.6+	0.4+
1998 08 17	704	0.9+	1.2−	1998 09 14	704	0.0	0.6+	1998 09 18	704	1.9−	1.1+
1998 08 17	704	(2.7−	1.2+)	1998 09 14	704	0.9+	0.4−	1998 09 18	699	0.3+	0.8+

1998 QS$_{41}$ = 1997 JR$_{12}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	42.71687		(2000.0)	**P**		**Q**	
n	0.21995493	ω	196.52035	+0.19664186		+0.98003982	
a	2.7179841	Ω	84.82742	−0.89621717		+0.19175100	
e	0.0447226	i	1.68139	−0.39765156		+0.05247387	
P	4.48	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1997 05 03	809	1.1−	1.8−	1998 08 17	704	0.1+	0.6+	1998 09 14	699	0.4−	0.4+
1997 05 03	809	1.3−	1.4−	1998 08 17	704	0.6+	1.3+	1998 09 14	699	0.6−	1.1+
1997 05 03	809	(0.5−	2.2−)	1998 08 17	704	0.1+	1.3+	1998 09 14	699	0.5+	0.9+
1997 05 04	809	0.5+	0.7−	1998 08 23	704	0.1−	1.4−	1998 09 18	704	0.2−	0.4−
1997 05 04	809	0.4+	1.2−	1998 08 23	704	0.1+	0.1−	1998 09 18	704	0.5+	0.7−
1997 05 04	809	0.6+	0.4+	1998 08 23	704	(1.5+	2.8−)	1998 09 18	704	1.2+	1.6−
1997 05 07	704	0.0	0.8+	1998 08 23	704	0.9−	1.1−	1998 09 18	699	0.5+	0.5+
1997 05 07	704	0.2+	0.8+	1998 08 23	704	1.5−	0.9−	1998 09 18	704	0.7−	0.9−
1997 05 07	704	0.2+	0.9+	1998 09 14	704	0.1+	1.0+	1998 09 18	699	0.7+	0.4+
1997 05 07	704	0.0	0.9+	1998 09 14	704	1.0+	0.5+	1998 09 18	704	0.8−	1.7−
1997 05 07	704	0.5+	1.1+	1998 09 14	704	1.5−	0.0	1998 09 18	699	0.4+	0.6+
1998 08 17	704	0.5+	0.0	1998 09 14	704	1.2−	0.3−				
1998 08 17	704	0.5+	0.1−	1998 09 14	704	1.1+	0.7+				

1998 QT$_{41}$ = 1977 RP$_{18}$ = 1997 GA$_{35}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	0.20040		(2000.0)	**P**		**Q**	
n	0.23365163	ω	326.10164	+0.78728191		+0.61656991	
a	2.6106992	Ω	355.82035	−0.54814351		+0.69587603	
e	0.1594884	i	4.21779	−0.28235772		+0.36823646	
P	4.22	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1977 09 09	675	0.5+	1.4−	1998 08 23	704	1.0−	0.5+	1998 09 18	704	(2.3+	0.7−)
1977 09 10	675	0.7+	0.7−	1998 09 12	691	0.6−	0.5+	1998 09 18	704	1.1+	1.8−
1997 04 03	704	0.1−	0.3−	1998 09 12	691	0.6−	0.5+	1998 09 18	704	0.7+	0.7−
1997 04 03	704	0.0	0.2−	1998 09 12	691	0.7−	0.4+	1998 09 19	691	1.0−	0.5+
1997 04 11	704	0.4−	0.2+	1998 09 14	704	0.7+	0.6−	1998 09 19	691	1.3+	1.5+
1997 04 11	704	0.4+	0.1+	1998 09 14	704	1.9+	0.3−	1998 09 19	691	1.7−	0.3+
1998 08 17	704	0.4+	0.0	1998 09 14	704	(2.2+	0.6+)	1998 09 25	691	0.8−	0.9+
1998 08 17	704	1.3+	0.9−	1998 09 14	704	(2.2+	0.2+)	1998 09 25	691	1.2−	0.9+
1998 08 17	704	0.3+	0.8+	1998 09 14	704	(2.2+	1.3−)	1998 09 25	691	0.9−	0.3+
1998 08 17	704	0.2+	0.0	1998 09 14	699	0.2−	1.1+	1998 09 30	691	0.1−	0.5+
1998 08 17	704	0.4−	1.6+	1998 09 14	699	0.3−	0.5−	1998 09 30	691	0.0	0.6+
1998 08 23	704	0.2−	1.2−	1998 09 14	699	0.9+	0.4+	1998 09 30	691	0.3−	0.4+
1998 08 23	704	0.1−	0.8+	1998 09 18	704	0.4+	1.9−				
1998 08 23	704	0.4+	1.6−	1998 09 18	704	0.3−	0.5−				

1998 QB$_{42}$ = 1981 RQ$_{5}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	353.50229		(2000.0)	**P**		**Q**	
n	0.17465347	ω	330.70724	+0.90541771		+0.42436544	
a	3.1696981	Ω	4.23218	−0.35274971		+0.76716527	
e	0.0901778	i	8.98182	−0.23619147		+0.48101083	
P	5.64	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1981 09 01	675	0.5−	0.1−	1998 08 23	704	0.4+	1.2−	1998 09 14	704	0.8+	0.1−
1981 09 02	675	0.3+	0.3+	1998 08 23	704	0.8−	1.0−	1998 09 14	704	0.4+	0.1+
1998 08 17	704	1.3+	0.6−	1998 08 23	704	0.4−	0.1−	1998 09 18	704	0.1−	0.7+
1998 08 17	704	0.8+	0.5+	1998 08 23	704	0.7−	1.8+	1998 09 18	704	0.5−	0.1+
1998 08 17	704	0.5−	1.3+	1998 09 14	704	0.9−	1.9−	1998 09 18	704	0.8−	1.1−
1998 08 17	704	1.3+	0.1−	1998 09 14	704	1.0+	0.3−	1998 09 18	704	1.2−	0.9−
1998 08 17	704	0.2+	0.4+	1998 09 14	704	1.5+	1.1+	1998 09 18	704	1.7−	1.1+

1998 QE$_{42}$ = 1981 UB$_{16}$ = 1988 VA$_{2}$

Id. S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	334.96934		(2000.0)	**P**		**Q**	
n	0.28773948	ω	309.36500	+0.98458724		+0.16837589	
a	2.2723213	Ω	41.00453	−0.12992416		+0.88522047	
e	0.1667389	i	4.13430	−0.11707981		+0.43362920	
P	3.43	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1981 10 24	095	(14.2−	12.5−)	1988 11 14	399	(1.0+	2.9+)	1998 08 28	699	0.2+	0.3+
1988 11 02	399	2.3+	0.0	1988 11 14	399	0.1−	0.6+	1998 08 28	699	0.1+	0.6+
1988 11 02	399	0.6+	1.2−	1998 07 31	699	0.0	0.6−	1998 09 14	704	0.4+	0.2−
1988 11 02	399	(3.5+	0.6−)	1998 07 31	699	0.2−	0.3−	1998 09 14	704	0.8−	0.2+
1988 11 04	327	1.7−	0.9+	1998 07 31	699	0.9−	0.1−	1998 09 14	704	0.1−	0.4+
1988 11 04	327	1.2−	0.0	1998 08 17	704	0.9+	0.1−	1998 09 14	704	0.3+	0.5+
1988 11 04	046	(0.9+	3.4−)	1998 08 17	704	0.2−	0.3−	1998 09 14	704	0.8−	0.0
1988 11 04	046	(3.0+	2.4−)	1998 08 17	704	0.7+	0.2−	1998 09 18	704	0.6+	0.3−
1988 11 05	046	(3.3+	3.9−)	1998 08 17	704	0.8+	0.1+	1998 09 18	704	0.0	0.3−
1988 11 05	046	(6.0+	1.8−)	1998 08 17	704	0.7−	0.5−	1998 09 18	704	0.3+	0.2+
1988 11 08	399	0.8−	1.0+	1998 08 23	704	0.3+	0.1+	1998 09 18	704	0.2+	0.3+
1988 11 08	399	(5.4−	0.7+)	1998 08 23	704	0.1+	0.4−	1998 09 18	704	1.5−	0.7+
1988 11 08	399	(6.0−	0.3−)	1998 08 23	704	0.2−	0.2−	1998 09 22	699	0.1−	0.0
1988 11 11	399	(5.1−	1.2−)	1998 08 23	704	0.0	0.0	1998 09 22	699	1.4−	0.5−
1988 11 11	046	0.4+	1.4−	1998 08 23	704	0.5+	0.0	1998 09 22	699	0.2+	0.3+
1988 11 11	046	0.7+	0.5−	1998 08 28	699	0.9+	0.3+				

1998 QK$_{42}$ = 1979 OP$_{15}$ = 1990 KU = 1994 NX$_{1}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	32.95356		(2000.0)	**P**		**Q**	
n	0.26157115	ω	93.51319	+0.10814039		+0.99413421	
a	2.4214536	Ω	182.69668	−0.92571851		+0.10008063	
e	0.1849488	i	2.05047	−0.36242363		+0.04100055	
P	3.77	H	14.5	G	0.15	U	2

Residuals in seconds of arc

1979 07 30	095	0.5−	1.9+	1998 08 17	704	1.0+	0.1−	1998 09 14	704	0.6+	0.6−
1990 05 21	675	0.5+	1.8−	1998 08 17	704	0.1−	0.0	1998 09 14	699	0.1−	0.2+
1990 05 21	675	0.9+	0.5−	1998 08 17	704	1.3+	0.2+	1998 09 14	699	0.6−	0.0
1990 05 23	675	0.1−	0.2−	1998 08 23	704	0.1+	0.1−	1998 09 14	699	0.5−	0.4+
1990 05 23	675	1.7−	0.5+	1998 08 23	704	1.2−	0.9+	1998 09 18	704	0.6+	0.1−
1994 07 04	010	0.5−	0.8−	1998 08 23	704	0.9−	0.1+	1998 09 18	704	0.3+	0.2−
1994 07 04	010	0.7−	0.5−	1998 08 23	704	0.4+	0.2+	1998 09 18	699	0.2−	0.4−
1994 07 04	010	1.2+	0.4+	1998 08 23	704	0.2−	0.3+	1998 09 18	704	0.1+	0.7−
1994 07 05	010	0.3−	1.1+	1998 09 14	704	0.3+	0.2−	1998 09 18	699	0.3+	0.1+
1994 07 05	010	0.3−	0.3−	1998 09 14	704	0.2−	0.2−	1998 09 18	704	0.1−	0.1−
1994 07 05	010	0.4+	1.0+	1998 09 14	704	0.5+	0.6−	1998 09 18	704	0.6−	0.3−
1998 08 17	704	0.5+	0.5−	1998 09 14	704	0.0	1.1−	1998 09 18	699	0.3−	0.2+

1998 QL$_{42}$ = 1996 GH$_{2}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	299.34654		(2000.0)	**P**		**Q**	
n	0.20171368	ω	183.06439	+0.78644564		−0.61741550	
a	2.8794695	Ω	215.08233	+0.56733183		+0.73319191	
e	0.0602739	i	1.73079	+0.24420861		+0.28500476	
P	4.89	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1996 04 12	104	0.7−	0.0	1996 04 18	104	0.5+	0.9−	1998 08 23	704	1.2+	2.1−
1996 04 12	104	0.3−	0.6+	1996 04 18	104	0.5+	0.2−	1998 08 23	704	0.2−	1.2+
1996 04 12	104	0.6−	0.3+	1996 04 18	104	0.6+	0.8+	1998 09 14	704	0.3−	0.8−
1996 04 12	104	0.1−	0.0	1996 04 21	104	0.2−	0.5+	1998 09 14	704	0.6+	0.7−
1996 04 14	104	0.9+	0.3+	1996 04 21	104	0.8+	0.1+	1998 09 14	704	1.4−	0.7+
1996 04 14	104	0.3+	0.5−	1998 08 17	704	0.5−	1.2−	1998 09 14	704	0.3−	0.4−
1996 04 14	104	0.2+	0.2−	1998 08 17	704	1.1+	1.0−	1998 09 14	704	1.4+	0.8+

1996 04 14	104	0.7−	0.1−	1998 08 17	704	0.0	0.5−	1998 09 18	704	2.4−	2.5+
1996 04 16	104	0.7−	1.0+	1998 08 17	704	0.2−	0.2−	1998 09 18	704	1.0−	1.8+
1996 04 16	104	0.1−	0.6+	1998 08 23	704	0.1+	1.2+	1998 09 18	704	0.9+	1.4+
1996 04 16	104	0.6+	0.2+	1998 08 23	704	0.0	1.6−	1998 09 18	704	0.4+	0.9+

1998 QM$_{42}$ = 1997 ER$_{49}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	78.00854		(2000.0)		**P**	**Q**	
n	0.28585098	ω	30.91698		−0.44912837	+0.89322454	
a	2.2823185	Ω	212.40858		−0.82747632	−0.42463385	
e	0.0456830	i	2.22672		−0.33699652	−0.14777014	
P	3.45	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1997 03 05	809	1.1+	0.4+	1998 08 17	704	0.7+	1.5+	1998 09 14	704	1.0−	0.7+
1997 03 05	809	0.7+	0.1−	1998 08 23	704	(2.4+	1.2−)	1998 09 15	699	0.4+	0.4−
1997 03 05	809	1.1+	0.5−	1998 08 23	704	(2.7+	0.1+)	1998 09 15	699	0.7+	0.3+
1997 03 06	809	0.9−	0.4+	1998 08 23	704	1.0−	1.0−	1998 09 15	699	0.7+	0.8+
1997 03 06	809	1.3−	0.3−	1998 08 23	704	0.2−	0.1+	1998 09 18	704	1.5+	1.6−
1997 03 06	809	0.7−	0.1+	1998 08 23	704	(0.1+	2.1+)	1998 09 18	704	1.1−	1.1−
1998 08 17	704	0.1−	0.6−	1998 09 14	704	0.1−	0.3+	1998 09 18	704	1.1−	1.8+
1998 08 17	704	0.2−	0.6+	1998 09 14	704	0.3+	0.2−	1998 09 18	704	0.1−	0.2+
1998 08 17	704	0.2+	0.6+	1998 09 14	704	0.2−	0.7−	1998 09 18	704	0.7+	0.7+
1998 08 17	704	0.6+	1.4−	1998 09 14	704	0.4−	0.5−				

1998 QP$_{42}$ = 1991 TR$_{2}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	10.06647		(2000.0)		**P**	**Q**	
n	0.27617388	ω	0.03355		+0.57341508	+0.81778425	
a	2.3353267	Ω	304.95522		−0.75167494	+0.50125440	
e	0.1908288	i	3.44393		−0.32585263	+0.28279487	
P	3.57	H	16.0	G	0.15	U	5

Residuals in seconds of arc

1991 10 07	033	1.0+	0.0	1998 08 23	704	1.8+	0.0	1998 09 15	699	0.8−	0.5+
1991 10 07	033	0.9−	1.0−	1998 08 23	704	(0.3−	2.7−)	1998 09 15	699	0.7+	0.1−
1991 10 08	033	0.4+	0.1−	1998 08 23	704	1.0−	1.1−	1998 09 18	704	0.8−	0.2−
1991 10 09	033	(3.0+	0.2+)	1998 08 23	704	0.5−	0.4+	1998 09 18	704	0.5+	0.4−
1998 08 17	704	0.5+	0.7−	1998 09 14	704	0.8−	1.4+	1998 09 18	704	0.9+	0.0
1998 08 17	704	0.7−	0.8−	1998 09 14	704	0.9+	0.1+	1998 09 18	704	0.2+	1.8+
1998 08 17	704	0.1−	0.2−	1998 09 14	704	0.4−	0.1+	1998 09 18	704	0.5+	0.6+
1998 08 17	704	0.3+	1.0+	1998 09 14	704	0.2−	1.5−	1998 09 30	691	0.8−	0.1+
1998 08 17	704	0.0	0.1−	1998 09 14	704	(1.0−	2.5−)	1998 09 30	691	0.7−	0.1−
1998 08 23	704	0.5+	0.8−	1998 09 15	699	0.2+	1.1+	1998 09 30	691	0.8−	0.0

1998 QW$_{42}$ = 1990 BX$_{4}$ = 1993 TK$_{15}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	115.18706		(2000.0)		**P**	**Q**	
n	0.17809284	ω	3.79704		−0.86792479	+0.49655467	
a	3.1287563	Ω	205.98580		−0.45641780	−0.80671478	
e	0.1115103	i	1.54758		−0.19593201	−0.32038217	
P	5.53	H	13.0	G	0.15	U	4

Residuals in seconds of arc

1990 01 24	033	1.0+	0.5+	1998 08 17	704	0.3−	0.1−	1998 09 14	704	0.7−	0.2+
1990 01 25	033	0.8−	0.4+	1998 08 17	704	0.0	1.2−	1998 09 14	704	0.0	1.0+
1993 10 09	809	1.5+	0.3−	1998 08 17	704	0.1+	1.2−	1998 09 14	704	0.3−	1.1+
1993 10 09	809	1.9+	0.7+	1998 08 17	704	0.9−	0.9−	1998 09 18	704	0.7−	1.2+
1993 10 09	809	1.0+	0.4+	1998 08 17	704	0.7−	0.8+	1998 09 18	704	0.7+	1.1+
1993 10 11	809	1.0+	0.3+	1998 08 23	704	0.7+	0.9−	1998 09 18	699	0.9+	0.2+
1993 10 11	809	1.1−	0.8−	1998 08 23	704	0.9−	0.1+	1998 09 18	704	0.4+	1.2+
1993 10 11	809	0.8−	0.2+	1998 08 23	704	0.0	0.2+	1998 09 18	704	(1.7−	2.2+)
1993 10 20	809	1.3−	1.0−	1998 08 23	704	1.0+	0.9−	1998 09 18	699	0.1+	0.1−
1993 10 20	809	1.0−	0.7−	1998 08 23	704	(0.7−	2.0−)	1998 09 18	699	0.3+	0.6+
1993 10 20	809	0.6−	0.5−	1998 09 14	704	0.5−	0.4−				

1998 QB$_{43}$ = 1996 FS$_{15}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	249.94124		(2000.0)		**P**	**Q**	
n	0.21693974	ω	249.31449		−0.29940397	−0.95047225	
a	2.7431105	Ω	218.42359		+0.91773254	−0.26296203	
e	0.2387160	i	7.71458		+0.26100621	−0.16569090	
P	4.54	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1996 03 22	809	1.1−	0.1+	1998 08 19	704	0.1+	0.8−	1998 09 14	704	0.1+	0.3+
1996 03 22	809	0.2−	0.0	1998 08 23	704	1.3+	1.6+	1998 09 16	699	0.0	0.2−
1996 03 22	809	1.0−	0.4−	1998 08 23	704	0.1+	0.2+	1998 09 16	699	0.1−	0.6+
1996 03 26	809	(1.4+	2.5+)	1998 08 23	704	0.6−	0.9−	1998 09 16	699	0.3+	0.2−
1996 03 26	809	1.4+	0.6+	1998 08 23	704	0.8+	0.2+	1998 09 18	704	0.8−	1.8+
1996 03 26	809	1.0+	0.0	1998 09 14	704	0.0	0.3−	1998 09 18	704	0.6−	1.6−
1998 08 19	704	0.3+	0.2+	1998 09 14	704	1.0+	0.0	1998 09 18	704	0.4−	0.6−
1998 08 19	704	1.3−	1.6−	1998 09 14	704	0.1−	0.7−	1998 09 18	704	0.2−	0.4+
1998 08 19	704	(0.8+	2.4−)	1998 09 14	704	0.4+	0.4+	1998 09 18	704	0.3−	1.3+

1998 QG$_{43}$ = 1990 BO$_{1}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	287.41522		(2000.0)		**P**	**Q**	
n	0.18177976	ω	256.14826		+0.70089973	−0.70504004	
a	3.0863063	Ω	148.46699		+0.70776357	+0.66872711	
e	0.0069853	i	11.91456		+0.08837589	+0.23605632	
P	5.42	H	13.0	G	0.15	U	4

Residuals in seconds of arc

1990 01 21	402	0.0	0.1+	1998 08 17	704	0.1+	0.2−	1998 09 14	704	0.5−	0.4+
1990 01 21	402	0.2−	1.1+	1998 08 17	704	0.8+	0.4−	1998 09 14	704	0.2−	0.2+
1990 02 01	402	0.5+	0.2−	1998 08 23	704	0.9−	0.1+	1998 09 16	699	1.2−	0.8+
1990 02 01	402	1.0+	0.6−	1998 08 23	704	1.2+	1.6−	1998 09 16	699	0.0	0.3+
1990 02 02	402	(2.5−	0.1−)	1998 08 23	704	0.0	0.9−	1998 09 16	699	0.1+	0.2+
1990 02 02	402	1.3−	0.4−	1998 08 23	704	0.1−	0.6+	1998 09 18	704	0.4+	0.1+
1998 08 01	699	0.8+	0.6+	1998 08 23	704	0.2+	0.1+	1998 09 18	704	0.6−	0.3+
1998 08 01	699	0.2+	1.2+	1998 08 30	699	0.3+	0.3−	1998 09 18	704	0.2−	0.4−
1998 08 01	699	0.3−	1.1+	1998 08 30	699	0.5+	0.1+	1998 09 18	704	0.3−	0.5−
1998 08 17	704	0.6+	0.2−	1998 08 30	699	0.2−	0.0	1998 09 18	704	0.2+	1.1−
1998 08 17	704	1.1−	0.6−	1998 09 14	704	0.4+	0.2+				
1998 08 17	704	0.8+	0.9−	1998 09 14	704	1.2−	0.8+				

1998 QP$_{43}$ = 1993 TF$_{22}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	231.62019		(2000.0)		**P**	**Q**	
n	0.17556807	ω	110.82766		−0.30662573	−0.95169925	
a	3.1586804	Ω	356.89605		+0.72834924	−0.22392351	
e	0.1016288	i	16.94995		+0.61277079	−0.21006380	
P	5.61	H	13.0	G	0.15	U	5

Residuals in seconds of arc

1993 10 13	675	0.2−	0.2−	1998 08 23	704	1.4+	0.8−	1998 09 14	704	0.6−	0.8−
1993 10 13	675	0.0	0.3+	1998 08 23	704	1.1+	0.5+	1998 09 18	704	0.1+	0.8+
1993 10 15	675	0.2+	0.2−	1998 08 23	704	0.9−	0.3−	1998 09 18	704	0.2+	0.2+
1998 08 17	704	0.7−	0.5−	1998 08 23	704	0.8−	1.2−	1998 09 18	704	1.0+	0.8+
1998 08 17	704	0.8−	1.2+	1998 08 23	704	1.5+	0.1+	1998 09 18	704	0.1−	1.5+
1998 08 17	704	0.0	0.2−	1998 09 14	704	0.8+	0.1−	1998 09 18	704	2.3−	1.0+
1998 08 17	704	0.0	1.2+	1998 09 14	704	0.3−	1.8−				
1998 08 17	704	0.8−	0.1+	1998 09 14	704	1.3+	1.6−				

1998 QR$_{43}$ = 1995 UE$_{13}$ = 1997 EJ$_{23}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	40.51522		(2000.0)			
n	0.30125323	ω	249.86797		−0.00547367	+0.99955465
a	2.2038477	Ω	19.88659		−0.88224769	+0.00898287
e	0.1168814	i	4.94728		−0.47075370	−0.02845724
P	3.27	H	15.0	G	0.15	U 3

Residuals in seconds of arc

1995 10 17	691	0.2−	0.2+	1997 03 11	327	0.2+	0.2−	1998 08 23	704	0.5−	1.7+
1995 10 17	691	0.2−	0.2+	1997 03 11	327	0.3−	0.1−	1998 09 14	704	0.1−	0.1+
1995 10 17	691	0.0	0.1+	1998 08 17	704	0.5+	0.2+	1998 09 14	704	0.7+	0.9−
1995 10 28	691	0.5+	0.1+	1998 08 17	704	0.1−	0.2+	1998 09 14	704	0.4+	0.0
1995 10 28	691	0.2−	0.1+	1998 08 17	704	1.4−	1.0−	1998 09 14	704	0.4+	0.5−
1995 10 28	691	0.2−	0.0	1998 08 17	704	3.0−	0.4−	1998 09 14	704	1.2+	0.7−
1997 03 08	327	0.5+	0.1+	1998 08 17	704	0.1−	0.2−	1998 09 18	704	1.1−	0.8+
1997 03 08	327	0.2−	0.2+	1998 08 23	704	0.4−	1.0+	1998 09 18	704	0.4+	0.3−
1997 03 08	327	0.6+	0.1−	1998 08 23	704	1.4+	1.1+	1998 09 18	704	1.7+	1.7−
1997 03 11	327	0.3−	0.2−	1998 08 23	704	0.6−	0.1−	1998 09 18	704	0.7−	0.6−
1997 03 11	327	0.8−	0.1−	1998 08 23	704	1.7+	0.1−	1998 09 18	704	0.1+	0.4+

1998 QU$_{43}$ = 1991 PM$_{3}$ = 1997 CR$_{27}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	45.49050		(2000.0)			
n	0.28765013	ω	144.40558		−0.13457418	+0.98505019
a	2.2727919	Ω	117.63985		−0.93492856	−0.09026108
e	0.1471366	i	6.97284		−0.32832662	−0.14672786
P	3.43	H	15.5	G	0.15	U 3

Residuals in seconds of arc

1991 08 02	809	2.1+	0.2+	1997 02 04	327	0.9+	0.3−	1998 08 23	704	0.3−	0.3−
1991 08 02	809	1.3+	0.9+	1997 02 04	327	0.4+	0.2−	1998 08 23	704	0.9−	1.0−
1991 08 02	809	0.9+	0.5+	1997 02 14	327	0.1+	0.7−	1998 08 23	704	0.1−	1.1−
1991 08 07	809	0.2+	1.2+	1997 02 14	327	1.1−	0.2−	1998 08 23	704	0.4+	0.6+
1991 08 07	809	0.2−	1.4+	1997 02 14	327	0.2−	0.3−	1998 09 17	699	0.6−	0.1−
1991 08 07	809	0.6+	0.8+	1998 08 17	704	0.1+	0.2−	1998 09 17	699	0.5−	0.8+
1991 08 14	809	0.6−	1.5−	1998 08 17	704	1.4+	0.7−	1998 09 17	699	0.1+	0.6+
1991 08 14	809	2.8−	2.1−	1998 08 17	704	0.9+	1.7−	1998 09 22	699	0.1−	1.1+
1991 08 14	809	1.7−	1.6−	1998 08 17	704	0.8+	0.2+	1998 09 22	699	0.4−	1.0+
1997 02 04	327	0.5−	0.7−	1998 08 17	704	0.1−	0.1+	1998 09 22	699	0.0	0.6−

1998 QB$_{44}$ = 1993 TA$_{13}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	14.88596		(2000.0)			
n	0.18399690	ω	310.53378		+0.63616111	+0.77154962
a	3.0614632	Ω	358.95642		−0.64416634	+0.52884098
e	0.1141924	i	10.10875		−0.42467489	+0.35360769
P	5.36	H	13.0	G	0.15	U 4

Residuals in seconds of arc

1993 10 13	675	0.3+	0.2−	1998 08 23	704	0.3+	1.3+	1998 09 14	704	0.1−	0.3+
1993 10 13	675	0.2+	0.1−	1998 08 23	704	0.5+	0.7+	1998 09 16	699	0.1+	0.3+
1993 10 15	675	0.4−	0.3+	1998 08 23	704	(0.5+	2.2+)	1998 09 16	699	0.4−	0.2+
1998 08 17	704	0.3−	0.4−	1998 08 30	699	0.2+	0.2+	1998 09 16	699	0.5−	0.6−
1998 08 17	704	0.2−	0.5−	1998 08 30	699	0.2+	0.1−	1998 09 18	704	0.1+	0.1+
1998 08 17	704	0.1+	1.0−	1998 08 30	699	0.3+	0.1−	1998 09 18	704	0.1−	1.0−
1998 08 17	704	0.2−	0.2−	1998 09 14	704	0.2−	0.3+	1998 09 18	704	0.1−	0.4−
1998 08 17	704	0.3−	0.6−	1998 09 14	704	0.2+	0.5+	1998 09 18	704	0.2−	0.7−
1998 08 23	704	0.2+	0.6+	1998 09 14	704	(2.7−	0.6+)	1998 09 18	704	0.2−	0.1−
1998 08 23	704	0.6+	1.1+	1998 09 14	704	0.1−	0.2+				

1998 QD$_{44}$ = 1997 GB$_{31}$

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	340.88127		(2000.0)			
n	0.28927458	ω	341.64411		+0.96350725	+0.26765953
a	2.2642751	Ω	2.83779		−0.23592532	+0.85528272
e	0.1655998	i	4.03916		−0.12646354	+0.44367763
P	3.41	H	15.5	G	0.15	U 4

Residuals in seconds of arc

1997 04 12	691	0.1−	0.0	1998 09 13	684	0.3+	0.0	1998 09 18	704	0.8+	0.6+
1997 04 12	691	0.0	0.1−	1998 09 13	684	0.3+	0.0	1998 09 18	699	0.9+	0.4+
1997 04 12	691	0.4+	0.3−	1998 09 14	704	0.4+	0.2−	1998 09 18	691	1.2−	0.0
1997 04 16	691	0.2−	0.3−	1998 09 14	704	0.6+	0.1+	1998 09 18	704	1.7+	0.6−
1997 04 16	691	0.3−	0.1−	1998 09 14	684	0.6+	0.1−	1998 09 18	699	0.8+	0.2+
1997 04 16	691	0.1−	0.1+	1998 09 14	684	0.7+	0.0	1998 09 18	691	1.2−	0.2+
1998 08 17	704	0.0	1.0+	1998 09 14	704	0.1−	0.0	1998 09 18	704	0.8+	0.7−
1998 08 17	704	0.4−	0.9+	1998 09 14	704	0.3−	0.6−	1998 09 18	699	0.4+	0.4+
1998 08 17	704	0.9−	0.7+	1998 09 14	704	0.7+	0.5−	1998 09 24	691	0.9−	0.0
1998 08 17	704	0.3+	0.3−	1998 09 14	699	0.7+	0.0	1998 09 24	691	1.0−	0.0
1998 08 23	704	0.6−	0.3−	1998 09 14	699	0.4+	0.2−	1998 09 24	691	0.9−	0.1+
1998 08 23	704	0.4+	0.7−	1998 09 14	699	0.6+	0.1−	1998 09 30	691	0.6−	0.2−
1998 08 23	704	1.0−	0.9−	1998 09 18	704	0.7+	0.2−	1998 09 30	691	0.4−	0.1+
1998 08 23	704	0.9−	0.3+	1998 09 18	691	1.3−	0.1+	1998 09 30	691	0.7−	0.3+
1998 08 23	704	0.1−	0.4−	1998 09 18	704	0.4+	0.3+				

1998 QE$_{44}$ = 1995 WE$_{9}$ = 1997 EQ$_{4}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	329.82082		(2000.0)			
n	0.31230277	ω	343.29184		+0.99991072	−0.00315527
a	2.1515536	Ω	16.90486		+0.00850806	+0.89962580
e	0.2068468	i	2.55930		−0.01030364	+0.43665027
P	3.16	H	16.5	G	0.15	U 3

Residuals in seconds of arc

1995 11 16	691	0.1−	0.4−	1997 03 09	691	0.6−	0.7−	1998 09 14	704	0.7+	0.2−
1995 11 16	691	0.1−	0.1−	1997 03 09	691	0.3−	0.8−	1998 09 14	704	1.6+	1.1−
1995 11 16	691	0.1+	0.4−	1998 08 17	704	0.4+	0.3−	1998 09 14	704	1.1+	0.7−
1995 11 21	691	0.5+	0.8−	1998 08 17	704	0.5+	0.5−	1998 09 18	704	0.0	0.7−
1995 11 21	691	0.3+	0.2−	1998 08 17	704	1.0+	0.9−	1998 09 18	704	0.6+	0.1−
1995 11 21	691	0.3+	0.1−	1998 08 17	704	0.8+	0.3−	1998 09 18	699	0.7+	0.8+
1997 03 02	691	0.1−	0.7−	1998 08 17	704	0.2+	1.3−	1998 09 18	704	0.1−	0.1−
1997 03 02	691	0.2−	0.7−	1998 08 23	704	0.2−	0.9−	1998 09 18	699	0.8+	0.4+
1997 03 02	691	0.3−	0.5−	1998 08 23	704	1.1−	1.1+	1998 09 18	704	0.6−	0.4+
1997 03 07	691	0.5−	0.9−	1998 08 23	704	1.5−	0.8+	1998 09 18	699	0.8+	0.3+
1997 03 07	691	0.4−	0.8−	1998 08 23	704	0.4+	0.7−	1998 09 30	691	1.6−	0.5−
1997 03 07	691	0.4−	1.0−	1998 08 23	704	0.9−	1.0+	1998 09 30	691	1.6−	0.1+
1997 03 09	691	0.3−	0.3−	1998 09 14	704	1.0+	0.2−	1998 09 30	691	1.5−	0.1+

1998 QH$_{44}$ = 1985 QX$_{5}$ = 1985 SR$_{1}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	**Q**
M	356.51281		(2000.0)			
n	0.30325621	ω	178.22595		+0.77990473	+0.62105819
a	2.1941328	Ω	143.01164		−0.57582878	+0.76061120
e	0.1769693	i	7.41894		−0.24529539	+0.18909608
P	3.25	H	15.5	G	0.15	U 5

Residuals in seconds of arc

1985 08 24	095	1.7+	0.1−	1998 08 23	704	1.2−	0.4+	1998 09 14	704	0.0	0.0
1985 09 19	095	0.2+	1.0−	1998 08 23	704	1.0−	0.1+	1998 09 18	704	0.6+	0.5−
1985 09 20	095	2.2−	1.9+	1998 08 23	704	1.4−	0.6+	1998 09 18	704	1.0+	0.3−
1998 08 17	704	0.0	0.6−	1998 08 23	704	1.1+	0.2−	1998 09 18	704	0.4+	0.2−
1998 08 17	704	0.3+	0.3−	1998 08 23	704	1.3−	0.8+	1998 09 18	704	0.4+	0.5−
1998 08 17	704	0.5+	0.2+	1998 09 14	704	0.0	0.6+	1998 09 18	704	0.6−	0.5+
1998 08 17	704	0.2−	0.3−	1998 09 14	704	0.0	0.5−				
1998 08 17	704	0.9+	0.2−	1998 09 14	704	0.7+	0.6−				

1998 QK$_{44}$ = 1993 FP$_{45}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	332.36768		(2000.0)	**P**		**Q**	
n	0.26182080	ω	306.45720	+0.99958801		−0.00884453	
a	2.4199141	Ω	54.06524	+0.01940136		+0.90929077	
e	0.1878694	i	1.93258	−0.02115184		+0.41606738	
P	3.76	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1993 03 19	809	0.1−	0.6+	1998 08 23	704	0.2−	0.2+	1998 09 18	704	0.1+	0.9−
1993 03 20	809	0.5−	0.4+	1998 08 23	704	0.7−	1.2+	1998 09 18	699	0.4+	0.1−
1993 03 24	809	0.5+	1.2−	1998 08 23	704	0.2+	0.2−	1998 09 18	704	0.7−	0.6+
1998 08 17	704	0.2+	0.2−	1998 08 23	704	1.0−	0.6+	1998 09 18	704	0.0	0.2−
1998 08 17	704	0.1+	0.7−	1998 09 14	704	0.3+	0.5−	1998 09 18	699	0.9+	0.0
1998 08 17	704	0.5+	0.7−	1998 09 14	704	1.0+	0.6−	1998 09 18	704	0.7−	0.3+
1998 08 17	704	0.1−	0.1−	1998 09 14	704	0.1−	0.0	1998 09 18	699	0.3+	0.1+
1998 08 17	704	0.2+	0.4−	1998 09 14	704	0.8−	0.5+				
1998 08 23	704	0.6+	1.2+	1998 09 18	704	0.4−	0.2−				

1998 QM$_{44}$ = 1997 EX$_{2}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	85.27902		(2000.0)	**P**		**Q**	
n	0.27656382	ω	98.13527	−0.59564464		+0.80159350	
a	2.3331311	Ω	135.17286	−0.76275228		−0.54433789	
e	0.0701271	i	4.19177	−0.25182617		−0.24727338	
P	3.56	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1997 03 04	411	0.7+	0.8−	1998 08 17	704	1.1−	0.7−	1998 08 30	699	0.5+	0.1−
1997 03 04	411	0.2−	0.9−	1998 08 17	704	0.2−	1.3+	1998 09 14	704	0.7−	1.2+
1997 03 05	411	0.3−	0.2+	1998 08 23	704	0.4−	0.1−	1998 09 14	704	(2.3−	0.8−)
1997 03 05	411	0.5−	0.7+	1998 08 23	704	0.4−	0.1+	1998 09 14	704	0.9+	1.2−
1997 03 09	411	0.0	0.2+	1998 08 23	704	0.7−	0.1+	1998 09 14	704	0.4+	0.3−
1997 03 09	411	0.4+	0.7+	1998 08 23	704	0.6+	1.8+	1998 09 18	704	0.9−	1.0+
1998 08 17	704	0.5+	1.1−	1998 08 30	699	1.1+	0.2−	1998 09 18	704	0.2−	0.4+
1998 08 17	704	0.2+	1.2−	1998 08 30	699	0.3+	0.1+	1998 09 18	704	0.2+	1.1−

1998 QQ$_{44}$ = 1993 TM$_{36}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	312.07347		(2000.0)	**P**		**Q**	
n	0.18373510	ω	240.96981	+0.85502947		−0.51741716	
a	3.0643706	Ω	150.15000	+0.49673630		+0.79796344	
e	0.1364573	i	3.99769	+0.14892165		+0.30908548	
P	5.36	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1993 10 11	809	0.6+	0.3+	1998 08 17	704	0.7−	1.9+	1998 09 14	704	0.4−	0.2−
1993 10 11	809	0.8+	0.2+	1998 08 23	704	0.4+	1.2+	1998 09 14	704	0.7+	0.6−
1993 10 11	809	0.3+	0.5+	1998 08 23	704	1.3−	1.2−	1998 09 18	704	0.5+	0.2+
1993 10 20	809	0.0	0.5−	1998 08 23	704	0.5−	1.6+	1998 09 18	704	0.3−	1.1+
1993 10 20	809	0.4−	0.7−	1998 09 13	699	0.3+	1.1−	1998 09 18	704	0.9+	1.0+
1993 10 20	809	1.4−	0.1+	1998 09 13	699	1.1+	0.1+	1998 09 18	704	(2.5+	0.8+)
1998 08 17	704	0.2−	1.5−	1998 09 13	699	0.9+	0.7+	1998 09 18	704	1.0+	0.3−
1998 08 17	704	0.1−	0.2+	1998 09 14	704	0.7+	1.7−	1998 09 30	691	0.9−	0.2−
1998 08 17	704	1.3+	1.2−	1998 09 14	704	0.6+	0.5−	1998 09 30	691	0.9−	0.6+
1998 08 17	704	1.9−	0.2−	1998 09 14	704	0.7−	0.5−	1998 09 30	691	0.7−	0.7+

1998 QS$_{44}$ = 1984 QG = 1996 BQ$_{7}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	116.23797		(2000.0)	**P**		**Q**	
n	0.21402120	ω	239.75079	−0.86715011		+0.49510905	
a	2.7679921	Ω	329.82948	−0.41200776		−0.77405034	
e	0.0751538	i	6.16997	−0.27982189		−0.39460500	
P	4.61	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1984 08 21	046	0.2−	2.4−	1998 08 17	704	0.8+	0.2+	1998 09 14	704	0.0	0.6−
1984 08 21	046	2.5+	2.1−	1998 08 17	704	0.8−	0.5−	1998 09 14	704	0.7+	0.4−
1996 01 19	691	0.2−	0.2−	1998 08 17	704	1.4−	1.1+	1998 09 14	704	0.8+	1.1−
1996 01 19	691	0.1−	0.3−	1998 08 17	704	0.7−	0.8+	1998 09 14	704	0.0	1.0−
1996 01 19	691	0.4+	0.4−	1998 08 23	704	0.5−	0.5+	1998 09 18	704	0.2−	0.2−
1996 01 25	691	0.3−	0.2−	1998 08 23	704	0.2+	0.2−	1998 09 18	704	0.0	0.1−
1996 01 25	691	0.3−	0.3−	1998 08 23	704	1.1−	0.1−	1998 09 18	704	0.1−	0.1+
1996 01 25	691	0.2−	0.2−	1998 08 23	704	1.6+	1.6+	1998 09 18	704	0.6−	0.3+
1998 08 17	704	0.2−	0.9+	1998 08 23	704	0.6−	1.2+	1998 09 18	704	0.2+	0.6+

1998 QD$_{45}$ = 1991 RV$_{29}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	303.06716		(2000.0)	**P**		**Q**	
n	0.27561966	ω	112.95642	+0.79854412		−0.59436652	
a	2.3384563	Ω	283.64096	+0.51016747		+0.75219366	
e	0.1268607	i	5.61962	+0.31946273		+0.28448749	
P	3.58	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1991 09 12	675	0.0	0.4+	1998 08 17	704	0.0	0.7+	1998 09 14	704	1.1+	0.9−
1991 09 12	675	0.2−	0.1+	1998 08 23	704	0.2−	0.1+	1998 09 14	704	1.7+	0.7−
1991 09 16	675	0.0	0.4−	1998 08 23	704	0.3−	0.6+	1998 09 14	704	0.2+	0.7−
1991 09 16	675	0.0	0.3+	1998 08 23	704	0.5−	0.3+	1998 09 18	704	0.2−	0.4−
1998 08 17	704	0.0	0.9−	1998 08 23	704	0.8−	0.4+	1998 09 18	704	0.7−	0.1+
1998 08 17	704	0.2−	0.8−	1998 08 23	704	0.4−	0.7+	1998 09 18	704	0.7−	0.1+
1998 08 17	704	0.1−	0.1−	1998 09 14	704	0.3−	0.1−	1998 09 18	704	0.4+	0.6+
1998 08 17	704	0.8+	0.1−	1998 09 14	704	0.3+	0.3+	1998 09 18	704	0.3−	0.3+

1998 QJ$_{45}$ = 4373 T-3

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	313.51361		(2000.0)	**P**		**Q**	
n	0.23252964	ω	214.93187	+0.83397793		−0.55176424	
a	2.6190905	Ω	178.51546	+0.54449408		+0.82110091	
e	0.1964690	i	13.58419	+0.08948187		+0.14611471	
P	4.24	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1977 10 16	675	1.6−	0.0	1998 08 17	704	0.4+	1.3+	1998 09 14	704	0.5−	0.9−
1977 10 16	675	1.4−	1.1+	1998 08 17	704	0.6+	0.2+	1998 09 14	704	0.2−	0.9−
1977 10 17	675	0.8−	0.0	1998 08 17	704	0.3+	0.3+	1998 09 15	699	0.2−	0.2−
1977 10 17	675	1.1−	0.7+	1998 08 17	704	1.4+	0.5+	1998 09 15	699	0.4−	0.0
1977 10 21	675	0.3+	0.1+	1998 08 17	704	0.7+	1.2+	1998 09 15	699	0.1−	0.4−
1977 10 21	675	(2.1+	2.8−)	1998 08 23	704	0.8−	0.9+	1998 09 18	704	0.1−	0.4−
1977 10 21	675	0.5+	0.1+	1998 08 23	704	0.2+	0.9+	1998 09 18	704	0.9−	0.0
1977 10 21	675	1.6+	1.0−	1998 08 23	704	0.1+	0.8−	1998 09 18	704	0.2+	0.5−
1977 10 22	675	0.9−	1.9+	1998 08 23	704	0.5+	0.9−	1998 09 18	704	0.3−	0.4+
1977 10 22	675	2.4+	1.4−	1998 08 23	704	0.4+	0.0	1998 09 18	704	0.2−	0.5+
1977 10 22	675	0.3+	0.2−	1998 09 14	704	0.1+	1.0−				
1977 10 22	675	0.6+	0.4−	1998 09 14	704	0.7−	0.5−				

1998 QQ$_{45}$ = 1979 FQ$_1$ = 1987 SW$_{23}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	189.09663		(2000.0)	**P**		**Q**	
n	0.17802133	ω	188.75493	−0.89011717		−0.43474465	
a	3.1295942	Ω	324.44662	+0.43106925		−0.70583245	
e	0.0773889	i	13.59797	+0.14788754		−0.55928315	
P	5.54	H	12.5	G	0.15	U	4

Residuals in seconds of arc

1979 03 23	095	0.4−	0.4−	1998 08 23	704	1.2−	0.6−	1998 09 18	704	0.3+	0.7+
1979 03 29	095	0.4+	0.4+	1998 08 23	704	1.9−	0.0	1998 09 18	704	0.8+	0.1−
1987 09 23	095	(39.2+	23.3+)	1998 08 23	704	(3.1−	1.0−)	1998 09 18	704	0.0	0.2+
1998 08 17	704	0.5+	0.2+	1998 09 14	704	0.3−	0.8−	1998 09 18	704	0.8+	0.3+
1998 08 17	704	0.1−	0.3−	1998 09 14	704	0.9−	0.6+	1998 09 18	704	1.1−	0.0
1998 08 17	704	0.5+	0.6−	1998 09 14	704	1.9+	0.1+	1998 09 25	699	0.1+	0.2+
1998 08 17	704	0.4−	0.4−	1998 09 14	704	0.8+	0.3+	1998 09 25	699	0.3−	0.2−
1998 08 17	704	1.1−	0.2−	1998 09 16	699	0.2+	0.1+	1998 09 25	699	0.2−	0.1−
1998 08 23	704	1.1+	1.5−	1998 09 16	699	0.4+	0.4+				
1998 08 23	704	0.3−	1.3+	1998 09 16	699	0.1+	0.1+				

1998 QU$_{45}$ = 1991 GB$_4$ = 1997 EZ$_{40}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	20.63946		(2000.0)	**P**		**Q**	
n	0.31169403	ω	97.70074	+0.45100068		+0.89204056	
a	2.1543540	Ω	199.19078	−0.85004593		+0.41927630	
e	0.1146969	i	5.12438	−0.27206673		+0.16873356	
P	3.16	H	15.0	G	0.15	U	3

Residuals in seconds of arc

1991 04 08	809	0.1+	0.9−	1997 03 12	704	0.4−	0.9+	1998 09 14	704	0.5+	0.3−
1991 04 08	809	0.2+	0.3−	1998 08 17	704	0.6+	0.1+	1998 09 14	704	0.1+	0.4+
1991 04 08	809	0.4+	1.1−	1998 08 17	704	0.2+	0.2+	1998 09 14	704	0.1−	0.1+
1991 04 10	809	0.3−	0.8+	1998 08 17	704	1.1+	0.5−	1998 09 14	704	0.6−	0.3−
1991 04 10	809	0.4+	0.5+	1998 08 17	704	0.5+	0.5−	1998 09 18	704	0.4−	0.0
1991 04 10	809	0.7−	1.0+	1998 08 17	704	0.4+	1.1+	1998 09 18	704	0.5−	0.2−
1997 03 10	704	(1.4+	6.0−)	1998 08 23	704	0.2−	0.7+	1998 09 18	704	0.2+	0.9−
1997 03 10	704	0.7+	0.1+	1998 08 23	704	0.4+	0.4+	1998 09 18	704	0.5−	0.0
1997 03 11	704	0.0	0.2−	1998 08 23	704	1.1−	0.1+	1998 09 18	704	0.8−	0.1+
1997 03 11	704	0.3−	0.7+	1998 08 23	704	1.0+	0.6+				
1997 03 12	704	0.5+	0.0	1998 08 23	704	1.1−	0.2+				

1998 QW$_{45}$ = 1977 HE$_1$ = 1994 JC$_3$ = 1997 ED$_{44}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	60.13486		(2000.0)	**P**		**Q**	
n	0.29044748	ω	20.41530	−0.29032104		+0.95633256	
a	2.2581752	Ω	232.72251	−0.88375238		−0.28149532	
e	0.1258620	i	2.43377	−0.36700874		−0.07866654	
P	3.39	H	15.5	G	0.15	U	1

Residuals in seconds of arc

1977 04 24	675	0.5−	0.2−	1997 03 12	704	0.1+	0.5−	1998 09 14	704	0.1−	0.2+
1977 04 25	675	0.5+	0.2+	1998 08 17	704	0.2−	0.6+	1998 09 14	704	0.2−	0.6−
1994 05 03	691	0.1−	0.6−	1998 08 17	704	0.4−	0.6−	1998 09 14	704	0.5+	0.6−
1994 05 03	691	0.2−	0.1+	1998 08 17	704	0.3+	0.6−	1998 09 14	704	0.1−	0.3−
1994 05 03	691	0.2−	0.1−	1998 08 17	704	0.5+	1.3−	1998 09 18	704	0.4+	0.4−
1994 05 10	691	0.0	0.0	1998 08 17	704	0.7−	0.2+	1998 09 18	704	0.2−	0.7−
1994 05 10	691	0.1+	0.2+	1998 08 23	704	2.0−	0.7−	1998 09 18	704	0.8−	0.2+
1994 05 10	691	0.3+	0.2+	1998 08 23	704	1.2+	1.4+	1998 09 18	704	0.3−	0.7+
1997 03 11	704	0.2−	0.3−	1998 08 23	704	0.9−	0.2+	1998 09 18	704	1.9+	0.5−
1997 03 11	704	0.1+	1.5+	1998 08 23	704	0.2+	1.9+				
1997 03 12	704	0.2+	0.0	1998 08 23	704	0.6+	1.2+				

1998 QB$_{46}$ = 1977 RK$_{15}$

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Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	72.62785		(2000.0)	**P**		**Q**	
n	0.23340101	ω	277.79205	−0.45653060		+0.88897698	
a	2.6125677	Ω	324.97216	−0.78953751		−0.42347738	
e	0.1348497	i	3.60118	−0.41013453		−0.17431821	
P	4.22	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1977 09 09	675	0.8−	0.4+	1998 08 23	704	0.6+	0.1+	1998 09 14	704	1.9+	1.3−
1977 09 10	675	0.7+	0.2−	1998 08 23	704	1.1+	1.6−	1998 09 14	704	0.1+	0.0
1998 08 17	704	0.2−	0.1+	1998 08 23	704	1.2+	0.9+	1998 09 14	704	0.8−	0.8−
1998 08 17	704	1.8−	1.0−	1998 09 01	691	0.9+	0.2+	1998 09 18	704	1.1−	0.2+
1998 08 17	704	1.1−	0.7+	1998 09 01	691	0.1−	0.1+	1998 09 18	704	0.4+	0.4−
1998 08 17	704	1.0−	1.1+	1998 09 01	691	0.0	0.1+	1998 09 18	704	2.5−	1.7+
1998 08 23	704	0.0	0.7−	1998 09 14	704	0.2+	0.6+				
1998 08 23	704	1.8+	1.0+	1998 09 14	704	0.3+	1.2−				

1998 QN$_{46}$ = 1976 SW$_7$ = 1980 WC$_1$ = 1987 SW$_{11}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	334.97293		(2000.0)	**P**		**Q**	
n	0.26798857	ω	190.70490	+0.99895951		+0.04420140	
a	2.3826406	Ω	166.74621	−0.03738185		+0.93466714	
e	0.1805192	i	2.80779	−0.02612449		+0.35276560	
P	3.68	H	15.0	G	0.15	U	3

Residuals in seconds of arc

1976 09 25	095	0.4−	0.1+	1987 09 26	809	0.8−	0.2−	1998 09 18	699	0.6−	0.3−
1976 09 28	095	1.0+	1.2−	1987 09 26	809	0.7−	0.1−	1998 09 18	699	0.7−	0.4−
1980 11 30	095	0.1+	0.5−	1998 08 17	704	0.8−	0.6−	1998 09 18	704	0.1+	0.5−
1987 09 16	809	1.0−	0.7+	1998 08 17	704	0.8+	1.0−	1998 09 18	699	0.2−	0.4−
1987 09 16	809	0.6−	0.7+	1998 08 17	704	0.5+	0.5−	1998 09 18	704	0.3+	0.1+
1987 09 16	809	0.6−	0.7+	1998 08 17	704	0.6+	1.1−	1998 09 18	704	0.1−	0.0
1987 09 17	809	(2.6−	0.5+)	1998 08 17	704	0.6+	0.3+	1998 09 18	704	0.5+	0.4+
1987 09 17	809	2.2−	0.5+	1998 08 23	704	0.8−	0.0	1998 09 18	704	0.4−	0.3−
1987 09 17	809	2.1−	0.6+	1998 08 23	704	0.5−	1.4+	1998 09 26	327	0.3+	0.8−
1987 09 18	809	2.1+	1.7+	1998 08 23	704	0.3−	1.5+	1998 09 26	327	0.6+	0.3−
1987 09 18	809	1.8+	1.6+	1998 08 23	704	(0.4+	2.8−)	1998 09 26	327	0.8+	1.2−
1987 09 18	809	2.1+	1.6+	1998 08 23	704	0.1−	0.6−	1998 09 29	327	0.6+	0.1−
1987 09 23	809	(7.3+	6.2+)	1998 09 14	704	0.0	0.1−	1998 09 29	327	0.3+	0.2−
1987 09 23	809	(7.7+	6.1+)	1998 09 14	704	0.4+	0.7−	1998 09 29	327	0.5+	0.0
1987 09 23	809	(7.7+	6.2+)	1998 09 14	704	0.3+	0.8−				
1987 09 26	809	1.3−	0.0	1998 09 14	704	0.2+	0.7−				

1998 QA$_{47}$ = 1987 SC$_3$ = 1992 OH$_8$ = 1993 TG$_{46}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	27.11537		(2000.0)	**P**		**Q**	
n	0.17542005	ω	172.91670	+0.40442276		+0.90947680	
a	3.1604571	Ω	120.89630	−0.84451807		+0.41182478	
e	0.1380901	i	6.45074	−0.35104338		+0.05702898	
P	5.62	H	13.0	G	0.15	U	2

Residuals in seconds of arc

1987 09 21	071	(6.1+	0.7+)	1992 07 23	809	0.1+	0.2+	1998 08 23	704	1.8−	0.1−
1987 09 21	071	(7.7+	0.9−)	1992 07 23	809	0.8+	0.1+	1998 08 23	704	1.0−	0.1−
1987 09 22	071	1.1−	3.0+	1993 10 10	809	0.2+	1.0+	1998 08 23	704	1.3−	0.4−
1987 09 23	071	0.0	1.4+	1993 10 10	809	0.2−	1.1+	1998 09 14	704	0.7+	0.7−
1987 09 23	071	0.3−	2.4+	1993 10 10	809	0.3+	1.0+	1998 09 14	704	0.4+	0.3−
1987 09 23	071	1.6+	2.7−	1993 10 20	809	0.2−	0.6−	1998 09 14	704	1.4+	0.5−
1987 09 24	095	1.7+	3.4−	1993 10 20	809	0.1−	0.3−	1998 09 14	704	0.3+	0.4−
1987 09 24	071	1.6−	0.2+	1993 10 20	809	0.6−	0.7−	1998 09 18	704	0.5+	1.0−
1987 09 25	071	0.6−	0.0	1998 08 17	704	0.3+	1.7+	1998 09 18	704	0.9+	0.8−
1987 09 27	095	(5.1+	0.0)	1998 08 17	704	0.2−	2.0+	1998 09 18	704	0.4+	1.9−
1992 07 22	809	0.5−	0.1+	1998 08 17	704	0.1−	1.9+	1998 09 18	704	0.8+	1.0−
1992 07 22	809	0.2−	0.2+	1998 08 17	704	1.7+	0.8+	1998 09 18	704	1.1−	0.9−

1992 07 22	809	0.1−	0.2+	1998 08 23	704	0.3−	0.1+
1992 07 23	809	0.1−	0.1+	1998 08 23	704	1.5−	0.2+

1998 QO$_{47}$ = 9552 P-L

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	331.38060		(2000.0)		**P**		**Q**
n	0.18190736	ω	215.57753		+0.92480794		−0.37962527
a	3.0848629	Ω	166.66561		+0.36917382		+0.87978438
e	0.3398303	i	6.17237		+0.09187472		+0.28611904
P	5.42	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1960 10 17	675	0.6−	0.3+	1998 08 23	704	1.1−	0.8+	1998 09 18	699	0.3−	0.1−
1960 10 22	675	0.3+	0.4−	1998 08 23	704	0.2−	0.2−	1998 09 18	699	0.1−	0.6−
1960 10 24	675	1.3−	0.2+	1998 08 23	704	0.1−	0.4+	1998 09 18	704	0.7+	0.5−
1960 10 26	675	1.6+	0.1−	1998 08 30	691	0.1+	0.4+	1998 09 18	699	0.1+	0.9−
1998 08 17	704	1.0+	0.0	1998 08 30	691	0.1+	0.0	1998 09 18	704	0.2+	0.5+
1998 08 17	704	0.7+	0.7−	1998 08 30	691	0.3+	0.5+	1998 09 18	704	0.3+	1.4+
1998 08 17	704	0.2+	0.8−	1998 09 14	704	0.0	0.1+	1998 09 18	704	1.0+	0.5+
1998 08 17	704	0.6+	0.4−	1998 09 14	704	0.1+	0.2+	1998 09 18	704	0.8−	0.6+
1998 08 17	704	0.3−	1.9+	1998 09 14	704	0.3+	0.1−				
1998 08 23	704	1.1−	1.4−	1998 09 14	704	1.5−	1.4−				

1998 QV$_{47}$ = 1993 TG$_{28}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	15.92272		(2000.0)		**P**		**Q**
n	0.18455383	ω	132.64580		+0.64622288		+0.76313008
a	3.0553010	Ω	177.59284		−0.73207694		+0.62187137
e	0.1555292	i	7.29861		−0.21554429		+0.17580809
P	5.34	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1993 10 09	809	0.2+	0.1−	1998 08 17	704	0.5+	2.3−	1998 09 14	704	0.6+	0.0
1993 10 09	809	0.2+	0.3+	1998 08 17	704	1.1−	0.0	1998 09 14	704	1.2−	0.0
1993 10 09	809	1.2−	0.1−	1998 08 17	704	0.6+	2.2+	1998 09 14	704	0.6−	0.2+
1993 10 11	809	0.1−	1.2−	1998 08 23	704	1.6+	0.1+	1998 09 18	704	0.6+	0.7−
1993 10 11	809	1.3+	0.7+	1998 08 23	704	0.7−	0.5+	1998 09 18	704	0.4−	0.8+
1993 10 11	809	0.5−	0.4+	1998 08 23	704	1.4+	1.7−	1998 09 18	704	1.3−	0.1+
1998 08 17	704	1.6−	0.4+	1998 08 23	704	1.2−	1.0+	1998 09 18	704	0.6+	0.6−
1998 08 17	704	0.9+	0.1−	1998 09 14	704	0.2+	0.9−	1998 09 18	704	1.2+	1.0+

1998 QW$_{47}$ = 1994 NP$_{12}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	339.26868		(2000.0)		**P**		**Q**
n	0.26864156	ω	61.94890		+0.99054502		+0.13216158
a	2.3787780	Ω	290.43693		−0.13557031		+0.90193110
e	0.1525743	i	2.25040		−0.02100615		+0.41116130
P	3.67	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1994 07 08	809	0.3−	0.2+	1998 08 17	704	0.5+	0.1+	1998 09 14	704	0.2+	0.7+
1994 07 08	809	1.0+	0.0	1998 08 17	704	0.5−	0.3+	1998 09 14	704	1.0−	0.7+
1994 07 08	809	1.9+	0.1−	1998 08 23	704	0.0	0.4−	1998 09 18	704	0.3+	0.1+
1994 07 09	809	1.6−	0.1+	1998 08 23	704	1.3−	1.3+	1998 09 18	704	0.4−	0.0
1994 07 09	809	0.7−	0.0	1998 08 23	704	0.7−	1.2−	1998 09 18	704	0.4−	0.6−
1994 07 09	809	0.2−	0.2−	1998 08 23	704	0.7+	0.1+	1998 09 18	704	0.4+	0.2−
1998 08 17	704	0.1+	0.2−	1998 08 23	704	0.1−	2.1+	1998 09 18	704	0.7+	0.3−
1998 08 17	704	1.0+	0.9−	1998 09 14	704	0.1+	0.3−				
1998 08 17	704	0.2+	1.2−	1998 09 14	704	0.1+	0.3−				

1998 QY$_{47}$ = 1997 GE$_{35}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	270.65214		(2000.0)		**P**		**Q**
n	0.27894556	ω	248.68566		+0.38886513		−0.92128975
a	2.3198313	Ω	178.42084		+0.88065224		+0.37074639
e	0.0712283	i	6.28671		+0.27062066		+0.11735546
P	3.53	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1997 04 06	704	0.7+	0.5−	1998 08 17	704	2.9−	0.2−	1998 09 14	704	0.0	0.2+
1997 04 06	704	0.0	0.4+	1998 08 23	704	0.8+	1.1+	1998 09 14	704	0.6−	0.8−
1997 04 11	704	0.2+	0.8+	1998 08 23	704	1.0−	1.8+	1998 09 18	704	0.4+	0.7−
1997 04 11	704	0.8−	0.7−	1998 08 23	704	2.0−	0.3+	1998 09 18	704	0.7+	1.9+
1998 08 17	704	0.6+	0.4+	1998 08 23	704	1.0+	0.3−	1998 09 18	704	0.6+	0.1+
1998 08 17	704	1.3+	0.9−	1998 08 23	704	0.7−	0.3+	1998 09 18	704	0.0	1.6−
1998 08 17	704	1.9+	1.2−	1998 09 14	704	0.1+	0.2+	1998 09 18	704	0.5−	0.2+
1998 08 17	704	0.6+	0.9−	1998 09 14	704	0.5−	0.1−				

1998 QG$_{48}$ = 1984 YZ$_5$ = 1989 EV$_4$ = 1993 FR$_{24}$ = 1997 JW$_6$ = 1997 JE$_{16}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	230.95727		(2000.0)		**P**		**Q**
n	0.26796937	ω	267.27830		−0.30588733		−0.95124301
a	2.3827544	Ω	200.66740		+0.91202772		−0.28082786
e	0.0635941	i	6.44527		+0.27320027		−0.12756354
P	3.68	H	14.5	G	0.15	U	1

Residuals in seconds of arc

1984 12 22	033	0.3+	1.3+	1997 05 04	809	1.4+	0.4+	1998 08 23	704	2.0+	0.3−
1984 12 22	033	0.3−	0.3+	1997 05 04	809	0.7−	0.6−	1998 08 23	704	(0.8+	2.3−)
1989 03 02	809	0.5−	0.8−	1997 05 04	809	(0.2+	2.3−)	1998 08 23	704	0.1−	1.0+
1989 03 02	809	0.6−	0.7−	1997 05 04	809	(0.6+	2.3−)	1998 08 30	699	0.1−	0.1+
1989 03 02	809	0.9−	0.7−	1997 05 05	691	0.6−	0.0	1998 08 30	699	0.0	0.3−
1989 03 03	809	0.6+	0.1−	1997 05 05	691	0.7−	0.2−	1998 08 30	699	0.2+	0.5+
1989 03 03	809	0.3+	0.2+	1997 05 09	691	0.8−	0.0	1998 09 14	704	0.0	0.4+
1989 03 03	809	0.6+	0.1+	1997 05 09	691	0.8−	0.4+	1998 09 14	704	1.1−	0.5+
1993 03 21	809	0.4+	1.1+	1997 05 09	691	(2.1−	0.1−)	1998 09 14	704	0.8−	0.4+
1993 03 22	809	0.7+	0.8+	1998 08 17	704	0.9+	0.4−	1998 09 14	704	1.3−	0.1−
1993 03 26	809	0.0	0.3+	1998 08 17	704	1.0+	0.8−	1998 09 18	704	0.2−	0.0
1997 05 03	809	(2.4+	1.5+)	1998 08 17	704	1.0+	1.3−	1998 09 18	704	0.3−	0.8+
1997 05 03	809	(4.0+	1.6+)	1998 08 17	704	0.5+	0.7−	1998 09 18	704	1.2−	0.7+
1997 05 03	809	(2.6+	0.4−)	1998 08 17	704	0.0	0.3−	1998 09 18	704	0.6−	0.0
1997 05 04	809	1.3+	0.6+	1998 08 23	704	0.7+	1.3−	1998 09 18	704	0.6+	1.3+
1997 05 04	809	0.7+	0.4+	1998 08 23	704	1.1−	0.6+				

1998 QR$_{48}$ = 1997 GG$_{11}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	352.05415		(2000.0)		**P**		**Q**
n	0.22973664	ω	51.09532		+0.90527673		+0.42443253
a	2.6402752	Ω	283.78315		−0.39533660		+0.82599255
e	0.2974102	i	1.07349		−0.15550890		+0.37093575
P	4.29	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1997 04 03	704	0.4+	1.1−	1998 08 17	704	0.9+	1.4+	1998 09 14	704	0.3+	0.1−
1997 04 03	704	0.7−	0.0	1998 08 23	704	1.2+	0.1+	1998 09 14	704	0.9+	0.8+
1997 04 05	704	0.0	0.6+	1998 08 23	704	0.5+	1.3−	1998 09 14	704	0.4+	0.8+
1997 04 05	704	0.8+	0.5+	1998 08 23	704	1.1−	0.0	1998 09 18	704	0.4+	0.2−
1997 04 07	704	0.3+	0.3+	1998 08 23	704	0.0	1.0−	1998 09 18	704	0.6+	0.9−
1997 04 07	704	0.6−	0.2+	1998 08 23	704	0.5−	0.9−	1998 09 18	704	0.0	0.4+
1998 08 17	704	1.1+	0.4+	1998 08 26	699	0.6−	0.2+	1998 09 18	704	0.9−	1.0+
1998 08 17	704	0.7+	0.5−	1998 08 26	699	0.4−	0.2+	1998 09 18	704	1.1−	0.2+
1998 08 17	704	1.7−	0.1+	1998 08 26	699	0.3−	0.1+				
1998 08 17	704	0.0	0.3+	1998 09 14	704	0.5−	0.7−				

1998 QE$_{49}$ = 1992 GT$_4$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	309.32426		(2000.0)	**P**	**Q**		
n	0.21225084	ω	347.71286	+0.87513659	−0.48353556		
a	2.7833625	Ω	41.21970	+0.44624621	+0.79201155		
e	0.0723342	i	1.57809	+0.18708361	+0.37270774		
P	4.64	H	14.0	G 0.15	U 6		

Residuals in seconds of arc

1992 04 04	809	0.6−	0.3+	1998 08 17	704	1.2−	0.6−	1998 09 14	704	0.6−	0.4−
1992 04 04	809	0.2−	0.1+	1998 08 17	704	0.6+	0.4−	1998 09 14	704	0.1+	0.7−
1992 04 04	809	1.2−	0.2+	1998 08 17	704	0.1−	1.2+	1998 09 14	704	0.1−	0.5−
1992 04 06	809	0.5+	0.0	1998 08 23	704	0.1−	0.0	1998 09 18	704	0.2+	0.0
1992 04 06	809	0.6+	0.2+	1998 08 23	704	0.5+	2.0+	1998 09 18	704	0.5+	0.8−
1992 04 06	809	0.8+	1.2−	1998 08 23	704	0.3+	0.9+	1998 09 18	704	0.0	0.6−
1998 08 17	704	0.1−	0.1−	1998 08 23	704	0.7−	0.0	1998 09 18	704	0.5+	0.1−
1998 08 17	704	0.1+	0.4−	1998 09 14	704	0.2−	0.0	1998 09 18	704	0.2+	0.5+

1998 QF$_{49}$ = 1977 DE$_1$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	297.00007		(2000.0)	**P**	**Q**		
n	0.21417000	ω	270.40265	+0.51391957	−0.85412174		
a	2.7667099	Ω	148.26491	+0.83497733	+0.47673284		
e	0.2292338	i	8.72254	+0.19672198	+0.20785054		
P	4.60	H	14.0	G 0.15	U 4		

Residuals in seconds of arc

1977 02 18	381	0.1+	0.3−	1998 08 17	704	0.7+	0.1+	1998 08 30	699	0.0	0.5−
1977 02 18	381	0.5−	0.1−	1998 08 17	704	0.2+	0.4+	1998 09 14	704	0.2+	0.5+
1977 02 19	381	0.1+	0.2+	1998 08 18	566	0.4−	0.9−	1998 09 14	704	0.8−	0.3+
1977 02 19	381	0.3+	0.0	1998 08 18	566	0.5−	0.8−	1998 09 14	704	0.0	0.2−
1998 06 29	704	1.4+	1.1−	1998 08 18	566	0.8−	0.5−	1998 09 14	704	0.9+	0.0
1998 06 29	704	(2.0+	0.2+)	1998 08 23	704	0.2+	0.1−	1998 09 18	704	0.1+	0.5−
1998 06 29	704	1.5−	0.9+	1998 08 23	704	0.3+	0.4+	1998 09 18	704	0.8−	0.2+
1998 06 29	704	(3.0−	0.0)	1998 08 23	704	0.9−	0.8+	1998 09 18	704	0.5−	0.4−
1998 08 17	704	0.2+	0.0	1998 08 23	704	0.1+	0.2−	1998 09 18	704	0.7+	0.3+
1998 08 17	704	0.4+	0.5+	1998 08 30	699	0.1+	0.1+	1998 09 18	704	0.2+	0.1−
1998 08 17	704	0.3+	0.0	1998 08 30	699	0.2+	0.4+				

1998 QG$_{49}$ = 3262 T-1

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	352.38255		(2000.0)	**P**	**Q**		
n	0.30158122	ω	297.84443	+0.86751318	+0.49704440		
a	2.2022495	Ω	32.36151	−0.44284107	+0.78931789		
e	0.1281329	i	2.05316	−0.22652297	+0.36044990		
P	3.27	H	15.5	G 0.15	U 5		

Residuals in seconds of arc

1971 03 24	675	0.4−	0.3+	1998 08 17	704	0.3−	0.2+	1998 09 18	699	0.3+	0.0
1971 03 25	675	1.1−	0.0	1998 08 23	704	0.4+	0.3−	1998 09 18	699	0.2+	0.4−
1971 03 26	675	0.9−	0.0	1998 08 23	704	0.9+	1.4+	1998 09 18	704	0.2+	0.3−
1971 03 26	675	0.2−	0.6+	1998 08 23	704	0.2−	0.3−	1998 09 18	699	0.4+	0.2+
1971 03 27	675	1.0+	0.1−	1998 08 23	704	0.6+	0.0	1998 09 18	704	0.4−	0.3+
1971 04 02	675	1.6+	0.7−	1998 08 23	704	0.5−	0.3−	1998 09 18	704	0.1−	0.6+
1998 08 17	704	0.1+	0.0	1998 09 14	704	0.4−	0.2+	1998 09 18	704	0.3+	0.2+
1998 08 17	704	0.2−	0.0	1998 09 14	704	0.2−	0.9+	1998 09 18	704	0.6−	0.5+
1998 08 17	704	0.2−	0.6−	1998 09 14	704	0.0	1.7−				
1998 08 17	704	0.2−	0.3−	1998 09 14	704	0.3−	0.3−				

1998 QM$_{49}$ = 1997 GN$_{11}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	347.12401		(2000.0)	**P**	**Q**		
n	0.26368246	ω	340.42270	+0.93593903	+0.35215618		
a	2.4085106	Ω	358.95148	−0.30643979	+0.81155806		
e	0.1388345	i	6.39405	−0.17353035	+0.46621835		
P	3.74	H	15.5	G 0.15	U 4		

Residuals in seconds of arc

1997 04 03	704	0.7−	0.3−	1998 08 23	704	0.7−	0.7+	1998 09 18	704	0.2−	0.2−
1997 04 03	704	0.3+	0.2+	1998 08 23	704	0.4−	1.8+	1998 09 18	699	0.3−	1.0+
1997 04 07	704	0.3+	0.2+	1998 08 23	704	0.6+	1.6−	1998 09 18	704	0.5−	0.2+
1997 04 07	704	0.2+	0.1−	1998 08 23	704	1.6+	0.4−	1998 09 18	704	0.8+	0.6+
1998 08 17	704	0.4+	0.1+	1998 09 14	704	1.2−	2.0−	1998 09 18	699	0.4+	0.2+
1998 08 17	704	0.3+	0.6−	1998 09 14	704	0.3+	0.5+	1998 09 18	704	0.2−	0.4+
1998 08 17	704	0.4−	0.6−	1998 09 14	704	0.7−	0.8−	1998 09 18	699	0.4+	0.5+
1998 08 17	704	0.3+	0.4+	1998 09 14	704	0.3−	0.1+				
1998 08 17	704	1.3−	0.7+	1998 09 18	704	1.1+	0.8−				

1998 QQ$_{49}$ = 1982 BG$_{14}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	230.49899		(2000.0)	**P**	**Q**		
n	0.21510978	ω	331.88433	−0.37564870	−0.92184476		
a	2.7586459	Ω	139.97320	+0.87565740	−0.38674169		
e	0.1165330	i	8.52522	+0.30349987	−0.02516168		
P	4.58	H	14.5	G 0.15	U 5		

Residuals in seconds of arc

1982 01 30	675	0.9+	0.3−	1998 08 23	704	1.1+	0.2+	1998 09 14	704	0.1−	2.3−
1982 01 31	675	0.9−	0.3+	1998 08 23	704	0.3−	1.2+	1998 09 18	704	0.5−	0.5+
1998 08 17	704	0.5−	0.5+	1998 08 23	704	1.6−	1.5−	1998 09 18	704	0.2−	1.4+
1998 08 17	704	1.2+	0.0	1998 08 23	704	0.4−	0.8−	1998 09 18	704	1.8+	1.8−
1998 08 17	704	1.2+	0.4−	1998 09 14	704	1.3−	0.7+	1998 09 18	704	1.0+	1.0−
1998 08 17	704	0.5+	1.4+	1998 09 14	704	0.6+	1.1+				
1998 08 23	704	0.6−	0.7−	1998 09 14	704	1.8−	1.6+				

1998 QF$_{50}$ = 1989 TT$_{14}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	352.64803		(2000.0)	**P**	**Q**		
n	0.21446835	ω	327.27078	+0.91279052	+0.40783593		
a	2.7641434	Ω	8.74458	−0.33669576	+0.78185493		
e	0.1479572	i	8.31446	−0.23119132	+0.47156412		
P	4.60	H	14.5	G 0.15	U 4		

Residuals in seconds of arc

1989 10 02	809	0.2+	0.6−	1998 08 17	704	0.5+	1.1−	1998 09 14	704	0.4+	0.8+
1989 10 02	809	0.3+	0.6−	1998 08 17	704	0.9+	0.2−	1998 09 14	704	0.4−	0.1−
1989 10 02	809	1.2+	0.5−	1998 08 23	704	0.1+	0.3+	1998 09 18	704	0.3+	0.0
1989 10 03	809	0.8−	0.8+	1998 08 23	704	0.7−	1.7+	1998 09 18	704	0.0	0.2+
1989 10 03	809	0.5−	0.8+	1998 08 23	704	1.0−	1.3+	1998 09 18	704	0.1+	0.1−
1989 10 03	809	0.3−	0.1+	1998 08 23	704	2.1+	0.3+	1998 09 18	704	0.2−	0.3+
1998 08 17	704	0.2+	0.2−	1998 08 23	704	1.6−	0.3−	1998 09 18	704	0.4−	0.5−
1998 08 17	704	0.3−	0.3−	1998 09 14	704	0.3+	0.1+				
1998 08 17	704	0.3−	0.8−	1998 09 14	704	0.0	1.4−				

1998 QL$_{50}$ = 1997 JL$_1$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	303.09700		(2000.0)	**P**	**Q**		
n	0.27924490	ω	333.41424	+0.83361199	−0.55003850		
a	2.3181732	Ω	60.04578	+0.51657941	+0.74400554		
e	0.1157644	i	3.34039	+0.19554225	+0.37935920		
P	3.53	H	16.0	G 0.15	U 5		

Residuals in seconds of arc

1997 05 01	910	0.2+	0.1−	1998 08 17	704	1.6+	0.6−	1998 09 14	704	0.5−	1.1+
1997 05 01	910	0.2−	0.0	1998 08 17	704	1.1−	0.2−	1998 09 14	704	0.6+	1.3−
1997 05 01	910	0.2+	0.2−	1998 08 23	704	0.7+	0.2−	1998 09 18	704	1.1+	0.6−
1997 05 02	910	0.1−	0.1−	1998 08 23	704	0.6−	2.3+	1998 09 18	704	0.4+	2.1−
1997 05 02	910	0.1−	0.1+	1998 08 23	704	0.3−	0.1−	1998 09 18	704	1.1+	1.2+
1997 05 03	910	0.1−	0.1+	1998 08 23	704	0.2−	2.1−	1998 09 18	704	0.0	0.0
1998 08 17	704	0.0	0.0	1998 08 23	704	1.6−	1.6+	1998 09 18	704	1.5−	1.1−
1998 08 17	704	1.5+	0.3−	1998 09 14	704	0.1+	0.6+				
1998 08 17	704	0.6−	0.6+	1998 09 14	704	0.5−	1.1+				

1998 QN_{50} = 1983 GY_2 = 1991 RQ_{37}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	51.26955		(2000.0)	**P**	**Q**	
n	0.28420530	ω	141.31133	−0.17214601	+0.98174458	
a	2.2911205	Ω	118.64020	−0.92515545	−0.13292752	
e	0.1392846	i	5.28833	−0.33830924	−0.13604356	
P	3.47	H	14.5	G 0.15	U 4	

Residuals in seconds of arc

1983 04 06	413	3.1+	0.5+	1998 08 17	704	0.4+	0.7−	1998 09 14	704	0.3+	0.5−
1983 04 08	413	2.9−	1.5+	1998 08 23	704	1.5−	0.8+	1998 09 14	704	0.7+	0.2+
1991 09 15	675	0.2+	0.2+	1998 08 23	704	1.3−	2.5+	1998 09 18	704	0.3+	0.6−
1991 09 15	675	0.1+	1.1−	1998 08 23	704	1.4−	0.7+	1998 09 18	704	1.0+	1.6−
1998 08 17	704	0.6+	0.2+	1998 08 23	704	1.9−	1.0−	1998 09 18	704	0.5+	0.7+
1998 08 17	704	0.1+	0.8+	1998 08 23	704	2.0−	0.1−	1998 09 18	704	1.6+	0.7+
1998 08 17	704	0.1−	1.1−	1998 09 14	704	0.9+	0.5+	1998 09 18	704	0.8+	0.7+
1998 08 17	704	0.3+	0.1−	1998 09 14	704	0.1+	0.0				

1998 QO_{50} = 1997 MO_9

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Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	345.83969		(2000.0)	**P**	**Q**	
n	0.19207585	ω	202.58849	+0.97483487	+0.19994058	
a	2.9750039	Ω	145.41184	−0.16862288	+0.95062156	
e	0.0793156	i	10.00187	−0.14581938	+0.23736555	
P	5.13	H	14.0	G 0.15	U 4	

Residuals in seconds of arc

1997 06 27	691	0.1+	0.4+	1998 08 17	704	0.7−	0.5−	1998 08 30	699	0.5+	0.2+
1997 06 27	691	0.3+	0.1−	1998 08 17	704	0.4+	0.6−	1998 08 30	699	0.9+	0.7+
1997 06 27	691	0.1+	0.2−	1998 08 17	704	0.6+	0.2+	1998 08 30	699	0.1+	0.4+
1997 07 08	691	0.1−	0.1+	1998 08 23	704	0.0	0.1+	1998 09 13	699	0.5−	0.6−
1997 07 08	691	0.2−	0.0	1998 08 23	704	0.2+	0.7+	1998 09 13	699	0.0	0.0
1997 07 08	691	0.2−	0.1−	1998 08 23	704	(2.7−	2.3+)	1998 09 13	699	0.1+	0.1+
1998 08 17	704	0.2+	0.1+	1998 08 23	704	0.6−	0.0				
1998 08 17	704	0.0	1.2−	1998 08 23	704	1.2−	0.3+				

1998 QX_{50} = 1977 DD_7 = 1994 RV_{22} = 1997 EQ_{48}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	12.63364		(2000.0)	**P**	**Q**	
n	0.25210925	ω	316.21148	+0.63640284	+0.77120814	
a	2.4816672	Ω	353.26218	−0.66740580	+0.54068708	
e	0.1326679	i	7.41784	−0.38673109	+0.33599925	
P	3.91	H	14.5	G 0.15	U 2	

Residuals in seconds of arc

1977 02 19	381	1.2+	1.7+	1997 03 12	809	0.7+	0.5+	1998 08 23	704	0.5+	0.2+
1977 02 19	381	0.2+	1.1+	1997 03 12	809	0.7+	0.3+	1998 08 23	704	0.8−	0.5+
1994 09 05	809	0.9+	1.9−	1997 03 12	809	0.8+	1.0+	1998 09 14	704	1.5−	0.9+
1994 09 05	809	(0.5+	2.8−)	1998 08 17	704	0.5+	0.5+	1998 09 14	704	1.8−	0.9+
1994 09 05	809	(0.4+	2.4−)	1998 08 17	704	0.2−	0.7−	1998 09 14	704	1.4−	1.4+
1994 09 06	809	(0.9+	4.3−)	1998 08 17	704	0.6+	0.8−	1998 09 14	704	0.1+	1.6+
1994 09 06	809	(0.1+	3.9−)	1998 08 17	704	0.7+	0.4−	1998 09 18	704	0.7−	1.5+
1994 09 06	809	(0.3+	4.0−)	1998 08 17	704	0.7−	0.2+	1998 09 18	704	(1.3−	2.3+)
1997 03 11	809	0.2+	0.7+	1998 08 23	704	0.5+	0.5+	1998 09 18	704	(1.3−	3.4+)
1997 03 11	809	0.2+	0.8+	1998 08 23	704	0.2+	1.0+	1998 09 18	704	(0.3−	2.8+)
1997 03 11	809	0.0	1.4+	1998 08 23	704	0.2−	0.4+	1998 09 18	704	(1.8−	2.8+)

1998 QY_{50} = 1977 RL_{18}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	316.76321		(2000.0)	**P**	**Q**	
n	0.28097208	ω	29.37621	+0.94177237	−0.33568611	
a	2.3086633	Ω	350.17889	+0.28190147	+0.81980995	
e	0.1216845	i	6.55916	+0.18329311	+0.46392508	
P	3.51	H	15.5	G 0.15	U 6	

Residuals in seconds of arc

1977 09 09	675	0.2+	0.1−	1998 08 23	704	1.5+	0.0	1998 09 14	704	0.8+	0.4−
1977 09 10	675	0.3−	0.3+	1998 08 23	704	0.9−	1.7+	1998 09 14	704	0.3−	0.7+
1998 08 17	704	0.2−	0.1+	1998 08 23	704	0.2−	1.2−	1998 09 18	704	1.6−	1.5−
1998 08 17	704	0.9+	0.1+	1998 08 23	704	0.4−	0.7−	1998 09 18	704	1.1+	0.3−
1998 08 17	704	0.8−	0.0	1998 08 23	704	0.9−	0.2−	1998 09 18	704	0.4+	0.8+
1998 08 17	704	1.7+	0.0	1998 09 14	704	0.4+	0.8+	1998 09 18	704	0.7−	0.3+
1998 08 17	704	1.1−	0.2−	1998 09 14	704	0.1−	1.1+	1998 09 18	704	0.5+	1.4−

1998 QC_{51} = 1993 BK_7

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Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	301.30023		(2000.0)	**P**	**Q**	
n	0.29292515	ω	238.77881	+0.78604490	−0.61760072	
a	2.2454236	Ω	159.32470	+0.58963255	+0.73618922	
e	0.1282519	i	4.30603	+0.18565258	+0.27675764	
P	3.36	H	15.0	G 0.15	U 5	

Residuals in seconds of arc

1993 01 23	809	0.4+	0.2+	1998 08 17	704	1.2+	0.2−	1998 09 14	704	0.9+	0.2−
1993 01 23	809	0.9+	0.2−	1998 08 23	704	0.8+	0.9+	1998 09 14	704	1.1+	1.0−
1993 01 23	809	0.0	1.0−	1998 08 23	704	(3.7+	1.9+)	1998 09 18	699	0.7+	0.4+
1993 01 28	809	0.7−	0.5+	1998 08 23	704	1.6−	0.3+	1998 09 18	699	0.5+	0.8+
1993 01 28	809	0.2+	0.5−	1998 08 23	704	0.2−	0.2+	1998 09 18	704	0.1+	0.3−
1993 01 28	809	0.8−	0.7+	1998 08 30	691	0.9−	0.1−	1998 09 18	699	0.3+	0.4+
1998 08 17	704	0.3+	0.1−	1998 08 30	691	0.8−	0.1+	1998 09 18	704	1.2−	0.0
1998 08 17	704	0.2−	0.1+	1998 08 30	691	0.9−	0.1+	1998 09 18	704	0.1+	0.3+
1998 08 17	704	0.6−	1.3−	1998 09 14	704	0.7+	1.0+	1998 09 18	704	0.2−	0.3−
1998 08 17	704	0.9+	0.7−	1998 09 14	704	0.1−	0.1+	1998 09 18	704	0.9−	0.9−

1998 QF_{51} = 1994 NG_{10}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	14.34576		(2000.0)	**P**	**Q**	
n	0.26478229	ω	8.05515	+0.55434204	+0.83226704	
a	2.4018364	Ω	295.61046	−0.76398296	+0.50595519	
e	0.1897102	i	0.38369	−0.33020438	+0.22658534	
P	3.72	H	15.0	G 0.15	U 6	

Residuals in seconds of arc

1994 07 08	809	0.7+	0.0	1998 08 23	704	1.2−	1.0+	1998 09 14	704	0.8+	0.3+
1994 07 08	809	0.7−	0.0	1998 08 23	704	0.0	0.0	1998 09 14	704	0.1+	0.2+
1994 07 08	809	0.3+	0.0	1998 08 23	704	0.3+	0.8−	1998 09 14	704	0.0	1.0+
1994 07 09	809	1.6+	0.4+	1998 08 23	704	1.4−	0.7−	1998 09 15	120	0.3+	0.2+
1994 07 09	809	0.8−	0.0	1998 08 26	699	1.0+	0.3+	1998 09 15	120	0.2+	0.1−
1994 07 09	809	1.2−	0.4+	1998 08 26	699	1.2+	0.4−	1998 09 16	120	0.3+	0.5+
1998 08 17	704	0.7+	0.0	1998 08 26	699	1.0+	0.6+	1998 09 18	704	0.1+	0.2−
1998 08 17	704	0.4+	1.0−	1998 09 12	691	1.1−	0.4+	1998 09 18	704	0.9−	0.0
1998 08 17	704	0.1+	1.0−	1998 09 12	691	1.1−	0.4+	1998 09 18	704	1.0−	0.2−
1998 08 17	704	0.3+	1.8−	1998 09 12	691	1.1−	0.3+	1998 09 18	704	0.4−	0.0
1998 08 23	704	0.4+	0.7−	1998 09 14	704	0.8+	0.7+	1998 09 18	704	0.4+	0.0

1998 QP_{51} = 1994 NZ_8

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	30.36876		(2000.0)	**P**		**Q**	
n	0.27383788	ω	26.77412	+0.43186881		+0.90078874	
a	2.3485891	Ω	268.84173	−0.83544907		+0.38052008	
e	0.0759233	i	2.60759	−0.33987376		+0.20924654	
P	3.60	H	15.0	G 0.15		U 6	

Residuals in seconds of arc

1994 07 08	809	(0.1+	4.8+)	1994 07 09	809	1.4+	1.0−	1998 08 30	699	0.2+	0.5+
1994 07 08	809	(0.9+	4.7+)	1998 08 17	704	0.6+	0.5−	1998 08 30	699	0.2+	0.4+
1994 07 08	809	(1.1+	4.4+)	1998 08 17	704	0.5+	1.4−	1998 09 14	704	0.2+	0.2−
1994 07 08	809	0.2+	0.9+	1998 08 17	704	0.9+	0.0	1998 09 14	704	0.7+	0.1−
1994 07 08	809	0.9−	1.1+	1998 08 17	704	0.2−	0.2−	1998 09 14	704	0.4−	0.6−
1994 07 08	809	0.1−	0.1−	1998 08 17	704	0.3+	0.7−	1998 09 14	704	0.4+	0.7−
1994 07 09	809	1.1−	0.2+	1998 08 23	704	1.8−	1.7+	1998 09 18	704	0.8−	0.0
1994 07 09	809	0.7−	0.1−	1998 08 23	704	0.1−	0.7−	1998 09 18	704	0.2+	0.1+
1994 07 09	809	0.4−	0.4−	1998 08 23	704	0.3+	0.0	1998 09 18	704	0.2+	0.5+
1994 07 09	809	0.5+	0.3−	1998 08 23	704	0.6−	1.3+	1998 09 18	704	0.3−	0.7+
1994 07 09	809	1.1+	0.0	1998 08 30	699	0.4−	0.7−	1998 09 18	704	0.0	0.4+

1998 QR_{51} = 1992 DL_5 = 1992 GO_1 = 1994 RZ_{14}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	266.31012		(2000.0)	**P**		**Q**	
n	0.25777000	ω	122.42599	−0.20883369		−0.96736869	
a	2.4452005	Ω	338.20525	+0.71612009		−0.05135181	
e	0.2813942	i	22.73330	+0.66600339		−0.24811452	
P	3.82	H	13.5	G 0.15		U 3	

Residuals in seconds of arc

1992 02 28	675	0.4+	0.8+	1994 09 05	809	1.4+	1.6+	1998 08 23	704	0.2+	0.8−
1992 02 28	675	0.1+	0.4−	1994 09 05	809	0.3+	1.9+	1998 08 23	704	0.4+	0.5−
1992 04 05	675	0.8−	1.2−	1994 09 05	809	0.5+	1.3+	1998 08 23	704	0.7−	1.4−
1992 04 05	675	0.7−	0.3−	1994 09 06	809	0.1+	2.6+	1998 08 23	704	0.5+	1.5−
1992 04 07	675	0.1+	0.2−	1994 09 06	809	1.1+	2.3+	1998 09 19	704	0.2+	0.4−
1992 04 07	675	0.1+	0.5+	1994 09 06	809	0.5+	2.1+	1998 09 19	704	0.2+	0.5−
1994 09 03	809	0.4−	1.7−	1998 08 17	704	0.6+	0.3+	1998 09 19	704	0.3+	1.5−
1994 09 03	809	1.1−	2.7−	1998 08 17	704	0.4+	0.5−	1998 09 23	704	0.8+	0.1−
1994 09 03	809	1.1−	0.9−	1998 08 17	704	0.2−	0.5−	1998 09 23	704	0.3−	1.3+
1994 09 04	809	0.9−	1.8−	1998 08 17	704	0.2+	0.3−	1998 09 23	704	0.4−	0.9+
1994 09 04	809	0.9−	1.7−	1998 08 17	704	0.2−	0.8+	1998 09 23	704	0.0	2.8+
1994 09 04	809	0.4−	1.5−	1998 08 23	704	0.3−	0.2−				

1998 QT_{51} = 1935 QL = 1935 SP = 1987 KH = 1991 RV_{18}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	10.00769		(2000.0)	**P**		**Q**	
n	0.28155514	ω	355.80734	+0.67759582		+0.73139540	
a	2.3054750	Ω	316.82398	−0.67143431		+0.57252810	
e	0.1491538	i	6.45900	−0.30006644		+0.37050283	
P	3.50	H	15.0	G 0.15		U 3	

Residuals in seconds of arc

1935 08 31	024	3.9−	0.6+	1991 09 17	675	1.5−	1.3−	1998 08 23	704	0.6−	0.4−
1935 09 23	754	1.4+	0.5+	1998 08 17	704	0.7+	0.5+	1998 09 14	704	0.2+	0.5+
1935 09 23	754	1.8+	2.0+	1998 08 17	704	0.8+	0.3−	1998 09 14	704	0.4−	1.3+
1987 05 22	675	0.2+	0.6+	1998 08 17	704	0.6−	0.0	1998 09 14	704	0.0	0.9+
1987 05 23	675	(5.8+	0.3−)	1998 08 17	704	1.0+	0.8−	1998 09 14	704	0.3+	0.0
1991 09 14	675	0.6−	0.8−	1998 08 17	704	1.1+	0.2+	1998 09 18	704	0.6+	0.1−
1991 09 14	675	1.1−	1.4−	1998 08 23	704	1.8+	0.7+	1998 09 18	704	0.3+	0.7+
1991 09 15	675	0.5−	1.9−	1998 08 23	704	0.0	0.1+	1998 09 18	704	0.2+	0.0
1991 09 15	675	0.1+	1.0−	1998 08 23	704	1.1+	0.3+	1998 09 18	704	0.7−	1.8+
1991 09 17	675	1.3−	1.2−	1998 08 23	704	0.8+	1.7−	1998 09 18	704	0.8−	1.1+

1998 QX_{51} = 1997 JE_{12}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	226.53330		(2000.0)	**P**		**Q**	
n	0.28356620	ω	257.68937	−0.38906465		−0.91984476	
a	2.2945617	Ω	215.33933	+0.87530459		−0.35216026	
e	0.0623596	i	4.97321	+0.28717689		−0.17282584	
P	3.48	H	15.0	G 0.15		U 5	

Residuals in seconds of arc

1997 05 03	809	0.9+	0.1−	1998 08 17	704	1.2−	1.3−	1998 09 14	704	1.4−	1.1−
1997 05 03	809	0.6−	0.3−	1998 08 17	704	1.1−	1.0−	1998 09 14	704	0.1−	0.7−
1997 05 03	809	1.9−	1.4−	1998 08 17	704	1.1−	0.9+	1998 09 14	704	0.3−	0.5+
1997 05 04	809	0.8+	0.1−	1998 08 23	704	0.6+	0.5−	1998 09 18	704	1.0+	0.5−
1997 05 04	809	0.3+	0.4+	1998 08 23	704	1.7+	0.7+	1998 09 18	704	0.7+	1.2+
1997 05 04	809	0.4+	1.7+	1998 08 23	704	1.5+	0.6−	1998 09 18	704	0.9−	0.1−
1998 08 17	704	0.0	0.9+	1998 08 23	704	0.2−	0.2−	1998 09 18	704	0.6+	0.4+
1998 08 17	704	1.0+	0.5−	1998 09 14	704	0.7+	0.1−	1998 09 18	704	1.5−	1.9+

1998 QB_{52} = 1985 TP_1 = 1997 GC_{40}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	354.07549		(2000.0)	**P**		**Q**	
n	0.22591780	ω	155.68764	+0.93115898		+0.36442126	
a	2.6699456	Ω	183.01599	−0.36039503		+0.91497719	
e	0.1809299	i	13.00042	−0.05530258		+0.17324516	
P	4.36	H	14.0	G 0.15		U 3	

Residuals in seconds of arc

1985 10 15	688	1.5−	0.9+	1997 04 09	809	3.0−	0.4−	1998 08 23	704	0.3+	0.3+
1985 10 15	688	1.2+	0.9+	1998 08 17	704	0.1−	1.2+	1998 09 14	704	0.2+	0.4−
1997 04 07	809	1.6+	0.0	1998 08 17	704	0.2+	0.0	1998 09 14	704	0.1+	0.5−
1997 04 07	809	2.1+	0.7−	1998 08 17	704	0.1−	0.1−	1998 09 14	704	0.1−	0.0
1997 04 07	809	1.8+	0.2−	1998 08 17	704	0.1−	0.0	1998 09 14	704	0.9+	0.5−
1997 04 08	809	1.5+	0.2+	1998 08 17	704	0.5−	0.0	1998 09 18	704	0.0	0.7−
1997 04 08	809	1.5+	1.0+	1998 08 23	704	0.7−	0.4+	1998 09 18	704	0.4+	0.4−
1997 04 08	809	1.1+	0.9+	1998 08 23	704	0.7+	0.2+	1998 09 18	704	0.1+	0.8−
1997 04 09	809	3.3−	0.0	1998 08 23	704	0.3+	0.4+	1998 09 18	704	0.6−	0.6−
1997 04 09	809	3.2−	0.5−	1998 08 23	704	0.2+	0.3+	1998 09 18	704	0.9−	0.0

1998 QC_{52} = 1135 T-2 = 1986 RH_4

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	178.03952		(2000.0)	**P**		**Q**	
n	0.23549875	ω	336.39288	−0.92456676		−0.38092289	
a	2.5970301	Ω	181.31158	+0.38101852		−0.92426243	
e	0.0106961	i	22.08383	+0.00109139		−0.02523309	
P	4.19	H	14.0	G 0.15		U 4	

Residuals in seconds of arc

1973 09 19	675	0.2−	0.0	1973 10 04	675	1.9+	0.7−	1998 08 23	704	1.0+	0.2−
1973 09 19	675	0.9−	0.5+	1973 10 04	675	1.8+	0.7−	1998 09 14	704	0.4+	0.5+
1973 09 20	675	0.9−	0.4−	1973 10 05	675	1.5+	1.6−	1998 09 14	704	0.6−	0.4+
1973 09 24	675	0.8−	0.0	1973 10 05	675	1.9+	0.7−	1998 09 14	704	0.1−	0.4+
1973 09 24	675	1.2−	0.6−	1986 09 10	033	0.3−	1.1+	1998 09 14	704	0.4−	0.9+
1973 09 25	675	(3.2−	2.8−)	1986 09 10	033	0.2+	0.9+	1998 09 18	704	(1.6−	2.9+)
1973 09 25	675	1.2−	0.0	1998 08 17	704	0.0	0.2+	1998 09 18	704	0.7−	0.2+
1973 09 29	675	0.8−	1.9−	1998 08 17	704	0.5+	0.1−	1998 09 18	704	0.1−	0.8+
1973 09 29	675	0.0	0.6+	1998 08 17	704	1.8+	0.3−	1998 09 18	704	0.5−	1.2+
1973 09 29	675	1.1−	0.6−	1998 08 17	704	0.3+	0.0	1998 09 18	704	0.7−	0.1−
1973 09 29	675	0.5+	0.5+	1998 08 17	704	0.0	0.7+	1998 09 25	699	1.0−	0.4+
1973 09 30	675	0.1−	0.8−	1998 08 23	704	0.4−	0.2−	1998 09 25	699	1.1−	1.0+
1973 09 30	675	0.1−	0.4−	1998 08 23	704	0.8+	0.7+	1998 09 25	699	0.7−	0.3+
1973 09 30	675	0.1+	0.7−	1998 08 23	704	1.2+	0.7−				
1973 09 30	675	0.2−	1.5+	1998 08 23	704	0.7+	1.1−				

1998 QE$_{52}$ = 1992 LV$_2$ = 1994 WN$_{10}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	261.64570		(2000.0)	**P**		**Q**	
n	0.21214947	ω	209.09646	−0.06464121		−0.99374994	
a	2.7842491	Ω	244.73798	+0.93392722		−0.02811444	
e	0.1431841	i	5.77560	+0.35156999		−0.10803072	
P	4.65	H	13.5	G	0.15	U	5

Residuals in seconds of arc

1992 06 03	809	0.7+	1.6+	1998 08 17	704	0.7+	0.0	1998 09 14	704	1.1+	1.0+
1992 06 03	809	0.5−	0.7+	1998 08 17	704	0.0	1.4−	1998 09 14	704	0.4+	1.0+
1992 06 03	809	0.1−	1.0+	1998 08 23	704	0.3+	1.9−	1998 09 14	704	0.3+	1.1+
1994 11 27	901	(0.2+	2.4−)Y	1998 08 23	704	0.5−	0.2−	1998 09 16	699	0.3+	0.5+
1994 11 27	901	1.0−	0.9+	1998 08 23	704	1.5+	1.3+	1998 09 16	699	0.4+	0.1+
1994 12 03	901	(3.3+	1.9−)Y	1998 08 23	704	0.4−	0.7−	1998 09 16	699	0.2+	0.4+
1994 12 04	901	0.9−	1.0+	1998 08 23	704	(0.3+	2.7−)	1998 09 18	704	0.1+	0.3+
1994 12 04	901	0.8+	0.6+	1998 08 30	699	0.1+	0.4−	1998 09 18	704	1.1−	0.3+
1994 12 06	901	1.0+	0.2−	1998 08 30	699	1.2−	0.5+	1998 09 18	704	0.3−	0.1+
1998 08 17	704	0.3−	0.7−	1998 08 30	699	0.2−	0.2−	1998 09 18	704	1.3−	0.2−
1998 08 17	704	0.1+	1.4−	1998 09 14	704	0.2+	0.5+	1998 09 18	704	0.5−	0.2−

1998 QH$_{52}$ = 1994 PF$_{12}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	190.82932		(2000.0)	**P**		**Q**	
n	0.25590441	ω	188.86212	−0.84835676		−0.52241957	
a	2.4570701	Ω	319.26594	+0.49344315		−0.72148278	
e	0.0544421	i	7.55897	+0.19184541		−0.45446716	
P	3.85	H	13.5	G	0.15	U	5

Residuals in seconds of arc

1994 08 10	809	0.6+	1.0+	1998 08 23	704	0.4+	0.2−	1998 09 16	699	0.9−	0.1+
1994 08 10	809	1.0+	0.1−	1998 08 23	704	0.1−	0.7+	1998 09 16	699	0.5−	0.2−
1994 08 10	809	0.2−	0.7+	1998 08 23	704	0.9−	0.6+	1998 09 18	704	0.5−	0.1+
1994 08 11	809	0.1−	0.5−	1998 08 23	704	1.3−	0.4+	1998 09 18	704	0.0	1.2+
1994 08 11	809	0.1−	0.4−	1998 08 30	699	0.1+	0.5−	1998 09 18	704	0.6+	0.5+
1994 08 11	809	1.1−	0.6−	1998 08 30	699	0.2−	0.3−	1998 09 18	704	0.4+	0.2−
1998 08 17	704	0.4+	0.5−	1998 08 30	699	0.4−	0.6−	1998 09 18	704	0.1−	0.0
1998 08 17	704	0.0	0.3+	1998 09 14	704	0.8+	0.3−	1998 09 25	699	0.2+	0.4+
1998 08 17	704	0.6+	0.6−	1998 09 14	704	0.6+	0.1−	1998 09 25	699	0.4+	0.5−
1998 08 17	704	0.3−	0.2−	1998 09 14	704	0.3+	0.1−	1998 09 25	699	0.5−	0.7−
1998 08 17	704	0.5+	0.8+	1998 09 14	704	0.4+	0.3+				
1998 08 23	704	0.5+	0.5−	1998 09 16	699	0.6−	0.2+				

1998 QK$_{52}$ = 1991 XC$_3$ = 1997 GV$_{42}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	335.12184		(2000.0)	**P**		**Q**	
n	0.25639496	ω	174.35290	+0.99927231		−0.03465643	
a	2.4539351	Ω	187.68747	+0.02864115		+0.95760298	
e	0.1204965	i	6.83968	+0.02519015		+0.28599906	
P	3.84	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1991 12 01	809	0.4+	1.8−	1997 04 12	809	0.6+	0.1+	1998 09 14	704	0.3+	0.3−
1991 12 01	809	0.6+	2.7−	1998 08 17	704	0.0	0.1−	1998 09 14	704	0.1−	0.1+
1991 12 01	809	0.3+	2.5−	1998 08 17	704	0.9+	0.4+	1998 09 14	704	0.2−	1.2−
1991 12 09	809	0.1+	2.1+	1998 08 17	704	1.2−	1.3+	1998 09 14	704	0.5−	0.4−
1991 12 09	809	0.4−	2.3+	1998 08 17	704	0.7−	0.4+	1998 09 18	704	0.3−	0.4−
1991 12 09	809	1.0−	2.3+	1998 08 17	704	0.2−	0.7+	1998 09 18	704	0.4−	0.5−
1997 04 11	809	0.7−	0.4+	1998 08 23	704	1.0+	0.8+	1998 09 18	704	0.1−	0.4−
1997 04 11	809	0.1−	0.1−	1998 08 23	704	0.0	0.2−	1998 09 18	704	0.3+	0.3−
1997 04 11	809	0.1−	1.0−	1998 08 23	704	0.3+	0.9+	1998 09 18	704	0.6−	0.1−
1997 04 12	809	0.1+	0.2−	1998 08 23	704	0.7+	0.1−				
1997 04 12	809	0.0	0.2−	1998 08 23	704	1.2+	0.8−				

1998 QM$_{52}$ = 1991 SO$_2$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	284.31660		(2000.0)	**P**		**Q**	
n	0.27412900	ω	270.88775	+0.57644708		−0.81411477	
a	2.3469260	Ω	143.61854	+0.78886745		+0.53205363	
e	0.0991879	i	6.79538	+0.21306550		+0.23267162	
P	3.60	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1991 09 15	675	0.1+	0.5+	1998 08 23	704	0.2−	0.7+	1998 09 14	704	0.2−	1.8+
1991 09 15	675	1.1−	0.6−	1998 08 23	704	2.5+	0.1−	1998 09 18	704	0.7+	0.3−
1991 09 16	675	0.9+	0.4−	1998 08 23	704	1.1+	2.1−	1998 09 18	704	1.9+	0.5+
1991 09 16	675	0.4+	0.3−	1998 08 23	704	0.2−	0.0	1998 09 18	704	0.2+	0.0
1998 08 17	704	0.9−	0.7−	1998 08 23	704	2.0−	1.6+	1998 09 18	704	0.2+	0.1−
1998 08 17	704	0.6−	2.0−	1998 09 14	704	0.3−	0.2+	1998 09 18	704	0.5−	0.1−
1998 08 17	704	0.6+	0.7−	1998 09 14	704	0.4−	1.0+				
1998 08 17	704	2.0−	0.5+	1998 09 14	704	0.3−	0.3+				

1998 QK$_{53}$ = 1986 GO = 1987 SQ$_{18}$

Id. A. Doppler

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	109.53768		(2000.0)	**P**		**Q**	
n	0.27144167	ω	264.59290	−0.62834539		+0.77556166	
a	2.3623906	Ω	326.23464	−0.66347310		−0.57500896	
e	0.0715367	i	6.27141	−0.40618409		−0.26051641	
P	3.63	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1986 04 09	688	1.2+	0.5−	1998 08 28	699	0.2−	0.3+	1998 09 25	699	0.0	0.0
1986 04 09	688	1.0−	1.0+	1998 08 28	699	0.5−	0.5+	1998 09 25	699	0.3+	0.3+
1987 09 16	095	1.0+	1.8−	1998 08 31	704	1.0+	1.5+	1998 09 25	699	0.1−	0.0
1998 08 20	699	0.3−	0.2+	1998 08 31	704	0.8+	0.5+	1998 09 29	704	0.8−	0.2+
1998 08 20	699	0.4−	0.2+	1998 08 31	704	1.7−	1.6−	1998 09 29	704	0.6−	0.3+
1998 08 20	699	0.1−	0.3−	1998 08 31	704	0.9+	0.5+	1998 09 29	704	0.2−	0.2+
1998 08 27	699	0.1−	0.1−	1998 08 31	704	(3.6−	0.2+)	1998 09 29	704	0.1+	0.1+
1998 08 27	699	0.1+	0.4+	1998 09 17	699	0.2+	0.1−	1998 09 29	704	0.4+	1.3−
1998 08 27	699	0.3−	0.2+	1998 09 17	699	0.1−	0.1+				
1998 08 28	699	0.1+	0.5+	1998 09 17	699	0.3+	0.0				

1998 QW$_{53}$ = 1993 BM$_7$ = 1997 EB$_{53}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	36.17570		(2000.0)	**P**		**Q**	
n	0.27730517	ω	117.02883	+0.39766962		+0.91750165	
a	2.3289709	Ω	176.38182	−0.87640017		+0.38210484	
e	0.1173948	i	6.40675	−0.27162772		+0.11039294	
P	3.55	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1993 01 23	809	0.1−	0.1+	1998 08 29	120	0.6+	0.3+	1998 09 16	120	0.4−	0.4−
1993 01 23	809	0.1−	0.2+	1998 08 29	120	0.2−	0.0	1998 09 16	120	0.1−	0.5−
1993 01 23	809	0.7+	0.7−	1998 08 30	120	0.2−	0.4−	1998 09 16	120	0.4+	0.5−
1993 01 28	809	0.5−	0.4+	1998 08 30	120	0.1+	0.2+	1998 09 17	699	0.8+	0.2−
1993 01 28	809	(3.1−	0.1+)	1998 08 31	120	0.0	0.1−	1998 09 17	699	0.4+	0.1+
1993 01 28	809	(3.1−	0.4−)	1998 08 31	120	0.3−	0.1−	1998 09 17	699	0.1−	0.0
1997 03 08	809	(39.9−	15.2+)	1998 08 31	120	0.4−	0.0	1998 09 21	120	0.0	0.1−
1997 03 08	809	(40.2−	15.3+)	1998 08 31	120	0.4+	0.0	1998 09 21	120	0.3−	0.1−
1997 03 08	809	(40.7−	15.2+)	1998 09 06	120	1.5−	0.1+	1998 09 21	120	0.2+	0.3−
1997 03 09	809	(37.7−	16.6+)	1998 09 06	120	0.2+	0.9+	1998 09 21	120	0.3+	0.3+
1997 03 09	809	(38.0−	16.1+)	1998 09 16	120	0.2−	0.3−	1998 09 25	699	0.0	0.8+
1997 03 09	809	(38.0−	16.2+)	1998 09 16	120	0.0	0.3−	1998 09 25	699	0.1+	0.5+
1998 08 29	120	0.4+	0.3+	1998 09 16	120	0.0	0.5−	1998 09 25	699	0.4−	0.4+

1998 QA$_{55}$ = 1997 GR$_{34}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	339.51958		(2000.0)	**P**		**Q**	
n	0.29278805	ω	170.30770	+0.99973716		−0.01419744	
a	2.2461245	Ω	190.55586	+0.00798200		+0.95160444	
e	0.2240722	i	5.63924	+0.02149204		+0.30699742	
P	3.37	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1997 04 03	704	0.2+	0.6+	1998 08 27	699	0.1−	0.3−	1998 09 15	699	0.2−	0.4+
1997 04 03	704	0.5+	1.1+	1998 08 27	699	0.1−	0.2−	1998 09 15	699	0.1+	0.1+
1997 04 11	704	0.5−	0.6−	1998 08 28	699	0.1+	0.1−	1998 09 15	699	0.2−	0.2+
1997 04 11	704	0.1−	0.6−	1998 08 28	699	0.1+	0.1+				
1998 08 27	699	0.1+	0.2−	1998 08 28	699	0.2+	0.2+				

1998 QO$_{55}$ = 1997 JF$_{1}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	61.88855		(2000.0)	**P**		**Q**	
n	0.26486140	ω	93.96072	+0.25470089		+0.96698585	
a	2.4013582	Ω	190.80553	−0.90351150		+0.23497493	
e	0.1630758	i	2.48025	−0.34466568		+0.09861615	
P	3.72	H	16.0	G	0.15	U	4

Residuals in seconds of arc

1997 05 01	910	0.2+	0.1−	1998 08 26	910	0.1−	0.0	1998 09 22	910	0.5+	0.2−
1997 05 01	910	0.1+	0.0	1998 08 26	910	0.2−	0.2+	1998 09 22	910	0.6+	0.5−
1997 05 01	910	0.1+	0.2−	1998 08 26	910	0.1−	0.3+	1998 09 22	910	0.6+	0.0
1997 05 02	910	0.2−	0.2+	1998 08 31	910	0.2+	0.3−	1998 09 23	910	0.6−	0.2+
1997 05 02	910	0.0	0.1−	1998 08 31	910	0.4+	0.4−	1998 09 23	910	0.7−	0.2+
1997 05 03	910	0.1−	0.2+	1998 08 31	910	0.1−	0.1+	1998 09 23	910	0.4−	0.3+

1998 QA$_{56}$ = 1991 PV$_{14}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	354.42806		(2000.0)	**P**		**Q**	
n	0.28547894	ω	146.39566	+0.89415502		+0.44761523	
a	2.2843010	Ω	187.04134	−0.42841054		+0.84791822	
e	0.1918975	i	5.28293	−0.13019679		+0.28403397	
P	3.45	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1991 08 06	675	0.7−	1.3+	1998 08 29	120	0.1−	0.4−	1998 08 31	120	0.0	0.3−
1991 08 06	675	0.2+	0.5+	1998 08 29	120	0.0	0.6−	1998 09 25	699	0.2+	0.7+
1991 08 09	675	0.1−	0.3−	1998 08 29	120	0.1+	0.4−	1998 09 25	699	0.0	0.5+
1991 08 09	675	0.4+	0.8−	1998 08 31	120	0.0	0.6−	1998 09 25	699	0.0	0.5+

1998 QE$_{57}$ = 1991 RT$_{23}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	21.90371		(2000.0)	**P**		**Q**	
n	0.28357274	ω	120.82948	+0.47760900		+0.87856588	
a	2.2945264	Ω	177.69177	−0.83223695		+0.45366090	
e	0.1474540	i	4.85842	−0.28155158		+0.14937798	
P	3.48	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1991 09 11	675	0.5+	0.4+	1998 08 31	691	0.1−	0.3−	1998 09 18	704	1.2+	0.3+
1991 09 11	675	0.7−	0.2+	1998 08 31	691	0.3−	0.0	1998 09 18	704	0.1+	0.6−
1991 09 16	675	0.1−	0.5−	1998 08 31	691	0.0	0.2+	1998 09 18	704	0.9+	0.4+
1991 09 16	675	0.2+	0.0	1998 09 14	704	0.7−	0.6+	1998 09 18	704	0.5−	0.0
1998 08 30	691	0.1+	0.1−	1998 09 14	704	0.6−	0.8−	1998 09 18	704	0.4+	0.7+
1998 08 30	691	0.4+	0.0	1998 09 14	704	0.2−	0.8−				
1998 08 30	691	0.3+	0.0	1998 09 14	704	1.0−	0.2+				

1998 QM$_{57}$ = 1993 OL$_{6}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	303.61319		(2000.0)	**P**		**Q**	
n	0.21921346	ω	70.97518	+0.75074246		−0.66039466	
a	2.7241096	Ω	330.34815	+0.59304706		+0.68462045	
e	0.0735142	i	1.88438	+0.29099990		+0.30850241	
P	4.50	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1993 07 20	809	0.4+	0.6+	1998 08 30	691	0.5−	0.6+	1998 09 14	704	0.2+	1.9+
1993 07 20	809	0.8+	0.7+	1998 08 31	691	1.0−	0.1+	1998 09 18	704	0.6−	1.2−
1993 07 20	809	0.6−	0.5+	1998 08 31	691	0.7−	0.3+	1998 09 18	704	0.2−	0.1+
1993 07 24	809	0.6−	2.2−	1998 08 31	691	0.7−	0.6+	1998 09 18	704	0.4−	0.7−
1998 08 30	691	0.2−	0.8+	1998 09 14	704	2.3+	1.5−	1998 09 18	704	0.9+	1.3−
1998 08 30	691	0.6−	0.4+	1998 09 14	704	1.3+	0.2+				

1998 QW$_{57}$ = 1993 TT$_{30}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	44.98686		(2000.0)	**P**		**Q**	
n	0.18435974	ω	110.76017	+0.26657083		+0.96365429	
a	3.0574451	Ω	174.60754	−0.93926460		+0.26383677	
e	0.1161538	i	10.80541	−0.21615274		+0.04195914	
P	5.35	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1993 10 09	809	1.1+	0.3+	1998 08 31	691	0.4−	0.2+	1998 09 18	704	1.6+	0.4+
1993 10 09	809	0.6+	1.4+	1998 08 31	691	0.4−	0.2+	1998 09 18	704	1.8+	1.3−
1993 10 09	809	0.2−	1.5+	1998 08 31	691	0.3−	0.2+	1998 09 18	704	1.4+	0.2+
1993 10 11	809	1.3−	1.0−	1998 09 14	704	0.9+	0.3−	1998 09 18	704	0.4+	1.2+
1993 10 11	809	1.6−	1.5−	1998 09 14	704	1.8+	1.2−	1998 09 20	691	0.4−	0.3+
1993 10 11	809	(2.5−	1.4−)	1998 09 14	704	1.1+	0.8−	1998 09 20	691	0.7−	0.2+
1993 10 21	809	1.5+	0.1−	1998 09 14	704	0.8+	0.5−	1998 09 21	691	0.8−	0.3+
1993 10 21	809	0.3+	0.3+	1998 09 14	704	0.1+	1.1−	1998 09 21	691	0.9−	0.2+
1993 10 21	809	0.3−	0.9−	1998 09 17	699	0.3+	0.2−	1998 09 21	691	1.3−	0.5+
1998 08 30	691	0.0	0.2+	1998 09 17	699	0.0	1.2+	1998 09 23	691	1.6−	0.5+
1998 08 30	691	0.1−	0.5+	1998 09 17	699	0.5+	0.5−	1998 09 23	691	1.7−	0.7+
1998 08 30	691	0.1+	0.0	1998 09 18	704	0.7−	1.3−	1998 09 23	691	1.7−	0.3+

1998 QX$_{57}$ = 4875 T-1

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	266.21542		(2000.0)	**P**		**Q**	
n	0.27022940	ω	267.46896	+0.09522005		−0.99545172	
a	2.3694505	Ω	177.06200	+0.93500311		+0.08840241	
e	0.1304781	i	3.35672	+0.34161723		+0.03550887	
P	3.65	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1971 05 13	675	0.5−	0.2−	1998 09 14	704	1.6+	0.8−	1998 09 18	704	0.1+	0.0
1971 05 14	675	0.7+	0.9+	1998 09 14	704	0.2+	1.3−	1998 09 18	704	0.2+	0.7+
1971 05 16	675	0.2−	0.5−	1998 09 14	704	1.0+	0.4−	1998 09 18	704	0.1+	0.8−
1998 08 30	691	0.1−	0.2+	1998 09 14	704	1.0+	0.0	1998 09 18	704	0.2+	0.8−
1998 08 30	691	0.2−	0.3+	1998 09 14	704	0.6+	0.2−	1998 09 23	691	1.5−	0.4+
1998 08 30	691	0.2−	0.2+	1998 09 16	699	0.7+	0.3+	1998 09 23	691	1.4−	0.4+
1998 08 31	691	0.6−	0.3+	1998 09 16	699	1.1+	0.0	1998 09 23	691	1.2−	0.1+
1998 08 31	691	0.4−	0.1+	1998 09 16	691	0.5−	0.1−	1998 09 30	691	0.2+	0.5+
1998 08 31	691	0.4−	0.3+	1998 09 16	699	0.3+	0.3+	1998 09 30	691	0.3+	0.6+
1998 09 13	691	0.2−	0.1−	1998 09 16	691	0.5−	0.1−	1998 09 30	691	0.0	0.4+
1998 09 13	691	0.4−	0.3−	1998 09 16	691	0.5−	0.3+				
1998 09 13	691	0.4−	0.2−	1998 09 18	704	0.8+	0.3−				

1998 QC$_{58}$ = 1995 WM$_{41}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	315.27637		(2000.0)		**P**		**Q**
n	0.26631673	ω	211.50349		+0.84005246		−0.54250502
a	2.3926017	Ω	181.35106		+0.50137500		+0.77665969
e	0.1864454	i	1.02265		+0.20720757		+0.32013753
P	3.70	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1995 11 27	691	0.3+	0.3+	1998 08 31	691	0.3−	0.4+	1998 09 14	704	0.8+	0.0
1995 11 27	691	0.5+	0.1−	1998 08 31	691	0.2−	0.1+	1998 09 14	704	0.2−	1.0+
1995 11 27	691	0.7−	0.0	1998 08 31	691	0.1−	0.3+	1998 09 16	699	0.0	0.1−
1995 11 28	691	0.2−	0.4+	1998 09 14	704	0.2+	0.6+	1998 09 16	699	0.6+	0.3−
1995 11 28	691	0.0	0.1+	1998 09 14	691	0.7−	0.0	1998 09 16	699	0.2−	0.2−
1995 11 28	691	0.2+	0.3−	1998 09 14	704	0.7+	0.1−	1998 09 18	704	0.3−	0.1+
1998 08 30	691	0.0	0.4+	1998 09 14	691	0.8−	0.2−	1998 09 18	704	0.7−	0.1+
1998 08 30	691	0.1+	0.2+	1998 09 14	704	1.2+	0.5−	1998 09 18	704	0.3−	0.8−
1998 08 30	691	0.0	0.5+	1998 09 14	691	0.7−	0.0	1998 09 18	704	1.1+	1.1−

1998 QR$_{58}$ = 2456 T-3

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	282.94425		(2000.0)		**P**		**Q**
n	0.27967204	ω	77.41636		+0.33011980		−0.94387007
a	2.3158123	Ω	353.27459		+0.82381598		+0.29398980
e	0.1615115	i	5.59134		+0.46081249		+0.15059642
P	3.52	H	15.5	G	0.15	U	6

Residuals in seconds of arc

1977 10 16	675	0.5+	0.7−	1977 10 22	675	1.4−	0.1+	1998 09 16	699	0.3+	0.2+
1977 10 16	675	0.4+	0.3−	1998 08 30	691	0.0	0.0	1998 09 16	699	0.7+	0.2+
1977 10 17	675	0.4−	1.3+	1998 08 30	691	0.0	0.0	1998 09 16	699	0.1−	0.4−
1977 10 17	675	0.3−	1.7+	1998 08 30	691	0.1−	0.2+	1998 09 25	699	0.5+	0.5−
1977 10 21	675	0.5+	1.0−	1998 08 31	691	0.6−	0.1+	1998 09 25	699	0.1+	0.0
1977 10 21	675	0.5+	1.5−	1998 08 31	691	0.6−	0.1−	1998 09 25	699	0.2+	0.1−
1977 10 22	675	0.1+	0.8+	1998 08 31	691	0.4−	0.2+				

1998 QL$_{59}$ = 1992 EV$_{20}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	79.65805		(2000.0)		**P**		**Q**
n	0.21407746	ω	237.92953		−0.52900772		+0.84861695
a	2.7675072	Ω	0.13326		−0.72584667		−0.45228345
e	0.2103475	i	7.77588		−0.43965605		−0.27438831
P	4.60	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1992 03 02	809	0.7+	0.4+	1998 08 31	691	0.5−	0.1−	1998 09 23	691	0.1+	0.1−
1992 03 05	809	0.7−	0.4−	1998 09 20	691	0.3+	0.0	1998 09 23	691	0.3+	0.5−
1998 08 26	691	0.3+	0.3−	1998 09 20	691	0.1−	0.3+	1998 09 27	691	0.2−	0.0
1998 08 26	691	0.5+	0.0	1998 09 21	691	0.1−	0.2+	1998 09 27	691	0.4−	0.2+
1998 08 26	691	0.2+	0.2+	1998 09 21	691	0.5+	0.2+	1998 09 27	691	0.4−	0.1+
1998 08 31	691	0.4−	0.1+	1998 09 21	691	0.1+	0.0				
1998 08 31	691	0.5−	0.1−	1998 09 23	691	0.3+	0.2−				

1998 QW$_{59}$ = 1997 JV$_{5}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	11.06523		(2000.0)		**P**		**Q**
n	0.18746550	ω	153.90554		+0.76960787		+0.63826978
a	3.0235825	Ω	166.38667		−0.59823755		+0.73050241
e	0.1717374	i	4.32733		−0.22319398		+0.24285367
P	5.26	H	16.5	G	0.15	U	3

Residuals in seconds of arc

1997 05 02	691	0.3−	0.3+	1998 08 26	691	0.3−	0.0	1998 09 13	691	0.1+	0.2+
1997 05 02	691	0.1−	0.8−	1998 08 26	691	0.2−	0.0	1998 09 13	691	0.2+	0.2+
1997 05 02	691	0.0	0.1−	1998 08 26	691	0.1−	0.2+	1998 09 13	691	0.2−	0.0
1997 05 09	691	0.1−	0.3+	1998 08 31	691	0.3+	0.1−	1998 09 19	691	0.2−	0.0
1997 05 09	691	0.3+	0.3+	1998 08 31	691	0.1+	0.1−	1998 09 19	691	0.1+	0.1−
1997 05 09	691	0.2+	0.1+	1998 08 31	691	0.3+	0.2−	1998 09 19	691	0.1−	0.1−

1998 QT$_{60}$ = 1990 QK

Id. S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	330.11656		(2000.0)		**P**		**Q**
n	0.25745968	ω	127.04774		+0.35677489		−0.87530207
a	2.4471649	Ω	298.92461		+0.69402188		+0.48224750
e	0.3496712	i	21.89803		+0.62533615		−0.03582795
P	3.83	H	13.0	G	0.15	U	3

Residuals in seconds of arc

1990 08 18	675	1.1+	1.8+	1998 08 30	587	0.0	0.2+	1998 09 02	713	1.7+	0.5−
1990 08 18	675	1.1−	1.2−	1998 08 30	587	0.2+	0.1+	1998 09 02	860	1.7−	0.3−
1990 08 21	675	0.2−	0.7−	1998 08 30	587	0.3+	0.1+	1998 09 02	713	(3.0+	1.7−)
1990 08 21	675	0.2+	0.2+	1998 08 30	620	1.7+	0.2+	1998 09 02	860	(2.1+	0.2+)
1998 08 29	704	0.3−	0.6+	1998 08 30	620	0.6−	0.7+	1998 09 02	713	1.1+	0.0
1998 08 29	704	0.1+	0.6+	1998 08 30	620	0.5−	0.9+	1998 09 02	713	0.2+	0.6+
1998 08 29	704	0.0	0.3−	1998 08 30	620	0.4+	0.0	1998 09 08	151	0.0	0.5−
1998 08 29	704	0.8−	1.3−	1998 08 31	470	0.1−	0.0	1998 09 08	151	0.5−	0.9+
1998 08 29	704	0.6+	1.2−	1998 08 31	470	0.7−	0.1+	1998 09 12	681	0.2+	0.4+
1998 08 30	734	0.5+	0.2+	1998 08 31	470	0.3−	0.5+	1998 09 12	681	0.5−	1.0+
1998 08 30	734	0.1−	0.1−	1998 08 31	704	0.5−	1.6−	1998 09 12	681	0.4+	0.6+
1998 08 30	734	0.7+	0.4−	1998 08 31	704	0.4+	0.7−	1998 09 17	681	0.4−	0.6−
1998 08 30	758	1.1+	0.2+	1998 08 31	704	0.7−	0.8+	1998 09 17	681	0.4−	0.6+
1998 08 30	758	0.3−	0.2−	1998 08 31	704	0.0	0.3−	1998 09 17	681	0.4−	0.3−
1998 08 30	758	0.5−	0.5−	1998 08 31	611	0.0	0.5−	1998 09 19	888	0.3+	0.2+
1998 08 30	758	0.1+	0.2+	1998 08 31	611	0.0	0.3+	1998 09 19	888	0.0	0.1−
1998 08 30	758	0.4−	0.1+	1998 08 31	557	0.3+	0.1−	1998 09 19	888	0.2+	0.0
1998 08 30	658	0.5−	0.2−	1998 08 31	557	0.2+	0.2−	1998 09 25	151	0.1−	0.5+
1998 08 30	658	0.4−	0.3−	1998 08 31	557	0.2+	0.2−	1998 09 25	151	0.4+	0.2+
1998 08 30	658	0.3−	0.1−	1998 09 01	046	0.3+	0.2−	1998 10 03	900	0.0	0.4−
1998 08 30	046	0.9−	0.2+	1998 09 01	046	0.4+	0.1−	1998 10 03	900	0.1−	0.5−
1998 08 30	046	0.2−	0.7+	1998 09 01	046	0.3+	0.2−				

1998 QV$_{63}$ = 1979 SJ$_{8}$ = 1984 UK$_{4}$ = 1993 PY$_{6}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	335.54134		(2000.0)		**P**		**Q**
n	0.20853874	ω	200.85489		+0.92871995		−0.37078006
a	2.8162955	Ω	180.91138		+0.34985227		+0.87734879
e	0.1106610	i	4.26665		+0.12281140		+0.30460015
P	4.73	H	13.5	G	0.15	U	3

Residuals in seconds of arc

1979 09 24	095	0.8+	2.2−	1998 08 31	327	0.0	0.1+	1998 09 23	691	0.7−	0.4−
1984 10 20	095	0.4+	1.4−	1998 08 31	327	0.2−	0.3+	1998 09 23	691	1.0−	0.2−
1993 08 13	675	0.2+	1.1−	1998 08 31	327	0.1−	0.2+	1998 09 23	691	0.8−	0.5−
1993 08 13	675	0.6+	0.6−	1998 09 04	327	0.0	0.6+	1998 09 23	327	0.3+	0.2+
1993 08 15	010	0.1−	1.1+	1998 09 04	327	0.2−	0.1−	1998 09 23	327	0.1+	0.2+
1993 08 15	010	(0.4−	2.2+)	1998 09 04	327	0.5−	0.3−	1998 09 23	327	0.0	0.4+
1993 08 15	010	0.3−	1.1+	1998 09 15	699	0.2+	0.1−	1998 09 23	327	0.9−	0.1+
1993 08 17	010	0.5−	0.8+	1998 09 15	699	0.5+	0.4+	1998 09 23	327	0.8−	0.1+
1993 08 17	010	0.1+	1.3+	1998 09 15	699	0.3+	0.6+	1998 09 23	327	0.6−	0.2+
1993 08 19	010	0.1−	1.3−	1998 09 17	327	1.7+	0.6+	1998 09 27	691	0.5−	0.0
1993 08 19	010	0.2+	0.9−	1998 09 17	327	1.7+	0.6+	1998 09 27	691	1.0−	0.6+
1993 08 19	010	0.0	0.7−	1998 09 17	327	1.9+	0.5+	1998 09 27	691	0.4−	0.1−

1998 QV$_{67}$ = 1985 QJ$_1$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	268.12631		(2000.0)	**P**		**Q**	
n	0.22777308	ω	250.96007	+0.16886239		−0.98504470	
a	2.6554275	Ω	189.51519	+0.96416859		+0.17229578	
e	0.2489908	i	11.95433	+0.20460796		+0.00104991	
P	4.33	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1985 08 16	675	1.1−	0.4−	1998 08 24	704	0.6−	0.4−	1998 09 14	704	0.6−	0.1−
1985 08 16	675	1.2+	0.9+	1998 08 24	704	0.3+	0.1−	1998 09 14	704	1.0+	0.1−
1985 08 17	675	(3.9−	2.3−)	1998 08 24	704	0.9+	1.5−	1998 09 14	704	0.8+	1.4+
1985 08 17	675	0.5−	0.8+	1998 08 27	704	0.4−	0.3+	1998 09 14	704	0.5+	0.2+
1998 08 02	699	0.1+	0.6−	1998 08 27	704	0.4−	0.0	1998 09 18	704	0.1−	0.2+
1998 08 02	699	0.1−	0.2−	1998 08 27	704	0.6−	0.1−	1998 09 18	704	0.0	1.9−
1998 08 02	699	0.3+	1.1−	1998 08 27	704	0.5−	1.6+	1998 09 18	704	0.5+	0.5+
1998 08 24	704	1.2+	0.8−	1998 08 27	704	0.6−	1.4+	1998 09 18	704	0.1−	1.7−
1998 08 24	704	0.2−	0.8+	1998 09 14	704	0.2−	0.0	1998 09 18	704	0.9−	0.7+

1998 QR$_{69}$ = 1997 JF$_{14}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	59.78441		(2000.0)	**P**		**Q**	
n	0.17582940	ω	17.82335	−0.39605717		+0.89581648	
a	3.1555499	Ω	229.36463	−0.87149351		−0.43588403	
e	0.1964326	i	15.40782	−0.28920198		+0.08670608	
P	5.61	H	13.0	G	0.15	U	4

Residuals in seconds of arc

1997 05 01	704	0.1−	0.3−	1997 05 07	704	0.7−	0.6+	1998 08 27	704	2.8−	1.3+
1997 05 01	704	0.0	0.2−	1998 08 24	704	0.1+	0.5−	1998 08 27	704	0.4−	0.7+
1997 05 01	704	0.1+	0.2−	1998 08 24	704	0.8−	0.5+	1998 09 20	683	0.2+	0.3−
1997 05 01	704	0.2+	0.2−	1998 08 24	704	0.2+	0.1+	1998 09 20	683	0.8+	0.1+
1997 05 01	704	0.2+	0.2−	1998 08 24	704	0.9+	0.8−	1998 09 21	683	0.1−	0.1−
1997 05 07	704	0.2−	0.0	1998 08 24	704	0.3+	1.3+	1998 09 21	683	0.1−	0.6−
1997 05 07	704	0.0	0.0	1998 08 27	704	0.4−	0.6−	1998 09 21	683	0.2+	0.4−
1997 05 07	704	0.2+	0.4+	1998 08 27	704	0.4+	1.0−				
1997 05 07	704	0.3+	0.1+	1998 08 27	704	1.5+	0.1+				

1998 QH$_{71}$ = 1979 OY$_8$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	19.61989		(2000.0)	**P**		**Q**	
n	0.26241154	ω	59.20219	+0.42218333		+0.90308159	
a	2.4162810	Ω	235.97418	−0.86080214		+0.37213520	
e	0.1253312	i	5.45385	−0.28421983		+0.21438060	
P	3.76	H	15.5	G	0.15	U	6

Residuals in seconds of arc

1979 07 24	413	0.3−	0.5−	1998 08 27	704	0.4−	1.0+	1998 09 14	704	0.3−	0.7+
1979 07 26	675	1.1+	0.1+	1998 08 27	704	0.9+	0.1−	1998 09 15	699	0.7−	0.3−
1979 07 28	413	0.7−	0.0	1998 08 27	704	0.1+	0.2+	1998 09 15	699	0.6+	0.0
1998 08 24	704	0.5−	0.0	1998 08 27	704	1.1+	0.4+	1998 09 15	699	0.5+	0.1−
1998 08 24	704	0.4+	0.1−	1998 09 14	704	0.3+	0.6−	1998 09 18	704	1.4+	0.6+
1998 08 24	704	1.4−	1.0+	1998 09 14	704	0.4−	0.3−	1998 09 18	704	(0.3+	2.5−)
1998 08 24	704	(2.2+	1.6+)	1998 09 14	704	0.5−	0.0	1998 09 18	704	1.5−	2.0−
1998 08 24	704	(2.5−	1.7−)	1998 09 14	704	0.3+	0.1+	1998 09 18	704	0.2−	0.2−

1998 QM$_{74}$ = 3033 P-L

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	345.92310		(2000.0)	**P**		**Q**	
n	0.18096874	ω	91.49763	+0.97919367		+0.15647089	
a	3.0955205	Ω	259.51319	−0.19416131		+0.90754172	
e	0.1255179	i	7.55110	+0.05900119		+0.38972411	
P	5.45	H	14.0	G	0.15	U	6

Residuals in seconds of arc

1960 09 24	675	0.1+	1.0−	1960 09 28	675	0.2+	0.3−	1998 08 27	704	0.2−	0.2−
1960 09 25	675	0.1−	1.3+	1960 09 29	675	1.3−	0.2+	1998 08 27	704	1.4−	0.2−
1960 09 25	675	0.4−	0.1−	1998 08 24	704	0.8−	0.4+	1998 08 27	704	0.2+	0.5−
1960 09 26	675	0.4−	0.7−	1998 08 24	704	0.1+	1.0−	1998 08 30	699	0.7+	0.4+
1960 09 26	675	0.2+	1.1−	1998 08 24	704	0.9+	1.1+	1998 08 30	699	0.0	0.4+
1960 09 27	675	0.2+	0.8+	1998 08 24	704	0.2−	1.2−	1998 08 30	699	0.4+	0.1+
1960 09 27	675	1.4+	0.2+	1998 08 24	704	0.2+	0.9+	1998 09 21	699	0.2−	0.3+
1960 09 28	675	0.6−	0.9+	1998 08 27	704	0.4+	0.6−	1998 09 21	699	0.2+	1.0−
1960 09 28	675	0.5+	0.1−	1998 08 27	704	0.7−	0.9+	1998 09 21	699	0.4+	0.0

1998 QK$_{75}$ = 1978 WV$_{14}$ = 1983 VY$_1$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	311.04004		(2000.0)	**P**		**Q**	
n	0.18975496	ω	150.83705	+0.80800572		−0.57157964	
a	2.9992128	Ω	244.71933	+0.50528386		+0.79700990	
e	0.1114695	i	9.09358	+0.30300986		+0.19512032	
P	5.19	H	13.0	G	0.15	U	6

Residuals in seconds of arc

1978 11 28	330	0.1+	0.3+	1998 08 24	704	0.1−	1.0+	1998 08 27	704	1.8−	1.4−
1983 11 08	046	0.9+	0.0	1998 08 24	704	0.1+	0.3−	1998 08 27	704	0.4−	0.4−
1983 11 09	046	0.3+	0.4+	1998 08 24	704	0.4+	1.0−	1998 09 19	699	0.1−	0.2−
1983 11 09	046	1.0+	0.1+	1998 08 24	704	1.1−	0.3−	1998 09 19	699	0.2+	0.3−
1983 11 10	046	0.4−	0.2−	1998 08 27	704	0.1−	0.6+	1998 09 19	699	0.3+	0.4−
1983 11 10	046	1.8−	0.5−	1998 08 27	704	0.3+	0.1+				
1998 08 24	704	0.8+	0.5+	1998 08 27	704	1.5+	2.1+				

1998 QM$_{76}$ = 1986 WW$_1$ = 1990 TL$_{16}$ = 1990 VB$_8$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	162.53336		(2000.0)	**P**		**Q**	
n	0.22921429	ω	290.29154	−0.98430116		−0.08248537	
a	2.6442850	Ω	245.24625	+0.13012882		−0.93642247	
e	0.1328400	i	9.89392	−0.11923809		−0.34104124	
P	4.30	H	13.0	G	0.15	U	4

Residuals in seconds of arc

1986 11 29	046	0.2+	1.6−	1990 11 11	675	0.2−	0.8+	1998 08 27	704	0.4+	1.0+
1986 11 29	046	0.7+	0.1−	1990 11 11	675	0.4+	0.2+	1998 08 27	704	0.3+	0.8−
1986 11 30	046	0.0	0.0	1990 11 13	675	0.1+	1.2+	1998 08 27	704	0.9−	0.2+
1986 11 30	046	0.7−	0.4−	1990 11 13	675	0.2+	0.6+	1998 08 27	704	0.8−	0.9−
1986 12 01	046	1.8−	0.7−	1998 08 24	704	0.8−	0.5−	1998 09 18	699	0.5+	0.5−
1986 12 01	046	1.4+	0.5+	1998 08 24	704	0.9+	0.2+	1998 09 18	699	0.1+	0.3−
1990 10 15	675	(1.0−	17.3−)	1998 08 24	704	0.2−	0.2+	1998 09 18	699	0.4+	0.2−
1990 10 15	675	(1.9−	16.3−)	1998 08 24	704	1.0−	0.3+	1998 09 19	699	0.3+	0.5+
1990 10 17	675	0.2−	0.3+	1998 08 24	704	0.3+	0.3−	1998 09 19	699	0.2+	0.0
1990 10 17	675	0.6−	0.0	1998 08 27	704	0.2+	0.9−	1998 09 19	699	0.3+	0.6+

1998 QZ$_{85}$ = 1993 PE$_4$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	111.39256		(2000.0)	**P**		**Q**	
n	0.21153950	ω	241.32052	−0.82325968		+0.48041824	
a	2.7895987	Ω	324.74286	−0.12289305		−0.67089835	
e	0.3022701	i	31.59117	−0.55420285		−0.56488381	
P	4.66	H	13.0	G	0.15	U	5

Residuals in seconds of arc

1993 08 15	010	0.3−	0.6+	1998 08 24	704	0.6−	1.8−	1998 09 23	557	0.3+	0.3+
1993 08 15	010	0.4+	1.3+	1998 08 27	704	0.8−	1.4+	1998 09 23	557	0.2−	0.0
1993 08 16	010	0.6−	0.6−	1998 08 27	704	0.5+	0.2−	1998 09 23	557	0.5+	0.2+
1993 08 16	010	0.4−	0.9−	1998 08 27	704	0.8−	0.6+	1998 09 25	557	0.4−	0.1−
1993 08 16	010	0.9+	0.4−	1998 08 27	704	1.0−	0.3−	1998 09 25	557	0.4−	0.1−
1998 08 24	704	1.3+	1.0−	1998 08 27	704	0.9+	0.1+	1998 09 25	557	0.1+	0.1−
1998 08 24	704	1.3+	1.6+	1998 09 23	557	0.1+	0.4+				
1998 08 24	704	1.0−	0.2−	1998 09 23	557	0.1+	0.7−				

1998 QP$_{88}$ = 1997 LZ$_{13}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	352.94002		(2000.0)	**P**		**Q**	
n	0.17828774	ω	130.19625	+0.94485471		+0.31490656	
a	3.1264757	Ω	211.74979	−0.32748969		+0.90876999	
e	0.2012760	i	9.83777	+0.00026245		+0.27380828	
P	5.53	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1997 06 08	809	1.3−	2.9−	1998 08 24	704	0.7+	0.2+	1998 08 27	704	1.0−	0.5+
1997 06 08	809	2.0−	2.2−	1998 08 24	704	0.4−	0.5−	1998 09 16	699	0.2−	0.8−
1997 06 08	809	1.7−	1.9−	1998 08 24	704	0.9+	0.3−	1998 09 16	699	0.8+	0.1+
1997 06 09	809	1.5+	1.7+	1998 08 24	704	0.1+	0.2+	1998 09 16	699	0.4−	0.2+
1997 06 09	809	1.7+	2.7+	1998 08 27	704	0.2+	0.2+				
1997 06 09	809	1.8+	2.6+	1998 08 27	704	0.7−	0.2+				

1998 QP$_{90}$ = 1997 FR$_{2}$ = 1997 HM$_{3}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	331.28238		(2000.0)	**P**		**Q**	
n	0.30938880	ω	353.44710	+0.99346105		−0.10802273	
a	2.1650420	Ω	12.93028	+0.11081113		+0.83432324	
e	0.1686353	i	9.50796	+0.02749610		+0.54058840	
P	3.19	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1997 03 11	809	0.7−	1.6+	1998 08 26	809	0.6+	0.1−	1998 08 29	704	0.7+	0.4−
1997 03 11	809	0.3−	0.3+	1998 08 26	809	0.6+	0.1−	1998 08 29	704	1.2−	1.1+
1997 03 11	809	0.8−	0.2−	1998 08 27	809	0.4−	1.3−	1998 09 25	699	1.1+	0.2−
1997 03 31	704	(2.4+	1.4−)	1998 08 27	809	0.1−	1.1−	1998 09 25	699	1.6+	0.2−
1997 03 31	704	1.8+	0.8+	1998 08 27	809	0.5−	1.7−	1998 09 25	699	1.0+	0.1−
1997 04 03	704	1.9+	0.8−	1998 08 28	704	0.7+	0.8+	1998 09 26	704	0.5+	0.3−
1997 04 03	704	(2.7+	1.0−)	1998 08 28	704	1.2−	0.6−	1998 09 26	704	0.0	0.4−
1997 04 06	566	0.5+	0.2−	1998 08 28	704	1.0−	0.3+	1998 09 26	704	0.1−	1.5−
1997 04 06	566	0.3+	0.8−	1998 08 28	704	1.0−	0.7+	1998 09 26	704	(2.1+	1.3−)
1997 04 06	566	0.1−	0.1−	1998 08 28	704	0.9−	1.3+	1998 09 26	704	(2.4−	0.2+)
1997 04 27	691	0.7−	0.2−	1998 08 29	704	0.8+	0.8−	1998 09 27	704	0.1−	0.1−
1997 04 27	691	0.6−	0.3−	1998 08 29	704	1.4−	0.1+	1998 09 27	704	0.4−	0.4+
1997 04 27	691	0.6−	0.3−	1998 08 29	704	0.9+	0.8+	1998 09 27	704	0.2−	0.1+
1997 05 05	691	0.4−	0.2+	1998 08 29	704	1.6−	1.2+	1998 09 27	704	0.1−	0.8+
1997 05 05	691	0.6−	0.2−	1998 08 29	704	1.0+	0.0	1998 09 27	704	0.3−	0.6+
1997 05 05	691	0.5−	0.3−	1998 08 29	704	0.1+	0.1+				
1998 08 26	809	1.5+	0.8−	1998 08 29	704	0.6−	1.1+				

1998 QT$_{90}$ = 1990 SO$_{5}$ = 1993 GJ$_{1}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	44.30612		(2000.0)	**P**		**Q**	
n	0.24574497	ω	231.12721	+0.24805119		+0.96573788	
a	2.5243309	Ω	53.40238	−0.85678213		+0.25545537	
e	0.1201071	i	5.45313	−0.45210065		+0.04574829	
P	4.01	H	14.0	G	0.15	U	3

Residuals in seconds of arc

1990 09 22	809	1.2+	1.6+	1993 04 19	675	0.5+	0.3+	1998 08 31	704	0.4+	0.0
1990 09 22	809	0.2−	0.1−	1993 04 19	675	0.2+	0.1+	1998 08 31	704	0.8+	0.9−
1990 09 22	809	0.5+	1.8+	1998 08 28	704	1.1+	0.5+	1998 09 17	699	0.6+	0.6+
1990 09 25	809	0.4−	0.8−	1998 08 28	704	1.2−	0.3+	1998 09 17	699	0.2+	0.1+
1990 09 25	809	1.2−	0.3−	1998 08 28	704	3.1+	2.0−	1998 09 17	699	0.1+	0.0
1990 09 25	809	0.7−	0.6−	1998 08 28	704	1.3−	0.3+	1998 09 24	699	0.0	0.7−
1993 04 15	675	0.4+	0.4+	1998 08 28	704	1.8−	0.1−	1998 09 24	699	0.3+	0.5−
1993 04 15	675	0.3+	1.2+	1998 08 31	704	0.4−	0.7+	1998 09 24	699	0.3+	0.2−
1993 04 16	675	0.1+	0.5−	1998 08 31	704	1.0−	0.5−				
1993 04 16	675	1.5−	1.3−	1998 08 31	704	0.4−	0.9+				

1998 QU$_{90}$ = 1993 CG = 1995 YA$_{26}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	240.61694		(2000.0)	**P**		**Q**	
n	0.28865497	ω	53.48717	−0.27720656		−0.95723691	
a	2.2675143	Ω	52.81322	+0.84496608		−0.28389453	
e	0.0776035	i	5.96488	+0.45737167		−0.05569015	
P	3.41	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1993 02 13	402	1.5−	1.4−	1998 08 28	704	0.1+	1.0−	1998 09 17	699	0.2−	0.1+
1993 02 13	402	0.5−	3.2+	1998 08 28	704	0.0	1.0−	1998 09 17	699	0.3−	0.2+
1993 02 14	402	0.7+	1.0−	1998 08 28	704	0.4−	0.8−	1998 09 17	699	0.2−	0.1+
1993 02 14	402	1.4+	0.5−	1998 08 31	704	0.8+	0.5+	1998 09 24	699	0.5+	0.3−
1995 12 20	358	0.1+	0.6−	1998 08 31	704	1.3+	0.1−	1998 09 24	699	0.3+	0.0
1995 12 20	358	0.1−	0.5+	1998 08 31	704	0.2−	0.1−	1998 09 24	699	0.8+	0.3−
1998 08 28	704	0.7+	1.2−	1998 08 31	704	2.0−	1.9+				
1998 08 28	704	0.4+	1.1+	1998 08 31	704	1.7−	1.0+				

1998 QT$_{94}$ = 1977 RO$_{15}$ = 1997 JN$_{3}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	310.00182		(2000.0)	**P**		**Q**	
n	0.28072861	ω	161.65648	+0.86856358		−0.49527252	
a	2.3099979	Ω	228.04397	+0.45170603		+0.80562053	
e	0.2049433	i	1.34001	+0.20386018		+0.32508567	
P	3.51	H	16.0	G	0.15	U	4

Residuals in seconds of arc

1977 09 09	675	0.3+	0.5−	1998 08 17	704	1.2+	0.9+	1998 09 14	704	0.7+	0.6−
1977 09 10	675	0.4+	1.3−	1998 08 17	704	(3.5−	2.2−)	1998 09 14	704	0.2+	0.1−
1997 05 05	691	0.4+	0.2−	1998 08 23	704	0.1+	1.2+	1998 09 14	699	0.2−	0.7−
1997 05 05	691	0.2+	0.6−	1998 08 23	704	0.6−	0.9−	1998 09 14	699	0.4−	0.2−
1997 05 05	691	0.3+	0.2−	1998 08 23	704	0.5−	0.5+	1998 09 14	699	0.0	0.3−
1997 05 06	691	0.6−	0.2−	1998 08 23	704	1.9−	0.2−	1998 09 18	704	0.8+	0.0
1997 05 06	691	0.4−	0.2−	1998 08 23	704	1.6−	1.3+	1998 09 18	704	0.7−	0.2−
1997 05 06	691	0.3−	0.1−	1998 09 14	704	0.0	1.0+	1998 09 18	704	0.9+	0.7−
1998 08 17	704	(2.3−	1.1+)	1998 09 14	704	0.6−	0.3−	1998 09 18	704	0.9+	0.2+
1998 08 17	704	0.6+	1.1+	1998 09 14	704	0.0	1.7−	1998 09 18	704	0.9+	1.0+

1998 QO$_{95}$ = 1980 TG$_{8}$ = 1980 TA$_{3}$ = 1984 YU

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	305.67707		(2000.0)	**P**		**Q**	
n	0.27111896	ω	185.08347	+0.85412606		−0.51730023	
a	2.3642648	Ω	206.28493	+0.48131319		+0.82528990	
e	0.1521130	i	6.94740	+0.19699313		+0.22648855	
P	3.64	H	15.0	G	0.15	U	3

Residuals in seconds of arc

1980 10 10	095	(1.3+	3.6−)	1998 08 19	704	0.2+	1.5−	1998 09 14	704	0.3+	0.5+
1980 10 14	511	1.1+	0.7+	1998 08 19	704	0.2−	0.1−	1998 09 15	699	0.3−	0.6+
1980 10 14	511	0.1+	0.3−	1998 08 24	704	0.0	0.3+	1998 09 15	699	0.4−	0.7+
1980 10 14	511	0.8−	1.7−	1998 08 24	704	0.0	0.1+	1998 09 15	699	0.3−	0.6+
1984 12 18	801	0.3−	0.0	1998 08 24	704	0.6+	0.6+	1998 09 18	704	0.0	0.4+
1984 12 22	033	0.6−	0.6+	1998 08 24	704	(0.7+	3.1−)	1998 09 18	704	0.4+	0.3−
1984 12 22	033	0.3−	0.3−	1998 08 24	704	0.6−	0.0	1998 09 18	704	0.2−	0.3−
1984 12 23	801	1.2+	0.0	1998 09 14	704	0.4−	0.3+	1998 09 18	704	0.1+	0.2+
1998 08 19	704	0.2−	0.1+	1998 09 14	704	0.1+	0.2+	1998 09 18	704	0.2+	1.4+
1998 08 19	704	0.7+	1.5−	1998 09 14	704	0.1−	0.0				
1998 08 19	704	0.2−	1.1−	1998 09 14	704	0.1+	0.1−				

1998 QU$_{97}$ = 1997 EJ$_7$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	50.33246	(2000.0)	**P**	**Q**	
n	0.26692960	ω	299.26750	−0.06171403	+0.97322735
a	2.3889381	Ω	324.96689	−0.72830162	−0.19559034
e	0.2226914	i	22.68649	−0.68247207	+0.12071846
P	3.69	H	15.0	G 0.15	U 4

Residuals in seconds of arc

1997 03 04	691	0.3−	0.1−	1997 03 09	691	0.1−	0.2−	1998 08 27	704	0.6+	0.1+
1997 03 04	691	0.5−	0.3+	1998 08 24	704	0.2+	0.4−	1998 09 19	704	2.2−	0.9−
1997 03 04	691	0.3−	0.1−	1998 08 24	704	0.3−	1.1+	1998 09 19	704	0.4−	0.5+
1997 03 08	691	0.3+	0.3+	1998 08 24	704	0.1+	1.1−	1998 09 19	704	0.0	1.5−
1997 03 08	691	0.3+	0.2+	1998 08 24	704	0.8−	1.6−	1998 09 23	704	1.0+	1.0+
1997 03 08	691	0.1+	0.2+	1998 08 27	704	0.9+	0.4+	1998 09 23	704	0.2−	0.5+
1997 03 09	691	0.3+	0.7−	1998 08 27	704	0.5+	1.6+	1998 09 23	704	0.2−	0.4+
1997 03 09	691	0.0	0.1+	1998 08 27	704	0.0	0.7+	1998 09 23	704	0.9+	0.9−

1998 QE$_{98}$ = 1991 VE$_{10}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	8.63661	(2000.0)	**P**	**Q**	
n	0.27293343	ω	233.61056	+0.66142431	+0.74707188
a	2.3537747	Ω	77.93673	−0.66457206	+0.62478100
e	0.2583635	i	3.89003	−0.34765192	+0.22700728
P	3.61	H	16.0	G 0.15	U 6

Residuals in seconds of arc

1991 11 04	691	0.4+	0.2+	1998 08 28	704	1.4−	1.3+	1998 09 16	910	0.1+	0.4−
1991 11 04	691	0.2+	0.1+	1998 08 28	704	(1.6−	2.2+)	1998 09 16	910	0.3+	0.2−
1991 11 04	691	0.4+	0.1+	1998 08 31	704	0.3+	0.4+	1998 09 17	699	0.1−	0.2+
1991 11 07	691	0.8−	0.3−	1998 08 31	704	0.6−	1.5−	1998 09 17	699	0.1−	0.1−
1991 11 07	691	0.0	0.2+	1998 08 31	704	1.0−	0.5−	1998 09 17	699	0.5−	0.6−
1991 11 07	691	0.9−	0.5−	1998 08 31	704	0.0	0.7+	1998 09 24	699	0.2+	0.1+
1991 11 07	691	0.9+	1.0+	1998 09 15	910	0.6+	0.5−	1998 09 24	699	0.5−	0.6+
1991 11 07	691	0.4−	0.1−	1998 09 15	910	0.5+	0.8−	1998 09 24	699	0.0	0.0
1991 11 07	691	0.1−	0.2−	1998 09 15	910	0.4+	0.6−				
1998 08 28	704	1.6+	1.9+	1998 09 16	910	0.2+	0.2−				

1998 QD$_{99}$ = 1984 YS = 1989 YJ$_5$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	322.96226	(2000.0)	**P**	**Q**	
n	0.19821729	ω	286.55792	+0.93851695	−0.34041167
a	2.9132317	Ω	93.37282	+0.33462941	+0.85602625
e	0.0709816	i	3.30185	+0.08490643	+0.38902309
P	4.97	H	13.5	G 0.15	U 5

Residuals in seconds of arc

1984 12 31	675	0.2+	2.4−	1998 08 26	809	0.3+	0.3+	1998 09 18	704	0.1−	0.1−
1989 12 28	511	0.1−	1.1+	1998 08 26	809	0.3+	0.8+	1998 09 18	704	0.4+	0.3−
1989 12 28	511	0.2+	1.7+	1998 08 27	809	0.1−	0.5+	1998 09 18	704	0.5+	0.6+
1989 12 29	511	0.1−	0.2−	1998 08 27	809	0.3−	0.1+	1998 09 18	704	0.7+	0.3+
1989 12 29	511	0.4+	1.3+	1998 08 27	809	0.7+	0.9+	1998 09 18	704	0.3−	1.0+
1989 12 29	511	0.6+	0.1+	1998 09 14	704	0.4−	0.3−	1998 09 19	428	0.2−	0.6−
1990 01 03	511	0.0	1.1−	1998 09 14	704	1.1−	0.3−	1998 09 19	428	0.3+	0.3−
1990 01 03	511	(2.5−	0.2−)	1998 09 14	704	0.8−	0.9−	1998 09 20	428	0.0	0.5−
1990 01 04	511	1.9−	0.7−	1998 09 14	704	0.4−	0.6−	1998 09 20	428	0.2−	0.5−
1990 01 04	511	0.8+	0.3+	1998 09 16	428	0.1+	0.3−				
1998 08 26	809	1.0+	1.1+	1998 09 16	428	0.1−	0.5−				

1998 QE$_{99}$ = 1992 SU$_{25}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	288.81040	(2000.0)	**P**	**Q**	
n	0.15867048	ω	77.38659	+0.27761889	−0.96051907
a	3.3791330	Ω	356.34113	+0.73301836	+0.22402710
e	0.1764691	i	16.56100	+0.62097652	+0.16496961
P	6.21	H	13.5	G 0.15	U 5

Residuals in seconds of arc

1992 09 30	675	1.1−	1.0+	1998 08 27	809	0.4−	0.1+	1998 09 20	691	0.2−	0.7+
1992 09 30	675	0.7−	0.9−	1998 09 14	704	1.1+	1.0−	1998 09 20	691	0.3−	0.4+
1992 10 03	675	1.0+	0.8+	1998 09 14	704	0.3+	0.1+	1998 09 20	691	0.1+	0.3+
1992 10 03	675	0.8+	0.9−	1998 09 14	704	1.2+	0.4+	1998 09 23	691	1.0−	0.2+
1998 08 26	809	0.4+	0.3+	1998 09 18	704	0.5−	0.4+	1998 09 23	691	0.9−	0.1+
1998 08 26	809	0.3+	0.2−	1998 09 18	704	0.3+	0.8−	1998 09 23	691	1.2−	0.1+
1998 08 26	809	0.1+	0.0	1998 09 18	704	(2.1−	1.0+)	1998 09 26	691	0.8+	0.0
1998 08 27	809	0.1−	0.8+	1998 09 18	704	1.1−	0.5−	1998 09 26	691	0.6+	0.1−
1998 08 27	809	0.2−	0.3−	1998 09 18	704	0.0	0.9−	1998 09 26	691	0.7+	0.0

1998 QH$_{99}$ = 1976 UC$_7$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	308.96038	(2000.0)	**P**	**Q**	
n	0.26707303	ω	353.31330	+0.77232842	−0.63394499
a	2.3880827	Ω	46.11142	+0.58536429	+0.68564889
e	0.1900750	i	3.20406	+0.24669304	+0.35776997
P	3.69	H	16.0	G 0.15	U 6

Residuals in seconds of arc

1976 10 22	381	0.4−	0.2−	1998 08 26	809	0.5+	0.1−	1998 09 14	704	0.5−	0.9−
1976 10 22	381	1.5−	0.7−	1998 08 26	809	0.3+	0.2−	1998 09 14	704	0.2+	0.8+
1976 10 22	381	0.7−	0.2−	1998 08 27	809	0.0	0.0	1998 09 18	704	1.3−	0.9+
1976 10 22	381	0.7−	1.3−	1998 08 27	809	0.3−	0.2−	1998 09 18	704	0.4+	0.2−
1976 10 24	381	2.7+	2.8+	1998 08 27	809	0.1−	0.3+	1998 09 18	704	1.2+	1.2−
1976 10 24	381	0.8+	0.7−	1998 09 14	704	0.6+	0.1−	1998 09 18	704	1.1−	1.2+
1998 08 26	809	0.6+	0.9−	1998 09 14	704	0.4−	0.6+				

1998 QJ$_{99}$ = 1993 FT$_{15}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	331.25695	(2000.0)	**P**	**Q**	
n	0.26487041	ω	269.19937	+0.98702964	−0.14818648
a	2.4013037	Ω	99.32091	+0.16053201	+0.90770001
e	0.2117620	i	3.58779	+0.00139979	+0.39258306
P	3.72	H	14.5	G 0.15	U 4

Residuals in seconds of arc

1993 03 17	809	2.3+	0.5+	1998 08 26	809	0.7+	0.1−	1998 09 14	704	0.9+	0.4−
1993 03 18	809	0.9+	1.0+	1998 08 26	809	0.2+	0.1+	1998 09 14	704	0.9−	0.4−
1993 03 23	809	0.8+	0.5+	1998 08 27	809	0.6−	0.2−	1998 09 18	704	0.5+	0.1−
1993 03 23	691	1.3−	0.5−	1998 08 27	809	0.9−	0.1−	1998 09 18	704	0.0	0.5+
1993 03 23	691	1.6−	0.4−	1998 08 27	809	0.9−	0.2−	1998 09 18	704	0.6+	0.7+
1993 03 23	691	0.9−	0.5−	1998 09 14	704	0.1−	0.2−	1998 09 18	704	0.1+	0.9+
1998 08 26	809	1.0+	0.1+	1998 09 14	704	0.6−	0.8−	1998 09 18	704	0.2−	0.5+

1998 QO$_{99}$ = 1990 CP = 1991 PN$_{25}$ = 1997 GH$_{39}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	167.64186	(2000.0)	**P**	**Q**	
n	0.29407430	ω	36.99129	−0.96680207	−0.24166565
a	2.2395701	Ω	128.81459	+0.20144368	−0.92070730
e	0.1039258	i	6.11599	+0.15720753	−0.30642417
P	3.35	H	14.5	G 0.15	U 2

Residuals in seconds of arc

1990 02 15	400	1.0+	1.1+	1997 04 08	809	0.2+	1.0+	1998 09 14	704	0.3+	0.8+
1990 02 15	400	1.0+	1.4+	1997 04 08	809	0.1+	1.1+	1998 09 14	704	0.8−	1.6+

1990 02 15	400	0.6−	1.6+	1998 08 26	809	0.5+	1.2−	1998 09 18	704	0.8+	0.9+
1991 08 03	809	0.4−	0.3−	1998 08 26	809	1.1+	2.0−	1998 09 18	704	0.3−	0.5+
1991 08 03	809	1.4−	1.1+	1998 08 26	809	0.9+	1.1−	1998 09 18	704	0.6+	2.2+
1991 08 03	809	1.0+	1.1+	1998 08 27	809	3.0−	1.9−	1998 09 18	704	1.3+	0.4−
1997 04 07	809	0.2−	0.1−	1998 08 27	809	0.5+	1.2−	1998 09 18	704	1.4−	1.3+
1997 04 07	809	0.3−	0.1+	1998 08 27	809	0.3−	1.1−	1998 09 24	699	0.4−	1.3+
1997 04 07	809	0.6−	0.2−	1998 09 14	704	0.1+	0.8+	1998 09 24	699	1.1+	2.0+
1997 04 08	809	1.4+	0.5+	1998 09 14	704	1.5−	0.2+	1998 09 24	699	0.9−	2.2+

1998 QP$_{100}$ = 1994 WX$_{10}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	317.16290		(2000.0)		**P**		**Q**
n	0.21005794	ω	334.17969		+0.89184645		−0.44675396
a	2.8027002	Ω	52.53875		+0.42894211		+0.78555038
e	0.0821909	i	5.12148		+0.14359167		+0.42816059
P	4.69	H	14.5	G	0.15	U	6

Residuals in seconds of arc

1994 11 27	010	0.2−	0.0	1998 08 26	809	0.3+	0.8−	1998 09 14	704	0.2+	0.2−
1994 11 27	010	0.0	0.2+	1998 08 26	809	0.4−	1.1−	1998 09 14	704	0.3+	0.3−
1994 11 28	010	0.4−	0.0	1998 08 26	809	0.8−	0.4−	1998 09 14	704	0.9−	1.1+
1994 11 28	010	0.1−	0.5+	1998 08 27	809	1.9−	0.8+	1998 09 18	704	3.0+	0.2−
1994 11 28	010	0.1+	0.4−	1998 08 27	809	2.1−	1.0+	1998 09 18	704	2.2+	0.3+
1994 11 29	010	0.5+	0.0	1998 08 27	809	1.5−	0.7+	1998 09 18	704	1.4+	1.0−

1998 QZ$_{100}$ = 1997 JR$_{18}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	357.70781		(2000.0)		**P**		**Q**
n	0.18327812	ω	241.80664		+0.88750977		+0.45849525
a	3.0694623	Ω	90.87117		−0.40503123		+0.82375083
e	0.2733879	i	2.63217		−0.21971825		+0.33349164
P	5.38	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1997 05 01	704	0.3+	0.4+	1997 05 05	704	1.8−	0.3−	1998 09 14	704	0.5−	0.0
1997 05 01	704	1.2+	0.2+	1998 08 26	809	0.4−	0.0	1998 09 14	704	0.4+	0.3−
1997 05 01	704	0.9+	0.4+	1998 08 26	809	1.0−	0.6+	1998 09 14	704	0.5+	0.6−
1997 05 01	704	1.1−	0.4+	1998 08 26	809	0.9−	0.1+	1998 09 18	704	0.1−	0.2−
1997 05 01	704	0.0	0.4+	1998 08 27	809	0.0	0.1−	1998 09 18	704	0.0	0.5+
1997 05 05	704	0.4+	0.7+	1998 08 27	809	1.0+	0.6−	1998 09 18	704	0.1−	0.6+
1997 05 05	704	0.1+	0.8−	1998 08 27	809	1.3+	0.3−	1998 09 18	704	0.7+	0.3−
1997 05 05	704	0.0	1.4−	1998 09 14	704	0.2+	0.2−	1998 09 18	704	1.1−	1.0+

1998 QH$_{101}$ = 1997 EX$_{58}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	229.11037		(2000.0)		**P**		**Q**
n	0.31100915	ω	0.10378		−0.22870182		−0.97285161
a	2.1575156	Ω	103.11695		+0.89313938		−0.22416344
e	0.0240128	i	2.08477		+0.38729513		−0.05753684
P	3.17	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1997 03 10	809	0.1+	0.3−	1998 08 26	809	0.2+	1.4−	1998 09 14	704	0.7−	0.4−
1997 03 10	809	0.5−	0.4−	1998 08 26	809	0.5−	1.6−	1998 09 14	704	0.3+	0.1−
1997 03 10	809	0.6−	0.4−	1998 08 27	809	0.0	1.9+	1998 09 18	704	0.9+	0.9+
1997 03 11	809	0.0	0.9+	1998 08 27	809	0.4+	2.2+	1998 09 18	704	0.4−	0.0
1997 03 11	809	0.5+	0.1−	1998 08 27	809	0.7+	2.0+	1998 09 18	704	0.2−	0.3+
1997 03 11	809	0.4+	0.3+	1998 09 14	704	0.2+	0.8−	1998 09 18	704	1.2+	0.4−
1998 08 26	809	0.4−	2.4−	1998 09 14	704	1.3−	0.6−	1998 09 18	704	0.4−	0.4+

1998 QZ$_{101}$ = 1992 BH$_{3}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	71.61667		(2000.0)		**P**		**Q**
n	0.24050549	ω	103.83272		−0.15228288		+0.98605193
a	2.5608613	Ω	157.07939		−0.96028317		−0.13154108
e	0.0276592	i	9.93123		−0.23380796		−0.10197319
P	4.10	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1992 01 26	691	0.5+	1.7−	1992 01 29	691	0.2−	1.3+	1998 09 14	704	1.0−	1.1−
1992 01 26	691	0.1−	0.1+	1998 08 26	809	(4.5+	2.6+)	1998 09 14	704	2.8−	2.1−
1992 01 26	691	0.4+	1.5−	1998 08 26	809	3.2+	0.8+	1998 09 14	704	0.7−	1.1+
1992 01 28	691	0.2+	0.3+	1998 08 26	809	3.5+	1.6+	1998 09 18	704	0.9+	1.2+
1992 01 28	691	0.2−	0.2−	1998 08 27	809	1.3+	1.8+	1998 09 18	704	2.7−	0.5−
1992 01 28	691	0.2+	0.3−	1998 08 27	809	1.9+	0.9+	1998 09 18	704	0.2+	2.3−
1992 01 29	691	0.2−	1.2+	1998 08 27	809	1.0+	0.1−	1998 09 18	704	2.4−	0.6+
1992 01 29	691	0.5−	0.9+	1998 09 14	704	0.3−	0.3−	1998 09 18	704	1.6−	1.1−

1998 QL$_{103}$ = 1995 UU$_{34}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	181.65372		(2000.0)		**P**		**Q**
n	0.30443631	ω	72.14315		−0.90707265		−0.41410854
a	2.1884590	Ω	83.33786		+0.35159239		−0.84414050
e	0.0591161	i	4.37210		+0.23152105		−0.34050101
P	3.24	H	15.5	G	0.15	U	7

Residuals in seconds of arc

1995 10 21	691	0.1+	0.1+	1998 08 26	809	1.5−	2.2−	1998 09 17	699	0.5+	0.7+
1995 10 21	691	0.2−	0.2+	1998 08 26	809	1.6−	2.3−	1998 09 17	699	0.0	0.3−
1995 10 21	691	0.0	0.1+	1998 08 26	809	2.3−	3.3−	1998 09 17	699	0.5−	0.2+
1995 10 26	691	0.1−	0.1−	1998 08 27	809	2.5+	2.7+	1998 09 24	699	1.4−	1.5−
1995 10 26	691	0.1+	0.1−	1998 08 27	809	2.5+	2.9+	1998 09 24	699	0.1−	0.0
1995 10 26	691	0.1−	0.1−	1998 08 27	809	1.0+	3.1+	1998 09 24	699	0.9+	0.1−

1998 QF$_{104}$ = 1978 RM$_{6}$ = 1986 TY$_{2}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	43.11621		(2000.0)		**P**		**Q**
n	0.24374334	ω	272.86698		+0.26949655		+0.96119334
a	2.5381320	Ω	13.22736		−0.74896848		+0.24770576
e	0.0998481	i	14.93805		−0.60532456		+0.12144638
P	4.04	H	13.0	G	0.15	U	5

Residuals in seconds of arc

1978 09 13	095	(8.6−	0.2−)	1998 08 26	809	0.7−	0.3−	1998 09 17	699	0.4+	0.1+
1986 10 04	046	(6.2−	0.4+)	1998 08 26	809	0.9−	0.3−	1998 09 17	699	0.1−	0.0
1986 10 04	046	0.4−	2.2−	1998 08 27	809	0.6+	0.1+	1998 09 24	699	0.0	0.2−
1986 10 05	046	0.0	0.8+	1998 08 27	809	0.9+	0.4+	1998 09 24	699	0.1+	0.0
1986 10 05	046	0.4+	1.4+	1998 08 27	809	0.6+	0.5+	1998 09 24	699	0.2−	0.1+
1998 08 26	809	0.4−	0.2−	1998 09 17	699	0.4−	0.1−				

1998 QP$_{104}$ = 1976 US$_{3}$ = 1987 UL$_{1}$ = 1990 FY$_{3}$ = 1996 FM$_{17}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	242.14432		(2000.0)		**P**		**Q**
n	0.17313882	ω	82.06434		−0.28051958		−0.95466866
a	3.1881574	Ω	24.93350		+0.76102073		−0.28443588
e	0.0234871	i	13.66346		+0.58494121		−0.08777233
P	5.69	H	12.0	G	0.15	U	2

Residuals in seconds of arc

1976 10 26	095	0.5+	1.7+	1996 03 22	809	0.4−	1.6+	1998 08 27	809	0.1−	0.3−
1987 10 21	399	1.3−	1.4−	1996 03 26	809	1.2+	0.2+	1998 08 27	809	0.2+	0.7+
1987 10 21	399	1.7−	0.2+	1996 03 26	809	0.9+	1.4+	1998 09 17	699	0.1−	0.6+
1987 10 21	399	1.7−	2.9+	1996 03 26	809	0.3+	0.6+	1998 09 17	699	0.0	0.3+
1990 03 30	095	0.5+	0.3−	1998 08 26	809	0.4+	0.8−	1998 09 17	699	0.0	0.3+

1990 03 30	095	(2.6−	8.2−)	1998 08 26	809	0.3−	0.0	1998 09 24	699	0.3+	0.0
1996 03 22	809	0.6+	0.4+	1998 08 26	809	0.3−	0.1+	1998 09 24	699	0.3+	0.4+
1996 03 22	809	0.2+	1.5+	1998 08 27	809	0.6+	0.9+	1998 09 24	699	0.0	0.6−

1998 QN$_{105}$ = 1991 RD$_{17}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	319.94545		(2000.0)		**P**	**Q**	
n	0.27963303	ω	337.37698		+0.93865865	−0.33975667	
a	2.3160276	Ω	42.63010		+0.32823030	+0.82773439	
e	0.1528774	i	5.00080		+0.10575824	+0.44656599	
P	3.52	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1991 09 15	675	0.7+	0.5−	1998 08 26	809	1.3+	1.0+	1998 09 18	704	0.1+	0.2+
1991 09 15	675	0.5−	0.2−	1998 08 26	809	0.8+	0.7+	1998 09 18	704	1.1+	0.2−
1991 09 17	675	0.2−	0.6−	1998 08 26	809	1.1+	0.8+	1998 09 18	704	0.7−	0.4+
1991 09 17	675	0.2+	1.0+	1998 09 14	704	0.2−	0.4+	1998 09 18	704	0.1+	0.1−
1998 08 25	809	0.6−	0.5−	1998 09 14	704	0.3+	0.9−	1998 09 18	704	0.9−	1.1+
1998 08 25	809	0.9−	0.8−	1998 09 14	704	0.3−	0.6−				
1998 08 25	809	1.4−	1.0−	1998 09 14	704	0.0	0.4−				

1998 QO$_{105}$ = 1997 FH

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	129.19703		(2000.0)		**P**	**Q**	
n	0.29035124	ω	148.22164		−0.95342060	+0.29207804	
a	2.2586742	Ω	48.95311		−0.29344198	−0.84021626	
e	0.0973748	i	5.73503		−0.06986394	−0.45686655	
P	3.39	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1997 03 20	327	0.2+	0.2+	1997 03 22	327	0.3−	0.1−	1998 09 14	704	0.2−	0.5+
1997 03 20	327	0.2−	0.3+	1998 08 25	809	0.1+	0.0	1998 09 14	704	0.4−	0.4+
1997 03 20	327	0.0	0.2+	1998 08 25	809	0.6−	0.1−	1998 09 18	704	0.6+	0.1+
1997 03 20	327	0.4+	0.2−	1998 08 25	809	0.4−	0.8−	1998 09 18	704	1.0+	0.8−
1997 03 21	327	0.2−	0.1+	1998 08 26	809	0.5+	0.6+	1998 09 18	704	0.4−	0.4−
1997 03 21	327	0.1+	0.0	1998 08 26	809	0.2+	0.4+	1998 09 18	704	0.4−	0.0
1997 03 21	327	0.0	0.1−	1998 08 26	809	0.2+	0.1−	1998 09 18	704	0.1−	0.5+
1997 03 22	327	0.1+	0.4−	1998 09 14	704	0.4−	0.3−				
1997 03 22	327	0.2−	0.0	1998 09 14	704	0.3+	0.1−				

1998 QM$_{106}$ = 1989 TU$_{11}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	351.48930		(2000.0)		**P**	**Q**	
n	0.21624129	ω	326.33923		+0.94090598	+0.33516282	
a	2.7490141	Ω	14.32215		−0.25090756	+0.78625248	
e	0.1659264	i	11.32992		−0.22746722	+0.51910781	
P	4.56	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1989 10 01	807	0.3+	1.4−	1989 10 07	809	0.1+	1.3+	1998 08 26	809	0.9+	0.6+
1989 10 03	807	0.7−	0.4−	1989 10 07	809	0.4+	1.4+	1998 09 14	704	0.3−	0.0
1989 10 04	809	0.9−	0.5−	1989 10 07	809	0.6+	1.4+	1998 09 14	704	1.6−	0.5−
1989 10 04	809	0.7−	0.5−	1998 08 25	809	0.7+	0.0	1998 09 14	704	0.2−	0.2−
1989 10 04	809	0.5−	0.5−	1998 08 25	809	0.8−	0.7−	1998 09 14	704	0.7−	0.1−
1989 10 06	809	0.2+	0.3−	1998 08 25	809	0.7−	0.4−	1998 09 18	704	0.4+	0.3−
1989 10 06	809	0.5+	0.3−	1998 08 26	809	0.6+	0.8+	1998 09 18	704	1.1+	0.4−
1989 10 06	809	0.7+	0.3−	1998 08 26	809	0.9+	0.5+	1998 09 18	704	0.3−	1.0+

1998 QX$_{106}$ = 1993 FG$_{10}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	295.67522		(2000.0)		**P**	**Q**	
n	0.28140816	ω	25.58953		+0.58642298	−0.80776424	
a	2.3062776	Ω	28.62286		+0.71990059	+0.48567690	
e	0.1959168	i	7.22028		+0.37128322	+0.33411805	
P	3.50	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1993 03 17	809	0.4−	0.2−	1998 08 26	809	0.5+	1.0+	1998 09 14	704	2.2−	1.2+
1993 03 18	809	0.4+	0.1−	1998 08 26	809	0.1+	1.3+	1998 09 18	704	0.8−	0.2+
1993 03 23	809	0.1+	0.5+	1998 08 26	809	0.7+	0.9+	1998 09 18	704	0.1+	1.2+
1998 08 25	809	0.2+	0.6−	1998 09 14	704	1.3+	0.9−	1998 09 18	704	0.5+	0.9−
1998 08 25	809	0.7−	0.8−	1998 09 14	704	0.4+	1.7−	1998 09 18	704	0.3−	0.7+
1998 08 25	809	0.8−	1.2−	1998 09 14	704	1.3+	2.6−	1998 09 18	704	0.4−	2.5+

1998 RE = 1939 HB = 1975 UU

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	230.86117		(2000.0)		**P**	**Q**	
n	0.17685044	ω	127.65901		−0.97546706	+0.08940618	
a	3.1433926	Ω	58.31878		−0.18080523	−0.84669717	
e	0.0919826	i	13.67419		+0.12559250	−0.52450972	
P	5.57	H	12.4	G	0.15	U	2

Residuals in seconds of arc

1939 04 20	024	1.2+	2.0+	1998 09 02	402	0.1−	0.2−	1998 09 08	402	0.3+	0.4−
1975 10 30	033	0.1−	0.6+	1998 09 03	402	0.0	0.2+	1998 09 19	402	0.3+	0.3−
1975 10 31	033	0.3−	0.1+	1998 09 03	402	0.1−	0.4+	1998 09 19	402	0.2+	0.2−
1998 09 02	402	0.1−	0.0	1998 09 03	402	0.3+	0.1−	1998 09 19	402	0.9+	0.3−
1998 09 02	402	0.2−	0.1+	1998 09 08	402	1.4−	0.2+				
1998 09 02	402	0.3−	0.2+	1998 09 08	402	0.4+	0.4−				

1998 RV = 1991 EG$_{3}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	312.06075		(2000.0)		**P**	**Q**	
n	0.19097791	ω	5.14951		+0.98448047	−0.17486078	
a	2.9863953	Ω	4.99546		+0.15428742	+0.82194189	
e	0.0967950	i	9.85041		+0.08362774	+0.54206571	
P	5.16	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1991 03 11	809	0.5−	0.4+	1998 09 12	426	0.2−	0.4−	1998 09 22	422	0.2−	0.1−
1991 03 11	809	0.4−	0.5+	1998 09 13	428	0.4−	0.0	1998 09 22	422	0.3−	0.0
1991 03 11	809	0.1−	0.4+	1998 09 13	428	0.9−	0.1−	1998 09 22	422	0.5−	0.2+
1991 03 13	809	0.2+	0.4−	1998 09 15	428	0.1+	0.4+	1998 09 24	699	0.3+	0.4−
1991 03 13	809	0.3+	0.3−	1998 09 15	428	0.6−	0.1−	1998 09 24	699	0.3+	0.5+
1991 03 13	809	0.5+	0.5−	1998 09 16	428	0.1−	0.1−	1998 09 24	699	0.4+	0.3+
1998 09 11	426	0.4+	0.1−	1998 09 16	428	0.7+	0.3+	1998 09 25	429	0.4−	0.7−
1998 09 11	426	0.4+	0.0	1998 09 16	429	0.2+	0.2+	1998 09 25	429	0.1−	0.2−
1998 09 11	426	0.2+	0.1−	1998 09 16	429	0.5+	0.3+	1998 09 25	429	0.1−	0.3−
1998 09 12	426	0.1−	0.1−	1998 09 21	611	(2.6+	1.6+)	1998 09 29	429	0.0	0.4+
1998 09 12	426	0.1−	0.5−	1998 09 21	611	0.5+	1.1+	1998 09 29	429	0.2−	0.4−

1998 RX = 1975 TD$_{2}$ = 1978 ES$_{10}$ = 1981 TX$_{1}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Nakano

M	326.94872		(2000.0)		**P**	**Q**	
n	0.17067730	ω	35.88366		+0.82585538	−0.56385974	
a	3.2187374	Ω	358.41381		+0.46593393	+0.68737742	
e	0.0695970	i	10.42413		+0.31759796	+0.45779304	
P	5.77	H	11.9	G	0.15	U	2

Residuals in seconds of arc

1975 10 03	095	0.4−	0.7+	1998 09 12	411	0.4−	0.2+	1998 09 15	699	0.5+	0.4+
1978 03 15	675	0.2+	0.1+	1998 09 13	411	0.6+	0.1−	1998 09 16	411	0.7+	0.1+

1978 03 16	675	0.0	0.2+	1998 09 13	411	0.1−	0.0	1998 09 16	411	0.2+	0.1+
1981 10 03	095	0.1+	0.2−	1998 09 15	699	0.4+	0.2+	1998 10 02	411	0.4−	0.7−
1998 09 12	411	1.3−	0.1+	1998 09 15	699	0.6+	0.1+	1998 10 02	411	0.6−	0.5−

1998 RT$_1$ = 1994 RZ$_{24}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	115.00233		(2000.0)		**P**	**Q**	
n	0.24561629	ω	263.87972		−0.62849756	+0.76727805	
a	2.5252125	Ω	326.08977		−0.59201588	−0.57827147	
e	0.0194670	i	13.21887		−0.50448788	−0.27728414	
P	4.01	H	15.5	G	0.15	U	6

Residuals in seconds of arc

1994 09 12	327	1.5−	0.2+	1994 09 12	327	1.0−	0.4+	1998 09 15	703	1.1−	0.4+
1994 09 12	327	1.0−	0.1−	1994 09 14	327	3.9+	0.4+	1998 09 19	699	0.9+	0.6−
1994 09 12	327	1.0+	0.2+	1994 09 14	327	1.8+	0.4+	1998 09 19	699	1.2−	0.3−
1994 09 12	327	0.7−	0.4−	1994 09 14	327	2.7−	0.0	1998 09 19	699	1.0+	0.1+
1994 09 12	327	0.1−	0.1+	1994 09 14	327	2.6+	0.7−	1998 09 25	699	1.0−	0.6−
1994 09 12	327	0.9−	0.1+	1998 09 14	703	2.5+	0.3−	1998 09 25	699	0.1−	0.4+
1994 09 12	327	0.9−	0.1−	1998 09 14	703	1.6−	0.4+	1998 09 25	699	0.6−	0.2+
1994 09 12	327	0.3−	0.8−	1998 09 14	703	0.6+	0.3+				
1994 09 12	327	0.3−	0.3+	1998 09 15	703	0.6+	0.1−				

1998 RJ$_4$ = 1981 EN$_{29}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	19.69499		(2000.0)		**P**	**Q**	
n	0.36360856	ω	124.11078		+0.59093169	+0.80658447	
a	1.9440763	Ω	182.28205		−0.80662279	+0.59047033	
e	0.0754900	i	21.93397		−0.01262546	+0.02768178	
P	2.71	H	16.5	G	0.15	U	5

Residuals in seconds of arc

1981 03 01	413	0.6+	0.6−	1998 09 18	704	0.1−	0.8−	1998 09 26	704	1.2+	0.3−
1981 03 01	413	0.3+	0.6−	1998 09 18	704	0.0	0.4−	1998 09 26	704	0.1+	2.6−
1981 03 06	413	(3.2−	6.6+)	1998 09 18	704	0.1−	0.5−	1998 09 27	704	0.9+	0.4+
1981 03 08	413	(2.9−	6.9+)	1998 09 18	704	0.5−	1.2+	1998 09 27	704	0.7+	0.3−
1981 03 08	413	0.8−	1.7+	1998 09 18	704	1.3−	1.2−	1998 09 27	704	1.0+	0.2+
1998 08 27	699	0.1+	0.3+	1998 09 25	699	0.2−	1.4+	1998 09 27	704	0.3−	0.2−
1998 08 27	699	0.5−	0.6+	1998 09 25	699	0.2+	0.7+	1998 09 27	704	0.8−	1.1−
1998 08 27	699	0.8+	0.6−	1998 09 25	699	0.5+	1.4+	1998 09 28	691	1.2−	0.2+
1998 09 14	704	0.3−	1.0−	1998 09 26	704	0.2+	1.1+	1998 09 28	691	0.8−	0.0
1998 09 14	704	0.8+	0.3+	1998 09 26	704	0.6+	0.2+	1998 09 28	691	1.0−	0.1−
1998 09 14	704	0.8−	0.5+	1998 09 26	704	0.7+	1.1+				

1998 RV$_4$ = 1997 ES$_{30}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	319.60477		(2000.0)		**P**	**Q**	
n	0.35551422	ω	206.90377		+0.95312714	−0.29349433	
a	1.9734740	Ω	169.34933		+0.29471538	+0.95556566	
e	0.0874467	i	23.45060		−0.06849447	+0.02748373	
P	2.77	H	16.5	G	0.15	U	5

Residuals in seconds of arc

1997 03 10	552	0.7+	0.3+	1998 09 14	704	0.5−	0.5+	1998 09 18	704	0.7−	1.6−
1997 03 10	552	1.1−	0.1−	1998 09 14	704	0.0	1.0−	1998 09 18	704	0.2+	0.3−
1997 03 10	552	0.1+	0.4−	1998 09 17	699	0.4+	0.6+	1998 09 18	704	0.7+	0.7+
1997 03 11	552	0.6+	0.2−	1998 09 17	699	0.4−	0.7+	1998 09 18	704	0.4+	0.9+
1997 03 11	552	0.3−	0.3+	1998 09 17	699	0.3+	0.1+				
1998 09 14	704	0.2+	0.0	1998 09 18	704	0.5−	0.8−				

1998 RZ$_8$ = 1993 RK$_9$ = 1997 LQ$_{13}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	332.36097		(2000.0)		**P**	**Q**	
n	0.19312143	ω	196.07945		+0.99887422	−0.04503793	
a	2.9642562	Ω	166.47573		+0.04741862	+0.93917467	
e	0.1706648	i	3.65195		+0.00133010	+0.34047397	
P	5.10	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1993 09 14	809	1.0+	3.7+	1993 09 19	809	0.4+	0.9+	1998 09 13	691	0.1+	0.6−
1993 09 14	809	0.4+	3.8+	1997 06 07	809	1.9−	1.4+	1998 09 13	691	0.0	0.3−
1993 09 14	809	0.6+	2.7+	1997 06 07	809	0.0	0.9+	1998 09 19	691	0.4+	0.9−
1993 09 14	691	2.2−	1.9−	1997 06 07	809	0.7−	0.2+	1998 09 19	691	0.5+	0.9−
1993 09 14	691	2.3−	1.8−	1997 06 08	809	2.1+	1.4−	1998 09 19	691	0.1+	1.0−
1993 09 14	691	3.5−	2.8−	1997 06 08	809	0.3−	0.9+	1998 09 24	691	0.6+	1.3−
1993 09 19	809	0.8+	1.1+	1997 06 08	809	1.2+	0.4−	1998 09 24	691	0.4+	1.3−
1993 09 19	809	1.7+	2.7+	1998 09 13	691	0.0	0.7−	1998 09 24	691	0.6+	1.2−

1998 RS$_{14}$ = 1977 RU$_{19}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	306.89351		(2000.0)		**P**	**Q**	
n	0.18825437	ω	53.16402		+0.53066369	−0.84747947	
a	3.0151298	Ω	4.84196		+0.71925950	+0.44201951	
e	0.1402614	i	9.00653		+0.44839918	+0.29393419	
P	5.24	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1977 09 09	675	0.7−	0.8−	1998 09 21	691	0.7−	0.3−	1998 09 26	046	0.9+	0.4+
1977 09 10	675	0.9+	0.5+	1998 09 21	691	0.8−	0.0	1998 09 29	046	0.2−	0.1+
1998 09 14	691	1.0−	0.0	1998 09 26	046	1.0+	0.1−	1998 09 29	046	0.1+	0.2−
1998 09 14	691	1.0−	0.2−	1998 09 26	046	1.1+	0.1+	1998 09 29	046	0.3+	0.3+
1998 09 14	691	1.3−	0.1+	1998 09 26	046	1.0+	0.1+	1998 09 29	046	0.1+	0.3+
1998 09 21	691	0.9−	0.1−	1998 09 26	046	1.1+	0.2−				

1998 RU$_{15}$ = 1983 GE

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	84.29292		(2000.0)		**P**	**Q**	
n	0.28260501	ω	78.54598		−0.27034781	+0.96274062	
a	2.2997616	Ω	175.75227		−0.91409710	−0.25454930	
e	0.1139275	i	5.05300		−0.30222268	−0.09129704	
P	3.49	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1983 04 05	372	1.1+	0.0	1998 09 06	327	0.2−	0.5+	1998 09 25	327	1.4+	0.1+
1983 04 05	372	0.1−	0.2+	1998 09 06	327	0.6−	0.3+	1998 09 25	327	1.7+	0.0
1983 04 08	372	2.9−	0.7−	1998 09 06	327	0.1−	0.1+	1998 09 29	327	1.4−	0.1+
1983 04 08	372	2.1+	1.0+	1998 09 23	327	0.3−	0.5+	1998 09 29	327	1.3−	0.1+
1998 09 04	327	0.1+	0.1−	1998 09 23	327	0.2+	0.7−	1998 09 29	327	1.6−	0.1−
1998 09 04	327	0.1+	0.1−	1998 09 23	327	0.7+	0.5+				
1998 09 04	327	0.2−	0.5−	1998 09 25	327	1.3+	0.1−				

1998 RF$_{16}$ = 1981 RU$_6$ = 1997 GM$_{38}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	52.72496		(2000.0)		**P**	**Q**	
n	0.23557669	ω	145.76557		+0.17907718	+0.98172481	
a	2.5964572	Ω	134.45507		−0.92163966	+0.19030223	
e	0.1737301	i	5.17659		−0.34425528	+0.00120383	
P	4.18	H	14.0	G	0.15	U	3

Residuals in seconds of arc

1981 09 03	675	0.6−	0.1+	1998 09 14	327	0.3+	0.3−	1998 09 22	699	0.4+	1.0+
1981 09 04	675	0.6+	0.1−	1998 09 14	327	0.2+	0.6−	1998 09 22	699	0.4−	1.2+
1997 04 07	809	0.2−	0.7+	1998 09 17	327	0.7−	0.1−	1998 09 24	699	0.5−	0.3+
1997 04 07	809	0.4−	0.2+	1998 09 17	327	0.8−	0.1+	1998 09 24	699	0.5−	0.8−

1997 04 07	809	0.9−	0.0	1998 09 17	327	0.6−	0.1+	1998 09 24	699	0.7−	0.2−
1997 04 08	809	0.9+	0.4−	1998 09 20	327	(3.7−	1.6+)	1998 09 26	327	0.7+	0.2−
1997 04 08	809	0.2+	0.2−	1998 09 20	327	(3.4−	1.4+)	1998 09 26	327	1.2+	0.3−
1997 04 08	809	0.4+	0.2−	1998 09 20	327	(3.6−	1.7+)	1998 09 26	327	1.1+	0.1−
1998 09 14	327	0.4+	0.6−	1998 09 22	699	0.2−	0.7+				

1998 RM_{16} = 1997 EC_{29}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	350.51327		(2000.0)		**P**	**Q**	
n	0.30811844	ω	39.24683		+0.79969217	+0.59932554	
a	2.1709888	Ω	283.89438		−0.55979509	+0.72252704	
e	0.1636664	i	2.12968		−0.21707578	+0.34462090	
P	3.20	H	17.5	G	0.15	U	4

Residuals in seconds of arc

1997 03 11	691	0.4−	0.5+	1998 08 26	699	0.0	0.1+	1998 09 17	910	0.2+	0.4+
1997 03 11	691	0.3−	0.4+	1998 08 26	699	0.6−	0.1+	1998 09 17	910	0.3+	0.1+
1997 03 13	691	0.5+	0.2−	1998 09 11	910	0.6+	0.0	1998 09 22	910	0.5−	0.0
1997 03 13	691	0.1−	0.0	1998 09 11	910	0.6+	0.1+	1998 09 22	910	0.6−	0.3−
1997 03 13	691	0.6+	0.0	1998 09 11	910	0.6+	0.1+	1998 09 22	910	0.8−	0.1−
1998 08 26	699	0.2−	0.2−	1998 09 17	910	0.2+	0.2+				

1998 RO_{20} = 1995 VK_{13}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	17.74715		(2000.0)		**P**	**Q**	
n	0.30433030	ω	129.79872		+0.41774772	+0.90841993	
a	2.1889672	Ω	164.86960		−0.85133375	+0.39757256	
e	0.1937872	i	3.54222		−0.31736051	+0.12926442	
P	3.24	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1995 11 15	691	0.3−	0.0	1998 09 14	704	0.4−	0.2+	1998 09 18	704	0.8+	0.1+
1995 11 15	691	0.1−	0.0	1998 09 14	704	0.3−	0.8−	1998 09 22	120	0.2−	1.6−
1995 11 15	691	0.0	0.0	1998 09 15	120	0.1+	0.5+	1998 09 22	120	0.2−	0.5−
1995 11 20	691	0.2+	0.1+	1998 09 15	120	0.5−	0.1+	1998 09 22	120	0.2−	0.2+
1995 11 20	691	0.2−	0.0	1998 09 18	704	0.6+	0.1+	1998 09 27	120	0.3−	0.9+
1995 11 20	691	0.4+	0.1−	1998 09 18	704	0.0	1.0−	1998 09 27	120	0.2−	0.2+
1998 09 14	704	0.4+	0.2+	1998 09 18	704	0.7+	0.9+	1998 09 27	120	0.6+	0.3−
1998 09 14	704	0.3+	0.4+	1998 09 18	704	1.1−	0.3+				

1998 RC_{24} = 1992 HH_3

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	275.76338		(2000.0)		**P**	**Q**	
n	0.21522101	ω	250.59893		+0.44573682	−0.89512132	
a	2.7576953	Ω	172.91184		+0.84559716	+0.41782921	
e	0.1020841	i	4.06462		+0.29374161	+0.15548816	
P	4.58	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1992 04 29	691	1.5+	1.4−	1998 09 14	704	0.7+	0.7+	1998 09 20	691	1.6−	0.6+
1992 04 29	691	0.7+	0.1+	1998 09 14	704	2.0−	0.0	1998 09 26	691	0.1+	0.2−
1992 05 03	691	0.5−	0.9+	1998 09 14	704	0.5−	0.7−	1998 09 26	691	0.4+	0.0
1992 05 03	691	0.2−	0.2+	1998 09 18	704	1.5+	0.2+	1998 09 26	691	0.4+	0.1−
1992 05 03	691	0.4−	0.6+	1998 09 18	704	0.1−	1.9−	1998 09 29	691	0.3−	0.1+
1992 05 04	691	0.7−	0.3−	1998 09 18	704	1.2+	0.5+	1998 09 29	691	0.2−	0.0
1992 05 04	691	0.2−	0.3−	1998 09 18	704	0.3+	0.6+	1998 09 29	691	0.2−	0.1+
1992 05 04	691	0.3−	0.2+	1998 09 20	691	0.3+	0.5−				
1998 09 14	704	0.5−	1.0+	1998 09 20	691	0.4+	0.4−				

1998 SD = 1987 PG = 1994 AX_3

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	191.43240		(2000.0)		**P**	**Q**	
n	0.36596738	ω	203.79368		−0.91301126	−0.33242399	
a	1.9357137	Ω	314.53096		+0.40679121	−0.69856294	
e	0.0174208	i	19.37048		+0.03051808	−0.63364352	
P	2.69	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1987 08 06	010	1.9−	0.8+	1998 09 16	703	0.2+	0.5+	1998 09 24	704	0.2+	0.6−
1987 08 06	010	1.2+	1.0−	1998 09 16	703	0.5+	0.8+	1998 09 24	704	1.0+	0.9−
1987 08 06	010	0.9+	0.1−	1998 09 16	703	0.1−	0.7+	1998 09 24	704	1.1+	0.4−
1994 01 11	675	0.7+	1.1−	1998 09 16	703	0.8−	1.2+	1998 09 24	704	0.1−	0.8−
1994 01 11	675	0.7+	0.0	1998 09 16	703	1.3−	0.3+	1998 09 24	704	0.4−	0.9−
1994 01 13	675	2.1−	0.1+	1998 09 17	693	0.1−	0.4+				
1994 01 13	675	0.7+	0.9+	1998 09 17	693	0.1−	0.2+				

1998 SR_1 = 1991 VS_{12} = 1995 YV_{24}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	347.19758		(2000.0)		**P**	**Q**	
n	0.27895383	ω	254.08147		+0.98186129	+0.17231480	
a	2.3197855	Ω	95.94584		−0.12875847	+0.91221255	
e	0.1962402	i	4.56114		−0.13917497	+0.37172015	
P	3.53	H	15.0	G	0.15	U	3

Residuals in seconds of arc

1991 11 09	808	(5.0−	1.2+)	1995 12 25	566	0.5−	0.5+	1998 09 19	910	0.1+	0.1+
1991 11 09	808	0.1+	0.1−	1995 12 25	566	0.2−	0.2+	1998 09 19	910	0.2+	0.2+
1991 11 12	808	0.1+	0.0	1998 09 16	910	0.3−	0.1−	1998 09 20	910	0.2+	0.2+
1991 11 12	808	0.1−	0.0	1998 09 16	910	0.2−	0.1−	1998 09 22	910	0.1+	0.0
1995 12 24	566	0.3+	0.1−	1998 09 17	910	0.0	0.1−	1998 09 23	910	0.1+	0.1−
1995 12 24	566	0.3−	0.1−	1998 09 17	910	0.3−	0.1−	1998 09 23	910	0.1+	0.2−
1995 12 24	566	0.6+	0.3−	1998 09 18	910	0.1−	0.0				
1995 12 25	566	0.2+	0.1−	1998 09 18	910	0.0	0.1+				

1998 SW_1 = 1993 TO_{32}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	219.41091		(2000.0)		**P**	**Q**	
n	0.18781905	ω	91.44066		−0.73028574	−0.66915727	
a	3.0197869	Ω	46.58274		+0.52695131	−0.67989265	
e	0.0619048	i	10.91330		+0.43474713	−0.29995755	
P	5.25	H	13.0	G	0.15	U	6

Residuals in seconds of arc

1993 10 09	809	0.1+	0.5−	1993 10 21	809	0.8−	0.3−	1998 09 18	910	0.0	0.1−
1993 10 09	809	1.2−	0.6−	1998 09 16	910	0.2−	0.2−	1998 09 18	910	0.0	0.0
1993 10 09	809	1.4−	0.4−	1998 09 16	910	0.1−	0.2−	1998 09 21	699	0.3−	0.8+
1993 10 11	809	0.8+	1.1+	1998 09 17	910	0.0	0.3−	1998 09 21	699	0.8−	0.3+
1993 10 11	809	1.1+	0.7+	1998 09 17	910	0.5+	0.3−	1998 09 21	699	1.1−	0.4+
1993 10 11	809	1.4+	1.0+	1998 09 17	910	0.3+	0.1−	1998 09 22	910	0.5+	0.0
1993 10 21	809	0.1−	0.8−	1998 09 17	910	0.3+	0.0	1998 09 23	910	0.6+	0.1−
1993 10 21	809	0.1−	0.1−	1998 09 17	910	0.2−	0.1−	1998 09 23	910	0.5+	0.0

1998 SQ_2 = 1996 AM_{20}

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	6.69101		(2000.0)		**P**	**Q**	
n	0.24445918	ω	37.49134		+0.87635846	+0.40691928	
a	2.5331747	Ω	296.59459		−0.48134141	+0.72044247	
e	0.3209844	i	16.75015		−0.01750107	+0.56158646	
P	4.03	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1996 01 14	691	0.0	0.1+	1998 08 29	704	(2.0−	2.1+)	1998 09 19	402	0.2−	0.1−
1996 01 14	691	0.3+	0.2−	1998 09 18	703	1.1+	0.5+	1998 09 19	402	0.0	0.2−

1996 01 14	691	0.2+	0.1−	1998 09 18	703	0.1−	0.4+	1998 09 19	557	0.1−	0.4−
1996 01 21	691	0.6−	0.5+	1998 09 18	703	0.1+	0.5+	1998 09 19	557	0.1−	0.1−
1996 01 21	691	0.2+	0.2−	1998 09 19	703	1.6+	0.5+	1998 09 19	557	0.5−	0.1−
1998 08 29	704	0.1+	0.0	1998 09 19	703	0.6−	0.1−	1998 09 19	557	0.1−	0.3−
1998 08 29	704	0.3−	0.3+	1998 09 19	402	0.3−	0.0	1998 09 19	557	0.3−	0.2−
1998 08 29	704	0.1−	0.2+	1998 09 19	402	0.4−	0.1−	1998 09 20	557	0.1+	0.4−
1998 08 29	704	0.1−	0.1−	1998 09 19	402	0.2+	0.0	1998 09 20	557	0.2−	0.3−

1998 SH$_4$ = 1991 JK$_7$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	81.38249		(2000.0)		**P**	**Q**	
n	0.17282598	ω	107.32168		−0.42437897	+0.90512070	
a	3.1920036	Ω	137.53746		−0.84453760	−0.38543007	
e	0.1184406	i	2.17920		−0.32658647	−0.17944406	
P	5.70	H	13.5	G	0.15	U	6

Residuals in seconds of arc

1991 05 08	675	0.6−	1.8−	1998 09 20	735	0.9−	0.6+	1998 09 24	747	0.8+	0.5+
1991 05 08	675	1.6+	1.0−	1998 09 20	684	0.1−	0.3−	1998 09 24	747	0.5−	0.8−
1991 05 10	675	1.0−	2.3+	1998 09 20	684	0.3−	0.1+	1998 09 27	735	0.1+	0.2−
1991 05 10	675	0.1−	0.5+	1998 09 23	735	0.2+	0.3+	1998 09 27	735	1.2+	0.2+
1998 09 19	735	0.0	0.5−	1998 09 23	735	0.2−	0.0	1998 09 27	735	0.5−	0.4−
1998 09 19	735	0.4−	0.0	1998 09 23	735	0.5+	0.6−				
1998 09 20	735	0.7−	0.3+	1998 09 24	747	0.8+	0.9+				

1998 SY$_5$ = 1978 EN$_9$ = 1995 YU$_{16}$ = 1997 EO$_6$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	92.51813		(2000.0)		**P**	**Q**	
n	0.25985204	ω	35.49095		−0.77702679	+0.62946648	
a	2.4321216	Ω	183.52047		−0.58175914	−0.71883031	
e	0.1315988	i	1.07183		−0.24038650	−0.29505074	
P	3.79	H	15.0	G	0.15	U	1

Residuals in seconds of arc

1978 03 15	675	0.6+	0.7+	1997 03 08	327	1.7+	0.8−	1998 09 18	704	0.2−	0.7−
1978 03 16	675	0.1+	0.9+	1997 03 08	327	0.9+	0.8−	1998 09 18	699	0.5+	0.2+
1995 12 22	691	0.4−	0.0	1997 03 08	327	0.1+	0.8−	1998 09 18	704	0.2−	0.7+
1995 12 22	691	0.2−	0.3−	1997 03 09	691	0.9−	0.8−	1998 09 18	699	0.6+	0.6+
1995 12 22	691	0.3+	0.4−	1997 03 09	691	0.7−	0.6−	1998 09 20	691	0.2−	1.0−
1995 12 28	691	0.1+	0.3−	1997 03 09	691	0.6−	0.8−	1998 09 20	691	0.1−	0.4−
1995 12 28	691	0.2+	0.1−	1998 09 14	704	1.4+	1.1−	1998 09 20	691	0.1−	0.3−
1995 12 28	691	0.4+	0.4−	1998 09 14	704	1.7+	0.2−	1998 09 21	691	0.0	0.6−
1997 03 02	691	0.6−	0.5−	1998 09 14	704	(2.3+	0.9−)	1998 09 21	691	0.1−	0.6−
1997 03 02	691	0.8−	0.6−	1998 09 14	704	0.4−	1.5−	1998 09 21	691	0.7−	0.4−
1997 03 02	691	0.4−	0.5−	1998 09 18	704	0.4−	0.8+	1998 09 25	691	0.1+	0.0
1997 03 08	691	0.6−	0.2−	1998 09 18	704	0.4−	0.4+	1998 09 25	691	0.3+	0.6−
1997 03 08	691	0.6−	0.1−	1998 09 18	704	0.3−	0.1−	1998 09 25	691	0.1+	0.2+
1997 03 08	691	0.4−	0.2−	1998 09 18	699	0.5+	0.7−				

1998 SL$_7$ = 1992 EZ$_{25}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	63.76434		(2000.0)		**P**	**Q**	
n	0.21588645	ω	267.81203		−0.21571702	+0.97644883	
a	2.7520255	Ω	349.72810		−0.88737901	−0.19762761	
e	0.1538504	i	1.19611		−0.40746124	−0.08655068	
P	4.57	H	15.0	G	0.15	U	7

Residuals in seconds of arc

1992 03 01	809	1.0+	0.8−	1998 09 20	691	0.3+	0.1−	1998 09 23	691	0.3−	0.2−
1992 03 03	809	0.1−	1.2−	1998 09 21	691	0.4+	1.1+	1998 09 23	691	0.5−	0.2−
1992 03 08	809	1.3−	1.8+	1998 09 21	691	0.5+	0.3−	1998 09 26	691	0.0	0.0
1992 03 09	809	0.4+	0.3+	1998 09 21	691	0.0	0.1−	1998 09 26	691	0.2−	0.3−
1998 09 20	691	0.4+	0.2+	1998 09 23	691	0.5−	0.1−	1998 09 26	691	0.2−	0.0

1998 SK$_{14}$ = 1993 RQ$_2$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	335.29056		(2000.0)		**P**	**Q**	
n	0.19785332	ω	5.81177		+0.99861862	−0.04568633	
a	2.9168034	Ω	356.47855		+0.01096001	+0.66420138	
e	0.2827969	i	24.99587		+0.05138811	+0.74615634	
P	4.98	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1993 09 12	675	0.8−	0.2−	1998 09 22	699	0.9+	0.4−	1998 09 25	704	0.5−	0.7+
1993 09 12	675	0.5−	0.7+	1998 09 22	699	0.2+	0.2+	1998 09 27	704	0.2+	0.8−
1993 09 15	675	1.4+	0.6−	1998 09 22	699	0.5+	1.5−	1998 09 27	704	0.1+	0.2+
1998 09 17	699	0.3−	0.3+	1998 09 25	704	1.1+	0.9+	1998 09 27	704	0.5−	0.6−
1998 09 17	699	0.4−	0.2+	1998 09 25	704	0.2−	0.4−	1998 09 27	704	0.2−	0.0
1998 09 17	699	0.1−	0.4−	1998 09 25	704	0.1−	1.4+	1998 09 27	704	0.8−	0.2+

1998 SV$_{22}$ = 1994 PO$_{29}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	314.16156		(2000.0)		**P**	**Q**	
n	0.26696505	ω	205.19004		+0.63682976	−0.76974925	
a	2.3887266	Ω	205.32579		+0.72364799	+0.61642347	
e	0.1052785	i	5.90078		+0.26604784	+0.16585596	
P	3.69	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1994 08 12	809	0.1+	0.8−	1998 09 14	699	0.1−	0.4−	1998 09 23	426	0.3+	0.1−
1994 08 12	809	0.9−	0.5−	1998 09 14	699	0.5−	0.8−	1998 09 23	426	0.2+	0.0
1994 08 12	809	0.5−	0.5−	1998 09 14	699	0.7−	0.2+	1998 09 30	691	0.3−	0.8+
1994 08 13	809	0.5+	1.4+	1998 09 20	426	0.2+	0.6−	1998 09 30	691	0.4−	0.8+
1994 08 13	809	0.6+	0.3+	1998 09 20	426	0.9+	0.6−	1998 09 30	691	0.3−	0.8+
1994 08 13	809	0.1+	0.3+	1998 09 20	426	0.8+	0.4−				

1998 SX$_{22}$ = 1997 LS$_{15}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	356.61527		(2000.0)		**P**	**Q**	
n	0.21548701	ω	205.17145		+0.98543480	+0.16135038	
a	2.7554253	Ω	145.40946		−0.13558573	+0.93610341	
e	0.1728918	i	5.42836		−0.10263903	+0.31253232	
P	4.57	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1997 06 08	809	0.4−	1.1+	1998 09 17	699	0.3−	0.1+	1998 09 24	426	0.3−	0.3−
1997 06 08	809	0.4−	0.5−	1998 09 17	699	0.6+	0.2+	1998 09 25	699	0.1−	0.5+
1997 06 08	809	0.4−	0.7−	1998 09 23	426	0.0	0.3−	1998 09 25	699	0.2+	0.3+
1997 06 09	809	0.8−	0.0	1998 09 23	426	0.3−	0.2−	1998 09 25	699	0.3−	0.4+
1997 06 09	809	1.2+	0.1+	1998 09 23	426	0.1−	0.2−	1998 09 30	327	0.3+	0.1−
1997 06 09	809	0.7+	0.1+	1998 09 24	426	0.5−	0.3−	1998 09 30	327	0.3+	0.2+
1998 09 17	699	0.5+	0.4+	1998 09 24	426	0.3−	0.5−	1998 09 30	327	0.3+	0.2−

1998 SE$_{24}$ = 1993 FC$_{31}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	331.72439		(2000.0)		**P**	**Q**	
n	0.26369613	ω	215.25678		+0.98798598	−0.15098229	
a	2.4084273	Ω	153.36956		+0.15322669	+0.92919040	
e	0.2066307	i	4.22024		+0.02013185	+0.33735672	
P	3.74	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1993 03 19	809	0.7+	0.7+	1998 09 14	704	0.3+	0.9+	1998 09 18	704	0.3+	0.1−
1993 03 20	809	0.1−	0.4−	1998 09 17	699	0.1+	0.1+	1998 09 18	704	0.5−	0.6−
1993 03 24	809	0.6−	0.2−	1998 09 17	699	0.0	0.2+	1998 09 18	704	0.4−	0.1−
1998 09 14	704	0.3−	0.4−	1998 09 17	699	0.6+	0.4+	1998 09 24	699	0.0	0.1−
1998 09 14	704	0.7−	0.3+	1998 09 18	704	0.5+	0.4−	1998 09 24	699	0.2+	0.5+
1998 09 14	704	0.5+	0.5−	1998 09 18	704	0.4−	0.5−	1998 09 24	699	0.1−	0.2+

1998 SJ$_{24}$ = 1978 NE$_5$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	331.37079		(2000.0)	**P**		**Q**	
n	0.20193187	ω	293.94673	+0.97911381		−0.19292914	
a	2.8773949	Ω	77.22710	+0.20210744		+0.88929273	
e	0.0600868	i	3.77118	+0.02210744		+0.41465261	
P	4.88	H	13.5	G	0.15	U	7

Residuals in seconds of arc

1978 07 10	675	3.5+	3.6+ Y	1998 09 17	699	1.1+	0.1−	1998 09 18	704	0.6+	0.2−
1978 07 11	675	0.6−	2.8− Y	1998 09 17	699	0.0	0.3−	1998 09 18	704	0.2+	0.8−
1978 07 13	675	2.8−	0.7− Y	1998 09 17	699	0.7+	0.2−	1998 09 24	699	0.8−	0.9+
1998 09 14	704	0.8+	0.8−	1998 09 18	704	0.2+	0.5+	1998 09 24	699	0.6−	0.9+
1998 09 14	704	0.5−	0.2−	1998 09 18	704	0.1−	0.4+	1998 09 24	699	0.7−	0.5+
1998 09 14	704	0.2−	1.1−	1998 09 18	704	0.7−	0.4+				

1998 SQ$_{24}$ = 1978 VH$_1$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	293.94908		(2000.0)	**P**		**Q**	
n	0.24190248	ω	24.77432	+0.52589189		−0.84831595	
a	2.5509924	Ω	33.59450	+0.76062494		+0.43662985	
e	0.1495256	i	6.39468	+0.38064081		+0.29952367	
P	4.07	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1978 10 30	010	1.2−	0.5+	1998 09 17	699	1.5+	0.0	1998 09 18	704	1.0−	0.9+
1978 11 01	010	0.1+	0.2−	1998 09 17	699	0.5+	0.8−	1998 09 18	704	1.4−	0.4+
1978 11 01	010	1.0+	0.3−	1998 09 17	699	0.7+	1.1−	1998 09 24	699	0.5+	0.2−
1998 09 14	704	0.0	0.5−	1998 09 18	704	0.2+	0.5−	1998 09 24	699	0.7+	0.4−
1998 09 14	704	0.2−	0.2+	1998 09 18	704	1.0−	0.8+	1998 09 24	699	0.5−	0.5+
1998 09 14	704	0.0	0.7+	1998 09 18	704	0.1−	0.0				

1998 SW$_{32}$ = 1986 VE$_7$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	277.59342		(2000.0)	**P**		**Q**	
n	0.24011419	ω	82.41007	+0.03849457		−0.99922751	
a	2.5636427	Ω	5.40272	+0.88049589		+0.03017616	
e	0.2345627	i	4.81819	+0.47248826		+0.02517492	
P	4.10	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1986 11 03	046	0.2+	1.9+	1998 09 14	704	0.9+	0.1−	1998 09 23	691	1.5−	1.1+
1986 11 04	046	0.7−	1.1−	1998 09 17	699	0.3+	0.0	1998 09 23	691	1.3−	0.6+
1986 11 07	046	1.8+	0.5+	1998 09 17	699	0.2−	0.5−	1998 09 26	691	0.2−	0.0
1986 11 07	046	(6.5+	0.8+)	1998 09 17	699	2.1−	0.5−	1998 09 26	691	0.3−	0.3+
1986 11 09	046	1.2+	0.5+	1998 09 18	704	0.0	0.7+	1998 09 26	691	0.1−	0.3+
1986 11 09	046	2.4−	1.9−	1998 09 18	704	0.9+	0.1−	1998 09 30	691	0.4+	0.6−
1998 09 14	704	1.1+	0.2+	1998 09 18	704	0.3−	0.7−	1998 09 30	691	0.6+	0.2−
1998 09 14	704	0.4+	0.1+	1998 09 18	704	0.3+	0.3−	1998 09 30	691	0.7+	0.5−
1998 09 14	704	1.4+	0.6−	1998 09 18	704	0.5+	0.1+				
1998 09 14	704	0.1−	0.1−	1998 09 23	691	1.2−	0.8+				

1998 SA$_{43}$ = 1980 TA$_{13}$ = 1989 UH = 1996 FM

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	334.33599		(2000.0)	**P**		**Q**	
n	0.21674477	ω	255.48465	+0.92862618		−0.37028989	
a	2.7447553	Ω	126.24368	+0.35052305		+0.85510775	
e	0.0865824	i	1.64927	+0.12160182		+0.36287207	
P	4.55	H	12.5	G	0.15	U	4

Residuals in seconds of arc

1980 10 10	095	1.6+	1.4−	1998 09 15	699	0.2−	0.1−	1998 10 02	327	0.1−	0.3+
1980 10 17	095	0.0	1.1−	1998 09 15	699	0.2+	0.3+	1998 10 02	327	0.1+	0.4+
1989 10 20	881	1.4−	0.2−	1998 09 20	327	1.0−	0.5−	1998 10 02	327	0.3+	0.6+
1989 10 20	881	0.7−	1.6+	1998 09 20	327	1.1−	0.6−	1998 10 02	120	0.4−	0.2+
1996 03 17	566	0.2+	0.9+	1998 09 20	327	1.8+	0.7+	1998 10 02	120	0.6+	0.2+
1996 03 17	566	0.1−	0.8+	1998 09 23	120	0.1+	0.7+	1998 10 02	120	0.4+	0.2+
1996 03 17	566	0.1+	0.5+	1998 09 24	120	0.2+	0.3+	1998 10 02	120	0.5+	0.3+
1996 03 19	566	0.0	0.0	1998 09 24	120	0.5+	0.0	1998 10 02	120	0.7+	0.1−
1996 03 19	566	0.3+	0.2−	1998 09 24	327	1.3−	0.0	1998 10 02	120	0.3+	0.1−
1996 03 19	566	0.3+	0.0	1998 09 24	327	0.9−	0.1+				
1998 09 15	699	0.4+	0.0	1998 09 24	327	1.3−	0.0				

1998 SS$_{43}$ = 1989 SC$_5$ = 1997 ME$_{10}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	352.02892		(2000.0)	**P**		**Q**	
n	0.21772828	ω	175.83393	+0.99990739		+0.00782299	
a	2.7364834	Ω	183.77209	−0.01024054		+0.97143951	
e	0.1524151	i	9.74568	+0.00896363		+0.23715835	
P	4.53	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1989 09 26	809	0.6+	1.7−	1989 10 03	809	0.4+	0.3+	1998 09 25	327	0.7−	0.4+
1989 09 26	809	0.6−	1.2−	1997 06 27	691	0.1+	0.1+	1998 09 25	327	0.2−	0.7+
1989 09 26	809	0.6−	1.6−	1997 06 27	691	0.1−	0.1−	1998 09 25	327	0.5−	0.5+
1989 09 28	809	1.4+	0.2−	1997 06 27	691	0.1+	0.3−	1998 09 29	327	0.7+	0.2+
1989 09 28	809	1.2+	1.0−	1997 07 11	691	0.1+	0.6−	1998 09 29	327	0.0	0.5+
1989 09 28	809	0.8+	1.0−	1997 07 11	691	0.3−	0.2−	1998 09 29	327	0.6+	0.8+
1989 09 29	675	1.0−	0.8−	1997 07 11	691	0.0	0.4+	1998 10 01	327	1.1−	0.3+
1989 09 29	675	0.6−	0.9−	1998 09 15	699	0.4+	0.6+	1998 10 01	327	1.2−	0.2+
1989 10 03	809	0.2−	0.6+	1998 09 15	699	1.0+	0.6+	1998 10 01	327	0.6−	0.2−
1989 10 03	809	0.3−	1.6+	1998 09 15	699	0.5+	1.0+				

2056 P-L = 1998 FM$_{99}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Urata

M	9.84922		(2000.0)	**P**		**Q**	
n	0.19669163	ω	346.94926	−0.97284681		+0.21196849	
a	2.9282768	Ω	205.86122	−0.18857234		−0.95874320	
e	0.1195958	i	12.30281	−0.13419967		−0.18942235	
P	5.01	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1960 09 24	675	0.0	1.3−	1998 03 31	704	0.2+	0.3+	1998 04 18	704	0.6+	1.6−
1960 09 26	675	0.7−	1.5−	1998 03 31	704	0.4+	0.5+	1998 04 18	704	0.7−	1.0−
1960 09 28	675	0.8−	0.2−	1998 03 31	704	0.1−	0.4+	1998 04 18	704	0.1+	0.1−
1960 09 29	675	0.5+	0.2+	1998 03 31	704	0.4−	1.5+	1998 04 19	704	0.2+	1.3−
1960 10 17	675	1.1+	0.6−	1998 03 31	704	0.7−	0.1+	1998 04 19	704	0.7+	0.5−
1960 10 22	675	0.0	1.3+	1998 04 01	704	0.2+	0.7+	1998 04 19	704	0.4−	0.6−
1960 10 25	675	0.1+	0.6−	1998 04 01	704	0.7−	0.6−	1998 04 19	704	0.1+	0.1−
1960 10 26	675	0.3+	0.2+	1998 04 01	704	0.6−	0.8+	1998 04 19	704	0.2+	0.6+
1998 03 18	905	1.1+	0.9−	1998 04 01	704	(2.1−	1.4+)				
1998 03 18	905	(0.1+	2.7+)	1998 04 18	704	0.4−	0.4−				

2549 P-L = 1998 SM$_{22}$

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Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	255.40936		(2000.0)	**P**		**Q**	
n	0.20641230	ω	283.01117	−0.01211338		−0.99989498	
a	2.8356046	Ω	167.67461	+0.93125397		−0.01417875	
e	0.0358262	i	2.13588	+0.36416934		+0.00299835	
P	4.77	H	13.0	G	0.15	U	5

Residuals in seconds of arc

1960 09 24	675	0.0	0.2−	1960 10 25	675	0.1−	0.3−	1998 09 24	120	0.0	0.3−
1960 09 26	675	0.5+	0.6−	1960 10 26	675	0.3+	0.7+	1998 09 24	120	(1.8−	2.7−)
1960 09 28	675	0.0	0.7+	1998 09 23	120	0.8−	0.1+	1998 09 25	699	0.3−	0.4+
1960 09 29	675	0.4+	0.2+	1998 09 23	120	0.6−	0.2−	1998 09 25	699	0.2+	0.6+
1960 10 17	675	1.1−	1.0−	1998 09 23	120	0.5−	0.5−	1998 09 25	699	0.3+	0.1+
1960 10 22	675	0.0	0.4+	1998 09 24	120	0.8+	0.1−	1998 09 29	120	0.8+	0.1+

2650 P-L = 1998 SZ$_7$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	316.92007		(2000.0)		**P**	**Q**	
n	0.28482142	ω	221.93455		+0.87928791	−0.47623625	
a	2.2878153	Ω	166.49995		+0.44477468	+0.81560653	
e	0.1912614	i	1.76675		+0.17037681	+0.32861074	
P	3.46	H	17.0	G	0.15	U	5

Residuals in seconds of arc

1960 09 24	675	0.2+	2.1−	1998 09 14	704	0.3+	1.0−	1998 09 21	691	0.3−	0.1+
1960 09 26	675	1.2+	0.6−	1998 09 14	704	1.1−	1.3+	1998 09 21	691	0.6−	0.3+
1960 09 28	675	0.5−	1.3−	1998 09 18	704	1.1+	0.3+	1998 09 23	691	0.6−	0.4+
1960 09 29	675	0.3+	0.2−	1998 09 18	704	1.4+	1.1+	1998 09 23	691	0.9−	0.6+
1960 10 22	675	1.1−	0.4+	1998 09 18	704	0.6+	1.2−	1998 09 23	691	0.7−	0.3+
1960 10 25	675	0.4+	0.5+	1998 09 18	704	(2.2+	0.8−)	1998 09 26	691	0.2−	0.1+
1960 10 26	675	0.4+	1.1+	1998 09 18	704	0.1−	0.3+	1998 09 26	691	0.1−	0.3+
1998 09 14	704	0.5−	0.8−	1998 09 20	691	0.4−	0.4+	1998 09 26	691	0.1+	0.4+
1998 09 14	704	(2.1+	2.8−)	1998 09 20	691	0.3−	0.3+				
1998 09 14	704	1.4+	1.0−	1998 09 21	691	0.3−	0.2+				

2664 P-L = 1998 SC$_8$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	309.83598		(2000.0)		**P**	**Q**	
n	0.18105941	ω	46.55234		+0.62194105	−0.78296484	
a	3.0944869	Ω	5.03688		+0.67119272	+0.52482106	
e	0.0935994	i	8.16256		+0.40334807	+0.33395945	
P	5.44	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1960 09 24	675	0.5+	0.1+	1960 10 26	675	0.0	0.1−	1998 09 21	691	0.0	0.0
1960 09 24	675	0.1+	0.0	1998 09 20	691	0.0	0.1+	1998 09 23	691	0.3+	0.4+
1960 09 26	675	0.4−	0.9−	1998 09 20	691	0.1−	0.2−	1998 09 23	691	0.2−	0.4−
1960 09 26	675	0.1+	0.1+	1998 09 20	691	0.6+	0.2−	1998 09 23	691	0.5−	0.1−
1960 09 28	675	0.2+	0.2−	1998 09 21	691	0.2+	0.3+				
1960 09 28	675	0.5−	1.0+	1998 09 21	691	0.3−	0.1+				

2674 P-L = 1998 SG$_{12}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	83.66627		(2000.0)		**P**	**Q**	
n	0.23490200	ω	217.65557		+0.14100113	+0.98965366	
a	2.6014266	Ω	60.46452		−0.90074262	+0.13936540	
e	0.0744121	i	1.74794		−0.41083016	+0.03410150	
P	4.20	H	15.5	G	0.15	U	6

Residuals in seconds of arc

1960 09 24	675	0.2−	0.1+	1960 10 22	675	1.5−	0.6+	1998 09 22	910	0.3+	0.3−
1960 09 26	675	0.2+	0.6−	1960 10 25	675	0.4+	0.1−	1998 09 23	910	0.9−	0.1+
1960 09 28	675	0.4−	0.1+	1960 10 26	675	0.5−	0.8+	1998 09 23	910	0.1+	0.0
1960 09 29	675	2.1+	0.1+	1998 09 22	910	0.3+	0.1−	1998 09 23	910	0.1−	0.0
1960 10 17	675	0.3−	0.6−	1998 09 22	910	0.6+	0.1−				

2703 P-L = 1997 EH$_{55}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	217.36411		(2000.0)		**P**	**Q**	
n	0.28187313	ω	265.81201		−0.01511542	−0.99983440	
a	2.3037407	Ω	185.08727		+0.95673424	−0.01151719	
e	0.1009458	i	6.56205		+0.29057034	−0.01408962	
P	3.50	H	17.0	G	0.15	U	5

Residuals in seconds of arc

1960 09 24	675	0.2+	0.0	1997 03 08	809	1.2+	1.5+	1997 03 10	809	0.1+	0.7−
1960 09 26	675	0.0	0.3−	1997 03 08	809	1.7+	0.9+	1997 03 10	809	0.8−	0.1−
1960 09 28	675	0.4−	0.0	1997 03 08	809	0.3+	0.8+	1997 03 10	809	1.7−	0.7−
1960 09 29	675	0.2+	1.6−	1997 03 09	809	0.9+	1.0+	1997 03 11	809	1.6−	0.9−
1960 10 22	675	0.7−	0.3−	1997 03 09	809	2.2+	0.1+	1997 03 11	809	2.3−	1.3−
1960 10 26	675	0.6+	0.7+	1997 03 09	809	1.4+	0.0	1997 03 11	809	1.8−	2.0−

2711 P-L = 1998 BS$_9$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	8.16422		(2000.0)		**P**	**Q**	
n	0.26891153	ω	325.87140		−0.54381931	−0.83897795	
a	2.3771856	Ω	157.05411		+0.78063499	−0.51421813	
e	0.1167109	i	2.85304		+0.30800904	−0.17803292	
P	3.67	H	16.0	G	0.15	U	4

Residuals in seconds of arc

1960 09 24	675	0.6−	1.2+	1997 11 29	704	0.3+	0.3−	1998 01 26	691	0.0	0.2−
1960 09 26	675	0.4+	0.1+	1997 11 29	704	0.9+	0.9−	1998 01 26	691	0.2−	0.1−
1960 09 28	675	0.7+	0.7−	1997 11 29	704	(4.8−	0.9+)	1998 02 02	691	0.2+	0.3+
1960 10 17	675	1.2−	1.0−	1998 01 22	691	0.1−	0.1−	1998 02 02	691	0.2+	0.6+
1960 10 26	675	1.0+	0.7+	1998 01 22	691	0.0	0.1−	1998 02 02	691	0.3−	0.4+
1997 11 29	704	1.0−	0.3+	1998 01 22	691	0.3+	0.2−				
1997 11 29	704	0.0	0.6+	1998 01 26	691	0.3−	0.2−				

2733 P-L = 1994 CO$_{19}$

Id. G. V. Williams, A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	120.44710		(2000.0)		**P**	**Q**	
n	0.24641700	ω	307.60446		+0.54683200	−0.83589830	
a	2.5197393	Ω	109.18098		+0.78310999	+0.49061943	
e	0.1218629	i	2.87796		+0.29616466	+0.24610284	
P	4.00	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1960 09 24	675	1.3−	0.8+	1960 10 26	675	1.0+	0.8−	1994 02 10	809	0.7+	0.3−
1960 09 26	675	0.0	0.4−	1994 02 07	809	2.0−	0.9−	1994 02 13	809	(3.2+	1.8+)
1960 09 28	675	0.1−	0.7+	1994 02 07	809	1.8−	1.1−	1994 02 13	809	0.7+	1.6+
1960 10 17	675	1.2−	0.3+	1994 02 07	809	(2.9−	1.7−)	1994 02 13	809	0.5−	1.4+
1960 10 22	675	0.4+	0.1+	1994 02 10	809	1.8+	0.4−				
1960 10 25	675	0.8+	0.4−	1994 02 10	809	1.2+	0.2+				

4052 P-L = 1998 FR$_{68}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	183.45072		(2000.0)		**P**	**Q**	
n	0.19725328	ω	175.96878		+0.87550490	−0.47722974	
a	2.9227156	Ω	212.88210		+0.43934107	+0.85146473	
e	0.1018142	i	8.02381		+0.20117303	+0.21739269	
P	5.00	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1960 09 24	675	0.3−	0.3−	1998 03 22	704	0.0	1.5−	1998 04 01	704	(0.4+	2.4−)
1960 09 25	675	0.5−	0.3+	1998 03 22	704	0.9+	1.2−	1998 04 01	704	0.5+	0.8−
1960 09 26	675	0.4−	0.5−	1998 03 22	704	(2.6−	0.8−)	1998 04 01	704	0.6+	0.8+
1960 09 28	675	0.5+	0.7+	1998 03 22	704	0.3+	2.2−	1998 04 01	704	0.7+	1.4−
1960 10 17	675	0.3−	0.8−	1998 03 22	704	1.4−	0.1−	1998 04 01	704	1.5−	0.8−
1960 10 17	675	0.0	0.6+	1998 03 25	704	0.7+	1.2+	1998 04 03	704	(1.2−	3.5−)
1960 10 22	675	0.1−	0.3−	1998 03 25	704	0.2+	0.0	1998 04 03	704	0.0	2.0+
1960 10 24	675	1.0+	0.4−	1998 03 25	704	(0.3−	3.1+)	1998 04 03	704	(2.5+	0.2+)
1960 10 26	675	0.3+	0.4−	1998 03 25	704	0.9−	0.6+	1998 04 03	704	0.5+	1.3+
1998 03 20	704	0.9+	0.5+	1998 03 25	704	0.2+	0.5+	1998 04 22	704	1.0−	1.6−
1998 03 20	704	1.0−	0.4+	1998 03 29	704	0.3−	0.8+	1998 04 22	704	0.8+	0.4+
1998 03 20	704	0.3+	1.3−	1998 03 29	704	0.6−	0.1−	1998 04 22	704	0.5+	0.7−
1998 03 20	704	1.4−	0.1−	1998 03 29	704	0.6−	1.7+	1998 04 22	704	1.2+	0.2−

4061 P-L = 1998 KS$_{33}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

					P	Q
M	327.34014		(2000.0)			
n	0.17600373	ω	55.04466		+0.39858935	+0.91436150
a	3.1534659	Ω	238.59778		−0.86630465	+0.34987889
e	0.1437043	i	4.78514		−0.30106941	+0.20378375
P	5.60	H	14.5	G	0.15	U 5

Residuals in seconds of arc

1960 09 24	675	0.2+	0.2+	1960 10 26	675	0.2+	0.7−	1998 05 24	704	0.7+	0.6+
1960 09 25	675	0.2−	1.1+	1998 05 22	704	0.0	0.7−	1998 05 24	704	0.5−	0.4−
1960 09 26	675	0.7−	1.1−	1998 05 22	704	0.6−	0.3−	1998 05 24	704	0.6−	0.2+
1960 09 28	675	0.3−	0.4−	1998 05 22	704	0.2+	0.7−	1998 06 03	704	0.3+	0.8−
1960 10 17	675	0.4−	0.5−	1998 05 22	704	1.9+	0.9−	1998 06 03	704	0.0	0.6+
1960 10 22	675	0.2−	0.3+	1998 05 24	704	1.1−	1.1+	1998 06 03	704	0.3+	0.3+
1960 10 24	675	0.7+	0.9+	1998 05 24	704	0.7−	1.0+				

4275 P-L = 1992 TF

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

					P	Q
M	145.44903		(2000.0)			
n	0.24566650	ω	186.40019		+0.94852362	−0.31338391
a	2.5248685	Ω	192.16479		+0.29935041	+0.93430643
e	0.2332011	i	12.54050		+0.10340348	+0.16988823
P	4.01	H	17.0	G	0.15	U 4

Residuals in seconds of arc

1960 09 24	675	0.1+	0.0	1960 10 26	675	0.2−	0.8+	1992 10 04	691	0.3−	0.3−
1960 09 25	675	0.1−	1.6+	1992 10 02	691	0.3+	0.1+	1992 10 04	691	0.0	0.3+
1960 09 26	675	0.1−	1.1−	1992 10 02	691	0.0	0.3−	1992 10 04	691	0.2−	0.2+
1960 09 28	675	0.4−	0.3−	1992 10 02	691	0.7+	0.4−	1992 10 04	691	0.1+	0.7+
1960 10 17	675	0.1+	0.4−	1992 10 04	691	0.3−	0.2−				
1960 10 22	675	0.1−	0.5−	1992 10 04	691	0.4−	0.2−				

4555 P-L = 1992 EK$_{31}$

Id. G. V. Williams, A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	64.01867		(2000.0)			
n	0.26492113	ω	181.96923		+0.98497985	+0.17244334
a	2.4009972	Ω	168.08987		−0.15783035	+0.91989721
e	0.2201983	i	2.45257		−0.07003055	+0.35221075
P	3.72	H	15.5	G	0.15	U 5

Residuals in seconds of arc

1960 09 24	675	0.2−	0.4+	1960 10 17	675	0.2+	0.2−	1992 03 01	809	0.0	0.8+
1960 09 26	675	0.0	0.5−	1960 10 22	675	0.2−	0.9+	1992 03 03	809	0.0	0.8−
1960 09 27	675	0.8+	0.5+	1960 10 25	675	0.1−	0.6−				
1960 09 28	675	0.7−	0.4−	1960 10 26	675	0.2+	0.1−				

4625 P-L = 1997 EZ$_{56}$

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	102.49580		(2000.0)			
n	0.28456303	ω	191.25036		−0.70569872	+0.70818053
a	2.2892000	Ω	33.87027		−0.64699211	−0.63165478
e	0.0911899	i	2.22855		−0.28877418	−0.31542444
P	3.46	H	15.5	G	0.15	U 4

Residuals in seconds of arc

1960 09 24	675	0.1−	0.6−	1997 03 10	809	0.3+	0.4+	1998 09 17	699	0.1−	0.3+
1960 09 26	675	1.3−	0.1−	1997 03 10	809	0.1−	0.5+	1998 09 17	699	0.1−	0.3−
1960 09 28	675	0.2−	0.5+	1997 03 10	809	0.0	0.1−	1998 09 25	699	0.6−	0.1+
1960 10 17	675	0.1+	0.4+	1997 03 11	809	0.3+	0.5−	1998 09 25	699	0.1+	1.1+
1960 10 22	675	0.2+	0.9−	1997 03 11	809	0.1−	0.3+	1998 09 25	699	0.2+	0.6−
1960 10 25	675	0.2+	0.0	1997 03 11	809	0.0	0.1+				
1960 10 26	675	1.1+	1.0+	1998 09 17	699	0.4+	0.4−				

4646 P-L = 1998 QU$_{63}$

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	257.91392		(2000.0)			
n	0.18125294	ω	287.92267		−0.40495165	−0.91412186
a	3.0922838	Ω	186.07781		+0.89379163	−0.39117380
e	0.1214444	i	10.82461		+0.19274512	−0.10660342
P	5.44	H	12.5	G	0.15	U 5

Residuals in seconds of arc

1960 09 24	675	0.6+	0.2+	1998 08 30	327	0.5+	0.0	1998 09 19	691	0.2−	0.5−
1960 09 24	675	0.1−	0.4−	1998 08 30	327	1.2−	1.5+	1998 09 19	691	0.2−	0.2−
1960 09 25	675	0.2+	0.7−	1998 09 04	327	0.4+	0.1+	1998 09 19	691	0.2−	0.5−
1960 09 26	675	0.0	0.2−	1998 09 04	327	0.7+	0.1−	1998 09 23	327	1.4+	0.0
1960 09 26	675	0.3+	0.3+	1998 09 04	327	0.8+	0.3+	1998 09 23	327	1.2+	0.0
1960 09 28	675	0.5−	0.0	1998 09 15	699	1.2+	0.1+	1998 09 23	327	1.2+	0.0
1960 10 17	675	0.5−	1.2+	1998 09 15	699	0.7+	0.0	1998 09 26	691	1.7−	0.3−
1960 10 22	675	0.0	0.3+	1998 09 15	699	0.8+	0.3−	1998 09 26	691	1.5−	0.0
1960 10 25	675	0.2+	0.4−	1998 09 17	327	1.3−	0.5+	1998 09 26	691	1.4−	0.0
1960 10 26	675	0.3−	0.7−	1998 09 17	327	0.9−	0.1−				
1998 08 30	327	0.8+	0.1+	1998 09 17	327	1.0−	0.0				

4765 P-L = 1997 CT$_{17}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

					P	Q
M	330.86935		(2000.0)			
n	0.22974190	ω	285.68444		+0.60214439	+0.79834153
a	2.6402350	Ω	21.34612		−0.72322806	+0.54995875
e	0.1840870	i	1.34433		−0.33817643	+0.24534908
P	4.29	H	16.5	G	0.15	U 6

Residuals in seconds of arc

1960 09 24	675	0.3−	1.2−	1960 10 22	675	0.3+	1.0−	1997 02 03	691	0.4+	0.4−
1960 09 26	675	0.0	0.1+	1960 10 26	675	0.4−	1.2+	1997 02 11	691	0.4−	0.1+
1960 09 27	675	0.9+	1.3+	1997 02 03	691	0.3+	0.3−	1997 02 11	691	0.6−	0.0
1960 09 28	675	0.1+	0.2−	1997 02 03	691	0.3+	0.2+	1997 02 11	691	0.0	0.3+

4792 P-L = 1998 FE$_{1}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

					P	Q
M	281.19633		(2000.0)			
n	0.19614799	ω	251.44040		−0.06328809	+0.99793637
a	2.9336850	Ω	14.94346		−0.89905215	−0.05229266
e	0.0404744	i	2.41045		−0.43324342	−0.03726231
P	5.02	H	15.0	G	0.15	U 7

Residuals in seconds of arc

1960 09 24	675	0.6+	0.7−	1960 10 22	675	0.7+	0.0	1998 03 21	691	0.5+	0.1−
1960 09 26	675	0.1+	0.2−	1998 03 20	691	0.3−	0.1+	1998 03 21	691	0.4+	0.2−
1960 09 27	675	0.4−	1.1+	1998 03 20	691	0.3−	0.2+	1998 03 21	691	0.3+	0.1+
1960 09 28	675	1.1−	0.3−	1998 03 20	691	0.5−	0.0				

5578 P-L = 1998 FZ$_{24}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

					P	Q
M	311.42653		(2000.0)			
n	0.22571951	ω	75.56144		−0.06106000	+0.99775727
a	2.6715091	Ω	191.04756		−0.96202938	−0.06615215
e	0.2069767	i	8.22827		−0.26602846	+0.01021414
P	4.37	H	15.5	G	0.15	U 5

Residuals in seconds of arc

1960 09 24	675	0.4+	0.4+	1998 03 20	704	0.4−	0.3−	1998 03 22	704	0.7+	0.6−
1960 09 28	675	0.5−	0.4−	1998 03 20	704	0.8+	0.4+	1998 03 22	704	(1.1−	1.9+)

1960 10 22	675	0.3+	0.3−	1998 03 20	704	1.5+	0.4−	1998 03 22	704	0.7−	1.2+
1960 10 25	675	0.6+	0.1+	1998 03 20	704	1.3−	0.4−				
1960 10 26	675	0.4−	0.4+	1998 03 22	704	0.5−	0.1+				

6110 P-L = 1998 RH$_1$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	305.29821		(2000.0)		**P**	**Q**	
n	0.28486417	ω	47.96823		+0.79140766	−0.61108162	
a	2.2875864	Ω	349.66527		+0.53137540	+0.70058143	
e	0.1622959	i	5.08834		+0.30218223	+0.36846290	
P	3.46	H	16.0	G	0.15	U	5

Residuals in seconds of arc

1960 09 24	675	0.1−	0.4+	1998 09 10	120	0.7−	0.2−	1998 09 15	120	0.4+	0.6+
1960 09 25	675	0.7+	0.1−	1998 09 10	120	0.2+	0.3+	1998 09 15	120	0.1+	1.0−
1960 09 26	675	0.2+	0.2+	1998 09 10	120	0.9−	0.3+	1998 09 18	704	0.9+	0.0
1960 09 28	675	0.2−	0.5−	1998 09 14	704	0.2−	0.3+	1998 09 18	704	0.0	1.7+
1960 10 17	675	1.0−	0.5−	1998 09 14	704	1.0+	0.4−	1998 09 18	704	0.7−	0.8−
1960 10 22	675	0.1+	0.5+	1998 09 14	704	0.4−	0.7−	1998 09 18	704	1.0+	0.2+
1960 10 26	675	0.3+	0.1+	1998 09 14	704	1.5−	0.7+	1998 09 18	704	0.7+	0.9−

6309 P-L = 1993 TU$_{22}$ = 1996 GR$_7$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	123.62475		(2000.0)		**P**	**Q**	
n	0.24002856	ω	101.90052		+0.41092167	+0.91129413	
a	2.5642524	Ω	192.46045		−0.87656943	+0.38703968	
e	0.1555338	i	6.97433		−0.25053827	+0.14051086	
P	4.11	H	15.5	G	0.15	U	1

Residuals in seconds of arc

1960 09 24	675	0.0	0.1+	1993 10 09	809	(1.5−	3.7−)	1996 04 12	691	0.8+	0.6+
1960 09 25	675	0.1+	0.2+	1993 10 09	809	(1.8−	3.3−)	1996 04 12	691	0.7+	0.7+
1960 09 26	675	0.3−	0.6+	1993 10 11	809	0.4+	2.9+	1996 04 12	691	0.7+	0.7+
1960 09 28	675	0.6−	0.3+	1993 10 11	809	1.1+	2.3+	1996 04 19	691	0.6−	0.4+
1960 10 22	675	0.6+	1.3−	1993 10 11	809	0.9−	0.6+	1996 04 19	691	0.6−	0.2+
1960 10 25	675	0.5+	1.5−	1993 10 20	809	0.5−	0.4+	1996 04 19	691	0.2−	0.4+
1960 10 26	675	0.4−	1.0−	1993 10 20	809	1.5−	0.2−				
1993 10 09	809	(2.5−	4.0−)	1993 10 20	809	0.2−	0.8−				

6526 P-L = 1997 ED$_{31}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	230.68309		(2000.0)		**P**	**Q**	
n	0.17419983	ω	184.77984		+0.99693453	−0.07822245	
a	3.1751986	Ω	179.69132		+0.07803658	+0.99256994	
e	0.1316888	i	18.08287		+0.00564270	+0.09319957	
P	5.66	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1960 09 24	675	0.2+	0.5−	1960 10 25	675	0.3−	0.4−	1997 03 16	691	0.1+	0.2−
1960 09 26	675	0.0	0.0	1960 10 26	675	0.6+	0.1−	1997 03 16	691	0.1−	0.0
1960 09 27	675	0.2−	0.2−	1997 03 08	691	0.1−	0.1+	1997 03 16	691	0.1−	0.0
1960 09 28	675	0.2+	0.5+	1997 03 08	691	0.0	0.0				
1960 10 17	675	0.0	0.7+	1997 03 08	691	0.2+	0.1−				

6529 P-L = 1998 MX$_{23}$

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	339.32786		(2000.0)		**P**	**Q**	
n	0.18019235	ω	203.74652		+0.86839394	+0.49488429	
a	3.1044058	Ω	126.55447		−0.44848092	+0.81078134	
e	0.1546282	i	2.23515		−0.21155812	+0.31260705	
P	5.47	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1960 09 24	675	0.0	0.1+	1960 10 22	675	0.2−	0.3+	1998 06 25	691	0.1+	0.2+
1960 09 26	675	0.2−	0.3−	1960 10 25	675	0.3−	0.7+	1998 06 30	691	0.1−	0.1+
1960 09 27	675	0.2−	0.3−	1960 10 26	675	0.0	0.1−	1998 06 30	691	0.1−	0.4+
1960 09 28	675	0.5+	0.1−	1998 06 25	691	0.0	1.0−	1998 06 30	691	0.1−	0.2+
1960 10 17	675	0.4+	0.2−	1998 06 25	691	0.2+	0.2+				

6637 P-L = 1997 LD$_{17}$ = 1998 RH$_{50}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	227.15540		(2000.0)		**P**	**Q**	
n	0.28490073	ω	321.51537		−0.48957815	−0.87138350	
a	2.2873906	Ω	157.74321		+0.81928869	−0.47213988	
e	0.1122649	i	4.79890		+0.29846152	−0.13332191	
P	3.46	H	15.0	G	0.15	U	3

Residuals in seconds of arc

1960 09 24	675	0.3+	0.2+	1997 06 08	809	0.1−	0.5+	1998 09 14	704	0.0	0.1−
1960 09 26	675	0.8+	0.0	1997 06 08	809	0.2+	0.0	1998 09 14	704	0.6+	0.2+
1960 09 27	675	0.8+	0.8+	1997 06 08	809	0.1+	0.5−	1998 09 14	704	0.5+	1.7+
1960 09 28	675	1.3+	0.1−	1997 06 09	809	0.5+	0.4−	1998 09 18	704	1.3−	1.1+
1960 10 17	675	0.7−	0.5−	1997 06 09	809	0.5−	0.4+	1998 09 18	704	0.4+	0.3−
1960 10 22	675	2.6−	1.1−	1997 06 09	809	0.3−	0.1−	1998 09 18	704	2.2−	1.0−
1960 10 24	675	0.6−	0.1−	1998 09 14	704	0.6+	1.3−	1998 09 18	704	0.4+	0.5−
1960 10 26	675	0.7+	0.0	1998 09 14	704	0.9+	0.7+				

6645 P-L = 1998 QT$_{104}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Marsden

M	340.52228		(2000.0)		**P**	**Q**	
n	0.25932286	ω	339.97560		+0.99840571	+0.02000715	
a	2.4354293	Ω	19.10859		+0.01118020	+0.84645175	
e	0.2353691	i	9.27831		−0.05532671	+0.53208942	
P	3.80	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1960 09 27	675	0.0	0.2+	1960 10 26	675	0.5−	0.9+	1998 08 27	809	1.0+	0.6−
1960 09 28	675	0.1−	0.1−	1960 10 26	675	0.1+	0.2−	1998 08 27	809	0.1−	0.2−
1960 10 17	675	0.5+	0.1+	1998 08 26	809	0.5+	0.3+	1998 08 27	809	0.1−	0.8−
1960 10 22	675	0.8−	0.2−	1998 08 26	809	0.5−	0.7+				
1960 10 25	675	0.8+	0.6−	1998 08 26	809	0.7−	0.5+				

6667 P-L = 1996 TJ$_4$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	149.21028		(2000.0)		**P**	**Q**	
n	0.19260893	ω	343.35928		+0.97336187	+0.22904878	
a	2.9695122	Ω	3.44843		−0.18636404	+0.81623846	
e	0.0964863	i	9.72974		−0.13354820	+0.53036915	
P	5.12	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1960 09 24	675	0.0	0.2−	1960 10 24	675	0.7+	1.0+	1996 10 09	566	0.1−	0.1+
1960 09 26	675	1.0−	0.5−	1960 10 26	675	0.2−	1.0−	1996 10 09	566	0.1+	0.3−
1960 09 27	675	0.7+	0.5+	1996 10 08	566	0.1−	0.0	1996 10 09	566	0.0	0.1+
1960 10 17	675	0.1+	0.1+	1996 10 08	566	0.1+	0.1+				
1960 10 22	675	0.9−	0.1−	1996 10 08	566	0.1+	0.0				

6680 P-L = 1998 FY$_{56}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	126.95307		(2000.0)		**P**	**Q**	
n	0.27547859	ω	256.95182		+0.15999341	−0.98709071	
a	2.3392546	Ω	183.86440		+0.94266935	+0.15499450	
e	0.0634874	i	6.26227		+0.29287644	+0.04035642	
P	3.58	H	16.0	G	0.15	U	5

Residuals in seconds of arc

1960 09 24	675	0.7−	0.2+	1998 03 20	704	0.7+	0.6+	1998 03 22	704	0.4−	1.5+
1960 09 26	675	0.5−	1.0−	1998 03 20	704	0.6−	0.3−	1998 03 22	704	1.1+	0.0
1960 09 27	675	1.3+	0.6+	1998 03 20	704	1.4−	2.2−	1998 03 22	704	0.1−	0.8+
1960 09 28	675	0.2+	0.5−	1998 03 20	704	1.2−	0.8−	1998 03 22	704	1.0+	0.2+
1960 10 22	675	1.2−	0.9−	1998 03 22	704	0.2+	1.3−	1998 03 22	704	0.1+	0.3−
1960 10 24	675	0.5+	1.0+	1998 03 22	704	0.5+	0.5+	1998 03 22	704	1.0+	0.8+
1960 10 26	675	0.5+	0.6−	1998 03 22	704	0.5+	1.8+				
1998 03 20	704	1.4−	1.1−	1998 03 22	704	0.1−	1.3−				

6722 P-L = 1998 SU$_{57}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	311.79460		(2000.0)		**P**	**Q**	
n	0.28532931	ω	15.11223		+0.84712317	−0.53026110	
a	2.2850996	Ω	17.04559		+0.47443960	+0.72527994	
e	0.0932772	i	6.80239		+0.23935204	+0.43908105	
P	3.45	H	16.5	G	0.15	U	5

Residuals in seconds of arc

1960 09 24	675	0.2−	0.8+	1960 10 22	675	0.9−	0.9+	1998 09 25	699	0.4+	0.3−
1960 09 26	675	0.0	0.7−	1960 10 26	675	0.5+	0.1−	1998 09 25	699	0.8−	0.0
1960 09 27	675	0.4−	0.3+	1998 09 17	699	0.4+	0.4+	1998 09 25	699	0.3+	0.4+
1960 09 28	675	0.8+	0.7−	1998 09 17	699	1.0−	0.0				
1960 10 17	675	0.3+	0.8−	1998 09 17	699	0.5+	0.2−				

6763 P-L = 1998 RG$_{18}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	314.79825		(2000.0)		**P**	**Q**	
n	0.28461765	ω	200.07042		+0.94000147	−0.34117028	
a	2.2889071	Ω	179.87686		+0.32721783	+0.90134286	
e	0.1895565	i	6.95564		+0.09656976	+0.26680309	
P	3.46	H	16.5	G	0.15	U	5

Residuals in seconds of arc

1960 09 26	675	0.3+	0.1−	1960 10 26	675	0.7+	0.2+	1998 09 14	704	0.8−	1.4+
1960 09 27	675	0.5+	0.5+	1998 09 14	704	0.2+	0.7+	1998 09 18	704	0.4+	0.5−
1960 09 28	675	0.4−	0.4+	1998 09 14	704	0.2−	1.3+	1998 09 18	704	0.5−	1.7−
1960 10 17	675	0.5−	0.3+	1998 09 14	704	0.4−	0.3−	1998 09 18	704	1.6+	0.3+
1960 10 22	675	0.8−	1.0−	1998 09 14	704	0.5−	1.9−	1998 09 18	704	0.3+	0.4+

6774 P-L = 1993 SL

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	126.64686		(2000.0)		**P**	**Q**	
n	0.24048805	ω	281.96094		+0.41918247	+0.90633018	
a	2.5609851	Ω	13.21318		−0.71524486	+0.36588785	
e	0.1569180	i	13.51060		−0.55920555	+0.21140407	
P	4.10	H	16.0	G	0.15	U	5

Residuals in seconds of arc

1960 09 24	675	0.5−	0.3+	1960 10 22	675	0.7−	0.1+	1993 09 16	691	0.0	0.1+
1960 09 26	675	0.2−	0.1−	1960 10 26	675	0.4+	0.0	1993 09 17	691	0.1−	0.1−
1960 09 27	675	0.6+	0.1−	1993 09 16	691	0.2+	0.2+	1993 09 17	691	0.2−	0.1−
1960 09 28	675	0.3+	0.1−	1993 09 16	691	0.1+	0.1+	1993 09 17	691	0.0	0.2−

6818 P-L = 1998 RN$_{17}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	5.43457		(2000.0)		**P**	**Q**	
n	0.23224315	ω	234.34773		+0.56789170	+0.82108597	
a	2.6212440	Ω	70.35536		−0.73403974	+0.53685887	
e	0.1953212	i	3.50590		−0.37240392	+0.19390817	
P	4.24	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1960 09 24	675	0.9−	0.1+	1960 10 26	675	1.0+	0.8−	1998 09 18	704	(2.6−	2.3−)
1960 09 26	675	0.2+	0.3+	1998 09 14	704	0.5+	0.3−	1998 09 18	704	1.9−	0.2+
1960 09 27	675	0.3+	0.3−	1998 09 14	704	0.1+	0.3−	1998 09 18	704	1.3−	0.4+
1960 09 28	675	1.1+	0.1−	1998 09 14	704	0.5+	0.9−	1998 09 18	704	0.8−	0.7+
1960 10 17	675	1.0−	0.8−	1998 09 14	704	1.1+	0.2+	1998 09 24	699	0.4+	0.2+
1960 10 22	675	1.1−	0.6+	1998 09 14	704	0.2+	0.5−	1998 09 24	699	0.4+	0.3+
1960 10 25	675	0.4+	0.8+	1998 09 18	704	1.1+	0.4−	1998 09 24	699	0.4−	0.6+

7066 P-L = 1992 UO$_{9}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	92.41018		(2000.0)		**P**	**Q**	
n	0.18718111	ω	109.66569		+0.69712610	+0.71169665	
a	3.0266442	Ω	205.20501		−0.71006817	+0.66868033	
e	0.1607318	i	11.73594		−0.09908782	+0.21530094	
P	5.27	H	13.0	G	0.15	U	5

Residuals in seconds of arc

1960 09 24	675	0.2+	0.0	1960 10 24	675	0.7−	0.4+	1992 10 22	399	0.6+	0.5−
1960 10 17	675	0.4+	0.8+	1960 10 26	675	0.4−	0.9−	1992 10 26	400	0.1−	0.3+
1960 10 22	675	0.5+	0.3−	1992 10 22	399	0.2+	0.9+	1992 10 26	400	0.7−	0.6−

9606 P-L = 1998 RG$_{19}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	325.80413		(2000.0)		**P**	**Q**	
n	0.18110964	ω	312.08141		+0.97412149	−0.22218402	
a	3.0939148	Ω	60.79479		+0.21886574	+0.88139969	
e	0.1985186	i	2.72457		+0.05643683	+0.41685591	
P	5.44	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1960 09 24	675	0.6+	0.3−	1960 10 26	675	0.5+	0.6+	1998 09 14	704	0.3+	1.2−
1960 09 26	675	0.3+	0.3+	1998 09 14	704	0.5−	0.6−	1998 09 18	704	1.4−	1.2+
1960 10 17	675	1.2−	0.8−	1998 09 14	704	0.4−	1.1+	1998 09 18	704	1.0+	1.2−
1960 10 22	675	0.1−	0.2−	1998 09 14	704	0.0	0.8+	1998 09 18	704	0.3−	0.9+
1960 10 25	675	0.1−	0.3+	1998 09 14	704	0.3+	1.4−	1998 09 18	704	0.9+	0.6+

1236 T-2 = 1998 HJ$_{38}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	226.96919		(2000.0)		**P**	**Q**	
n	0.26387046	ω	17.02213		+0.99704667	−0.07649032	
a	2.4073664	Ω	347.35880		+0.06630036	+0.90244297	
e	0.1406751	i	1.79844		+0.03875826	+0.42396452	
P	3.74	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1973 09 19	675	1.4+	0.7−	1973 09 30	675	0.2−	2.3+	1998 04 21	704	0.9+	1.9+
1973 09 19	675	0.2+	2.7−	1973 10 04	675	0.9+	1.6−	1998 04 21	704	0.1+	0.5+
1973 09 20	675	0.9−	1.8+	1973 10 04	675	0.9+	1.8−	1998 04 21	704	0.8−	1.0−
1973 09 24	675	0.8−	0.4+	1973 10 05	675	1.0+	0.3−	1998 04 21	704	1.0+	2.1+
1973 09 24	675	0.8−	0.2+	1973 10 05	675	0.1−	2.0−	1998 04 22	704	0.8−	2.5−
1973 09 25	675	1.3−	0.5−	1998 04 20	704	1.7−	2.0+	1998 04 22	704	1.5+	0.6+
1973 09 25	675	0.4−	0.5+	1998 04 20	704	0.8−	0.2+	1998 04 22	704	0.7−	0.1−
1973 09 29	675	0.8+	1.5+	1998 04 20	704	0.1+	1.3−	1998 04 22	704	1.6+	1.1−
1973 09 29	675	0.8−	0.5+	1998 04 20	704	0.9−	0.8+	1998 04 22	704	1.4−	1.5−
1973 09 30	675	0.6−	1.6+	1998 04 21	704	1.8+	1.1−				

1278 T-2 = 1998 OM$_{1}$

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	260.89123		(2000.0)		**P**	**Q**	
n	0.19272905	ω	232.07963		+0.58489513	−0.81107948	
a	2.9682782	Ω	182.16039		+0.78978205	+0.57143662	
e	0.1090505	i	10.56425		+0.18477555	+0.12494108	
P	5.11	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1973 09 19	675	0.3+	1.6−	1973 09 30	675	1.1−	0.6−	1998 07 26	621	0.6+	0.4−
1973 09 19	675	0.2+	1.0−	1973 10 04	675	0.2−	1.3+	1998 07 30	621	0.6+	0.2+
1973 09 20	675	0.0	0.4+	1973 10 04	675	1.2+	1.7+	1998 07 30	621	0.4+	0.3+
1973 09 24	675	1.1+	0.4−	1973 10 05	675	1.3+	0.6−	1998 07 30	621	0.2+	0.2+
1973 09 24	675	0.5+	2.1+	1973 10 05	675	1.6+	0.5−	1998 08 17	621	0.3+	0.4−
1973 09 24	675	1.6−	1.3−	1998 07 18	621	0.1−	0.2−	1998 08 17	621	0.4−	0.1+
1973 09 24	675	0.5−	2.0+	1998 07 18	621	0.3+	0.0	1998 08 17	621	0.3−	0.1−
1973 09 25	675	0.3+	2.0−	1998 07 19	621	0.2−	0.2+	1998 08 19	621	0.5−	0.2+
1973 09 25	675	0.9−	1.0+	1998 07 19	621	0.1+	0.3+	1998 08 19	621	0.8−	0.1+
1973 09 29	675	1.4−	0.7−	1998 07 19	621	0.1−	0.1+	1998 08 19	621	0.5−	0.0
1973 09 29	675	0.4+	0.5−	1998 07 21	621	0.4+	0.0				
1973 09 30	675	1.0−	0.8+	1998 07 26	621	0.2+	0.2−				

1320 T-2 = 1998 RM$_{24}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	7.25905		(2000.0)		**P**	**Q**	
n	0.19518613	ω	317.67369		+0.72679817	+0.68684371	
a	2.9433151	Ω	358.92961		−0.57567702	+0.60662376	
e	0.0976860	i	9.81121		−0.37464702	+0.40031653	
P	5.05	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1973 09 19	675	2.5−	0.2+	1973 09 29	675	0.2+	1.0+	1998 09 14	704	0.1+	1.5+
1973 09 19	675	0.2−	0.7+	1973 09 30	675	0.2+	0.9+	1998 09 14	704	1.4−	2.1−
1973 09 20	675	1.1+	0.4−	1973 09 30	675	0.2+	0.7+	1998 09 14	704	0.2+	0.5+
1973 09 24	675	1.3+	1.1+	1973 10 04	675	0.3−	0.9−	1998 09 18	704	1.1+	0.9+
1973 09 24	675	1.8+	0.4−	1973 10 04	675	0.0	0.7−	1998 09 18	704	0.1−	0.5−
1973 09 25	675	0.2−	2.2−	1973 10 05	675	1.9−	0.5+	1998 09 18	704	0.2+	0.5−
1973 09 25	675	0.4+	0.5−	1973 10 05	675	0.9−	0.6−	1998 09 18	704	0.3+	0.4−
1973 09 29	675	0.8+	0.6+	1998 09 14	704	0.4−	0.5+				

1323 T-2 = 1996 VS$_{29}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	238.09411		(2000.0)		**P**	**Q**	
n	0.26108116	ω	144.91096		+0.76140582	+0.64817182	
a	2.4244823	Ω	174.64062		−0.61955468	+0.73282175	
e	0.1227741	i	7.13179		−0.19082237	+0.20699172	
P	3.78	H	17.0	G	0.15	U	5

Residuals in seconds of arc

1973 09 19	675	1.0+	0.3+	1973 09 29	675	0.8+	0.5−	1973 10 04	675	0.4−	0.5+
1973 09 19	675	0.8+	1.1+	1973 09 29	675	1.2−	1.0−	1973 10 05	675	0.1+	0.6−
1973 09 19	675	1.3−	0.0	1973 09 29	675	0.7+	2.6+	1973 10 05	675	0.1−	0.0
1973 09 19	675	(2.7−	0.4−)	1973 09 29	675	0.0	2.0−	1973 10 05	675	(2.3−	1.1−)
1973 09 20	675	0.8−	0.4+	1973 09 30	675	0.3−	0.7−	1973 10 05	675	1.0+	1.2+
1973 09 24	675	0.1−	1.3−	1973 09 30	675	0.3−	0.9+	1996 11 14	691	0.1−	0.4−
1973 09 24	675	0.7−	0.2−	1973 09 30	675	0.7+	0.0	1996 11 14	691	0.4−	0.0
1973 09 25	675	0.0	1.0−	1973 09 30	675	0.7−	0.1+	1996 11 14	691	0.4−	0.0
1973 09 25	675	0.0	0.5−	1973 10 04	675	0.3−	0.1+	1996 11 18	691	0.1+	0.0
1973 09 29	675	0.4+	0.3+	1973 10 04	675	(3.2−	1.1+)	1996 11 18	691	0.4+	0.1+
1973 09 29	675	1.3+	0.8+	1973 10 04	675	1.2−	0.6−	1996 11 18	691	0.3+	0.2+

1348 T-2 = 1997 LD$_{9}$

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	199.77148		(2000.0)		**P**	**Q**	
n	0.27196136	ω	297.14414		−0.60148803	−0.79876797	
a	2.3593801	Ω	189.86633		+0.75799631	−0.56529226	
e	0.1756028	i	4.51408		+0.25229694	−0.20594752	
P	3.62	H	14.5	G	0.15	U	6

Residuals in seconds of arc

1973 09 19	675	0.9+	0.1−	1973 09 29	675	0.1+	1.8+	1973 10 05	675	1.0−	1.7+
1973 09 19	675	1.0+	0.2+	1973 09 29	675	0.0	0.7+	1997 06 07	809	0.8+	0.1+
1973 09 20	675	0.3−	0.1−	1973 09 29	675	0.5−	0.7−	1997 06 07	809	1.1+	0.1+
1973 09 24	675	1.7−	0.5+	1973 09 30	675	1.0+	0.4−	1997 06 07	809	1.5+	0.6+
1973 09 24	675	1.0−	0.2+	1973 09 30	675	1.4+	0.7+	1997 06 08	809	1.5−	0.6−
1973 09 25	675	1.1−	0.9−	1973 10 04	675	1.9+	2.3−	1997 06 08	809	0.8−	0.2−
1973 09 25	675	0.4+	1.6−	1973 10 04	675	0.5+	1.5−	1997 06 08	809	1.1−	0.1+
1973 09 29	675	0.3+	0.7+	1973 10 05	675	1.8−	1.2+				

1350 T-2 = 1978 RN$_{11}$ = 1997 AP$_{19}$ = 1998 HQ$_{59}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	311.88780		(2000.0)		**P**	**Q**	
n	0.18631322	ω	67.86586		+0.26834154	+0.96317570	
a	3.0360361	Ω	217.71260		−0.89369653	+0.24236208	
e	0.1388516	i	1.58255		−0.35958216	+0.11641817	
P	5.29	H	15.0	G	0.15	U	3

Residuals in seconds of arc

1973 09 19	675	0.0	1.0+	1973 09 30	675	1.7+	1.5−	1997 01 17	691	0.0	0.1−
1973 09 19	675	(2.7−	1.5+)	1973 10 04	675	0.9−	0.6+	1997 01 17	691	0.0	0.5−
1973 09 20	675	1.8+	0.9−	1973 10 04	675	0.9−	0.5−	1998 04 21	704	0.8−	0.5−
1973 09 24	675	1.6−	1.1+	1973 10 04	675	1.4−	0.0	1998 04 21	704	0.2+	1.8−
1973 09 24	675	0.2−	0.4−	1973 10 04	675	0.7+	0.3−	1998 04 21	704	0.1−	2.0−
1973 09 25	675	0.4−	1.5−	1973 10 05	675	0.2−	1.8−	1998 04 21	704	(4.7−	2.0−)
1973 09 25	675	1.2+	1.2−	1973 10 05	675	0.1−	1.2−	1998 04 22	704	0.0	0.8−
1973 09 29	675	(2.2−	1.2+)	1978 09 06	809	0.0	0.0	1998 04 22	704	(1.5−	3.3−)
1973 09 29	675	0.5−	0.8+	1997 01 10	691	0.5−	0.2−	1998 04 22	704	0.1−	0.6+
1973 09 29	675	0.6+	1.0+	1997 01 10	691	0.4−	0.4−	1998 04 22	704	0.1−	0.8+
1973 09 29	675	0.3+	0.8+	1997 01 10	691	0.2−	0.5−	1998 04 22	704	0.4−	0.1−
1973 09 30	675	1.6+	0.4−	1997 01 17	691	0.4+	0.3−				

1357 T-2 = 1998 BT$_{32}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	182.54191		(2000.0)		**P**	**Q**	
n	0.21706171	ω	326.55371		+0.95501462	+0.29571757	
a	2.7420828	Ω	16.29022		−0.25165044	+0.84791804	
e	0.1072883	i	4.56397		−0.15690483	+0.43998423	
P	4.54	H	16.5	G	0.15	U	5

Residuals in seconds of arc

1973 09 19	675	0.9−	0.3+	1973 09 25	675	1.9+	1.7+	1973 10 04	675	1.7−	0.7+
1973 09 19	675	0.1+	1.0+	1973 09 29	675	0.1−	1.2−	1973 10 05	675	0.6−	0.7+
1973 09 19	675	0.4+	1.0−	1973 09 29	675	1.2+	2.5−	1973 10 05	675	1.2+	1.8+
1973 09 19	675	0.6−	2.3+	1973 09 29	675	0.9+	0.6−	1973 10 05	675	0.1−	1.2−
1973 09 20	675	0.7−	0.5+	1973 09 29	675	2.0+	1.5−	1973 10 05	675	0.6−	2.1+
1973 09 24	675	0.0	0.2−	1973 09 30	675	1.4−	0.5−	1998 01 29	910	0.2−	0.0
1973 09 24	675	0.1−	0.2−	1973 09 30	675	0.4+	0.2−	1998 01 30	910	0.2−	0.0
1973 09 24	675	0.8−	0.1−	1973 09 30	675	2.6−	0.2−	1998 01 30	910	0.3+	0.1+
1973 09 24	675	0.3−	0.0	1973 09 30	675	0.5+	0.2−	1998 01 31	910	0.1−	0.1+
1973 09 25	675	0.9+	1.5−	1973 10 04	675	0.1−	0.2−	1998 01 31	910	0.1+	0.1−
1973 09 25	675	0.7−	0.5+	1973 10 04	675	0.5+	1.6+	1998 01 31	910	0.0	0.1−
1973 09 25	675	1.4+	1.3−	1973 10 04	675	0.1−	1.0−				

1409 T-2 = 1996 XT$_{36}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

					P	Q
M	148.75179		(2000.0)			
n	0.17523204	ω	208.79869		+0.99989045	−0.01438299
a	3.1627173	Ω	152.02477		+0.01460285	+0.91996530
e	0.1539296	i	0.42699		+0.00241821	+0.39173585
P	5.62	H	16.5	G	0.15	U 5

Residuals in seconds of arc

1973 09 20	675	0.8−	0.6−	1973 10 04	675	0.1−	1.6−	1996 12 14	691	0.3+	0.1−
1973 09 24	675	1.1+	0.5−	1973 10 05	675	0.7+	1.0−	1996 12 14	691	0.1+	0.1−
1973 09 30	675	0.4−	0.6+	1973 10 05	675	0.2−	1.1+	1996 12 17	691	0.1−	0.3+
1973 09 30	675	0.1+	1.0+	1973 10 05	675	0.4−	1.0+	1996 12 17	691	0.1−	0.1−
1973 10 04	675	0.2+	1.2−	1973 10 05	675	0.4−	1.2+	1996 12 17	691	0.1−	0.1−

2049 T-2 = 1998 SP$_{52}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	60.03863		(2000.0)			
n	0.27539268	ω	274.86707		−0.23552240	+0.97182899
a	2.3397410	Ω	341.50332		−0.88030406	−0.21716515
e	0.1992800	i	1.59135		−0.41181786	−0.09158451
P	3.58	H	16.0	G	0.15	U 6

Residuals in seconds of arc

1973 09 19	675	0.3+	0.2+	1973 09 30	675	0.1−	0.2+	1998 09 25	699	1.4+	0.3+
1973 09 19	675	1.6−	0.6−	1973 10 04	675	1.4−	0.5+	1998 09 25	699	0.4+	0.2−
1973 09 20	675	(2.3−	3.1−)	1973 10 04	675	0.5−	1.0+	1998 09 29	691	0.2−	0.3−
1973 09 24	675	0.8+	0.8−	1973 10 05	675	1.0+	1.5−	1998 09 29	691	0.5−	0.1−
1973 09 24	675	0.3+	0.5−	1973 10 05	675	0.2+	0.3+	1998 09 29	691	0.5−	0.2−
1973 09 25	675	0.9+	0.8−	1973 10 05	675	1.4+	0.4−	1998 10 01	691	0.9−	0.5+
1973 09 29	675	0.6−	2.0+	1973 10 05	675	0.8−	0.4−	1998 10 01	691	0.5−	0.2+
1973 09 30	675	0.5+	0.1+	1998 09 25	699	0.6+	0.3+	1998 10 01	691	0.1−	0.1+

2162 T-2 = 1998 MX$_{13}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

					P	Q
M	14.08028		(2000.0)			
n	0.23144132	ω	84.73457		+0.13629533	+0.99051130
a	2.6272947	Ω	193.13841		−0.93688150	+0.12308957
e	0.0772650	i	4.44940		−0.32198858	+0.06112555
P	4.26	H	16.5	G	0.15	U 5

Residuals in seconds of arc

1973 09 19	675	0.4+	0.1−	1973 09 29	675	0.1+	2.3+	1973 10 05	675	0.3+	1.5−
1973 09 19	675	0.3−	0.3−	1973 09 29	675	0.5−	0.5+	1998 06 19	910	0.0	0.4−
1973 09 20	675	0.2+	1.5−	1973 09 30	675	0.1+	0.3+	1998 06 19	910	0.3−	0.4−
1973 09 24	675	1.7−	0.1−	1973 09 30	675	1.4−	0.7+	1998 06 19	910	0.1−	0.2−
1973 09 24	675	2.5−	0.5+	1973 10 04	675	1.7+	2.2+	1998 06 26	910	0.2+	0.3+
1973 09 25	675	2.2+	1.5−	1973 10 04	675	0.3−	0.9−	1998 06 26	910	0.0	0.4+
1973 09 25	675	0.9+	0.1−	1973 10 05	675	0.8+	0.6−	1998 06 26	910	0.2+	0.3+

2184 T-2 = 1995 SL$_{53}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

					P	Q
M	324.51136		(2000.0)			
n	0.27109759	ω	284.13652		+0.71917563	+0.69441444
a	2.3643891	Ω	31.89349		−0.61870589	+0.65570987
e	0.2168039	i	2.60128		−0.31621106	+0.29636657
P	3.64	H	16.5	G	0.15	U 5

Residuals in seconds of arc

1973 09 19	675	0.3−	1.3−	1973 09 29	675	(3.4−	1.4−)	1973 10 05	675	(2.7−	2.6+)
1973 09 19	675	1.9+	1.0+	1973 09 29	675	1.2+	0.9−	1973 10 05	675	1.5+	0.7−
1973 09 19	675	0.7−	0.3+	1973 09 29	675	2.1−	1.9−	1973 10 05	675	(3.7−	2.8+)
1973 09 19	675	1.0+	0.9+	1973 09 29	675	0.8+	1.9−	1995 09 28	327	0.3+	0.6+
1973 09 20	675	0.7−	0.6−	1973 09 30	675	0.2+	2.5−	1995 09 28	327	0.5+	0.1+
1973 09 20	675	0.5+	1.3+	1973 09 30	675	0.3−	1.2+	1995 09 28	327	0.1+	0.4−
1973 09 24	675	0.0	0.1−	1973 09 30	675	0.6+	0.4−	1995 09 28	327	0.7+	0.2−
1973 09 24	675	1.6−	0.1−	1973 09 30	675	0.1+	2.3+	1995 09 29	327	0.8−	0.5+
1973 09 24	675	1.2−	0.5−	1973 10 04	675	0.6+	1.1+	1995 09 29	327	0.4−	0.7+
1973 09 24	675	1.4−	1.5+	1973 10 04	675	(1.6−	3.4+)	1995 09 29	327	0.1+	0.1−
1973 09 25	675	0.3−	0.0	1973 10 04	675	0.5−	1.4+	1995 09 29	327	0.6−	0.8−
1973 09 25	675	0.5+	2.0−	1973 10 04	675	(2.0−	4.0+)				
1973 09 25	675	1.5−	1.1+	1973 10 05	675	0.3+	0.3−				

2186 T-2 = 1998 RS$_{10}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

					P	Q
M	327.94169		(2000.0)			
n	0.19600903	ω	5.59771		+0.96171394	−0.27399487
a	2.9350713	Ω	10.30990		+0.25017677	+0.86915343
e	0.0896966	i	1.84259		+0.11188337	+0.41170271
P	5.03	H	15.5	G	0.15	U 6

Residuals in seconds of arc

1973 09 19	675	2.4+	1.0−	1973 09 29	675	0.3−	0.8+	1973 10 05	675	0.1−	0.0
1973 09 19	675	0.6+	0.6−	1973 09 29	675	0.0	0.9+	1998 09 13	691	0.1−	0.5+
1973 09 20	675	0.9−	1.1−	1973 09 30	675	1.7−	0.7+	1998 09 13	691	0.2+	0.1+
1973 09 24	675	1.9−	1.1+	1973 09 30	675	0.0	0.3+	1998 09 13	691	0.1−	0.5+
1973 09 24	675	1.5−	1.3+	1973 10 04	675	2.5+	0.7−	1998 09 19	691	0.1+	0.1−
1973 09 25	675	0.1−	0.7−	1973 10 04	675	0.4−	0.5+	1998 09 19	691	0.2−	0.5−
1973 09 25	675	0.1+	0.4−	1973 10 05	675	1.6+	1.0−	1998 09 19	691	0.1+	0.5−

2245 T-2 = 1998 KK$_{27}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

					P	Q
M	341.21901		(2000.0)			
n	0.26889337	ω	92.84674		+0.15883384	+0.98729423
a	2.3772927	Ω	186.29827		−0.92194091	+0.14662035
e	0.1741086	i	2.44524		−0.35326587	+0.06125821
P	3.67	H	16.5	G	0.15	U 5

Residuals in seconds of arc

1973 09 19	675	1.5+	0.2−	1973 09 29	675	0.3−	2.7+	1998 05 22	704	0.0	0.5−
1973 09 19	675	0.4+	0.2+	1973 09 30	675	0.7+	0.5+	1998 05 22	704	0.1+	0.1−
1973 09 20	675	(2.7+	1.1−)	1973 09 30	675	0.5+	0.2+	1998 05 22	704	0.1−	1.6−
1973 09 24	675	1.5−	0.5+	1973 10 04	675	0.1−	0.6+	1998 05 24	704	0.4+	0.8−
1973 09 24	675	2.0−	1.0+	1973 10 04	675	0.3+	0.2−	1998 05 24	704	(2.6+	0.8−)
1973 09 25	675	0.2−	2.5−	1973 10 05	675	0.2−	1.6−	1998 05 24	704	0.6+	0.9−
1973 09 25	675	0.1+	1.7−	1973 10 05	675	0.7+	0.4−	1998 05 24	704	0.6−	1.7+
1973 09 29	675	0.7−	0.5+	1998 05 22	704	0.5−	0.1+	1998 05 24	704	0.1−	2.0+

3051 T-2 = 1998 HT$_{16}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

					P	Q
M	141.03433		(2000.0)			
n	0.26011156	ω	279.72626		+0.31611025	−0.94769297
a	2.4305037	Ω	151.72292		+0.90290729	+0.28622013
e	0.1885999	i	5.35177		+0.29126061	+0.14126597
P	3.79	H	16.5	G	0.15	U 5

Residuals in seconds of arc

1973 09 19	675	1.5−	1.0+	1973 09 30	675	0.9−	0.7+	1998 04 27	691	0.7+	0.2+
1973 09 19	675	0.2+	1.8+	1973 09 30	675	1.1−	0.2−	1998 04 27	691	0.5+	0.4−
1973 09 20	675	0.7−	1.4+	1973 10 04	675	0.5−	0.9+	1998 04 27	691	0.6+	0.0
1973 09 24	675	0.8−	2.0−	1973 10 04	675	2.2−	0.9+	1998 05 01	691	0.4−	0.2−
1973 09 24	675	2.0+	0.1+	1973 10 05	675	1.3+	0.5+	1998 05 01	691	0.5−	0.1−
1973 09 25	675	1.5+	1.7−	1973 10 05	675	1.8+	0.0	1998 05 01	691	0.7−	0.4−
1973 09 25	675	2.9+	2.8−	1998 04 25	691	0.3+	0.2−	1998 05 02	691	0.5−	0.2+
1973 09 29	675	1.6−	0.5+	1998 04 25	691	0.9+	0.3+	1998 05 02	691	0.9−	0.0
1973 09 29	675	0.6+	0.7−	1998 04 25	691	0.9+	0.1+	1998 05 02	691	1.1−	0.4+

3109 T-2 = 1998 MD$_{14}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	319.33722		(2000.0)	**P**		**Q**	
n	0.19086088	ω	150.79571	+0.74658703		+0.66403086	
a	2.9876160	Ω	167.33857	−0.64084780		+0.73430201	
e	0.1217761	i	10.74774	−0.17866701		+0.14093820	
P	5.16	H	17.0	G	0.15	U	6

Residuals in seconds of arc

1973 09 19	675	0.2+	1.1+	1973 09 29	675	0.5+	0.6+	1973 10 05	675	1.1+	0.7+
1973 09 19	675	(1.1−	2.5−)	1973 09 29	675	0.2+	1.2+	1998 06 21	910	0.1−	0.0
1973 09 20	675	1.2+	0.1−	1973 09 30	675	1.6−	0.8−	1998 06 21	910	0.3−	0.2+
1973 09 24	675	1.7−	0.9−	1973 09 30	675	0.0	0.5−	1998 06 21	910	0.3−	0.2−
1973 09 24	675	0.6−	0.8+	1973 10 04	675	(4.5+	0.9−)	1998 06 26	910	0.2+	0.1+
1973 09 25	675	0.5−	2.4−	1973 10 04	675	(4.3+	0.2−)	1998 06 26	910	0.3+	0.3−
1973 09 25	675	(1.4+	2.5−)	1973 10 05	675	1.7+	0.4+	1998 06 26	910	0.3+	0.2+

3200 T-2

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	352.13714		(2000.0)	**P**		**Q**	
n	0.19694363	ω	241.75712	+0.98732211		+0.14854048	
a	2.9257784	Ω	109.65491	−0.11666548		+0.91812088	
e	0.0964432	i	3.40624	−0.10763000		+0.36740955	
P	5.00	H	15.5	G	0.15	U	6

Residuals in seconds of arc

1973 09 19	675	1.1+	1.4−	1973 09 29	675	0.2−	0.3+	1973 10 05	675	0.5+	0.6+
1973 09 19	675	0.8+	0.4−	1973 09 29	675	0.6+	0.4+	1998 09 17	699	0.5+	0.3+
1973 09 20	675	0.6−	1.2−	1973 09 30	675	0.5−	0.1−	1998 09 17	699	0.5−	0.8+
1973 09 24	675	0.1−	0.9−	1973 09 30	675	0.8−	0.7−	1998 09 17	699	2.0−	1.6+
1973 09 24	675	0.2−	1.7−	1973 10 04	675	1.9+	1.8+	1998 09 25	699	0.2−	1.6+
1973 09 25	675	0.2+	1.9−	1973 10 04	675	0.4−	0.7+	1998 09 25	699	0.3+	0.4+
1973 09 25	675	0.5−	0.6−	1973 10 05	675	0.1+	0.5+	1998 09 25	699	0.1−	0.0

3335 T-2 = 1998 SZ$_{43}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	315.44782		(2000.0)	**P**		**Q**	
n	0.23726992	ω	339.81886	+0.69497846		−0.71674859	
a	2.5840897	Ω	66.10632	+0.66799118		+0.61413973	
e	0.1675885	i	3.58936	+0.26606901		+0.33030871	
P	4.15	H	14.5	G	0.15	U	6

Residuals in seconds of arc

1973 09 19	675	0.7+	0.1+	1998 09 27	327	0.0	0.2−	1998 09 29	327	0.1+	0.2−
1973 09 19	675	0.2−	1.5−	1998 09 27	327	0.2+	0.1+	1998 10 02	327	0.0	0.1−
1973 09 20	675	0.5+	0.1−	1998 09 27	327	0.4+	0.0	1998 10 02	327	0.4−	0.2+
1973 09 24	675	1.8−	0.2−	1998 09 29	327	0.2−	0.2−	1998 10 02	327	0.2−	0.0
1973 09 24	675	0.7+	2.0+	1998 09 29	327	0.2+	0.1+				

4136 T-2 = 1987 KS$_1$ = 1988 RD$_4$

Id. D. W. E. Green (*MPC* 14969), G. V. Williams; 4136 T-2 = 1987 KV$_1$ (*ibid.*) is invalid

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	5.32431		(2000.0)	**P**		**Q**	
n	0.19794512	ω	306.28261	+0.92743834		+0.36740286	
a	2.9159015	Ω	32.32858	−0.28739609		+0.81963891	
e	0.2190483	i	7.50073	−0.23929398		+0.43955340	
P	4.98	H	14.0	G	0.15	U	2

Residuals in seconds of arc

1973 09 19	675	0.2+	1.2−	1987 05 30	413	0.1−	0.9+	1998 09 19	699	0.0	0.7+
1973 09 19	675	0.2−	0.1+	1987 05 30	413	0.7+	0.5+	1998 09 19	699	0.2+	0.7+
1973 09 20	675	2.2−	0.0	1988 09 09	033	0.7+	0.2−	1998 09 19	699	0.2+	0.7+
1973 09 24	675	0.5+	0.9+	1988 09 09	033	0.5−	0.5−	1998 09 26	704	0.2−	0.2+
1973 09 24	675	0.7−	0.6+	1988 09 10	033	1.1+	0.7−	1998 09 26	704	0.6−	0.6+
1973 09 25	675	1.0−	0.6−	1993 09 21	675	1.5−	0.9+	1998 09 26	704	0.7−	0.1−
1973 09 25	675	0.7+	0.2+	1993 09 21	675	1.1−	0.3+	1998 09 26	704	0.1+	0.3+
1973 09 29	675	2.1+	1.8−	1993 09 23	675	0.8−	0.4+	1998 09 26	704	0.9−	0.2−
1973 09 29	675	1.4+	2.0−	1993 10 12	675	0.2+	0.5−	1998 09 27	704	0.7−	0.6+
1973 09 30	675	0.5+	0.1−	1993 10 12	675	0.6−	0.1+	1998 09 27	704	0.7−	0.2+
1973 09 30	675	1.3+	0.5−	1998 09 18	704	0.0	0.9+	1998 09 27	704	0.2+	0.2+
1973 10 04	675	0.7+	1.8−	1998 09 18	704	0.5+	0.6+	1998 09 27	704	0.3+	1.4+
1973 10 04	675	1.2+	1.4−	1998 09 18	704	0.0	0.5+	1998 09 27	704	0.5+	0.3−
1973 10 05	675	0.7+	0.3−	1998 09 18	704	0.5−	0.8+				
1973 10 05	675	0.3−	0.2−	1998 09 18	704	0.5−	1.1+				

4209 T-2 = 1998 EP$_{14}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	342.86001		(2000.0)	**P**		**Q**	
n	0.18191768	ω	178.93915	−0.74050789		+0.66839260	
a	3.0847463	Ω	43.28050	−0.61734114		−0.63536828	
e	0.1135380	i	5.86002	−0.26558986		−0.38672792	
P	5.42	H	14.5	G	0.15	U	6

Residuals in seconds of arc

1973 09 20	675	0.2−	0.2+	1973 09 30	675	0.5−	1.8+	1998 03 01	809	0.0	0.8−
1973 09 24	675	0.0	0.4+	1973 09 30	675	0.5+	0.7+	1998 03 01	809	0.8−	1.4−
1973 09 24	675	1.5+	2.2−	1973 10 04	675	1.2+	0.7−	1998 03 02	809	0.4+	0.6+
1973 09 25	675	0.1−	0.5−	1973 10 04	675	0.6+	0.4+	1998 03 02	809	0.6+	0.6+
1973 09 25	675	0.3−	0.3+	1973 10 05	675	0.3+	1.2−	1998 03 02	809	0.6+	1.3+
1973 09 29	675	2.0−	0.6+	1973 10 05	675	1.0−	0.3+				
1973 09 29	675	0.2−	0.1−	1998 03 01	809	0.8−	0.3−				

4230 T-2

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	7.55483		(2000.0)	**P**		**Q**	
n	0.19711813	ω	247.27889	+0.92936339		+0.36438714	
a	2.9240514	Ω	91.30953	−0.31324455		+0.86324436	
e	0.0972675	i	3.39530	−0.19534979		+0.34932964	
P	5.00	H	15.0	G	0.15	U	7

Residuals in seconds of arc

1973 09 19	675	(3.3+	0.2−)	1973 09 29	675	2.1−	0.4−	1973 10 05	675	0.8−	0.1+
1973 09 19	675	1.3+	1.8−	1973 09 29	675	(2.8−	0.5+)	1998 09 17	699	0.1−	0.7+
1973 09 20	675	1.4−	0.4+	1973 09 30	675	0.8+	0.8+	1998 09 17	699	0.4−	1.5+
1973 09 24	675	1.2+	0.5−	1973 09 30	675	0.1+	0.8+	1998 09 17	699	0.2−	0.8+
1973 09 24	675	0.1−	0.3−	1973 10 04	675	0.6+	0.2−	1998 09 25	699	0.3+	0.5−
1973 09 25	675	0.7+	0.7−	1973 10 04	675	1.6+	0.1+	1998 09 25	699	0.4+	0.1+
1973 09 25	675	0.9−	0.1+	1973 10 05	675	0.3−	0.2+	1998 09 25	699	0.6−	1.1−

1014 T-3 = 1998 SB$_6$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	336.68592		(2000.0)	**P**		**Q**	
n	0.23255773	ω	8.18426	+0.99578884		+0.07972279	
a	2.6188796	Ω	346.98166	−0.09129081		+0.81705618	
e	0.1902100	i	11.59196	−0.00840136		+0.57101969	
P	4.24	H	16.0	G	0.15	U	5

Residuals in seconds of arc

1977 10 07	675	1.2+	1.6−	1977 10 22	675	0.9−	1.3−	1998 09 18	704	0.5+	1.6−
1977 10 11	675	0.0	1.3+	1977 10 22	675	0.9−	1.0+	1998 09 18	704	1.6−	1.7+
1977 10 11	675	1.5+	1.1+	1998 09 14	704	1.2+	1.2−	1998 09 20	691	1.1−	0.5+
1977 10 12	675	0.1−	0.5−	1998 09 14	704	0.6+	0.2+	1998 09 20	691	0.9−	0.5+
1977 10 12	675	0.0	1.1+	1998 09 14	704	0.6+	1.5+	1998 09 20	691	1.0−	0.1+
1977 10 16	675	(2.8−	1.0−)	1998 09 14	704	1.0+	1.4−	1998 09 21	691	0.6−	0.3+
1977 10 16	675	1.9−	0.7−	1998 09 14	704	0.9+	0.1−	1998 09 21	691	0.4−	0.3+

1977 10 17	675	0.0	0.4−	1998 09 18	704	0.0	1.1+	1998 09 21	691	0.8−	0.4−
1977 10 17	675	1.2+	0.2−	1998 09 18	704	1.4+	1.1−				

1071 T-3 = 1998 FG$_{109}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	266.05722		(2000.0)		**P**	**Q**	
n	0.26748344	ω	0.06668		+0.81890265	+0.57083099	
a	2.3856393	Ω	324.90877		−0.52662069	+0.70605941	
e	0.1477221	i	5.94931		−0.22818653	+0.41908483	
P	3.68	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1977 10 07	675	0.6+	0.8−	1977 10 22	675	(1.0−	4.1−)	1998 04 19	704	0.5−	0.0
1977 10 11	675	1.6−	0.7+	1998 03 31	704	1.1+	1.1+	1998 04 19	704	0.0	0.1+
1977 10 11	675	0.7−	1.4+	1998 03 31	704	1.5+	0.1−	1998 04 19	704	0.3+	0.2−
1977 10 12	675	0.1+	0.6+	1998 03 31	704	0.6−	0.4+	1998 04 19	704	1.3−	0.6+
1977 10 12	675	0.4+	0.6+	1998 03 31	704	0.0	0.3+	1998 04 19	704	0.0	0.6−
1977 10 16	675	0.1−	1.2−	1998 03 31	704	0.2−	0.9+	1998 04 20	704	0.5+	0.1−
1977 10 16	675	0.3+	0.3−	1998 04 01	704	0.1−	0.3+	1998 04 20	704	0.3+	0.4−
1977 10 17	675	0.6+	0.1+	1998 04 01	704	0.7−	0.2−	1998 04 20	704	0.4+	0.4+
1977 10 17	675	0.8+	0.8−	1998 04 01	704	0.3−	1.0−	1998 04 20	704	0.4+	0.4+
1977 10 22	675	(0.0	5.4−)	1998 04 01	704	0.7−	1.0−	1998 04 20	704	0.1−	0.8−

2246 T-3 = 1998 RF$_{36}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	17.48433		(2000.0)		**P**	**Q**	
n	0.27872148	ω	346.54729		+0.68807576	+0.72416891	
a	2.3210745	Ω	326.89480		−0.65769448	+0.59550681	
e	0.0103560	i	4.84855		−0.30657743	+0.34778014	
P	3.54	H	16.0	G	0.15	U	6

Residuals in seconds of arc

1977 10 11	675	0.8−	1.1+	1977 10 17	675	0.6+	0.4+	1998 09 14	704	0.1−	0.5+
1977 10 11	675	0.5−	0.7−	1977 10 21	675	0.6+	0.9−	1998 09 14	704	1.3−	0.3−
1977 10 12	675	1.5−	0.2+	1977 10 21	675	1.7+	1.0−	1998 09 18	704	1.2+	0.2−
1977 10 12	675	0.6−	0.4+	1977 10 22	675	1.1+	1.0+	1998 09 18	704	0.4−	1.5−
1977 10 16	675	0.6−	1.1−	1977 10 22	675	0.3−	0.0	1998 09 18	704	0.2+	0.4−
1977 10 16	675	1.2−	0.7−	1998 09 14	704	0.4+	0.5+	1998 09 18	704	0.1+	0.4+
1977 10 17	675	1.3+	1.5+	1998 09 14	704	0.1+	0.8+				

2622 T-3 = 1997 MX$_1$ = 1998 QP$_{97}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	73.88972		(2000.0)		**P**	**Q**	
n	0.18201042	ω	13.60986		−0.49889068	+0.85906385	
a	3.0836983	Ω	226.60470		−0.80917434	−0.50904122	
e	0.1321443	i	9.06875		−0.31039488	−0.05372465	
P	5.42	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1977 10 16	675	0.4−	1.1−	1997 06 09	809	0.8+	0.9+	1998 08 24	704	1.0+	0.5+
1977 10 16	675	0.9+	1.1−	1997 06 09	809	0.4+	0.4+	1998 08 24	704	1.0+	1.8+
1977 10 17	675	0.4−	0.8+	1997 06 09	809	0.0	0.5+	1998 08 24	704	1.4−	0.3−
1977 10 17	675	0.9−	2.1+	1997 06 26	691	0.6−	0.4−	1998 08 27	704	1.6+	0.7+
1977 10 21	675	0.2+	0.1−	1997 06 26	691	1.4−	0.1−	1998 08 27	704	0.0	0.4−
1977 10 21	675	(3.9+	0.1−)	1997 06 26	691	0.5−	0.6−	1998 08 27	704	0.1−	1.8−
1997 06 08	809	(1.4+	3.2+)	1997 07 02	691	0.8+	0.2−	1998 08 27	704	0.7−	0.8−
1997 06 08	809	(0.8+	3.1+)	1997 07 02	691	0.3+	0.2+	1998 08 27	704	0.8−	0.1+
1997 06 08	809	(1.3+	3.3+)	1997 07 02	691	0.6+	0.2−				

3093 T-3 = 1998 FY$_{70}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Doppler

M	240.81469		(2000.0)		**P**	**Q**	
n	0.26651793	ω	155.64301		+0.98643652	+0.16195045	
a	2.3913974	Ω	195.10960		−0.16233910	+0.93847485	
e	0.1403222	i	5.88801		−0.02426950	+0.30501969	
P	3.70	H	15.5	G	0.15	U	6

Residuals in seconds of arc

1977 10 07	675	1.1+	0.0	1977 10 22	675	0.8−	0.4+	1998 03 24	704	0.7−	0.3−
1977 10 11	675	0.4−	1.6+	1998 03 20	704	0.6+	1.4−	1998 03 24	704	1.8−	1.2−
1977 10 11	675	0.3−	0.8+	1998 03 20	704	0.3−	0.1−	1998 03 25	704	(2.1−	3.0−)
1977 10 12	675	1.4−	0.7+	1998 03 20	704	0.6+	0.2+	1998 03 25	704	0.7−	0.6+
1977 10 12	675	0.2−	0.9−	1998 03 20	704	1.1+	0.1−	1998 03 25	704	0.4+	1.5+
1977 10 16	675	0.9+	1.3−	1998 03 22	704	0.9−	1.6−	1998 03 25	704	1.7−	1.2+
1977 10 16	675	0.3+	0.7−	1998 03 22	704	(2.2+	0.2+)	1998 04 01	704	0.6−	0.5−
1977 10 17	675	0.2−	1.7+	1998 03 22	704	(3.4+	1.0+)	1998 04 01	704	1.5+	0.1+
1977 10 17	675	(1.4−	2.3+)	1998 03 22	704	0.2−	0.0	1998 04 01	704	0.7−	0.5+
1977 10 21	675	0.1−	0.6−	1998 03 24	704	(1.6−	2.3−)	1998 04 01	704	1.5+	1.0+
1977 10 21	675	1.4+	0.6+	1998 03 24	704	1.5+	1.1+	1998 04 01	704	0.9+	0.3−
1977 10 22	675	0.1+	0.9−	1998 03 24	704	0.1−	0.5+				

4183 T-3 = 1998 SG$_{22}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Williams

M	314.79300		(2000.0)		**P**	**Q**	
n	0.28040190	ω	208.97151		+0.83784091	−0.54573053	
a	2.3117920	Ω	184.18619		+0.53078351	+0.82041322	
e	0.1972048	i	11.19346		+0.12763805	+0.17058824	
P	3.51	H	16.5	G	0.15	U	5

Residuals in seconds of arc

1977 10 11	675	0.2+	0.5+	1998 09 14	704	1.6−	1.0−	1998 09 24	120	1.1+	1.0+
1977 10 11	675	1.0+	0.2−	1998 09 14	704	0.4−	0.4−	1998 09 24	120	1.1−	0.3−
1977 10 12	675	0.0	0.2−	1998 09 14	704	0.3−	0.3+	1998 09 24	120	0.6−	1.6+
1977 10 12	675	0.8−	0.1−	1998 09 14	704	0.8−	0.8+	1998 09 26	704	0.6+	0.8+
1977 10 16	675	0.5+	0.9+	1998 09 18	704	1.0+	1.2−	1998 09 26	704	1.1+	0.0
1977 10 16	675	0.0	0.6+	1998 09 18	704	0.4−	0.7+	1998 09 26	704	1.1+	0.8−
1977 10 17	675	0.7+	0.5+	1998 09 18	704	0.2−	0.5−	1998 09 26	704	0.5+	1.2−
1977 10 17	675	0.4−	0.9−	1998 09 18	704	0.7+	1.5+	1998 09 27	704	0.7−	0.3−
1977 10 21	675	0.3+	0.6−	1998 09 18	704	1.9+	0.5−	1998 09 27	704	1.3−	1.5+
1977 10 21	675	2.0−	1.2−	1998 09 23	120	0.3+	0.0	1998 09 27	704	0.1−	0.0
1977 10 22	675	0.4+	0.8+	1998 09 23	120	0.4+	0.8+	1998 09 27	704	1.0−	1.8−
1998 09 14	704	0.6−	1.0−	1998 09 23	120	0.9+	0.1+	1998 09 27	704	0.5−	0.0

4221 T-3 = 1998 HX$_{125}$

Epoch 1998 July 6.0 TT = JDT 2451000.5 Gnädig

M	63.36132		(2000.0)		**P**	**Q**	
n	0.21650364	ω	348.94727		−0.97036757	−0.24148891	
a	2.7467929	Ω	177.03883		+0.23220030	−0.94149917	
e	0.1449528	i	9.31297		+0.06685657	−0.23507962	
P	4.55	H	14.5	G	0.15	U	6

Residuals in seconds of arc

1977 10 07	675	1.5+	0.9−	1977 10 16	675	0.5+	1.7+	1998 04 23	704	0.2−	0.3+
1977 10 07	675	0.0	0.3+	1977 10 17	675	0.4−	0.1+	1998 04 23	704	0.4+	0.1−
1977 10 11	675	0.8+	0.6+	1977 10 17	675	0.9−	1.2−	1998 04 23	704	0.2−	0.4−
1977 10 11	675	0.8+	1.1+	1977 10 21	675	0.8−	0.6+	1998 04 24	704	0.7+	0.1−
1977 10 12	675	1.0−	1.4−	1977 10 21	675	0.7−	0.1+	1998 04 24	704	0.9−	0.6+
1977 10 12	675	1.2−	0.6−	1977 10 22	675	1.8+	1.4−	1998 04 24	704	0.4+	0.5+
1977 10 16	675	0.1+	1.2+	1998 04 23	704	0.1−	0.7−				

Object	H	G	Epoch	M	ω	Ω	i	e	a	Obs.	Opp. & Arc	rms	Perts	U	Computer	MPC	Object
(515)	11.23	0.15	19980706	16.70051	295.72069	121.59204	2.03274	0.1661714	3.1276149	99	26 19 3–1998	0.96	M-v	1	Bowell	29093	(515)
(929)	12.1	0.15	19980706	55.65000	22.61357	231.62863	3.90833	0.1129273	2.2392048	64	19 1920–1998	0.81	M-v	1	Forti	26919	(929)
(1106)	12.0	0.15	19980706	176.75522	229.03204	328.55076	13.10669	0.1238051	2.5979730	60	14 1929–1998	0.85	M-v	1	Bowell	32212	(1106)
(1163)	10.6	0.15	19980706	120.94843	197.85356	128.12839	9.02169	0.0557050	3.2133446	46	17 1930–1998	0.90	M-v	1	Bowell	32213	(1163)
(1249)	11.54	0.15	19980706	230.87418	222.91121	259.22666	4.86997	0.0759178	2.2253994	65	19 1932–1998	0.87	M-v	0	Bowell	26923	(1249)
(1397)	11.47	0.15	19980706	44.71567	206.21356	77.60123	3.51145	0.2502908	2.6865398	44	18 1936–1998	0.80	M-v	1	Bowell	32043	(1397)
(1412)	12.8	0.15	19980706	272.84479	13.41053	66.24704	4.71904	0.1124749	2.2155301	84	20 1929–1998	0.93	M-v	1	Bowell	29654	(1412)
(1520)	10.0	0.15	19980706	0.65463	116.38642	253.65336	15.25723	0.1066507	3.1064099	60	19 1938–1998	0.95	M-v	1	Bowell	32510	(1520)
(1609)	10.61	0.15	19980706	88.55110	227.71398	105.65943	18.71100	0.2501664	2.5811254	59	18 1934–1998	0.92	M-v	1	Bowell	31135	(1609)
(1611)	11.3	0.15	19980706	8.10559	78.87332	237.93445	4.26331	0.1570167	3.1822080	47	15 1950–1998	0.77	M-v	1	Forti	32299	(1611)
(1666)	12.7	0.15	19980706	339.58486	83.04542	263.49921	2.68706	0.1826585	2.1854972	98	19 1930–1998	0.89	M-v	0	Bowell	31581	(1666)
(1692)	11.1	0.15	19980706	120.91801	111.52685	199.93453	2.41656	0.1379412	2.7860805	72	18 1931–1998	0.85	M-v	1	Bowell	31376	(1692)
(1742)	11.2	0.15	19980706	354.47271	211.16542	152.43928	2.49125	0.0980974	2.8907489	86	18 1934–1998	0.85	M-v	0	Bowell	32442	(1742)
(1857)	12.3	0.15	19980706	306.92132	173.26604	236.27121	4.39551	0.1348835	2.2442659	54	11 1931–1998	0.83	M-v	1	Bowell	26739	(1857)
(2321)	11.5	0.15	19980706	308.15377	358.74663	46.05127	7.80320	0.0675912	3.0093887	48	10 1957–1998	0.88	M-v	1	Bowell	32046	(2321)
(2439)	11.5	0.15	19980706	198.15692	338.08875	112.51788	0.27816	0.1672796	3.1218105	87	15 1954–1998	0.95	M-v	1	Williams	22229	(2439)
(2485)	12.8	0.15	19980706	283.12101	348.20282	98.25158	2.78202	0.2174552	3.2225715	41	9 1953–1998	0.81	M-v	1	Bowell	30870	(2485)
(2583)	13.0	0.15	19980706	297.05929	310.05826	47.32032	6.88056	0.2098230	2.2516984	27	7 1975–1998	0.78	M-v	2	Williams	29942	(2583)
(2645)	12.3	0.15	19980706	258.92104	79.26985	349.97696	13.78336	0.1072209	2.3916786	72	10 1954–1998	0.91	M-v	1	Williams	30289	(2645)
(2671)	13.4	0.15	19980706	312.25520	155.79864	228.47762	1.46807	0.1208710	2.6094579	56	8 1973–1998	0.62	M-v	1	Williams	32046	(2671)
(2686)	11.6	0.15	19980706	174.57489	280.71193	226.23934	9.29514	0.0501372	3.0067240	49	9 1955–1998	0.77	M-v	1	Forti	32446	(2686)
(2690)	11.1	0.15	19980706	269.49466	261.85165	136.53438	11.44080	0.1205667	3.0310313	53	8 1938–1998	0.80	M-v	1	Williams	32046	(2690)
(2716)	13.3	0.15	19980706	40.44848	163.36793	218.67564	5.95551	0.1060110	2.3687934	31	11 1939–1998	0.83	M-v	1	Bowell	30289	(2716)
(2812)	13.5	0.15	19980706	99.37221	100.09202	68.35665	6.81589	0.0918506	2.2239902	35	8 1976–1998	1.00	M-v	2	Williams	31785	(2812)
(2819)	12.2	0.15	19980706	59.00620	343.22033	18.53703	2.44306	0.2032318	2.7575233	66	12 1933–1998	0.86	M-v	1	Bowell	32223	(2819)
(2886)	13.2	0.15	19980706	350.68141	332.09673	107.79290	1.30789	0.1536706	2.3663760	68	12 1954–1998	0.87	M-v	1	Bowell	32303	(2886)
(2923)	13.6	0.15	19980706	191.32769	171.00917	350.87272	2.87643	0.1296358	2.4575426	82	8 1958–1998	0.90	M-v	1	Bowell	31138	(2923)
(2948)	12.5	0.15	19980706	278.83443	245.00296	209.04458	12.31901	0.1046357	2.8665841	30	6 1969–1998	0.90	M-v	1	Bowell	27935	(2948)
(2953)	11.6	0.15	19980706	101.18267	12.60697	251.45683	1.06837	0.0238956	2.8306950	108	12 1951–1998	0.82	M-v	1	Williams	32303	(2953)
(3026)	11.9	0.15	19980706	24.37186	116.09014	216.10505	9.64024	0.0302360	3.0337317	56	14 1961–1998	0.91	M-v	1	Williams	27120	(3026)
(3033)	13.0	0.15	19980706	44.56779	66.84087	167.04541	4.73659	0.0944258	2.2354758	99	12 1959–1998	0.91	M-v	1	Williams	30470	(3033)
(3061)	11.9	0.15	19980706	359.51474	245.23881	98.18924	3.25850	0.1986308	3.0885349	74	10 1933–1998	0.99	M-v	1	Williams	32225	(3061)
(3261)	11.7	0.15	19980706	324.41209	185.08644	143.23446	2.74871	0.0760221	2.9034473	65	14 1949–1998	0.92	M-v	1	Williams	32304	(3261)
(3368)	11.3	0.15	19980706	18.70082	357.56006	4.28251	19.14505	0.0922811	3.3862799	35	5 1954–1998	0.70	M-v	1	Williams	20342	(3368)
(3375)	13.6	0.15	19980706	187.78996	352.53875	169.30025	1.07583	0.0252814	2.1727633	53	8 1955–1998	0.68	M-v	1	Bowell	32304	(3375)
(3390)	13.5	0.15	19980706	31.12780	259.13500	343.12510	3.39419	0.1146019	2.2525766	57	8 1978–1998	0.74	M-v	1	Williams	32452	(3390)
(3454)	13.6	0.15	19980706	296.66758	244.41692	193.85338	5.36044	0.1569232	2.2685888	85	10 1957–1998	0.85	M-v	1	Williams	29660	(3454)
(3468)	11.7	0.15	19980706	262.69445	307.44270	81.38522	10.99727	0.0869756	3.0168482	32	6 1975–1998	0.90	M-v	2	Williams	31584	(3468)
(3695)	13.9	0.15	19980706	328.59968	196.83681	177.29819	7.42961	0.2310763	2.3495341	61	11 1951–1998	0.95	M-v	1	Williams	29943	(3695)
(3718)	12.8	0.15	19980706	336.83007	227.76861	71.79835	3.55739	0.0512183	2.6341341	26	9 1969–1998	0.90	M-v	1	Williams	31722	(3718)
(3746)	12.5	0.15	19980706	3.83720	306.15507	24.56574	1.03162	0.2501221	3.1796575	41	11 1935–1998	1.00	M-v	1	Forti	32049	(3746)
(3750)	11.8	0.15	19980706	176.46437	205.62422	8.14496	10.43599	0.0475481	3.0185579	90	8 1973–1998	0.70	M-v	1	Williams	31275	(3750)
(3766)	11.7	0.15	19980706	234.94857	349.90600	129.08316	1.46886	0.1158654	3.2439741	47	11 1915–1998	0.99	M-v	1	Williams	31722	(3766)
(3772)	11.2	0.15	19980706	106.39777	197.10083	101.68768	11.01900	0.0676226	3.0189866	17	8 1943–1998	0.78	M-v	2	Williams	32305	(3772)
(3789)	12.4	0.15	19980706	314.88815	314.87047	87.17583	2.75051	0.1932685	3.2808610	88	6 1928–1998	1.02	M-v	1	Williams	26172	(3789)
(3804)	12.5	0.15	19980706	8.69240	286.45649	21.98608	2.16629	0.0637154	2.8990581	46	10 1969–1998	0.92	M-v	1	Williams	31418	(3804)
(3845)	11.7	0.15	19980706	301.13165	260.60873	187.73888	5.95451	0.1719857	3.4147701	41	9 1979–1998	0.82	M-v	1	Bowell	31419	(3845)
(3870)	12.2	0.15	19980706	60.84349	65.97017	202.19533	12.35428	0.1618072	2.6259737	63	9 1968–1998	0.84	M-v	1	Williams	26173	(3870)
(3880)	13.8	0.15	19980706	70.64630	58.84846	276.63755	17.56226	0.0826186	1.9463839	17	6 1978–1998	0.73	M-v	1	Bowell	30688	(3880)
(3904)	11.3	0.15	19980706	261.08139	125.60172	312.62817	15.02319	0.0985476	2.5572385	69	6 1939–1998	0.76	M-v	2	Forti	32515	(3904)
(3955)	11.3	0.15	19980706	264.43007	76.85797	23.92129	10.44190	0.0702378	3.0249505	28	7 1977–1998	0.81	M-v	1	Bowell	23526	(3955)

(4017)	13.0	0.15	19980706	336.50921	313.45222	32.54326	3.02716	0.1004614	2.5866097	56	9	1949–1998	0.78	M-v	1	Williams	23528	(4017)
(4084)	11.8	0.15	19980706	170.01956	192.13642	87.96095	3.21446	0.0139132	2.9087532	37	9	1955–1998	0.84	M-v	1	Bowell	29944	(4084)
(4102)	11.7	0.15	19980706	229.83867	277.06099	185.34395	9.58545	0.0681121	3.0215915	59	9	1949–1998	0.76	M-v	1	Williams	30688	(4102)
(4151)	12.0	0.15	19980706	202.22467	67.64305	66.90591	1.01828	0.1455670	3.1541084	69	11	1968–1998	0.86	M-v	1	Williams	32516	(4151)
(4184)	12.8	0.15	19980706	303.22286	32.97130	28.61244	9.44905	0.0364424	2.5796376	33	6	1969–1998	0.65	M-v	1	Bowell	31384	(4184)
(4271)	11.8	0.15	19980706	17.45985	134.03812	160.34949	10.92304	0.0896938	3.0164362	72	10	1976–1998	0.84	M-v	1	Williams	30688	(4271)
(4306)	12.5	0.15	19980706	12.29187	177.09710	153.31095	1.79375	0.1705114	3.1319082	38	10	1937–1998	0.90	M-v	1	Williams	31538	(4306)
(4380)	11.8	0.15	19980706	273.17989	48.62667	346.23667	9.90216	0.0719856	3.0361760	56	10	1935–1998	0.97	M-v	1	Williams	23126	(4380)
(4416)	15.3	0.15	19980706	337.60579	163.02665	208.61067	1.17266	0.1726841	2.1538528	33	7	1954–1998	0.79	M-v	2	Williams	27568	(4416)
(4419)	12.6	0.15	19980706	165.24241	286.23945	238.27247	0.37107	0.2106113	3.0721230	36	12	1932–1998	0.76	M-v	1	Bowell	31788	(4419)
(4436)	11.0	0.15	19980706	289.53143	15.19960	90.76225	17.36286	0.0533812	3.2489225	27	9	1951–1998	0.75	M-v	1	Williams	30452	(4436)
(4474)	12.4	0.15	19980706	10.11155	159.04230	131.76745	2.04827	0.1585838	3.1949808	118	8	1981–1998	0.75	M-v	1	Williams	31724	(4474)
(4500)	12.0	0.15	19980706	285.68164	301.85640	137.47373	2.91732	0.1744876	3.1685670	62	10	1931–1998	0.78	M-v	1	Bowell	31586	(4500)
(4579)	13.7	0.15	19980706	86.85929	140.53662	111.48598	2.21376	0.1535123	2.4009113	40	6	1979–1998	0.85	M-v	2	Williams	32456	(4579)
(4593)	12.1	0.15	19980706	295.63680	47.56190	352.30166	9.50700	0.1152267	3.0295000	58	8	1954–1998	0.73	M-v	1	Williams	24409	(4593)
(4889)	11.9	0.15	19980706	252.70762	271.34059	186.87226	13.90001	0.1970269	3.0972284	62	7	1979–1998	0.72	M-v	1	Williams	25084	(4889)
(4890)	13.5	0.15	19980706	32.87669	185.29441	100.42623	3.65489	0.1498095	2.2049383	61	7	1982–1998	0.84	M-v	1	Williams	31008	(4890)
(4901)	13.5	0.15	19980706	355.47236	93.86335	227.47078	4.63840	0.1905147	2.2742784	52	9	1950–1998	0.75	M-v	1	Forti	32517	(4901)
(4977)	13.7	0.15	19980706	32.30825	294.42224	350.03227	5.88600	0.1117291	2.2927166	48	7	1960–1998	8.56	M-v	1	Forti	32462	(4977)
(4984)	15.0	0.15	19980706	8.74582	66.04969	257.42783	1.97628	0.2095595	2.2537547	39	6	1951–1998	0.78	M-v	1	Bowell	30292	(4984)
(5069)	13.2	0.15	19980706	65.68712	81.26481	179.10248	4.99710	0.1318991	2.2518919	59	10	1930–1998	0.76	M-v	1	Williams	32517	(5069)
(5434)	11.3	0.15	19980706	271.98643	310.28445	173.06527	17.04048	0.0758487	3.1866101	24	6	1950–1998	0.78	M-v	1	Williams	30093	(5434)
(6008)	13.5	0.15	19980706	209.12777	40.46337	78.66817	4.15580	0.0394204	2.2182101	68	8	1988–1998	0.79	M-v	1	Williams	31588	(6008)
(6020)	13.7	0.15	19980706	34.60337	290.50137	19.29930	5.01558	0.0957379	2.2968625	50	7	1955–1998	0.66	M-v	1	Williams	31588	(6020)
(6219)	14.6	0.15	19980706	114.52721	13.68229	344.31290	2.19566	0.1981702	2.3949398	41	6	1955–1995	0.83	M-v	1	Bowell	30279	(6219)
(6265)	13.5	0.15	19980706	39.56061	281.03968	45.37980	4.11709	0.1932110	2.1660504	22	7	1979–1998	0.87	M-v	2	Williams	31792	(6265)
(6322)	16.3	0.15	19980706	312.89504	296.74788	174.36684	28.19568	0.4728562	2.5175933	79	4	1983–1998	0.69	M-v	1	Williams	32311	(6322)
(6349)	12.0	0.15	19980706	240.43290	236.14393	328.30694	10.81238	0.1364240	2.6669706	29	5	1953–1998	0.54	M-v	1	Bowell	32245	(6349)
(6771)	13.6	0.15	19980706	199.54210	128.67725	4.13192	0.84759	0.1839888	2.3266495	60	7	1954–1998	0.89	M-v	1	Williams	29128	(6771)
(6841)	14.3	0.15	19980706	166.70478	283.39168	271.85635	3.66689	0.1357175	2.2794147	29	5	1954–1998	0.68	M-v	2	Williams	29643	(6841)
(6893)	13.2	0.15	19980706	300.05435	104.54132	314.70808	5.78874	0.0911166	2.3869506	52	5	1983–1998	0.87	M-v	1	Bowell	32058	(6893)
(6902)	12.9	0.15	19980706	10.56979	128.22944	214.46391	2.08770	0.1030452	2.7522073	37	8	1950–1998	0.80	M-v	1	Bowell	30766	(6902)
(6990)	12.3	0.15	19980706	217.20383	357.91551	117.03259	2.89131	0.1337900	3.1484196	58	9	1949–1998	0.81	M-v	1	Williams	30672	(6990)
(7006)	15.5	0.15	19980706	214.23158	355.44171	159.30568	4.69625	0.1214463	2.4409798	29	5	1977–1998	0.68	M-v	2	Williams	30282	(7006)
(7071)	12.7	0.15	19980706	155.40956	87.44188	130.07337	11.32153	0.1819739	3.1737491	43	5	1950–1998	0.52	M-v	1	Williams	31553	(7071)
(7161)	14.5	0.15	19980706	108.00860	146.89294	219.31196	1.84493	0.1993108	2.3949332	30	4	1982–1996	0.77	M-v	2	Williams	31010	(7161)
(7382)	12.7	0.15	19980706	334.96678	266.48803	127.26055	2.03422	0.2470932	3.1770564	24	5	1981–1998	0.92	M-v	1	Bowell	31146	(7382)
(7473)	12.7	0.15	19980706	258.97367	246.56374	121.70851	3.10774	0.0830390	2.8381169	50	8	1982–1998	0.82	M-v	1	Bowell	32521	(7473)
(7537)	12.9	0.15	19980706	328.20167	317.30144	76.74277	1.83758	0.1702144	3.1229725	39	6	1982–1998	0.86	M-v	1	Williams	31151	(7537)
(7602)	12.4	0.15	19980706	98.15189	310.07835	302.23879	9.79645	0.0616507	3.0447638	29	6	1987–1998	0.72	M-v	1	Williams	31591	(7602)
(7641)	9.3	0.15	19980706	298.14777	225.94063	242.04259	34.68003	0.0555898	5.2246737	24	5	1986–1998	0.66	M-v	1	Williams	31424	(7641)
(7643)	14.4	0.15	19980706	250.98411	37.93977	44.47923	6.19388	0.1357947	2.2955438	50	5	1988–1998	0.68	M-v	1	Bowell	31395	(7643)
(7655)	14.6	0.15	19980706	254.66561	7.90673	103.53922	4.01966	0.1376946	2.4185641	62	5	1977–1998	0.62	M-v	1	Williams	31123	(7655)
(7672)	15.6	0.15	19980706	276.55242	27.18496	22.50207	6.88746	0.0728273	2.2525527	62	6	1978–1998	0.58	M-v	1	Williams	31796	(7672)
(7703)	14.6	0.15	19980706	14.26363	140.97691	166.78108	21.55470	0.1803552	2.3062171	46	5	1991–1998	0.84	M-v	1	Williams	32314	(7703)
(7798)	13.4	0.15	19980706	287.30172	335.66746	98.66080	5.55528	0.1307539	2.4796135	63	5	1992–1998	0.56	M-v	1	Williams	31797	(7798)
(8053)	14.0	0.15	19980706	221.74062	262.04500	323.17965	1.57260	0.1642050	2.3837396	29	6	1960–1997	0.70	M-v	1	Bowell	31799	(8053)
1966 CM	13.0	0.15	19980706	197.51540	357.98617	149.73226	14.04225	0.1081075	2.6455423	39	4	1966–1998	0.74	M-v	2	Williams	32297	1966 CM
1966 PL	14.0	0.15	19980706	307.71967	168.31893	123.56581	7.31464	0.1227924	2.3594920	46	3	1966–1998	0.83	M-v	4	Williams	32508	1966 PL
1969 TM_1	14.0	0.15	19980706	290.58369	357.75740	40.39756	7.42072	0.1341578	2.3770158	20	6	1954–1998	0.78	M-v	2	Williams	29939	1969 TM_1
1971 UQ	15.5	0.15	19980706	335.40557	311.52399	55.18931	3.57140	0.1719935	2.2561151	10	3	1971–1998	0.72	M-v	4	Williams	22696	1971 UQ
1971 UR	12.5	0.15	19980706	228.03097	53.53229	47.13976	5.89444	0.1062281	3.1521892	25	4	1971–1998	0.83	M-v	4	Williams	32508	1971 UR
1972 PA	11.5	0.15	19980706	352.18748	92.02801	264.39949	8.72556	0.1236029	2.9754745	38	4	1972–1998	0.66	M-v	2	Williams	32297	1972 PA

1973 SG_5	15.0	0.15	19980706	14.81707	253.97098	62.05019	2.39725	0.2608060	2.3292635	27	6	1973–1998	0.66	M-v	2	Williams	29652	1973 SG_5
1975 LF_1	12.5	0.15	19980706	20.31641	285.22063	25.05762	19.53380	0.0535870	3.1141175	20	5	1954–1998	0.50	M-v	1	Williams	32508	1975 LF_1
1975 NC	14.0	0.15	19980706	45.87585	357.41463	270.27515	5.75923	0.1547152	2.7495941	47	5	1953–1998	0.72	M-v	3	Williams	32508	1975 NC
1975 SU_1	13.5	0.15	19980706	167.02259	6.89162	173.14448	1.44712	0.1121535	3.2564910	23	3	1975–1998	1.02	M-v	5	Williams	28083	1975 SU_1
1975 SB_2	15.5	0.15	19980706	263.75200	184.24987	190.32114	7.85485	0.1270201	2.2524769	24	4	1975–1998	0.75	M-v	3	Williams	32207	1975 SB_2
1975 VW_5	13.5	0.15	19980706	7.14538	270.21130	68.18916	8.46277	0.1454854	2.4486082	12	3	1975–1998	0.86	M-v	4	Williams	30866	1975 VW_5
1976 DA_1	15.0	0.15	19980706	118.89721	59.15178	134.64819	4.87233	0.1164628	2.2897373	44	4	1976–1998	0.81	M-v	4	Williams	32508	1976 DA_1
1976 SL_5	14.0	0.15	19980706	267.28668	29.94425	14.93237	5.56180	0.0936245	2.7398987	24	3	1976–1998	0.66	M-v	4	Williams	32438	1976 SL_5
1976 SR_5	14.0	0.15	19980706	9.21384	18.27041	34.39482	7.67445	0.1088924	2.3344460	35	7	1969–1998	0.82	M-v	2	Williams	30684	1976 SR_5
1976 YL_3	13.5	0.15	19980706	319.67007	227.49889	173.03897	2.43688	0.2126499	3.1925421	46	6	1976–1998	0.76	M-v	1	Williams	27323	1976 YL_3
1977 DL_2	14.5	0.15	19980706	237.87847	314.08747	140.91481	5.60258	0.1838957	2.4575622	31	3	1977–1998	0.78	M-v	4	Williams	32508	1977 DL_2
1977 PB	13.5	0.15	19980706	8.04921	110.47613	132.63578	13.51414	0.1343717	2.6466451	41	3	1977–1998	0.72	M-v	3	Williams	32438	1977 PB
1977 QN_1	13.0	0.15	19980706	10.92125	309.06823	343.64593	12.93099	0.1799124	2.6194827	20	2	1977–1998	0.71	M-v	4	Williams	32438	1977 QN_1
1977 QD_2	14.5	0.15	19980706	348.12515	0.26139	350.30687	5.61160	0.1919852	2.3006698	69	6	1977–1998	0.74	M-v	3	Williams	32508	1977 QD_2
1977 VL_1	14.5	0.15	19980706	332.12658	327.77775	50.20074	5.79720	0.2312355	2.6094731	53	5	1970–1998	0.81	M-v	2	Williams	24116	1977 VL_1
1978 CK	12.5	0.15	19980706	256.06913	140.97411	310.17325	20.70357	0.0548208	3.1881311	46	4	1978–1998	0.56	M-v	2	Williams	32508	1978 CK
1978 GA	14.5	0.15	19980706	246.85971	306.75519	157.75506	7.95111	0.1426257	2.3658029	36	6	1971–1998	0.69	M-v	1	Williams	26913	1978 GA
1978 PA_3	15.0	0.15	19980706	8.91333	170.55760	169.10539	2.16196	0.1952810	2.2137053	26	3	1978–1998	0.74	M-v	4	Williams	32508	1978 PA_3
1978 PX_3	15.5	0.15	19980706	342.56706	30.92142	309.62260	5.30508	0.2190198	2.2290114	50	5	1955–1998	0.74	M-v	3	Williams	32508	1978 PX_3
1978 PG_4	14.5	0.15	19980706	340.84134	37.02213	303.07910	6.12118	0.2219856	2.2327296	53	2	1978–1998	0.59	M-v	3	Williams	32438	1978 PG_4
1978 RX_1	15.0	0.15	19980706	330.63937	220.77775	137.78027	3.96840	0.2070890	2.2372405	50	2	1988–1998	0.83	M-v	4	Williams	32508	1978 RX_1
1978 RL_7	13.5	0.15	19980706	320.23299	161.65935	219.44974	1.06990	0.0742308	2.9139035	48	5	1978–1998	0.76	M-v	3	Williams	32509	1978 RL_7
1978 SH_3	14.5	0.15	19980706	335.98131	159.65898	213.81718	3.94075	0.1737704	2.2251745	22	3	1978–1998	0.82	M-v	3	Williams	32298	1978 SH_3
1978 SE_5	13.5	0.15	19980706	327.82479	144.94692	204.36949	8.97658	0.0604598	2.5558637	36	5	1978–1998	0.58	M-v	3	Williams	32509	1978 SE_5
1978 SD_7	14.5	0.15	19980706	18.48762	97.42659	216.94853	3.73580	0.2006232	2.2285502	41	3	1988–1998	0.77	M-v	4	Williams	30684	1978 SD_7
1978 SJ_7	13.5	0.15	19980706	11.28102	329.82395	1.40822	14.56600	0.1407669	2.9305152	38	4	1978–1998	0.80	M-v	4	Williams	32509	1978 SJ_7
1978 TQ_5	13.0	0.15	19980706	175.13557	59.21508	322.98459	4.83667	0.3219135	3.1657888	25	4	1955–1998	0.79	M-v	1	Williams	32207	1978 TQ_5
1978 UN_5	15.0	0.15	19980706	358.81574	301.58312	11.01677	5.16892	0.2566483	2.5377988	44	6	1954–1998	0.70	M-v	2	Williams	32509	1978 UN_5
1978 UK_7	15.0	0.15	19980706	53.64836	199.26370	201.85322	1.64836	0.1738843	2.4362217	39	5	1978–1997	0.82	M-v	2	Williams	30892	1978 UK_7
1978 VD_3	15.0	0.15	19980706	161.90899	197.93184	307.51672	1.39065	0.0108789	2.6052377	27	4	1978–1998	0.69	M-v	2	Williams	32509	1978 VD_3
1978 VK_3	14.0	0.15	19980706	125.27354	327.18792	254.07250	4.48305	0.0798790	2.5701837	39	4	1978–1998	0.65	M-v	2	Williams	26737	1978 VK_3
1978 VP_3	13.5	0.15	19980706	267.17200	17.66022	84.37686	4.04132	0.0675139	2.9786072	25	3	1978–1998	0.80	M-v	3	Williams	27302	1978 VP_3
1978 VY_3	15.0	0.15	19980706	335.35972	102.81330	269.31305	3.25415	0.1439761	2.5517859	51	6	1978–1998	0.76	M-v	3	Williams	32509	1978 VY_3
1978 VG_4	14.5	0.15	19980706	4.25562	139.45303	57.93614	3.40264	0.0105220	2.7210849	27	3	1978–1998	0.68	M-v	4	Williams	32208	1978 VG_4
1978 VH_5	13.5	0.15	19980706	248.07018	195.10613	249.32127	8.91648	0.0168544	3.0285223	28	2	1978–1998	0.80	M-v	5	Williams	32438	1978 VH_5
1978 VU_6	15.0	0.15	19980706	38.98648	131.73339	270.33067	1.65620	0.1887524	2.4678102	40	3	1978–1997	0.54	M-v	3	Williams	31095	1978 VU_6
1978 VE_7	14.5	0.15	19980706	228.89791	172.03813	176.46501	0.75563	0.2201880	2.3390237	23	4	1978–1998	0.64	M-v	3	Williams	32208	1978 VE_7
1978 WU	15.0	0.15	19980706	354.58529	106.49884	240.39125	8.58785	0.2064966	2.5443135	11	3	1978–1998	0.70	M-v	4	Williams	19012	1978 WU
1979 DF	12.5	0.15	19980706	165.85735	125.60589	36.22452	14.74523	0.1677184	2.6593454	10	3	1977–1998	0.53	M-v	3	Williams	18105	1979 DF
1979 MX_1	14.0	0.15	19980706	117.41826	295.94293	269.58485	3.50391	0.0438435	2.7839724	22	3	1979–1998	0.67	M-v	4	Williams	30753	1979 MX_1
1979 MS_4	16.0	0.15	19980706	60.48981	117.36105	145.01300	3.44448	0.1620604	2.4019253	24	3	1971–1998	0.85	M-v	4	Williams	19291	1979 MS_4
1979 MU_4	15.5	0.15	19980706	45.54252	107.14171	150.55445	2.25507	0.1484567	2.4183247	23	2	1979–1998	0.87	M-v	5	Williams	32439	1979 MU_4
1979 MD_8	14.0	0.15	19980706	218.47970	230.22866	257.77686	7.66227	0.1034068	2.7649506	24	3	1979–1998	0.74	M-v	4	Williams	32439	1979 MD_8
1979 SH	15.0	0.15	19980706	154.34790	50.52168	331.72007	5.20168	0.2757796	2.6070761	22	2	1979–1998	0.72	M-v	5	Williams	32208	1979 SH
1979 VS_2	14.0	0.15	19980706	33.71583	288.49154	53.99240	21.99927	0.1064006	1.9370507	17	5	1979–1998	0.49	M-v	3	Williams	23132	1979 VS_2
1980 DS_4	14.0	0.15	19980706	310.90140	65.39763	173.97182	4.69640	0.2001907	2.3790810	16	4	1980–1992	0.79	M-v	2	Williams	32439	1980 DS_4
1980 FS_1	15.5	0.15	19980706	67.06920	68.31757	194.26740	4.10073	0.1453200	2.2618035	40	5	1980–1998	0.63	M-v	1	Williams	29940	1980 FS_1
1980 FH_3	13.5	0.15	19980706	307.25788	221.08328	180.27831	8.59350	0.0843277	3.0173705	49	5	1980–1998	0.72	M-v	1	Williams	32509	1980 FH_3
1980 FH_4	16.0	0.15	19980706	43.58468	70.62311	179.75370	0.99919	0.1679232	2.2916033	24	3	1980–1998	0.59	M-v	4	Williams	32509	1980 FH_4
1980 FK_4	15.5	0.15	19980706	52.71571	330.71601	177.76006	8.83464	0.1900626	2.7136146	27	2	1980–1998	0.76	M-v	5	Williams	32209	1980 FK_4
1980 GB	14.0	0.15	19980706	120.70126	97.93099	103.45429	8.32437	0.1030666	2.2754714	26	5	1980–1998	0.93	M-v	2	Williams	29940	1980 GB
1981 DO	14.5	0.15	19980706	27.26038	54.36292	217.44257	12.96442	0.1232360	2.5339459	23	2	1981–1998	0.85	M-v	4	Williams	32439	1981 DO
1981 DR	14.0	0.15	19980706	290.67491	106.19808	304.86880	10.96195	0.0469459	2.9327531	31	2	1981–1998	0.95	M-v	5	Williams	32439	1981 DR

1981 DS	13.0	0.15	19980706	284.03959	218.08266	239.23707	9.86147	0.0674739	3.5628396	29	5	1954–1998	0.85	M-v	1	Williams	31003	1981 DS
1981 DU_1	14.0	0.15	19980706	285.87160	190.30296	235.63506	11.64768	0.1745452	2.8962797	42	4	1949–1998	0.92	M-v	3	Williams	32509	1981 DU_1
1981 DM_2	14.5	0.15	19980706	300.48838	79.10101	320.91558	10.19177	0.1055280	2.9320937	42	3	1981–1998	0.84	M-v	3	Williams	32439	1981 DM_2
1981 DV_2	15.0	0.15	19980706	281.20034	245.54048	192.68814	22.36404	0.3023202	2.4210603	35	2	1981–1998	0.94	M-v	4	Williams	32439	1981 DV_2
1981 EE_1	14.0	0.15	19980706	192.08782	18.22519	145.39329	2.92897	0.1298691	2.4529173	68	7	1954–1998	0.82	M-v	1	Williams	22074	1981 EE_1
1981 EQ_3	13.5	0.15	19980706	262.83730	10.40006	312.03403	12.84037	0.1978535	3.1612424	20	3	1981–1998	0.78	M-v	4	Williams	32209	1981 EQ_3
1981 EB_8	15.5	0.15	19980706	258.70387	113.70690	319.83056	7.64576	0.1624529	2.4609812	23	2	1981–1998	0.89	M-v	5	Williams	32440	1981 EB_8
1981 EF_{11}	14.5	0.15	19980706	317.11841	61.64922	329.81990	7.47038	0.0993115	2.4599298	60	5	1977–1998	0.85	M-v	2	Williams	32509	1981 EF_{11}
1981 EC_{13}	14.5	0.15	19980706	109.56351	293.05322	310.51486	6.57323	0.0263208	2.9228715	41	7	1981–1998	0.82	M-v	1	Williams	30090	1981 EC_{13}
1981 EJ_{13}	14.5	0.15	19980706	226.84545	146.90120	320.19054	7.95218	0.0996084	2.4730874	46	2	1981–1998	0.88	M-v	4	Williams	32440	1981 EJ_{13}
1981 EB_{17}	14.5	0.15	19980706	115.21598	236.52931	339.15083	3.31057	0.0521170	2.4908738	60	6	1977–1998	0.90	M-v	2	Williams	32509	1981 EB_{17}
1981 EJ_{20}	15.0	0.15	19980706	53.48717	102.92757	359.36480	8.94675	0.0960177	2.6667055	23	3	1981–1998	0.76	M-v	4	Williams	32211	1981 EJ_{20}
1981 EN_{21}	14.0	0.15	19980706	110.86718	56.81468	187.59112	1.79364	0.0126987	2.9098657	43	5	1981–1998	0.83	M-v	2	Williams	27930	1981 EN_{21}
1981 EC_{22}	16.5	0.15	19980706	166.75589	350.56739	174.60492	1.62860	0.0299875	2.1653476	30	3	1981–1998	0.79	M-v	4	Williams	32509	1981 EC_{22}
1981 EK_{22}	14.5	0.15	19980706	179.29931	256.15746	269.50688	0.73780	0.0557945	2.9258699	40	5	1981–1998	0.97	M-v	3	Williams	27930	1981 EK_{22}
1981 EA_{23}	14.5	0.15	19980706	300.62635	240.06029	352.68843	8.55077	0.0488583	2.6664054	23	3	1981–1998	0.64	M-v	4	Williams	32211	1981 EA_{23}
1981 EH_{23}	15.0	0.15	19980706	293.04691	163.67343	274.20481	1.06360	0.1194729	2.4271826	34	5	1977–1998	0.78	M-v	1	Williams	24239	1981 EH_{23}
1981 EH_{24}	14.5	0.15	19980706	315.89403	20.91016	29.55340	2.22333	0.0689556	2.8809585	35	5	1981–1998	1.04	M-v	2	Williams	23132	1981 EH_{24}
1981 EO_{24}	14.5	0.15	19980706	159.04940	182.18574	162.65039	3.23911	0.0820332	2.3194100	22	6	1950–1993	1.04	M-v	2	Williams	28611	1981 EO_{24}
1981 EB_{25}	13.5	0.15	19980706	8.74327	136.78082	178.88209	11.57537	0.2382397	2.9873687	75	4	1981–1998	0.85	M-v	2	Williams	32509	1981 EB_{25}
1981 EF_{25}	15.5	0.15	19980706	277.30598	21.24363	78.02203	0.33965	0.1590280	2.4206940	29	4	1977–1998	0.86	M-v	2	Williams	27118	1981 EF_{25}
1981 EP_{25}	14.5	0.15	19980706	210.28390	275.46195	233.31833	1.48704	0.0899462	2.9008081	24	4	1978–1998	0.84	M-v	4	Williams	30893	1981 EP_{25}
1981 EO_{26}	14.0	0.15	19980706	298.10442	136.96578	293.26557	0.89364	0.0459561	2.8850859	40	6	1951–1998	0.94	M-v	2	Williams	27726	1981 EO_{26}
1981 EP_{27}	14.0	0.15	19980706	21.22300	158.22957	185.99956	12.49235	0.0422904	2.8999553	27	4	1978–1998	0.83	M-v	3	Williams	23132	1981 EP_{27}
1981 ET_{27}	14.5	0.15	19980706	81.84031	86.58347	167.82204	2.21018	0.0274580	2.9502949	28	7	1978–1998	0.87	M-v	1	Williams	27908	1981 ET_{27}
1981 EY_{27}	14.0	0.15	19980706	1.78993	301.90338	5.88999	11.78408	0.1832621	2.5270665	47	4	1981–1998	0.76	M-v	3	Williams	32509	1981 EY_{27}
1981 ET_{32}	15.0	0.15	19980706	358.15202	54.31477	277.79170	9.61748	0.1005000	2.9655979	22	2	1981–1998	0.89	M-v	5	Williams	32440	1981 ET_{32}
1981 EX_{32}	14.5	0.15	19980706	316.87944	68.59711	223.57194	6.78344	0.1884521	2.5921166	24	3	1981–1998	0.96	M-v	3	Williams	32212	1981 EX_{32}
1981 ED_{34}	15.5	0.15	19980706	312.59968	94.26935	305.77700	2.16997	0.1982841	2.4427601	26	4	1979–1998	0.60	M-v	2	Williams	22271	1981 ED_{34}
1981 EZ_{35}	15.5	0.15	19980706	18.61604	67.54571	91.00792	0.48430	0.1377993	3.2078078	19	3	1981–1996	0.75	M-v	4	Williams	32213	1981 EZ_{35}
1981 ET_{39}	14.5	0.15	19980706	82.34727	118.32131	334.42405	4.24064	0.1561567	3.1854018	23	3	1981–1998	0.88	M-v	4	Williams	32213	1981 ET_{39}
1981 EU_{39}	15.0	0.15	19980706	143.43895	55.06703	2.76091	9.75659	0.0550974	2.6168192	36	2	1981–1998	0.94	M-v	5	Williams	32213	1981 EU_{39}
1981 JR_2	15.0	0.15	19980706	123.21591	169.31614	34.24321	3.51908	0.0707066	2.1931764	33	4	1981–1998	0.96	M-v	2	Williams	31272	1981 JR_2
1981 QL_2	15.0	0.15	19980706	318.51739	6.22296	358.67152	5.77310	0.1900237	2.2660971	50	3	1981–1998	0.60	M-v	3	Williams	32440	1981 QL_2
1981 QR_2	15.0	0.15	19980706	273.40084	323.18381	346.49086	3.69914	0.2376661	2.3363442	72	3	1981–1998	0.72	M-v	4	Williams	32510	1981 QR_2
1981 QS_2	15.0	0.15	19980706	144.42933	270.43585	130.40000	2.80572	0.1881216	2.3994503	56	3	1981–1998	0.79	M-v	4	Williams	32510	1981 QS_2
1981 QK_3	14.5	0.15	19980706	331.70453	10.28505	344.80935	12.28907	0.1164324	2.6304516	84	4	1981–1998	0.81	M-v	2	Williams	32510	1981 QK_3
1981 QN_3	14.0	0.15	19980706	328.01440	203.98771	138.96471	1.98097	0.1912982	3.2077286	32	4	1981–1998	0.79	M-v	2	Williams	32510	1981 QN_3
1981 SA_7	13.5	0.15	19980706	321.01202	353.83658	54.83919	6.59741	0.1736999	2.6195302	27	7	1973–1998	0.75	M-v	1	Williams	26923	1981 SA_7
1981 TP	13.5	0.15	19980706	355.23198	338.86854	26.55393	0.99989	0.2109854	3.1496486	36	8	1953–1998	0.71	M-v	1	Williams	25536	1981 TP
1981 US_{22}	14.5	0.15	19980706	308.62944	288.44378	76.41895	6.53947	0.1538840	2.3002301	25	5	1981–1998	0.40	M-v	1	Williams	32299	1981 US_{22}
1981 UR_{27}	12.5	0.15	19980706	114.91256	203.56209	13.09262	13.47740	0.1106643	2.6622175	48	7	1949–1998	0.65	M-v	1	Williams	30893	1981 UR_{27}
1981 UE_{28}	14.0	0.15	19980706	258.63405	354.40849	342.34047	3.92553	0.0756879	2.7836736	36	4	1981–1998	0.75	M-v	2	Williams	32510	1981 UE_{28}
1982 BM	13.5	0.15	19980706	229.41271	203.60099	307.75257	3.44555	0.1457042	2.7019414	36	7	1953–1998	0.72	M-v	1	Williams	30685	1982 BM
1982 BJ_{13}	14.0	0.15	19980706	6.38254	342.59335	300.71488	5.03587	0.0849629	2.3980828	21	3	1982–1998	0.56	M-v	3	Williams	32510	1982 BJ_{13}
1982 JY_1	14.0	0.15	19980706	15.45057	150.47630	90.89034	6.03824	0.0718975	3.0274508	14	2	1982–1998	0.75	M-v	6	Williams	32216	1982 JY_1
1982 JD_2	15.5	0.15	19980706	41.12132	94.15936	107.10038	4.08371	0.0687368	2.1734964	39	3	1982–1998	0.62	M-v	3	Williams	32299	1982 JD_2
1982 UD_4	15.0	0.15	19980706	317.93365	2.18727	4.93769	1.99469	0.2357935	2.5404539	23	5	1978–1998	0.82	M-v	3	Williams	32510	1982 UD_4
1982 US_6	13.5	0.15	19980706	343.36003	323.25085	46.72742	8.06420	0.1580729	2.5363571	38	6	1982–1998	0.84	M-v	3	Williams	24239	1982 US_6
1982 UE_7	13.5	0.15	19980706	334.99210	221.91482	173.01145	1.32180	0.1855981	3.0913408	48	7	1982–1998	0.79	M-v	1	Williams	29654	1982 UE_7
1982 UJ_7	13.0	0.15	19980706	298.24559	327.97839	111.56858	2.54795	0.1442918	3.1052813	42	6	1957–1998	0.77	M-v	1	Williams	29654	1982 UJ_7
1982 UE_{12}	13.0	0.15	19980706	306.77771	83.97260	328.68893	9.79598	0.0219301	2.5188352	57	7	1982–1998	0.63	M-v	3	Williams	26923	1982 UE_{12}
1982 VS_2	14.0	0.15	19980706	329.92352	215.19369	106.74197	1.98203	0.0839052	2.6171736	16	2	1982–1998	0.73	M-v	5	Williams	32216	1982 VS_2

1982 WA	14.0	0.15	19980706	219.97379	209.55207	254.37765	10.75322	0.1833979	2.6192475	35	3	1982–1998	0.92	M-v	3	Marsden	32510	1982 WA
1983 RP_3	14.5	0.15	19980706	352.77090	196.98856	130.78233	3.10032	0.0627510	2.4133039	52	2	1983–1998	0.59	M-v	4	Williams	32441	1983 RP_3
1984 EL	12.5	0.15	19980706	180.43385	107.15287	57.37178	5.86438	0.0869211	3.2082408	41	5	1984–1998	0.87	M-v	2	Williams	27454	1984 EL
1984 SY_1	12.0	0.15	19980706	210.07146	186.38532	228.41008	9.26429	0.0964525	2.9872455	27	4	1979–1998	0.73	M-v	2	Williams	32441	1984 SY_1
1984 SZ_5	14.5	0.15	19980706	27.72683	273.90363	13.34827	8.22397	0.2395166	2.3039934	74	4	1984–1998	0.73	M-v	4	Williams	32510	1984 SZ_5
1984 SD_6	15.0	0.15	19980706	338.56453	0.13378	12.12662	5.85503	0.1593589	2.2876907	54	5	1953–1998	0.66	M-v	2	Williams	25537	1984 SD_6
1984 UR	14.0	0.15	19980706	325.00290	306.97901	48.64072	7.23832	0.1836297	2.3335468	16	4	1984–1998	0.88	M-v	4	Williams	28840	1984 UR
1984 WJ_1	13.5	0.15	19980706	338.94310	351.34874	34.59089	10.75633	0.2050351	2.3203715	18	2	1984–1998	0.62	M-v	3	Williams	32441	1984 WJ_1
1984 YE_4	14.0	0.15	19980706	290.58526	348.29695	74.52506	6.51781	0.1442170	2.3567851	31	5	1984–1998	0.72	M-v	3	Williams	32510	1984 YE_4
1985 AE	14.5	0.15	19980706	242.95918	343.27120	136.75462	1.78870	0.0805979	2.3748129	35	6	1979–1998	0.57	M-v	1	Williams	26924	1985 AE
1985 CN	15.0	0.15	19980706	287.59447	284.71582	163.40833	9.63129	0.2410146	2.3778906	49	4	1954–1998	0.69	M-v	1	Williams	25537	1985 CN
1985 CP_2	15.0	0.15	19980706	281.41318	143.81887	295.86238	1.79356	0.1349218	2.3910332	49	3	1985–1998	0.76	M-v	4	Williams	24559	1985 CP_2
1985 PT	13.5	0.15	19980706	339.33672	201.43636	139.67250	12.89831	0.2012911	2.6643869	44	3	1985–1998	0.79	M-v	3	Williams	32510	1985 PT
1985 QP	15.5	0.15	19980706	344.75193	0.65664	357.86098	3.14730	0.1774320	2.1863512	52	4	1971–1998	0.99	M-v	2	Williams	30780	1985 QP
1985 RJ	14.5	0.15	19980706	18.98448	120.17771	182.80685	12.11938	0.2816879	2.6485419	43	3	1985–1998	0.76	M-v	3	Williams	32510	1985 RJ
1985 RD_3	15.0	0.15	19980706	306.69491	272.28141	117.20750	2.42740	0.1214895	2.1911207	66	4	1969–1998	0.72	M-v	3	Williams	32510	1985 RD_3
1985 SX_2	13.0	0.15	19980706	340.75646	77.86695	323.72014	3.67504	0.1405051	2.6217430	12	3	1981–1998	1.05	M-v	4	Williams	32510	1985 SX_2
1985 SC_3	15.0	0.15	19980706	353.18593	130.33185	221.12170	6.40469	0.1984635	2.1883307	20	4	1985–1998	0.73	M-v	2	Williams	32510	1985 SC_3
1985 TY_1	13.5	0.15	19980706	355.74840	115.06825	248.75889	7.99755	0.0883331	2.6458044	20	6	1981–1998	0.86	M-v	2	Williams	30469	1985 TY_1
1985 UJ	15.5	0.15	19980706	351.26449	4.30476	20.73668	8.88262	0.4188991	2.6325893	27	4	1985–1998	0.73	M-v	2	Marsden	25225	1985 UJ
1985 UG_2	14.5	0.15	19980706	312.44563	252.22596	150.01200	1.91770	0.1171926	2.1989309	40	7	1954–1998	0.85	M-v	2	Williams	30090	1985 UG_2
1985 UK_3	14.0	0.15	19980706	339.05962	265.22516	40.07558	4.60446	0.1556112	2.2510856	15	3	1985–1998	0.87	M-v	4	Williams	32299	1985 UK_3
1986 EK_1	13.5	0.15	19980706	221.87125	107.76385	6.50195	23.33068	0.2322389	2.3214797	18	4	1986–1998	0.85	M-v	2	Williams	26578	1986 EK_1
1986 GC	14.0	0.15	19980706	104.08495	168.99179	55.53336	7.17436	0.0811517	2.3632857	22	6	1951–1998	0.88	M-v	2	Williams	27726	1986 GC
1986 GF	13.5	0.15	19980706	191.61673	315.29051	206.86916	23.55486	0.1791304	2.3213711	39	4	1986–1998	0.91	M-v	2	Williams	26419	1986 GF
1986 PJ_1	15.0	0.15	19980706	330.43061	150.99333	129.94730	4.30571	0.2883026	2.5918107	48	5	1982–1998	0.79	M-v	3	Williams	32511	1986 PJ_1
1986 QC_1	13.5	0.15	19980706	268.25945	176.71903	103.97519	4.27016	0.0777841	2.7445262	64	3	1954–1998	0.74	M-v	3	Williams	32511	1986 QC_1
1986 QL_2	12.5	0.15	19980706	88.67371	277.75823	345.19173	3.55021	0.1493422	3.1697853	56	4	1986–1998	0.68	M-v	1	Williams	29133	1986 QL_2
1986 QF_3	14.0	0.15	19980706	297.73640	259.96814	118.49670	4.96103	0.2509874	2.5572438	37	2	1986–1998	0.82	M-v	5	Williams	32217	1986 QF_3
1986 RB_{12}	11.5	0.15	19980706	20.60957	85.94224	265.21735	14.67614	0.1182481	3.1955524	9	3	1986–1998	1.03	M-v	4	Williams	22698	1986 RB_{12}
1986 TG_1	13.5	0.15	19980706	331.08641	357.80738	359.10250	14.94145	0.1267578	2.5654570	39	4	1986–1998	0.76	M-v	3	Williams	32511	1986 TG_1
1986 TV_6	13.5	0.15	19980706	9.99029	356.19412	325.88366	7.44539	0.1904969	2.5586222	58	3	1986–1998	0.68	M-v	4	Williams	32511	1986 TV_6
1986 TT_{11}	13.5	0.15	19980706	342.32785	329.32281	4.85160	13.93543	0.1902617	2.5667094	29	5	1986–1998	0.69	M-v	3	Williams	30685	1986 TT_{11}
1986 VW	14.5	0.15	19980706	249.37858	323.39117	13.82150	6.20804	0.2021563	2.2050701	18	2	1986–1998	0.63	M-v	5	Williams	32511	1986 VW
1986 XT	15.0	0.15	19980706	329.51457	17.97522	355.16455	3.30660	0.2961049	2.5607929	90	7	1986–1998	0.79	M-v	2	Williams	32511	1986 XT
1987 CH	14.5	0.15	19980706	189.27888	351.00781	147.33654	5.43183	0.0751943	2.2039143	41	3	1987–1998	0.86	M-v	4	Williams	32441	1987 CH
1987 DN	12.0	0.15	19980706	355.31251	217.55879	314.58723	5.71835	0.0321966	3.1332777	45	4	1987–1998	0.55	M-v	1	Williams	31226	1987 DN
1987 DN_6	14.5	0.15	19980706	277.23284	179.55738	287.85839	2.41038	0.1681428	2.6295877	46	4	1987–1998	0.68	M-v	3	Williams	28612	1987 DN_6
1987 QH	14.5	0.15	19980706	355.02898	6.71687	318.60673	8.25220	0.2889123	2.3650875	39	2	1987–1998	0.76	M-v	3	Williams	32441	1987 QH
1987 QT	15.5	0.15	19980706	320.57991	45.87339	334.41162	8.34315	0.2203946	2.3813429	38	2	1987–1998	0.87	M-v	5	Williams	32442	1987 QT
1987 QT_1	14.0	0.15	19980706	64.49529	298.52110	331.01751	5.47433	0.2246463	2.3072921	39	5	1955–1998	1.05	M-v	2	Williams	31782	1987 QT_1
1987 QS_5	13.5	0.15	19980706	345.34100	29.53495	333.58579	10.53659	0.1378210	3.0843613	59	3	1987–1998	0.66	M-v	3	Williams	32511	1987 QS_5
1987 RG	12.5	0.15	19980706	21.40132	204.72225	120.79086	3.52692	0.1817254	3.0956735	64	8	1954–1998	0.79	M-v	1	Williams	30288	1987 RG
1987 RR	13.0	0.15	19980706	336.70729	209.12854	156.63205	12.88554	0.1889641	3.1083783	74	2	1987–1998	0.64	M-v	3	Williams	32442	1987 RR
1987 SJ_2	14.5	0.15	19980706	2.27995	171.42626	140.02052	2.70048	0.1766602	2.3999293	52	3	1972–1998	0.69	M-v	4	Williams	32442	1987 SJ_2
1987 SL_3	12.5	0.15	19980706	278.42584	89.32207	317.98835	9.98916	0.0927603	3.1672891	45	3	1982–1998	0.56	M-v	3	Williams	32442	1987 SL_3
1987 SP_{11}	16.0	0.15	19980706	328.31689	207.89612	145.88953	3.02854	0.1830670	2.4003591	26	2	1987–1998	0.63	M-v	5	Williams	32442	1987 SP_{11}
1987 SP_{12}	13.5	0.15	19980706	338.72591	187.40851	186.43503	2.72211	0.2669100	3.1095096	54	3	1976–1998	0.62	M-v	2	Williams	32442	1987 SP_{12}
1987 WD	13.5	0.15	19980706	17.21725	307.98804	13.78092	8.94362	0.1565468	2.4000630	38	3	1987–1998	0.81	M-v	4	Williams	30447	1987 WD
1987 WJ_1	13.0	0.15	19980706	337.49929	357.34559	33.12627	7.10866	0.1403662	3.1507515	29	4	1987–1998	0.55	M-v	2	Williams	29911	1987 WJ_1
1988 AX_4	14.0	0.15	19980706	3.04224	169.48117	176.51275	6.14874	0.1488893	2.4352690	47	5	1988–1998	0.49	M-v	1	Williams	30090	1988 AX_4
1988 BY_3	14.0	0.15	19980706	244.12892	297.51197	164.22917	6.99007	0.1106086	2.5176328	47	6	1978–1998	0.75	M-v	3	Williams	29941	1988 BY_3
1988 BG_5	14.5	0.15	19980706	36.87747	36.16003	240.79272	12.54729	0.1447547	2.6688742	27	2	1988–1998	0.66	M-v	5	Williams	32443	1988 BG_5

1988 CF	14.0	0.15	19980706	184.48992	149.26554	356.76763	5.39441	0.2290565	2.5771717	28	3	1988–1998	1.02	M-v	4	Williams	19677	1988 CF
1988 CN_4	13.5	0.15	19980706	223.16277	253.21762	219.39382	5.44965	0.1661721	2.5563122	63	6	1988–1998	0.79	M-v	2	Williams	32511	1988 CN_4
1988 EY_1	12.5	0.15	19980706	151.74259	135.95925	9.51396	12.78142	0.0993216	2.6901960	16	3	1988–1998	0.40	M-v	3	Williams	32443	1988 EY_1
1988 FM	13.5	0.15	19980706	163.16371	183.02170	15.19487	13.72179	0.1134349	2.5649214	30	7	1951–1998	0.89	M-v	2	Williams	30894	1988 FM
1988 GQ	13.5	0.15	19980706	132.89930	102.83201	121.87323	11.71305	0.2384460	2.6088252	18	3	1988–1998	0.68	M-v	3	Marsden	30447	1988 GQ
1988 PL_2	16.0	0.15	19980706	331.64190	7.43165	339.03888	7.23941	0.2214459	2.2470207	35	2	1988–1998	0.57	M-v	3	Williams	32443	1988 PL_2
1988 QR	14.0	0.15	19980706	16.17950	31.63407	270.25876	4.08583	0.1600694	2.9151529	46	3	1988–1998	0.78	M-v	4	Williams	32443	1988 QR
1988 RD_1	12.5	0.15	19980706	315.26070	41.50853	318.77484	9.73318	0.1086840	2.9967788	40	5	1980–1998	0.84	M-v	3	Williams	32511	1988 RD_1
1988 RQ_5	13.0	0.15	19980706	4.66962	152.71200	193.34937	3.45587	0.0541951	2.8744157	72	6	1964–1998	0.81	M-v	2	Williams	28613	1988 RQ_5
1988 RR_5	15.0	0.15	19980706	60.62669	260.09958	15.11669	2.51553	0.1027521	2.1995316	49	5	1951–1998	0.72	M-v	1	Williams	29316	1988 RR_5
1988 RS_6	15.5	0.15	19980706	6.67366	143.91325	187.57687	1.13373	0.2539213	2.2068990	39	4	1988–1998	0.78	M-v	2	Williams	32511	1988 RS_6
1988 RL_9	14.0	0.15	19980706	302.29931	63.09158	328.13876	5.12074	0.1066308	2.2139345	59	3	1988–1998	0.81	M-v	3	Williams	32511	1988 RL_9
1988 RA_{12}	15.0	0.15	19980706	172.93624	224.07486	170.64484	3.61783	0.1774286	2.4397784	19	2	1988–1998	0.71	M-v	5	Williams	32219	1988 RA_{12}
1988 SH_2	12.5	0.15	19980706	332.83201	225.30460	109.10911	11.35172	0.1163444	2.9954414	36	5	1986–1998	0.75	M-v	3	Williams	32511	1988 SH_2
1988 TT	13.0	0.15	19980706	343.16485	338.22110	4.29821	10.83096	0.0999029	3.0050410	54	5	1988–1998	0.79	M-v	2	Williams	32511	1988 TT
1988 UV	15.0	0.15	19980706	283.20604	206.60923	212.68649	7.45987	0.0976584	2.2514932	58	4	1978–1998	0.78	M-v	4	Williams	32511	1988 UV
1988 VT_1	13.5	0.15	19980706	265.27925	243.28030	176.97428	12.32742	0.2393593	3.1054121	25	4	1988–1998	0.88	M-v	3	Williams	28884	1988 VT_1
1988 VR_2	13.5	0.15	19980706	315.50849	0.49471	88.21027	13.22978	0.2724649	2.9357308	22	3	1988–1998	0.76	M-v	3	Williams	23133	1988 VR_2
1988 XT_1	12.5	0.15	19980706	305.29747	6.86500	41.79542	18.02228	0.3024576	3.0523727	23	3	1988–1998	0.67	M-v	4	Williams	32512	1988 XT_1
1988 XX_2	14.5	0.15	19980706	273.81058	7.39668	73.76317	2.22087	0.1755789	2.2908500	35	4	1988–1998	0.81	M-v	2	Williams	26189	1988 XX_2
1989 AF_3	14.0	0.15	19980706	229.00920	28.78555	110.79625	6.73251	0.1851130	2.3276576	24	4	1988–1998	0.80	M-v	2	Williams	30288	1989 AF_3
1989 AJ_6	14.0	0.15	19980706	90.09251	285.57783	318.16008	5.71614	0.0997668	2.3985835	65	3	1989–1998	0.79	M-v	4	Williams	32512	1989 AJ_6
1989 AK_6	14.0	0.15	19980706	87.10612	162.50044	122.63792	8.37602	0.0195721	3.1670239	32	3	1989–1998	0.54	M-v	3	Williams	27443	1989 AK_6
1989 BA	13.0	0.15	19980706	204.35413	140.20722	342.89533	23.90241	0.2794726	2.3822863	37	5	1975–1998	0.72	M-v	2	Williams	29656	1989 BA
1989 BV_1	14.0	0.15	19980706	167.86560	181.55396	336.92516	1.91551	0.1364081	2.4141893	50	4	1989–1998	0.86	M-v	3	Williams	32512	1989 BV_1
1989 CX	14.0	0.15	19980706	239.41685	145.82381	328.29093	24.37802	0.2300400	2.3473403	64	3	1989–1998	0.71	M-v	3	Williams	32512	1989 CX
1989 CT_2	14.0	0.15	19980706	49.18561	73.22066	225.23677	5.79012	0.1079970	2.3737030	24	5	1983–1998	0.82	M-v	1	Williams	30652	1989 CT_2
1989 CY_2	15.5	0.15	19980706	284.65746	216.68875	220.46169	5.15914	0.1362551	2.3230183	35	3	1989–1998	0.93	M-v	3	Williams	21972	1989 CY_2
1989 CE_5	15.5	0.15	19980706	114.40312	270.53198	309.04502	1.83821	0.1242702	2.4190391	45	4	1989–1998	0.63	M-v	2	Williams	30469	1989 CE_5
1989 CJ_8	14.0	0.15	19980706	108.09807	65.58228	145.18802	8.66663	0.1926780	2.4690742	84	4	1989–1998	0.80	M-v	3	Williams	31582	1989 CJ_8
1989 EJ_6	14.0	0.15	19980706	230.86495	347.25706	135.15970	0.46924	0.0935840	3.2651028	30	3	1989–1998	0.89	M-v	5	Williams	32512	1989 EJ_6
1989 GA_3	14.5	0.15	19980706	208.84042	280.68440	226.91571	1.64690	0.1531451	2.4187204	51	9	1955–1998	0.89	M-v	1	Williams	27933	1989 GA_3
1989 GR_3	14.5	0.15	19980706	35.45652	14.34311	257.09332	3.88486	0.2471842	2.5722414	45	4	1952–1998	0.63	M-v	1	Williams	32512	1989 GR_3
1989 GU_3	14.5	0.15	19980706	58.17901	20.57723	260.47000	4.11589	0.0976403	2.4764039	33	4	1989–1998	0.72	M-v	1	Williams	29912	1989 GU_3
1989 GL_4	14.5	0.15	19980706	72.76337	27.18451	204.61373	13.48449	0.1223293	2.5412752	27	4	1989–1998	0.71	M-v	3	Williams	32512	1989 GL_4
1989 GN_4	14.5	0.15	19980706	45.41468	344.99421	252.28415	2.79803	0.1385169	2.5922512	32	4	1989–1998	0.70	M-v	2	Williams	32512	1989 GN_4
1989 GO_4	14.0	0.15	19980706	177.88710	223.72752	308.84992	1.75933	0.1131737	2.4296618	46	5	1976–1998	0.81	M-v	2	Williams	20016	1989 GO_4
1989 GH_8	15.0	0.15	19980706	241.05332	17.64250	91.19653	3.81599	0.1264198	2.4063714	28	3	1989–1998	0.74	M-v	4	Williams	29657	1989 GH_8
1989 HA	13.5	0.15	19980706	44.60774	125.12549	143.03299	15.09108	0.1628741	2.5826197	35	3	1989–1998	0.57	M-v	2	Williams	32512	1989 HA
1989 PF	14.0	0.15	19980706	343.24328	190.90588	147.53951	18.71169	0.2410331	2.7442366	33	3	1984–1998	0.77	M-v	3	Williams	32444	1989 PF
1989 RG_1	15.5	0.15	19980706	240.90888	263.22683	60.11617	0.91968	0.1957213	2.2437600	25	3	1989–1998	0.41	M-v	4	Williams	32512	1989 RG_1
1989 RY_1	14.0	0.15	19980706	2.88336	148.02583	156.76800	15.25668	0.2786599	2.7619869	45	2	1989–1998	0.71	M-v	3	Williams	32444	1989 RY_1
1989 SW_8	13.5	0.15	19980706	355.10370	189.40517	183.14453	13.40826	0.1911777	2.6750650	27	3	1989–1998	0.82	M-v	4	Williams	32444	1989 SW_8
1989 TH_1	13.0	0.15	19980706	339.97838	45.63314	344.10214	8.20901	0.2921924	2.7176236	34	4	1962–1998	0.84	M-v	3	Williams	32512	1989 TH_1
1989 TN_1	14.5	0.15	19980706	311.41580	56.44633	342.28374	11.15758	0.2351392	2.7481044	45	2	1989–1998	0.64	M-v	4	Williams	32444	1989 TN_1
1989 TD_{16}	14.0	0.15	19980706	359.54396	5.42228	348.66880	2.96170	0.0987879	2.7115375	35	3	1989–1998	0.57	M-v	5	Williams	24738	1989 TD_{16}
1989 UL	13.5	0.15	19980706	306.51443	189.32713	218.01281	5.43419	0.1392743	2.7795994	51	4	1980–1998	0.82	M-v	2	Williams	32512	1989 UL
1989 UR	18.5	0.15	19980706	173.06013	289.28049	234.61388	10.31645	0.3558098	1.0798976	27	3	1989–1998	1.06	M-v	5	Marsden	32512	1989 UR
1989 UA_1	14.5	0.15	19980706	249.12158	0.53858	4.44062	5.26864	0.1860170	2.2069890	22	2	1989–1998	0.82	M-v	4	Williams	32301	1989 UA_1
1990 BO	11.5	0.15	19980706	259.59064	90.00011	305.19879	15.70736	0.1048426	3.1819211	31	2	1990–1998	0.77	M-v	4	Williams	32220	1990 BO
1990 BA_2	12.5	0.15	19980706	218.26530	188.72261	302.60884	10.55923	0.1478773	3.0486885	37	2	1990–1998	0.77	M-v	4	Williams	32444	1990 BA_2
1990 CD	13.0	0.15	19980706	56.92276	319.89403	287.40180	5.56640	0.1065536	2.2828325	17	3	1990–1998	0.68	M-v	6	Marsden	26168	1990 CD
1990 EL_2	15.5	0.15	19980706	136.77892	358.71877	213.55886	5.69176	0.1036529	2.2455351	27	4	1990–1998	0.74	M-v	3	Williams	30289	1990 EL_2

1990 EQ_2	14.5	0.15	19980706	256.97684	215.63870	254.64013	3.52895	0.0886086	2.1900414	22	4	1990–1998	0.80	M-v	3	Williams	26579	1990 EQ_2
1990 HY	13.0	0.15	19980706	319.89978	156.96613	88.17437	16.32628	0.0783455	2.5888074	22	3	1990–1998	0.86	M-v	3	Williams	32301	1990 HY
1990 HL_1	14.5	0.15	19980706	65.29641	1.12907	240.30085	22.11313	0.2740949	2.3958063	29	5	1975–1998	0.81	M-v	2	Williams	32512	1990 HL_1
1990 QY_2	14.0	0.15	19980706	308.27141	48.73235	0.22977	2.31914	0.1001156	2.4801741	47	6	1978–1998	0.76	M-v	2	Williams	30289	1990 QY_2
1990 QS_3	16.0	0.15	19980706	350.40920	164.27951	156.43513	5.51401	0.2110104	2.5452226	39	5	1990–1998	0.88	M-v	2	Williams	32512	1990 QS_3
1990 QE_7	14.0	0.15	19980706	236.06230	319.22164	142.96167	2.13617	0.1222660	2.5356084	60	4	1990–1998	0.74	M-v	3	Williams	32512	1990 QE_7
1990 QO_8	14.0	0.15	19980706	254.33285	97.02394	341.73656	12.18137	0.1444253	2.5393188	36	2	1990–1998	0.82	M-v	4	Williams	32512	1990 QO_8
1990 QP_8	14.5	0.15	19980706	267.10287	75.51983	335.15264	0.65959	0.0956312	2.5617915	32	3	1978–1998	0.64	M-v	5	Williams	32512	1990 QP_8
1990 QB_{19}	15.0	0.15	19980706	349.94750	10.93902	314.13097	2.96550	0.2652854	2.5495867	37	3	1990–1998	0.85	M-v	3	Williams	32512	1990 QB_{19}
1990 QC_{19}	15.0	0.15	19980706	283.59329	117.74705	306.18856	22.00353	0.0701267	1.8979947	29	3	1989–1998	0.67	M-v	2	Williams	32512	1990 QC_{19}
1990 RV_3	15.0	0.15	19980706	335.94477	352.57129	346.80209	3.79718	0.2723356	2.5568287	23	5	1982–1998	0.65	M-v	3	Williams	32512	1990 RV_3
1990 RD_5	13.5	0.15	19980706	210.13769	169.05553	241.91941	4.18579	0.0542117	2.7346476	25	3	1990–1998	0.81	M-v	4	Williams	32302	1990 RD_5
1990 RJ_5	14.5	0.15	19980706	262.22194	183.81081	267.54300	2.80436	0.1488057	2.5299134	42	3	1990–1998	0.74	M-v	5	Williams	32513	1990 RJ_5
1990 RO_7	14.5	0.15	19980706	327.34524	191.74288	162.09414	3.26196	0.0452642	2.5542737	39	2	1990–1998	0.67	M-v	5	Williams	32513	1990 RO_7
1990 RR_7	14.5	0.15	19980706	32.31739	115.31659	164.22139	6.41499	0.1291540	2.5452493	53	4	1990–1998	0.67	M-v	3	Williams	32513	1990 RR_7
1990 SV	15.5	0.15	19980706	342.36447	23.07615	320.68371	4.47835	0.3034010	2.5399797	46	2	1990–1998	0.63	M-v	3	Williams	32445	1990 SV
1990 SZ	14.0	0.15	19980706	294.18147	72.84650	346.99151	10.58020	0.1758549	2.5419045	47	6	1986–1998	0.78	M-v	2	Williams	32513	1990 SZ
1990 SX_3	13.5	0.15	19980706	314.38588	60.31186	308.34673	12.32342	0.2181500	2.5852510	27	2	1990–1998	0.46	M-v	4	Williams	32445	1990 SX_3
1990 SF_4	14.0	0.15	19980706	19.24757	56.18924	230.48101	10.58812	0.2216372	2.5456396	39	3	1990–1998	0.74	M-v	4	Williams	32445	1990 SF_4
1990 SR_6	14.5	0.15	19980706	317.46299	310.17374	69.57282	2.14346	0.1730879	2.5499639	74	7	1978–1998	0.65	M-v	2	Williams	32513	1990 SR_6
1990 SC_8	15.5	0.15	19980706	334.88427	199.37094	147.98415	7.70045	0.1722536	2.5540449	30	3	1990–1998	0.77	M-v	4	Williams	32513	1990 SC_8
1990 SG_{11}	14.5	0.15	19980706	48.33490	94.53808	205.54210	2.43757	0.1929289	2.4499702	33	8	1986–1998	0.75	M-v	1	Williams	29942	1990 SG_{11}
1990 SG_{12}	15.0	0.15	19980706	320.42054	158.33344	212.75727	3.99720	0.2128264	2.5503443	49	5	1986–1998	0.76	M-v	3	Williams	32513	1990 SG_{12}
1990 SV_{13}	14.5	0.15	19980706	299.76865	19.69304	7.58696	4.43023	0.0600230	2.5394328	61	6	1978–1998	0.68	M-v	3	Williams	32513	1990 SV_{13}
1990 SU_{15}	14.0	0.15	19980706	284.61129	142.50613	179.14408	12.52276	0.2193593	2.7031177	34	2	1990–1998	0.81	M-v	4	Williams	32302	1990 SU_{15}
1990 SK_{28}	13.5	0.15	19980706	345.23896	19.23080	346.92112	2.50811	0.1567861	2.5244747	31	3	1990–1998	0.58	M-v	4	Williams	24240	1990 SK_{28}
1990 TJ	13.5	0.15	19980706	310.28319	349.77471	56.35405	4.89237	0.0660897	2.5317151	48	5	1982–1998	0.74	M-v	3	Williams	27728	1990 TJ
1990 TN_3	14.5	0.15	19980706	296.29809	4.45937	21.31948	20.89221	0.0941933	1.9627583	25	3	1989–1998	0.75	M-v	3	Williams	21974	1990 TN_3
1990 TB_4	14.0	0.15	19980706	238.65926	190.63909	281.30372	1.29537	0.1278163	2.5952413	35	5	1986–1998	0.69	M-v	3	Williams	32513	1990 TB_4
1990 TS_4	12.5	0.15	19980706	285.05087	297.24237	101.51096	10.00006	0.0642308	2.6360471	22	4	1988–1998	0.78	M-v	1	Williams	32302	1990 TS_4
1990 TL_7	14.5	0.15	19980706	151.84338	233.45146	214.08992	1.17770	0.0969048	2.9237846	20	3	1990–1998	0.63	M-v	5	Williams	32302	1990 TL_7
1990 TP_7	13.5	0.15	19980706	143.34372	63.14847	9.98784	1.43243	0.1040420	3.0038456	46	7	1987–1998	0.75	M-v	1	Williams	31784	1990 TP_7
1990 UK	13.5	0.15	19980706	294.97068	338.30762	50.75577	15.80841	0.1106815	2.6218717	28	3	1990–1998	0.89	M-v	4	Williams	30091	1990 UK
1990 UA_1	12.5	0.15	19980706	230.82739	220.34355	236.87248	12.06614	0.1290142	2.6729179	29	3	1981–1998	0.79	M-v	4	Williams	32445	1990 UA_1
1990 UO_1	14.0	0.15	19980706	324.10149	258.42474	126.64485	5.18287	0.1562171	2.5735218	50	4	1990–1998	0.62	M-v	3	Williams	30289	1990 UO_1
1990 UU_1	14.5	0.15	19980706	344.68712	174.36879	192.40861	13.59152	0.1774889	2.5538946	40	4	1990–1998	0.51	M-v	2	Williams	29942	1990 UU_1
1990 UA_2	15.5	0.15	19980706	316.87756	279.28790	114.00920	4.33114	0.2658744	2.5621068	40	4	1990–1998	0.69	M-v	3	Williams	32513	1990 UA_2
1990 UG_3	13.5	0.15	19980706	294.04416	359.31425	58.37358	6.47851	0.3161741	2.5972595	33	6	1969–1998	0.78	M-v	1	Williams	29658	1990 UG_3
1990 UG_4	14.0	0.15	19980706	60.65491	80.81688	194.76402	13.79217	0.1617838	2.5800404	31	4	1988–1998	0.78	M-v	2	Williams	30289	1990 UG_4
1990 VB	16.0	0.15	19980706	9.90257	102.23492	254.61037	14.56723	0.5284642	2.4424579	73	3	1990–1998	0.56	M-v	2	Williams	29942	1990 VB
1990 VN_1	13.5	0.15	19980706	304.29388	346.61686	46.05325	8.73159	0.1166566	2.6247097	25	4	1977–1998	0.73	M-v	2	Williams	27728	1990 VN_1
1990 VN_4	14.0	0.15	19980706	153.81937	350.13999	205.84559	12.61486	0.1159038	2.6427418	55	3	1990–1998	0.57	M-v	2	Williams	32513	1990 VN_4
1990 VS_4	14.5	0.15	19980706	0.53721	138.74941	206.89982	11.91398	0.1937151	2.5689916	34	5	1986–1998	0.63	M-v	4	Williams	30091	1990 VS_4
1990 VU_5	13.5	0.15	19980706	209.26905	170.16224	182.23500	9.41606	0.0962367	3.0727198	47	4	1984–1998	0.68	M-v	2	Williams	32222	1990 VU_5
1990 VP_6	13.0	0.15	19980706	29.92743	123.26380	203.19938	12.73581	0.0612419	2.5915061	45	3	1990–1998	0.49	M-v	3	Williams	32446	1990 VP_6
1990 VW_8	13.5	0.15	19980706	259.39255	238.34089	222.93888	12.94782	0.1643267	2.5908510	27	2	1990–1998	0.66	M-v	5	Williams	32446	1990 VW_8
1990 WS_1	13.5	0.15	19980706	164.67176	323.43080	206.24123	12.46023	0.1184382	2.6881215	30	2	1990–1998	0.68	M-v	4	Williams	32446	1990 WS_1
1990 WE_2	14.0	0.15	19980706	41.26463	90.68383	202.41125	13.18498	0.2109180	2.5920756	28	6	1955–1998	0.94	M-v	1	Williams	31137	1990 WE_2
1990 WN_2	13.0	0.15	19980706	261.73874	0.06708	79.12920	14.60422	0.1345619	2.6578822	19	4	1990–1998	0.75	M-v	1	Williams	27325	1990 WN_2
1990 WQ_2	13.5	0.15	19980706	260.20035	217.11782	215.51171	6.59892	0.1684148	2.6832728	39	3	1990–1998	0.70	M-v	2	Williams	32513	1990 WQ_2
1990 WR_2	13.5	0.15	19980706	316.25138	335.32551	94.08641	8.99688	0.2502654	2.5428132	26	4	1979–1998	0.81	M-v	3	Williams	28885	1990 WR_2
1990 WP_4	12.5	0.15	19980706	94.29818	124.03161	88.66430	10.24615	0.0900279	2.7725433	25	5	1979–1998	0.68	M-v	1	Williams	32513	1990 WP_4
1990 WQ_4	14.0	0.15	19980706	187.50863	177.58630	130.83474	3.69219	0.2029923	2.2511045	21	4	1990–1996	0.75	M-v	3	Williams	30289	1990 WQ_4

1990 WS_4	13.5	0.15	19980706	282.30879	223.16409	157.90661	3.04263	0.0853533	2.7431082	37	6	1976–1998	0.71	M-v	1	Williams	32302	1990 WS_4
1990 WA_5	13.0	0.15	19980706	53.41135	139.55978	119.39148	6.35074	0.0127565	2.7396766	28	6	1985–1998	0.85	M-v	1	Williams	32513	1990 WA_5
1990 WU_5	14.5	0.15	19980706	248.93646	343.91876	133.59145	4.15926	0.0572176	2.5961098	40	5	1971–1998	0.69	M-v	2	Williams	30289	1990 WU_5
1991 AF_2	14.5	0.15	19980706	283.30679	246.14845	184.96315	12.23428	0.1604026	2.6233279	35	2	1990–1998	0.63	M-v	3	Williams	32446	1991 AF_2
1991 AS_2	14.5	0.15	19980706	90.86182	85.34893	294.82034	4.82647	0.1647102	2.3988216	26	3	1989–1997	0.57	M-v	4	Williams	31100	1991 AS_2
1991 BK	14.0	0.15	19980706	270.28911	48.00775	67.29073	5.72881	0.2803065	2.6312428	42	4	1991–1998	0.75	M-v	2	Williams	29658	1991 BK
1991 CO_1	12.5	0.15	19980706	136.23124	336.73292	180.20754	9.83842	0.0303856	3.0173591	22	4	1981–1998	0.95	M-v	2	Williams	32446	1991 CO_1
1991 DE	13.0	0.15	19980706	260.32656	81.45949	82.37441	13.10812	0.2299656	2.6021308	23	3	1991–1998	0.68	M-v	4	Williams	24913	1991 DE
1991 DK_1	12.5	0.15	19980706	184.03048	178.69216	29.26638	6.64547	0.0387741	5.1932523	33	5	1991–1998	0.49	M-v	1	Marsden	30895	1991 DK_1
1991 EE	17.5	0.15	19980706	21.97754	115.13611	169.11070	9.76241	0.6242928	2.2458030	84	4	1991–1998	0.60	M-v	1	Marsden	28885	1991 EE
1991 EY_3	14.0	0.15	19980706	148.54090	239.03517	317.55163	1.34112	0.1303868	2.8679235	45	4	1991–1998	0.73	M-v	2	Williams	27934	1991 EY_3
1991 FA	17.0	0.15	19980706	275.49984	91.77482	339.53059	3.08102	0.4469854	1.9782698	37	3	1991–1998	0.51	M-v	3	Marsden	32302	1991 FA
1991 FG	13.5	0.15	19980706	218.49186	325.74247	204.41927	13.56198	0.3417024	2.7550744	29	4	1987–1998	0.67	M-v	3	Williams	27934	1991 FG
1991 FH_2	13.5	0.15	19980706	157.67712	237.51350	281.44239	0.74422	0.0620202	2.9943768	33	4	1978–1998	0.59	M-v	1	Williams	32513	1991 FH_2
1991 FZ_2	13.5	0.15	19980706	159.84180	348.00259	176.34138	6.31211	0.0259815	3.0457103	38	3	1991–1998	0.76	M-v	4	Williams	32513	1991 FZ_2
1991 GP_3	13.5	0.15	19980706	73.13311	60.56901	214.27314	2.35497	0.2111230	3.0608075	18	3	1989–1998	0.86	M-v	5	Williams	27912	1991 GP_3
1991 GP_7	14.5	0.15	19980706	211.04842	81.35361	328.50896	2.39283	0.0936207	2.2315339	30	3	1991–1998	0.80	M-v	4	Williams	32302	1991 GP_7
1991 GH_{11}	14.0	0.15	19980706	157.78615	3.01427	144.21448	2.44446	0.2067606	3.0834179	21	3	1980–1998	0.70	M-v	5	Williams	32513	1991 GH_{11}
1991 HK	15.0	0.15	19980706	61.05766	54.30087	168.19070	5.22693	0.1634222	2.2160416	27	3	1991–1998	0.82	M-v	4	Williams	32447	1991 HK
1991 JF	14.0	0.15	19980706	313.14759	23.26419	239.38041	6.21154	0.1018945	2.3774624	37	3	1991–1998	0.71	M-v	4	Williams	32302	1991 JF
1991 LB	15.0	0.15	19980706	331.64847	121.67265	218.87009	4.82760	0.1948865	2.2257907	36	3	1991–1998	0.46	M-v	2	Williams	32513	1991 LB
1991 LK_2	13.5	0.15	19980706	156.28781	108.97470	72.47002	6.18911	0.0829904	3.1616915	32	6	1958–1998	0.99	M-v	1	Williams	28614	1991 LK_2
1991 LP_2	15.0	0.15	19980706	341.44614	194.10273	99.18176	1.99502	0.1484714	2.2978853	37	3	1991–1998	0.74	M-v	4	Williams	32447	1991 LP_2
1991 NC_1	15.0	0.15	19980706	34.82036	139.94544	126.28191	5.68729	0.2121063	2.2814913	49	2	1991–1998	0.68	M-v	4	Williams	32447	1991 NC_1
1991 NQ_6	15.0	0.15	19980706	313.11119	100.38287	276.11337	4.63264	0.1667998	2.2683438	33	3	1991–1998	0.67	M-v	3	Williams	32513	1991 NQ_6
1991 OO	15.0	0.15	19980706	341.50603	108.96065	231.67803	3.38335	0.2016685	2.2940688	58	3	1991–1998	0.65	M-v	3	Williams	32513	1991 OO
1991 PM_4	15.0	0.15	19980706	14.74793	331.68541	315.88334	4.77427	0.1516601	2.2968121	33	2	1991–1998	0.68	M-v	4	Williams	32447	1991 PM_4
1991 PA_5	15.5	0.15	19980706	8.36621	0.25933	307.93901	3.16021	0.1643274	2.2790929	40	2	1991–1998	0.58	M-v	4	Williams	32447	1991 PA_5
1991 PQ_5	15.5	0.15	19980706	14.12541	163.62975	142.51002	6.62658	0.1320029	2.2725931	39	3	1991–1998	0.75	M-v	3	Williams	32513	1991 PQ_5
1991 PT_9	14.0	0.15	19980706	13.02566	357.60234	287.01337	24.76267	0.2181557	2.2863074	41	2	1991–1998	0.52	M-v	3	Williams	32513	1991 PT_9
1991 PG_{11}	15.0	0.15	19980706	3.24053	137.59416	179.36143	6.61319	0.2372903	2.3051658	61	4	1977–1998	0.74	M-v	3	Williams	32513	1991 PG_{11}
1991 PW_{11}	14.5	0.15	19980706	321.62125	101.18801	187.72556	7.26681	0.1862451	2.4371953	24	2	1991–1998	0.73	M-v	4	Williams	32513	1991 PW_{11}
1991 PM_{13}	14.5	0.15	19980706	25.30297	278.88202	357.66839	4.06845	0.2055964	2.3038039	50	4	1977–1998	0.80	M-v	3	Williams	32513	1991 PM_{13}
1991 PZ_{14}	14.0	0.15	19980706	306.52979	70.80460	195.88036	6.55748	0.1577533	2.5258829	39	3	1991–1998	0.69	M-v	3	Williams	32303	1991 PZ_{14}
1991 PA_{15}	15.0	0.15	19980706	322.89130	151.99238	192.05563	5.14795	0.1678365	2.3389401	18	3	1991–1998	0.71	M-v	4	Williams	32224	1991 PA_{15}
1991 PJ_{15}	15.0	0.15	19980706	28.71160	167.64682	118.85667	3.04507	0.1432074	2.2954299	40	3	1981–1998	0.65	M-v	4	Williams	32513	1991 PJ_{15}
1991 PM_{16}	14.0	0.15	19980706	35.90482	142.94151	154.94689	21.82314	0.2355662	2.2630082	17	3	1991–1998	0.72	M-v	3	Williams	29614	1991 PM_{16}
1991 PR_{16}	15.0	0.15	19980706	12.84817	187.58767	138.44749	1.42311	0.1958569	2.2726263	17	3	1991–1998	0.54	M-v	3	Williams	30687	1991 PR_{16}
1991 PZ_{17}	14.5	0.15	19980706	290.91235	306.65084	109.84059	6.01050	0.1556256	2.2959557	31	5	1989–1998	0.55	M-v	1	Williams	31583	1991 PZ_{17}
1991 RG	14.5	0.15	19980706	140.00741	344.77519	228.32230	3.90670	0.0944212	2.2393313	39	7	1985–1998	0.99	M-v	2	Williams	27729	1991 RG
1991 RL_1	14.0	0.15	19980706	29.25768	101.77991	193.17488	11.65717	0.1695397	2.2774019	49	2	1991–1998	0.57	M-v	4	Williams	32448	1991 RL_1
1991 RC_2	14.5	0.15	19980706	278.64417	83.02612	333.28337	7.38636	0.1273231	2.3205257	34	2	1991–1998	0.63	M-v	5	Williams	32448	1991 RC_2
1991 RS_2	14.0	0.15	19980706	255.91667	242.20714	210.31104	6.47957	0.0642797	2.3071275	68	3	1991–1998	0.59	M-v	3	Williams	32513	1991 RS_2
1991 RT_3	14.5	0.15	19980706	320.22457	177.05895	224.29470	5.01147	0.1479660	2.2883831	46	5	1977–1998	0.79	M-v	3	Williams	32514	1991 RT_3
1991 RE_4	16.0	0.15	19980706	354.92578	334.00020	345.34387	4.94563	0.2282391	2.3344077	49	3	1991–1998	0.64	M-v	3	Williams	32448	1991 RE_4
1991 RT_5	14.0	0.15	19980706	328.57945	313.35910	33.20243	7.38818	0.1392844	2.3547984	23	3	1982–1998	0.77	M-v	4	Williams	27120	1991 RT_5
1991 RA_6	14.0	0.15	19980706	9.01127	235.92446	54.67811	5.52954	0.2014723	2.3519927	34	5	1973–1998	0.67	M-v	1	Williams	26420	1991 RA_6
1991 RL_7	14.5	0.15	19980706	342.31846	118.21937	214.13025	11.52457	0.0459530	2.4047712	24	2	1991–1998	0.64	M-v	4	Williams	32448	1991 RL_7
1991 RU_7	15.5	0.15	19980706	305.97177	222.79698	178.48310	6.73674	0.2108279	2.3079531	45	4	1977–1998	0.73	M-v	3	Williams	32514	1991 RU_7
1991 RS_8	14.5	0.15	19980706	288.51791	55.22182	352.52567	8.28555	0.1070097	2.3379149	57	4	1982–1998	0.59	M-v	3	Williams	32514	1991 RS_8
1991 RU_8	14.5	0.15	19980706	340.90042	299.91229	4.04408	1.90505	0.1936835	2.3965371	23	4	1991–1998	0.72	M-v	2	Williams	32303	1991 RU_8
1991 RY_8	14.0	0.15	19980706	333.57340	9.95056	8.59595	3.75470	0.1387020	2.2925461	27	3	1991–1998	0.47	M-v	4	Williams	29915	1991 RY_8
1991 RB_{10}	14.5	0.15	19980706	2.55771	36.94473	300.55297	4.55070	0.1382809	2.2963217	34	3	1991–1998	0.56	M-v	4	Williams	32449	1991 RB_{10}

1991 RW_{12}	14.0	0.15	19980706	351.29587	103.86408	188.00175	3.72977	0.0468384	2.4211377	19	4	1953–1998	0.83	M-v	3	Williams	32225	1991 RW_{12}
1991 RH_{14}	14.5	0.15	19980706	242.80331	121.02387	326.39934	6.56694	0.0744084	2.3395195	38	2	1991–1998	0.67	M-v	5	Williams	32449	1991 RH_{14}
1991 RK_{15}	14.0	0.15	19980706	348.81445	334.75031	3.86596	5.18518	0.1561670	2.3117105	43	6	1963–1998	0.78	M-v	3	Williams	32514	1991 RK_{15}
1991 RA_{17}	15.0	0.15	19980706	355.03504	303.70112	35.61952	7.23689	0.1605799	2.3014864	55	3	1991–1998	0.66	M-v	4	Williams	32514	1991 RA_{17}
1991 RG_{17}	14.5	0.15	19980706	325.32896	233.75759	127.77234	3.40964	0.1181393	2.3351328	49	2	1991–1998	0.70	M-v	4	Williams	32449	1991 RG_{17}
1991 RU_{17}	13.5	0.15	19980706	349.81312	178.41815	191.23735	3.30877	0.0297363	2.2463763	25	5	1985–1998	0.59	M-v	2	Williams	32514	1991 RU_{17}
1991 RV_{17}	15.0	0.15	19980706	293.50718	16.29594	326.47546	2.04228	0.2189358	2.4248168	26	4	1991–1998	0.67	M-v	2	Williams	32303	1991 RV_{17}
1991 RX_{17}	14.5	0.15	19980706	352.90751	148.48031	177.73827	4.36011	0.1436852	2.3176466	52	2	1991–1998	0.65	M-v	4	Williams	32449	1991 RX_{17}
1991 RO_{24}	17.0	0.15	19980706	344.37849	179.10883	150.59544	9.56859	0.3082055	2.3175620	34	2	1991–1998	0.74	M-v	3	Williams	32449	1991 RO_{24}
1991 RY_{29}	15.0	0.15	19980706	290.14363	136.74192	279.03319	6.02184	0.1484888	2.2956330	33	2	1991–1998	0.68	M-v	5	Williams	32450	1991 RY_{29}
1991 SA	15.0	0.15	19980706	352.66180	56.42242	267.71648	5.65407	0.2584439	2.3282052	44	2	1991–1998	0.79	M-v	3	Williams	32450	1991 SA
1991 TK	14.5	0.15	19980706	162.39439	45.35799	107.92895	5.12559	0.0635220	2.3925698	32	3	1991–1998	0.69	M-v	4	Williams	32450	1991 TK
1991 TN	14.0	0.15	19980706	114.89524	112.79237	96.96011	5.59799	0.1087605	2.3518886	26	4	1991–1998	0.70	M-v	2	Williams	31786	1991 TN
1991 TH_1	14.5	0.15	19980706	334.40913	2.70066	18.37907	22.97082	0.2236908	2.2978545	32	2	1991–1998	0.66	M-v	3	Williams	32450	1991 TH_1
1991 TK_1	14.5	0.15	19980706	269.44118	114.81864	336.78422	21.99104	0.2944587	2.3495342	40	2	1991–1998	0.77	M-v	4	Williams	32450	1991 TK_1
1991 TK_8	15.0	0.15	19980706	287.28409	257.43970	151.70130	6.07195	0.1310574	2.3409383	49	2	1991–1998	0.76	M-v	4	Williams	32451	1991 TK_8
1991 TW_8	15.5	0.15	19980706	73.11051	213.28494	21.05180	5.28908	0.1907412	2.3863585	26	3	1991–1998	0.69	M-v	5	Williams	26420	1991 TW_8
1991 UF	14.5	0.15	19980706	337.46339	101.08028	276.01592	2.49003	0.1342208	2.3084004	38	6	1977–1998	0.83	M-v	2	Williams	26580	1991 UF
1991 UF_1	15.5	0.15	19980706	293.65897	308.36772	93.44209	3.40496	0.2106856	2.3774618	30	4	1991–1998	0.73	M-v	4	Williams	32514	1991 UF_1
1991 UN_1	14.5	0.15	19980706	294.63906	84.08066	313.03315	5.76084	0.1217525	2.3719523	34	3	1989–1998	0.64	M-v	4	Williams	32451	1991 UN_1
1991 UR_1	14.5	0.15	19980706	295.67770	9.55955	41.92318	1.93383	0.1536799	2.3631337	32	4	1980–1998	0.86	M-v	2	Williams	32514	1991 UR_1
1991 UO_2	14.0	0.15	19980706	318.70521	289.99982	113.14941	4.74126	0.1975702	2.3248015	51	5	1984–1998	0.85	M-v	2	Williams	32514	1991 UO_2
1991 UF_3	13.5	0.15	19980706	246.33451	50.63070	40.14653	13.35760	0.1908808	2.4176724	20	5	1970–1998	0.53	M-v	1	Williams	30470	1991 UF_3
1991 UP_3	15.5	0.15	19980706	302.21794	320.67656	87.08867	3.20916	0.2031043	2.3494767	31	4	1991–1998	0.70	M-v	1	Williams	26926	1991 UP_3
1991 UZ_3	15.5	0.15	19980706	276.97142	291.09455	130.71790	1.77263	0.1720258	2.3850228	25	2	1991–1998	0.81	M-v	4	Williams	32451	1991 UZ_3
1991 VV_1	14.0	0.15	19980706	299.86454	124.95244	229.08581	13.30069	0.2271094	2.4482018	24	3	1991–1998	0.80	M-v	4	Williams	32304	1991 VV_1
1991 VG_2	14.5	0.15	19980706	263.68212	308.08339	146.70260	2.72306	0.1733380	2.3829100	48	4	1980–1998	0.72	M-v	2	Williams	26926	1991 VG_2
1991 VZ_2	15.5	0.15	19980706	342.69149	336.81526	23.41121	3.98503	0.3532812	2.3230863	25	4	1959–1998	0.73	M-v	2	Williams	32451	1991 VZ_2
1991 VO_3	14.5	0.15	19980706	250.44661	36.24568	59.69456	4.17061	0.1518397	2.3850572	30	2	1991–1998	0.70	M-v	5	Williams	32451	1991 VO_3
1991 VT_3	13.0	0.15	19980706	265.24182	114.61445	238.10296	12.68611	0.1847630	2.5762115	41	4	1983–1998	0.75	M-v	3	Williams	32451	1991 VT_3
1991 VW_4	14.0	0.15	19980706	355.20082	236.11825	98.77308	7.54857	0.1552369	2.3749115	44	4	1991–1998	0.71	M-v	1	Williams	26926	1991 VW_4
1991 VB_5	13.5	0.15	19980706	254.30457	187.13990	194.93596	14.81561	0.1219033	2.5464395	25	2	1991–1998	0.70	M-v	4	Williams	32451	1991 VB_5
1991 VC_5	13.5	0.15	19980706	273.59105	24.15611	52.20936	7.66274	0.0962982	2.3612210	18	4	1973–1998	0.75	M-v	2	Williams	30273	1991 VC_5
1991 VM_5	13.5	0.15	19980706	1.46433	267.39904	70.08228	6.34515	0.2116654	2.3247174	15	3	1977–1998	0.75	M-v	3	Williams	20823	1991 VM_5
1991 XC	14.0	0.15	19980706	261.57472	92.27558	0.98431	21.37451	0.3034152	2.4404766	45	3	1991–1998	0.55	M-v	2	Williams	32514	1991 XC
1991 YW	15.0	0.15	19980706	308.12197	274.18098	130.77420	5.36681	0.1352029	2.4118898	21	4	1991–1998	0.66	M-v	2	Williams	30450	1991 YW
1992 AU_1	14.0	0.15	19980706	308.99668	45.97751	87.74947	24.66931	0.2534601	2.2710388	19	3	1991–1998	0.70	M-v	3	Williams	30757	1992 AU_1
1992 AP_3	14.5	0.15	19980706	288.13000	127.93267	312.12192	2.68707	0.1841457	2.4142733	45	4	1987–1998	0.74	M-v	2	Williams	28886	1992 AP_3
1992 BZ	14.0	0.15	19980706	270.99879	26.38418	74.45903	3.11000	0.1294580	2.4547931	39	6	1983–1998	0.83	M-v	1	Williams	27567	1992 BZ
1992 BL_2	15.0	0.15	19980706	110.10789	26.48574	297.92409	38.14041	0.2371125	1.7008627	14	1	33 days	1.10	M-v	7	Marsden		1992 BL_2
1992 BT_2	12.5	0.15	19980706	201.65703	305.86674	146.75000	13.88502	0.1380456	2.6464508	38	2	1992–1998	0.45	M-v	3	Williams	32452	1992 BT_2
1992 CH	13.0	0.15	19980706	210.10549	168.13779	311.94031	12.64063	0.1112802	2.6314041	50	4	1992–1998	0.74	M-v	2	Williams	32514	1992 CH
1992 CS_2	14.5	0.15	19980706	114.73573	332.04122	261.39966	4.55298	0.0653832	2.5220438	23	3	1992–1998	0.58	M-v	3	Williams	27713	1992 CS_2
1992 CD_3	14.0	0.15	19980706	342.69468	184.24755	154.18103	10.25545	0.1032443	2.5623871	50	3	1992–1998	0.73	M-v	3	Williams	32514	1992 CD_3
1992 DD_3	14.5	0.15	19980706	232.84236	109.85430	322.20661	0.72449	0.0319656	2.7179921	26	4	1992–1998	0.55	M-v	3	Williams	32452	1992 DD_3
1992 DU_5	14.5	0.15	19980706	313.54449	233.84435	148.34351	10.18272	0.2169113	2.5819812	45	4	1990–1998	0.62	M-v	2	Williams	32514	1992 DU_5
1992 DS_6	13.0	0.15	19980706	40.56209	294.34244	0.26370	8.31531	0.2692628	2.7351740	22	5	1979–1998	0.60	M-v	1	Williams	30290	1992 DS_6
1992 DL_7	13.5	0.15	19980706	287.76894	230.84706	108.57084	2.39009	0.0649551	2.9015976	21	3	1982–1998	0.79	M-v	5	Williams	32304	1992 DL_7
1992 DY_7	14.0	0.15	19980706	57.86549	184.25161	75.48672	3.09729	0.0302539	2.7186726	42	3	1992–1998	0.74	M-v	3	Williams	32514	1992 DY_7
1992 DT_8	14.5	0.15	19980706	64.95378	268.38848	329.73509	13.71740	0.1391709	2.7966389	20	2	1992–1998	0.70	M-v	5	Williams	32452	1992 DT_8
1992 EH_7	15.5	0.15	19980706	149.65411	38.63448	114.08417	5.76420	0.0641794	2.7521729	12	2	1992–1997	0.71	M-v	6	Williams	32452	1992 EH_7
1992 EX_8	12.5	0.15	19980706	248.06710	317.58973	144.04025	15.69724	0.0519465	2.5716600	31	4	1977–1998	0.55	M-v	2	Williams	32304	1992 EX_8
1992 EW_9	12.5	0.15	19980706	333.70965	209.73583	154.86275	15.18846	0.1250497	2.5890088	37	4	1971–1998	0.73	M-v	2	Williams	32514	1992 EW_9

1992 EZ_{11}	13.5	0.15	19980706	352.63478	191.93577	133.48777	5.50032	0.1407503	2.7080792	38	2	1992–1998	0.65	M-v	4	Williams	32452	1992 EZ_{11}
1992 EK_{12}	15.5	0.15	19980706	315.08383	243.39849	157.80411	11.95616	0.1395433	2.5291947	19	3	1992–1998	0.48	M-v	4	Williams	27713	1992 EK_{12}
1992 FA_2	13.0	0.15	19980706	261.75509	346.81377	74.15645	6.31857	0.0490083	2.7383515	38	4	1992–1998	0.78	M-v	3	Williams	32514	1992 FA_2
1992 GA	14.0	0.15	19980706	168.82558	247.82643	310.01022	11.66864	0.1185140	2.6374337	29	4	1992–1998	0.81	M-v	3	Williams	26758	1992 GA
1992 HH_1	13.5	0.15	19980706	278.32625	200.77220	214.21474	3.76910	0.0630540	2.7921752	51	4	1991–1998	0.79	M-v	3	Williams	32514	1992 HH_1
1992 HA_4	14.0	0.15	19980706	82.65024	345.29208	276.15244	0.19039	0.0814195	2.7556562	17	3	1992–1998	0.48	M-v	5	Williams	22594	1992 HA_4
1992 HD_7	13.5	0.15	19980706	79.04782	68.34531	138.33795	12.28359	0.2095640	2.9960324	22	2	1992–1998	0.65	M-v	4	Williams	32453	1992 HD_7
1992 OF_1	12.0	0.15	19980706	356.65065	231.13065	125.15277	9.69736	0.2299512	3.1100013	27	5	1970–1998	0.52	M-v	1	Williams	24107	1992 OF_1
1992 PF	15.0	0.15	19980706	279.83284	135.71885	181.35137	2.34542	0.2041622	2.2273076	47	2	1992–1998	0.67	M-v	4	Williams	32226	1992 PF
1992 PB_2	13.0	0.15	19980706	9.91340	84.25766	248.23171	5.48094	0.1549485	3.1603378	54	2	1992–1998	0.48	M-v	5	Williams	32453	1992 PB_2
1992 PL_2	12.0	0.15	19980706	133.02517	263.60512	296.24985	20.44284	0.0555386	3.1945236	38	4	1981–1998	0.60	M-v	2	Williams	32515	1992 PL_2
1992 RF_7	13.0	0.15	19980706	88.63944	220.08225	41.62323	5.11165	0.0828946	3.1965176	43	6	1956–1998	0.90	M-v	1	Williams	30290	1992 RF_7
1992 SF_{11}	14.0	0.15	19980706	261.53620	303.95535	176.05207	1.52993	0.1176419	3.1949308	22	3	1992–1998	0.26	M-v	4	Williams	25331	1992 SF_{11}
1992 SP_{16}	16.0	0.15	19980706	128.83223	19.29712	348.44491	2.80658	0.2081602	2.6121810	17	3	1992–1996	0.45	M-v	4	Williams	32227	1992 SP_{16}
1992 SY_{17}	14.5	0.15	19980706	274.29289	71.46378	239.92057	8.41543	0.2805777	2.2896952	17	3	1985–1998	0.66	M-v	3	Williams	32227	1992 SY_{17}
1992 UE_6	13.5	0.15	19980706	239.40174	354.32068	64.15567	8.01629	0.1406254	2.2503677	33	2	1992–1998	0.90	M-v	4	Williams	32228	1992 UE_6
1992 UK_8	14.5	0.15	19980706	242.54487	133.10360	239.96958	3.84937	0.1634373	2.3008141	20	5	1964–1998	0.75	M-v	2	Williams	32453	1992 UK_8
1992 WF_1	12.0	0.15	19980706	64.45704	262.34741	101.77820	11.06802	0.1011745	3.0280493	18	3	1992–1998	0.64	M-v	4	Williams	31232	1992 WF_1
1992 WC_9	14.0	0.15	19980706	179.40925	32.62563	56.46770	7.25034	0.0902881	2.3371658	15	2	1992–1997	0.74	M-v	6	Williams	32228	1992 WC_9
1992 XE	13.5	0.15	19980706	212.92597	5.85548	99.93812	6.21154	0.1048182	2.2572485	29	3	1990–1998	0.72	M-v	4	Williams	32453	1992 XE
1992 YE_1	14.0	0.15	19980706	151.95841	327.65550	79.82453	5.12153	0.1445289	2.5898936	31	3	1992–1998	0.62	M-v	4	Williams	32305	1992 YE_1
1992 YN_2	14.5	0.15	19980706	159.96155	83.42146	76.56093	2.31167	0.1395606	2.3012436	43	3	1992–1998	0.69	M-v	4	Williams	32515	1992 YN_2
1993 BQ_4	14.5	0.15	19980706	146.22695	80.12083	122.58878	2.12616	0.0989456	2.2908755	43	4	1991–1998	0.76	M-v	2	Williams	30291	1993 BQ_4
1993 BE_5	12.5	0.15	19980706	13.61673	87.12581	311.70092	2.26625	0.0270364	3.6471647	30	6	1984–1996	1.02	M-v	1	Williams	28887	1993 BE_5
1993 BU_7	15.0	0.15	19980706	282.19297	182.52916	214.31706	2.57963	0.0160919	2.3385111	35	3	1993–1998	0.72	M-v	4	Williams	32515	1993 BU_7
1993 BZ_{12}	10.5	0.15	19980706	52.40486	122.35308	128.33073	13.75003	0.0626889	5.1973833	30	3	1993–1998	0.76	M-v	3	Williams	32515	1993 BZ_{12}
1993 BH_{13}	13.5	0.15	19980706	2.61201	352.16418	125.29861	2.24228	0.1979993	3.1238292	24	3	1993–1998	0.73	M-v	3	Williams	32305	1993 BH_{13}
1993 BX_{13}	14.5	0.15	19980706	321.48267	198.18956	184.56347	4.79156	0.1450234	2.2373567	44	5	1951–1998	0.78	M-v	2	Williams	32515	1993 BX_{13}
1993 EJ	14.5	0.15	19980706	123.33911	163.07407	49.68223	7.04615	0.0753227	2.4171435	36	3	1993–1998	0.88	M-v	3	Williams	31418	1993 EJ
1993 EK	15.0	0.15	19980706	248.20010	125.18063	339.26298	6.92387	0.1775363	2.2852146	44	3	1991–1998	0.87	M-v	3	Williams	32454	1993 EK
1993 FB_1	13.0	0.15	19980706	76.71543	160.54606	65.96153	8.62792	0.1452619	2.5707307	40	5	1993–1998	0.60	M-v	1	Williams	30471	1993 FB_1
1993 FR_3	14.0	0.15	19980706	66.43279	73.42350	208.99699	5.72808	0.1209348	2.4219055	42	8	1949–1998	0.77	M-v	1	Williams	30092	1993 FR_3
1993 FN_6	15.5	0.15	19980706	100.19638	214.08200	20.86229	7.00365	0.0765621	2.4216508	11	3	1993–1998	0.49	M-v	4	Williams	29616	1993 FN_6
1993 FT_7	15.0	0.15	19980706	328.01680	215.61956	155.85703	6.41875	0.1185226	2.3815911	21	3	1991–1998	0.70	M-v	4	Williams	23522	1993 FT_7
1993 FB_8	14.0	0.15	19980706	328.33905	210.70984	76.75830	3.81046	0.1837571	2.7760036	30	3	1993–1998	0.65	M-v	4	Williams	32515	1993 FB_8
1993 FE_8	14.5	0.15	19980706	351.18136	248.29232	85.29088	4.20891	0.1692027	2.4687711	34	2	1993–1998	0.54	M-v	4	Williams	32454	1993 FE_8
1993 FQ_8	14.5	0.15	19980706	2.53113	312.99823	34.62816	7.96528	0.1401185	2.3696365	33	4	1986–1998	0.70	M-v	2	Williams	30471	1993 FQ_8
1993 FM_{10}	15.5	0.15	19980706	95.35894	172.09623	75.21900	2.50728	0.1389554	2.4267365	29	4	1960–1998	0.78	M-v	2	Williams	30092	1993 FM_{10}
1993 FS_{10}	14.5	0.15	19980706	3.94902	147.99986	173.25999	6.88145	0.0948916	2.4610187	37	3	1993–1998	0.59	M-v	3	Williams	32515	1993 FS_{10}
1993 FR_{11}	14.0	0.15	19980706	6.25168	129.23640	171.99897	13.77322	0.1641521	2.5652291	25	4	1989–1998	0.55	M-v	2	Williams	32515	1993 FR_{11}
1993 FL_{14}	14.0	0.15	19980706	21.40430	172.29108	108.85340	4.58112	0.0799818	2.5496352	28	2	1993–1998	0.73	M-v	4	Williams	32454	1993 FL_{14}
1993 FJ_{23}	14.0	0.15	19980706	202.19651	178.36050	201.13679	12.92367	0.0868240	2.8787179	44	4	1993–1998	0.75	M-v	1	Williams	32229	1993 FJ_{23}
1993 FR_{23}	13.5	0.15	19980706	353.71383	23.27576	359.87174	6.37746	0.2058780	2.2933178	33	5	1984–1998	0.67	M-v	2	Williams	32515	1993 FR_{23}
1993 FU_{24}	14.0	0.15	19980706	321.89821	312.33639	341.96275	1.72113	0.0513301	2.7319051	19	3	1993–1998	0.64	M-v	5	Williams	32306	1993 FU_{24}
1993 FV_{24}	15.5	0.15	19980706	83.56118	350.18191	269.38282	1.42803	0.1732707	2.4491737	31	4	1993–1998	0.59	M-v	2	Williams	29944	1993 FV_{24}
1993 FH_{25}	13.5	0.15	19980706	52.09660	78.97864	201.65318	4.93113	0.0529957	2.4481568	47	4	1987–1998	0.75	M-v	2	Williams	32515	1993 FH_{25}
1993 FS_{26}	14.0	0.15	19980706	131.23759	287.67610	285.92938	2.60449	0.0840666	2.3997244	21	3	1993–1998	0.89	M-v	4	Williams	26759	1993 FS_{26}
1993 FT_{26}	15.0	0.15	19980706	280.65812	217.18988	230.57542	3.68130	0.1671732	2.2647745	25	5	1981–1998	0.69	M-v	2	Williams	28616	1993 FT_{26}
1993 FV_{26}	14.5	0.15	19980706	277.01189	235.74706	216.05726	5.80341	0.1925650	2.2562444	24	4	1971–1998	0.55	M-v	1	Williams	23526	1993 FV_{26}
1993 FU_{28}	14.0	0.15	19980706	18.35779	9.40808	311.25791	3.44157	0.1649772	2.4512575	37	8	1955–1998	0.74	M-v	2	Williams	28317	1993 FU_{28}
1993 FR_{30}	15.0	0.15	19980706	30.88037	26.42222	244.66767	3.11680	0.2153196	2.6108747	19	2	1993–1998	0.83	M-v	5	Williams	32454	1993 FR_{30}
1993 FB_{32}	15.0	0.15	19980706	303.75195	227.16970	160.44552	3.58134	0.1843447	2.4223956	29	4	1949–1998	0.81	M-v	3	Williams	32515	1993 FB_{32}
1993 FJ_{32}	14.5	0.15	19980706	66.73504	310.73214	286.60935	4.49776	0.1281777	2.5491309	25	3	1993–1998	0.79	M-v	4	Williams	32515	1993 FJ_{32}

1993 FR_{35}	15.5	0.15	19980706	204.68784	313.87166	160.87916	3.28110	0.1273850	2.4295625	24	5	1989–1998	0.69	M-v	1	Williams	32515	1993 FR_{35}
1993 FS_{35}	13.0	0.15	19980706	5.10513	137.53017	43.78152	3.56805	0.0525014	3.0600818	20	2	1993–1998	0.47	M-v	5	Williams	32515	1993 FS_{35}
1993 FX_{50}	14.5	0.15	19980706	347.27113	69.44957	197.65388	4.99171	0.1256283	2.7614773	43	3	1993–1998	0.60	M-v	3	Williams	32230	1993 FX_{50}
1993 FY_{55}	15.5	0.15	19980706	37.25344	228.23452	53.64089	5.39878	0.2270016	2.5564382	12	3	1981–1998	0.42	M-v	2	Williams	23675	1993 FY_{55}
1993 FX_{79}	14.0	0.15	19980706	19.34114	122.36716	195.52232	1.81815	0.1301769	2.4511507	46	3	1993–1998	0.66	M-v	4	Williams	29944	1993 FX_{79}
1993 GO	13.5	0.15	19980706	115.41086	143.77257	57.92986	13.54430	0.1843838	2.5403765	60	6	1985–1998	0.73	M-v	2	Williams	30291	1993 GO
1993 GK_1	14.5	0.15	19980706	165.18127	210.60033	324.90712	1.94040	0.1611886	2.4042502	30	3	1993–1998	0.85	M-v	5	Williams	26759	1993 GK_1
1993 HC_1	15.0	0.15	19980706	194.50953	158.29233	20.12233	26.60458	0.1892471	2.2945861	20	5	1976–1998	0.72	M-v	3	Williams	23539	1993 HC_1
1993 HA_6	13.5	0.15	19980706	84.46052	181.09160	43.16211	6.29448	0.1565736	2.5502919	44	4	1989–1998	0.77	M-v	3	Williams	32515	1993 HA_6
1993 JD	13.5	0.15	19980706	89.74970	359.36711	223.63721	12.46527	0.1099054	2.5995674	37	2	1993–1998	0.68	M-v	4	Williams	32454	1993 JD
1993 JB_1	14.0	0.15	19980706	208.16898	274.02433	233.23081	6.12427	0.1779932	2.4173802	36	5	1970–1998	0.79	M-v	1	Williams	23992	1993 JB_1
1993 JF_1	14.0	0.15	19980706	267.01453	48.51936	51.17371	3.24719	0.1570161	2.4152726	44	4	1987–1998	0.54	M-v	1	Williams	29944	1993 JF_1
1993 LU_1	14.0	0.15	19980706	1.63201	108.53803	230.39953	11.50591	0.2028861	2.6751162	35	4	1993–1998	0.53	M-v	1	Williams	29944	1993 LU_1
1993 MB	13.5	0.15	19980706	64.35540	63.63892	203.72567	13.27448	0.1854076	2.6787454	49	4	1949–1998	0.73	M-v	1	Williams	30897	1993 MB
1993 MR	15.5	0.15	19980706	44.15239	76.46279	202.13754	6.08668	0.2542525	2.6748240	47	3	1993–1998	0.67	M-v	3	Williams	31383	1993 MR
1993 NA_2	13.5	0.15	19980706	305.42810	300.82762	123.72457	9.61513	0.1780939	2.6333978	20	4	1991–1998	0.80	M-v	3	Williams	28616	1993 NA_2
1993 OQ_5	14.5	0.15	19980706	329.34094	78.04721	294.57918	5.81887	0.2338980	2.8119708	50	4	1981–1998	0.69	M-v	1	Williams	32516	1993 OQ_5
1993 OK_9	13.5	0.15	19980706	27.35719	142.25609	129.26648	2.97530	0.0173718	2.8861655	27	5	1954–1998	0.72	M-v	1	Williams	32516	1993 OK_9
1993 OS_{10}	13.5	0.15	19980706	5.94638	55.26103	274.28308	4.02437	0.0243736	2.7273041	59	3	1989–1998	0.66	M-v	3	Williams	32516	1993 OS_{10}
1993 PC	18.5	0.15	19980706	163.17668	168.12780	337.56761	4.15843	0.4745087	1.1544217	62	4	1993–1998	0.64	M-v	3	Williams	32516	1993 PC
1993 PW_7	13.5	0.15	19980706	39.68658	339.88956	330.36816	2.79926	0.1569167	2.7735686	35	6	1984–1998	0.92	M-v	2	Williams	29662	1993 PW_7
1993 QP_3	14.5	0.15	19980706	312.09726	203.61605	177.93112	2.02083	0.1634444	2.9863840	30	2	1993–1998	0.66	M-v	5	Williams	32454	1993 QP_3
1993 QV_4	14.0	0.15	19980706	275.65427	61.03866	14.34946	1.85893	0.0224469	2.8611488	38	3	1988–1998	0.68	M-v	4	Williams	29662	1993 QV_4
1993 QL_7	14.5	0.15	19980706	17.01043	182.61392	140.78970	3.27821	0.0177359	2.8890849	23	3	1982–1998	1.11	M-v	4	Williams	23784	1993 QL_7
1993 QS_9	14.0	0.15	19980706	342.44925	190.90492	154.90396	11.49477	0.1058957	2.9672706	35	2	1993–1998	0.94	M-v	4	Williams	32455	1993 QS_9
1993 RP_3	12.5	0.15	19980706	334.48729	165.19276	262.69301	12.09939	0.2487269	2.6562545	14	4	1985–1998	0.64	M-v	1	Williams	24745	1993 RP_3
1993 ST_1	13.0	0.15	19980706	295.09617	215.50945	173.32602	11.23282	0.0978013	3.1313157	34	3	1993–1998	0.54	M-v	3	Williams	32455	1993 ST_1
1993 SD_2	12.0	0.15	19980706	226.40355	243.90860	227.46653	7.63100	0.1813860	3.0902499	30	2	1993–1998	0.70	M-v	5	Williams	32455	1993 SD_2
1993 SO_2	14.0	0.15	19980706	180.32821	337.78382	207.98688	7.59000	0.1105488	2.7950991	50	3	1993–1998	0.63	M-v	4	Williams	30688	1993 SO_2
1993 SM_3	13.5	0.15	19980706	304.05931	247.30661	138.93726	1.81815	0.1898207	3.1287473	38	4	1987–1998	0.72	M-v	1	Williams	32516	1993 SM_3
1993 SN_3	12.5	0.15	19980706	284.07435	226.58586	175.24739	0.93600	0.1632325	3.1932898	29	3	1976–1998	0.62	M-v	5	Williams	32455	1993 SN_3
1993 SQ_3	13.0	0.15	19980706	295.85227	322.05602	62.96724	2.38350	0.1970150	3.2016743	26	4	1976–1998	0.69	M-v	1	Williams	32516	1993 SQ_3
1993 SL_6	13.5	0.15	19980706	338.21548	219.35717	174.93740	2.04785	0.0674512	2.8286081	39	7	1979–1998	0.68	M-v	1	Williams	30899	1993 SL_6
1993 TJ	13.0	0.15	19980706	170.75821	312.43425	205.92801	9.62620	0.0496672	3.0229747	37	2	1993–1998	0.69	M-v	4	Williams	32456	1993 TJ
1993 TS_1	13.0	0.15	19980706	322.85769	172.37526	196.89379	13.96181	0.1032991	3.1319629	34	3	1987–1998	0.68	M-v	2	Williams	32516	1993 TS_1
1993 TK_3	14.5	0.15	19980706	347.08135	262.02570	93.24749	3.44165	0.2977727	2.9969095	46	4	1993–1998	0.72	M-v	2	Williams	30472	1993 TK_3
1993 TL_5	15.0	0.15	19980706	321.77065	244.46659	321.15406	3.28634	0.1113241	2.2537680	21	4	1989–1997	0.66	M-v	3	Williams	31139	1993 TL_5
1993 TW_{16}	14.5	0.15	19980706	40.61506	142.72442	146.95040	2.88789	0.1564963	2.9915671	23	3	1993–1998	0.74	M-v	4	Williams	31538	1993 TW_{16}
1993 TH_{19}	14.5	0.15	19980706	56.42271	160.89699	123.56092	0.51555	0.0787258	2.9932363	18	3	1993–1998	0.77	M-v	5	Williams	27106	1993 TH_{19}
1993 TA_{24}	13.0	0.15	19980706	79.39034	134.63691	100.52608	2.60533	0.1139128	3.1810565	23	3	1989–1998	0.94	M-v	5	Williams	23125	1993 TA_{24}
1993 TG_{26}	13.0	0.15	19980706	238.31819	82.57667	36.34995	10.48088	0.0503723	2.9958752	40	3	1993–1998	0.67	M-v	3	Williams	32516	1993 TG_{26}
1993 TX_{26}	14.0	0.15	19980706	354.47958	156.34292	184.25118	9.88577	0.1023914	3.0526565	60	4	1980–1998	0.74	M-v	3	Williams	32516	1993 TX_{26}
1993 TD_{28}	14.0	0.15	19980706	13.07532	149.93366	173.61420	3.89750	0.0620240	3.0602578	22	3	1992–1998	0.74	M-v	4	Williams	24112	1993 TD_{28}
1993 TD_{37}	13.5	0.15	19980706	288.65756	235.92628	163.19819	8.27938	0.0413846	3.1906892	21	2	1993–1998	0.76	M-v	5	Williams	32456	1993 TD_{37}
1993 TP_{38}	13.5	0.15	19980706	129.77907	19.66489	191.11959	18.46202	0.0478862	3.1132569	37	4	1991–1998	0.71	M-v	1	Williams	32516	1993 TP_{38}
1993 UZ_7	13.5	0.15	19980706	290.56322	265.03583	144.24527	7.33326	0.1437192	3.1631736	47	2	1993–1998	0.68	M-v	4	Williams	32456	1993 UZ_7
1993 UP_8	12.5	0.15	19980706	49.60656	117.92057	171.72666	10.53690	0.1291135	3.0498208	56	6	1987–1998	0.74	M-v	1	Williams	30688	1993 UP_8
1993 VU_7	14.0	0.15	19980706	315.21850	258.75091	126.45425	21.86226	0.2922757	3.0331364	20	3	1988–1998	0.72	M-v	2	Williams	32516	1993 VU_7
1993 XB	14.0	0.15	19980706	27.22681	130.52768	206.40384	6.99824	0.1384859	3.0810952	32	4	1954–1998	0.57	M-v	1	Williams	30472	1993 XB
1993 XS	14.0	0.15	19980706	274.76523	25.33722	82.82783	2.57123	0.1835598	3.1288706	41	5	1989–1998	0.61	M-v	1	Williams	30472	1993 XS
1993 XM_1	11.0	0.15	19980706	307.52134	237.85810	96.61918	16.68274	0.1985385	5.2289184	30	3	1993–1998	0.45	M-v	3	Williams	32232	1993 XM_1
1993 YO	14.0	0.15	19980706	182.49578	88.73059	95.71383	15.81561	0.0320791	3.1884601	30	4	1993–1998	0.51	M-v	1	Williams	27456	1993 YO
1994 AN_{10}	16.5	0.15	19980706	323.64722	201.20549	101.46529	6.92546	0.2127446	2.1822229	26	2	1994–1998	0.48	M-v	4	Williams	32233	1994 AN_{10}

1994 CK_1	17.5	0.15	19980706	338.68418	26.92339	328.81069	4.57686	0.6329212	1.9005793	70	3	1994–1998	0.46	M-v	2	Williams	32233	1994	CK_1
1994 CK_2	14.0	0.15	19980706	282.82778	79.51671	57.89800	2.45316	0.1178577	3.1862650	32	4	1992–1998	0.51	M-v	1	Williams	32516	1994	CK_2
1994 CS_2	13.5	0.15	19980706	65.79533	337.88928	132.80668	14.86191	0.0886143	2.5815546	38	3	1954–1998	0.55	M-v	3	Williams	32516	1994	CS_2
1994 CG_{12}	14.5	0.15	19980706	317.28411	215.52552	58.85137	3.28201	0.1527595	2.4163396	32	3	1992–1998	0.70	M-v	4	Williams	32516	1994	CG_{12}
1994 EZ_6	15.0	0.15	19980706	298.02476	222.52388	97.20794	5.96030	0.1516568	2.3102200	34	2	1994–1998	0.67	M-v	5	Williams	32516	1994	EZ_6
1994 GF	14.5	0.15	19980706	107.86480	100.87141	107.07339	3.64742	0.0577419	2.1895447	73	4	1992–1998	0.83	M-v	3	Williams	32516	1994	GF
1994 GN	14.5	0.15	19980706	15.98972	203.55262	72.03212	5.54667	0.1395338	2.2688628	28	3	1994–1998	0.61	M-v	3	Williams	32516	1994	GN
1994 GA_1	14.5	0.15	19980706	21.38226	207.04407	85.82139	4.81924	0.1634443	2.2415228	30	6	1974–1998	0.92	M-v	2	Williams	32307	1994	GA_1
1994 GG_1	13.0	0.15	19980706	347.71559	69.83231	142.65255	13.27277	0.1570268	2.6453685	20	3	1985–1998	0.77	M-v	3	Williams	32307	1994	GG_1
1994 GR_2	16.0	0.15	19980706	355.36389	203.88842	109.25477	3.10953	0.1869365	2.2352048	24	2	1994–1998	0.66	M-v	4	Williams	32456	1994	GR_2
1994 GE_{10}	14.0	0.15	19980706	148.04279	334.25642	100.53856	1.15829	0.0422492	2.4240078	38	4	1979–1998	0.59	M-v	2	Williams	32516	1994	GE_{10}
1994 HX	17.0	0.15	19980706	320.94906	184.24294	177.52451	1.22808	0.1751827	2.1886677	28	4	1994–1998	0.71	M-v	2	Williams	32457	1994	HX
1994 JF	15.0	0.15	19980706	115.69648	17.99544	166.71336	4.20829	0.1025710	2.2775870	36	4	1994–1998	0.62	M-v	2	Williams	32516	1994	JF
1994 JU	15.0	0.15	19980706	40.47067	63.07817	204.20113	6.30120	0.1905371	2.3288283	44	3	1991–1998	0.75	M-v	3	Williams	32516	1994	JU
1994 JG_4	14.5	0.15	19980706	122.47387	267.38918	216.06942	3.08967	0.1320176	2.4350489	23	4	1982–1998	0.67	M-v	2	Williams	32234	1994	JG_4
1994 NA	15.0	0.15	19980706	33.32028	154.77103	113.43382	7.20424	0.1084650	2.4478399	38	2	1994–1998	0.58	M-v	4	Williams	32457	1994	NA
1994 OB	14.0	0.15	19980706	32.79317	178.73862	115.70575	3.27348	0.2349932	2.3965404	33	4	1990–1998	0.64	M-v	2	Williams	29301	1994	OB
1994 PJ_1	14.5	0.15	19980706	19.66483	136.94375	142.17635	13.94800	0.1348770	2.5509185	34	2	1994–1998	0.62	M-v	4	Williams	32516	1994	PJ_1
1994 PU_2	16.0	0.15	19980706	319.69743	55.65875	317.26761	2.28119	0.1987382	2.5217602	34	3	1978–1998	0.79	M-v	4	Williams	32516	1994	PU_2
1994 PL_3	15.0	0.15	19980706	282.85676	91.67507	316.02911	2.23035	0.1197606	2.5314756	24	2	1994–1998	0.79	M-v	6	Williams	32457	1994	PL_3
1994 PG_5	14.0	0.15	19980706	286.27578	329.18932	325.12029	7.84986	0.1106050	3.1003729	26	2	1994–1998	0.71	M-v	4	Williams	32235	1994	PG_5
1994 PO_7	14.5	0.15	19980706	97.02049	83.86986	147.41022	0.69681	0.1603786	2.4048028	48	4	1994–1998	0.78	M-v	1	Williams	30472	1994	PO_7
1994 PK_9	14.0	0.15	19980706	281.24117	162.13362	159.90860	10.08645	0.0844344	2.9777739	29	4	1992–1998	0.79	M-v	2	Williams	32516	1994	PK_9
1994 PL_{11}	14.5	0.15	19980706	27.18421	13.59671	302.73019	5.34818	0.1093301	2.4120238	19	3	1993–1998	0.97	M-v	3	Williams	27558	1994	PL_{11}
1994 PQ_{11}	13.5	0.15	19980706	92.61592	239.85011	311.48085	3.42202	0.0730680	2.7033527	26	3	1994–1998	0.86	M-v	3	Williams	32308	1994	PQ_{11}
1994 PS_{11}	14.0	0.15	19980706	329.80209	151.97604	233.44037	2.31637	0.0573336	2.3999856	37	4	1994–1998	0.70	M-v	1	Marsden	30092	1994	PS_{11}
1994 PF_{14}	14.5	0.15	19980706	339.02662	138.18623	173.35903	5.22918	0.0219172	2.6952556	19	2	1994–1997	0.72	M-v	5	Williams	32458	1994	PF_{14}
1994 PN_{14}	15.5	0.15	19980706	24.08003	306.33845	328.38579	6.23040	0.1763042	2.5625363	35	3	1994–1998	0.54	M-v	3	Williams	32516	1994	PN_{14}
1994 PC_{15}	14.5	0.15	19980706	62.17391	80.80796	160.06501	13.45212	0.1388822	2.5499204	21	4	1990–1998	0.89	M-v	3	Williams	32516	1994	PC_{15}
1994 PW_{15}	16.5	0.15	19980706	321.19943	230.82658	166.72182	3.77626	0.2166920	2.4556214	30	3	1994–1998	0.86	M-v	4	Williams	31239	1994	PW_{15}
1994 PE_{16}	15.5	0.15	19980706	281.61122	97.50554	311.93706	4.18328	0.1228027	2.5586061	31	2	1994–1998	0.80	M-v	6	Williams	32458	1994	PE_{16}
1994 PO_{16}	13.5	0.15	19980706	110.66671	216.24976	313.69389	6.13048	0.0603636	2.7633674	19	3	1989–1997	0.94	M-v	4	Williams	29620	1994	PO_{16}
1994 PQ_{16}	15.0	0.15	19980706	322.18563	98.79935	331.67471	5.37534	0.1117507	2.2853797	18	2	1991–1994	0.66	M-v	3	Williams	32458	1994	PQ_{16}
1994 PT_{16}	15.0	0.15	19980706	68.57023	344.64497	264.22410	2.24656	0.0721216	2.5229242	37	3	1994–1998	0.85	M-v	4	Williams	32517	1994	PT_{16}
1994 PK_{17}	16.0	0.15	19980706	330.15359	203.16132	161.57238	4.40939	0.1879184	2.5156589	51	2	1994–1998	0.84	M-v	5	Williams	32458	1994	PK_{17}
1994 PD_{18}	14.5	0.15	19980706	65.00467	120.99340	158.89324	6.68877	0.1174255	2.3841559	33	3	1971–1998	0.85	M-v	4	Williams	29945	1994	PD_{18}
1994 PA_{19}	15.0	0.15	19980706	338.70145	190.73381	189.80486	1.80165	0.1867872	2.4281193	25	4	1992–1998	1.03	M-v	2	Williams	32517	1994	PA_{19}
1994 PG_{19}	15.0	0.15	19980706	306.59320	54.08511	335.27163	4.61540	0.1481376	2.5333889	29	2	1994–1998	0.82	M-v	5	Williams	32459	1994	PG_{19}
1994 PY_{19}	14.0	0.15	19980706	128.31025	257.87812	309.68023	2.10476	0.1217749	2.4329587	42	4	1974–1998	0.73	M-v	2	Williams	32517	1994	PY_{19}
1994 PT_{20}	15.5	0.15	19980706	313.70557	73.19044	314.74714	1.80237	0.2211127	2.5323567	35	2	1994–1998	0.85	M-v	5	Williams	32459	1994	PT_{20}
1994 PM_{21}	14.5	0.15	19980706	316.57719	219.25662	154.91312	7.45625	0.2493433	2.5711727	28	4	1990–1998	0.73	M-v	3	Williams	32517	1994	PM_{21}
1994 PJ_{22}	13.5	0.15	19980706	36.62711	158.82416	26.07721	1.95670	0.1374400	3.1722476	43	5	1992–1998	0.82	M-v	1	Williams	32517	1994	PJ_{22}
1994 PX_{22}	15.0	0.15	19980706	227.38643	327.20342	135.76534	3.73463	0.2415097	2.6490333	25	3	1994–1998	0.66	M-v	3	Williams	27448	1994	PX_{22}
1994 PL_{23}	14.5	0.15	19980706	246.85579	59.35978	36.21450	1.22802	0.1501096	2.5377564	31	4	1988–1998	0.88	M-v	3	Williams	32517	1994	PL_{23}
1994 PL_{25}	13.5	0.15	19980706	344.46821	99.07946	141.28498	10.99525	0.0612584	3.0591927	33	3	1992–1998	0.71	M-v	3	Williams	32236	1994	PL_{25}
1994 PP_{26}	14.5	0.15	19980706	78.86517	218.57275	23.98628	2.83022	0.1532054	2.4315903	45	4	1993–1998	0.75	M-v	1	Williams	30472	1994	PP_{26}
1994 PC_{29}	14.5	0.15	19980706	339.55974	160.17943	134.84859	8.01088	0.0946117	2.7354345	23	3	1993–1998	0.62	M-v	4	Williams	32459	1994	PC_{29}
1994 PW_{29}	14.0	0.15	19980706	231.27691	211.04419	184.09441	10.56199	0.1322793	2.9298357	21	2	1994–1997	0.67	M-v	4	Williams	32236	1994	PW_{29}
1994 PB_{30}	15.0	0.15	19980706	43.37060	61.37673	222.34227	4.74231	0.1337051	2.4537573	43	4	1991–1998	0.82	M-v	1	Williams	30783	1994	PB_{30}
1994 PA_{31}	13.0	0.15	19980706	177.63805	235.13909	172.00190	13.69425	0.0620513	3.2221135	24	2	1994–1998	0.64	M-v	4	Williams	32236	1994	PA_{31}
1994 PT_{31}	15.0	0.15	19980706	56.88013	43.38583	211.01255	3.55754	0.0521671	2.5619851	37	3	1994–1998	0.75	M-v	3	Williams	32517	1994	PT_{31}
1994 PW_{31}	14.0	0.15	19980706	68.15005	78.36721	175.58732	7.82298	0.1663767	2.4484457	57	4	1990–1998	0.75	M-v	3	Williams	32517	1994	PW_{31}
1994 PS_{32}	14.5	0.15	19980706	349.56386	28.33682	303.32970	4.87130	0.1377420	2.5350716	32	3	1990–1998	0.62	M-v	4	Williams	32517	1994	PS_{32}

1994 PL_{35}	15.0	0.15	19980706	288.37084	196.91551	204.34887	2.83562	0.1289215	2.5298399	26	2	1994–1998	0.76	M-v	6	Williams	32460	1994	PL_{35}
1994 PB_{36}	15.0	0.15	19980706	252.24954	194.05259	241.62124	1.05410	0.0859481	2.5184446	20	3	1981–1998	0.78	M-v	6	Williams	32517	1994	PB_{36}
1994 PU_{37}	15.0	0.15	19980706	293.75171	241.84898	158.06419	3.05319	0.1632079	2.5279679	21	2	1994–1998	0.81	M-v	6	Williams	32460	1994	PU_{37}
1994 PW_{38}	16.5	0.15	19980706	2.75281	120.54938	188.58878	0.71243	0.1626327	2.5234287	28	4	1993–1998	0.83	M-v	4	Williams	32517	1994	PW_{38}
1994 PE_{39}	15.5	0.15	19980706	39.29203	118.47642	163.95672	6.28777	0.1126972	2.4661784	23	3	1994–1998	0.91	M-v	3	Williams	32237	1994	PE_{39}
1994 QP	13.0	0.15	19980706	254.00779	257.60581	66.38062	22.85874	0.1722928	3.1834173	21	2	1994–1998	0.85	M-v	4	Williams	32237	1994	QP
1994 QR	15.0	0.15	19980706	321.17484	206.69575	158.12368	5.17795	0.1682269	2.5606980	49	4	1953–1998	0.77	M-v	2	Williams	32460	1994	QR
1994 QX	15.0	0.15	19980706	293.11140	78.55460	315.72219	14.11116	0.1250099	2.6337043	33	3	1994–1998	0.53	M-v	3	Williams	32460	1994	QX
1994 QA_1	14.5	0.15	19980706	229.32053	304.59207	151.45808	3.71932	0.1830116	2.5944143	36	3	1994–1998	0.90	M-v	4	Williams	30760	1994	QA_1
1994 RU	13.5	0.15	19980706	21.81800	276.19436	47.45918	3.00870	0.1948838	2.4259505	16	5	1979–1998	0.73	M-v	2	Williams	30092	1994	RU
1994 RX	13.5	0.15	19980706	337.13669	256.94733	125.88471	8.17838	0.2503602	2.4295179	33	6	1977–1998	0.58	M-v	1	Williams	31420	1994	RX
1994 RZ	15.5	0.15	19980706	314.41412	44.29951	342.45638	2.45445	0.2636436	2.5532744	69	5	1986–1998	0.68	M-v	3	Williams	32517	1994	RZ
1994 RL_1	14.5	0.15	19980706	351.04332	153.94637	188.39525	12.94062	0.2089122	2.5451416	55	4	1986–1998	0.74	M-v	3	Williams	32517	1994	RL_1
1994 RT_1	15.5	0.15	19980706	324.51171	201.99706	167.88505	20.43791	0.2912092	2.5601151	31	2	1994–1998	0.73	M-v	3	Williams	32460	1994	RT_1
1994 RU_1	12.5	0.15	19980706	235.26518	194.56577	172.38805	16.98948	0.2377164	3.1578535	37	3	1994–1998	0.78	M-v	3	Williams	32308	1994	RU_1
1994 RN_5	15.0	0.15	19980706	88.66200	62.46403	199.41283	2.83542	0.1039927	2.4319702	27	3	1994–1998	0.57	M-v	4	Williams	30453	1994	RN_5
1994 RE_{11}	16.5	0.15	19980706	329.41752	208.05028	172.50440	14.33803	0.3683488	2.5301357	47	2	1994–1998	0.70	M-v	2	Williams	32460	1994	RE_{11}
1994 RW_{17}	15.5	0.15	19980706	53.64691	345.99518	285.09212	0.82274	0.1374191	2.4585456	26	3	1994–1998	0.71	M-v	3	Williams	31541	1994	RW_{17}
1994 TR_1	14.0	0.15	19980706	359.41704	119.93854	205.97282	12.09655	0.3049039	2.5577171	33	4	1993–1998	0.89	M-v	2	Williams	32517	1994	TR_1
1994 TF_2	19.0	0.15	19980706	144.66133	349.60158	175.31645	23.75753	0.2837183	0.9930239	121	5	1994–1998	0.69	M-v	3	Williams	31420	1994	TF_2
1994 TY_2	13.5	0.15	19980706	316.28144	64.08758	17.90801	10.83641	0.2714190	2.4468809	24	4	1988–1998	0.81	M-v	2	Williams	32517	1994	TY_2
1994 TR_6	15.5	0.15	19980706	347.97608	155.20885	173.03450	3.57491	0.2362486	2.6038911	25	2	1994–1998	0.74	M-v	4	Williams	32460	1994	TR_6
1994 TK_{11}	14.5	0.15	19980706	21.51680	95.64816	235.83851	2.15086	0.0714825	2.4726180	24	3	1977–1998	0.42	M-v	5	Williams	30454	1994	TK_{11}
1994 TZ_{14}	14.5	0.15	19980706	331.40834	200.93445	182.78228	5.05134	0.2059053	2.5531627	50	3	1994–1998	0.58	M-v	4	Williams	30292	1994	TZ_{14}
1994 TN_{15}	16.0	0.15	19980706	343.04184	171.32351	191.97291	1.25115	0.1083456	2.5549836	21	3	1978–1998	0.79	M-v	5	Williams	25220	1994	TN_{15}
1994 TW_{15}	15.5	0.15	19980706	331.54127	150.58576	221.12192	3.57713	0.2269132	2.5561577	53	2	1994–1998	0.69	M-v	4	Williams	32461	1994	TW_{15}
1994 UY	14.0	0.15	19980706	350.61861	48.99695	318.61113	2.88851	0.1742308	2.5236226	24	4	1950–1998	0.57	M-v	4	Williams	29138	1994	UY
1994 UJ_1	14.0	0.15	19980706	343.22579	19.72720	348.01445	3.11161	0.1824884	2.5744673	38	4	1992–1998	0.62	M-v	3	Williams	27456	1994	UJ_1
1994 UM_1	13.5	0.15	19980706	21.04642	69.67067	250.50183	3.38547	0.1990216	2.5672691	31	5	1986–1998	0.64	M-v	3	Williams	26422	1994	UM_1
1994 UQ_1	14.0	0.15	19980706	5.22942	134.39324	201.89477	3.53971	0.1973633	2.5715199	62	5	1980–1998	0.62	M-v	2	Williams	29945	1994	UQ_1
1994 UT_1	13.0	0.15	19980706	313.44892	331.06513	45.05211	14.61693	0.1884651	2.7117922	27	3	1994–1998	0.65	M-v	4	Williams	30093	1994	UT_1
1994 UA_3	14.0	0.15	19980706	273.85337	199.75624	241.99124	1.18044	0.1771079	2.6727632	52	3	1981–1998	0.83	M-v	4	Williams	32461	1994	UA_3
1994 UT_{11}	12.5	0.15	19980706	231.29206	232.19874	231.59684	16.98202	0.0633970	2.7388932	46	3	1994–1998	0.63	M-v	3	Williams	32517	1994	UT_{11}
1994 VD	15.0	0.15	19980706	322.93039	150.07569	227.16852	11.30178	0.1954955	2.6544268	56	2	1994–1998	0.77	M-v	4	Williams	32461	1994	VD
1994 VH	14.0	0.15	19980706	349.88434	332.13171	32.30547	7.56626	0.2694304	2.5350425	55	5	1986–1998	0.59	M-v	3	Williams	32517	1994	VH
1994 VJ_1	14.0	0.15	19980706	340.80952	267.87316	82.63968	6.53298	0.0848205	2.7640247	28	4	1994–1998	0.71	M-v	2	Williams	30292	1994	VJ_1
1994 VD_2	13.5	0.15	19980706	296.44218	352.09224	59.36735	8.83389	0.2205359	2.7427322	52	3	1994–1998	0.50	M-v	3	Williams	32517	1994	VD_2
1994 VF_2	13.0	0.15	19980706	254.23994	68.07679	55.62910	13.08959	0.2245753	2.6319058	31	5	1970–1998	0.74	M-v	2	Williams	30783	1994	VF_2
1994 VW_2	14.0	0.15	19980706	311.93246	312.68110	78.12267	5.14855	0.2964579	2.6881922	21	3	1994–1998	0.74	M-v	4	Williams	30276	1994	VW_2
1994 VY_2	14.5	0.15	19980706	291.50858	173.93647	258.45423	5.63596	0.3561566	2.6774088	37	3	1994–1998	0.75	M-v	2	Williams	32517	1994	VY_2
1994 VU_6	13.5	0.15	19980706	341.65058	144.43116	209.78613	13.04602	0.2127513	2.6370237	41	2	1994–1998	0.76	M-v	3	Williams	32517	1994	VU_6
1994 VZ_6	15.5	0.15	19980706	321.04160	156.48336	235.88717	3.92666	0.2779538	2.5951340	51	2	1994–1998	0.77	M-v	3	Williams	32461	1994	VZ_6
1994 WU	12.5	0.15	19980706	131.12115	297.49934	254.78355	12.98813	0.1536393	3.1027591	46	3	1983–1998	0.80	M-v	4	Williams	32461	1994	WU
1994 WE_2	13.0	0.15	19980706	328.90060	266.19821	97.04654	9.10770	0.2180693	2.7466566	20	4	1982–1998	0.66	M-v	2	Williams	28591	1994	WE_2
1994 WR_2	13.0	0.15	19980706	309.56982	318.70237	69.97688	9.00378	0.2321513	2.7794234	21	4	1952–1998	0.78	M-v	1	Williams	30901	1994	WR_2
1994 WQ_3	13.0	0.15	19980706	334.23620	170.79190	168.53165	8.40755	0.1527314	2.9091356	49	4	1994–1998	0.68	M-v	2	Williams	32517	1994	WQ_3
1994 YA_1	14.0	0.15	19980706	291.02355	314.90580	118.59233	4.72080	0.1843072	2.8123371	55	3	1994–1998	0.60	M-v	3	Williams	27327	1994	YA_1
1994 YC_1	13.5	0.15	19980706	203.26542	75.49066	67.41532	0.41748	0.1067467	3.0975288	35	5	1993–1998	0.79	M-v	1	Williams	30472	1994	YC_1
1994 YJ_1	13.0	0.15	19980706	328.21705	1.62771	35.66214	5.46061	0.0572804	2.7466763	20	5	1977–1998	0.73	M-v	1	Williams	27717	1994	YJ_1
1994 YC_2	14.0	0.15	19980706	322.15923	119.36492	271.80083	11.23564	0.1832512	2.6585393	35	2	1994–1998	0.60	M-v	3	Williams	32462	1994	YC_2
1995 AO_4	13.5	0.15	19980706	4.83318	63.96311	296.57541	3.33778	0.1041018	2.7564973	35	6	1989–1998	0.74	M-v	1	Williams	28617	1995	AO_4
1995 AV_4	13.5	0.15	19980706	289.57171	119.90549	303.02445	8.95568	0.0915627	2.9840797	22	2	1995–1998	0.61	M-v	4	Williams	32462	1995	AV_4
1995 BB	13.5	0.15	19980706	12.30850	43.94133	306.17424	1.05635	0.0812579	2.8414646	46	5	1987–1998	0.81	M-v	2	Williams	30901	1995	BB

1995 BJ	13.5	0.15	19980706	289.59602	119.58542	304.56077	9.87005	0.0948736	3.0711651	29	3	1995–1998	0.73	M-v	4	Williams	32517	1995 BJ
1995 BQ	13.5	0.15	19980706	254.29455	310.78216	128.53444	1.25293	0.2426065	3.1622152	29	4	1993–1998	0.76	M-v	1	Williams	32517	1995 BQ
1995 BT	13.0	0.15	19980706	289.23574	88.05919	316.80761	21.11984	0.1150028	3.2296749	37	2	1995–1998	0.59	M-v	4	Williams	32463	1995 BT
1995 BV	13.0	0.15	19980706	181.71705	92.17355	72.85915	2.07487	0.0690984	3.2600314	60	4	1992–1998	0.84	M-v	1	Williams	27568	1995 BV
1995 BX	14.0	0.15	19980706	288.89798	19.65137	34.22187	1.47976	0.1941668	3.0622871	41	2	1995–1998	0.66	M-v	4	Williams	32463	1995 BX
1995 BY	13.0	0.15	19980706	332.62783	0.57870	35.97334	2.61177	0.0828313	2.9291661	24	3	1995–1998	0.79	M-v	4	Williams	28617	1995 BY
1995 CE_1	14.0	0.15	19980706	231.75719	123.90629	346.98324	5.72668	0.1202205	3.1579826	38	3	1993–1998	0.63	M-v	3	Williams	25084	1995 CE_1
1995 DX_2	17.0	0.15	19980706	71.10214	302.10922	239.93633	19.07251	0.0536443	1.9260886	20	2	1995–1998	0.66	M-v	3	Williams	32238	1995 DX_2
1995 FA_7	15.5	0.15	19980706	276.81702	130.06477	140.02330	3.96671	0.1398890	2.2277787	19	3	1989–1998	0.49	M-v	4	Williams	31542	1995 FA_7
1995 OR	15.5	0.15	19980706	287.92739	268.60982	63.63113	4.82468	0.2227776	2.2870757	27	2	1995–1998	0.57	M-v	5	Williams	32518	1995 OR
1995 QD_2	16.0	0.15	19980706	292.04299	105.18360	289.82925	3.77789	0.1123852	2.1773362	86	3	1995–1998	0.59	M-v	3	Williams	32518	1995 QD_2
1995 QS_3	12.5	0.15	19980706	154.04523	67.72894	305.61806	12.40286	0.1181917	3.1749775	22	5	1984–1998	0.56	M-v	1	Williams	31587	1995 QS_3
1995 RC	14.5	0.15	19980706	289.94028	58.64409	331.83707	5.52804	0.1674997	2.2093346	86	3	1995–1998	0.57	M-v	2	Williams	32518	1995 RC
1995 SQ_3	14.0	0.15	19980706	192.71509	185.02421	276.33235	5.71541	0.0799093	2.3250533	24	3	1917–1998	0.73	M-v	5	Williams	32518	1995 SQ_3
1995 SU_{15}	15.5	0.15	19980706	341.64525	39.44992	213.59014	0.73906	0.1012252	2.5114750	26	3	1994–1998	0.53	M-v	4	Williams	32309	1995 SU_{15}
1995 SW_{52}	14.5	0.15	19980706	324.85345	73.97044	248.09710	4.70437	0.1653352	2.2821091	18	4	1978–1998	0.82	M-v	2	Williams	32309	1995 SW_{52}
1995 SM_{53}	16.0	0.15	19980706	328.25725	150.15912	209.99726	4.00770	0.1434787	2.1869847	44	2	1995–1998	0.76	M-v	4	Williams	32463	1995 SM_{53}
1995 TX	13.5	0.15	19980706	98.12371	263.64440	304.91576	23.31912	0.1576141	2.3180188	47	3	1995–1998	0.61	M-v	2	Williams	32518	1995 TX
1995 TA_1	15.0	0.15	19980706	107.10300	3.30785	177.38990	1.84603	0.0689943	2.4203990	19	2	1995–1998	0.63	M-v	5	Williams	32240	1995 TA_1
1995 TQ_6	14.5	0.15	19980706	181.11902	134.20291	19.53699	3.33513	0.0460978	2.2188331	33	3	1995–1998	0.59	M-v	3	Williams	29923	1995 TQ_6
1995 TE_8	15.0	0.15	19980706	301.05511	171.47347	178.99655	7.52939	0.2183632	2.3121000	30	2	1995–1998	0.63	M-v	4	Williams	32518	1995 TE_8
1995 UE	15.0	0.15	19980706	119.19785	213.30871	344.28189	5.91416	0.0674980	2.2370511	59	3	1995–1998	0.84	M-v	4	Williams	32518	1995 UE
1995 UO_3	14.5	0.15	19980706	240.77424	200.23146	258.15622	3.63980	0.0959384	2.2505553	42	3	1992–1998	0.66	M-v	4	Williams	32464	1995 UO_3
1995 UQ_3	14.5	0.15	19980706	76.82164	12.30120	243.00963	2.14457	0.0722534	2.1833947	53	2	1995–1998	0.63	M-v	4	Williams	32464	1995 UQ_3
1995 UD_4	15.5	0.15	19980706	324.18375	342.46344	28.56516	5.49115	0.1648742	2.1603655	49	3	1995–1998	0.72	M-v	3	Williams	32309	1995 UD_4
1995 UW_4	14.5	0.15	19980706	9.72507	279.69962	48.73902	8.11229	0.1356909	2.1893774	26	2	1995–1998	0.46	M-v	4	Williams	32464	1995 UW_4
1995 UM_8	15.5	0.15	19980706	259.60104	52.76074	31.72125	4.81337	0.0788484	2.2086109	57	4	1988–1998	0.70	M-v	1	Williams	29946	1995 UM_8
1995 UP_8	14.5	0.15	19980706	25.74903	291.11277	355.23964	3.36841	0.1384882	2.2607314	62	3	1995–1998	0.71	M-v	3	Williams	32518	1995 UP_8
1995 UT_8	15.0	0.15	19980706	282.29308	310.82841	99.88914	4.25025	0.1258808	2.2416971	30	2	1995–1998	0.79	M-v	4	Williams	32464	1995 UT_8
1995 UB_{15}	15.5	0.15	19980706	135.29491	142.56222	14.45414	3.92580	0.1660548	2.5578432	24	2	1995–1997	0.38	M-v	3	Williams	32464	1995 UB_{15}
1995 UQ_{18}	15.5	0.15	19980706	333.22956	45.94858	199.76241	11.77983	0.1178386	2.7302321	21	2	1995–1998	0.71	M-v	4	Williams	32240	1995 UQ_{18}
1995 UA_{45}	15.0	0.15	19980706	274.61826	355.41243	70.39924	5.91366	0.1348919	2.1979128	29	2	1995–1998	0.54	M-v	4	Williams	32465	1995 UA_{45}
1995 UX_{48}	15.0	0.15	19980706	261.20836	58.86537	6.72792	0.85745	0.1209684	2.2765308	24	2	1995–1998	0.78	M-v	4	Williams	32465	1995 UX_{48}
1995 VB	15.0	0.15	19980706	247.58286	191.93554	263.65999	4.74538	0.1340701	2.2924240	41	3	1981–1998	0.80	M-v	4	Williams	32465	1995 VB
1995 VD	15.0	0.15	19980706	237.79131	87.98787	7.40036	2.73067	0.1084381	2.3448160	50	2	1995–1998	0.69	M-v	4	Williams	32465	1995 VD
1995 VG_2	13.5	0.15	19980706	335.93632	303.92314	27.58603	7.87747	0.1409278	2.3153478	27	3	1995–1998	0.47	M-v	3	Williams	29305	1995 VG_2
1995 VL_2	14.0	0.15	19980706	274.70795	132.92133	264.67429	3.59496	0.0718739	2.3619029	43	5	1951–1998	0.74	M-v	1	Williams	32518	1995 VL_2
1995 VZ_4	16.0	0.15	19980706	336.99951	232.24899	111.80603	3.54206	0.0799309	2.2195268	32	2	1995–1998	0.70	M-v	4	Williams	32465	1995 VZ_4
1995 VG_{13}	14.5	0.15	19980706	272.28177	208.67830	113.67131	3.51344	0.0328413	2.8325728	25	3	1993–1998	0.66	M-v	3	Williams	32518	1995 VG_{13}
1995 WE	14.0	0.15	19980706	227.23038	52.08852	69.01305	6.81515	0.1547582	2.2858590	29	4	1988–1998	0.53	M-v	3	Williams	32518	1995 WE
1995 WS_1	14.0	0.15	19980706	323.66995	316.98650	44.01610	3.87338	0.1895370	2.2338930	49	3	1985–1998	0.70	M-v	2	Williams	32465	1995 WS_1
1995 WU_1	12.5	0.15	19980706	203.97627	68.27373	44.11405	11.68783	0.0626281	2.4248657	26	3	1995–1998	0.78	M-v	4	Williams	29924	1995 WU_1
1995 WD_2	15.0	0.15	19980706	222.84197	262.48594	223.16348	2.32447	0.1634248	2.3297009	27	6	1977–1998	0.69	M-v	1	Williams	26760	1995 WD_2
1995 WL_4	15.0	0.15	19980706	231.09253	306.25127	137.44235	3.30482	0.1517365	2.4649444	23	4	1993–1998	0.82	M-v	2	Williams	32310	1995 WL_4
1995 WK_5	15.0	0.15	19980706	307.32186	341.66618	42.42764	3.45774	0.1241996	2.3117671	57	2	1995–1998	0.58	M-v	4	Williams	32466	1995 WK_5
1995 WF_7	13.5	0.15	19951119	134.24875	231.72443	55.50572	8.87308	0.0405645	2.5387788	6	1	9 days	1.06		E	Williams		1995 WF_7
1995 WO_7	15.5	0.15	19980706	293.78122	160.45668	256.62570	3.80023	0.1000443	2.2323611	39	3	1993–1998	0.75	M-v	4	Williams	32518	1995 WO_7
1995 WS_7	14.5	0.15	19980706	185.57431	86.16667	90.26660	1.13173	0.0667805	2.2330477	20	4	1990–1998	0.50	M-v	2	Williams	29627	1995 WS_7
1995 WA_8	15.5	0.15	19980706	311.78147	39.17086	0.69072	5.29989	0.1449323	2.2057387	38	3	1988–1998	0.64	M-v	2	Williams	32518	1995 WA_8
1995 WL_{13}	13.5	0.15	19980706	249.83765	275.70211	134.95212	4.16058	0.0789195	2.4654612	23	2	1995–1998	0.54	M-v	4	Williams	32518	1995 WL_{13}
1995 WW_{17}	15.5	0.15	19980706	107.05514	212.53695	21.94955	4.12363	0.0799663	2.1593526	47	3	1995–1998	0.79	M-v	4	Williams	30689	1995 WW_{17}
1995 WB_{22}	16.0	0.15	19980706	216.12349	39.41661	95.50888	5.14681	0.0898059	2.2336956	21	3	1995–1998	0.63	M-v	2	Williams	30456	1995 WB_{22}
1995 WE_{27}	13.5	0.15	19980706	352.38150	359.56681	300.09525	14.21152	0.1797265	3.2061909	26	2	1995–1998	0.75	M-v	4	Williams	32241	1995 WE_{27}

1995 WD_{32}	14.5	0.15	19980706	178.37835	352.33666	134.93428	3.51425	0.1091606	2.9763447	23	3	1995–1998	0.46	M-v	3	Williams	32466	1995	WD_{32}
1995 WW_{42}	15.0	0.15	19980706	270.01033	353.97479	68.91519	5.62834	0.1677602	2.3148941	28	3	1995–1998	0.70	M-v	4	Williams	30082	1995	WW_{42}
1995 XA	15.5	0.15	19980706	9.24947	59.55997	244.51378	5.72837	0.1310423	2.3278094	41	2	1995–1998	0.45	M-v	4	Williams	32466	1995	XA
1995 XE	13.5	0.15	19980706	128.23059	276.20303	278.60071	13.92538	0.0473710	2.5742534	31	2	1995–1998	0.62	M-v	4	Williams	32467	1995	XE
1995 XW	13.0	0.15	19980706	29.78499	224.23382	54.84834	15.74317	0.0945321	2.6311396	37	3	1995–1998	0.64	M-v	2	Williams	32518	1995	XW
1995 XD_1	14.5	0.15	19980706	230.02974	39.00198	64.96558	3.62082	0.1489373	2.4171136	26	3	1995–1998	0.62	M-v	3	Williams	30456	1995	XD_1
1995 XG_1	14.0	0.15	19980706	100.48082	302.72285	276.64059	12.77083	0.1305677	2.5578926	39	2	1995–1998	0.74	M-v	4	Williams	32467	1995	XG_1
1995 XN_1	12.5	0.15	19980706	62.57781	174.91555	72.72563	14.09862	0.1327334	2.5949311	36	5	1978–1998	0.68	M-v	1	Williams	30901	1995	XN_1
1995 XU_1	15.0	0.15	19980706	279.97530	126.62404	186.78728	1.99724	0.1899021	2.4253037	43	2	1995–1998	0.66	M-v	3	Williams	32242	1995	XU_1
1995 YQ	13.0	0.15	19980706	302.15582	179.02510	117.81604	11.79609	0.0759185	2.9906668	54	4	1993–1998	0.47	M-v	1	Williams	32242	1995	YQ
1995 YR	13.5	0.15	19980706	132.17747	137.59792	66.74931	9.45308	0.0761960	2.2985536	26	3	1995–1998	0.64	M-v	3	Williams	30082	1995	YR
1995 YP_1	13.5	0.15	19980706	29.21772	8.86867	265.53792	5.50492	0.0159738	2.7938571	24	2	1995–1998	0.59	M-v	3	Williams	32518	1995	YP_1
1995 YH_3	15.0	0.15	19980706	327.05182	263.96994	113.19436	8.75308	0.2308744	2.2854648	19	4	1991–1998	0.52	M-v	1	Williams	30093	1995	YH_3
1995 YJ_3	14.5	0.15	19980706	183.91633	26.09719	132.14808	5.34431	0.1935846	2.5877482	26	3	1992–1998	0.66	M-v	2	Williams	32467	1995	YJ_3
1995 YL_3	15.0	0.15	19980706	289.39682	296.37632	126.02244	5.03063	0.1394254	2.3346355	44	3	1995–1998	0.61	M-v	4	Williams	30456	1995	YL_3
1995 YO_3	15.0	0.15	19980706	267.00952	221.83701	215.30323	0.59605	0.1614634	2.3984523	57	3	1976–1998	0.63	M-v	3	Williams	32467	1995	YO_3
1995 YC_5	15.0	0.15	19980706	19.60396	191.85109	90.27444	3.17054	0.2220003	2.3325785	44	4	1991–1998	0.73	M-v	2	Williams	32518	1995	YC_5
1995 YY_5	15.5	0.15	19980706	359.04882	227.41453	95.08917	3.96573	0.1755565	2.2347872	44	2	1995–1998	0.48	M-v	3	Williams	32242	1995	YY_5
1995 YY_{10}	14.0	0.15	19980706	285.47049	285.28917	118.26784	15.65933	0.0850629	2.5555868	25	3	1992–1998	0.59	M-v	2	Williams	32518	1995	YY_{10}
1995 YS_{25}	16.5	0.15	19980706	232.15179	77.13524	50.27101	5.68437	0.0390287	2.3385071	38	4	1991–1998	0.52	M-v	1	Williams	27110	1995	YS_{25}
1996 AJ	14.5	0.15	19980706	32.48864	358.22134	304.58675	1.77312	0.1957827	2.4503304	42	4	1990–1998	0.51	M-v	1	Williams	30784	1996	AJ
1996 AN	14.0	0.15	19980706	260.91212	6.95515	73.32329	3.08149	0.1724976	2.4302197	49	3	1993–1998	0.67	M-v	3	Williams	32467	1996	AN
1996 AO	14.5	0.15	19980706	292.40971	97.11865	302.76786	10.73824	0.1905940	2.4252037	42	3	1987–1998	0.73	M-v	2	Williams	32468	1996	AO
1996 AS	14.5	0.15	19980706	220.26436	357.60066	136.75650	5.03531	0.0488952	2.4069823	43	4	1989–1998	0.70	M-v	3	Williams	29925	1996	AS
1996 AO_1	15.0	0.15	19980706	301.46254	326.38058	69.54224	3.91862	0.1932890	2.3923516	108	3	1996–1998	0.64	M-v	4	Marsden	32518	1996	AO_1
1996 AR_1	13.0	0.15	19980706	243.21916	106.27124	307.09681	9.37757	0.0469042	3.0470875	21	3	1993–1998	0.38	M-v	3	Williams	32243	1996	AR_1
1996 AL_2	13.0	0.15	19980706	85.93936	134.48167	106.19386	14.17652	0.1298019	2.6472126	48	4	1991–1998	0.50	M-v	1	Williams	30473	1996	AL_2
1996 AP_2	14.0	0.15	19980706	254.49246	130.10055	310.20837	11.06239	0.1248228	2.5678278	56	2	1995–1998	0.64	M-v	4	Williams	32468	1996	AP_2
1996 AQ_2	15.5	0.15	19980706	279.11822	323.77313	119.92054	1.12391	0.1727701	2.3436231	46	4	1973–1998	0.65	M-v	1	Williams	26928	1996	AQ_2
1996 AP_3	13.0	0.15	19980706	356.93908	65.82640	273.62519	6.82787	0.1935693	2.2878545	23	3	1988–1998	0.44	M-v	3	Williams	32468	1996	AP_3
1996 AW_6	16.0	0.15	19980706	307.08582	11.02641	23.73738	2.79152	0.1903938	2.3879418	29	2	1996–1998	0.73	M-v	5	Williams	32468	1996	AW_6
1996 AH_9	15.0	0.15	19980706	141.63881	315.99404	229.41931	1.65889	0.1041768	2.7660412	19	3	1992–1998	0.41	M-v	4	Williams	26750	1996	AH_9
1996 AK_{10}	16.0	0.15	19980706	310.85700	165.22260	249.41923	1.87294	0.1228959	2.2976691	14	3	1993–1998	0.42	M-v	5	Williams	26750	1996	AK_{10}
1996 AE_{18}	15.5	0.15	19980706	334.75317	197.83576	147.32261	5.56107	0.2484664	2.5620472	31	3	1994–1998	0.70	M-v	3	Williams	32468	1996	AE_{18}
1996 BU	15.0	0.15	19980706	310.39330	116.42028	277.19228	7.02584	0.1181713	2.4015750	27	2	1995–1998	0.59	M-v	4	Williams	32468	1996	BU
1996 BV	14.5	0.15	19980706	316.59794	241.38760	111.06211	14.10212	0.2371368	2.5810447	21	3	1990–1998	0.72	M-v	4	Williams	32469	1996	BV
1996 BX	13.5	0.15	19980706	115.25695	98.04413	91.31927	3.26449	0.0147937	2.8956318	34	3	1996–1998	0.44	M-v	3	Williams	32519	1996	BX
1996 BB_2	14.5	0.15	19980706	242.32094	160.04940	319.09939	10.25606	0.1716909	2.4168802	24	4	1983–1998	0.67	M-v	2	Williams	26928	1996	BB_2
1996 BY_2	14.0	0.15	19980706	256.09236	287.51283	158.20469	4.09991	0.1924946	2.4803292	44	2	1996–1998	0.70	M-v	4	Williams	32469	1996	BY_2
1996 CK_2	12.0	0.15	19980706	140.39833	155.08143	13.65499	11.90366	0.0842998	3.0366939	23	6	1988–1998	0.83	M-v	2	Williams	30292	1996	CK_2
1996 CA_3	12.5	0.15	19980706	115.40549	134.61013	81.38170	2.18734	0.1147224	3.1649618	27	3	1985–1998	0.84	M-v	4	Marsden	27123	1996	CA_3
1996 CE_3	13.0	0.15	19980706	278.83223	79.10139	358.36548	21.91955	0.0547696	2.6714692	71	2	1996–1998	0.64	M-v	3	Williams	32469	1996	CE_3
1996 CF_3	12.5	0.15	19980706	40.90505	146.90238	125.69261	12.07278	0.0333908	3.0655029	33	3	1996–1998	0.64	M-v	3	Williams	32469	1996	CF_3
1996 CW_3	14.0	0.15	19980706	273.16236	109.55605	317.20244	11.19720	0.0178696	2.6486746	33	2	1996–1998	0.65	M-v	4	Williams	32469	1996	CW_3
1996 CT_7	14.5	0.15	19980706	305.60539	192.35544	210.90722	6.13208	0.1321988	2.4264958	39	3	1996–1998	0.84	M-v	4	Williams	30901	1996	CT_7
1996 CT_8	14.5	0.15	19980706	269.29823	291.72916	137.14274	15.16833	0.1056192	2.6538923	42	3	1996–1998	0.71	M-v	3	Williams	32519	1996	CT_8
1996 CU_8	14.0	0.15	19980706	185.04083	153.60041	356.77008	9.03825	0.0907818	2.7846729	41	2	1996–1998	0.75	M-v	4	Williams	32470	1996	CU_8
1996 DV	13.5	0.15	19980706	101.37085	64.51906	154.22785	11.83601	0.0409491	3.1690672	56	3	1996–1998	0.76	M-v	3	Williams	32519	1996	DV
1996 DE_1	14.0	0.15	19980706	246.44078	281.81558	161.51890	3.03376	0.1437275	2.6789589	18	2	1996–1998	0.78	M-v	5	Williams	32470	1996	DE_1
1996 DO_1	12.5	0.15	19980706	75.76990	319.99240	292.67903	10.30467	0.1342469	3.0376970	88	3	1996–1998	0.55	M-v	3	Williams	32519	1996	DO_1
1996 DG_2	13.0	0.15	19980706	84.02802	114.28167	142.68407	0.88787	0.1693557	3.1519609	73	5	1981–1998	0.76	M-v	1	Williams	27731	1996	DG_2
1996 DL_2	13.5	0.15	19980706	33.95715	208.24492	97.61656	3.44315	0.0077545	2.9038355	50	3	1993–1998	0.67	M-v	3	Williams	29666	1996	DL_2
1996 DY_2	13.5	0.15	19980706	283.82110	334.19374	70.49991	3.07489	0.0748649	2.8876184	28	2	1996–1998	0.73	M-v	4	Williams	32470	1996	DY_2

1996 DB_3	14.5	0.15	19980706	175.06695	197.75230	320.98494	13.90300	0.0780426	2.5847241	36	2	1996–1998	0.79	M-v	3	Williams	32470	1996 DB_3
1996 DD_3	15.0	0.15	19980706	248.39403	86.48766	42.61108	3.85677	0.1869948	2.4081461	42	4	1976–1998	0.62	M-v	1	Williams	30278	1996 DD_3
1996 ED_4	13.5	0.15	19980706	6.65418	327.51391	359.32098	10.11854	0.0716098	3.0357527	38	2	1996–1998	0.43	M-v	4	Williams	32470	1996 ED_4
1996 ED_9	14.0	0.15	19980706	307.91297	203.29993	156.60801	14.07461	0.0400381	3.1417440	27	3	1996–1998	0.49	M-v	4	Williams	32519	1996 ED_9
1996 FP_1	13.0	0.15	19980706	80.19444	184.82082	1.90086	3.48272	0.1242778	3.9695861	23	3	1993–1997	0.52	M-v	4	Williams	32244	1996 FP_1
1996 FR_1	14.0	0.15	19980706	29.29141	101.16074	216.87269	9.41639	0.1146507	3.0177128	57	3	1996–1998	0.56	M-v	3	Williams	32519	1996 FR_1
1996 FW_4	13.0	0.15	19980706	127.69216	145.70515	65.76465	2.04809	0.1068043	3.2103230	49	5	1979–1998	0.74	M-v	1	Williams	30473	1996 FW_4
1996 FM_5	12.5	0.15	19980706	230.68250	84.04955	11.00561	9.89303	0.1034250	3.3542827	20	5	1975–1998	0.57	M-v	1	Williams	32470	1996 FM_5
1996 FU_{13}	11.5	0.15	19980706	350.30564	290.03305	57.07397	12.94551	0.2316650	3.9683151	30	6	1982–1998	0.57	M-v	1	Williams	30293	1996 FU_{13}
1996 FG_{16}	16.0	0.15	19980706	280.54189	289.41638	206.20731	1.47165	0.1497588	2.3390592	22	4	1985–1997	0.94	M-v	2	Williams	32470	1996 FG_{16}
1996 GS	13.5	0.15	19980706	350.40159	182.74672	190.62856	9.32242	0.1762463	2.7662064	40	4	1992–1998	0.54	M-v	1	Marsden	30293	1996 GS
1996 GC_{18}	14.5	0.15	19980706	261.19853	1.85584	123.84526	0.87874	0.0944922	2.6442405	24	4	1987–1998	0.67	M-v	1	Williams	30689	1996 GC_{18}
1996 GM_{20}	13.5	0.15	19980706	131.24583	177.68364	59.29485	0.82900	0.1560314	3.0783297	24	3	1990–1998	0.82	M-v	4	Williams	28863	1996 GM_{20}
1996 HH_{10}	16.0	0.15	19980706	178.05664	100.92887	198.82348	3.26983	0.1133016	2.1675833	20	2	1996–1998	0.71	M-v	4	Williams	32244	1996 HH_{10}
1996 HT_{14}	13.0	0.15	19980706	149.33867	88.79107	115.21170	2.32395	0.1013326	3.2165368	46	5	1981–1998	0.78	M-v	2	Williams	29947	1996 HT_{14}
1996 HU_{18}	14.0	0.15	19980706	143.23213	54.09341	168.34792	1.22770	0.1183480	3.1142507	31	4	1976–1998	0.77	M-v	2	Williams	32471	1996 HU_{18}
1996 KA	13.5	0.15	19980706	206.54297	264.27734	242.33858	11.65326	0.2359930	3.2074148	41	2	1996–1998	0.59	M-v	4	Williams	32471	1996 KA
1996 KA_3	13.0	0.15	19980706	32.63303	136.49095	133.79162	10.90711	0.1490464	3.1797691	59	3	1995–1998	0.47	M-v	3	Williams	32519	1996 KA_3
1996 LA	13.0	0.15	19980706	179.16033	321.37780	222.95782	7.69049	0.1115028	3.0830889	94	5	1987–1998	0.51	M-v	1	Williams	30902	1996 LA
1996 NA_2	15.0	0.15	19980706	86.30702	120.73357	299.04118	6.41683	0.1178918	2.3574619	27	2	1996–1998	0.40	M-v	4	Williams	32471	1996 NA_2
1996 OO	12.5	0.15	19980706	139.06008	18.51395	232.22129	10.26756	0.0798164	3.9864641	38	3	1996–1998	0.40	M-v	3	Williams	32519	1996 OO
1996 TQ	15.5	0.15	19980706	127.98993	357.01800	86.91769	3.06875	0.1799078	2.3458999	22	2	1996–1998	0.59	M-v	4	Williams	32310	1996 TQ
1996 TQ_{54}	15.5	0.15	19980706	178.71892	185.90603	202.04886	1.91746	0.0596688	2.2713321	22	2	1996–1998	0.48	M-v	4	Williams	32245	1996 TQ_{54}
1996 VA_{27}	16.0	0.15	19980706	310.21864	55.02448	152.59333	1.07472	0.1205225	3.2097965	16	2	1996–1998	0.51	M-v	5	Williams	32472	1996 VA_{27}
1996 XA_{12}	14.5	0.15	19980706	10.04914	192.62489	86.64084	5.40219	0.2079207	2.1640151	28	4	1979–1998	0.68	M-v	2	Williams	32519	1996 XA_{12}
1996 XE_{31}	14.0	0.15	19980706	52.48051	302.98531	272.23162	10.88173	0.1276825	2.4171337	22	2	1996–1998	0.65	M-v	4	Williams	32247	1996 XE_{31}
1997 AR_1	14.5	0.15	19980706	25.01200	175.29563	78.66858	3.35826	0.1690784	2.4076664	26	2	1997–1998	0.59	M-v	4	Williams	32248	1997 AR_1
1997 AG_3	13.5	0.15	19980706	277.02410	185.10434	111.78239	3.47728	0.0815728	3.0883754	37	3	1995–1998	0.57	M-v	4	Williams	32312	1997 AG_3
1997 AJ_4	14.5	0.15	19980706	71.25756	306.74717	279.81468	5.94631	0.1198830	2.2185038	38	2	1996–1998	0.67	M-v	4	Williams	32519	1997 AJ_4
1997 AN_4	15.5	0.15	19980706	60.37631	310.91192	286.49688	0.97042	0.1366807	2.2684694	42	4	1991–1998	0.74	M-v	1	Williams	32519	1997 AN_4
1997 AH_5	15.0	0.15	19980706	112.57317	223.91239	335.11976	1.91058	0.0855978	2.1947078	34	3	1995–1998	0.63	M-v	3	Williams	32472	1997 AH_5
1997 AO_5	13.5	0.15	19980706	224.86800	295.47166	77.31477	5.74810	0.1991945	2.5264656	25	3	1991–1998	0.53	M-v	3	Williams	32472	1997 AO_5
1997 AO_7	15.0	0.15	19980706	24.37208	121.54377	152.39203	4.90191	0.1279161	2.2123793	44	3	1995–1998	0.48	M-v	2	Williams	32519	1997 AO_7
1997 AS_7	13.5	0.15	19980706	75.97743	129.71738	116.40055	7.46470	0.0875739	2.3685560	25	3	1979–1998	0.55	M-v	3	Williams	29123	1997 AS_7
1997 AU_9	14.5	0.15	19980706	60.13569	87.32189	150.35938	3.68605	0.1330764	2.2618280	38	3	1989–1998	0.66	M-v	2	Williams	32472	1997 AU_9
1997 AF_{13}	14.0	0.15	19980706	53.52717	148.45159	94.52446	10.39675	0.1772452	2.2920742	19	3	1980–1998	0.62	M-v	2	Williams	32473	1997 AF_{13}
1997 AW_{17}	15.5	0.15	19980706	94.59374	110.98545	78.32255	2.13833	0.1268144	2.3951681	37	2	1997–1998	0.33	M-v	3	Williams	32249	1997 AW_{17}
1997 AE_{18}	14.5	0.15	19980706	35.45322	311.41888	306.67694	6.21730	0.1332577	2.2182474	56	3	1988–1998	0.50	M-v	3	Williams	32473	1997 AE_{18}
1997 BO_1	13.0	0.15	19980706	210.88965	313.68255	59.63072	2.40212	0.0821076	2.9707192	33	3	1989–1998	0.73	M-v	3	Williams	32313	1997 BO_1
1997 BC_2	12.5	0.15	19980706	196.88763	263.48757	119.63692	11.62185	0.1171700	2.9966875	43	3	1989–1998	0.70	M-v	4	Williams	32250	1997 BC_2
1997 BR_3	14.5	0.15	19980706	39.44330	291.49431	341.72265	21.68121	0.2475896	2.4523959	31	3	1994–1998	0.79	M-v	2	Williams	32519	1997 BR_3
1997 BT_3	13.0	0.15	19980706	132.86925	16.35967	110.51301	3.10569	0.0259846	2.8491875	36	5	1985–1998	0.61	M-v	2	Williams	32473	1997 BT_3
1997 BV_3	15.0	0.15	19980706	114.18142	89.00559	108.62326	4.27814	0.1073203	2.2381873	23	2	1997–1998	0.61	M-v	4	Williams	32473	1997 BV_3
1997 BU_5	15.0	0.15	19980706	68.82466	275.04239	324.37451	0.66989	0.1421587	2.2888317	72	3	1978–1998	0.71	M-v	2	Williams	32519	1997 BU_5
1997 BV_8	15.5	0.15	19980706	310.65085	194.32881	140.46762	6.03700	0.1897442	2.2153144	28	3	1995–1998	0.67	M-v	4	Williams	32313	1997 BV_8
1997 BC_9	15.0	0.15	19980706	337.82973	186.99649	140.73802	4.23891	0.2340792	2.2309949	56	5	1978–1998	0.80	M-v	2	Williams	32519	1997 BC_9
1997 CA_1	14.5	0.15	19980706	41.88784	293.61839	323.28496	7.19173	0.0811340	2.2955535	42	4	1976–1998	0.71	M-v	2	Williams	32519	1997 CA_1
1997 CZ_{14}	16.0	0.15	19980706	248.16531	335.20474	36.30496	2.72796	0.2328374	2.2741921	21	4	1992–1998	0.28	M-v	1	Williams	32313	1997 CZ_{14}
1997 CY_{16}	13.5	0.15	19980706	155.69275	262.25046	174.10586	10.41483	0.1314390	3.1715110	41	3	1992–1998	0.62	M-v	3	Williams	32520	1997 CY_{16}
1997 CC_{17}	15.0	0.15	19980706	60.19976	235.20690	31.37082	2.12064	0.1870813	2.2148490	31	3	1994–1998	0.88	M-v	3	Williams	32473	1997 CC_{17}
1997 CV_{19}	14.0	0.15	19980706	42.61915	133.53938	127.04715	6.69621	0.0902290	2.3910304	31	2	1997–1998	0.48	M-v	3	Williams	32473	1997 CV_{19}
1997 CD_{20}	14.5	0.15	19980706	222.29295	270.23145	130.86849	5.10278	0.1832034	2.5163607	20	4	1979–1998	0.66	M-v	2	Williams	32474	1997 CD_{20}
1997 CA_{22}	14.5	0.15	19980706	132.73498	27.22537	156.37409	1.51893	0.0681615	2.1876136	55	3	1995–1998	0.63	M-v	3	Williams	32474	1997 CA_{22}

1997 CO_{26}	16.0	0.15	19980706	61.04841	298.78666	313.43938	0.45596	0.1763700	2.3030589	35	3	1994–1998	0.81	M-v	4	Williams	32520	1997 CO_{26}
1997 CS_{28}	15.0	0.15	19980706	245.42784	293.08964	80.55281	3.67079	0.0718584	2.6097045	21	2	1997–1998	0.56	M-v	4	Williams	32251	1997 CS_{28}
1997 CF_{29}	14.5	0.15	19980706	144.90740	14.80165	170.12606	2.29740	0.1313508	2.2992248	25	2	1997–1998	0.66	M-v	5	Williams	32474	1997 CF_{29}
1997 DC	14.0	0.15	19980706	72.82764	86.11910	158.58213	2.53702	0.1663603	2.3923565	79	3	1993–1998	0.63	M-v	3	Williams	32520	1997 DC
1997 DT	15.0	0.15	19980706	92.64568	85.48591	130.43212	3.68418	0.0713272	2.2845778	19	3	1991–1998	0.75	M-v	4	Williams	30094	1997 DT
1997 ES_2	14.0	0.15	19980706	42.17806	170.63170	119.36789	3.07491	0.2024218	2.3727851	28	4	1979–1998	0.53	M-v	1	Williams	30094	1997 ES_2
1997 EY_2	15.5	0.15	19980706	170.57942	29.19524	118.72376	3.20219	0.0660751	2.1902609	21	2	1997–1998	0.72	M-v	5	Williams	32474	1997 EY_2
1997 ER_{11}	15.5	0.15	19980706	88.27871	225.37789	4.46176	1.29621	0.1880688	2.3460963	70	2	1997–1998	0.75	M-v	4	Williams	32474	1997 ER_{11}
1997 ES_{17}	14.5	0.15	19980706	12.52542	6.05245	292.94610	3.74787	0.2349958	2.4350615	56	2	1997–1998	0.70	M-v	4	Williams	32475	1997 ES_{17}
1997 EW_{25}	15.0	0.15	19980706	104.63982	205.36174	15.95784	6.95478	0.0698055	2.2426059	29	3	1977–1998	0.77	M-v	3	Williams	30094	1997 EW_{25}
1997 EG_{27}	15.0	0.15	19980706	132.05723	5.89531	178.42599	5.93275	0.0433366	2.2848649	43	3	1995–1998	0.61	M-v	4	Williams	32475	1997 EG_{27}
1997 EQ_{30}	14.0	0.15	19980706	65.41817	110.63841	103.23117	11.52268	0.1447066	2.6862663	46	2	1997–1998	0.71	M-v	3	Williams	32520	1997 EQ_{30}
1997 EO_{32}	16.0	0.15	19980706	21.05027	130.15449	161.37952	0.90810	0.1642894	2.6103501	42	3	1994–1998	0.71	M-v	3	Williams	32520	1997 EO_{32}
1997 EK_{35}	15.0	0.15	19980706	319.40509	190.11188	135.00902	5.88528	0.1900095	2.2693700	30	3	1988–1998	0.63	M-v	4	Williams	32475	1997 EK_{35}
1997 EW_{45}	14.0	0.15	19980706	109.44646	101.09364	98.06832	7.06581	0.1844526	2.5409932	44	3	1995–1998	0.39	M-v	3	Williams	32520	1997 EW_{45}
1997 EE_{46}	15.5	0.15	19980706	62.88589	45.66510	203.26234	7.87944	0.1134619	2.3111321	35	2	1997–1998	0.71	M-v	4	Williams	32475	1997 EE_{46}
1997 EW_{47}	13.5	0.15	19980706	49.56444	66.11848	196.24929	9.11308	0.1536309	2.7845265	44	4	1978–1998	0.74	M-v	2	Williams	32520	1997 EW_{47}
1997 EB_{54}	14.5	0.15	19980706	32.68592	298.81007	1.31077	2.31122	0.1988775	2.4208648	24	4	1979–1998	0.78	M-v	2	Williams	30766	1997 EB_{54}
1997 FB	15.5	0.15	19980706	86.71963	68.97184	181.15584	3.91395	0.1587753	2.1788232	41	3	1995–1998	0.50	M-v	2	Williams	32252	1997 FB
1997 FM	13.5	0.15	19980706	45.33905	161.40458	120.23435	13.67784	0.1319708	2.6890779	22	2	1997–1998	0.49	M-v	4	Williams	32476	1997 FM
1997 FO_3	15.0	0.15	19980706	34.13145	102.32040	166.69578	3.50078	0.1093547	2.7684530	29	3	1994–1998	0.89	M-v	3	Williams	32476	1997 FO_3
1997 FQ_3	15.5	0.15	19980706	7.02868	332.16987	1.88730	2.45526	0.1612792	2.2531248	19	3	1991–1998	0.65	M-v	5	Williams	32476	1997 FQ_3
1997 FT_3	15.5	0.15	19980706	134.41529	336.60892	211.97906	4.51415	0.0990094	2.3006748	40	4	1991–1998	0.87	M-v	2	Williams	30787	1997 FT_3
1997 FQ_4	13.0	0.15	19980706	25.95669	8.23942	251.66337	3.95300	0.1005548	3.1555282	34	3	1995–1998	0.65	M-v	3	Williams	32314	1997 FQ_4
1997 GR_5	14.5	0.15	19980706	119.15462	82.03380	110.85919	5.36329	0.1379223	2.3470137	56	3	1994–1998	0.79	M-v	3	Williams	32520	1997 GR_5
1997 GP_6	14.5	0.15	19980706	142.74761	151.04733	34.49543	4.82508	0.0763939	2.4163320	52	3	1993–1998	0.63	M-v	4	Williams	32476	1997 GP_6
1997 GQ_6	15.0	0.15	19980706	17.34152	304.02785	24.60278	4.41449	0.1802480	2.5284612	27	4	1990–1998	0.61	M-v	2	Williams	30094	1997 GQ_6
1997 GW_6	14.5	0.15	19980706	340.38723	128.83845	218.29079	16.91626	0.1416436	2.7512736	47	2	1997–1998	0.57	M-v	3	Williams	32476	1997 GW_6
1997 GZ_6	16.0	0.15	19980706	158.87625	127.31812	44.74538	3.46203	0.0984982	2.3345412	25	3	1995–1998	0.47	M-v	4	Williams	29931	1997 GZ_6
1997 GE_7	15.0	0.15	19980706	345.28379	138.74383	206.72691	12.20256	0.1421471	2.6829188	42	2	1997–1998	0.70	M-v	4	Williams	32476	1997 GE_7
1997 GD_8	15.5	0.15	19980706	132.71104	173.88230	28.88232	0.29788	0.1595788	2.3271296	29	3	1995–1998	0.47	M-v	4	Williams	30473	1997 GD_8
1997 GL_{11}	15.5	0.15	19980706	57.11314	276.44295	1.81773	6.11626	0.0824351	2.2821320	45	3	1991–1998	0.66	M-v	3	Marsden	30766	1997 GL_{11}
1997 GA_{14}	15.0	0.15	19980706	335.87690	63.90404	287.13798	1.60492	0.2005210	2.4286389	41	3	1994–1998	0.58	M-v	3	Williams	32520	1997 GA_{14}
1997 GX_{14}	14.5	0.15	19980706	20.80650	298.86185	6.41102	11.45139	0.2003565	2.6200425	40	2	1997–1998	0.63	M-v	4	Williams	32477	1997 GX_{14}
1997 GD_{15}	14.5	0.15	19980706	314.01127	80.18138	267.34577	1.54671	0.0835018	2.7274730	24	2	1997–1998	0.73	M-v	5	Williams	32477	1997 GD_{15}
1997 GE_{17}	16.0	0.15	19980706	191.10656	138.44946	358.18779	5.23058	0.0528933	2.2224900	31	3	1977–1998	0.79	M-v	4	Williams	30788	1997 GE_{17}
1997 GK_{17}	15.5	0.15	19980706	237.78376	118.65102	330.59701	2.23217	0.0933600	2.1804318	41	4	1987–1998	0.70	M-v	1	Williams	32477	1997 GK_{17}
1997 GL_{17}	15.0	0.15	19980706	124.56281	218.74529	331.50154	2.01794	0.1453994	2.4225445	36	2	1997–1998	0.67	M-v	4	Williams	32477	1997 GL_{17}
1997 GO_{18}	15.5	0.15	19980706	36.97332	95.69286	187.63184	11.65613	0.1351740	2.5848521	18	3	1994–1998	0.75	M-v	3	Williams	30788	1997 GO_{18}
1997 GT_{18}	15.0	0.15	19980706	316.43123	199.69343	177.20996	1.84063	0.1414513	2.2170345	64	5	1975–1998	0.65	M-v	2	Williams	32477	1997 GT_{18}
1997 GR_{20}	15.5	0.15	19980706	357.86202	294.18374	28.83932	1.16897	0.1446688	2.5186085	36	4	1990–1998	0.90	M-v	4	Williams	32520	1997 GR_{20}
1997 GL_{22}	14.0	0.15	19980706	346.26906	312.93468	25.75571	3.35787	0.2284196	3.0965398	42	2	1997–1998	0.58	M-v	4	Williams	32477	1997 GL_{22}
1997 GM_{22}	14.0	0.15	19980706	20.54426	290.84781	31.03103	12.35700	0.1915403	2.6411198	41	4	1985–1998	0.46	M-v	1	Williams	29934	1997 GM_{22}
1997 GX_{22}	15.5	0.15	19980706	82.09670	116.13803	147.61562	1.70513	0.1527900	2.4047032	37	4	1991–1998	0.69	M-v	3	Williams	30094	1997 GX_{22}
1997 GR_{23}	14.5	0.15	19980706	26.20393	267.18538	33.39653	6.67237	0.2126858	3.0135672	62	3	1996–1998	0.57	M-v	3	Williams	32520	1997 GR_{23}
1997 GR_{24}	13.5	0.15	19980706	22.25000	126.54332	195.27067	12.18326	0.1925111	2.6928713	45	2	1997–1998	0.34	M-v	3	Williams	32478	1997 GR_{24}
1997 GX_{24}	13.0	0.15	19980706	96.30186	66.65836	118.33367	2.73124	0.0931128	3.1660139	33	3	1991–1998	0.78	M-v	5	Williams	32314	1997 GX_{24}
1997 GZ_{25}	15.0	0.15	19980706	136.92374	57.47053	150.17027	4.91234	0.0782450	2.2905596	34	2	1997–1998	0.65	M-v	4	Williams	32478	1997 GZ_{25}
1997 GL_{28}	14.0	0.15	19980706	110.95453	310.03314	215.67241	15.88204	0.1637282	3.2540762	26	3	1994–1998	0.47	M-v	3	Williams	32253	1997 GL_{28}
1997 GT_{32}	13.5	0.15	19980706	284.13245	15.78739	351.57538	1.39130	0.0989660	2.8955868	31	4	1954–1998	0.89	M-v	5	Williams	32520	1997 GT_{32}
1997 GW_{32}	15.0	0.15	19980706	1.70645	337.10278	336.57847	1.77623	0.1081302	2.6237575	38	4	1960–1998	0.71	M-v	2	Williams	32478	1997 GW_{32}
1997 GZ_{32}	15.0	0.15	19980706	75.58175	296.30123	293.44166	1.41239	0.1789376	2.7682473	21	3	1993–1998	0.81	M-v	4	Williams	30767	1997 GZ_{32}
1997 HQ_1	15.0	0.15	19980706	77.59868	243.56326	15.27957	3.95028	0.1299327	2.2911220	38	4	1983–1998	0.83	M-v	2	Williams	30691	1997 HQ_1

1997 HP_2	15.0	0.15	19980706	80.61831	83.32667	174.88713	1.18924	0.1089340	2.5342553	42	2	1997–1998	0.75	M-v	4	Williams	32478	1997 HP_2
1997 JO	14.5	0.15	19980706	98.56583	235.53870	355.78293	9.39024	0.1710932	2.3069702	47	3	1995–1998	0.74	M-v	3	Williams	32478	1997 JO
1997 JU_3	15.0	0.15	19980706	103.48348	153.45833	56.74628	8.90102	0.1489714	2.8157563	34	2	1997–1998	0.70	M-v	4	Marsden	32520	1997 JU_3
1997 JU_7	14.5	0.15	19980706	298.92700	208.96118	202.28397	14.44256	0.1789548	2.3859364	37	2	1997–1998	0.56	M-v	4	Williams	32479	1997 JU_7
1997 JB_{10}	15.0	0.15	19980706	174.21660	50.89554	115.76847	2.95082	0.0890515	2.2821251	39	2	1997–1998	0.86	M-v	5	Williams	32479	1997 JB_{10}
1997 JA_{11}	13.5	0.15	19980706	318.77882	233.37467	149.92860	14.97641	0.3095068	3.1391817	39	2	1997–1998	0.50	M-v	3	Williams	32479	1997 JA_{11}
1997 JF_{12}	14.5	0.15	19980706	73.40447	31.32202	201.39897	1.22304	0.0885068	3.0383265	16	2	1997–1998	0.74	M-v	5	Williams	32479	1997 JF_{12}
1997 JB_{13}	14.5	0.15	19980706	93.83237	54.68383	145.79168	0.93723	0.1236950	3.1969994	28	5	1991–1998	0.85	M-v	1	Williams	32520	1997 JB_{13}
1997 JL_{13}	14.0	0.15	19980706	87.45633	59.00898	195.19178	3.28230	0.1540906	2.4764249	26	4	1989–1998	0.71	M-v	5	Williams	30087	1997 JL_{13}
1997 JC_{14}	14.0	0.15	19980706	11.23207	153.01523	195.87834	10.09952	0.2062868	2.5513104	29	3	1996–1998	0.54	M-v	2	Williams	32479	1997 JC_{14}
1997 JD_{14}	14.0	0.15	19980706	324.05821	166.11127	208.73510	14.03463	0.0167692	2.5475393	26	2	1997–1998	0.57	M-v	4	Williams	32479	1997 JD_{14}
1997 JS_{14}	15.0	0.15	19980706	356.09356	174.60140	171.35142	2.38088	0.0848418	2.5376931	51	4	1994–1998	0.76	M-v	2	Williams	30474	1997 JS_{14}
1997 JE_{15}	13.5	0.15	19980706	359.11719	176.82893	145.03009	2.80219	0.0502322	2.9002090	48	3	1996–1998	0.86	M-v	3	Williams	32520	1997 JE_{15}
1997 JM_{15}	14.5	0.15	19980706	75.21851	150.42795	95.13138	2.97123	0.0164839	2.7967780	29	3	1994–1998	0.89	M-v	4	Williams	32479	1997 JM_{15}
1997 JT_{15}	13.0	0.15	19980706	352.44459	210.49788	116.16394	3.10025	0.0334038	2.9167743	40	2	1997–1998	0.67	M-v	4	Williams	32480	1997 JT_{15}
1997 JH_{16}	14.5	0.15	19980706	61.18985	94.04213	202.77501	5.45312	0.1286899	2.3821325	21	3	1993–1998	0.71	M-v	4	Williams	30903	1997 JH_{16}
1997 JJ_{16}	14.0	0.15	19980706	115.06967	52.74923	168.47297	2.30019	0.1201777	2.4792202	48	4	1977–1998	0.72	M-v	2	Williams	32520	1997 JJ_{16}
1997 JP_{16}	13.0	0.15	19980706	79.68010	127.42222	111.91879	3.54676	0.0401687	2.8696762	47	4	1989–1998	0.62	M-v	1	Williams	32480	1997 JP_{16}
1997 JT_{16}	13.0	0.15	19980706	317.37521	270.06950	97.71809	10.98461	0.1454362	3.0813103	23	3	1994–1998	0.36	M-v	3	Williams	30087	1997 JT_{16}
1997 KG	14.0	0.15	19980706	315.91245	281.76490	95.57538	3.32795	0.0879518	2.8892797	63	2	1997–1998	0.62	M-v	4	Williams	32480	1997 KG
1997 KH	14.5	0.15	19980706	31.91885	121.09655	194.90636	2.03066	0.0901121	2.6261595	36	3	1992–1998	0.49	M-v	2	Williams	30293	1997 KH
1997 LN	14.0	0.15	19980706	316.76688	208.48515	164.86464	6.14173	0.0684127	2.7937047	51	5	1979–1998	0.59	M-v	1	Williams	32520	1997 LN
1997 MR	14.0	0.15	19980706	326.28027	145.14892	209.25046	7.61361	0.0450997	3.0414759	34	2	1997–1998	0.79	M-v	4	Williams	32480	1997 MR
1997 MJ_2	15.0	0.15	19980706	244.79003	5.42062	94.97942	7.76935	0.0697973	2.3877653	34	3	1980–1998	0.56	M-v	3	Williams	32520	1997 MJ_2
1997 ML_2	15.0	0.15	19980706	248.83583	295.75104	156.72232	3.54847	0.1683652	2.3813663	41	3	1980–1998	0.75	M-v	4	Williams	32481	1997 ML_2
1997 NU	13.0	0.15	19980706	114.45495	81.86635	122.11129	13.51802	0.1160751	2.6724304	38	2	1997–1998	0.58	M-v	3	Williams	32314	1997 NU
1997 NQ_2	13.5	0.15	19980706	188.12641	255.24014	281.65286	29.78407	0.1324138	2.7917254	33	3	1991–1998	0.78	M-v	3	Williams	32520	1997 NQ_2
1997 NC_3	13.5	0.15	19980706	343.98010	126.53510	268.94875	0.44386	0.1980254	3.2095453	30	6	1981–1998	0.74	M-v	1	Williams	30674	1997 NC_3
1997 NE_3	14.0	0.15	19980706	191.31918	247.62693	293.63674	6.55606	0.1542248	2.3980807	30	2	1997–1998	0.36	M-v	4	Marsden	32481	1997 NE_3
1997 NU_6	13.5	0.15	19980706	126.02737	355.74738	237.78502	8.36561	0.0917891	2.8089527	43	2	1997–1998	0.51	M-v	4	Williams	32254	1997 NU_6
1997 NJ_{10}	13.0	0.15	19980706	222.30029	338.94176	175.41297	10.30396	0.0434939	2.9923764	23	4	1986–1998	0.66	M-v	2	Williams	30674	1997 NJ_{10}
1997 OJ	14.0	0.15	19980706	69.19612	229.87458	58.65354	1.26728	0.1667977	3.1753288	31	2	1997–1998	0.52	M-v	4	Williams	32481	1997 OJ
1997 PQ	15.5	0.15	19980706	340.07922	306.04840	125.23307	4.69134	0.0798891	2.2024541	25	4	1991–1998	0.58	M-v	2	Williams	30788	1997 PQ
1997 QA	14.0	0.15	19980706	107.54160	25.74947	317.86535	6.80817	0.0832534	2.4117572	57	4	1980–1998	0.51	M-v	2	Williams	31423	1997 QA
1997 SH	14.0	0.15	19980706	119.47824	357.37439	274.67419	9.07416	0.0732990	2.9676114	35	3	1977–1998	0.58	M-v	3	Williams	32520	1997 SH
1997 SK_1	14.5	0.15	19980706	284.81012	156.96050	338.61656	3.88419	0.0861339	2.6301414	49	3	1991–1997	0.58	M-v	4	Williams	32255	1997 SK_1
1997 SM_1	13.0	0.15	19980706	207.14757	5.54054	199.20130	13.38851	0.1062059	2.6812266	28	2	1997–1998	0.19	M-v	3	Williams	32481	1997 SM_1
1997 TT_9	11.5	0.15	19980706	332.30514	38.85745	44.51112	10.10979	0.0653280	5.1039389	33	2	1997–1998	0.46	M-v	3	Williams	32481	1997 TT_9
1997 TU_9	14.0	0.15	19980706	282.39156	339.87449	212.82031	4.75144	0.4270735	2.7064862	34	4	1959–1998	0.55	M-v	1	Williams	31145	1997 TU_9
1997 TA_{10}	13.0	0.15	19980706	56.56371	349.33704	34.58609	3.72361	0.0554520	3.1820163	52	4	1985–1998	0.78	M-v	2	Williams	31012	1997 TA_{10}
1997 UF_9	16.5	0.15	19980706	33.88455	157.75534	37.28206	25.87957	0.6042460	1.4423927	159	2	1997–1998	0.55	M-v	3	Williams	32520	1997 UF_9
1997 US_9	17.5	0.15	19980706	55.25676	357.18434	212.31140	20.01492	0.2818412	1.0524079	180	2	1997–1998	0.58	M-v	3	Williams	32520	1997 US_9
1997 VV_1	11.5	0.15	19980706	5.55567	12.63646	20.30651	4.67406	0.1426572	5.2263563	33	2	1997–1998	0.48	M-v	3	Williams	32521	1997 VV_1
1997 WR_{31}	14.0	0.15	19980706	30.18131	288.18933	168.03017	1.32105	0.1487766	2.4047901	42	3	1980–1998	0.62	M-v	2	Williams	32314	1997 WR_{31}
1997 XH_9	13.5	0.15	19980706	159.43386	337.31776	54.53742	3.56308	0.1805227	3.0501093	30	4	1958–1998	0.68	M-v	2	Williams	32482	1997 XH_9
1997 YR_{13}	13.0	0.15	19980706	122.61670	162.19072	217.94616	0.10085	0.1293219	3.2109411	32	4	1990–1998	0.44	M-v	2	Williams	32255	1997 YR_{13}
1998 BG_2	13.5	0.15	19980706	240.70582	200.69619	87.96771	1.19755	0.1840820	2.2126939	47	5	1982–1998	0.61	M-v	2	Williams	32482	1998 BG_2
1998 BH_7	14.5	0.15	19980706	300.80460	61.91670	183.44622	1.36859	0.0845012	2.2319226	37	4	1949–1998	0.62	M-v	2	Williams	31592	1998 BH_7
1998 BZ_7	17.5	0.15	19980706	29.20799	102.79878	112.51660	6.48141	0.5552474	2.0393787	246	1	238 days	0.48	M-v	3	Marsden	32521	1998 BZ_7
1998 BM_{15}	13.5	0.15	19980706	221.01340	38.14612	259.97967	2.67243	0.0462323	3.1546014	25	3	1981–1998	0.49	M-v	3	Williams	32482	1998 BM_{15}
1998 CV_3	15.5	0.15	19980216	36.89031	316.95579	157.64242	6.91161	0.0514104	2.3505860	23	1	49 days	0.84			Williams		1998 CV_3
1998 DD_{18}	16.0	0.15	19980706	281.70174	165.80853	141.51043	6.20960	0.1904716	2.2658639	16	2	1995–1998	0.26	M-v	4	Williams	32255	1998 DD_{18}
1998 EX_1	14.5	0.15	19980706	197.40362	325.83360	56.24658	0.77098	0.1806397	2.5408892	27	3	1979–1998	0.82	M-v	5	Williams	32256	1998 EX_1

1998 EN_{11}	14.0	0.15	19980706	332.88546	74.91796	160.27067	26.62021	0.1685294	3.1499797	25	2	1994–1998	0.55	M-v	3	Williams	32482	1998 EN_{11}
1998 ED_{21}	15.5	0.15	19980706	88.52352	296.67393	157.50177	8.89389	0.1061768	2.3623344	29	4	1987–1998	0.74	M-v	1	Williams	32256	1998 ED_{21}
1998 FL_{3}	22.0	0.15	19980706	342.53112	121.26983	180.21291	26.37573	0.2481805	1.2604080	23	1	180 days	0.70	M-v	4	Williams	32062	1998 FL_{3}
1998 FY_{10}	14.5	0.15	19980308	197.33161	300.69691	29.25140	2.25391	0.0679225	2.6598913	14	1	28 days	0.48			Williams		1998 FY_{10}
1998 FL_{12}	16.0	0.15	19980328	15.00199	161.69292	21.25469	21.76034	0.0882191	1.9292296	20	1	54 days	0.61			Williams		1998 FL_{12}
1998 FT_{12}	15.5	0.15	19980706	71.34428	295.13015	106.75825	8.62423	0.2000305	2.2648030	14	1	88 days	0.52	M-v	7 D	Doppler		1998 FT_{12}
1998 FP_{14}	13.5	0.15	19980308	106.67786	224.60374	203.66995	9.18015	0.0680136	2.9979008	41	1	54 days	0.73			Williams		1998 FP_{14}
1998 FU_{15}	15.0	0.15	19980328	289.77569	313.42612	316.36079	2.08003	0.0999431	2.6363651	34	1	31 days	1.03			Williams		1998 FU_{15}
1998 FB_{16}	15.0	0.15	19980417	65.41391	296.19010	192.11167	6.20119	0.1725938	2.4153281	33	1	54 days	0.64			Williams		1998 FB_{16}
1998 FF_{35}	13.5	0.15	19980706	329.04618	33.51729	201.64092	1.17998	0.0633803	3.0404096	37	4	1990–1998	0.62	M-v	2	Williams	32257	1998 FF_{35}
1998 FU_{38}	13.5	0.15	19980706	70.36891	281.39539	185.55592	5.56531	0.1502030	3.0915070	30	3	1985–1998	0.75	M-v	3	Williams	32483	1998 FU_{38}
1998 FM_{40}	14.0	0.15	19980706	302.07684	28.81241	258.23557	1.13304	0.2317150	2.5786722	33	4	1978–1998	0.73	M-v	1	Williams	32258	1998 FM_{40}
1998 FV_{40}	15.5	0.15	19980706	347.52380	177.91628	53.49866	1.99849	0.1393790	2.4020212	44	4	1992–1998	0.55	M-v	2	Williams	32318	1998 FV_{40}
1998 FZ_{40}	15.0	0.15	19980706	284.05107	40.24471	251.77238	0.13416	0.0928037	2.4852005	33	4	1991–1998	0.78	M-v	2	Williams	32258	1998 FZ_{40}
1998 FO_{54}	15.0	0.15	19980706	95.69251	108.54451	340.06167	1.62305	0.2458664	2.4000688	43	2	1994–1998	0.63	M-v	5	Williams	32259	1998 FO_{54}
1998 FR_{58}	13.5	0.15	19980706	51.33821	103.86342	45.71956	1.80989	0.0848601	3.1215191	46	2	1992–1998	0.52	M-v	5	Williams	32483	1998 FR_{58}
1998 FU_{58}	15.0	0.15	19980706	160.47051	231.85050	173.41004	6.47063	0.1162551	2.3835982	37	3	1985–1998	0.91	M-v	4	Williams	32483	1998 FU_{58}
1998 FB_{61}	13.0	0.15	19980706	229.42702	12.65640	333.17788	0.58331	0.1537779	3.2054358	38	3	1977–1998	0.73	M-v	5	Williams	32260	1998 FB_{61}
1998 FD_{68}	14.0	0.15	19980706	351.31186	111.54353	114.39262	0.81462	0.0758369	3.0048820	41	4	1992–1998	0.78	M-v	2	Williams	32323	1998 FD_{68}
1998 FJ_{72}	15.5	0.15	19980706	245.01889	153.39496	189.55706	3.68306	0.1121061	2.1978576	34	3	1973–1998	0.85	M-v	4	Williams	32260	1998 FJ_{72}
1998 FX_{72}	14.5	0.15	19980328	113.24566	248.91013	201.87092	9.01130	0.0451878	3.0886604	19	1	36 days	0.76			Williams		1998 FX_{72}
1998 FZ_{72}	16.0	0.15	19980328	327.82794	45.51612	199.02606	8.50305	0.0866505	2.6185466	18	1	36 days	0.60			Williams		1998 FZ_{72}
1998 FP_{106}	15.5	0.15	19980706	20.45894	308.64748	246.34969	4.44933	0.1681756	2.5539055	39	3	1992–1998	0.59	M-v	4	Williams	32324	1998 FP_{106}
1998 FH_{115}	13.5	0.15	19980706	221.06077	104.38385	270.47678	5.13799	0.2200343	2.2815196	36	3	1968–1998	0.61	M-v	4	Williams	32521	1998 FH_{115}
1998 FL_{123}	16.5	0.15	19980706	20.78243	270.76441	281.17178	1.50725	0.1309763	2.4241863	30	3	1992–1998	0.73	M-v	4	Williams	32262	1998 FL_{123}
1998 FP_{126}	15.0	0.15	19980706	359.66386	45.65895	161.42887	8.02393	0.1183702	3.1481211	28	2	1994–1998	0.60	M-v	4	Williams	32262	1998 FP_{126}
1998 FV_{130}	15.0	0.15	19980308	14.40098	145.96915	15.70819	4.86154	0.1672528	3.1995124	15	1	25 days	0.69			Williams		1998 FV_{130}
1998 FJ_{136}	15.0	0.15	19980328	327.26814	240.06221	344.96036	8.34146	0.0792380	3.0161976	15	1	4 days	1.14		E	Williams		1998 FJ_{136}
1998 FR_{136}	15.5	0.15	19980308	96.94109	226.13778	210.10257	6.56045	0.0628412	2.5368436	14	1	6 days	0.65			Williams		1998 FR_{136}
1998 FL_{137}	16.0	0.15	19980308	332.14084	25.86817	193.83304	12.51129	0.1695489	2.7616934	15	1	5 days	0.78			Williams		1998 FL_{137}
1998 FO_{141}	14.5	0.15	19980308	223.39704	136.43930	194.57334	12.83013	0.1797200	2.5775951	16	1	12 days	0.76			Williams		1998 FO_{141}
1998 GK_{1}	13.5	0.15	19980706	293.77623	331.68814	332.01907	8.28448	0.1799055	2.5718466	50	2	1970–1998	0.51	M-v	4	Williams	32325	1998 GK_{1}
1998 GO_{1}	15.0	0.15	19980706	24.08599	72.82171	146.71943	8.77111	0.1419094	2.2979953	54	1	72 days	0.40	M-v	4	Williams	32325	1998 GO_{1}
1998 GL_{9}	13.0	0.15	19980706	55.62795	27.32026	129.79724	16.76445	0.1382683	2.7413110	36	2	1993–1998	0.62	M-v	4	Williams	32521	1998 GL_{9}
1998 HX_{2}	15.5	0.15	19980417	109.35074	245.30877	202.09558	21.25785	0.1519971	1.9477386	36	1	59 days	0.56			Williams		1998 HX_{2}
1998 HV_{4}	14.0	0.15	19980706	350.75635	211.47424	29.80630	2.04385	0.0561197	2.9102997	46	5	1989–1998	0.64	M-v	1	Williams	32326	1998 HV_{4}
1998 HE_{6}	13.5	0.15	19980706	166.25195	227.67337	180.54371	7.81051	0.1035457	3.2285655	26	2	1977–1998	0.86	M-v	6	Williams	32484	1998 HE_{6}
1998 HQ_{12}	15.0	0.15	19980706	87.89575	3.70838	146.49817	13.02949	0.1167805	2.4017174	27	3	1990–1998	0.67	M-v	4	Williams	32263	1998 HQ_{12}
1998 HH_{15}	13.5	0.15	19980507	30.71629	129.47151	67.81918	10.80306	0.0119047	3.0794825	36	1	34 days	0.90			Williams		1998 HH_{15}
1998 HT_{19}	15.5	0.15	19980706	185.64562	168.93646	215.80688	2.51026	0.1168926	2.1351715	37	4	1992–1998	0.74	M-v	2	Williams	32264	1998 HT_{19}
1998 HC_{22}	15.5	0.15	19980706	0.00970	13.98151	209.85666	5.18115	0.1075304	2.4037850	52	3	1995–1998	0.67	M-v	4	Williams	32264	1998 HC_{22}
1998 HM_{22}	16.5	0.15	19980706	6.20611	58.01034	160.49352	2.36004	0.1423740	2.3409838	43	3	1980–1998	0.75	M-v	4	Williams	32265	1998 HM_{22}
1998 HT_{37}	13.0	0.15	19980706	107.80931	95.21804	1.45667	9.29974	0.1086239	3.2286425	41	3	1984–1998	0.83	M-v	3	Williams	32266	1998 HT_{37}
1998 HJ_{41}	18.0	0.15	19980706	310.92223	120.10664	211.92927	38.87465	0.1248663	1.3633035	96	1	148 days	0.61	M-v	5	Marsden	32521	1998 HJ_{41}
1998 HU_{43}	14.0	0.15	19980706	163.66500	17.06568	38.00798	7.22491	0.1377276	2.1946920	41	3	1978–1998	0.65	M-v	4	Williams	32266	1998 HU_{43}
1998 HK_{45}	14.5	0.15	19980706	305.85274	293.30648	8.60237	9.88837	0.1865560	2.4448115	37	2	1971–1998	0.71	M-v	4	Williams	32267	1998 HK_{45}
1998 HW_{45}	15.0	0.15	19980706	350.79458	226.75139	20.42333	3.57333	0.1780798	2.5627859	46	3	1978–1998	0.72	M-v	3	Williams	32521	1998 HW_{45}
1998 HR_{66}	15.0	0.15	19980417	304.80351	102.16630	185.36970	10.00858	0.2282273	3.2067976	15	1	10 days	0.94			Williams		1998 HR_{66}
1998 HS_{66}	16.0	0.15	19980328	55.59727	36.72509	102.13827	3.92046	0.0777158	2.5736758	16	1	37 days	0.78			Williams		1998 HS_{66}
1998 HY_{79}	14.5	0.15	19980706	289.05108	338.81098	344.98059	2.99259	0.1885170	2.6367178	31	4	1993–1998	0.64	M-v	2	Williams	32521	1998 HY_{79}
1998 HH_{80}	14.0	0.15	19980706	249.00560	339.42452	20.66712	5.88777	0.1886012	2.2938638	31	3	1971–1998	0.70	M-v	3	Williams	32268	1998 HH_{80}
1998 HJ_{80}	14.0	0.15	19980706	333.61314	236.41042	23.63515	5.54751	0.0850743	3.2263106	42	3	1992–1998	0.58	M-v	3	Williams	32329	1998 HJ_{80}
1998 HD_{85}	14.5	0.15	19980706	330.12432	74.88012	191.54796	4.55038	0.1068827	3.1616998	22	2	1994–1998	0.59	M-v	4	Williams	32484	1998 HD_{85}

1998 HH_{93}	14.0	0.15	19980706	163.24672	75.73073	355.72104	2.41834	0.0711281	2.1840202	38	4	1965–1998	0.66	M-v	2	Williams	32269	1998 HH_{93}
1998 HJ_{94}	13.0	0.15	19980706	145.52641	214.71398	222.94908	15.87323	0.0990325	3.1725564	40	2	1995–1998	0.71	M-v	4	Williams	32521	1998 HJ_{94}
1998 HH_{97}	14.0	0.15	19980706	166.39725	210.38664	212.74139	8.21630	0.1469538	2.5711524	39	4	1979–1998	0.67	M-v	2	Williams	32521	1998 HH_{97}
1998 HT_{98}	14.0	0.15	19980706	48.61059	121.14588	63.23444	1.87174	0.0388481	2.7704713	41	4	1990–1998	0.60	M-v	2	Williams	32269	1998 HT_{98}
1998 HH_{100}	13.5	0.15	19980706	267.36210	273.56220	78.71236	5.90702	0.2188409	2.4652862	50	4	1991–1998	0.62	M-v	2	Williams	32522	1998 HH_{100}
1998 HS_{100}	13.5	0.15	19980706	121.44579	301.61392	162.71937	2.88761	0.0835645	3.0555360	36	3	1992–1998	0.69	M-v	5	Williams	32522	1998 HS_{100}
1998 HG_{103}	15.0	0.15	19980706	295.53343	234.27698	101.94894	0.74388	0.1957410	2.3182942	40	3	1994–1998	0.74	M-v	4	Williams	32270	1998 HG_{103}
1998 HB_{115}	13.0	0.15	19980706	93.11233	345.88195	140.84902	14.71282	0.0905303	2.6260541	31	3	1989–1998	0.58	M-v	3	Williams	32270	1998 HB_{115}
1998 HN_{115}	13.0	0.15	19980706	321.67870	151.23941	128.77411	10.13414	0.1273364	2.7919475	44	3	1991–1998	0.56	M-v	3	Williams	32522	1998 HN_{115}
1998 HM_{117}	15.5	0.15	19980706	3.73900	71.79290	164.41554	6.75005	0.1077245	2.3269103	32	3	1991–1998	0.83	M-v	4	Williams	32271	1998 HM_{117}
1998 HW_{119}	14.5	0.15	19980507	62.85052	19.43007	130.84859	7.31340	0.0687219	2.3990453	32	1	42 days	0.64			Williams		1998 HW_{119}
1998 HC_{120}	13.5	0.15	19980706	146.93986	288.27412	146.63800	13.76641	0.1567224	2.5484024	34	4	1977–1998	0.73	M-v	2	Williams	32272	1998 HC_{120}
1998 HV_{122}	13.0	0.15	19980706	253.73011	262.77513	96.65011	10.26422	0.2076334	3.1130108	25	3	1978–1998	0.69	M-v	4	Williams	32484	1998 HV_{122}
1998 HH_{147}	15.5	0.15	19980706	6.26261	96.90980	141.63371	6.62232	0.0501857	2.2436286	25	3	1992–1998	0.76	M-v	4	Williams	32274	1998 HH_{147}
1998 JK	14.5	0.15	19980706	16.07999	132.34529	68.39823	3.23152	0.1452913	2.3980035	28	3	1976–1998	0.64	M-v	4	Williams	32484	1998 JK
1998 JL_1	16.0	0.15	19980706	37.60579	182.95438	14.31451	2.64313	0.1297406	2.3821685	33	2	1994–1998	0.72	M-v	4	Williams	32274	1998 JL_1
1998 JM_1	14.5	0.15	19980706	226.98416	57.35378	319.71362	1.82599	0.0486776	2.3818122	39	3	1988–1998	0.70	M-v	4	Williams	32275	1998 JM_1
1998 JQ_2	14.5	0.15	19980706	303.26797	164.90797	155.00330	8.16980	0.1965679	2.6852709	27	2	1990–1998	0.79	M-v	4	Williams	32275	1998 JQ_2
1998 JF_4	15.0	0.15	19980706	91.23028	24.50486	111.08369	4.33758	0.1535943	2.6186725	30	1	60 days	0.49	M-v	5	Williams	32332	1998 JF_4
1998 JL_4	17.0	0.15	19980706	9.99941	65.75061	173.61564	3.94369	0.1521760	2.2948916	22	1	60 days	0.54	M-v	5	Williams	32332	1998 JL_4
1998 KU_2	17.0	0.15	19980706	343.05586	119.13405	206.67889	4.88829	0.5537537	2.2498550	262	1	165 days	0.53	M-v	3	Marsden	32522	1998 KU_2
1998 KX_3	13.5	0.15	19980706	130.14098	326.81246	137.38410	4.06384	0.0882709	3.0975218	44	4	1994–1998	0.55	M-v	1	Williams	32332	1998 KX_3
1998 KA_6	14.5	0.15	19980706	345.42096	184.28304	145.04074	5.06570	0.1782149	2.9898335	16	1	113 days	0.48	M-v	5	Williams	32522	1998 KA_6
1998 KC_6	16.5	0.15	19980706	9.06590	148.53013	145.76349	2.96248	0.1905589	2.4057109	19	1	91 days	0.67	M-v	5	Williams	32522	1998 KC_6
1998 KS_6	15.5	0.15	19980706	86.04207	49.43397	101.36690	4.29245	0.1196905	2.3267689	23	2	1995–1998	0.88	M-v	6	Williams	32276	1998 KS_6
1998 KA_{10}	14.5	0.15	19980706	218.06280	247.59273	141.40254	4.74014	0.1663138	2.2844226	44	4	1982–1998	0.84	M-v	3	Williams	32484	1998 KA_{10}
1998 KH_{17}	16.0	0.15	19980706	357.93831	71.24064	220.38951	22.39213	0.4276613	2.3417522	230	1	119 days	0.48	M-v	3	Marsden	32522	1998 KH_{17}
1998 KO_{31}	14.5	0.15	19980706	94.91894	0.71402	147.44820	4.24330	0.0695723	2.4051555	35	3	1973–1998	0.87	M-v	2	Williams	32278	1998 KO_{31}
1998 KQ_{31}	15.5	0.15	19980706	217.76716	195.10823	202.63333	5.76160	0.1014155	2.3768262	29	3	1994–1998	0.62	M-v	4	Williams	32278	1998 KQ_{31}
1998 KW_{33}	15.0	0.15	19980706	264.80401	214.80293	144.56103	0.92672	0.1199389	2.5751344	19	3	1994–1998	0.81	M-v	5	Williams	32278	1998 KW_{33}
1998 KT_{34}	14.5	0.15	19980527	17.26579	130.02521	82.64798	12.65819	0.2603915	2.6439460	23	1	27 days	0.44			Williams		1998 KT_{34}
1998 KM_{39}	16.0	0.15	19980706	2.13161	54.33816	204.70101	0.69251	0.1516816	2.2087120	24	3	1992–1998	0.45	M-v	5	Williams	32280	1998 KM_{39}
1998 KT_{44}	14.5	0.15	19980706	305.58584	132.48589	199.36530	6.90639	0.1910354	2.6872279	18	3	1992–1998	0.74	M-v	3	Williams	32280	1998 KT_{44}
1998 KQ_{45}	15.0	0.15	19980527	9.42411	171.01964	66.44539	3.14658	0.0850571	2.3205607	23	1	12 days	1.21			Williams		1998 KQ_{45}
1998 KE_{48}	15.0	0.15	19980706	13.87476	124.77174	125.92532	2.93090	0.0950582	2.2685198	28	4	1977–1998	0.84	M-v	2	Williams	32485	1998 KE_{48}
1998 KJ_{52}	13.0	0.15	19980706	96.95988	332.58879	181.10966	10.42714	0.0167502	3.1564710	26	3	1977–1998	0.58	M-v	4	Williams	32282	1998 KJ_{52}
1998 KN_{55}	14.5	0.15	19980706	160.11935	278.98955	177.33267	9.04811	0.1362549	2.7927620	19	1	62 days	0.63	M-v	6	Williams	32336	1998 KN_{55}
1998 KK_{56}	16.5	0.15	19980706	10.79532	127.18187	106.37907	25.68803	0.5142963	3.1634473	131	1	81 days	0.47	M-v	4	Williams	32522	1998 KK_{56}
1998 KZ_{59}	14.5	0.15	19980527	14.58827	58.50751	163.49433	15.01314	0.1018241	2.5333594	21	1	26 days	1.11			Williams		1998 KZ_{59}
1998 KJ_{60}	13.5	0.15	19980527	7.74087	95.21384	136.71437	17.88938	0.0971296	2.8068870	22	1	27 days	0.82			Williams		1998 KJ_{60}
1998 KN_{60}	14.5	0.15	19980706	23.09062	116.60461	107.87995	14.38208	0.1045292	2.4755660	29	1	83 days	0.54	M-v	4	Williams		1998 KN_{60}
1998 KU_{60}	14.0	0.15	19980706	356.14560	95.53333	164.62789	12.01714	0.1440675	2.6306315	27	1	69 days	0.43	M-v	4	Williams	32522	1998 KU_{60}
1998 KM_{61}	16.0	0.15	19980706	15.70526	100.19633	145.61383	5.27536	0.1325761	2.1847058	33	2	1992–1998	0.64	M-v	4	Williams	32284	1998 KM_{61}
1998 KX_{63}	14.0	0.15	19980527	312.43606	223.04819	73.54478	5.94647	0.0696181	2.7772539	23	1	40 days	0.97			Williams		1998 KX_{63}
1998 KL_{65}	15.0	0.15	19980706	355.58290	228.64842	44.80756	2.92176	0.1841707	2.4159409	20	3	1995–1998	0.58	M-v	4	Williams	32486	1998 KL_{65}
1998 KR_{65}	7.0	0.15	19980616	93.55021	101.74452	101.70738	1.17824	0.0553884	44.0655056	36	1	86 days	0.09		E	Marsden		1998 KR_{65}
1998 LA	15.0	0.15	19980706	14.38646	126.51976	120.01350	5.01801	0.2110658	2.5748746	62	3	1994–1998	0.61	M-v	3	Williams	32523	1998 LA
1998 MD	15.5	0.15	19980706	316.38512	70.65164	288.51475	5.62435	0.2856778	2.5182857	39	3	1994–1998	0.68	M-v	3	Williams	32486	1998 MD
1998 MQ	16.5	0.15	19980706	315.79403	138.54618	221.27089	24.21066	0.4081734	1.7829666	169	1	124 days	0.51	M-v	3	Marsden	32523	1998 MQ
1998 MZ	19.5	0.15	19980616	40.88779	41.16315	120.27543	0.13485	0.5781665	1.3540649	96	1	23 days	0.70			Williams		1998 MZ
1998 ME_3	19.5	0.15	19980706	355.51985	165.20577	129.67270	5.99367	0.4837304	2.1763653	220	1	121 days	0.62	M-v	4	Williams	32523	1998 ME_3
1998 MK_4	12.0	0.15	19980706	18.90371	99.00298	157.70917	22.92723	0.1322881	3.1142828	20	4	1931–1998	0.56	M-v	1	Williams	32285	1998 MK_4
1998 MM_5	16.5	0.15	19980706	336.35673	23.05942	343.06457	4.64930	0.2532806	2.5745796	15	1	87 days	0.38	M-v	5	Williams		1998 MM_5

1998 MX_{5}	18.0	0.15	19980706	352.35906	55.69121	266.63945	9.70999	0.6119726	2.9189627	258	1	96 days	0.57	M-v	4	Williams	32523	1998 MX_{5}
1998 MM_{7}	15.0	0.15	19980706	326.23591	241.89214	99.07882	12.50946	0.2574571	2.3743592	35	1	98 days	0.46	M-v	4	Williams	32523	1998 MM_{7}
1998 MU_{7}	15.0	0.15	19980706	330.24344	84.29052	262.19082	4.87440	0.2046902	2.2411830	30	1	112 days	0.62	M-v	4	Williams	32523	1998 MU_{7}
1998 MW_{7}	15.5	0.15	19980706	16.87761	127.24795	153.35344	9.09031	0.2512855	2.5469291	35	2	1994–1998	0.74	M-v	4	Williams	32487	1998 MW_{7}
1998 MY_{7}	14.5	0.15	19980706	355.19333	60.98720	255.90757	10.54324	0.2545368	2.6084509	27	1	91 days	0.68	M-v	4	Williams	32523	1998 MY_{7}
1998 MZ_{7}	12.5	0.15	19980706	344.57913	93.31980	246.98818	14.16085	0.2905108	3.1019257	43	3	1987–1998	0.71	M-v	3	Williams	32523	1998 MZ_{7}
1998 MZ_{8}	14.5	0.15	19980616	0.09907	83.52117	174.09880	8.77995	0.0800225	3.0589082	24	1	59 days	0.72			Williams		1998 MZ_{8}
1998 MB_{10}	15.5	0.15	19980527	353.09807	82.77331	182.71177	9.60680	0.1105945	2.2048296	18	1	30 days	1.02			Williams		1998 MB_{10}
1998 MQ_{11}	10.0	0.15	19980527	296.92074	201.33861	137.56904	30.80667	0.1127057	5.2797389	18	1	29 days	0.78			Williams		1998 MQ_{11}
1998 ML_{14}	17.5	0.15	19980706	342.65161	18.95609	339.69523	2.43781	0.6175408	2.4211921	189	1	98 days	0.58	M-v	5	Williams	32523	1998 ML_{14}
1998 MW_{15}	14.5	0.15	19980706	352.05325	194.09361	118.10907	26.51962	0.2622301	3.0079201	30	1	95 days	0.45	M-v	3	Williams	32523	1998 MW_{15}
1998 MB_{16}	14.0	0.15	19980706	85.19741	79.48641	77.98643	3.60105	0.0409624	2.9259630	21	3	1995–1998	0.78	M-v	4	Williams	32285	1998 MB_{16}
1998 MG_{16}	16.5	0.15	19980706	318.76128	224.62776	150.15387	2.74006	0.2234299	2.4033937	24	1	82 days	0.70	M-v	5	Williams	32523	1998 MG_{16}
1998 MR_{17}	16.0	0.15	19980706	6.55870	347.76851	281.91937	15.60892	0.4808066	2.7009873	196	1	90 days	0.52	M-v	4	Marsden	32523	1998 MR_{17}
1998 ML_{24}	17.0	0.15	19980706	347.42407	220.84215	98.26895	6.94581	0.2881443	2.1584213	40	1	88 days	0.61	M-v	5	Williams		1998 ML_{24}
1998 MR_{24}	19.0	0.15	19980706	357.12688	54.30231	245.39967	6.08402	0.4455491	1.9584343	111	1	90 days	0.46	M-v	4	Williams	32523	1998 MR_{24}
1998 MS_{24}	14.5	0.15	19980706	5.33824	137.64809	145.41441	15.25619	0.3342019	2.6103316	56	2	1997–1998	0.45	M-v	3	Williams	32487	1998 MS_{24}
1998 MT_{24}	14.5	0.15	19980706	34.39795	253.64054	310.12476	34.04541	0.6505537	2.4176324	192	1	86 days	0.50	M-v	4	Marsden	32523	1998 MT_{24}
1998 MK_{30}	16.0	0.15	19980706	339.43621	154.50365	203.74567	5.41213	0.4347148	2.4672753	262	1	102 days	0.54	M-v	3	Williams	32523	1998 MK_{30}
1998 MP_{32}	15.0	0.15	19980706	10.33645	159.04376	116.99033	5.00902	0.1476955	2.2189909	42	3	1994–1998	0.80	M-v	4	Williams	32524	1998 MP_{32}
1998 MT_{32}	15.0	0.15	19980706	42.74597	355.43135	243.87462	4.16650	0.0991157	2.2914512	22	2	1994–1998	0.75	M-v	5	Williams	32287	1998 MT_{32}
1998 MT_{34}	15.0	0.15	19980706	33.61677	9.41632	239.71368	5.60534	0.1401122	2.2741720	27	5	1984–1998	0.78	M-v	2	Williams	32524	1998 MT_{34}
1998 MA_{36}	17.0	0.15	19980706	334.81158	247.92501	83.21584	6.19532	0.2378591	2.2773461	37	3	1995–1998	0.49	M-v	3	Williams	32487	1998 MA_{36}
1998 MM_{36}	15.0	0.15	19980706	332.12512	31.13573	308.21569	6.10154	0.1966270	2.2054111	19	1	58 days	0.48			Williams		1998 MM_{36}
1998 MF_{37}	13.5	0.15	19980706	343.51792	187.42869	133.29564	13.50987	0.1824023	2.8803992	33	2	1995–1998	0.58	M-v	4	Marsden	32524	1998 MF_{37}
1998 MK_{37}	14.0	0.15	19980706	16.81992	358.01327	276.70222	7.15151	0.1710556	2.5762815	28	3	1990–1998	0.77	M-v	3	Williams	32524	1998 MK_{37}
1998 ML_{37}	14.5	0.15	19980706	272.21989	296.15494	112.79394	5.31987	0.1721915	2.2700578	32	4	1971–1998	0.88	M-v	2	Williams	32488	1998 ML_{37}
1998 MQ_{37}	16.5	0.15	19980706	334.71758	43.10722	297.98547	5.93273	0.2905418	2.2360364	24	1	82 days	0.61	M-v	4	Williams	32524	1998 MQ_{37}
1998 MR_{37}	14.5	0.15	19980706	351.53430	245.37637	64.83934	4.21203	0.2124697	2.3442535	25	3	1991–1998	0.64	M-v	3	Williams	32488	1998 MR_{37}
1998 MT_{37}	14.5	0.15	19980706	296.35627	340.93220	47.95986	3.12359	0.2197291	2.7690701	18	3	1992–1998	0.80	M-v	5	Williams	32288	1998 MT_{37}
1998 MB_{38}	14.0	0.15	19980706	48.30640	317.91512	301.48210	10.74916	0.0574828	2.7274493	42	3	1972–1998	0.75	M-v	3	Williams	32488	1998 MB_{38}
1998 MC_{38}	16.0	0.15	19980706	347.79104	173.32745	146.76023	8.79291	0.2383437	2.2159514	15	1	98 days	0.33	M-v	4	Williams		1998 MC_{38}
1998 ME_{47}	13.5	0.15	19980706	42.21353	313.13617	287.90662	7.63721	0.1103808	2.7557781	14	1	32 days	0.74			Williams		1998 ME_{47}
1998 MF_{48}	15.5	0.15	19980706	355.24206	195.92882	103.84411	3.38395	0.2134203	2.3948096	24	1	79 days	0.72	M-v	4	Williams		1998 MF_{48}
1998 NA	13.0	0.15	19980706	333.90351	37.92297	334.10712	9.18890	0.1779710	2.5791669	53	2	1992–1998	0.70	M-v	3	Williams	32488	1998 NA
1998 NH	14.5	0.15	19980726	258.84253	290.09644	124.87253	12.27104	0.1306514	2.7719001	15	1	56 days	0.23			Marsden		1998 NH
1998 OH	16.0	0.15	19980706	53.64424	321.51397	220.86371	24.50240	0.4064294	1.5414934	94	2	1993–1998	0.46	M-v	4	Marsden	32488	1998 OH
1998 OJ	15.0	0.15	19980706	56.26874	357.85367	240.33438	3.94428	0.1316646	2.2302214	36	3	1991–1998	0.65	M-v	4	Williams	32525	1998 OJ
1998 OK	14.5	0.15	19980706	31.53726	87.34030	186.35152	6.60249	0.0944074	2.3933401	53	1	88 days	0.52	M-v	4	Williams	32525	1998 OK
1998 OP	15.0	0.15	19980706	1.73608	128.98977	161.44226	3.85558	0.1793382	2.1736856	32	3	1950–1998	0.72	M-v	3	Williams	32489	1998 OP
1998 OQ	16.0	0.15	19980706	194.12500	231.12338	236.04942	4.25404	0.1347994	2.5313769	21	3	1993–1998	0.35	M-v	5	Williams	32289	1998 OQ
1998 OA_{1}	14.5	0.15	19980706	359.60338	33.56206	281.65999	7.96061	0.1229276	3.0458244	30	1	65 days	0.54	M-v	4	Williams		1998 OA_{1}
1998 OC_{1}	16.0	0.15	19980706	356.58008	144.30242	167.65429	6.76364	0.1407151	2.2299248	24	1	65 days	0.55	M-v	5	Williams		1998 OC_{1}
1998 OD_{1}	15.0	0.15	19980706	329.31152	84.94466	265.53427	5.41182	0.1434924	2.3860837	63	1	89 days	0.59	M-v	4	Williams	32525	1998 OD_{1}
1998 OE_{1}	14.5	0.15	19980815	350.41251	41.94396	298.34839	15.41210	0.2248239	3.0001548	36	1	59 days	0.62			Williams		1998 OE_{1}
1998 OJ_{1}	14.5	0.15	19980815	348.08698	92.53421	243.67766	12.02469	0.1948693	2.5905142	30	1	51 days	0.48			Williams		1998 OJ_{1}
1998 ON_{1}	14.0	0.15	19980706	319.78266	164.26596	198.14379	7.73565	0.2334920	2.7634443	40	1	88 days	0.30	M-v	4	Williams		1998 ON_{1}
1998 OT_{1}	15.5	0.15	19980706	336.37460	29.48511	303.32704	6.51767	0.1127859	2.2653429	33	1	71 days	0.47	M-v	4	Williams		1998 OT_{1}
1998 OH_{2}	15.0	0.15	19980706	51.57007	107.80592	151.42127	1.70114	0.1383997	2.4305543	29	1	67 days	0.58	M-v	5	Williams		1998 OH_{2}
1998 OJ_{2}	15.0	0.15	19980815	40.76539	140.68637	151.20252	5.96224	0.0503206	2.4135658	41	1	55 days	0.91			Williams		1998 OJ_{2}
1998 OR_{2}	16.5	0.15	19980706	35.46447	173.17222	27.45825	5.92030	0.5728011	2.3832294	39	1	59 days	0.53	M-v	5	Marsden		1998 OR_{2}
1998 OF_{4}	16.0	0.15	19980815	323.15469	227.44870	140.03535	5.08271	0.1615685	2.2242298	28	1	58 days	0.68			Marsden		1998 OF_{4}
1998 OQ_{4}	15.5	0.15	19980706	31.02618	1.89133	265.02236	1.97033	0.1210644	2.2689685	33	2	1997–1998	0.50	M-v	4	Marsden	32489	1998 OQ_{4}

1998 OS_4	18.5	0.15	19980706	350.34660	31.07879	297.49490	10.77211	0.4808333	2.7148173	66	1	55 days	0.54	M-v	5	Marsden	32525	1998 OS_4
1998 OY_4	14.5	0.15	19980706	271.70272	196.20554	231.92728	8.09876	0.1783135	2.5549373	31	2	1990–1998	0.49	M-v	4	Williams	32489	1998 OY_4
1998 OZ_4	14.5	0.15	19980706	281.38926	210.24334	206.72589	10.16597	0.1387049	3.1356081	21	1	63 days	0.66	M-v	5	Williams		1998 OZ_4
1998 OW_5	13.0	0.15	19980815	178.78154	3.55246	142.78433	15.00971	0.1035955	3.1614594	29	1	55 days	0.61			Williams		1998 OW_5
1998 OE_6	15.0	0.15	19980706	338.64419	38.80141	294.72671	4.63944	0.2192012	2.3419630	35	2	1991–1998	0.62	M-v	5	Williams	32489	1998 OE_6
1998 OT_6	15.0	0.15	19980706	27.80503	276.45025	354.91664	1.91692	0.2032193	2.3804865	40	3	1990–1998	0.79	M-v	3	Williams	32489	1998 OT_6
1998 OW_6	15.0	0.15	19980706	332.11994	212.61642	142.89319	19.03731	0.2861743	2.5985951	30	2	1992–1998	0.47	M-v	3	Williams	32490	1998 OW_6
1998 OX_6	13.0	0.15	19980706	20.41896	351.10419	307.25972	11.82601	0.0662120	2.8616121	42	1	60 days	0.49	M-v	4	Williams		1998 OX_6
1998 OZ_6	14.5	0.15	19980706	326.68056	104.91193	264.94635	4.33765	0.2387453	2.6305883	44	2	1997–1998	0.52	M-v	4	Williams	32490	1998 OZ_6
1998 OD_7	14.0	0.15	19980815	157.64046	225.83747	304.31957	7.75294	0.0871171	2.8007689	20	1	35 days	0.54			Williams		1998 OD_7
1998 OE_7	14.5	0.15	19980706	303.14389	87.29753	310.79646	12.06249	0.2072220	2.5370389	41	3	1986–1998	0.42	M-v	4	Williams	32490	1998 OE_7
1998 OF_7	15.5	0.15	19980706	7.33339	11.63792	288.85245	5.96646	0.1996437	2.2394585	29	1	80 days	0.56	M-v	4	Williams		1998 OF_7
1998 OG_7	12.5	0.15	19980815	159.30199	312.81472	217.41602	5.34792	0.1020322	3.1852878	27	1	52 days	0.78			Williams		1998 OG_7
1998 OH_7	14.0	0.15	19980706	353.66851	44.87841	283.35239	7.90334	0.1794000	2.7345658	42	1	81 days	0.49	M-v	4	Williams	32525	1998 OH_7
1998 OJ_7	15.0	0.15	19980706	345.61890	109.95784	226.18088	5.25493	0.1555759	2.4120527	55	1	80 days	0.52	M-v	4	Williams	32525	1998 OJ_7
1998 OU_7	15.0	0.15	19980706	347.68987	26.52078	297.96335	5.34418	0.1255624	2.3449094	32	3	1991–1998	0.84	M-v	4	Williams	32490	1998 OU_7
1998 OL_8	13.5	0.15	19980726	307.00307	238.07525	145.71227	9.66119	0.1141118	3.2249128	20	1	43 days	0.55			Williams		1998 OL_8
1998 OS_8	16.0	0.15	19980815	341.67333	44.30914	305.47345	4.13876	0.1849850	2.1953095	25	1	49 days	0.80			Williams		1998 OS_8
1998 OU_9	13.5	0.15	19980706	209.36923	205.60931	262.13113	0.88757	0.0165393	2.8992962	36	3	1993–1998	0.83	M-v	4	Williams	32490	1998 OU_9
1998 OY_9	16.5	0.15	19980706	16.93952	118.67852	163.01022	4.05481	0.1861412	2.1930280	23	2	1995–1998	0.76	M-v	4	Williams	32490	1998 OY_9
1998 OF_{10}	15.5	0.15	19980706	29.04787	119.73420	150.49754	5.77928	0.1435728	2.2162972	28	1	83 days	0.76	M-v	5	Williams		1998 OF_{10}
1998 OH_{10}	15.0	0.15	19980815	294.43362	258.68223	153.03801	6.21818	0.1970786	2.2817026	18	1	57 days	0.57			Williams		1998 OH_{10}
1998 OS_{11}	15.0	0.15	19980815	353.79350	26.25129	309.01547	9.51010	0.2122327	2.7814329	21	1	51 days	0.58			Williams		1998 OS_{11}
1998 OT_{11}	16.5	0.15	19980706	315.07120	181.31240	197.82086	1.71138	0.2377839	2.3866521	29	2	1995–1998	0.71	M-v	4	Williams	32491	1998 OT_{11}
1998 OX_{11}	16.5	0.15	19980815	330.52819	45.39674	315.88004	11.31370	0.3039801	2.6014405	12	1	53 days	0.58			Williams		1998 OX_{11}
1998 OY_{11}	16.5	0.15	19980815	353.32752	269.78889	61.97185	2.81649	0.2290669	2.3750481	20	1	56 days	0.32			Williams		1998 OY_{11}
1998 OZ_{11}	15.5	0.15	19980706	304.62564	36.95032	338.23262	7.37807	0.1228779	2.2838055	25	1	66 days	0.69	M-v	5	Williams		1998 OZ_{11}
1998 OB_{12}	16.0	0.15	19980815	339.37178	262.33781	92.32204	4.82257	0.2406706	2.5755388	27	1	55 days	0.56			Williams		1998 OB_{12}
1998 OC_{12}	16.0	0.15	19980706	346.16761	277.18933	36.05626	3.41714	0.1784933	2.5348244	19	1	64 days	0.68	M-v	5	Williams		1998 OC_{12}
1998 OD_{12}	15.0	0.15	19980815	101.08288	218.12580	352.41010	5.94649	0.0752836	2.3940969	29	1	50 days	0.75			Williams		1998 OD_{12}
1998 OE_{12}	16.5	0.15	19980815	352.68594	225.47374	105.67399	5.51041	0.1861749	2.5848237	10	1	49 days	0.30			Williams		1998 OE_{12}
1998 OG_{12}	14.5	0.15	19980706	50.39238	260.73733	343.41823	9.17518	0.0889266	2.6288433	40	3	1986–1998	0.63	M-v	3	Williams	32491	1998 OG_{12}
1998 OH_{12}	14.0	0.15	19980706	331.74463	239.38630	100.89116	11.69893	0.1137865	3.0040007	17	1	71 days	0.32	M-v	4	Williams		1998 OH_{12}
1998 OK_{12}	16.0	0.15	19980815	326.37085	323.90571	44.03582	7.51385	0.1261756	2.3327209	16	1	46 days	0.38			Williams		1998 OK_{12}
1998 OL_{12}	16.5	0.15	19980726	12.13155	314.75778	329.83952	7.37191	0.1864418	2.2693028	16	1	29 days	0.49			Williams		1998 OL_{12}
1998 OM_{12}	12.0	0.15	19980815	317.98275	323.71228	27.37081	7.48762	0.0367692	5.3249410	23	1	51 days	0.51			Williams		1998 OM_{12}
1998 ON_{12}	15.0	0.15	19980706	347.72596	175.31514	153.42853	2.71864	0.2114134	2.3901345	32	1	84 days	0.79	M-v	4	Williams		1998 ON_{12}
1998 OP_{12}	14.5	0.15	19980706	48.00814	134.78762	101.78258	1.31340	0.3064412	3.0361579	36	3	1994–1998	0.79	M-v	3	Williams	32491	1998 OP_{12}
1998 OR_{12}	13.5	0.15	19980815	286.51171	276.50379	131.30478	3.00846	0.0634781	2.9297187	14	1	54 days	0.65			Williams		1998 OR_{12}
1998 OU_{12}	15.5	0.15	19980706	340.70993	208.32249	129.92384	8.24346	0.2247830	2.2641387	25	1	82 days	0.41	M-v	4	Williams		1998 OU_{12}
1998 OZ_{12}	13.5	0.15	19980815	352.37796	6.32385	330.01334	14.01006	0.0980708	3.1215097	40	1	57 days	1.09			Williams		1998 OZ_{12}
1998 OA_{13}	15.5	0.15	19980815	347.20421	25.10283	319.58818	6.24489	0.1739510	2.2663639	18	1	59 days	0.78			Williams		1998 OA_{13}
1998 OB_{13}	13.0	0.15	19980815	256.54034	292.75485	148.94570	14.71220	0.0860767	3.1867135	19	1	54 days	0.73			Williams		1998 OB_{13}
1998 OD_{13}	15.5	0.15	19980706	327.32587	323.82232	36.78132	1.25261	0.2112717	2.4242267	38	2	1993–1998	0.73	M-v	4	Williams	32491	1998 OD_{13}
1998 OK_{13}	15.5	0.15	19980815	274.30765	293.81513	131.04689	6.25418	0.1057249	2.2271840	22	1	50 days	0.96			Williams		1998 OK_{13}
1998 OL_{13}	15.5	0.15	19980815	340.02907	38.51112	318.40001	4.19057	0.1785997	2.7119049	23	1	51 days	1.28			Williams		1998 OL_{13}
1998 OM_{13}	14.5	0.15	19980706	148.80975	206.99701	317.07158	6.45133	0.1105500	2.2703033	35	2	1990–1998	0.89	M-v	4	Williams	32492	1998 OM_{13}
1998 ON_{13}	14.5	0.15	19980706	324.90681	36.33623	318.22045	9.53281	0.0683327	2.2641115	39	2	1981–1998	0.75	M-v	4	Williams	32492	1998 ON_{13}
1998 OR_{13}	14.5	0.15	19980706	319.29465	221.82022	150.14433	1.55478	0.1951321	2.4081106	55	3	1987–1998	0.62	M-v	3	Williams	32492	1998 OR_{13}
1998 OS_{13}	14.5	0.15	19980815	306.56681	83.36090	319.83718	12.53094	0.1979801	2.6753236	16	1	54 days	0.66			Williams		1998 OS_{13}
1998 OV_{13}	15.5	0.15	19980706	305.51833	242.14699	138.64585	7.13113	0.1151798	2.2904730	26	1	60 days	0.62	M-v	5	Williams		1998 OV_{13}
1998 OW_{13}	16.0	0.15	19980706	335.21091	20.98032	326.38121	6.73785	0.1880099	2.3238136	32	2	1991–1998	0.82	M-v	4	Williams	32492	1998 OW_{13}
1998 OY_{13}	15.0	0.15	19980706	69.37287	272.85301	319.76418	6.73966	0.1279775	2.2985721	32	3	1976–1998	0.84	M-v	3	Williams	32492	1998 OY_{13}

1998 OZ_{13}	14.5	0.15	19980706	23.44240	141.84006	141.05429	13.25846	0.1667533	2.6060307	30	1	86 days	0.75	M-v	4	Williams		1998 OZ_{13}
1998 OB_{14}	14.5	0.15	19980815	111.91108	242.07297	326.12632	18.28210	0.0876047	2.7509643	37	1	59 days	0.81			Williams		1998 OB_{14}
1998 OC_{14}	14.5	0.15	19980706	270.12881	283.77581	142.34050	12.48794	0.1408198	2.7043353	25	1	71 days	0.68	M-v	5	Williams		1998 OC_{14}
1998 OH_{14}	13.5	0.15	19980706	246.21563	323.79193	131.74559	6.81197	0.2363071	2.3857068	38	4	1936–1998	0.76	M-v	2	Williams	32493	1998 OH_{14}
1998 OK_{14}	16.0	0.15	19980815	346.58325	231.41814	124.69251	5.52360	0.3421510	2.5914309	30	1	49 days	0.43			Williams		1998 OK_{14}
1998 OM_{14}	14.5	0.15	19980815	316.06573	249.93228	145.64874	11.53088	0.2308923	2.6568218	35	1	57 days	0.69			Williams		1998 OM_{14}
1998 OS_{14}	15.5	0.15	19980815	337.53786	25.13642	335.07104	5.60099	0.1802668	2.3999543	31	1	57 days	0.65			Williams		1998 OS_{14}
1998 OT_{14}	16.0	0.15	19980706	325.41436	35.37307	326.16170	5.08191	0.1948025	2.2279353	30	1	76 days	0.72	M-v	4	Williams		1998 OT_{14}
1998 OU_{14}	15.0	0.15	19980706	66.67208	256.63308	342.32425	0.37065	0.1031592	2.3121615	30	1	68 days	0.80	M-v	5 D	Williams		1998 OU_{14}
1998 OV_{14}	13.0	0.15	19980815	199.61369	157.65331	333.54006	14.44117	0.0570372	2.6442249	32	1	57 days	0.66			Williams		1998 OV_{14}
1998 OX_{14}	14.0	0.15	19980815	37.47182	313.50954	326.96932	12.52189	0.1361874	2.5863569	34	1	54 days	0.60			Williams		1998 OX_{14}
1998 OZ_{14}	14.0	0.15	19980706	311.88429	238.90486	140.48133	12.00375	0.1527507	2.4530529	50	3	1981–1998	0.72	M-v	2	Williams	32493	1998 OZ_{14}
1998 OA_{15}	15.5	0.15	19980706	337.25212	12.46241	332.51712	5.57017	0.1267731	2.4684459	28	2	1993–1998	0.72	M-v	4	Williams	32493	1998 OA_{15}
1998 OD_{15}	16.0	0.15	19980706	337.25101	13.56791	331.09693	3.47672	0.1632864	2.3072926	19	1	60 days	0.63	M-v	6	Williams		1998 OD_{15}
1998 PB	15.5	0.15	19980815	40.52238	67.76329	202.09456	13.13598	0.2001900	2.4031595	21	1	56 days	0.37			Williams		1998 PB
1998 PC	16.0	0.15	19980815	5.90977	89.99370	230.81035	7.97724	0.1879583	2.3375348	18	1	47 days	1.26			Williams		1998 PC
1998 PE	14.5	0.15	19980815	22.81636	120.15708	174.55486	15.49114	0.1835864	2.6511025	26	1	47 days	0.55			Williams		1998 PE
1998 PF	15.0	0.15	19980706	71.81524	53.39912	152.51689	41.97413	0.2870628	2.0079227	90	1	56 days	0.58	M-v	5	Williams		1998 PF
1998 PG	17.0	0.15	19980706	324.38281	155.70051	222.92990	6.48584	0.3919351	2.0148576	262	1	63 days	0.48	M-v	4	Williams	32527	1998 PG
1998 PH	13.0	0.15	19980706	210.91221	202.84249	278.61486	13.91090	0.1948888	2.6449173	38	2	1996–1998	0.50	M-v	5	Williams	32493	1998 PH
1998 PJ	15.5	0.15	19980815	352.42464	16.53374	315.68768	1.76746	0.2311522	2.3778353	51	1	50 days	0.35			Marsden		1998 PJ
1998 PL	15.0	0.15	19980815	331.97133	214.07690	125.25391	6.95913	0.1694487	2.2741312	22	1	39 days	0.33			Williams		1998 PL
1998 PO	13.5	0.15	19980815	291.69234	143.21025	257.01417	4.38035	0.0722065	2.7480458	26	1	52 days	0.66			Williams		1998 PO
1998 PP	15.5	0.15	19980815	310.78511	67.13376	334.81648	11.62164	0.1763908	2.6932722	12	1	32 days	0.44			Marsden		1998 PP
1998 PR	14.5	0.15	19980904	315.10000	56.81497	334.42341	4.24876	0.0666028	2.7601913	18	1	43 days	0.55			Williams		1998 PR
1998 PU	15.0	0.15	19980815	339.71227	31.31981	332.29443	6.11826	0.2050662	2.3954683	41	1	48 days	0.56			Williams		1998 PU
1998 PV	14.0	0.15	19980815	272.96910	276.30850	122.52321	8.22156	0.1538624	2.7428984	16	1	42 days	0.36			Williams		1998 PV
1998 PW	16.5	0.15	19980706	325.20566	17.43501	344.30729	4.13414	0.2246437	2.4201721	24	2	1995–1998	0.54	M-v	5	Williams	32494	1998 PW
1998 PX	16.0	0.15	19980706	320.77896	19.47426	342.62422	4.49422	0.1706965	2.2574652	33	2	1996–1998	0.45	M-v	4	Williams	32494	1998 PX
1998 PY	17.0	0.15	19980815	328.90841	48.54453	323.73182	19.55862	0.2468663	2.9405648	13	1	31 days	0.31			Williams		1998 PY
1998 PZ	15.0	0.15	19980904	302.37622	358.22215	34.92366	8.33136	0.1628344	2.2038504	21	1	45 days	0.40			Williams		1998 PZ
1998 PA_1	14.0	0.15	19980815	263.59298	196.54869	238.86812	5.62446	0.1304917	3.0458510	23	1	54 days	0.43			Williams		1998 PA_1
1998 PB_1	17.5	0.15	19980706	355.64206	350.07714	299.91434	5.96949	0.4311155	2.0272327	156	1	43 days	0.53	M-v	5	Williams		1998 PB_1
1998 PJ_1	16.5	0.15	19980815	61.92537	153.81026	93.59498	3.22802	0.1205381	2.3397236	17	1	38 days	0.48			Williams		1998 PJ_1
1998 PL_1	14.0	0.15	19980815	292.96816	169.88038	244.12838	4.71753	0.1248539	2.4501441	28	1	37 days	0.54			Williams		1998 PL_1
1998 PM_1	16.0	0.15	19980815	345.84664	336.48540	1.06259	5.29723	0.2549617	2.3601904	16	1	34 days	0.52			Williams		1998 PM_1
1998 PN_1	14.5	0.15	19980706	339.90621	296.05247	34.47091	5.05537	0.1408609	3.1765605	36	3	1993–1998	0.76	M-v	5	Williams	32494	1998 PN_1
1998 QB	14.0	0.15	19980706	103.48271	266.29411	315.85752	6.03597	0.0729651	2.3384409	47	2	1997–1998	0.65	M-v	4	Williams	32494	1998 QB
1998 QC	14.5	0.15	19980815	241.53693	161.16186	306.84501	4.51384	0.0685114	2.1783197	37	1	32 days	0.52			Williams		1998 QC
1998 QD	16.5	0.15	19980815	350.83180	195.99357	151.90973	3.07031	0.2090678	2.4329024	30	1	32 days	0.69			Williams		1998 QD
1998 QE	14.0	0.15	19980904	271.59435	94.11232	341.84490	2.32526	0.0517880	2.6640582	40	1	43 days	0.48			Williams		1998 QE
1998 QF	13.0	0.15	19980815	100.53715	250.67046	338.08196	8.23259	0.0806797	3.1934010	35	1	32 days	0.75			Williams		1998 QF
1998 QH	15.0	0.15	19980815	48.69973	301.29126	335.68259	7.41987	0.1018291	2.4028946	37	1	32 days	0.67			Williams		1998 QH
1998 QL	14.5	0.15	19980815	317.03352	0.56172	15.27009	3.57416	0.1121484	2.8016543	23	1	28 days	0.61			Williams		1998 QL
1998 QM	17.0	0.15	19980904	14.02969	346.82982	318.64499	14.06657	0.2973268	2.3251619	45	1	36 days	0.42			Williams		1998 QM
1998 QR	14.5	0.15	19980706	143.92106	339.78834	176.64545	4.17816	0.1000930	2.3323267	27	2	1981–1998	0.56	M-v	5	Williams	32494	1998 QR
1998 QS	16.0	0.15	19980904	18.90190	136.34378	175.54342	2.49017	0.1883520	2.4331648	21	1	39 days	0.51			Williams		1998 QS
1998 QT	15.0	0.15	19980815	46.59294	293.07025	327.13071	4.63032	0.1759100	2.2433058	32	1	34 days	0.84			Williams		1998 QT
1998 QU	15.5	0.15	19980904	27.27758	11.16609	287.93060	5.35076	0.1063655	2.3992384	33	1	38 days	0.80			Williams		1998 QU
1998 QY	14.5	0.15	19980904	11.68510	161.76255	148.15525	14.08511	0.1657102	2.5669240	33	1	38 days	0.68			Williams		1998 QY
1998 QA_1	18.5	0.15	19980706	2.75785	332.91500	299.26532	8.14785	0.5332857	2.1078672	138	1	40 days	0.49	M-v	5	Marsden		1998 QA_1
1998 QC_1	19.5	0.15	19980706	313.80335	114.90872	308.85548	9.61469	0.5899014	1.9797527	86	1	37 days	0.61	M-v	6	Marsden		1998 QC_1
1998 QH_1	20.5	0.15	19980706	337.54642	214.93019	162.36349	12.42439	0.5481805	2.5439482	39	1	39 days	0.52	M-v	5	Marsden		1998 QH_1

1998 QJ_1	16.1	0.15	19980904	0.54459	4.09130	312.13229	23.38857	0.8162118	11.5198853	45	1	26 days	0.56			Nakano		1998 QJ_1
1998 QL_1	14.0	0.15	19980904	327.22129	171.41516	207.24722	3.79067	0.1234208	2.6810150	41	1	37 days	0.76			Williams		1998 QL_1
1998 QN_1	13.5	0.15	19980706	348.00781	104.71084	232.63879	1.14099	0.1242035	3.0745352	34	2	1993–1998	0.81	M-v	5	Williams	32494	1998 QN_1
1998 QO_1	14.0	0.15	19980815	38.50066	136.71452	142.57538	8.63926	0.1502083	2.6388087	32	1	32 days	1.00			Williams		1998 QO_1
1998 QQ_1	15.0	0.15	19980904	306.20559	254.23788	156.21797	4.45641	0.1912799	2.4271989	38	1	35 days	0.64			Williams		1998 QQ_1
1998 QX_1	15.0	0.15	19980706	321.95731	76.85780	308.27457	6.04843	0.3376109	2.8619581	26	1	62 days	0.50	M-v	5	Williams		1998 QX_1
1998 QZ_1	17.0	0.15	19980815	337.28112	174.74304	187.42412	3.21482	0.2308965	2.2261116	14	1	27 days	0.27			Williams		1998 QZ_1
1998 QA_2	14.5	0.15	19980706	287.60885	196.42822	216.93280	3.08387	0.2003885	2.6838065	33	3	1985–1998	0.67	M-v	5	Williams	32494	1998 QA_2
1998 QC_2	15.5	0.15	19980904	359.51618	17.91925	306.18735	13.62353	0.1986416	2.7596159	46	1	39 days	0.42			Marsden		1998 QC_2
1998 QD_2	17.0	0.15	19980706	343.16963	43.41361	314.07234	14.78153	0.4251077	3.0474191	53	1	35 days	0.55	M-v	5	Williams		1998 QD_2
1998 QE_2	16.5	0.15	19980706	25.77274	344.66423	250.76973	12.60869	0.5618870	2.4375070	70	1	35 days	0.60	M-v	5	Marsden		1998 QE_2
1998 QH_2	16.0	0.15	19980706	115.07832	13.86653	168.97447	61.06016	0.3619899	1.4270238	76	1	38 days	0.70	M-v	7	Williams		1998 QH_2
1998 QJ_2	14.5	0.15	19980706	310.22917	239.49755	128.86344	4.69649	0.1298115	2.2139055	33	3	1977–1998	0.60	M-v	4	Williams	32495	1998 QJ_2
1998 QM_2	14.0	0.15	19980706	45.88344	65.68565	211.70907	5.17863	0.0847169	2.3487272	55	1	86 days	0.59	M-v	5	Williams		1998 QM_2
1998 QN_2	15.5	0.15	19980706	0.26206	41.10255	266.01304	5.75534	0.1981118	2.2283266	31	3	1968–1998	0.69	M-v	4	Williams	32495	1998 QN_2
1998 QS_2	15.5	0.15	19980904	32.18839	316.99311	324.04433	5.39704	0.1690320	2.2407545	22	1	37 days	0.81			Williams		1998 QS_2
1998 QT_2	15.0	0.15	19980904	35.46931	305.57060	327.49107	27.28942	0.1850585	2.6301908	25	1	35 days	0.68			Williams		1998 QT_2
1998 QU_2	14.0	0.15	19980706	321.74270	202.90159	162.73799	15.62912	0.2109558	2.5655537	27	2	1994–1998	0.58	M-v	4	Williams	32495	1998 QU_2
1998 QZ_2	16.5	0.15	19980904	349.15139	210.18053	143.54551	13.23650	0.2704326	2.4398994	19	1	38 days	0.67			Williams		1998 QZ_2
1998 QB_3	15.0	0.15	19980815	40.02686	133.01969	147.39198	31.30250	0.0894893	2.7270961	18	1	28 days	0.60			Williams		1998 QB_3
1998 QH_3	14.5	0.15	19980815	315.06874	62.98165	334.80112	22.96185	0.2199012	2.6248638	18	1	32 days	0.46			Williams		1998 QH_3
1998 QJ_3	16.0	0.15	19980904	8.68997	169.42206	154.36454	15.18712	0.2927264	2.6329926	29	1	36 days	0.98			Williams		1998 QJ_3
1998 QK_3	15.5	0.15	19980904	348.98460	36.31596	330.51857	18.38717	0.2950548	2.6118086	44	1	37 days	0.73			Williams		1998 QK_3
1998 QL_3	15.5	0.15	19980904	312.04300	54.11091	343.99685	18.44570	0.0831901	1.9642140	36	1	41 days	0.58			Williams		1998 QL_3
1998 QM_3	16.5	0.15	19980815	323.23648	42.37259	317.96548	19.75166	0.0781370	1.9166405	22	1	53 days	0.92			Williams		1998 QM_3
1998 QQ_3	15.5	0.15	19980815	314.75353	70.57111	331.43435	29.06201	0.2790973	2.7430784	25	1	29 days	0.77			Williams		1998 QQ_3
1998 QV_3	20.5	0.15	19980706	336.90115	33.33189	333.02595	14.26020	0.5093186	2.3160498	61	1	42 days	0.59	M-v	6	Marsden		1998 QV_3
1998 QW_3	16.5	0.15	19980706	352.76407	128.42543	187.25777	6.09922	0.3793074	2.7680841	54	1	89 days	0.42	M-v	4	Williams	32528	1998 QW_3
1998 QX_3	13.5	0.15	19980904	309.88601	258.02072	143.39905	11.82832	0.1590345	3.1612034	35	1	35 days	0.72			Williams		1998 QX_3
1998 QA_4	17.0	0.15	19980904	352.01303	356.43457	348.48178	12.21034	0.2742296	2.6764038	17	1	38 days	0.61			Williams		1998 QA_4
1998 QB_4	18.0	0.15	19980815	355.22292	250.66475	80.24611	5.58299	0.2268385	2.3610469	6	1	27 days	0.24			Williams		1998 QB_4
1998 QD_4	17.0	0.15	19980904	359.84659	294.15616	48.13832	6.05559	0.1291320	2.2724487	12	1	36 days	0.47			Williams		1998 QD_4
1998 QE_4	14.5	0.15	19980904	11.96955	216.13029	113.70456	10.79115	0.0891608	2.9980720	9	1	36 days	0.71			Williams		1998 QE_4
1998 QH_4	17.5	0.15	19980815	341.47775	267.72565	87.29953	3.35229	0.2019738	2.4081208	8	1	26 days	0.74			Williams		1998 QH_4
1998 QJ_4	15.0	0.15	19980706	286.69128	359.80098	60.70118	3.47784	0.2066327	2.3668623	46	2	1991–1998	0.61	M-v	5	Williams	32495	1998 QJ_4
1998 QK_4	16.0	0.15	19980815	325.80907	287.45346	75.67328	8.83766	0.1919486	2.2503248	13	1	30 days	0.31			Williams		1998 QK_4
1998 QL_4	14.5	0.15	19980904	83.82465	246.83626	350.93600	1.39010	0.0350613	2.9458665	20	1	42 days	0.43			Williams		1998 QL_4
1998 QN_4	14.5	0.15	19980706	110.00806	195.65143	13.31074	6.45819	0.0830920	2.3357139	42	2	1997–1998	0.63	M-v	5	Williams	32495	1998 QN_4
1998 QO_4	13.5	0.15	19980904	331.42169	70.19237	301.75256	13.20924	0.0351009	3.1830832	27	1	33 days	0.56			Williams		1998 QO_4
1998 QP_4	15.0	0.15	19980815	356.48644	150.14480	184.87355	8.15704	0.2482748	3.0877240	23	1	13 days	0.61			Williams		1998 QP_4
1998 QT_4	15.5	0.15	19980904	348.86250	179.41225	171.77543	11.50563	0.1649808	2.5282612	40	1	37 days	0.68			Williams		1998 QT_4
1998 QX_4	15.5	0.15	19980904	322.33941	145.04983	240.91615	5.60731	0.1375322	2.3766563	33	1	27 days	0.52			Williams		1998 QX_4
1998 QY_4	16.5	0.15	19980815	9.33059	355.49445	315.98001	15.50957	0.3076468	2.6235098	33	1	15 days	0.72			Williams		1998 QY_4
1998 QZ_4	14.5	0.15	19980904	32.35793	84.00855	197.84447	9.08984	0.2724875	3.0788651	33	1	26 days	0.57			Williams		1998 QZ_4
1998 QA_5	14.5	0.15	19980904	270.80136	199.62580	236.75197	6.13297	0.0889949	2.4071034	35	1	27 days	0.67			Williams		1998 QA_5
1998 QB_5	16.0	0.15	19980904	325.16157	152.61700	228.56914	6.00196	0.1207530	2.3444205	36	1	27 days	0.91			Williams		1998 QB_5
1998 QE_5	12.5	0.15	19980904	148.01554	244.11711	294.20129	10.56817	0.2235795	3.1347743	17	1	31 days	0.46			Williams		1998 QE_5
1998 QJ_5	14.5	0.15	19980815	335.69599	112.61026	248.83043	3.65857	0.1155204	2.7143562	37	1	32 days	0.57			Williams		1998 QJ_5
1998 QM_5	13.5	0.15	19980815	340.17686	96.41862	195.47893	7.00272	0.2040810	2.4446414	15	1	20 days	0.34			Williams		1998 QM_5
1998 QO_5	15.0	0.15	19980904	327.82823	207.19744	171.06645	29.45558	0.1277698	2.5893057	31	1	37 days	1.03			Williams		1998 QO_5
1998 QP_5	16.5	0.15	19980904	277.79101	124.39491	313.29321	18.58854	0.0973898	1.9037800	16	1	31 days	0.99			Williams		1998 QP_5
1998 QR_5	15.5	0.15	19980904	320.62771	99.36312	318.62960	18.44951	0.3054855	2.3143106	27	1	37 days	0.55			Williams		1998 QR_5
1998 QS_5	14.5	0.15	19980815	321.61131	56.05164	338.42062	6.71641	0.2291091	2.7372109	38	1	32 days	0.54			Williams		1998 QS_5

1998 QT_{5}	14.0	0.15	19980815	256.27704	111.45942	340.75905	10.00077	0.0955549	2.9584267	24	1	33 days	0.55		Marsden		1998 QT_{5}
1998 QV_{5}	16.5	0.15	19980815	340.87954	38.99084	326.50716	13.04811	0.2800785	2.6626175	27	1	32 days	0.92		Williams		1998 QV_{5}
1998 QW_{5}	15.0	0.15	19980904	39.46752	44.47599	243.62270	7.32267	0.1535813	2.9393661	21	1	33 days	1.05		Williams		1998 QW_{5}
1998 QV_{6}	14.5	0.15	19980904	68.18213	265.39575	31.52935	5.33424	0.1594872	2.3100993	12	1	36 days	0.18		Williams		1998 QV_{6}
1998 QX_{6}	15.5	0.15	19980706	341.24676	11.28294	311.23484	13.23831	0.1525997	2.3435218	40	1	73 days	0.53	M-v 4	Williams		1998 QX_{6}
1998 QU_{7}	13.5	0.15	19980815	317.98863	229.53208	132.96479	12.02643	0.0933106	3.0379473	15	1	28 days	0.99		Williams		1998 QU_{7}
1998 QJ_{8}	13.0	0.15	19980706	268.78257	277.20569	140.54724	14.75483	0.1769031	3.1713099	17	1	62 days	0.63	M-v 5	Williams		1998 QJ_{8}
1998 QK_{8}	14.0	0.15	19980706	343.22622	182.57055	143.14126	14.56756	0.1496190	2.6129717	28	1	110 days	0.74	M-v 4	Williams	32529	1998 QK_{8}
1998 QU_{8}	15.0	0.15	19980815	3.06166	341.30655	328.58831	13.09347	0.1669608	2.5959951	15	1	28 days	0.79		Williams		1998 QU_{8}
1998 QH_{9}	15.0	0.15	19980815	358.23789	163.05939	156.85697	15.55106	0.2432263	2.7323079	15	1	28 days	0.46		Williams		1998 QH_{9}
1998 QM_{9}	14.5	0.15	19980706	334.96141	117.88970	224.24698	4.94998	0.1561343	3.0533566	24	2	1997–1998	0.55	M-v 5	Williams	32496	1998 QM_{9}
1998 QS_{9}	13.0	0.15	19980904	323.55680	46.99648	325.14703	12.01906	0.1670473	2.6529423	18	1	40 days	0.42		Williams		1998 QS_{9}
1998 QU_{9}	14.5	0.15	19980815	271.69487	74.56459	334.21570	6.37564	0.0385479	2.1920880	15	1	28 days	0.47		Williams		1998 QU_{9}
1998 QV_{9}	15.0	0.15	19980706	3.76134	323.48362	332.56658	9.15870	0.1933191	2.5851402	22	2	1994–1998	0.67	M-v 4	Williams	32496	1998 QV_{9}
1998 QH_{10}	15.0	0.15	19980815	323.05069	64.61048	295.53524	7.80208	0.0558494	2.5339939	15	1	28 days	0.77		Williams		1998 QH_{10}
1998 QO_{10}	15.0	0.15	19980706	345.44488	126.71448	198.84859	4.35761	0.1775915	2.2765222	33	2	1995–1998	0.52	M-v 3	Williams	32496	1998 QO_{10}
1998 QU_{10}	13.5	0.15	19980815	26.21675	327.02118	322.31720	5.55600	0.0458230	3.2478351	15	1	34 days	0.82		Williams		1998 QU_{10}
1998 QF_{11}	13.5	0.15	19980706	179.51891	13.39473	116.31119	12.76960	0.0817862	2.3514366	23	3	1988–1998	0.58	M-v 3	Williams	32496	1998 QF_{11}
1998 QH_{11}	14.5	0.15	19980706	333.33195	245.05643	94.68409	3.63538	0.0980658	2.6245280	24	3	1960–1998	0.61	M-v 3	Williams	32496	1998 QH_{11}
1998 QL_{11}	15.5	0.15	19980815	354.95701	163.23253	163.49363	0.29642	0.1551739	2.4323094	15	1	28 days	0.48		Williams		1998 QL_{11}
1998 QR_{11}	15.5	0.15	19980815	7.85488	28.31909	280.37067	3.54335	0.1994112	2.4067642	16	1	28 days	0.63		Williams		1998 QR_{11}
1998 QC_{12}	14.0	0.15	19980706	8.91228	11.83498	289.20879	8.25869	0.0709418	2.5294089	22	1	85 days	0.63	M-v 4	Williams		1998 QC_{12}
1998 QG_{12}	15.0	0.15	19980815	94.55999	11.61756	207.84728	6.04913	0.0728121	2.3522903	21	1	53 days	0.64		Williams		1998 QG_{12}
1998 QK_{12}	14.0	0.15	19980904	350.91355	51.96674	286.83832	9.24302	0.1026856	3.0201018	19	1	36 days	0.65		Williams		1998 QK_{12}
1998 QN_{12}	15.0	0.15	19980815	336.19138	163.64793	197.60764	4.68391	0.2397077	2.6838366	21	1	58 days	0.29		Williams		1998 QN_{12}
1998 QQ_{12}	16.5	0.15	19980815	17.32304	124.96436	171.13796	6.81957	0.2106276	2.1853344	29	1	52 days	0.48		Williams		1998 QQ_{12}
1998 QR_{12}	16.0	0.15	19980706	314.35356	78.47304	299.14334	7.94382	0.2365346	2.4337093	25	2	1996–1998	0.67	M-v 5	Williams	32497	1998 QR_{12}
1998 QT_{12}	15.0	0.15	19980706	41.72651	330.44507	290.41868	5.98149	0.0918857	2.3723248	24	4	1980–1998	0.64	M-v 1	Williams	32497	1998 QT_{12}
1998 QV_{12}	15.0	0.15	19980706	298.99725	82.02367	298.35496	5.59266	0.0847062	2.4176266	22	2	1994–1998	0.62	M-v 5	Williams	32497	1998 QV_{12}
1998 QB_{13}	15.0	0.15	19980815	204.68641	330.64627	147.96174	6.88624	0.0711508	2.3371386	15	1	34 days	0.96		Williams		1998 QB_{13}
1998 QL_{13}	15.5	0.15	19980904	329.52256	41.67099	332.05703	8.94193	0.2278953	2.7426554	15	1	41 days	1.15		Williams		1998 QL_{13}
1998 QY_{13}	16.0	0.15	19980706	22.20448	96.95878	182.70188	3.25005	0.1422176	2.4154999	20	3	1995–1998	0.47	M-v 4	Williams	32497	1998 QY_{13}
1998 QZ_{13}	14.5	0.15	19980815	0.87775	121.14018	200.77126	3.47491	0.0911941	2.7508269	21	1	59 days	0.48		Williams		1998 QZ_{13}
1998 QE_{14}	14.0	0.15	19980706	0.92250	150.52490	162.32246	11.90551	0.1324257	3.0515408	30	1	94 days	0.61	M-v 4	Williams	32530	1998 QE_{14}
1998 QA_{15}	14.5	0.15	19980706	3.45110	144.32022	156.82192	7.27092	0.1204981	2.3473571	30	4	1980–1998	0.64	M-v 2	Williams	32497	1998 QA_{15}
1998 QB_{15}	14.0	0.15	19980706	342.65598	181.19215	149.66970	9.97606	0.1646819	2.7716482	23	1	87 days	0.64	M-v 4	Williams		1998 QB_{15}
1998 QD_{15}	15.0	0.15	19980815	12.52980	95.64872	204.55444	1.88188	0.2101701	2.3722923	13	1	23 days	0.47		Marsden		1998 QD_{15}
1998 QN_{15}	15.5	0.15	19980815	334.45172	174.14394	207.57386	7.14201	0.2654591	2.6653283	31	1	32 days	0.86		Williams		1998 QN_{15}
1998 QO_{15}	14.0	0.15	19980815	300.67366	128.66081	287.76451	7.91973	0.1369388	3.0685871	21	1	30 days	1.02		Williams		1998 QO_{15}
1998 QR_{15}	18.0	0.15	19980706	338.22059	54.06618	322.56960	9.69787	0.5652330	2.7547709	132	1	46 days	0.45	M-v 5	Marsden		1998 QR_{15}
1998 QT_{15}	15.5	0.15	19980904	344.13913	73.62018	306.61714	9.78175	0.2090908	2.5816935	13	1	30 days	0.49		Williams		1998 QT_{15}
1998 QZ_{15}	13.0	0.15	19980706	14.70461	7.75893	287.33696	12.75057	0.1564213	2.5497515	52	1	85 days	0.53	M-v 4	Williams	32530	1998 QZ_{15}
1998 QJ_{16}	13.0	0.15	19980706	237.92589	173.14286	284.33793	7.21993	0.1873961	2.7921288	21	3	1949–1998	0.72	M-v 4	Williams	32497	1998 QJ_{16}
1998 QK_{16}	14.5	0.15	19980706	346.43730	27.03883	305.68025	12.80919	0.1780362	2.6415156	33	2	1993–1998	0.50	M-v 3	Williams	32498	1998 QK_{16}
1998 QN_{16}	16.0	0.15	19980904	333.04730	211.31904	166.48816	7.04367	0.2440869	2.3062967	22	1	35 days	0.66		Williams		1998 QN_{16}
1998 QE_{17}	14.0	0.15	19980815	307.72190	72.09454	338.49694	10.65498	0.3045859	2.6262613	18	1	52 days	0.91		Williams		1998 QE_{17}
1998 QF_{17}	14.0	0.15	19980706	36.03396	146.37564	122.52762	6.32798	0.1011686	2.3775859	33	3	1991–1998	0.57	M-v 3	Williams	32498	1998 QF_{17}
1998 QM_{17}	15.0	0.15	19980904	32.66241	155.17147	130.23978	4.26610	0.1682174	2.7404819	14	1	35 days	0.62		Williams		1998 QM_{17}
1998 QR_{17}	14.0	0.15	19980904	26.17031	358.08016	304.31944	4.14578	0.0385380	2.7517296	21	1	35 days	0.53		Williams		1998 QR_{17}
1998 QW_{17}	16.0	0.15	19980706	356.39782	22.69687	293.17748	3.55661	0.1914822	2.3773946	24	1	79 days	0.53	M-v 4	Williams		1998 QW_{17}
1998 QX_{17}	16.5	0.15	19980904	27.46876	131.19296	163.67496	7.20923	0.1889542	2.2094801	18	1	35 days	0.56		Williams		1998 QX_{17}
1998 QJ_{18}	15.5	0.15	19980904	334.94999	229.32729	147.38314	14.12071	0.2707490	2.6766809	21	1	38 days	0.85		Williams		1998 QJ_{18}
1998 QL_{18}	14.0	0.15	19980815	295.95041	68.54176	340.81908	4.38690	0.1667047	3.1567188	21	1	52 days	0.59		Williams		1998 QL_{18}

1998 QQ_{18}	16.0	0.15	19980815	348.37801	165.01396	179.95758	1.84820	0.2189178	2.2765166	18	1	57 days	0.43		Williams		1998 QQ_{18}
1998 QS_{18}	15.5	0.15	19980706	349.62023	33.36893	290.91645	3.77626	0.2094759	2.1864850	25	1	82 days	0.58	M-v 4	Williams		1998 QS_{18}
1998 QT_{18}	14.5	0.15	19980706	7.89918	63.57391	238.20734	2.85018	0.1484382	2.2865052	32	2	1981–1998	0.60	M-v 4	Williams	32498	1998 QT_{18}
1998 QU_{18}	15.5	0.15	19980815	32.81613	0.36353	288.44776	6.00330	0.0989110	2.3338362	18	1	32 days	0.99		Williams		1998 QU_{18}
1998 QV_{18}	15.0	0.15	19980815	3.75072	97.78848	224.01478	3.72294	0.2306496	2.5870627	16	1	14 days	0.34		Williams		1998 QV_{18}
1998 QW_{18}	14.0	0.15	19980815	263.64184	260.03238	173.05276	12.41581	0.0649158	2.7406755	18	1	32 days	0.88		Williams		1998 QW_{18}
1998 QX_{18}	16.0	0.15	19980815	346.55562	122.01506	224.67767	4.29459	0.1722325	2.2015166	22	1	32 days	0.78		Williams		1998 QX_{18}
1998 QB_{19}	13.5	0.15	19980815	322.59289	242.50709	128.35375	11.13950	0.1102952	2.9935907	16	1	28 days	0.68		Williams		1998 QB_{19}
1998 QL_{19}	14.0	0.15	19980706	346.48220	277.42825	52.14411	3.38949	0.1830076	2.4304544	33	3	1987–1998	0.77	M-v 3	Williams	32498	1998 QL_{19}
1998 QO_{19}	16.0	0.15	19980904	323.38793	249.65588	134.54831	5.01990	0.1785849	2.3319677	15	1	38 days	0.67		Williams		1998 QO_{19}
1998 QZ_{19}	15.0	0.15	19980706	332.94920	161.50082	189.21885	5.07417	0.0718220	2.7468319	22	2	1997–1998	0.58	M-v 4	Williams	32498	1998 QZ_{19}
1998 QB_{20}	15.0	0.15	19980815	333.96473	98.15005	273.92032	6.27850	0.2363789	3.1430957	18	1	31 days	0.92		Williams		1998 QB_{20}
1998 QC_{20}	14.5	0.15	19980815	12.26523	136.85996	168.10687	16.87535	0.2997885	3.0950562	47	1	52 days	0.55		Williams		1998 QC_{20}
1998 QD_{20}	13.5	0.15	19980815	293.55691	221.37553	186.22814	11.01663	0.0940843	2.9407785	33	1	32 days	0.69		Williams		1998 QD_{20}
1998 QE_{20}	16.0	0.15	19980815	346.22959	118.59859	229.55770	4.17435	0.1570434	2.2275834	24	1	32 days	0.57		Williams		1998 QE_{20}
1998 QG_{20}	15.5	0.15	19980706	322.11462	115.77295	256.68970	4.06808	0.2337774	2.3568072	25	2	1980–1998	0.48	M-v 5	Williams	32499	1998 QG_{20}
1998 QJ_{20}	16.0	0.15	19980815	4.79389	125.55349	196.03196	4.54498	0.1478984	2.2784037	13	1	29 days	1.08		Williams		1998 QJ_{20}
1998 QL_{20}	16.0	0.15	19980815	350.78517	102.98586	240.44325	2.53563	0.2361778	2.3788031	25	1	32 days	0.65		Williams		1998 QL_{20}
1998 QM_{20}	12.5	0.15	19980904	205.06141	321.31702	169.74965	11.64122	0.0371975	3.0298829	29	1	37 days	0.57		Williams		1998 QM_{20}
1998 QP_{20}	15.0	0.15	19980904	304.32137	117.57604	306.54980	4.23855	0.2954692	2.7388137	20	1	37 days	0.95		Williams		1998 QP_{20}
1998 QS_{20}	16.0	0.15	19980815	337.14241	111.14105	248.75673	1.00162	0.1744915	2.1655081	21	1	32 days	0.57		Williams		1998 QS_{20}
1998 QA_{21}	14.5	0.15	19980815	33.79688	135.19980	151.01503	15.21901	0.1138808	2.5685115	26	1	54 days	0.59		Williams		1998 QA_{21}
1998 QD_{21}	15.0	0.15	19980815	223.44746	286.88909	182.55645	1.99521	0.0493101	2.4085759	20	1	32 days	0.93		Williams		1998 QD_{21}
1998 QG_{21}	15.0	0.15	19980904	341.73643	207.91065	155.14133	0.11023	0.2261119	3.0156821	15	1	35 days	0.65		Williams		1998 QG_{21}
1998 QO_{21}	15.5	0.15	19980815	3.85506	333.40623	347.71242	4.91866	0.1702012	2.3243359	28	1	52 days	0.63		Williams		1998 QO_{21}
1998 QQ_{21}	16.0	0.15	19980815	345.51263	345.17038	4.11274	2.89820	0.2233192	2.3345344	24	1	49 days	0.73		Williams		1998 QQ_{21}
1998 QR_{21}	15.5	0.15	19980815	276.45845	97.69175	328.77393	5.71014	0.1214043	2.1845312	22	1	32 days	0.77		Williams		1998 QR_{21}
1998 QX_{21}	14.5	0.15	19980706	51.45538	298.89119	317.55084	5.40493	0.1075653	2.3591749	23	1	32 days	0.56	M-v 6	Williams		1998 QX_{21}
1998 QZ_{21}	16.0	0.15	19980815	349.42841	62.23325	283.23596	2.58313	0.1923386	2.5539486	16	1	29 days	0.84		Williams		1998 QZ_{21}
1998 QE_{22}	15.0	0.15	19980706	13.08126	47.60781	244.54729	2.62813	0.2448479	2.5623572	29	1	80 days	0.69	M-v 5	Williams		1998 QE_{22}
1998 QK_{22}	15.0	0.15	19980815	355.91929	22.90587	314.47451	13.69608	0.1596509	2.6511815	23	1	31 days	0.63		Williams		1998 QK_{22}
1998 QO_{22}	15.0	0.15	19980815	347.38103	311.08751	33.52273	3.72813	0.2062039	2.4009576	32	1	55 days	0.78		Williams		1998 QO_{22}
1998 QP_{22}	16.0	0.15	19980904	335.40514	298.58889	69.93446	3.69551	0.1861535	2.4047106	15	1	38 days	0.89		Williams		1998 QP_{22}
1998 QQ_{22}	14.5	0.15	19980904	316.61693	323.24252	72.14706	4.15811	0.2114705	2.5890316	26	1	38 days	0.82		Williams		1998 QQ_{22}
1998 QS_{22}	13.5	0.15	19980815	8.76698	249.89608	65.38418	4.45242	0.1052746	2.6451059	28	1	55 days	0.54		Williams		1998 QS_{22}
1998 QY_{22}	14.0	0.15	19980815	332.25347	346.85414	18.76251	5.29566	0.1670106	3.1265225	30	1	49 days	0.74		Williams		1998 QY_{22}
1998 QC_{23}	15.0	0.15	19980706	346.78303	218.49495	114.44533	5.48094	0.2626953	2.5623214	24	1	76 days	0.45	M-v 4	Williams		1998 QC_{23}
1998 QD_{23}	14.0	0.15	19980706	44.10745	249.78175	17.81008	5.68190	0.0591597	2.4224241	35	3	1987–1998	0.66	M-v 3	Williams	32499	1998 QD_{23}
1998 QF_{23}	14.5	0.15	19980815	320.01646	28.71305	348.54728	10.48513	0.1158647	2.6544678	22	1	32 days	0.69		Williams		1998 QF_{23}
1998 QL_{23}	13.5	0.15	19980706	313.39203	33.37895	352.45441	5.17994	0.2006654	3.1432984	39	2	1993–1998	0.68	M-v 4	Williams	32499	1998 QL_{23}
1998 QM_{23}	15.0	0.15	19980904	302.40045	67.77542	339.17023	11.75675	0.1488935	2.7503734	19	1	35 days	1.19		Williams		1998 QM_{23}
1998 QO_{23}	14.5	0.15	19980815	331.90803	233.74808	143.62991	19.85406	0.2684370	3.1618772	20	1	32 days	1.21		Williams		1998 QO_{23}
1998 QT_{23}	13.5	0.15	19980815	270.77195	280.21262	151.43076	10.66464	0.1014854	3.0160564	20	1	54 days	0.70		Williams		1998 QT_{23}
1998 QY_{23}	15.5	0.15	19980815	11.62380	128.17876	186.44306	6.22380	0.1345004	2.4074704	30	1	32 days	0.78		Williams		1998 QY_{23}
1998 QZ_{23}	15.5	0.15	19980815	323.69541	202.35366	183.40025	7.74372	0.2181839	2.7083154	14	1	29 days	0.80		Williams		1998 QZ_{23}
1998 QB_{24}	15.0	0.15	19980904	309.19074	127.45274	272.84997	5.70603	0.1167173	2.3937246	30	1	39 days	0.60		Williams		1998 QB_{24}
1998 QC_{24}	13.5	0.15	19980815	349.98761	42.60047	303.45217	10.98027	0.0674998	2.9448475	16	1	32 days	0.51		Williams		1998 QC_{24}
1998 QD_{24}	16.5	0.15	19980815	348.84551	97.26330	250.14930	3.66600	0.1951307	2.3090508	16	1	32 days	0.89		Williams		1998 QD_{24}
1998 QE_{24}	14.5	0.15	19980904	64.64394	328.55255	292.63202	5.52205	0.1136481	2.4762792	29	1	35 days	0.64		Williams		1998 QE_{24}
1998 QF_{24}	14.5	0.15	19980815	313.49697	94.34529	297.65016	6.71517	0.1449508	2.7500924	20	1	32 days	0.85		Williams		1998 QF_{24}
1998 QG_{24}	15.5	0.15	19980904	339.71043	174.34788	200.56461	3.88527	0.2882703	2.6396187	24	1	37 days	0.94		Williams		1998 QG_{24}
1998 QM_{24}	15.0	0.15	19980815	331.06204	206.75003	170.68380	7.99261	0.2410122	2.8078023	18	1	32 days	0.96		Williams		1998 QM_{24}
1998 QN_{24}	15.0	0.15	19980815	319.24767	195.22968	182.66210	5.94120	0.0724728	2.5259413	16	1	32 days	1.30		Williams		1998 QN_{24}

1998 QR_{24}	16.0	0.15	19980815	0.57211	149.68181	179.27545	4.04648	0.1324722	2.2273340	12	1	29 days	0.49			Williams		1998 QR_{24}
1998 QS_{24}	15.5	0.15	19980815	341.16090	42.38026	318.82750	8.47466	0.2320140	2.7322798	17	1	32 days	1.04			Williams		1998 QS_{24}
1998 QT_{24}	15.0	0.15	19980815	149.63197	230.47202	307.77045	5.04909	0.0745722	2.2502813	19	1	32 days	0.75			Williams		1998 QT_{24}
1998 QV_{24}	15.5	0.15	19980815	313.24723	223.69782	169.75499	4.00687	0.1646341	2.3166224	25	1	32 days	0.64			Williams		1998 QV_{24}
1998 QZ_{24}	13.0	0.15	19980815	204.10257	339.11073	155.16909	7.08954	0.1502680	3.1729544	23	1	32 days	0.86			Williams		1998 QZ_{24}
1998 QC_{25}	15.0	0.15	19980815	282.00154	276.99645	143.70601	3.89002	0.1186549	2.1635764	26	1	54 days	0.74			Williams		1998 QC_{25}
1998 QK_{25}	15.0	0.15	19980815	342.56842	16.92103	338.81084	8.86921	0.2143089	2.6589868	23	1	32 days	0.64			Williams		1998 QK_{25}
1998 QM_{25}	14.5	0.15	19980706	315.21845	333.17436	32.33353	2.81387	0.0073583	2.6752311	22	2	1997–1998	1.01	M-v	6	Williams	32499	1998 QM_{25}
1998 QN_{25}	14.5	0.15	19980706	0.65151	336.11250	338.27875	13.41141	0.1474615	2.5655921	32	3	1990–1998	0.50	M-v	3	Williams	32499	1998 QN_{25}
1998 QS_{25}	14.0	0.15	19980904	327.72829	287.89129	81.81188	3.25996	0.0482668	2.8753438	20	1	35 days	1.34			Williams		1998 QS_{25}
1998 QW_{25}	15.0	0.15	19980815	15.79475	329.64760	338.41548	8.71603	0.1518304	2.8061692	17	1	32 days	0.89			Williams		1998 QW_{25}
1998 QY_{25}	14.0	0.15	19980815	353.14059	191.65022	160.51368	18.24200	0.1329847	3.1530703	25	1	32 days	1.02			Williams		1998 QY_{25}
1998 QZ_{25}	14.5	0.15	19980815	304.19232	38.17413	15.23530	2.81849	0.1605776	2.4613437	33	1	32 days	0.60			Williams		1998 QZ_{25}
1998 QA_{26}	13.5	0.15	19980815	334.52725	218.79569	154.67082	5.66881	0.0880690	3.0323893	30	1	32 days	0.89			Williams		1998 QA_{26}
1998 QB_{26}	14.5	0.15	19980706	356.25999	348.49918	337.66925	1.92696	0.2332719	2.3981757	37	1	74 days	0.57	M-v	5	Williams		1998 QB_{26}
1998 QC_{26}	14.0	0.15	19980904	15.03262	346.09156	341.16620	3.53051	0.1487215	2.7061235	34	1	32 days	0.79			Williams		1998 QC_{26}
1998 QD_{26}	15.0	0.15	19980904	48.11954	99.91279	180.21358	2.06912	0.1906119	2.4253060	30	1	38 days	0.96		D	Williams		1998 QD_{26}
1998 QE_{26}	14.5	0.15	19980904	357.96970	7.46746	343.15012	11.52040	0.1236767	2.7472473	21	1	30 days	0.80			Williams		1998 QE_{26}
1998 QH_{26}	14.5	0.15	19980904	1.70095	184.88635	165.66163	1.83185	0.1742949	2.4008724	9	1	21 days	1.44			Williams		1998 QH_{26}
1998 QJ_{26}	16.0	0.15	19980815	20.68377	138.38938	163.65135	11.04706	0.2258966	2.3963449	40	1	46 days	0.88			Williams		1998 QJ_{26}
1998 QL_{26}	15.0	0.15	19980815	304.64707	265.46529	126.71406	4.31768	0.1264216	2.6516590	17	1	26 days	0.38			Williams		1998 QL_{26}
1998 QM_{26}	16.5	0.15	19980815	315.35858	241.50298	144.06276	2.77282	0.1849782	2.4113423	17	1	25 days	0.68			Williams		1998 QM_{26}
1998 QN_{26}	15.5	0.15	19980815	314.81074	49.80741	329.17968	9.66013	0.2484773	2.6288075	13	1	27 days	0.41			Williams		1998 QN_{26}
1998 QQ_{26}	17.0	0.15	19980815	20.61907	204.63353	95.54314	3.85335	0.1726341	2.3595083	13	1	13 days	0.61			Williams		1998 QQ_{26}
1998 QR_{26}	15.5	0.15	19980706	23.80084	39.68456	243.95429	1.39799	0.2044748	2.3926209	57	2	1997–1998	0.77	M-v	4	Williams	32499	1998 QR_{26}
1998 QS_{26}	15.0	0.15	19980904	352.37679	129.28276	222.76163	3.26078	0.0733984	2.4214528	34	1	39 days	1.08			Williams		1998 QS_{26}
1998 QJ_{27}	15.5	0.15	19980904	22.08243	356.72563	327.50162	17.86256	0.1199683	1.9330894	33	1	34 days	0.52			Williams		1998 QJ_{27}
1998 QX_{27}	14.5	0.15	19980815	333.96451	51.86627	316.30479	7.98726	0.1527507	3.0479173	22	1	29 days	0.96			Williams		1998 QX_{27}
1998 QY_{27}	16.5	0.15	19980904	6.12815	171.28097	168.60621	2.11061	0.1904062	2.4037359	9	1	24 days	0.19			Williams		1998 QY_{27}
1998 QZ_{27}	15.5	0.15	19980904	41.88345	120.34447	171.24922	8.96094	0.1967234	3.1237534	15	1	18 days	0.26			Williams		1998 QZ_{27}
1998 QB_{28}	20.5	0.15	19980904	31.82443	297.69578	341.82538	1.08817	0.3810438	2.0795169	18	1	20 days	0.16			Williams		1998 QB_{28}
1998 QC_{28}	17.5	0.15	19980904	336.84888	31.80950	355.01857	6.22154	0.2034578	2.6208561	12	1	19 days	0.14			Williams		1998 QC_{28}
1998 QF_{28}	18.0	0.15	19980904	354.10649	10.48845	352.33331	9.19576	0.3114479	2.7901116	14	1	26 days	0.65			Williams		1998 QF_{28}
1998 QK_{28}	19.5	0.15	19980904	351.35455	204.64153	174.67566	7.70292	0.5600267	2.2322960	132	1	29 days	1.46			Williams		1998 QK_{28}
1998 QM_{28}	15.0	0.15	19980904	32.51857	262.91478	63.83531	0.29788	0.0872951	2.6532873	20	1	32 days	0.44			Williams		1998 QM_{28}
1998 QO_{28}	15.0	0.15	19980904	21.19820	77.40305	271.73956	4.05942	0.0428468	2.7620754	10	1	23 days	0.12			Williams		1998 QO_{28}
1998 QS_{28}	16.0	0.15	19980815	5.59165	19.61364	301.58637	8.78416	0.2051400	2.7503584	16	1	14 days	0.40			Williams		1998 QS_{28}
1998 QT_{28}	16.5	0.15	19980815	33.14875	23.84475	266.00461	4.87253	0.0997717	2.4322865	9	1	8 days	0.36			Williams		1998 QT_{28}
1998 QU_{28}	15.5	0.15	19980815	305.64061	152.88775	241.10648	4.51537	0.0966268	2.3463892	14	1	13 days	0.71			Williams		1998 QU_{28}
1998 QV_{28}	16.5	0.15	19980815	352.74278	109.62684	231.65919	3.93939	0.2834780	2.6353264	22	1	14 days	0.71			Williams		1998 QV_{28}
1998 QX_{28}	14.0	0.15	19980904	313.26830	228.89009	176.65624	17.08805	0.2277376	3.1114246	20	1	25 days	0.88			Williams		1998 QX_{28}
1998 QE_{29}	14.0	0.15	19980904	14.39826	94.73752	292.66715	11.72772	0.1862028	2.6861604	14	1	28 days	0.22			Williams		1998 QE_{29}
1998 QF_{29}	16.0	0.15	19980815	340.13283	74.93497	284.99497	5.75136	0.2093230	2.7344486	14	1	13 days	0.63			Williams		1998 QF_{29}
1998 QG_{29}	15.0	0.15	19980815	96.21115	15.99524	206.43742	5.90806	0.1038707	2.4329200	17	1	13 days	0.48			Williams		1998 QG_{29}
1998 QL_{29}	15.5	0.15	19980815	70.59240	341.49859	257.95821	4.26148	0.1891050	2.3519496	15	1	13 days	0.48			Williams		1998 QL_{29}
1998 QR_{29}	17.0	0.15	19980815	355.21033	68.22005	269.18353	3.60406	0.1900385	2.6378200	12	1	7 days	1.10			Williams		1998 QR_{29}
1998 QU_{29}	15.5	0.15	19980815	254.94034	197.20831	241.58828	6.38709	0.0207834	2.2472504	9	1	7 days	0.16			Williams		1998 QU_{29}
1998 QV_{29}	16.0	0.15	19980815	328.12521	78.33184	311.59939	16.01388	0.2985697	3.1097656	12	1	7 days	0.49			Williams		1998 QV_{29}
1998 QW_{29}	16.0	0.15	19980815	11.37686	11.48486	303.99564	10.93311	0.1797135	2.6872419	17	1	14 days	0.80			Williams		1998 QW_{29}
1998 QX_{29}	15.0	0.15	19980815	347.40081	42.07351	308.11471	14.06238	0.1572048	2.8556782	21	1	13 days	0.77			Williams		1998 QX_{29}
1998 QZ_{29}	15.5	0.15	19980904	14.07030	26.33800	293.16534	6.35572	0.1341689	2.3194410	26	1	23 days	0.55			Williams		1998 QZ_{29}
1998 QA_{30}	14.5	0.15	19980904	37.68583	111.58097	174.21389	15.90062	0.1581845	3.0973614	23	1	23 days	0.79			Williams		1998 QA_{30}
1998 QC_{30}	14.0	0.15	19980815	199.72742	204.67223	291.85063	8.39851	0.0643440	2.9824742	14	1	13 days	0.53			Williams		1998 QC_{30}

1998 QL_{30}	14.5	0.15	19980706	325.54064	233.87285	129.94820	4.96878	0.1374421	2.3370078	54	3	1986–1998	0.62	M-v	4	Williams	32500	1998 QL_{30}
1998 QM_{30}	15.0	0.15	19980706	341.56020	356.88082	347.85241	5.24299	0.1579331	2.4432746	60	2	1997–1998	0.50	M-v	3	Williams	32500	1998 QM_{30}
1998 QS_{30}	15.5	0.15	19980815	341.21600	188.29466	169.81487	13.41106	0.1596558	2.7183386	16	1	29 days	0.84			Williams		1998 QS_{30}
1998 QW_{30}	15.0	0.15	19980815	8.19053	141.39981	176.45604	2.50649	0.2416417	3.0805920	12	1	28 days	0.85			Williams		1998 QW_{30}
1998 QX_{30}	15.5	0.15	19980815	23.88410	115.91520	180.07935	2.21137	0.1854730	2.4041231	16	1	29 days	0.61			Williams		1998 QX_{30}
1998 QA_{31}	13.5	0.15	19980815	264.33293	109.34316	329.83233	8.98219	0.0930195	3.0218796	25	1	32 days	0.72			Williams		1998 QA_{31}
1998 QC_{31}	14.0	0.15	19980904	347.69511	203.01201	152.05969	11.50852	0.1928603	3.1459675	28	1	35 days	0.53			Williams		1998 QC_{31}
1998 QE_{31}	14.5	0.15	19980815	352.61477	6.68293	333.92121	8.22080	0.1319156	2.9410160	27	1	32 days	0.79			Williams		1998 QE_{31}
1998 QK_{31}	15.0	0.15	19980904	336.49949	243.92973	121.80823	7.28418	0.1270637	2.3027111	31	1	38 days	0.74			Williams		1998 QK_{31}
1998 QL_{31}	14.5	0.15	19980815	59.44238	228.54390	31.51479	4.56200	0.0934123	2.4909141	25	1	55 days	1.18			Williams		1998 QL_{31}
1998 QP_{31}	14.0	0.15	19980815	194.87480	29.88321	107.68633	6.48083	0.0800047	2.3077359	19	1	32 days	0.93			Williams		1998 QP_{31}
1998 QQ_{31}	14.5	0.15	19980815	96.94529	220.61450	5.33061	7.18362	0.0618979	2.3477677	17	1	32 days	0.98			Williams		1998 QQ_{31}
1998 QS_{31}	12.5	0.15	19980706	29.17216	298.37901	347.79230	13.92731	0.1074882	3.2121945	44	3	1981–1998	0.59	M-v	3	Williams	32500	1998 QS_{31}
1998 QT_{31}	15.0	0.15	19980904	340.67741	278.34512	87.17831	3.30777	0.1970415	2.4580466	24	1	38 days	0.63			Williams		1998 QT_{31}
1998 QX_{31}	16.0	0.15	19980815	4.27916	195.57343	126.36336	3.40854	0.2018745	2.3809125	34	1	58 days	0.63			Williams		1998 QX_{31}
1998 QB_{32}	13.0	0.15	19980815	329.84523	38.17865	346.24125	10.92275	0.2875818	3.9806773	25	1	52 days	0.58			Williams		1998 QB_{32}
1998 QD_{32}	13.5	0.15	19980706	327.26309	231.08160	143.54144	17.60635	0.2682400	3.0779211	24	1	84 days	0.54	M-v	4	Williams		1998 QD_{32}
1998 QE_{32}	15.0	0.15	19980815	325.50555	241.59476	132.18491	7.11516	0.1296583	2.3129748	28	1	56 days	0.62			Williams		1998 QE_{32}
1998 QM_{32}	14.5	0.15	19980815	351.82543	9.75583	332.02152	11.73108	0.1278445	2.7387283	13	1	29 days	0.53			Williams		1998 QM_{32}
1998 QS_{32}	15.5	0.15	19980815	28.36486	322.55587	327.25845	6.45190	0.1845073	2.3071692	17	1	32 days	0.56			Williams		1998 QS_{32}
1998 QT_{32}	14.5	0.15	19980815	326.16235	140.20344	232.80644	1.06093	0.0826295	2.8499861	20	1	32 days	1.13			Williams		1998 QT_{32}
1998 QU_{32}	14.5	0.15	19980815	50.91529	299.40451	329.54171	12.32593	0.1371028	2.7586426	21	1	32 days	0.79			Williams		1998 QU_{32}
1998 QX_{32}	13.5	0.15	19980815	322.62630	178.60938	196.94021	2.22313	0.0667968	2.8646070	26	1	32 days	0.66			Williams		1998 QX_{32}
1998 QY_{32}	14.0	0.15	19980706	118.80069	342.98817	211.40659	3.05301	0.0924155	2.2752681	31	3	1980–1998	0.52	M-v	5	Williams	32500	1998 QY_{32}
1998 QA_{33}	15.0	0.15	19980815	334.74666	152.24560	212.56999	2.78201	0.1285874	2.5767370	25	1	32 days	1.01			Williams		1998 QA_{33}
1998 QC_{33}	14.5	0.15	19980815	315.10913	68.01268	321.00278	14.41648	0.1261566	2.6395716	18	1	31 days	0.61			Williams		1998 QC_{33}
1998 QF_{33}	16.5	0.15	19980815	344.04554	81.95351	277.79079	2.98009	0.2830633	2.5636593	20	1	32 days	0.97			Williams		1998 QF_{33}
1998 QG_{33}	15.0	0.15	19980815	34.63228	51.30085	226.39871	3.32291	0.2427027	2.9841805	15	1	29 days	1.01			Williams		1998 QG_{33}
1998 QH_{33}	15.5	0.15	19980815	335.16625	86.03468	278.34709	3.59581	0.1402536	2.2974221	19	1	32 days	0.59			Williams		1998 QH_{33}
1998 QN_{33}	14.5	0.15	19980815	1.49265	98.89784	231.88647	4.43400	0.1420693	2.6488256	16	1	29 days	0.68			Williams		1998 QN_{33}
1998 QQ_{33}	15.5	0.15	19980904	17.33667	138.93313	169.09070	12.03852	0.2822021	2.6306376	24	1	39 days	0.66			Williams		1998 QQ_{33}
1998 QR_{33}	15.5	0.15	19980904	344.93022	136.50526	231.57397	4.42976	0.2912944	2.5541264	23	1	35 days	0.64			Williams		1998 QR_{33}
1998 QS_{33}	14.0	0.15	19980904	319.22807	138.43815	247.47039	5.24559	0.0701155	3.0595916	15	1	35 days	0.69			Williams		1998 QS_{33}
1998 QU_{33}	15.5	0.15	19980815	0.98569	49.58817	281.09884	1.93343	0.1917982	2.6737301	12	1	28 days	0.71			Williams		1998 QU_{33}
1998 QV_{33}	15.0	0.15	19980815	357.12834	135.55136	200.07254	1.89208	0.2098106	2.4458035	20	1	32 days	0.54			Williams		1998 QV_{33}
1998 QX_{33}	13.5	0.15	19980815	335.13964	36.96083	330.35776	19.97197	0.1406480	3.1716271	31	1	32 days	0.70			Williams		1998 QX_{33}
1998 QA_{34}	16.5	0.15	19980904	349.78283	38.36538	317.34395	1.99545	0.2131985	2.3976197	31	1	35 days	0.81			Williams		1998 QA_{34}
1998 QH_{34}	14.0	0.15	19980815	134.18180	220.96143	335.76253	14.82236	0.0230020	2.6596552	18	1	32 days	0.66			Williams		1998 QH_{34}
1998 QK_{34}	14.0	0.15	19980815	346.40125	13.90070	334.85261	14.54098	0.1278074	2.5971898	32	1	48 days	0.67			Williams		1998 QK_{34}
1998 QN_{34}	16.0	0.15	19980815	344.51176	4.94668	347.28718	4.73729	0.1921398	2.2492889	26	1	49 days	0.50			Williams		1998 QN_{34}
1998 QR_{34}	15.5	0.15	19980904	6.59268	303.87676	22.01849	5.69296	0.1765144	2.5738277	14	1	38 days	0.82			Williams		1998 QR_{34}
1998 QT_{34}	15.0	0.15	19980904	304.34764	8.26920	45.05845	4.52418	0.2168877	2.6427996	23	1	38 days	0.85			Williams		1998 QT_{34}
1998 QZ_{34}	14.5	0.15	19980815	6.38382	149.95331	174.97156	12.38652	0.1825671	2.9044204	22	1	32 days	0.75			Williams		1998 QZ_{34}
1998 QB_{35}	14.5	0.15	19980815	225.17597	162.83554	317.50292	13.11474	0.1198248	2.5361398	24	1	46 days	1.14			Williams		1998 QB_{35}
1998 QF_{35}	15.0	0.15	19980815	338.33005	216.27908	151.13221	18.00372	0.2242058	3.1465757	18	1	32 days	1.32			Williams		1998 QF_{35}
1998 QK_{35}	15.5	0.15	19980904	344.15938	353.27957	12.54892	4.10070	0.2642415	2.6039221	27	1	38 days	0.67			Williams		1998 QK_{35}
1998 QN_{35}	14.5	0.15	19980815	323.55145	307.92780	69.68029	3.10290	0.1036010	2.9241932	17	1	32 days	1.04			Williams		1998 QN_{35}
1998 QO_{35}	14.0	0.15	19980904	327.65151	269.91758	103.74173	3.02093	0.0539714	2.8778560	22	1	36 days	0.71			Williams		1998 QO_{35}
1998 QS_{35}	15.5	0.15	19980815	281.43174	65.19305	356.33447	6.10363	0.0934122	2.3422598	18	1	32 days	1.09			Williams		1998 QS_{35}
1998 QW_{35}	15.0	0.15	19980815	346.40044	6.32391	345.27833	4.21828	0.1667722	2.6090552	18	1	32 days	0.73			Williams		1998 QW_{35}
1998 QY_{35}	15.5	0.15	19980904	349.03304	218.88773	144.13374	7.56604	0.3382161	2.8518965	26	1	36 days	0.57			Williams		1998 QY_{35}
1998 QD_{36}	15.5	0.15	19980815	0.18969	172.51354	160.06958	8.20259	0.1747371	2.5630636	21	1	32 days	0.85			Williams		1998 QD_{36}
1998 QE_{36}	16.0	0.15	19980815	10.85336	2.71383	315.45591	5.89510	0.1381759	2.3830859	23	1	32 days	0.93			Williams		1998 QE_{36}

1998 QF_{36}	16.0	0.15	19980904	349.22294	35.27065	319.35233	6.66851	0.1543199	2.2970860	15	1	35 days	0.82		Williams		1998 QF_{36}
1998 QM_{36}	15.0	0.15	19980815	317.73906	146.74450	260.69848	2.77310	0.3022578	2.6871701	22	1	32 days	0.57		Williams		1998 QM_{36}
1998 QN_{36}	13.0	0.15	19980815	304.02899	241.45877	165.49448	22.89369	0.1360732	3.1650093	20	1	32 days	0.55		Williams		1998 QN_{36}
1998 QP_{36}	17.0	0.15	19980815	349.14787	73.17235	283.17015	3.28380	0.3778454	2.5877173	25	1	32 days	0.67		Williams		1998 QP_{36}
1998 QR_{36}	14.5	0.15	19980815	20.55237	131.98016	173.95835	12.72499	0.1558694	2.5797586	26	1	32 days	0.75		Williams		1998 QR_{36}
1998 QT_{36}	14.5	0.15	19980904	76.13414	1.01275	254.61507	4.16272	0.0821878	2.4784524	25	1	35 days	0.75		Williams		1998 QT_{36}
1998 QU_{36}	14.5	0.15	19980904	82.55432	61.60135	184.85227	9.05052	0.1049198	2.7725355	16	1	35 days	0.71		Williams		1998 QU_{36}
1998 QW_{36}	15.5	0.15	19980815	338.86479	77.78670	284.62670	5.43048	0.1359677	2.3369995	31	1	46 days	0.79		Williams		1998 QW_{36}
1998 QX_{36}	15.5	0.15	19980904	46.61350	59.80371	218.75299	4.95153	0.1699525	2.3078938	28	1	44 days	0.71		Williams		1998 QX_{36}
1998 QY_{36}	15.5	0.15	19980904	357.34613	132.19649	213.43337	4.73666	0.1691542	2.2209681	26	1	44 days	0.55		Williams		1998 QY_{36}
1998 QB_{37}	15.0	0.15	19980815	9.00618	75.85816	248.84277	4.96890	0.1396618	2.5559883	29	1	32 days	0.54		Williams		1998 QB_{37}
1998 QK_{37}	15.5	0.15	19980706	21.38530	58.93219	230.39198	2.99947	0.1637786	2.3117451	53	2	1995–1998	0.67	M-v 4	Williams	32500	1998 QK_{37}
1998 QM_{37}	14.5	0.15	19980815	200.44248	199.70366	299.42589	5.67819	0.0650399	2.3854440	26	1	32 days	0.57		Williams		1998 QM_{37}
1998 QN_{37}	15.0	0.15	19980904	60.98635	312.27946	314.21126	6.94843	0.1293039	2.5362653	28	1	35 days	0.86		Williams		1998 QN_{37}
1998 QO_{37}	15.0	0.15	19980815	55.51813	75.07316	182.03631	6.45502	0.2127834	2.5419390	31	1	46 days	0.84		Williams		1998 QO_{37}
1998 QP_{37}	14.5	0.15	19980904	125.29078	277.80631	289.31308	3.35397	0.1037555	2.2888766	28	1	35 days	0.84		Williams		1998 QP_{37}
1998 QQ_{37}	16.0	0.15	19980815	27.93278	344.50451	308.39223	5.02197	0.1895424	2.2156708	20	1	32 days	0.79		Williams		1998 QQ_{37}
1998 QS_{37}	15.5	0.15	19980815	297.94644	165.87590	243.56596	1.94374	0.1259670	2.2581124	24	1	32 days	0.83		Williams		1998 QS_{37}
1998 QU_{37}	15.0	0.15	19980815	343.98041	79.04313	280.00568	1.76293	0.2218307	2.6694614	25	1	32 days	0.63		Williams		1998 QU_{37}
1998 QV_{37}	14.0	0.15	19980904	324.83780	185.32853	192.94541	1.40940	0.0396744	2.9157382	35	1	43 days	0.88		Williams		1998 QV_{37}
1998 QW_{37}	14.5	0.15	19980904	164.19600	202.45819	330.82874	4.68713	0.1025898	2.1953606	23	1	37 days	0.84		Williams		1998 QW_{37}
1998 QX_{37}	15.0	0.15	19980815	35.89956	320.77713	335.26936	7.60651	0.0467723	2.4587333	24	1	32 days	0.95		Williams		1998 QX_{37}
1998 QZ_{37}	14.5	0.15	19980815	46.92133	119.23886	150.69641	13.73832	0.1768944	2.6012397	28	1	52 days	0.48		Williams		1998 QZ_{37}
1998 QA_{38}	16.5	0.15	19980904	357.97514	348.77598	355.27040	1.95219	0.2382836	2.3437823	33	1	38 days	0.72		Williams		1998 QA_{38}
1998 QB_{38}	15.5	0.15	19980815	344.96906	18.73019	336.90571	13.95261	0.1866197	2.5833035	23	1	32 days	0.86		Williams		1998 QB_{38}
1998 QC_{38}	14.5	0.15	19980815	156.20873	190.30688	345.36579	6.83308	0.0494432	2.3235791	21	1	32 days	0.74		Williams		1998 QC_{38}
1998 QD_{38}	14.0	0.15	19980815	324.39708	270.48706	103.57418	2.60391	0.0599849	2.8544528	22	1	32 days	0.78		Williams		1998 QD_{38}
1998 QH_{38}	16.0	0.15	19980815	14.26413	302.71313	7.50225	5.08402	0.1695695	2.2836270	22	1	49 days	0.72		Williams		1998 QH_{38}
1998 QK_{38}	13.5	0.15	19980904	37.57396	327.72836	325.62095	0.33543	0.1294727	3.1803908	35	1	43 days	0.63		Williams		1998 QK_{38}
1998 QN_{38}	16.5	0.15	19980815	1.61296	137.77354	192.15010	2.13920	0.2282169	2.3312498	19	1	32 days	0.81		Williams		1998 QN_{38}
1998 QP_{38}	14.5	0.15	19980815	300.71494	252.48544	175.23907	7.83736	0.2787255	2.6653340	22	1	32 days	0.66		Williams		1998 QP_{38}
1998 QR_{38}	13.5	0.15	19980815	333.49294	52.15771	318.69879	9.08538	0.1004301	3.1341201	26	1	46 days	0.70		Williams		1998 QR_{38}
1998 QS_{38}	13.5	0.15	19980815	66.06584	288.74284	322.54827	13.46167	0.1999269	3.1986114	20	1	32 days	0.76		Williams		1998 QS_{38}
1998 QT_{38}	15.5	0.15	19980815	317.47222	107.37803	283.79224	3.94623	0.1431962	2.3408906	20	1	32 days	0.58		Williams		1998 QT_{38}
1998 QU_{38}	14.5	0.15	19980815	4.35490	145.85877	186.63517	10.41406	0.1288140	3.0012090	23	1	32 days	0.82		Williams		1998 QU_{38}
1998 QX_{38}	14.0	0.15	19980815	84.78707	36.37712	214.57743	7.15152	0.0204062	2.5373827	19	1	32 days	0.71		Williams		1998 QX_{38}
1998 QZ_{38}	15.5	0.15	19980815	347.52772	36.40806	317.47692	7.68113	0.1687980	2.6058135	17	1	32 days	0.97		Williams		1998 QZ_{38}
1998 QB_{39}	15.5	0.15	19980815	351.47276	86.51254	259.82672	1.91429	0.1416703	2.4347393	25	1	32 days	0.86		Williams		1998 QB_{39}
1998 QC_{39}	15.0	0.15	19980815	27.61911	143.44026	149.47661	2.77011	0.1928837	2.4221042	25	1	32 days	0.97		Williams		1998 QC_{39}
1998 QD_{39}	16.5	0.15	19980815	11.12528	322.67638	352.58784	1.61347	0.2182784	2.4565643	14	1	33 days	0.81		Williams		1998 QD_{39}
1998 QF_{39}	14.0	0.15	19980815	92.96265	82.48393	151.24191	10.30181	0.0836304	2.8687347	18	1	32 days	0.99		Williams		1998 QF_{39}
1998 QG_{39}	15.5	0.15	19980706	338.78639	11.02934	344.67515	8.94903	0.3114698	2.6953245	54	2	1996–1998	0.59	M-v 4	Williams	32501	1998 QG_{39}
1998 QH_{39}	16.5	0.15	19980815	358.00210	197.15349	136.76043	6.76897	0.2262625	2.2804273	20	1	32 days	0.61		Williams		1998 QH_{39}
1998 QJ_{39}	14.5	0.15	19980815	291.12664	283.35750	143.43077	17.12032	0.1956319	3.1403293	15	1	30 days	1.07		Williams		1998 QJ_{39}
1998 QN_{39}	15.5	0.15	19980815	2.28593	278.31456	49.83465	2.77535	0.1992531	2.4661919	20	1	32 days	0.63		Williams		1998 QN_{39}
1998 QQ_{39}	14.0	0.15	19980815	57.62386	257.63330	8.44792	5.48487	0.0944265	2.4232555	19	1	32 days	0.67		Williams		1998 QQ_{39}
1998 QR_{39}	15.0	0.15	19980815	58.06962	262.95187	1.31274	6.15755	0.1092192	2.3688764	20	1	32 days	0.95		Williams		1998 QR_{39}
1998 QV_{39}	15.0	0.15	19980815	46.19422	260.19378	11.32803	2.36535	0.1723878	2.4021635	19	1	32 days	0.77		Williams		1998 QV_{39}
1998 QX_{39}	15.5	0.15	19980815	351.31278	198.92538	147.42847	5.17935	0.1980926	2.2474652	25	1	32 days	0.46		Williams		1998 QX_{39}
1998 QA_{40}	16.0	0.15	19980904	5.57852	168.15137	164.26125	5.22213	0.2494473	2.4770892	30	1	44 days	0.83		Williams		1998 QA_{40}
1998 QE_{40}	15.0	0.15	19980815	293.35086	224.20102	198.70283	3.11435	0.1736451	2.4768229	28	1	32 days	0.77		Williams		1998 QE_{40}
1998 QF_{40}	14.0	0.15	19980815	187.73210	284.66325	226.99139	2.70687	0.0253815	2.7397001	19	1	32 days	0.97		Williams		1998 QF_{40}
1998 QH_{40}	15.0	0.15	19980815	315.64638	142.68429	259.26010	2.94414	0.2223293	2.3957012	20	1	32 days	0.52		Williams		1998 QH_{40}

1998 QK_{40}	17.0	0.15	19980815	341.83694	70.93111	291.96192	5.34997	0.2028914	2.2859928	15	1	30 days	0.75		Williams		1998 QK_{40}
1998 QL_{40}	14.5	0.15	19980815	28.28741	109.09944	184.18904	11.85977	0.2240850	2.7103196	23	1	32 days	0.59		Williams		1998 QL_{40}
1998 QM_{40}	14.0	0.15	19980904	9.91831	16.75174	313.31676	11.23147	0.1886979	2.6588454	22	1	35 days	0.50		Williams		1998 QM_{40}
1998 QN_{40}	15.0	0.15	19980815	264.39776	187.69784	250.96936	4.24459	0.0367053	2.3783735	19	1	32 days	0.60		Williams		1998 QN_{40}
1998 QO_{40}	15.0	0.15	19980815	93.94683	34.86268	200.84559	6.94749	0.0784432	2.2859684	25	1	32 days	0.85		Williams		1998 QO_{40}
1998 QR_{40}	15.0	0.15	19980815	344.86314	113.35479	245.68520	4.04294	0.1363844	2.7044745	26	1	32 days	0.57		Williams		1998 QR_{40}
1998 QT_{40}	14.0	0.15	19980904	269.38011	214.55460	224.87315	4.41944	0.0435249	2.8025834	27	1	44 days	0.65		Williams		1998 QT_{40}
1998 QW_{40}	16.0	0.15	19980815	44.22129	38.07395	236.10502	2.71462	0.1822541	2.1637563	25	1	32 days	0.93		Williams		1998 QW_{40}
1998 QY_{40}	15.5	0.15	19980815	335.99363	192.58426	178.79572	5.72643	0.2071048	2.3064356	29	1	32 days	0.39		Williams		1998 QY_{40}
1998 QZ_{40}	14.5	0.15	19980815	132.32283	240.09678	316.62539	4.49984	0.1154420	2.3144891	19	1	32 days	0.95		Williams		1998 QZ_{40}
1998 QA_{41}	15.5	0.15	19980815	344.17171	59.08574	299.78193	2.70186	0.2018888	2.3043675	26	1	32 days	0.51		Williams		1998 QA_{41}
1998 QC_{41}	14.0	0.15	19980815	48.37692	310.36330	328.73060	9.58689	0.1214741	2.6956120	19	1	32 days	0.71		Williams		1998 QC_{41}
1998 QD_{41}	15.5	0.15	19980904	317.28736	221.31739	175.22180	4.08644	0.1371590	2.3835942	29	1	41 days	0.84		Williams		1998 QD_{41}
1998 QF_{41}	16.5	0.15	19980815	336.67000	204.64568	165.16431	6.34581	0.2157310	2.2666073	25	1	32 days	0.93		Williams		1998 QF_{41}
1998 QG_{41}	16.0	0.15	19980815	18.32820	345.06121	317.46795	2.36946	0.2437760	2.2925922	26	1	32 days	0.85		Williams		1998 QG_{41}
1998 QH_{41}	16.5	0.15	19980904	10.97724	162.65618	160.60180	2.69242	0.2525599	2.2994269	26	1	39 days	0.72		Williams		1998 QH_{41}
1998 QJ_{41}	16.0	0.15	19980815	355.48464	21.32373	319.82932	1.94708	0.1794143	2.3670432	19	1	32 days	0.67		Williams		1998 QJ_{41}
1998 QL_{41}	15.0	0.15	19980815	316.75251	69.52088	337.24281	12.23199	0.2754262	2.6604150	20	1	32 days	0.61		Williams		1998 QL_{41}
1998 QM_{41}	14.0	0.15	19980904	354.19445	193.09006	155.57085	2.24834	0.0368712	2.9062704	25	1	35 days	1.01		Williams		1998 QM_{41}
1998 QO_{41}	15.5	0.15	19980815	25.49418	333.40523	332.98865	3.81029	0.0655895	2.2338622	19	1	32 days	0.88		Williams		1998 QO_{41}
1998 QP_{41}	14.0	0.15	19980815	1.17158	324.14408	11.99043	1.97643	0.0736173	2.8462278	22	1	32 days	0.68		Williams		1998 QP_{41}
1998 QV_{41}	15.5	0.15	19980815	355.05094	359.18989	343.91719	11.91776	0.2695889	2.7788976	24	1	32 days	0.96		Williams		1998 QV_{41}
1998 QW_{41}	14.0	0.15	19980815	341.56490	15.58838	345.48884	18.10831	0.1653974	3.1276737	35	1	56 days	0.66		Williams		1998 QW_{41}
1998 QY_{41}	14.0	0.15	19980904	347.95979	216.81011	139.36686	10.86132	0.1168945	2.9997223	25	1	36 days	0.95		Williams		1998 QY_{41}
1998 QC_{42}	15.0	0.15	19980815	34.48739	270.62740	11.74800	6.74130	0.2004280	2.4183107	20	1	32 days	0.71		Williams		1998 QC_{42}
1998 QD_{42}	15.0	0.15	19980815	287.87234	325.33269	88.79096	4.73240	0.0846223	2.1947810	26	1	49 days	0.79		Williams		1998 QD_{42}
1998 QF_{42}	15.5	0.15	19980815	10.61340	336.28316	343.59216	11.71178	0.1940621	2.6775576	17	1	32 days	1.05		Williams		1998 QF_{42}
1998 QG_{42}	16.5	0.15	19980815	356.80835	4.56690	333.41814	7.92826	0.2455077	2.2220015	26	1	32 days	0.54		Williams		1998 QG_{42}
1998 QH_{42}	14.0	0.15	19980815	318.45289	52.15754	338.07408	13.94117	0.1283553	2.6002696	31	1	32 days	0.61		Williams		1998 QH_{42}
1998 QJ_{42}	15.0	0.15	19980815	79.45005	67.79945	168.02718	4.02867	0.1926974	2.3420299	22	1	32 days	0.84		Williams		1998 QJ_{42}
1998 QN_{42}	14.5	0.15	19980706	351.97668	10.29190	326.38110	8.52467	0.1846967	2.7266923	47	2	1996–1998	0.72	M-v 3	Williams	32501	1998 QN_{42}
1998 QQ_{42}	15.0	0.15	19980815	325.95020	162.89620	217.97155	3.75509	0.1075400	2.6818845	22	1	32 days	0.86		Williams		1998 QQ_{42}
1998 QR_{42}	12.5	0.15	19980815	176.63495	347.49492	177.93820	15.70774	0.1262581	3.1518845	19	1	32 days	0.76		Williams		1998 QR_{42}
1998 QS_{42}	15.5	0.15	19980815	23.93403	113.09390	189.28343	7.04818	0.1849281	2.3721112	22	1	32 days	0.71		Williams		1998 QS_{42}
1998 QT_{42}	15.0	0.15	19980815	1.85228	88.35306	248.15737	4.23498	0.1521844	2.5902630	23	1	32 days	0.83		Williams		1998 QT_{42}
1998 QU_{42}	13.5	0.15	19980815	262.21069	111.08938	336.67479	9.76048	0.0802334	3.0073123	26	1	32 days	0.71		Williams		1998 QU_{42}
1998 QZ_{42}	15.5	0.15	19980815	351.96703	213.37276	131.42335	4.92671	0.1785734	2.6883595	17	1	32 days	0.75		Williams		1998 QZ_{42}
1998 QD_{43}	14.0	0.15	19980815	322.47756	234.03925	147.51255	10.84632	0.0740654	3.1071753	22	1	32 days	0.83		Williams		1998 QD_{43}
1998 QE_{43}	14.0	0.15	19980815	306.71370	281.05453	131.28770	3.15672	0.2038796	2.8625481	25	1	48 days	0.88		Williams		1998 QE_{43}
1998 QF_{43}	16.0	0.15	19980815	349.41316	0.40058	348.08176	4.78989	0.1676267	2.1882180	28	1	32 days	0.56		Williams		1998 QF_{43}
1998 QH_{43}	14.5	0.15	19980815	18.01949	200.93531	99.44431	3.33014	0.2993990	3.0163624	18	1	32 days	0.62		Williams		1998 QH_{43}
1998 QJ_{43}	15.5	0.15	19980815	302.86253	267.10331	125.42160	7.06585	0.0083834	2.1995632	18	1	32 days	0.93		Williams		1998 QJ_{43}
1998 QK_{43}	14.5	0.15	19980904	18.48082	194.78729	120.87841	6.36774	0.1473871	2.4362515	28	1	36 days	0.58		Williams		1998 QK_{43}
1998 QL_{43}	14.0	0.15	19980815	334.53412	355.78040	7.92379	9.03695	0.0378004	3.0215962	28	1	53 days	0.83		Williams		1998 QL_{43}
1998 QM_{43}	16.0	0.15	19980904	332.36461	283.08819	109.06602	5.76469	0.3139370	2.5508108	16	1	36 days	0.62		Williams		1998 QM_{43}
1998 QN_{43}	14.5	0.15	19980706	67.00456	204.86877	37.53396	5.12070	0.1140153	2.3103202	46	3	1995–1998	0.68	M-v 3	Williams	32501	1998 QN_{43}
1998 QQ_{43}	15.0	0.15	19980815	328.22066	4.96121	10.00901	7.38051	0.1362623	2.3008893	27	1	34 days	0.46		Williams		1998 QQ_{43}
1998 QT_{43}	16.0	0.15	19980815	3.03488	269.06491	59.48339	3.40323	0.2025870	2.3963118	21	1	32 days	0.69		Williams		1998 QT_{43}
1998 QV_{43}	15.5	0.15	19980815	326.18489	322.66343	63.16202	3.30009	0.2260574	2.4019189	21	1	32 days	0.91		Williams		1998 QV_{43}
1998 QX_{43}	15.5	0.15	19980815	352.20135	257.18403	91.63182	2.80509	0.2611101	2.9779127	18	1	32 days	1.01		Williams		1998 QX_{43}
1998 QY_{43}	15.5	0.15	19980815	61.32701	253.42719	16.44294	3.92159	0.0367913	2.2177808	22	1	32 days	0.96		Williams		1998 QY_{43}
1998 QZ_{43}	14.0	0.15	19980815	326.80563	273.11311	102.62938	3.44349	0.0792642	2.8625155	25	1	32 days	0.71		Williams		1998 QZ_{43}
1998 QA_{44}	15.5	0.15	19980815	292.93296	52.25070	7.50298	5.65001	0.1595819	2.2229041	18	1	32 days	0.97		Williams		1998 QA_{44}

1998 QC_{44}	14.5	0.15	19980815	86.94298	229.76549	7.47960	6.92356	0.1065364	2.4100914	21	1	32 days	0.87		Williams		1998 QC_{44}
1998 QF_{44}	15.0	0.15	19980904	314.72315	41.03359	1.02357	3.59081	0.1536189	2.5899654	26	1	44 days	0.63		Williams		1998 QF_{44}
1998 QJ_{44}	14.0	0.15	19980815	50.46922	251.58359	23.76691	3.37338	0.1386292	3.1884686	22	1	32 days	0.91		Williams		1998 QJ_{44}
1998 QL_{44}	14.0	0.15	19980815	16.33507	194.30438	126.55618	3.13160	0.0525493	2.9016108	22	1	32 days	0.97		Williams		1998 QL_{44}
1998 QN_{44}	15.0	0.15	19980815	38.53488	299.69310	348.86200	6.66761	0.1167207	2.3568256	26	1	32 days	0.70		Williams		1998 QN_{44}
1998 QO_{44}	14.5	0.15	19980815	11.15471	304.00456	21.65502	1.98304	0.0808504	2.8575990	23	1	32 days	0.93		Williams		1998 QO_{44}
1998 QP_{44}	15.0	0.15	19980904	13.69980	297.09624	26.33890	1.06409	0.1786126	3.1702335	18	1	43 days	0.90		Williams		1998 QP_{44}
1998 QR_{44}	15.0	0.15	19980815	20.04696	150.22514	157.19967	4.28219	0.1789855	2.4720636	23	1	32 days	0.85		Williams		1998 QR_{44}
1998 QT_{44}	17.0	0.15	19980815	2.66867	82.00542	248.40358	1.45942	0.1897229	2.1276268	17	1	32 days	0.80		Williams		1998 QT_{44}
1998 QU_{44}	15.5	0.15	19980815	330.06354	81.28619	294.26640	2.49740	0.1137159	2.4338097	22	1	32 days	0.62		Williams		1998 QU_{44}
1998 QV_{44}	16.0	0.15	19980815	2.85366	139.37490	193.56929	3.51905	0.2257324	2.6945983	18	1	32 days	0.96		Williams		1998 QV_{44}
1998 QW_{44}	16.0	0.15	19980815	342.74605	67.71618	300.12120	3.27934	0.2818421	2.5825472	19	1	32 days	0.82		Williams		1998 QW_{44}
1998 QX_{44}	16.0	0.15	19980815	345.42138	186.63317	174.32740	13.97988	0.1988586	2.8020039	16	1	32 days	0.96		Williams		1998 QX_{44}
1998 QY_{44}	16.0	0.15	19980815	339.23536	151.36584	218.38096	4.22647	0.2091178	2.5285587	18	1	32 days	1.11		Williams		1998 QY_{44}
1998 QZ_{44}	15.5	0.15	19980815	351.81461	169.25704	181.78999	9.72134	0.1717047	2.7419212	19	1	32 days	1.15		Williams		1998 QZ_{44}
1998 QA_{45}	15.5	0.15	19980815	333.14930	59.39741	322.33974	12.18438	0.2180016	2.7835424	15	1	30 days	1.10		Williams		1998 QA_{45}
1998 QC_{45}	14.5	0.15	19980815	330.58475	144.21408	235.45053	5.37385	0.1568132	2.5933533	31	1	32 days	0.59		Williams		1998 QC_{45}
1998 QF_{45}	14.5	0.15	19980815	309.76866	223.32142	183.59769	12.82995	0.1635935	2.6287346	19	1	32 days	0.57		Williams		1998 QF_{45}
1998 QG_{45}	16.0	0.15	19980815	336.57986	132.34601	240.95931	3.68025	0.2060865	2.4003891	24	1	32 days	0.82		Williams		1998 QG_{45}
1998 QK_{45}	15.0	0.15	19980904	17.27697	104.88146	216.10496	5.50636	0.1863206	2.4615105	16	1	39 days	0.50		Williams		1998 QK_{45}
1998 QM_{45}	15.0	0.15	19980904	354.64944	153.28616	200.50528	7.30506	0.1251327	2.5920244	27	1	39 days	0.96		Williams		1998 QM_{45}
1998 QN_{45}	14.5	0.15	19980815	165.89949	345.63835	188.62660	12.01838	0.1080427	2.3775574	21	1	32 days	1.13		Williams		1998 QN_{45}
1998 QO_{45}	14.5	0.15	19980815	19.63551	135.20854	183.03146	12.46522	0.0730387	2.4356089	19	1	32 days	0.57		Williams		1998 QO_{45}
1998 QP_{45}	13.5	0.15	19980904	176.21789	339.49589	191.68506	12.23695	0.1705957	2.5928368	25	1	39 days	0.73		Williams		1998 QP_{45}
1998 QR_{45}	15.0	0.15	19980815	312.92692	226.12470	178.79971	13.16829	0.1895467	2.4187452	25	1	32 days	0.64		Williams		1998 QR_{45}
1998 QS_{45}	15.0	0.15	19980815	5.08297	65.20647	268.56341	3.96486	0.1198125	2.4235917	19	1	32 days	0.78		Williams		1998 QS_{45}
1998 QV_{45}	15.0	0.15	19980815	302.56520	247.02507	187.78867	8.63231	0.3140080	2.6895546	21	1	32 days	0.66		Williams		1998 QV_{45}
1998 QY_{45}	14.0	0.15	19980815	13.17237	352.14417	331.71690	9.01576	0.1271783	3.0032359	19	1	32 days	0.50		Williams		1998 QY_{45}
1998 QZ_{45}	14.0	0.15	19980815	43.71928	317.73395	329.21004	7.48570	0.1171196	2.7969815	18	1	32 days	0.63		Williams		1998 QZ_{45}
1998 QA_{46}	15.5	0.15	19980815	38.59625	327.18548	325.00371	6.40404	0.0958218	2.2200603	22	1	32 days	0.67		Williams		1998 QA_{46}
1998 QD_{46}	16.5	0.15	19980706	336.52371	35.26754	317.73520	1.84677	0.1654232	2.2908963	24	1	62 days	0.79	M-v 4	Williams		1998 QD_{46}
1998 QE_{46}	16.5	0.15	19980815	324.51538	228.33394	159.69455	6.09785	0.2035966	2.2474929	20	1	32 days	1.22		Williams		1998 QE_{46}
1998 QG_{46}	14.5	0.15	19980904	348.72619	205.88647	156.39329	2.50030	0.2115288	3.1649340	39	1	43 days	0.87		Williams		1998 QG_{46}
1998 QJ_{46}	15.0	0.15	19980815	355.43207	359.29067	344.26819	7.52898	0.2013742	2.5837706	25	1	32 days	0.61		Williams		1998 QJ_{46}
1998 QK_{46}	14.5	0.15	19980815	356.28826	188.32175	156.54836	14.47634	0.2419804	3.0792430	18	1	32 days	0.54		Williams		1998 QK_{46}
1998 QL_{46}	14.5	0.15	19980815	36.44182	309.78184	342.70920	15.04280	0.1234021	2.5942746	26	1	32 days	0.63		Williams		1998 QL_{46}
1998 QM_{46}	15.5	0.15	19980815	38.95551	299.71555	344.38600	3.90544	0.1711066	2.3940432	26	1	32 days	0.69		Williams		1998 QM_{46}
1998 QO_{46}	16.0	0.15	19980815	344.90833	200.06750	157.66973	11.02788	0.1699715	2.2969751	25	1	32 days	0.54		Williams		1998 QO_{46}
1998 QP_{46}	14.5	0.15	19980815	355.73876	12.13336	334.87536	8.77982	0.1529941	2.9661553	22	1	32 days	0.58		Williams		1998 QP_{46}
1998 QR_{46}	15.0	0.15	19980815	12.37328	145.07629	180.09044	4.73635	0.1156119	2.7331476	18	1	32 days	0.69		Williams		1998 QR_{46}
1998 QT_{46}	13.5	0.15	19980815	353.68693	143.01863	207.36697	4.62828	0.0643512	3.1070272	19	1	32 days	0.78		Williams		1998 QT_{46}
1998 QU_{46}	14.5	0.15	19980815	311.23453	105.59718	296.32459	5.85811	0.1260271	2.3817541	19	1	32 days	0.56		Williams		1998 QU_{46}
1998 QV_{46}	15.0	0.15	19980815	350.89046	32.20698	324.11005	14.49177	0.2763246	2.6342709	42	1	33 days	0.88		Williams		1998 QV_{46}
1998 QW_{46}	16.0	0.15	19980904	347.69691	90.35387	277.20863	3.98944	0.2407696	2.3183145	28	1	39 days	0.76		Williams		1998 QW_{46}
1998 QY_{46}	16.5	0.15	19980815	357.78224	343.32216	356.32044	4.32133	0.2348817	2.5611517	16	1	32 days	0.53		Williams		1998 QY_{46}
1998 QZ_{46}	14.5	0.15	19980706	166.67887	52.44619	105.67495	3.51685	0.0573029	2.2038802	40	4	1987–1998	0.77	M-v 2	Williams	32501	1998 QZ_{46}
1998 QB_{47}	15.0	0.15	19980815	303.18645	39.70562	13.02722	5.69920	0.1867286	2.4312875	22	1	32 days	0.65		Williams		1998 QB_{47}
1998 QC_{47}	15.5	0.15	19980815	313.57904	348.30355	53.75321	3.37075	0.2069314	2.3765843	17	1	32 days	0.91		Williams		1998 QC_{47}
1998 QD_{47}	16.0	0.15	19980815	325.32038	358.05974	24.49897	4.55283	0.1745346	2.2967868	17	1	32 days	0.92		Williams		1998 QD_{47}
1998 QE_{47}	16.0	0.15	19980815	342.54705	303.83753	56.57074	3.20886	0.2156985	2.2695080	19	1	32 days	0.49		Williams		1998 QE_{47}
1998 QG_{47}	15.5	0.15	19980815	0.59848	322.75813	10.45817	6.46259	0.2214698	2.6065756	22	1	32 days	0.72		Williams		1998 QG_{47}
1998 QH_{47}	16.0	0.15	19980815	347.30924	341.97718	8.82530	7.24895	0.1332295	2.3142955	21	1	32 days	0.85		Williams		1998 QH_{47}
1998 QJ_{47}	15.0	0.15	19980815	255.96883	47.17166	41.70940	4.86004	0.0788298	2.2743817	20	1	32 days	0.88		Williams		1998 QJ_{47}

1998 QL_{47}	16.0	0.15	19980815	321.42224	190.77433	197.46367	9.41060	0.1087627	2.3873150	17	1	32 days	0.76		Williams		1998 QL_{47}
1998 QN_{47}	17.5	0.15	19980815	350.88753	213.76589	134.74578	3.81681	0.2273239	2.2190751	18	1	32 days	0.88		Williams		1998 QN_{47}
1998 QP_{47}	13.0	0.15	19980706	340.88329	203.70274	149.60115	2.57597	0.0834018	2.8917909	48	4	1974–1998	0.69	M-v 2	Williams	32501	1998 QP_{47}
1998 QR_{47}	15.5	0.15	19980815	35.67691	293.10264	351.11953	1.89959	0.2125700	2.3871791	24	1	32 days	0.52		Williams		1998 QR_{47}
1998 QS_{47}	16.0	0.15	19980815	342.65230	207.24555	156.21730	3.87921	0.2111931	2.4013134	22	1	32 days	0.87		Williams		1998 QS_{47}
1998 QT_{47}	14.0	0.15	19980815	291.14778	267.21615	161.40942	12.91140	0.1689433	2.6415018	28	1	32 days	0.66		Williams		1998 QT_{47}
1998 QU_{47}	14.0	0.15	19980815	275.40729	242.94507	189.74975	1.69328	0.0444463	2.8594574	19	1	32 days	0.75		Williams		1998 QU_{47}
1998 QX_{47}	16.0	0.15	19980904	345.65757	55.48941	314.58433	3.98682	0.2442173	2.3866518	25	1	39 days	0.52		Williams		1998 QX_{47}
1998 QB_{48}	14.0	0.15	19980815	79.64163	75.88093	186.50225	9.20919	0.0074055	2.5738670	19	1	32 days	0.58		Williams		1998 QB_{48}
1998 QC_{48}	15.5	0.15	19980815	7.59995	97.34237	231.43924	3.76284	0.1847685	2.4569708	21	1	32 days	0.57		Williams		1998 QC_{48}
1998 QD_{48}	15.5	0.15	19980706	301.65352	178.45779	225.82146	3.87951	0.1794590	2.2588504	36	2	1988–1998	0.83	M-v 5	Williams	32501	1998 QD_{48}
1998 QJ_{48}	13.5	0.15	19980815	99.14138	334.38795	266.00505	3.51691	0.0560491	3.0036150	21	1	32 days	0.89		Williams		1998 QJ_{48}
1998 QK_{48}	14.0	0.15	19980904	289.93739	104.26633	324.51528	9.02801	0.0796896	2.9715844	24	1	39 days	0.99		Williams		1998 QK_{48}
1998 QL_{48}	13.5	0.15	19980815	24.53856	73.56639	238.45232	3.42467	0.1474983	3.1210014	29	1	32 days	0.69		Williams		1998 QL_{48}
1998 QM_{48}	16.0	0.15	19980904	349.93266	39.63557	322.26958	5.99114	0.1913411	2.2989393	25	1	39 days	0.60		Williams		1998 QM_{48}
1998 QN_{48}	16.0	0.15	19980904	339.63356	63.15230	321.89723	5.24413	0.2982734	2.6271280	24	1	39 days	0.78		Williams		1998 QN_{48}
1998 QO_{48}	16.5	0.15	19980815	356.52118	165.98617	177.08910	4.51947	0.1491663	2.2508755	17	1	32 days	0.84		Williams		1998 QO_{48}
1998 QQ_{48}	16.0	0.15	19980815	299.69528	87.26412	329.02688	6.44686	0.1400581	2.2987268	17	1	32 days	1.06		Williams		1998 QQ_{48}
1998 QS_{48}	15.5	0.15	19980815	318.45432	56.55482	329.25463	5.43262	0.0621030	2.1589984	17	1	32 days	0.78		Williams		1998 QS_{48}
1998 QT_{48}	16.5	0.15	19980815	341.16818	93.30097	275.19109	1.10127	0.2257556	2.4103000	19	1	32 days	0.79		Williams		1998 QT_{48}
1998 QU_{48}	15.5	0.15	19980815	272.62131	257.28712	174.55423	4.41305	0.0252346	2.2994594	20	1	32 days	0.75		Williams		1998 QU_{48}
1998 QV_{48}	14.5	0.15	19980815	184.28984	200.67805	318.89575	1.59886	0.1507598	2.3752464	21	1	32 days	0.98		Williams		1998 QV_{48}
1998 QW_{48}	14.0	0.15	19980815	83.10865	79.72683	164.55084	12.45721	0.1383978	2.6967502	25	1	32 days	1.03		Williams		1998 QW_{48}
1998 QX_{48}	16.0	0.15	19980815	337.90929	216.27090	154.78183	4.48253	0.2247941	2.2977874	28	1	32 days	0.53		Williams		1998 QX_{48}
1998 QZ_{48}	15.5	0.15	19980815	3.60716	176.68857	155.22540	2.95734	0.1660190	2.2724321	19	1	32 days	0.39		Williams		1998 QZ_{48}
1998 QA_{49}	16.0	0.15	19980815	324.34008	47.57524	338.98361	6.95334	0.1701585	2.2041319	19	1	32 days	0.71		Williams		1998 QA_{49}
1998 QB_{49}	14.5	0.15	19980815	64.01712	102.32534	159.28690	16.69730	0.1416746	2.6923886	19	1	32 days	0.96		Williams		1998 QB_{49}
1998 QC_{49}	16.0	0.15	19980815	307.02861	256.36642	146.15392	3.61677	0.1146458	2.1912684	17	1	32 days	0.77		Williams		1998 QC_{49}
1998 QD_{49}	16.0	0.15	19980815	11.94162	330.75839	347.42363	7.97232	0.2231308	2.6580624	17	1	32 days	0.79		Williams		1998 QD_{49}
1998 QH_{49}	14.5	0.15	19980815	334.71036	223.63099	151.54746	13.78795	0.1659633	2.9792730	21	1	32 days	0.67		Williams		1998 QH_{49}
1998 QJ_{49}	14.5	0.15	19980815	85.28363	86.80403	156.23879	25.25688	0.1129284	2.7645092	22	1	32 days	0.84		Williams		1998 QJ_{49}
1998 QK_{49}	17.0	0.15	19980904	14.57147	336.44908	343.23635	10.07919	0.2436822	2.3178137	25	1	44 days	0.80		Williams		1998 QK_{49}
1998 QL_{49}	15.0	0.15	19980815	25.19369	279.48998	15.82897	3.86353	0.2445157	2.6921159	19	1	32 days	0.65		Williams		1998 QL_{49}
1998 QN_{49}	13.5	0.15	19980815	57.35302	187.39485	78.80334	3.19810	0.1600704	3.1876949	19	1	32 days	0.90		Williams		1998 QN_{49}
1998 QO_{49}	14.5	0.15	19980815	320.97558	238.28843	148.93864	15.82885	0.1263742	2.5934052	19	1	32 days	0.67		Williams		1998 QO_{49}
1998 QS_{49}	16.0	0.15	19980815	353.44958	287.60435	57.40554	2.93408	0.1888302	2.4733015	21	1	32 days	0.70		Williams		1998 QS_{49}
1998 QX_{49}	15.5	0.15	19980904	60.23917	224.63027	46.31722	4.89016	0.1018047	2.2857600	27	1	36 days	0.97		Williams		1998 QX_{49}
1998 QB_{50}	14.5	0.15	19980815	56.50261	258.22951	10.77723	8.10682	0.1078296	2.4189914	19	1	32 days	0.55		Williams		1998 QB_{50}
1998 QC_{50}	16.0	0.15	19980815	342.26063	15.95717	352.16371	12.80395	0.3018667	2.6441657	23	1	32 days	0.60		Williams		1998 QC_{50}
1998 QE_{50}	16.0	0.15	19980815	339.68381	7.40347	5.28406	8.33448	0.2943872	2.6526137	17	1	32 days	0.87		Williams		1998 QE_{50}
1998 QG_{50}	15.0	0.15	19980706	352.76009	339.26955	353.66268	13.64873	0.2036043	2.6256947	43	3	1992–1998	0.60	M-v 3	Williams	32502	1998 QG_{50}
1998 QJ_{50}	16.0	0.15	19980904	322.50167	27.74523	3.35161	5.55817	0.1309935	2.2190909	28	1	44 days	0.74		Williams		1998 QJ_{50}
1998 QM_{50}	15.0	0.15	19980815	4.85926	196.62690	135.97318	8.05561	0.1929243	3.1692095	16	1	32 days	1.00		Williams		1998 QM_{50}
1998 QP_{50}	15.5	0.15	19980815	335.62482	9.96096	357.66564	6.70473	0.1158353	2.2765832	28	1	32 days	0.79		Williams		1998 QP_{50}
1998 QR_{50}	14.0	0.15	19980815	326.11488	344.52400	41.19633	2.79452	0.1479515	3.0859772	25	1	32 days	0.84		Williams		1998 QR_{50}
1998 QS_{50}	15.0	0.15	19980815	21.45526	166.44810	135.86741	5.36540	0.2439940	2.6979162	22	1	32 days	0.56		Williams		1998 QS_{50}
1998 QT_{50}	13.5	0.15	19980815	29.02849	138.88999	146.62610	10.23488	0.3108627	3.1072331	19	1	32 days	0.48		Williams		1998 QT_{50}
1998 QU_{50}	13.5	0.15	19980815	61.11482	288.49349	348.86070	21.20724	0.0373560	3.2117077	24	1	32 days	0.73		Williams		1998 QU_{50}
1998 QV_{50}	15.5	0.15	19980815	340.62473	268.41602	98.20091	2.33628	0.2203396	2.2958781	28	1	54 days	0.66		Williams		1998 QV_{50}
1998 QW_{50}	14.0	0.15	19980815	295.62302	79.15915	351.94627	15.68631	0.2142910	3.1714003	18	1	32 days	1.04		Williams		1998 QW_{50}
1998 QZ_{50}	14.5	0.15	19980815	344.18281	217.20390	146.52185	5.73054	0.1749851	2.7724723	24	1	32 days	0.84		Williams		1998 QZ_{50}
1998 QA_{51}	16.0	0.15	19980815	19.27484	315.82712	354.52161	4.70762	0.1790269	2.3059160	27	1	32 days	0.90		Williams		1998 QA_{51}
1998 QB_{51}	15.5	0.15	19980815	34.61217	136.74325	153.68973	5.11911	0.1793332	2.4484922	28	1	32 days	0.92		Williams		1998 QB_{51}

1998 QE_{51}	16.0	0.15	19980706	9.06394	329.58071	331.36672	2.26652	0.2520837	2.1845861	40	1	81 days	0.72	M-v	5	Williams		1998 QE_{51}
1998 QH_{51}	13.5	0.15	19980815	351.57789	164.34782	189.88046	3.62151	0.1122841	2.7962681	25	1	32 days	0.52			Williams		1998 QH_{51}
1998 QJ_{51}	14.5	0.15	19980904	324.68212	240.46604	167.40058	26.63516	0.2676057	3.1561375	29	1	41 days	0.99			Williams		1998 QJ_{51}
1998 QK_{51}	15.0	0.15	19980904	187.61393	344.87956	176.32988	5.63394	0.0395252	2.2715385	24	1	37 days	0.83			Williams		1998 QK_{51}
1998 QL_{51}	14.0	0.15	19980815	71.45569	308.06622	319.30858	3.06986	0.0563994	2.7928524	16	1	32 days	1.07			Williams		1998 QL_{51}
1998 QM_{51}	13.0	0.15	19980815	102.95947	290.69186	302.94130	3.72365	0.0951659	3.1222062	27	1	32 days	0.99			Williams		1998 QM_{51}
1998 QN_{51}	15.0	0.15	19980904	130.02413	277.51120	300.14209	2.99507	0.0065342	2.1640816	30	1	39 days	0.71			Williams		1998 QN_{51}
1998 QO_{51}	16.0	0.15	19980706	6.09558	343.45015	322.04464	6.86005	0.3617503	2.6723122	28	1	61 days	0.63	M-v	5	Williams		1998 QO_{51}
1998 QQ_{51}	15.0	0.15	19980904	305.89466	107.06642	308.93935	5.56656	0.1250442	2.4157238	27	1	39 days	0.68			Williams		1998 QQ_{51}
1998 QS_{51}	16.0	0.15	19980706	341.81134	109.05007	241.18013	2.66921	0.1267373	2.3069487	35	2	1997–1998	0.71	M-v	4	Williams	32502	1998 QS_{51}
1998 QU_{51}	15.0	0.15	19980815	351.03851	104.03380	254.99597	4.09009	0.1774003	3.0649257	18	1	32 days	0.92			Williams		1998 QU_{51}
1998 QV_{51}	15.0	0.15	19980706	0.93180	11.31346	316.33671	7.61880	0.1370977	2.3941638	40	3	1987–1998	0.59	M-v	4	Williams	32502	1998 QV_{51}
1998 QY_{51}	15.5	0.15	19980904	315.89038	168.68316	238.45287	4.73601	0.1496391	2.3698249	28	1	39 days	0.87			Williams		1998 QY_{51}
1998 QZ_{51}	15.5	0.15	19980815	30.65209	87.00899	208.94658	5.38103	0.1951929	2.2473890	25	1	32 days	0.59			Williams		1998 QZ_{51}
1998 QG_{52}	15.0	0.15	19980904	96.52141	338.36485	263.57991	3.35154	0.1152269	2.2089008	24	1	39 days	0.72			Williams		1998 QG_{52}
1998 QL_{52}	17.5	0.15	19980815	347.55112	200.00726	160.99866	13.36591	0.3320730	2.5628254	17	1	32 days	1.36			Williams		1998 QL_{52}
1998 QO_{52}	18.5	0.15	19980706	328.32642	224.14748	164.08920	6.19058	0.4116043	2.4461233	46	1	34 days	0.62	M-v	5	Williams		1998 QO_{52}
1998 QP_{52}	18.0	0.15	19980706	344.46651	172.07774	168.00011	16.38115	0.4328707	2.7299412	64	1	32 days	0.62	M-v	5	Williams		1998 QP_{52}
1998 QQ_{52}	21.0	0.15	19980904	9.39911	105.62009	206.43442	4.80851	0.4561396	2.1044488	49	1	29 days	0.72			Marsden		1998 QQ_{52}
1998 QR_{52}	18.5	0.15	19980706	135.43360	204.19114	316.33484	17.63758	0.2878981	1.0438036	73	1	35 days	0.54	M-v	5	Marsden		1998 QR_{52}
1998 QS_{52}	14.0	0.15	19980706	290.76179	242.02296	261.41014	17.70061	0.8588587	2.2008104	172	1	43 days	0.61	M-v	6	Marsden		1998 QS_{52}
1998 QT_{52}	14.0	0.15	19980904	14.28239	84.25839	247.67937	7.40043	0.2279051	3.1568100	37	1	37 days	0.93			Marsden		1998 QT_{52}
1998 QU_{52}	13.5	0.15	19980904	342.00715	107.42352	271.76247	7.49436	0.1194267	3.0348862	19	1	29 days	0.62			Williams		1998 QU_{52}
1998 QX_{52}	16.5	0.15	19980904	353.38156	174.17350	191.70036	12.54270	0.3180640	2.5418561	16	1	38 days	0.37			Williams		1998 QX_{52}
1998 QH_{53}	15.5	0.15	19980904	351.17923	78.48849	297.07169	3.56416	0.3100186	2.6040324	19	1	36 days	1.42			Williams		1998 QH_{53}
1998 QJ_{53}	15.0	0.15	19980815	4.76042	20.76175	324.19924	6.79039	0.2206293	2.5911642	12	1	28 days	0.35			Williams		1998 QJ_{53}
1998 QL_{53}	14.0	0.15	19980815	112.76909	37.29687	199.84643	13.69612	0.1020310	2.6338095	12	1	26 days	0.56			Williams		1998 QL_{53}
1998 QM_{53}	14.5	0.15	19980904	323.13773	66.06404	342.95771	9.29272	0.0868619	3.0226155	12	1	36 days	0.52			Williams		1998 QM_{53}
1998 QN_{53}	13.0	0.15	19980904	97.73103	30.70051	216.54570	11.22031	0.2019847	3.1272023	15	1	33 days	0.47			Williams		1998 QN_{53}
1998 QO_{53}	14.5	0.15	19980904	26.89530	111.70839	204.30862	24.10266	0.2703563	2.7357601	19	1	35 days	0.43			Williams		1998 QO_{53}
1998 QR_{53}	14.5	0.15	19980904	308.32906	75.13712	335.33939	8.35105	0.1444721	2.7499271	30	1	34 days	1.42			Williams		1998 QR_{53}
1998 QS_{53}	14.0	0.15	19980815	351.75596	145.57506	204.92140	9.49226	0.1123012	3.0229515	32	1	30 days	0.75			Williams		1998 QS_{53}
1998 QT_{53}	16.5	0.15	19980904	356.61177	21.21966	297.96764	11.26116	0.2642877	2.3279508	11	1	17 days	0.32			Williams		1998 QT_{53}
1998 QV_{53}	17.5	0.15	19980904	9.70486	182.81174	140.38309	3.86141	0.1427051	2.3820600	12	1	20 days	0.38			Williams		1998 QV_{53}
1998 QD_{54}	15.0	0.15	19980904	5.63136	196.63795	138.77056	14.96313	0.1394821	2.8297116	9	1	34 days	0.70			Williams		1998 QD_{54}
1998 QE_{54}	13.5	0.15	19980904	149.24418	253.91834	311.79759	5.32131	0.1272657	2.3213394	23	1	40 days	1.05			Williams		1998 QE_{54}
1998 QL_{54}	17.0	0.15	19980904	14.49701	122.97808	208.96958	4.10741	0.2131505	2.3307027	9	1	20 days	0.54			Williams		1998 QL_{54}
1998 QR_{54}	16.0	0.15	19980904	21.96998	126.07941	182.32788	13.38676	0.3618633	2.7019053	32	1	31 days	0.79			Williams		1998 QR_{54}
1998 QC_{55}	15.0	0.15	19980904	9.71040	107.07089	240.82204	1.63180	0.1095413	2.3722527	9	1	19 days	0.28			Williams		1998 QC_{55}
1998 QE_{55}	15.0	0.15	19980904	13.73688	347.03759	352.19498	17.01451	0.2081208	2.6428477	32	1	31 days	1.01			Williams		1998 QE_{55}
1998 QF_{55}	14.0	0.15	19980904	150.56943	303.52897	260.34080	1.36364	0.1713562	2.2291444	19	1	19 days	1.18			Williams		1998 QF_{55}
1998 QG_{55}	15.0	0.15	19980904	336.72345	58.77413	348.21354	9.97230	0.3367396	2.7587341	16	1	29 days	0.52			Williams		1998 QG_{55}
1998 QU_{55}	15.0	0.15	19980904	142.64087	48.82712	185.69762	3.14719	0.1481637	2.5317479	12	1	27 days	0.18			Williams		1998 QU_{55}
1998 QV_{55}	14.5	0.15	19980904	316.54602	68.47941	349.22998	3.26495	0.2700262	2.5799865	23	1	30 days	0.83			Williams		1998 QV_{55}
1998 QX_{55}	15.5	0.15	19980904	350.03025	5.36343	359.28967	5.12760	0.2024706	2.2929527	37	1	32 days	0.77			Williams		1998 QX_{55}
1998 QY_{55}	13.5	0.15	19980904	303.44897	267.68371	147.93491	2.56827	0.0594489	2.9052469	16	1	19 days	0.66			Williams		1998 QY_{55}
1998 QZ_{55}	13.5	0.15	19980904	346.06704	72.32612	299.14501	2.70348	0.1328653	2.7711020	23	1	26 days	0.44			Williams		1998 QZ_{55}
1998 QB_{56}	15.5	0.15	19980904	18.71052	137.82362	183.31045	2.60198	0.2157460	2.3262352	23	1	29 days	0.57			Williams		1998 QB_{56}
1998 QC_{56}	14.5	0.15	19980904	336.19606	46.90291	2.03200	31.80261	0.3050632	2.6297909	28	1	35 days	0.74			Williams		1998 QC_{56}
1998 QE_{56}	14.5	0.15	19980904	52.07313	124.82877	180.16472	23.70742	0.0814868	1.9288325	16	1	27 days	0.43			Williams		1998 QE_{56}
1998 QH_{56}	18.0	0.15	19980706	248.77190	266.03344	176.51558	32.22528	0.0308322	1.5508773	53	1	33 days	0.65	M-v	5	Williams		1998 QH_{56}
1998 QJ_{56}	18.0	0.15	19980706	334.67386	230.13788	156.96414	17.14754	0.4819832	2.6645500	59	1	35 days	0.69	M-v	5	Williams		1998 QJ_{56}
1998 QK_{56}	17.0	0.15	19980706	300.58402	285.70289	173.39830	13.55522	0.5130823	1.8863531	51	1	34 days	0.51	M-v	6	Williams		1998 QK_{56}

1998 QN_{56}	18.5	0.15	19980904	16.40544	338.89712	346.50350	2.16441	0.1820526	2.4480063	18	1	24 days	0.21		Williams	1998 QN_{56}
1998 QO_{56}	17.5	0.15	19980904	11.90254	346.33192	348.01746	7.33851	0.1458317	2.7387284	9	1	26 days	0.63		Williams	1998 QO_{56}
1998 QQ_{56}	17.0	0.15	19980904	313.56546	230.86535	171.47241	2.03498	0.0562991	2.6682685	12	1	20 days	0.26		Williams	1998 QQ_{56}
1998 QR_{56}	17.0	0.15	19980904	315.97770	70.62905	339.24406	0.74183	0.1739891	2.3521186	10	1	21 days	0.12		Williams	1998 QR_{56}
1998 QS_{56}	14.5	0.15	19980904	324.46081	234.70699	167.22892	1.36524	0.1823883	3.2162627	15	1	28 days	0.26	D	Williams	1998 QS_{56}
1998 QY_{56}	17.0	0.15	19980904	320.04539	234.69611	176.27373	5.34893	0.2332857	2.4041289	11	1	21 days	0.28		Williams	1998 QY_{56}
1998 QG_{57}	16.0	0.15	19980904	123.60793	29.94234	181.40037	4.96772	0.2088196	2.5790484	15	1	28 days	0.27		Williams	1998 QG_{57}
1998 QL_{57}	15.0	0.15	19980904	298.62305	213.91420	200.64417	1.49195	0.0227882	2.2606969	15	1	19 days	0.40		Williams	1998 QL_{57}
1998 QP_{57}	13.5	0.15	19980904	278.69766	275.15712	184.63115	3.30953	0.2177746	3.1833296	16	1	19 days	0.37		Williams	1998 QP_{57}
1998 QQ_{57}	16.5	0.15	19980904	21.77736	127.43633	192.63990	1.36746	0.1737022	2.6252161	12	1	29 days	0.18		Williams	1998 QQ_{57}
1998 QS_{57}	16.0	0.15	19980904	334.63642	48.39427	336.57257	2.07612	0.1337169	2.7843219	9	1	15 days	0.17		Williams	1998 QS_{57}
1998 QT_{57}	17.0	0.15	19980904	329.78868	184.73194	210.42094	0.55948	0.1957736	2.4891642	14	1	19 days	0.49		Williams	1998 QT_{57}
1998 QU_{57}	16.5	0.15	19980904	251.63407	293.17054	175.87008	10.06534	0.0643335	3.1125725	12	1	31 days	0.23		Williams	1998 QU_{57}
1998 QV_{57}	16.5	0.15	19980904	7.47765	169.04980	175.50195	10.25995	0.0732211	3.0496674	11	1	31 days	0.21		Williams	1998 QV_{57}
1998 QZ_{57}	17.0	0.15	19980904	45.60487	305.56319	345.54749	3.12426	0.1507618	2.1860812	15	1	19 days	1.05		Williams	1998 QZ_{57}
1998 QA_{58}	17.0	0.15	19980904	349.72918	190.66075	175.16968	3.80480	0.1113591	2.7925076	12	1	28 days	0.18		Williams	1998 QA_{58}
1998 QB_{58}	15.5	0.15	19980904	39.71300	130.62757	178.34148	1.88630	0.0580516	2.6776817	16	1	19 days	0.76		Williams	1998 QB_{58}
1998 QD_{58}	17.5	0.15	19980904	326.14221	215.28124	178.23386	2.05660	0.0856378	2.8575420	8	1	15 days	0.23		Williams	1998 QD_{58}
1998 QJ_{58}	18.5	0.15	19980904	15.51462	167.46938	162.39234	0.97076	0.1493175	2.1870460	9	1	28 days	1.07		Williams	1998 QJ_{58}
1998 QP_{58}	18.0	0.15	19980904	61.74475	109.05992	164.33156	2.35270	0.1566873	2.2209056	9	1	31 days	0.16		Williams	1998 QP_{58}
1998 QZ_{58}	16.5	0.15	19980904	358.40999	6.93640	343.61663	4.99658	0.2513569	2.3479509	15	1	23 days	0.36		Williams	1998 QZ_{58}
1998 QA_{59}	17.0	0.15	19980904	306.94106	69.98323	346.70582	3.65605	0.1395602	2.3456198	15	1	28 days	0.19		Williams	1998 QA_{59}
1998 QD_{59}	16.5	0.15	19980904	30.77021	318.15730	356.06778	2.43579	0.0951670	2.6433723	17	1	31 days	0.28		Williams	1998 QD_{59}
1998 QF_{59}	16.0	0.15	19980904	300.63192	78.50143	355.42797	3.62656	0.2061212	2.7346276	15	1	28 days	0.20		Williams	1998 QF_{59}
1998 QG_{59}	18.0	0.15	19980904	352.39365	8.48378	354.55736	3.39949	0.2282382	2.7621334	12	1	33 days	0.26		Williams	1998 QG_{59}
1998 QJ_{59}	15.5	0.15	19980904	306.98591	80.21745	357.37610	9.33416	0.2856879	3.1011712	21	1	33 days	0.79		Williams	1998 QJ_{59}
1998 QK_{59}	17.0	0.15	19980904	24.16905	294.99838	19.93152	1.51387	0.1955209	2.3886086	26	1	35 days	0.82		Williams	1998 QK_{59}
1998 QR_{59}	16.0	0.15	19980904	335.57952	39.94378	344.89451	4.16848	0.1753419	2.7350719	19	1	33 days	0.77		Williams	1998 QR_{59}
1998 QV_{59}	18.5	0.15	19980904	355.45537	5.05647	350.65535	2.84243	0.1119416	2.2766562	9	1	28 days	0.36		Williams	1998 QV_{59}
1998 QX_{59}	16.5	0.15	19980904	353.68703	252.36227	109.33217	0.72492	0.1723776	3.0305635	12	1	35 days	0.31		Williams	1998 QX_{59}
1998 QD_{60}	18.5	0.15	19980904	346.66445	11.77098	359.32834	3.01504	0.1912700	2.4088723	9	1	18 days	0.12		Williams	1998 QD_{60}
1998 QN_{60}	14.0	0.15	19980904	2.73603	6.48924	19.32087	12.45124	0.1649247	2.5512597	15	1	31 days	0.72		Williams	1998 QN_{60}
1998 QO_{60}	13.5	0.15	19980904	86.81303	283.88085	7.87616	11.21575	0.1874446	2.6718611	11	1	28 days	0.30		Williams	1998 QO_{60}
1998 QP_{60}	15.0	0.15	19980904	331.95030	127.28905	248.41795	5.66411	0.1222798	2.4374075	29	1	38 days	0.50		Williams	1998 QP_{60}
1998 QQ_{60}	15.0	0.15	19980904	325.82329	74.45485	315.69373	16.21955	0.1903903	2.9781341	15	1	30 days	0.75		Williams	1998 QQ_{60}
1998 QS_{60}	15.5	0.15	19980904	344.68617	31.77369	332.53185	6.19560	0.2343994	3.1060335	9	1	14 days	0.37		Marsden	1998 QS_{60}
1998 QY_{60}	14.5	0.15	19980815	212.13696	312.34976	164.89587	14.54895	0.0380556	2.6236538	14	1	25 days	0.60		Williams	1998 QY_{60}
1998 QC_{61}	14.5	0.15	19980815	358.88686	163.82735	163.82427	15.18520	0.1640958	3.1703310	17	1	47 days	0.61		Williams	1998 QC_{61}
1998 QK_{61}	15.0	0.15	19980904	211.49415	338.44759	158.12795	6.83309	0.0361994	2.2865113	15	1	23 days	0.52		Williams	1998 QK_{61}
1998 QA_{62}	18.5	0.15	19980904	342.16044	273.07752	181.63137	24.92632	0.7474222	2.0762413	42	1	22 days	0.78		Williams	1998 QA_{62}
1998 QK_{62}	17.0	0.15	19980815	345.50735	115.39332	236.93363	4.01627	0.2428300	2.4803905	13	1	14 days	0.70		Williams	1998 QK_{62}
1998 QN_{62}	14.5	0.15	19980815	157.01930	327.24455	201.32206	6.84436	0.0946903	2.3161186	9	1	4 days	0.25		Williams	1998 QN_{62}
1998 QT_{62}	13.5	0.15	19980904	23.83377	140.95154	181.29198	9.56428	0.2667598	2.7464200	29	1	34 days	0.62		Williams	1998 QT_{62}
1998 QU_{62}	14.5	0.15	19980904	70.87930	263.20241	11.23761	3.14607	0.1738070	2.3131086	21	1	33 days	0.63		Williams	1998 QU_{62}
1998 QW_{62}	14.0	0.15	19980904	237.45270	296.38498	169.53807	22.26729	0.1164581	2.5503214	26	1	25 days	0.95		Williams	1998 QW_{62}
1998 QG_{63}	16.5	0.15	19980904	19.02002	312.36501	12.54747	6.52637	0.0785509	2.1593189	16	1	24 days	0.77		Williams	1998 QG_{63}
1998 QK_{63}	16.5	0.15	19980904	340.24792	167.11176	212.01469	4.94979	0.1242894	2.1277372	8	1	16 days	0.24		Williams	1998 QK_{63}
1998 QP_{63}	18.0	0.15	19980706	339.19868	221.44176	159.01659	9.39708	0.4966193	2.6794384	74	1	32 days	0.78	M-v 6	Williams	1998 QP_{63}
1998 QQ_{63}	18.5	0.15	19980904	357.05313	265.39818	104.37958	1.64504	0.5365299	2.3032005	23	1	25 days	0.62		Marsden	1998 QQ_{63}
1998 QT_{63}	16.5	0.15	19980904	7.13899	105.96575	221.97010	5.99075	0.1410692	2.2419019	22	1	24 days	0.66		Williams	1998 QT_{63}
1998 QW_{63}	15.0	0.15	19980904	351.55650	14.00040	7.97198	20.58699	0.2934648	3.0618267	22	1	27 days	0.55		Williams	1998 QW_{63}
1998 QA_{66}	15.5	0.15	19980904	335.86614	75.04155	292.78551	11.08887	0.2012368	2.6049530	13	1	24 days	0.58		Williams	1998 QA_{66}
1998 QC_{67}	14.5	0.15	19980904	24.62275	85.54181	216.35766	11.97552	0.1393948	2.7860360	11	1	25 days	0.63		Williams	1998 QC_{67}

1998 QT_{67}	15.5	0.15	19980815	9.39512	130.46522	183.74948	12.67135	0.1842708	2.6730223	19	1	47 days	0.97		Williams	1998 QT_{67}
1998 QK_{68}	14.0	0.15	19980904	19.44478	58.89238	253.40282	13.87417	0.1331584	3.0614198	12	1	26 days	0.63		Williams	1998 QK_{68}
1998 QZ_{68}	15.0	0.15	19980815	17.90598	66.11744	239.47917	5.53581	0.1463702	2.3943172	25	1	45 days	0.51		Williams	1998 QZ_{68}
1998 QD_{69}	16.5	0.15	19980904	341.74004	172.32439	192.67306	8.49210	0.1945295	2.2087494	22	1	25 days	0.73		Williams	1998 QD_{69}
1998 QN_{69}	14.5	0.15	19980904	315.30705	118.67331	276.29956	13.87527	0.1140248	2.6110924	14	1	28 days	1.02		Williams	1998 QN_{69}
1998 QV_{69}	14.5	0.15	19980904	344.72808	90.02567	270.20055	7.77555	0.1607412	3.0424204	13	1	22 days	0.36		Williams	1998 QV_{69}
1998 QX_{69}	16.0	0.15	19980904	15.18859	57.59124	258.04744	5.05922	0.1930592	2.3524599	14	1	26 days	1.06		Williams	1998 QX_{69}
1998 QT_{70}	14.0	0.15	19980904	14.67420	92.01507	228.05275	11.65186	0.1837499	3.0910886	16	1	28 days	0.68		Williams	1998 QT_{70}
1998 QW_{70}	13.5	0.15	19980904	13.16430	90.18902	233.75319	10.36711	0.1520643	3.1881294	19	1	36 days	0.71		Williams	1998 QW_{70}
1998 QE_{71}	14.5	0.15	19980904	64.09722	24.43042	225.24809	7.38011	0.2325657	2.3996866	16	1	25 days	0.39		Williams	1998 QE_{71}
1998 QS_{72}	15.0	0.15	19980904	65.46887	73.29865	185.67966	13.48665	0.1553092	2.5709629	24	1	37 days	0.90		Williams	1998 QS_{72}
1998 QT_{72}	15.5	0.15	19980904	16.41897	36.45727	284.34993	6.20964	0.1383118	2.2878403	13	1	25 days	0.47		Williams	1998 QT_{72}
1998 QX_{72}	14.5	0.15	19980904	0.22591	157.11754	184.34392	15.41698	0.0819124	3.0775004	21	1	25 days	0.86		Williams	1998 QX_{72}
1998 QA_{73}	14.0	0.15	19980904	335.48725	203.41833	184.66887	17.60989	0.2994589	3.1772250	20	1	25 days	0.58		Williams	1998 QA_{73}
1998 QD_{73}	14.0	0.15	19980904	29.61266	110.80039	194.44881	12.16235	0.1267503	2.7309884	20	1	25 days	0.63		Williams	1998 QD_{73}
1998 QP_{73}	15.0	0.15	19980904	344.78158	92.26518	275.62508	11.65423	0.1865516	2.6085058	16	1	28 days	0.68		Williams	1998 QP_{73}
1998 QC_{74}	15.5	0.15	19980904	25.45263	101.71604	200.75772	11.85550	0.2510617	3.0627350	15	1	28 days	0.74		Marsden	1998 QC_{74}
1998 QD_{74}	14.5	0.15	19980904	295.60224	159.17336	257.44185	8.12674	0.0570290	2.9832170	16	1	28 days	0.78		Williams	1998 QD_{74}
1998 QL_{74}	16.0	0.15	19980904	332.40446	113.10394	267.91095	6.03276	0.1226928	2.2788249	18	1	28 days	0.61		Williams	1998 QL_{74}
1998 QN_{74}	14.5	0.15	19980904	3.09395	157.62101	182.51458	27.74291	0.1753823	3.1542850	20	1	30 days	0.72		Williams	1998 QN_{74}
1998 QU_{74}	15.0	0.15	19980904	287.08129	160.04448	280.71752	12.05820	0.1752690	2.4123594	16	1	28 days	0.86		Williams	1998 QU_{74}
1998 QB_{75}	14.0	0.15	19980904	324.33226	103.08330	295.01748	11.60733	0.1779931	2.5450743	16	1	28 days	0.55		Williams	1998 QB_{75}
1998 QD_{75}	15.0	0.15	19980904	33.00114	91.93668	200.59500	10.15519	0.2511171	2.6886609	19	1	25 days	0.52		Williams	1998 QD_{75}
1998 QF_{75}	14.0	0.15	19980904	24.16355	116.29930	193.37238	13.89553	0.2238052	3.1764418	28	1	32 days	0.66		Williams	1998 QF_{75}
1998 QL_{75}	14.5	0.15	19980904	357.11814	78.24616	274.85495	8.87118	0.1310489	2.9838053	13	1	26 days	0.74		Williams	1998 QL_{75}
1998 QN_{75}	13.0	0.15	19980706	309.62555	202.96209	188.16858	22.00732	0.0960998	2.6615126	21	1	86 days	0.53	M-v 5	Williams	1998 QN_{75}
1998 QV_{75}	15.5	0.15	19980904	340.87467	182.74578	192.51447	13.62694	0.1799227	2.5332707	18	1	25 days	0.88		Williams	1998 QV_{75}
1998 QW_{75}	16.0	0.15	19980904	15.06967	138.40153	183.95812	16.94727	0.2426707	2.6403600	37	1	34 days	0.69		Williams	1998 QW_{75}
1998 QX_{75}	14.5	0.15	19980904	359.61455	160.44230	189.04583	17.85209	0.1570121	3.1274574	28	1	32 days	0.74		Williams	1998 QX_{75}
1998 QT_{76}	14.5	0.15	19980904	155.52706	275.91373	275.11287	5.90954	0.0834132	2.1972467	13	1	23 days	0.49		Williams	1998 QT_{76}
1998 QR_{77}	13.5	0.15	19980904	185.65483	314.92259	214.33681	12.44686	0.1108405	2.6773369	12	1	25 days	0.62		Williams	1998 QR_{77}
1998 QK_{78}	15.5	0.15	19980904	350.01822	145.34617	214.98263	7.31537	0.1582928	2.6664790	18	1	25 days	0.90		Williams	1998 QK_{78}
1998 QH_{79}	15.5	0.15	19980706	353.78368	111.60424	201.24671	10.89244	0.2966213	2.5590506	61	1	91 days	0.38	M-v 3	Williams	1998 QH_{79}
1998 QO_{83}	15.5	0.15	19980904	328.22996	107.86920	276.14350	12.20165	0.1532620	2.4506963	18	1	31 days	0.58		Williams	1998 QO_{83}
1998 QF_{84}	14.0	0.15	19980904	26.97944	7.14729	299.74579	14.07471	0.1382201	3.1394971	12	1	25 days	0.48		Williams	1998 QF_{84}
1998 QJ_{84}	15.0	0.15	19980904	34.18189	73.74512	204.85597	7.98559	0.3026916	3.0109351	20	1	25 days	0.95		Williams	1998 QJ_{84}
1998 QL_{84}	14.0	0.15	19980904	315.59495	108.97533	295.34992	11.94156	0.1768763	2.6728027	15	1	28 days	0.42		Williams	1998 QL_{84}
1998 QN_{84}	15.5	0.15	19980904	2.13262	96.31609	242.04883	7.71992	0.3202661	2.7489985	18	1	28 days	0.48		Williams	1998 QN_{84}
1998 QO_{84}	14.5	0.15	19980904	18.47045	20.21957	288.15329	10.01003	0.2998582	2.6577187	35	1	30 days	0.35		Williams	1998 QO_{84}
1998 QX_{84}	16.0	0.15	19980904	16.44373	126.03015	186.00251	12.45208	0.2782917	2.6335668	17	1	25 days	0.85		Williams	1998 QX_{84}
1998 QZ_{84}	16.0	0.15	19980904	46.73049	14.59238	271.90511	5.48997	0.0931155	2.2601822	23	1	25 days	0.88		Williams	1998 QZ_{84}
1998 QA_{85}	16.0	0.15	19980904	349.40299	114.06625	246.57213	4.50631	0.2633127	2.5349772	17	1	25 days	0.84		Williams	1998 QA_{85}
1998 QP_{85}	14.5	0.15	19980904	338.65693	159.13041	212.58703	10.43070	0.1107942	2.9821705	13	1	23 days	0.97		Williams	1998 QP_{85}
1998 QS_{85}	15.5	0.15	19980904	22.15160	13.86252	306.91739	10.40141	0.0670856	2.3414473	33	1	33 days	0.73		Williams	1998 QS_{85}
1998 QU_{85}	13.0	0.15	19980904	358.82044	31.75058	317.47253	15.64128	0.0915783	3.0427539	19	1	28 days	0.51		Williams	1998 QU_{85}
1998 QX_{85}	13.5	0.15	19980904	313.49719	214.97127	196.34936	15.03823	0.1911179	3.1940475	12	1	23 days	0.64		Williams	1998 QX_{85}
1998 QE_{86}	15.0	0.15	19980904	348.46213	159.78948	206.26207	17.19319	0.2329117	2.5361073	17	1	30 days	0.50		Williams	1998 QE_{86}
1998 QK_{86}	14.0	0.15	19980904	348.42067	115.49480	246.65061	9.38092	0.1107038	2.9934856	13	1	26 days	0.60		Williams	1998 QK_{86}
1998 QU_{86}	14.5	0.15	19980904	80.54254	29.28796	222.15085	12.09555	0.1472397	2.5692303	13	1	26 days	0.64		Williams	1998 QU_{86}
1998 QO_{87}	14.1	0.15	19980904	336.75455	116.85447	265.32610	10.36351	0.1183495	2.9994584	17	1	27 days	0.73		Nakano	1998 QO_{87}
1998 QM_{88}	14.5	0.15	19980904	306.38237	201.46406	224.87549	10.42145	0.2573667	2.8892939	14	1	28 days	0.81		Williams	1998 QM_{88}
1998 QV_{88}	15.5	0.15	19980904	8.12689	73.25755	262.22873	7.40910	0.2769825	2.3795179	11	1	27 days	0.72		Williams	1998 QV_{88}
1998 QW_{89}	14.0	0.15	19980904	39.53525	339.60623	322.37053	15.21970	0.1556209	2.5746840	19	1	31 days	0.31		Williams	1998 QW_{89}

1998 QC_{90}	13.5	0.15	19980904	34.06325	63.08612	246.93854	10.75022	0.1732078	2.9441853	13	1	26 days	0.61			Williams	1998 QC_{90}
1998 QG_{90}	13.5	0.15	19980904	57.94055	341.41923	301.75862	16.16945	0.1797975	3.1331266	18	1	38 days	0.73			Williams	1998 QG_{90}
1998 QV_{90}	15.0	0.15	19980904	63.37784	213.71926	59.22187	4.96862	0.1644335	2.1686405	15	1	27 days	0.86			Williams	1998 QV_{90}
1998 QY_{90}	14.0	0.15	19980904	10.33189	174.51379	171.63909	11.90156	0.1268536	2.5234398	16	1	28 days	0.68			Williams	1998 QY_{90}
1998 QD_{91}	15.0	0.15	19980904	351.62940	206.83989	168.02471	13.26105	0.3048867	2.6261660	16	1	24 days	0.85			Williams	1998 QD_{91}
1998 QE_{91}	14.0	0.15	19980904	22.60096	303.57149	8.25861	21.32623	0.3509806	3.1690020	39	1	33 days	0.64			Williams	1998 QE_{91}
1998 QO_{91}	13.5	0.15	19980904	26.37109	165.52325	166.07641	14.00681	0.1768422	2.5489991	16	1	27 days	0.80			Williams	1998 QO_{91}
1998 QS_{91}	15.0	0.15	19980904	350.50699	17.75471	5.86187	8.47315	0.2428882	2.3577114	13	1	17 days	0.62			Williams	1998 QS_{91}
1998 QC_{92}	14.5	0.15	19980904	337.73338	222.81718	183.01763	2.26395	0.1617153	2.3068858	15	1	20 days	0.55			Williams	1998 QC_{92}
1998 QO_{93}	12.5	0.15	19980904	311.18152	229.45093	237.96498	12.86783	0.1262241	2.5633948	16	1	24 days	0.75			Williams	1998 QO_{93}
1998 QB_{94}	16.0	0.15	19980815	338.55339	174.93806	188.43933	7.16906	0.2258327	2.2125721	25	1	32 days	0.50			Williams	1998 QB_{94}
1998 QJ_{94}	16.0	0.15	19980815	353.37494	22.38814	322.68445	13.20941	0.1812240	2.6496145	17	1	32 days	0.95			Williams	1998 QJ_{94}
1998 QM_{94}	14.5	0.15	19980815	339.08407	157.80013	203.76569	2.59490	0.0912163	2.5319881	20	1	32 days	0.83			Williams	1998 QM_{94}
1998 QZ_{94}	14.0	0.15	19980815	63.70402	69.18872	184.33406	12.61471	0.1381740	2.5917542	26	1	30 days	0.76			Williams	1998 QZ_{94}
1998 QU_{95}	14.5	0.15	19980815	2.23955	126.52193	209.88720	12.04442	0.1121159	3.0160259	12	1	30 days	0.98			Williams	1998 QU_{95}
1998 QA_{96}	15.5	0.15	19980706	338.63419	71.76974	310.21222	25.05978	0.4272287	3.1623567	17	1	40 days	0.66	M-v	5	Williams	1998 QA_{96}
1998 QF_{96}	14.5	0.15	19980815	58.91366	31.73176	229.95344	5.86165	0.1653639	2.3374694	11	1	12 days	0.73			Williams	1998 QF_{96}
1998 QV_{96}	14.2	0.15	19980904	324.09224	101.60320	292.23712	11.47901	0.0583500	2.9730403	13	1	31 days	0.64			Nakano	1998 QV_{96}
1998 QM_{97}	16.0	0.15	19980904	356.48075	164.92005	177.74019	14.54805	0.2669071	2.6338790	21	1	25 days	0.90			Williams	1998 QM_{97}
1998 QZ_{97}	15.0	0.15	19980815	32.76033	249.15419	46.05298	5.46374	0.2401306	2.5419824	14	1	3 days	1.19		E	Marsden	1998 QZ_{97}
1998 QB_{98}	14.0	0.15	19980904	19.69717	345.57318	345.20160	16.69643	0.2161463	3.1074985	13	1	28 days	0.77			Williams	1998 QB_{98}
1998 QD_{98}	15.5	0.15	19980904	8.78524	204.87747	135.27833	5.29825	0.1933044	2.2406789	15	1	27 days	1.08			Williams	1998 QD_{98}
1998 QF_{98}	16.0	0.15	19980815	353.65469	196.25440	161.80552	11.87698	0.3933797	2.6766775	61	1	58 days	0.54			Williams	1998 QF_{98}
1998 QG_{98}	16.0	0.15	19980904	32.16295	117.62603	184.91143	8.35360	0.2703988	2.2270190	23	1	33 days	0.86			Williams	1998 QG_{98}
1998 QJ_{98}	14.5	0.15	19980904	44.24510	126.03183	171.91209	13.54950	0.1973479	2.5582349	15	1	28 days	1.08			Williams	1998 QJ_{98}
1998 QK_{98}	14.0	0.15	19980904	320.37257	341.39282	69.19667	5.58780	0.1712806	2.7907597	17	1	29 days	1.10			Williams	1998 QK_{98}
1998 QL_{98}	15.0	0.15	19980904	25.39378	307.65454	10.28366	31.53520	0.2786742	2.6268698	35	1	30 days	0.92			Williams	1998 QL_{98}
1998 QV_{98}	14.5	0.15	19980904	266.57141	165.11089	305.80061	25.05427	0.2267900	2.4255399	26	1	29 days	0.25			Marsden	1998 QV_{98}
1998 QW_{98}	15.5	0.15	19980904	24.19519	172.64013	138.31299	2.49161	0.2246642	2.3904835	15	1	23 days	0.87			Williams	1998 QW_{98}
1998 QA_{99}	15.5	0.15	19980904	30.96694	159.29685	149.82335	5.00854	0.1390309	2.3399864	15	1	23 days	0.46			Williams	1998 QA_{99}
1998 QF_{99}	16.0	0.15	19980904	243.12039	72.94237	37.94938	3.97784	0.0446059	2.2345986	11	1	27 days	0.50			Williams	1998 QF_{99}
1998 QG_{99}	14.5	0.15	19980904	332.74446	29.49409	4.53710	7.79587	0.2243181	3.2535042	13	1	23 days	0.71			Williams	1998 QG_{99}
1998 QM_{99}	15.0	0.15	19980904	11.77177	327.46500	357.69946	7.88692	0.3023154	2.4242699	24	1	32 days	0.61			Williams	1998 QM_{99}
1998 QR_{99}	17.0	0.15	19980904	351.02173	240.46305	123.03466	3.33395	0.2283191	2.4140367	15	1	23 days	0.60			Williams	1998 QR_{99}
1998 QT_{99}	16.5	0.15	19980904	26.99296	177.02879	128.99348	4.48963	0.2297352	2.3640619	14	1	23 days	0.65			Williams	1998 QT_{99}
1998 QU_{99}	16.5	0.15	19980904	343.02670	278.32896	97.15199	3.03200	0.2220678	2.3191668	15	1	23 days	0.64			Williams	1998 QU_{99}
1998 QV_{99}	16.0	0.15	19980904	11.27506	200.93125	130.32498	3.07232	0.2160788	2.3631433	12	1	29 days	0.71			Williams	1998 QV_{99}
1998 QW_{99}	14.5	0.15	19980904	18.85513	172.81961	151.97955	12.58237	0.1676041	3.0743231	14	1	23 days	0.78			Williams	1998 QW_{99}
1998 QX_{99}	15.5	0.15	19980904	331.04935	2.82104	36.01187	3.46772	0.2637618	2.6625521	9	1	22 days	0.39			Williams	1998 QX_{99}
1998 QY_{99}	16.5	0.15	19980904	35.01648	265.09800	30.87413	2.66413	0.2227690	2.3948706	13	1	23 days	0.99			Williams	1998 QY_{99}
1998 QZ_{99}	15.0	0.15	19980904	339.41894	323.60888	54.76125	3.43644	0.1678879	2.4561639	15	1	23 days	0.45			Williams	1998 QZ_{99}
1998 QA_{100}	15.0	0.15	19980904	18.43595	295.05967	35.86775	2.87917	0.0587488	2.7603989	13	1	23 days	0.78			Williams	1998 QA_{100}
1998 QB_{100}	16.5	0.15	19980904	14.67920	304.11496	23.60736	2.69174	0.1885503	2.3433307	15	1	23 days	0.78			Williams	1998 QB_{100}
1998 QC_{100}	15.0	0.15	19980904	45.73029	159.75066	126.88267	6.20668	0.1807124	2.4515984	15	1	23 days	0.81			Williams	1998 QC_{100}
1998 QD_{100}	16.0	0.15	19980904	65.66378	251.52252	20.58038	6.36137	0.1084325	2.3056504	14	1	23 days	0.98			Williams	1998 QD_{100}
1998 QE_{100}	14.5	0.15	19980904	300.82705	359.82476	71.02420	3.23915	0.1955185	2.4121535	15	1	23 days	0.46			Williams	1998 QE_{100}
1998 QF_{100}	14.5	0.15	19980904	280.93507	293.69384	154.76602	12.20083	0.1531044	2.6350716	15	1	23 days	0.54			Williams	1998 QF_{100}
1998 QG_{100}	16.5	0.15	19980904	316.29469	265.20818	147.84476	7.31863	0.2041968	2.3099582	14	1	23 days	1.11			Williams	1998 QG_{100}
1998 QH_{100}	15.5	0.15	19980904	18.85023	321.64508	356.41469	10.05394	0.2569464	2.7251790	20	1	33 days	1.04			Williams	1998 QH_{100}
1998 QJ_{100}	15.0	0.15	19980904	72.86976	251.55573	14.27820	7.25542	0.0996131	2.2756350	15	1	23 days	0.68			Williams	1998 QJ_{100}
1998 QM_{100}	16.5	0.15	19980904	338.56131	13.47182	15.14073	4.96177	0.2814189	2.6270450	15	1	23 days	0.91			Williams	1998 QM_{100}
1998 QN_{100}	15.0	0.15	19980904	323.79405	36.05712	5.10906	5.02438	0.1818159	2.2385259	25	1	28 days	0.68			Williams	1998 QN_{100}
1998 QO_{100}	14.5	0.15	19980904	293.68141	300.03904	125.07582	5.69508	0.0639076	2.7232934	14	1	23 days	0.55			Williams	1998 QO_{100}

1998 QR_{100}	15.0	0.15	19980904	23.60547	187.69726	128.47031	4.37009	0.1925501	2.6691465	15	1	23 days	0.52	Williams	1998 QR_{100}
1998 QS_{100}	16.0	0.15	19980904	343.44983	305.08821	70.66888	3.33990	0.2219602	2.3971007	14	1	23 days	0.65	Williams	1998 QS_{100}
1998 QU_{100}	16.0	0.15	19980904	3.20535	290.86067	54.20998	2.93066	0.1946814	2.4151603	16	1	23 days	0.67	Williams	1998 QU_{100}
1998 QW_{100}	13.5	0.15	19980904	197.80316	73.55083	82.29026	2.96859	0.0204360	2.7072361	16	1	23 days	0.39	Williams	1998 QW_{100}
1998 QA_{101}	15.5	0.15	19980904	328.49167	263.31899	132.41549	3.92853	0.2091941	2.5861398	15	1	23 days	0.88	Williams	1998 QA_{101}
1998 QB_{101}	16.5	0.15	19980904	17.75006	204.21746	113.47572	1.67449	0.2450145	2.3392706	15	1	23 days	0.85	Williams	1998 QB_{101}
1998 QE_{101}	15.5	0.15	19980904	323.33014	65.85405	348.35015	29.73757	0.3112266	2.6491778	25	1	32 days	0.73	Williams	1998 QE_{101}
1998 QF_{101}	15.5	0.15	19980904	355.84926	297.47351	57.00365	3.08298	0.2214890	2.6560930	15	1	23 days	0.55	Williams	1998 QF_{101}
1998 QM_{101}	16.5	0.15	19980904	313.02549	295.24383	109.48194	3.54984	0.1056727	2.2616131	15	1	23 days	0.90	Williams	1998 QM_{101}
1998 QQ_{101}	13.0	0.15	19980904	340.61735	214.23560	165.16102	16.90030	0.1931617	3.0922139	15	1	23 days	1.00	Williams	1998 QQ_{101}
1998 QW_{101}	14.5	0.15	19980904	304.70934	62.01060	0.77891	13.92130	0.1811923	2.5500023	15	1	23 days	0.47	Williams	1998 QW_{101}
1998 QD_{102}	13.5	0.15	19980904	213.12038	349.72087	155.66296	12.78355	0.1328381	2.8679743	15	1	23 days	0.99	Williams	1998 QD_{102}
1998 QF_{102}	13.5	0.15	19980904	33.43843	304.36307	5.63057	11.07602	0.0805075	2.6820325	15	1	23 days	0.48	Williams	1998 QF_{102}
1998 QG_{102}	14.0	0.15	19980904	284.95001	291.31591	142.24187	5.85953	0.0697152	2.8401239	24	1	29 days	0.87	Williams	1998 QG_{102}
1998 QK_{102}	14.5	0.15	19980904	353.16169	231.90179	126.00548	5.71268	0.1216932	2.6652649	15	1	23 days	0.70	Williams	1998 QK_{102}
1998 QN_{102}	15.0	0.15	19980904	275.85749	68.38237	24.03446	3.51561	0.1568813	2.4334909	14	1	23 days	1.10	Williams	1998 QN_{102}
1998 QO_{102}	17.0	0.15	19980904	8.14729	336.24787	354.50278	12.58780	0.3300193	2.6537547	12	1	28 days	0.29	Williams	1998 QO_{102}
1998 QP_{102}	14.0	0.15	19980904	99.62200	93.53020	154.12731	10.14317	0.0405631	3.0510182	13	1	29 days	0.53	Williams	1998 QP_{102}
1998 QR_{102}	15.0	0.15	19980904	295.98662	0.37309	59.47499	4.17914	0.0629128	2.3996467	15	1	23 days	0.69	Williams	1998 QR_{102}
1998 QB_{103}	14.5	0.15	19980904	341.32351	253.19070	128.02315	6.07529	0.1728841	3.1450303	12	1	29 days	0.42	Williams	1998 QB_{103}
1998 QC_{103}	15.0	0.15	19980904	339.66944	326.71375	57.19342	3.33241	0.2073095	2.6123509	12	1	29 days	0.34	Williams	1998 QC_{103}
1998 QF_{103}	14.0	0.15	19980904	15.46370	319.24692	16.62834	9.85175	0.1048028	3.1639971	12	1	30 days	1.37	Williams	1998 QF_{103}
1998 QH_{103}	15.5	0.15	19980904	10.70124	317.68531	16.20387	9.10529	0.2258009	2.5197396	12	1	29 days	0.49	Williams	1998 QH_{103}
1998 QJ_{103}	16.5	0.15	19980904	340.09153	7.40583	13.67146	9.77540	0.2132969	2.2535794	25	1	31 days	1.25	Williams	1998 QJ_{103}
1998 QK_{103}	16.5	0.15	19980904	343.85086	256.32451	119.17059	4.12559	0.1951648	2.2186589	12	1	29 days	0.43	Williams	1998 QK_{103}
1998 QM_{103}	14.0	0.15	19980904	31.87613	227.66584	91.57220	3.23504	0.0690484	2.8955920	12	1	29 days	2.22	Williams	1998 QM_{103}
1998 QQ_{103}	15.0	0.15	19980904	337.66194	349.82901	31.07339	4.46860	0.1147544	2.2788276	12	1	30 days	0.36	Williams	1998 QQ_{103}
1998 QU_{103}	14.0	0.15	19980904	314.87429	301.83485	107.21666	4.97242	0.0975763	2.7862387	12	1	29 days	0.49	Williams	1998 QU_{103}
1998 QV_{103}	14.5	0.15	19980904	349.66727	1.26713	5.82809	23.63277	0.0579109	3.1821189	12	1	30 days	0.53	Williams	1998 QV_{103}
1998 QX_{103}	14.5	0.15	19980904	300.26512	46.88227	23.94045	11.97989	0.1496279	2.9934939	12	1	29 days	0.68	Williams	1998 QX_{103}
1998 QC_{104}	15.5	0.15	19980904	28.81016	168.68044	145.35726	8.73693	0.1735882	2.5665092	12	1	29 days	0.64	Williams	1998 QC_{104}
1998 QD_{104}	14.0	0.15	19980904	280.60360	323.96585	137.21018	8.20160	0.2253424	2.5427842	12	1	29 days	0.37	Williams	1998 QD_{104}
1998 QH_{104}	15.5	0.15	19980904	305.71916	77.44986	359.77580	21.13223	0.2676015	2.2836995	36	1	34 days	0.79	Williams	1998 QH_{104}
1998 QJ_{104}	14.0	0.15	19980904	31.25550	299.61816	9.36817	13.06668	0.2076331	2.9897434	9	1	22 days	0.27	Williams	1998 QJ_{104}
1998 QK_{104}	16.0	0.15	19980904	27.45365	184.25360	131.66410	5.81890	0.1611187	2.3213502	12	1	29 days	0.49	Williams	1998 QK_{104}
1998 QL_{104}	15.5	0.15	19980904	4.17189	306.67076	41.12955	4.84680	0.1879124	2.5602253	12	1	29 days	1.13	Williams	1998 QL_{104}
1998 QR_{104}	16.0	0.15	19980904	24.39674	309.50832	4.04869	15.73147	0.2449298	2.5647269	26	1	32 days	0.85	Williams	1998 QR_{104}
1998 QX_{104}	20.0	0.15	19980815	3.39309	87.22035	222.53730	2.69879	0.3344254	2.1246770	9	1	16 days	0.12	Williams	1998 QX_{104}
1998 QY_{104}	15.0	0.15	19980904	30.79837	285.38259	22.13520	12.36878	0.2112638	2.7915722	12	1	29 days	0.74	Williams	1998 QY_{104}
1998 QA_{105}	21.5	0.15	19980904	351.43290	37.39504	338.66316	8.59127	0.5380756	2.7090931	19	1	24 days	0.48	Williams	1998 QA_{105}
1998 QB_{105}	16.0	0.15	19980904	10.47722	232.58362	85.06285	23.30526	0.3659380	2.3302996	10	1	14 days	0.18	Williams	1998 QB_{105}
1998 QD_{105}	15.5	0.15	19980904	357.88546	219.41453	130.70622	9.96991	0.0888270	2.1645005	9	1	28 days	1.62	Williams	1998 QD_{105}
1998 QL_{105}	15.0	0.15	19980904	174.35304	104.17269	69.84224	5.00686	0.1040087	2.2305907	14	1	24 days	0.86	Williams	1998 QL_{105}
1998 QM_{105}	16.5	0.15	19980904	324.96060	12.07469	28.86309	5.93279	0.2135304	2.3302188	15	1	24 days	0.88	Williams	1998 QM_{105}
1998 QP_{105}	14.5	0.15	19980904	266.19146	23.04511	73.23398	4.43764	0.1143091	2.2951376	15	1	24 days	1.35	Williams	1998 QP_{105}
1998 QQ_{105}	15.5	0.15	19980904	327.19934	6.07889	31.91812	6.98193	0.2120867	2.5224889	14	1	24 days	0.56	Williams	1998 QQ_{105}
1998 QS_{105}	15.0	0.15	19980904	335.29524	262.14053	120.25558	5.72883	0.1385101	2.5179406	14	1	24 days	0.78	Williams	1998 QS_{105}
1998 QB_{106}	16.0	0.15	19980904	342.54001	266.94254	105.92735	3.95425	0.1975319	2.2685862	15	1	24 days	0.46	Williams	1998 QB_{106}
1998 QC_{106}	16.0	0.15	19980904	31.59927	226.61731	75.59676	3.97598	0.1792863	2.3848688	15	1	24 days	0.50	Williams	1998 QC_{106}
1998 QE_{106}	15.5	0.15	19980904	353.58247	293.91791	63.95920	3.80347	0.2377103	2.6072103	15	1	24 days	0.49	Williams	1998 QE_{106}
1998 QJ_{106}	14.0	0.15	19980904	52.61554	266.81448	21.24370	10.32494	0.0766356	2.9694621	14	1	24 days	0.62	Williams	1998 QJ_{106}
1998 QK_{106}	16.5	0.15	19980904	35.36965	255.86964	35.11691	4.69277	0.2406489	2.3847863	15	1	24 days	0.82	Williams	1998 QK_{106}
1998 QN_{106}	16.0	0.15	19980904	28.60125	279.62396	24.62484	5.56519	0.1976119	2.2141610	15	1	24 days	0.54	Williams	1998 QN_{106}

1998 QO_{106}	16.5	0.15	19980904	8.20488	312.43986	24.10437	6.19491	0.1362169	2.4164143	14	1	24 days	0.90			Williams	1998 QO_{106}
1998 QA_{107}	20.5	0.15	19980904	358.43579	195.94899	155.73577	2.78776	0.2595476	2.2357321	12	1	23 days	0.85			Williams	1998 QA_{107}
1998 RA	15.0	0.15	19980904	30.49528	62.73482	240.41757	5.84867	0.1699922	3.0533554	14	1	20 days	0.48			Marsden	1998 RA
1998 RB	14.0	0.15	19980904	103.26847	46.55647	197.43415	15.26114	0.0122318	2.5668336	43	1	23 days	0.71			Williams	1998 RB
1998 RF	15.0	0.15	19980904	94.27899	201.46704	49.57084	8.31484	0.0522803	2.7419477	11	1	14 days	0.35			Williams	1998 RF
1998 RG	14.5	0.15	19980904	274.48110	326.80235	126.17153	10.07562	0.1332846	2.7707041	10	1	16 days	0.37			Williams	1998 RG
1998 RH	14.5	0.15	19980904	155.14883	91.62415	107.26418	7.40109	0.0553331	2.3501050	11	1	14 days	0.27			Williams	1998 RH
1998 RJ	17.5	0.15	19980904	1.89763	310.44748	38.78988	6.98820	0.2088119	2.2265369	17	1	23 days	0.54			Williams	1998 RJ
1998 RK	14.0	0.15	19980904	55.61475	138.82087	160.59345	21.85482	0.0736522	3.1957660	11	1	14 days	0.37			Williams	1998 RK
1998 RL	16.0	0.15	19980904	20.90297	142.13761	177.31707	5.11955	0.2014600	2.3338814	21	1	23 days	0.57			Williams	1998 RL
1998 RM	13.5	0.15	19980904	210.36152	272.42095	207.27716	16.58882	0.0906819	2.8014730	14	1	19 days	0.36			Williams	1998 RM
1998 RO	16.5	0.15	19980904	271.32149	207.62492	215.51931	4.86735	0.1111404	2.4411060	9	1	8 days	0.17			Williams	1998 RO
1998 RP	17.0	0.15	19980904	336.53575	87.06368	270.05205	4.37226	0.1542490	2.1933988	9	1	8 days	0.10			Williams	1998 RP
1998 RR	17.0	0.15	19980904	335.17470	46.68648	306.11591	12.86970	0.0924821	2.5566476	9	1	8 days	0.08			Williams	1998 RR
1998 RS	13.0	0.15	19980904	342.00477	194.32059	186.00005	15.87501	0.1080363	3.0734492	22	1	18 days	0.35			Williams	1998 RS
1998 RT	15.0	0.15	19980904	22.33076	70.63299	224.30378	12.88328	0.1339708	2.5398542	9	1	6 days	0.37			Williams	1998 RT
1998 RU	16.0	0.15	19980904	295.04744	76.68967	338.57643	6.81187	0.0877317	2.3880027	10	1	15 days	0.53			Williams	1998 RU
1998 RW	15.5	0.15	19980904	7.00394	38.00912	305.27919	5.79600	0.1473527	2.4386377	24	1	7 days	0.54			Williams	1998 RW
1998 RY	15.5	0.15	19980904	345.10670	155.05089	233.38302	3.39449	0.2994668	2.5756025	21	1	43 days	0.57			Williams	1998 RY
1998 RB_1	15.0	0.15	19980904	2.86830	6.07688	353.62633	9.52051	0.1835984	2.7710050	11	1	20 days	0.50			Williams	1998 RB_1
1998 RC_1	12.8	0.15	19980924	57.61848	99.22431	203.40954	9.46587	0.1059635	2.9867124	11	1	20 days	0.44			Nakano	1998 RC_1
1998 RD_1	12.3	0.15	19980924	15.05827	5.98475	347.96947	8.60858	0.0962419	3.1805983	8	1	20 days	0.47			Nakano	1998 RD_1
1998 RE_1	15.0	0.15	19980904	18.83101	314.27253	356.33183	17.15429	0.1685048	3.0412099	13	1	9 days	0.44			Williams	1998 RE_1
1998 RF_1	15.5	0.15	19980706	339.73440	23.31331	330.05746	5.97081	0.2256102	2.3481418	34	1	60 days	0.44	M-v	4	Williams	1998 RF_1
1998 RG_1	13.0	0.15	19980904	272.96246	287.35758	170.53202	10.25292	0.1999087	3.1666627	30	1	14 days	0.73			Williams	1998 RG_1
1998 RJ_1	13.0	0.15	19980904	307.56704	256.51394	168.62619	1.10557	0.2308630	3.2152480	30	1	14 days	0.66			Williams	1998 RJ_1
1998 RM_1	17.5	0.15	19980904	301.15386	76.86323	345.92508	28.08216	0.2491535	1.9429257	20	1	3 days	0.48			Williams	1998 RM_1
1998 RN_1	19.0	0.15	19980904	12.14164	303.08302	345.53593	26.76674	0.5879149	2.6125410	55	1	14 days	0.86			Williams	1998 RN_1
1998 RO_1	18.5	0.15	19980904	253.98738	150.98408	351.98518	22.56181	0.7188344	0.9902062	52	1	14 days	0.66			Williams	1998 RO_1
1998 RP_1	15.0	0.15	19980904	29.12405	300.40247	15.05558	1.67438	0.2514592	2.8045623	20	1	12 days	0.35			Williams	1998 RP_1
1998 RU_1	15.0	0.15	19980904	99.19960	290.76847	318.50817	12.34136	0.1264691	2.6210766	11	1	11 days	0.52			Williams	1998 RU_1
1998 RV_1	14.0	0.15	19980904	288.68214	185.45047	260.66594	8.15967	0.1212835	2.7777109	8	1	11 days	0.33			Williams	1998 RV_1
1998 RZ_1	16.0	0.15	19980904	311.13140	194.76485	229.00879	8.62938	0.1747660	2.2604205	8	1	5 days	0.38			Williams	1998 RZ_1
1998 RA_2	13.5	0.15	19980904	213.25030	281.96652	234.05255	10.40971	0.1269583	2.6708782	11	1	27 days	0.38			Williams	1998 RA_2
1998 RB_2	15.5	0.15	19980904	104.59428	85.04150	131.87662	7.08053	0.2143395	2.5470911	7	1	14 days	0.23			Williams	1998 RB_2
1998 RC_2	14.0	0.15	19980904	322.29934	28.71987	2.24147	12.68458	0.1543679	3.1735701	19	1	15 days	0.70			Williams	1998 RC_2
1998 RD_2	16.5	0.15	19980904	253.56441	321.71099	131.15152	3.19052	0.1008242	2.3201766	9	1	12 days	0.38			Williams	1998 RD_2
1998 RF_2	15.0	0.15	19980904	50.17399	264.76882	20.99842	13.33126	0.2046707	2.7358392	21	1	8 days	0.31			Williams	1998 RF_2
1998 RG_2	18.0	0.15	19980904	344.03133	232.49077	151.29772	8.02275	0.2828623	2.6001140	9	1	2 days	0.36		E	Williams	1998 RG_2
1998 RH_2	15.5	0.15	19980904	12.67451	237.59455	99.01712	4.45462	0.2031211	2.6386043	12	1	8 days	0.14			Williams	1998 RH_2
1998 RK_2	16.0	0.15	19980904	326.82678	292.33919	104.83914	5.39452	0.0808101	2.7573639	9	1	8 days	0.47			Williams	1998 RK_2
1998 RL_2	16.5	0.15	19980904	74.86428	142.14650	126.08585	5.65146	0.1220038	2.1908834	15	1	8 days	0.65			Williams	1998 RL_2
1998 RM_2	17.0	0.15	19980904	343.07999	316.50111	61.92928	4.19102	0.1795010	2.1683945	21	1	8 days	0.53			Williams	1998 RM_2
1998 RO_2	15.5	0.15	19980904	30.15392	159.74760	153.50579	11.25334	0.2227141	3.1791582	9	1	2 days	0.14		E	Williams	1998 RO_2
1998 RP_2	16.5	0.15	19980904	119.75600	126.54172	103.64657	5.20198	0.0908830	2.1736649	9	1	2 days	0.16		E	Williams	1998 RP_2
1998 RQ_2	16.0	0.15	19980904	289.00104	52.41163	17.44161	6.24951	0.0625340	2.1542634	23	1	10 days	0.81			Williams	1998 RQ_2
1998 RR_2	16.6	0.15	19980924	352.16521	29.15426	358.15874	2.97498	0.4120255	2.6551080	32	1	18 days	0.48			Nakano	1998 RR_2
1998 RS_2	15.5	0.15	19980904	57.54455	207.99019	73.50699	2.50513	0.1869860	2.2048041	15	1	11 days	0.35			Williams	1998 RS_2
1998 RT_2	17.0	0.15	19980904	195.28663	319.07689	201.46282	0.64344	0.1247842	2.4342920	12	1	14 days	0.18			Williams	1998 RT_2
1998 RU_2	17.0	0.15	19980904	249.84205	141.32418	335.18329	0.97137	0.1410389	2.3904667	9	1	10 days	0.15			Williams	1998 RU_2
1998 RW_2	19.0	0.15	19980904	343.93040	27.01186	345.62359	0.76288	0.1481812	2.4638012	9	1	10 days	0.18			Williams	1998 RW_2
1998 RX_2	15.0	0.15	19980904	77.50476	86.37458	175.42491	8.83975	0.1148169	2.5843669	20	1	8 days	1.18		E	Williams	1998 RX_2
1998 RY_2	16.5	0.15	19980904	47.46945	112.76972	183.67616	1.44117	0.0993692	3.0004195	12	1	15 days	0.20			Williams	1998 RY_2

1998 RA_3	16.0	0.15	19980904	354.57227	181.05513	178.40336	1.25073	0.1657257	2.7914039	8	1	10 days	0.20		E	Williams	1998 RA_3
1998 RB_3	17.5	0.15	19980904	76.72708	79.01704	183.21563	0.94997	0.1153673	2.3826836	9	1	10 days	0.16		E	Williams	1998 RB_3
1998 RC_3	16.0	0.15	19980904	253.46248	126.58270	356.51827	3.66483	0.2288388	2.8683760	9	1	10 days	0.50		E	Williams	1998 RC_3
1998 RD_3	15.5	0.15	19980904	358.13668	350.09649	11.44670	13.79734	0.3141905	2.5889294	19	1	12 days	0.58			Williams	1998 RD_3
1998 RF_3	17.0	0.15	19980904	352.98596	108.38312	244.90977	11.42750	0.2130977	2.3557669	12	1	8 days	0.46			Williams	1998 RF_3
1998 RG_3	16.0	0.15	19980904	359.53570	129.23015	230.32097	7.98314	0.3574940	2.6916984	18	1	8 days	0.50			Williams	1998 RG_3
1998 RH_3	15.5	0.15	19980904	348.85545	12.64974	343.27929	20.45196	0.0687838	1.9367107	26	1	28 days	0.67			Williams	1998 RH_3
1998 RJ_3	17.0	0.15	19980904	24.13875	328.39814	347.93852	18.06673	0.0570598	1.9304901	18	1	13 days	1.21			Williams	1998 RJ_3
1998 RM_3	15.0	0.15	19980904	323.90556	45.72655	350.13542	24.73022	0.1848457	2.2755037	19	1	13 days	0.51			Williams	1998 RM_3
1998 RN_3	15.5	0.15	19980904	297.53895	80.41387	351.76310	19.46174	0.2244338	2.2829093	12	1	4 days	0.69		E	Williams	1998 RN_3
1998 RO_3	16.5	0.15	19980904	4.06530	347.91362	350.66186	18.73709	0.0610589	1.9168905	25	1	14 days	0.69			Williams	1998 RO_3
1998 RQ_3	15.5	0.15	19980904	150.79021	209.53301	346.45165	37.23099	0.0370433	2.3644089	13	1	11 days	1.16		E	Williams	1998 RQ_3
1998 RR_3	17.0	0.15	19980904	54.29469	121.47505	168.65054	25.56164	0.0132638	1.8674519	17	1	13 days	1.22			Williams	1998 RR_3
1998 RU_3	16.5	0.15	19980904	339.16525	38.88246	350.80375	18.12534	0.3304877	2.6304811	22	1	13 days	0.55			Williams	1998 RU_3
1998 RX_3	19.0	0.15	19980904	314.82828	52.87362	349.42180	11.23388	0.1122479	1.6853832	13	1	11 days	1.31			Williams	1998 RX_3
1998 RZ_3	16.0	0.15	19980904	26.44731	333.03697	340.17524	12.77552	0.2043954	2.5013704	13	1	4 days	0.93		E	Williams	1998 RZ_3
1998 RD_4	15.0	0.15	19980904	28.11851	317.56098	350.85612	17.85065	0.2537732	2.6036697	23	1	13 days	0.65			Williams	1998 RD_4
1998 RE_4	16.0	0.15	19980904	5.32018	353.47842	350.26498	13.81554	0.2372495	2.3557673	18	1	13 days	0.48			Williams	1998 RE_4
1998 RF_4	17.0	0.15	19980904	46.09749	129.82341	170.86408	21.58962	0.0532553	1.9180817	13	1	13 days	0.93			Williams	1998 RF_4
1998 RG_4	15.0	0.15	19980904	244.59905	312.40138	178.43571	23.91485	0.2160173	2.3314196	21	1	13 days	0.72			Williams	1998 RG_4
1998 RH_4	17.0	0.15	19980904	1.51542	354.44545	355.14064	13.26028	0.2795741	2.5698428	24	1	13 days	0.70			Williams	1998 RH_4
1998 RL_4	15.5	0.15	19980904	76.27237	265.11784	354.63311	22.48561	0.1977771	2.2983982	17	1	13 days	1.09			Williams	1998 RL_4
1998 RM_4	17.5	0.15	19980904	319.36315	218.34888	184.46393	24.11568	0.0977588	1.8294992	23	1	13 days	0.83			Williams	1998 RM_4
1998 RN_4	16.0	0.15	19980904	34.52193	312.25805	349.72657	13.53698	0.2526754	2.3434991	22	1	15 days	1.41			Williams	1998 RN_4
1998 RO_4	18.0	0.15	19980706	359.02962	111.26850	192.30353	5.33725	0.4272229	2.1383567	53	1	40 days	0.41	M-v	5	Williams	1998 RO_4
1998 RP_4	17.0	0.15	19980904	289.29274	251.21103	183.00113	21.74804	0.0685809	1.9169722	24	1	13 days	0.78			Williams	1998 RP_4
1998 RQ_4	15.5	0.15	19980904	324.56790	255.60680	172.30535	24.06238	0.3812228	2.8428955	24	1	13 days	0.76			Williams	1998 RQ_4
1998 RR_4	15.5	0.15	19980904	336.30742	229.26905	162.56326	17.57384	0.2586938	2.7400859	18	1	12 days	0.79			Williams	1998 RR_4
1998 RT_4	15.5	0.15	19980904	331.25296	245.02317	170.57182	31.08697	0.3931581	2.6641855	16	1	7 days	0.72		E	Williams	1998 RT_4
1998 RU_4	15.0	0.15	19980904	301.54379	94.14636	0.21914	21.69346	0.3032143	2.3970594	38	1	18 days	0.72			Williams	1998 RU_4
1998 RW_4	16.0	0.15	19980904	2.78702	175.08635	177.95154	22.38491	0.0879721	1.9547147	20	1	13 days	0.52			Williams	1998 RW_4
1998 RX_4	17.0	0.15	19980904	319.14565	220.68894	184.91903	21.46107	0.0883104	1.9340970	21	1	13 days	0.71			Williams	1998 RX_4
1998 RY_4	16.5	0.15	19980904	36.77537	307.89176	356.91004	21.53497	0.2115841	2.1284830	11	1	4 days	0.65		E	Williams	1998 RY_4
1998 RZ_4	15.5	0.15	19980904	184.68714	359.23119	177.91829	22.61724	0.0640730	1.9461820	21	1	13 days	0.64			Williams	1998 RZ_4
1998 RA_5	13.5	0.15	19980904	19.20625	16.18344	313.78304	5.84919	0.0255779	3.0542782	24	1	14 days	0.72			Williams	1998 RA_5
1998 RB_5	14.5	0.15	19980904	336.17070	49.23802	332.04927	2.66559	0.1641357	2.7981396	21	1	13 days	0.57			Williams	1998 RB_5
1998 RC_5	14.0	0.15	19980904	280.62176	101.78630	350.86380	7.74897	0.2172489	2.5686479	24	1	11 days	0.99			Williams	1998 RC_5
1998 RD_5	15.0	0.15	19980904	100.97159	173.79355	77.80731	5.89425	0.1065386	2.3902765	8	1	6 days	0.34			Williams	1998 RD_5
1998 RE_5	17.0	0.15	19980904	15.15272	269.65435	63.49229	4.63032	0.2258645	2.1714773	9	1	6 days	0.33			Williams	1998 RE_5
1998 RG_5	15.5	0.15	19980904	55.20723	256.58277	40.48937	9.55393	0.0817014	3.1919013	12	1	7 days	0.13			Williams	1998 RG_5
1998 RH_5	17.0	0.15	19980904	42.00932	283.53437	24.73740	14.33399	0.0991436	2.6492592	12	1	7 days	0.15			Williams	1998 RH_5
1998 RJ_5	16.5	0.15	19980904	88.27317	208.69148	42.00078	9.03403	0.1831074	2.4407347	12	1	7 days	0.16			Williams	1998 RJ_5
1998 RR_5	17.5	0.15	19980904	349.26421	196.88134	177.96863	2.42726	0.2330773	2.4060041	9	1	10 days	0.36			Williams	1998 RR_5
1998 RT_5	14.5	0.15	19980904	346.48769	233.09656	156.80668	3.38788	0.2330125	3.8503481	8	1	4 days	0.48		E	Williams	1998 RT_5
1998 RU_5	15.0	0.15	19980904	328.78547	226.59417	176.47802	9.75882	0.0880219	2.5703646	12	1	10 days	0.41			Williams	1998 RU_5
1998 RV_5	15.5	0.15	19980904	310.45678	25.85698	35.65344	10.93083	0.1240980	3.0026059	9	1	7 days	0.06			Williams	1998 RV_5
1998 RW_5	16.5	0.15	19980904	5.93622	329.52660	6.85248	2.51907	0.1016410	2.1651840	16	1	5 days	0.84			Williams	1998 RW_5
1998 RY_5	14.5	0.15	19980904	193.02338	131.50312	23.69151	3.81847	0.0704539	2.2133624	15	1	5 days	0.41			Williams	1998 RY_5
1998 RZ_5	15.0	0.15	19980904	357.31929	315.20633	34.64586	3.43061	0.1494116	2.6767277	15	1	5 days	0.47			Williams	1998 RZ_5
1998 RA_6	15.5	0.15	19980904	353.35611	316.87764	40.06583	4.00920	0.2554693	2.6803949	15	1	5 days	0.30			Williams	1998 RA_6
1998 RB_6	15.5	0.15	19980904	345.53015	193.45550	169.50197	8.54830	0.1508006	2.5902441	9	1	13 days	0.33			Williams	1998 RB_6
1998 RF_6	14.5	0.15	19980904	342.53599	193.48869	166.56996	6.34011	0.0440324	2.7284219	27	1	32 days	0.60			Williams	1998 RF_6
1998 RJ_6	14.5	0.15	19980904	127.64707	221.58956	346.12897	4.59389	0.0738119	2.3135407	25	1	15 days	0.59			Williams	1998 RJ_6

1998 RN_6	16.0	0.15	19980904	344.56295	166.68216	196.52130	6.95074	0.1554944	2.2444524	19	1	19 days	0.49		Williams	1998 RN_6
1998 RO_6	15.0	0.15	19980904	303.25550	188.61586	227.91400	4.37023	0.1577467	2.4057745	16	1	4 days	0.69	E	Williams	1998 RO_6
1998 RP_6	15.0	0.15	19980904	352.19597	31.98893	319.90911	10.20895	0.1485315	2.4572613	15	1	4 days	0.63	E	Williams	1998 RP_6
1998 RQ_6	14.0	0.15	19980904	305.02080	124.46797	287.78758	7.95289	0.1726843	3.2544696	16	1	4 days	1.28	E	Williams	1998 RQ_6
1998 RU_6	15.5	0.15	19980904	34.71382	309.68084	345.31179	11.95760	0.1380072	2.6892277	17	1	13 days	0.73		Williams	1998 RU_6
1998 RX_6	15.0	0.15	19980904	359.98731	353.68815	347.13848	15.35406	0.1559363	3.2087535	9	1	12 days	0.22		Williams	1998 RX_6
1998 RY_6	19.0	0.15	19980904	334.95745	14.64847	5.21094	2.43992	0.2117405	2.3936904	9	1	12 days	0.21		Williams	1998 RY_6
1998 RN_7	15.0	0.15	19980904	339.94072	20.90466	344.04997	9.69604	0.1098950	3.0448118	12	1	26 days	0.27		Williams	1998 RN_7
1998 RX_7	16.5	0.15	19980904	331.62365	241.89849	147.14079	2.61797	0.2581785	2.5640344	16	1	6 days	1.04	E	Williams	1998 RX_7
1998 RZ_7	16.0	0.15	19980904	352.28383	8.39761	351.15709	5.32781	0.2290157	2.2378210	15	1	7 days	0.48		Williams	1998 RZ_7
1998 RL_8	16.0	0.15	19980904	344.47171	230.88856	155.99412	2.54886	0.2216864	2.6842333	8	1	13 days	0.27		Williams	1998 RL_8
1998 RU_8	14.0	0.15	19980904	281.02220	285.43843	162.49084	10.58966	0.2619479	2.9714177	16	1	5 days	0.88	E	Williams	1998 RU_8
1998 RV_8	14.0	0.15	19980904	326.34246	210.26749	164.18145	5.09265	0.0300473	3.2777064	9	1	11 days	0.14		Williams	1998 RV_8
1998 RF_9	15.5	0.15	19980904	272.52791	244.68369	191.15299	0.20241	0.0717598	2.9855956	12	1	17 days	0.28		Williams	1998 RF_9
1998 RH_9	17.5	0.15	19980904	340.46713	215.01929	158.31586	0.79443	0.2524597	3.1080105	9	1	11 days	0.25		Williams	1998 RH_9
1998 RQ_9	18.5	0.15	19980904	351.15736	194.81781	158.46750	4.32851	0.1158669	2.3158108	9	1	11 days	0.19		Williams	1998 RQ_9
1998 RS_9	17.0	0.15	19980904	128.33430	45.94901	155.87890	3.21001	0.1449803	2.2969479	8	1	11 days	0.26		Williams	1998 RS_9
1998 RD_{11}	16.0	0.15	19980904	94.72374	68.76413	186.13798	13.06115	0.1314157	2.6653556	9	1	18 days	0.14		Williams	1998 RD_{11}
1998 RE_{11}	16.5	0.15	19980904	37.78680	121.78132	177.42786	0.31145	0.2496635	2.3803525	9	1	12 days	0.60		Williams	1998 RE_{11}
1998 RH_{12}	16.5	0.15	19980904	307.18781	259.51351	164.25834	13.91396	0.2647264	2.6571247	9	1	10 days	0.27		Williams	1998 RH_{12}
1998 RP_{12}	16.5	0.15	19980904	12.20908	158.35677	190.13386	2.29768	0.1110110	2.9458981	9	1	12 days	0.21		Williams	1998 RP_{12}
1998 RC_{13}	18.5	0.15	19980904	343.11382	212.49361	172.69103	0.90045	0.2031989	2.3603484	9	1	12 days	0.19		Williams	1998 RC_{13}
1998 RF_{13}	19.0	0.15	19980904	343.27446	210.87748	174.33738	2.12867	0.1998086	2.3488107	9	1	12 days	0.23		Williams	1998 RF_{13}
1998 RN_{13}	14.5	0.15	19980904	144.05391	61.58637	114.64796	3.27654	0.1377826	2.4000464	8	1	19 days	0.31		Williams	1998 RN_{13}
1998 RP_{13}	16.0	0.15	19980904	354.96937	20.76959	326.65664	0.35538	0.1527611	2.6052820	17	1	12 days	0.74		Williams	1998 RP_{13}
1998 RQ_{13}	16.5	0.15	19980904	338.86778	22.73670	345.38817	9.27473	0.1202140	2.6347421	9	1	13 days	0.21		Williams	1998 RQ_{13}
1998 RS_{13}	16.0	0.15	19980904	331.92470	29.54830	346.42748	16.62210	0.1020795	3.0642623	12	1	16 days	0.26		Williams	1998 RS_{13}
1998 RU_{13}	16.5	0.15	19980904	343.63085	16.87427	354.48320	10.70316	0.1063219	2.9989434	8	1	13 days	0.14		Williams	1998 RU_{13}
1998 RV_{13}	17.5	0.15	19980904	325.03657	40.69043	353.37188	8.36710	0.1282820	2.2285578	11	1	14 days	0.12		Williams	1998 RV_{13}
1998 RX_{13}	16.0	0.15	19980904	189.06882	352.72884	174.67579	11.85530	0.1566444	2.5638186	12	1	13 days	0.22		Williams	1998 RX_{13}
1998 RB_{14}	16.0	0.15	19980904	325.87480	90.68588	304.01629	1.13016	0.2478243	3.3857725	9	1	12 days	0.22		Williams	1998 RB_{14}
1998 RF_{14}	18.5	0.15	19980904	13.42189	147.90581	170.77756	2.29722	0.2272617	2.3422206	9	1	11 days	0.23		Williams	1998 RF_{14}
1998 RL_{14}	17.0	0.15	19980904	20.77416	327.15386	339.84045	2.89865	0.2378529	2.8129338	9	1	9 days	1.06	E	Williams	1998 RL_{14}
1998 RU_{14}	17.0	0.15	19980904	286.59710	78.26049	6.90681	22.33244	0.0665500	2.6850529	9	1	9 days	0.19		Williams	1998 RU_{14}
1998 RV_{14}	17.5	0.15	19980904	312.06139	58.64505	9.39055	3.27092	0.1740972	2.5481952	9	1	9 days	0.17		Williams	1998 RV_{14}
1998 RG_{15}	17.0	0.15	19980904	55.27782	96.26967	184.58140	3.50173	0.1395810	3.1482126	9	1	11 days	0.36		Williams	1998 RG_{15}
1998 RJ_{15}	16.5	0.15	19980904	53.01444	105.72359	179.59546	1.95308	0.1218138	2.3709467	11	1	11 days	0.24		Williams	1998 RJ_{15}
1998 RK_{15}	22.0	0.15	19980904	321.11158	213.02506	180.64669	0.19621	0.1211638	1.4176112	8	1	11 days	1.35		Williams	1998 RK_{15}
1998 RL_{15}	16.0	0.15	19980904	263.97489	273.27452	188.36761	0.66304	0.1278529	2.3892681	11	1	11 days	0.15		Williams	1998 RL_{15}
1998 RN_{15}	16.0	0.15	19980904	85.32324	77.26776	177.53393	1.79852	0.1094997	3.0304502	9	1	8 days	0.19	E	Williams	1998 RN_{15}
1998 RO_{15}	17.0	0.15	19980904	3.94838	351.41444	355.36488	9.05160	0.1281271	3.1416351	11	1	12 days	0.32		Williams	1998 RO_{15}
1998 RQ_{15}	17.5	0.15	19980904	340.29297	215.38766	164.11375	1.37991	0.1653291	2.8739599	8	1	11 days	0.29		Williams	1998 RQ_{15}
1998 RS_{15}	16.5	0.15	19980904	27.63794	75.37092	234.77424	3.64724	0.1822000	2.1796280	14	1	17 days	0.54		Williams	1998 RS_{15}
1998 RT_{15}	15.0	0.15	19980904	38.01370	341.29542	323.59082	8.53850	0.1194844	2.5771903	24	1	30 days	0.59		Williams	1998 RT_{15}
1998 RV_{15}	14.0	0.15	19980904	334.79007	223.84261	179.21956	12.44997	0.1860738	2.6667171	21	1	21 days	0.94		Williams	1998 RV_{15}
1998 RW_{15}	15.0	0.15	19980904	21.60421	130.08069	198.71907	2.33691	0.0875414	2.5994238	12	1	17 days	0.34		Williams	1998 RW_{15}
1998 RX_{15}	15.0	0.15	19980904	352.02627	66.42598	298.44036	0.94979	0.0879155	2.8659257	21	1	16 days	0.78		Williams	1998 RX_{15}
1998 RY_{15}	16.0	0.15	19980904	333.24358	211.13810	182.41713	5.23968	0.2186520	2.3306037	15	1	11 days	0.71		Williams	1998 RY_{15}
1998 RZ_{15}	16.0	0.15	19980904	24.97783	248.24615	74.09616	3.40581	0.1892038	2.1659562	12	1	11 days	0.37		Williams	1998 RZ_{15}
1998 RA_{16}	15.0	0.15	19980904	16.51909	231.05758	106.67127	3.36316	0.1859575	2.3979239	24	1	16 days	0.54		Williams	1998 RA_{16}
1998 RC_{16}	14.0	0.15	19980904	31.50506	260.98013	58.31545	4.46544	0.1649490	2.3584685	9	1	6 days	0.25		Williams	1998 RC_{16}
1998 RD_{16}	15.5	0.15	19980904	350.43519	216.01540	159.46900	8.27133	0.0782573	2.3915484	9	1	10 days	0.65		Williams	1998 RD_{16}
1998 RE_{16}	13.0	0.15	19980904	49.48878	165.93258	133.96128	5.58809	0.1841332	3.0626406	18	1	12 days	1.05		Williams	1998 RE_{16}

1998 RG_{16}	13.0	0.15	19980904	357.83617	108.73619	268.72206	13.81466	0.1485268	2.5939426	9	1	9 days	0.19		Williams	1998 RG_{16}
1998 RH_{16}	15.5	0.15	19980904	9.59288	72.95839	229.61767	4.50433	0.1028100	3.2429797	9	1	13 days	0.08		Williams	1998 RH_{16}
1998 RK_{16}	18.5	0.15	19980904	352.77514	47.19169	297.32389	3.78288	0.1972754	2.2966976	9	1	12 days	0.16	E	Williams	1998 RK_{16}
1998 RN_{16}	16.0	0.15	19980815	4.43275	136.00505	182.46257	6.56777	0.2215819	2.2642625	19	1	54 days	0.60		Williams	1998 RN_{16}
1998 RY_{16}	15.0	0.15	19980904	328.81096	264.82071	110.38102	3.46754	0.1607754	2.3773610	13	1	10 days	0.84		Williams	1998 RY_{16}
1998 RD_{17}	13.5	0.15	19980904	325.30613	214.41736	161.25677	13.27442	0.1029789	2.8568648	16	1	26 days	0.46		Williams	1998 RD_{17}
1998 RU_{17}	16.5	0.15	19980904	17.22582	341.21006	323.67463	6.78263	0.3160924	2.3261703	15	1	7 days	0.73		Williams	1998 RU_{17}
1998 RA_{18}	14.0	0.15	19980904	281.43330	74.80664	353.80215	8.35269	0.1384960	2.7995651	12	1	7 days	0.76		Williams	1998 RA_{18}
1998 RC_{18}	13.5	0.15	19980904	9.95447	313.08031	1.45814	12.29277	0.3091597	3.0779396	13	1	10 days	0.39		Williams	1998 RC_{18}
1998 RJ_{18}	15.0	0.15	19980904	318.06886	95.65146	295.60055	5.23103	0.1148171	2.3458614	16	1	7 days	0.55		Williams	1998 RJ_{18}
1998 RM_{18}	14.0	0.15	19980904	190.45754	184.38510	327.23113	14.94707	0.1020160	2.4671529	12	1	7 days	0.76	E	Williams	1998 RM_{18}
1998 RR_{18}	15.5	0.15	19980904	328.41469	244.19299	144.64345	2.97140	0.2410520	2.6558790	15	1	11 days	0.85		Williams	1998 RR_{18}
1998 RV_{18}	15.0	0.15	19980815	47.95552	224.93800	41.93463	2.98722	0.1686399	2.3950489	19	1	53 days	1.06		Williams	1998 RV_{18}
1998 RX_{18}	14.0	0.15	19980904	21.65429	309.09730	352.02154	17.28922	0.2375467	3.1448340	16	1	8 days	0.65		Williams	1998 RX_{18}
1998 RZ_{18}	14.5	0.15	19980904	278.28019	34.08849	41.73488	5.39778	0.1542955	2.5429958	12	1	8 days	0.98		Williams	1998 RZ_{18}
1998 RA_{19}	14.5	0.15	19980904	322.83940	20.02691	359.41147	12.51978	0.0673012	2.7903565	13	1	8 days	0.73		Williams	1998 RA_{19}
1998 RC_{19}	12.5	0.15	19980904	85.36175	97.32281	136.35048	9.99564	0.1618545	3.1582960	19	1	8 days	0.81	E	Williams	1998 RC_{19}
1998 RH_{19}	14.0	0.15	19980904	54.60271	126.16040	138.90746	8.12251	0.1769868	2.8570987	12	1	8 days	0.80	E	Williams	1998 RH_{19}
1998 RP_{19}	14.0	0.15	19980904	83.68057	303.03834	297.98724	1.16922	0.1333901	2.6586785	18	1	12 days	1.11	E	Williams	1998 RP_{19}
1998 RQ_{19}	14.0	0.15	19980904	0.96851	147.71394	190.87538	1.56060	0.1244718	3.1924421	13	1	12 days	0.82		Williams	1998 RQ_{19}
1998 RT_{19}	16.0	0.15	19980904	11.58776	81.03588	244.16295	2.36224	0.1503919	2.1563027	12	1	7 days	0.31		Williams	1998 RT_{19}
1998 RA_{20}	14.0	0.15	19980904	7.39666	334.24888	352.48184	9.82697	0.0571519	3.0357346	11	1	7 days	0.66		Williams	1998 RA_{20}
1998 RD_{20}	16.5	0.15	19980904	5.12876	319.36406	9.36824	6.84364	0.2744950	2.3104211	10	1	8 days	0.70		Williams	1998 RD_{20}
1998 RP_{20}	15.5	0.15	19980904	73.36980	61.85376	248.78722	11.47565	0.0939540	2.3956623	8	1	10 days	0.39		Williams	1998 RP_{20}
1998 RB_{21}	17.5	0.15	19980904	27.57347	122.98048	179.09776	7.72618	0.2926832	3.1446579	8	1	13 days	0.23		Williams	1998 RB_{21}
1998 RC_{21}	15.5	0.15	19980904	358.87160	177.45273	177.14122	11.73289	0.1216976	3.1023328	9	1	13 days	0.12		Williams	1998 RC_{21}
1998 RG_{21}	17.0	0.15	19980904	151.49707	347.75859	206.76557	1.72929	0.0881620	2.7224022	7	1	8 days	0.24		Williams	1998 RG_{21}
1998 RM_{21}	16.5	0.15	19980904	1.22266	86.51530	262.46331	0.51814	0.1172814	2.9791675	9	1	11 days	0.14		Williams	1998 RM_{21}
1998 RN_{21}	16.0	0.15	19980904	201.36959	149.60008	11.25676	1.49938	0.2552837	2.9576863	9	1	11 days	0.32		Williams	1998 RN_{21}
1998 RQ_{21}	17.0	0.15	19980904	325.33057	33.09984	357.64007	5.97210	0.0519518	2.7295707	9	1	12 days	0.18		Williams	1998 RQ_{21}
1998 RS_{21}	15.0	0.15	19980904	316.85160	181.46976	224.64126	1.15176	0.1036250	3.0134678	16	1	10 days	0.84		Williams	1998 RS_{21}
1998 RZ_{21}	15.0	0.15	19980904	213.69166	153.18213	357.39597	5.94509	0.1601664	2.3387260	9	1	13 days	0.18		Williams	1998 RZ_{21}
1998 RN_{22}	14.5	0.15	19980904	276.08674	267.12318	172.24611	3.83286	0.1271047	2.5030908	15	1	12 days	0.66		Williams	1998 RN_{22}
1998 RO_{22}	15.0	0.15	19980904	228.48076	306.55760	172.17125	3.91890	0.0722882	2.3329225	20	1	36 days	0.58		Williams	1998 RO_{22}
1998 RP_{22}	16.0	0.15	19980904	330.50449	189.04808	194.89380	0.73824	0.1884692	2.4291906	21	1	15 days	0.69		Williams	1998 RP_{22}
1998 RD_{24}	14.0	0.15	19980904	80.82183	82.49603	159.99022	1.78483	0.1438928	3.2385457	14	1	16 days	1.14		Williams	1998 RD_{24}
1998 RN_{25}	15.5	0.15	19980904	58.50847	282.02195	350.54368	3.24771	0.1142772	2.3267676	15	1	13 days	0.86		Williams	1998 RN_{25}
1998 RO_{25}	17.0	0.15	19980904	353.19996	358.69327	352.74347	5.81482	0.1644763	2.2354353	15	1	15 days	0.69		Williams	1998 RO_{25}
1998 RR_{26}	14.5	0.15	19980904	5.52330	339.08386	357.17378	9.27771	0.1102696	3.0943203	16	1	16 days	0.68		Williams	1998 RR_{26}
1998 RC_{27}	15.0	0.15	19980904	187.37188	353.40253	164.07858	7.24899	0.0402427	2.2976461	12	1	15 days	0.79		Williams	1998 RC_{27}
1998 RM_{28}	16.5	0.15	19980904	28.58274	138.95869	165.95877	2.73350	0.1680992	2.2399225	17	1	15 days	0.45		Williams	1998 RM_{28}
1998 RD_{32}	16.5	0.15	19980904	325.29283	187.67005	205.32071	4.61362	0.1523286	2.2874502	12	1	11 days	0.64		Williams	1998 RD_{32}
1998 RN_{35}	14.0	0.15	19980904	3.13736	344.70792	359.79289	1.68304	0.0610308	2.8842056	16	1	16 days	0.48		Williams	1998 RN_{35}
1998 RU_{36}	14.0	0.15	19980904	26.87230	73.88607	241.28574	5.42519	0.1195331	3.1855365	15	1	11 days	0.85		Williams	1998 RU_{36}
1998 RE_{37}	14.5	0.15	19980904	325.94411	112.81941	289.76538	5.11890	0.2127161	3.0221549	15	1	11 days	0.60		Williams	1998 RE_{37}
1998 RF_{37}	16.5	0.15	19980904	320.24402	184.27568	218.58438	5.50226	0.1595433	2.1905224	12	1	11 days	0.84		Williams	1998 RF_{37}
1998 RL_{37}	16.0	0.15	19980904	5.00212	36.96772	304.49089	4.37807	0.2008968	2.5292479	18	1	26 days	0.69		Williams	1998 RL_{37}
1998 RP_{37}	13.5	0.15	19980904	155.84043	275.52862	275.41978	4.32588	0.1090498	3.2182367	12	1	11 days	0.79		Williams	1998 RP_{37}
1998 SA	14.5	0.15	19980904	29.85454	129.94684	197.09075	4.29206	0.2361736	2.4991114	12	1	11 days	0.21		Williams	1998 SA
1998 SC	13.5	0.15	19980904	142.99565	162.70857	44.25324	10.66698	0.2382891	2.6988506	12	1	6 days	0.42		Williams	1998 SC
1998 SG	14.5	0.15	19980904	57.02924	291.94663	341.88712	8.68879	0.1713897	2.7954365	15	1	4 days	0.51		Williams	1998 SG
1998 SO	21.0	0.15	19980904	165.51365	359.79650	176.19128	30.31934	0.6984121	0.7313578	63	1	11 days	0.61		Williams	1998 SO
1998 SP	14.5	0.15	19980904	305.38136	59.21963	19.57075	5.30865	0.0742451	2.9472053	10	1	6 days	0.60	E	Williams	1998 SP

1998 SQ	12.0	0.15	19980904	319.11728	250.38170	182.28681	0.89984	0.0929442	5.2699155	12	1	6 days	0.28		E Williams	1998 SQ
1998 SR	17.0	0.15	19980904	290.04620	93.25307	24.57443	2.92045	0.2869580	2.5254395	9	1	4 days	0.39		E Williams	1998 SR
1998 ST	16.5	0.15	19980904	27.22266	307.48332	27.28436	1.53232	0.1307669	2.2098479	9	1	4 days	0.21		E Williams	1998 ST
1998 SU	16.0	0.15	19980904	52.48536	274.83436	38.73042	2.29556	0.1207723	3.0246030	9	1	4 days	0.20		E Williams	1998 SU
1998 SV	17.5	0.15	19980904	40.51918	292.03574	23.64651	2.69472	0.1721537	2.3136893	9	1	4 days	0.28		E Williams	1998 SV
1998 SW	17.5	0.15	19980904	20.47955	287.35127	45.61092	1.17460	0.2413241	2.2078169	9	1	4 days	0.16		E Williams	1998 SW
1998 SX	16.5	0.15	19980904	5.17012	345.19217	22.90086	6.86799	0.0226027	2.2514588	9	1	4 days	0.15		E Williams	1998 SX
1998 SY	16.0	0.15	19980904	356.78567	349.46798	29.01846	4.56155	0.1741231	2.7409437	9	1	4 days	0.15		E Williams	1998 SY
1998 SZ	15.5	0.15	19980904	34.30388	155.73759	177.71982	1.85791	0.1363559	3.0224235	9	1	4 days	0.17		E Williams	1998 SZ
1998 SA_1	14.0	0.15	19980904	358.21196	214.70043	164.72945	1.37596	0.1917795	3.1602308	12	1	6 days	0.21		E Williams	1998 SA_1
1998 SB_1	15.0	0.15	19980904	276.88898	78.25401	31.00372	6.39772	0.0512257	3.0872210	9	1	4 days	0.21		E Williams	1998 SB_1
1998 SD_1	17.5	0.15	19980904	332.41466	219.70075	188.61469	5.88110	0.1507076	2.2916893	9	1	4 days	0.26		E Williams	1998 SD_1
1998 SF_1	15.0	0.15	19980904	55.11673	111.14089	190.67485	5.73814	0.1814970	2.6024950	9	1	4 days	0.12		E Williams	1998 SF_1
1998 SG_1	16.0	0.15	19980904	310.78334	264.79255	177.21256	2.25761	0.1745281	2.6035384	9	1	4 days	0.24		E Williams	1998 SG_1
1998 SM_1	14.5	0.15	19980904	46.23102	112.73496	199.55391	29.15538	0.2067378	2.9914015	9	1	4 days	0.90		E Williams	1998 SM_1
1998 SO_1	15.0	0.15	19980904	22.76375	183.39867	150.19093	1.49237	0.2874484	2.9631780	9	1	4 days	0.21		E Williams	1998 SO_1
1998 SP_1	16.0	0.15	19980904	64.02647	133.46941	137.01390	6.21541	0.1945863	2.2599653	12	1	7 days	0.44		Williams	1998 SP_1
1998 SQ_1	15.5	0.15	19980904	263.83836	39.14393	77.87994	5.80780	0.1900723	2.5494032	12	1	6 days	0.14		Williams	1998 SQ_1
1998 SU_1	18.0	0.15	19980904	6.31032	268.80077	76.76214	4.53854	0.2028916	2.2117217	9	1	6 days	0.12		Williams	1998 SU_1
1998 SV_1	14.5	0.15	19980904	325.88929	315.91655	83.83133	6.46987	0.0577820	2.7697143	15	1	6 days	0.20		Williams	1998 SV_1
1998 SY_1	16.0	0.15	19980904	38.00287	175.39585	134.96325	7.27693	0.1445433	3.1305339	12	1	6 days	0.23		Williams	1998 SY_1
1998 SZ_1	18.5	0.15	19980904	333.96155	259.54813	137.86441	5.86422	0.2406037	2.3482317	9	1	3 days	0.14		E Williams	1998 SZ_1
1998 SA_2	17.0	0.15	19980904	307.97984	355.57644	87.43048	5.66753	0.2841978	2.6085859	9	1	6 days	0.14		Williams	1998 SA_2
1998 SB_2	16.5	0.15	19980904	32.95660	135.69401	182.49993	4.72849	0.1310543	2.1181345	11	1	10 days	0.27		Williams	1998 SB_2
1998 SD_2	12.5	0.15	19980904	111.63252	339.06669	187.41679	17.96255	0.0949512	3.2642735	20	1	9 days	0.56		Williams	1998 SD_2
1998 SE_2	16.0	0.15	19980904	19.77073	86.47541	231.79233	23.03779	0.2721244	2.3509836	11	1	6 days	0.46		Williams	1998 SE_2
1998 SG_2	19.5	0.15	19980706	333.12873	219.55116	152.45713	2.50286	0.4586557	2.2458128	102	1	46 days	0.60	M-v 6	Williams	1998 SG_2
1998 SH_2	21.0	0.15	19980904	10.65844	259.94198	14.27727	2.47859	0.7176763	2.6935058	48	1	10 days	0.79		Williams	1998 SH_2
1998 SJ_2	17.5	0.15	19980924	9.83867	332.13231	9.10155	10.32641	0.4999688	2.3276169	64	1	15 days	0.59		Nakano	1998 SJ_2
1998 SK_2	13.5	0.15	19980904	5.68996	320.36940	30.25973	1.44812	0.2149530	3.1631607	20	1	12 days	0.28		Williams	1998 SK_2
1998 SL_2	14.5	0.15	19980924	339.54017	67.37394	328.96529	6.12742	0.2698247	2.5504198	40	1	20 days	0.66		Williams	1998 SL_2
1998 SP_2	17.0	0.15	19980904	353.05865	197.21142	155.99449	9.86944	0.3837088	2.6506291	56	1	30 days	0.74		Williams	1998 SP_2
1998 SR_2	12.5	0.15	19980904	192.28998	232.92445	335.75602	26.28493	0.2500397	2.9666765	15	1	2 days	0.95		E Williams	1998 SR_2
1998 SS_2	13.0	0.15	19980924	45.57905	57.61085	259.21368	12.35834	0.1804775	2.5754316	16	1	16 days	0.42		Nakano	1998 SS_2
1998 ST_2	14.0	0.15	19980924	5.88644	70.94031	295.49432	12.61749	0.0804576	2.5514222	15	1	11 days	0.79		Williams	1998 ST_2
1998 SU_2	15.5	0.15	19980904	29.07544	333.58460	354.92482	1.54526	0.1108468	2.7106756	12	1	12 days	1.38		Williams	1998 SU_2
1998 SV_2	17.0	0.15	19980904	1.66877	35.83677	313.02351	26.32811	0.3545779	2.4633513	25	1	4 days	0.64		Marsden	1998 SV_2
1998 SW_2	15.5	0.15	19980924	3.39355	61.81044	298.41093	24.36852	0.1717543	2.3096514	13	1	9 days	0.75		Williams	1998 SW_2
1998 SX_2	16.0	0.15	19980904	50.24537	79.82210	203.16411	9.49678	0.2750347	2.3829729	32	1	9 days	1.21		Williams	1998 SX_2
1998 SY_2	17.0	0.15	19980924	30.59385	98.68339	214.67720	0.75903	0.2888260	2.2451810	10	1	10 days	0.80		E Williams	1998 SY_2
1998 SZ_2	14.5	0.15	19980904	16.57609	237.50122	97.56373	13.04242	0.1288709	2.7917362	12	1	8 days	0.21		Williams	1998 SZ_2
1998 SA_3	16.0	0.15	19980904	6.75987	276.30230	63.76755	12.09253	0.3061896	2.7954239	15	1	8 days	0.28		Williams	1998 SA_3
1998 SB_3	14.0	0.15	19980904	191.61710	15.80170	156.34861	31.18302	0.0740321	2.7003535	12	1	8 days	0.32		Williams	1998 SB_3
1998 SC_3	17.5	0.15	19980904	1.62797	194.38668	158.20654	10.10596	0.1995146	2.3198199	9	1	7 days	0.54		Williams	1998 SC_3
1998 SF_3	17.0	0.15	19980904	28.47258	275.95506	40.69650	6.84176	0.1673676	2.4500912	9	1	5 days	0.10		Williams	1998 SF_3
1998 SG_3	16.0	0.15	19980904	286.89021	47.13031	34.65237	10.78717	0.0800576	2.9876446	9	1	5 days	0.15		Williams	1998 SG_3
1998 SK_3	17.0	0.15	19980904	143.33576	138.21273	68.36607	6.12146	0.1789532	2.3756560	9	1	5 days	0.18		Williams	1998 SK_3
1998 SL_3	17.0	0.15	19980904	19.24545	278.28950	58.17746	6.72979	0.0857660	2.8506642	9	1	5 days	0.15		Williams	1998 SL_3
1998 SN_3	16.0	0.15	19980904	261.11452	20.34327	91.06452	5.95303	0.1023065	2.7290355	9	1	5 days	0.10		Williams	1998 SN_3
1998 SO_3	16.0	0.15	19980904	273.93401	26.15483	80.64797	6.77379	0.1607542	3.1587994	9	1	5 days	0.12		Williams	1998 SO_3
1998 SD_4	18.5	0.15	19980924	31.10413	144.00206	181.89554	13.68666	0.1255291	1.5155953	71	1	19 days	0.75		Marsden	1998 SD_4
1998 SE_4	14.0	0.15	19980904	1.87396	357.98736	6.30230	10.67741	0.1233727	2.9957763	8	1	5 days	0.13		Marsden	1998 SE_4
1998 SF_4	16.0	0.15	19980904	22.17646	331.48152	3.30298	4.28103	0.1463868	2.6204913	8	1	5 days	0.17		Marsden	1998 SF_4

1998 SG_4	15.5	0.15	19980904	130.61106	279.97261	294.55984	3.02901	0.1128131	2.1712913	35	1	3 days	0.78			Williams	1998 SG_4
1998 SJ_4	15.5	0.15	19980904	309.40998	31.93078	28.68792	1.76240	0.2088206	2.4322194	16	1	8 days	0.36			Williams	1998 SJ_4
1998 SK_4	16.5	0.15	19980904	345.49984	225.20841	144.09025	1.88940	0.1923115	2.4001298	8	1	5 days	0.16			Marsden	1998 SK_4
1998 SL_4	15.5	0.15	19980904	42.25323	314.21775	346.47342	1.89976	0.1969622	2.1794698	8	1	5 days	0.13			Marsden	1998 SL_4
1998 SM_4	15.0	0.15	19980904	352.11888	168.37739	204.24541	1.68784	0.2187127	2.4017145	12	1	7 days	0.92			Marsden	1998 SM_4
1998 SP_4	18.5	0.15	19980904	339.93923	219.35211	181.13345	16.14535	0.2966177	2.8979747	8	1	2 days	0.24			Williams	1998 SP_4
1998 SR_4	15.5	0.15	19980924	285.85994	251.08023	212.24464	6.26890	0.2052427	2.3506630	11	1	9 days	0.45			Williams	1998 SR_4
1998 SS_4	21.5	0.15	19980924	0.90702	174.26941	180.95184	9.59918	0.5130231	2.2858259	35	1	12 days	0.76			Nakano	1998 SS_4
1998 ST_4	16.4	0.15	19980706	314.23854	206.96551	239.43088	9.28848	0.5971627	2.8189863	32	1	38 days	0.68	M-v	6	Nakano	1998 ST_4
1998 SU_4	21.0	0.15	19980904	41.90302	241.75118	350.79698	23.40436	0.5843805	1.1553076	31	1	4 days	0.56			Williams	1998 SU_4
1998 SV_4	17.8	0.15	19980924	169.63574	359.44221	177.29432	53.10356	0.6420252	0.8159928	79	1	12 days	0.66			Nakano	1998 SV_4
1998 SX_4	13.5	0.15	19980904	6.61902	186.12382	173.97033	11.82624	0.1269050	3.1990108	12	1	7 days	0.30			Williams	1998 SX_4
1998 SY_4	16.5	0.15	19980904	3.57668	242.36662	114.16870	3.01423	0.2062386	2.4571089	12	1	7 days	0.54			Williams	1998 SY_4
1998 SZ_4	16.5	0.15	19980904	0.27572	235.25881	126.38952	3.26829	0.1885014	2.3715376	12	1	7 days	0.40			Williams	1998 SZ_4
1998 SB_5	16.0	0.15	19980904	23.13883	331.18875	355.53531	12.85256	0.1692854	2.6011118	10	1	6 days	0.24			Williams	1998 SB_5
1998 SC_5	16.5	0.15	19980904	277.39609	190.70464	248.43667	19.45460	0.0772984	1.9471807	6	1	6 days	0.39			Williams	1998 SC_5
1998 SE_5	16.5	0.15	19980904	3.50641	96.81002	250.03811	19.75370	0.3607326	3.0393754	7	1	3 days	0.47			Williams	1998 SE_5
1998 SG_5	14.0	0.15	19980904	351.61765	179.84117	183.32378	12.64989	0.1743181	2.6632859	20	1	11 days	0.31			Williams	1998 SG_5
1998 SH_5	17.0	0.15	19980904	319.50009	221.74041	182.73832	5.04410	0.1667687	2.6133507	12	1	10 days	0.35			Williams	1998 SH_5
1998 SK_5	15.0	0.15	19980904	235.43662	315.40259	176.26485	18.70449	0.1888515	3.1642203	12	1	10 days	0.42			Williams	1998 SK_5
1998 SM_5	14.5	0.15	19980904	170.17954	2.79653	176.13688	16.66266	0.2383526	2.5817826	17	1	9 days	0.89			Williams	1998 SM_5
1998 SN_5	17.5	0.15	19980904	323.11893	221.94291	171.24980	4.27268	0.0628284	2.7577311	9	1	4 days	0.30		E	Williams	1998 SN_5
1998 SX_5	14.5	0.15	19980924	315.58471	224.92775	167.62712	6.84519	0.0446783	2.7923917	12	1	10 days	0.18			Williams	1998 SX_5
1998 SA_6	16.0	0.15	19980904	303.64460	238.50264	165.79099	2.62806	0.0693970	2.8957452	9	1	5 days	0.62			Williams	1998 SA_6
1998 SE_6	15.5	0.15	19980904	143.38624	31.22822	162.05428	4.75427	0.0876577	2.4156028	9	1	5 days	0.28			Williams	1998 SE_6
1998 SF_6	16.0	0.15	19980904	313.39951	240.45492	161.06879	2.66064	0.1353511	2.4070747	9	1	5 days	0.12			Williams	1998 SF_6
1998 SG_6	17.0	0.15	19980924	310.35430	60.15532	350.52940	6.38487	0.1289655	2.4063581	12	1	9 days	0.19			Williams	1998 SG_6
1998 SO_6	16.5	0.15	19980924	135.02402	232.82917	335.49030	4.60807	0.0123940	2.7164600	12	1	9 days	0.34		E	Williams	1998 SO_6
1998 SQ_6	14.5	0.15	19980904	25.52471	134.05300	177.40871	1.97640	0.0644721	2.9171925	20	1	31 days	0.82			Williams	1998 SQ_6
1998 SR_6	15.5	0.15	19980904	15.69193	155.93958	165.78616	11.16224	0.0903467	3.0939878	15	1	37 days	0.74			Williams	1998 SR_6
1998 SS_6	15.5	0.15	19980924	172.81034	6.29335	164.65192	15.74930	0.0793402	2.8685682	11	1	10 days	0.27			Williams	1998 SS_6
1998 ST_6	17.0	0.15	19980904	359.48409	174.85388	167.26946	9.16313	0.2277471	2.8251862	9	1	5 days	0.20			Williams	1998 ST_6
1998 SZ_6	16.5	0.15	19980904	348.87969	109.19425	259.50908	0.56849	0.2826224	2.8502753	8	1	6 days	0.30			Williams	1998 SZ_6
1998 SA_7	15.0	0.15	19980904	144.01589	220.51755	345.06652	5.36450	0.0094834	2.7124704	8	1	3 days	0.13		E	Williams	1998 SA_7
1998 SD_7	16.0	0.15	19980904	324.41807	201.44876	207.02198	0.94628	0.2586623	3.1363654	8	1	3 days	0.10		E	Williams	1998 SD_7
1998 SE_7	17.5	0.15	19980904	5.91475	130.64063	210.80868	0.29020	0.1105425	2.1207301	8	1	6 days	0.51		E	Williams	1998 SE_7
1998 SF_7	19.0	0.15	19980904	27.94192	311.61124	353.56612	2.90938	0.2212477	2.1781929	11	1	6 days	0.25			Williams	1998 SF_7
1998 SG_7	16.5	0.15	19980904	99.12667	254.88307	354.00596	12.80821	0.0371317	3.1008178	7	1	3 days	0.39		E	Williams	1998 SG_7
1998 SH_7	16.5	0.15	19980904	288.71010	249.26117	178.53512	3.44641	0.0533483	2.2444938	11	1	6 days	0.18			Williams	1998 SH_7
1998 SJ_7	17.5	0.15	19980924	328.37507	38.47121	354.39654	5.65034	0.0718329	2.4609075	8	1	7 days	0.20			Williams	1998 SJ_7
1998 SK_7	16.5	0.15	19980904	47.96932	119.22592	175.75844	2.59969	0.0841010	2.3404267	8	1	6 days	0.15		E	Williams	1998 SK_7
1998 SM_7	18.0	0.15	19980904	353.60334	184.69688	174.66751	1.24359	0.1344178	2.7013464	11	1	6 days	0.25			Williams	1998 SM_7
1998 SN_7	15.5	0.15	19980904	284.28567	254.32507	178.28703	0.76308	0.0496459	2.3812054	16	1	9 days	0.73		E	Williams	1998 SN_7
1998 SO_7	18.0	0.15	19980924	23.55202	325.74536	356.67787	4.71002	0.1969622	2.3273630	8	1	7 days	0.26			Williams	1998 SO_7
1998 SP_7	17.5	0.15	19980904	8.19414	168.06685	170.43503	0.80390	0.1481556	2.2601881	15	1	9 days	1.57		E	Williams	1998 SP_7
1998 SQ_7	18.0	0.15	19980904	43.14850	289.71978	358.60614	3.48376	0.2077766	2.6398450	11	1	6 days	0.22			Williams	1998 SQ_7
1998 SR_7	17.0	0.15	19980924	337.57778	40.72447	357.82634	4.25492	0.2887935	2.4822811	8	1	7 days	0.18			Williams	1998 SR_7
1998 SS_7	17.5	0.15	19980904	187.62928	157.40278	8.40017	1.30763	0.0858284	2.2175023	11	1	6 days	0.25			Williams	1998 SS_7
1998 ST_7	15.0	0.15	19980924	252.04155	117.50501	4.51228	2.28639	0.1669600	2.4045906	10	1	10 days	0.16			Williams	1998 ST_7
1998 SU_7	15.5	0.15	19980904	98.93370	234.19266	358.34788	12.22058	0.2088699	3.0196285	8	1	3 days	0.41		E	Williams	1998 SU_7
1998 SV_7	17.0	0.15	19980904	94.25162	244.04772	0.30311	5.67097	0.1238201	2.4424718	11	1	6 days	0.22			Williams	1998 SV_7
1998 SW_7	18.0	0.15	19980904	337.63207	15.83135	4.07388	3.41597	0.1181340	2.5004270	8	1	3 days	0.29		E	Williams	1998 SW_7
1998 SX_7	12.5	0.15	19980924	146.14746	160.52991	38.67435	0.86120	0.2307735	3.0710984	14	1	13 days	0.30			Williams	1998 SX_7

1998 SY_7	16.5	0.15	19980924	0.29751	307.87127	49.39935	0.59656	0.1921082	3.2209183	14	1	10 days	0.26		Williams	1998 SY_7
1998 SA_8	17.0	0.15	19980904	47.73027	54.80195	234.83571	0.73063	0.2375994	2.5307983	9	1	3 days	0.60	E	Williams	1998 SA_8
1998 SF_8	16.5	0.15	19980924	271.21346	294.65737	192.73372	5.05563	0.2682267	2.5515750	9	1	7 days	0.34	E	Williams	1998 SF_8
1998 SG_8	17.5	0.15	19980904	353.61968	4.43198	3.56970	6.65852	0.1512053	2.2716723	8	1	3 days	0.14	E	Williams	1998 SG_8
1998 SH_8	16.0	0.15	19980904	4.20253	18.16691	332.20426	0.37260	0.2304393	2.2803820	21	1	12 days	0.72		Williams	1998 SH_8
1998 SK_8	15.0	0.15	19980904	264.95648	294.40793	190.12988	14.07150	0.2159768	2.7882494	9	1	6 days	0.18		Williams	1998 SK_8
1998 SN_8	17.0	0.15	19980924	111.93637	56.97330	189.28785	4.53291	0.1071498	2.2024120	12	1	7 days	0.24		Williams	1998 SN_8
1998 SO_8	16.5	0.15	19980904	354.51779	182.96966	185.59406	8.54621	0.2946405	2.5422632	9	1	6 days	0.76	E	Williams	1998 SO_8
1998 SP_8	17.5	0.15	19980924	341.11820	343.76951	49.33617	0.16993	0.1246731	2.3896676	12	1	7 days	0.22	E	Williams	1998 SP_8
1998 SR_8	17.0	0.15	19980924	34.52316	160.35564	165.46320	0.90654	0.1315258	2.7092862	9	1	7 days	0.25	E	Williams	1998 SR_8
1998 ST_8	18.0	0.15	19980904	8.53350	334.46599	13.22853	3.81726	0.1823492	2.2705499	9	1	3 days	0.16	E	Williams	1998 ST_8
1998 SU_8	16.0	0.15	19980924	69.75115	250.20888	24.70691	1.57858	0.2228650	2.3583954	12	1	7 days	0.13		Williams	1998 SU_8
1998 SV_8	15.0	0.15	19980904	148.34819	65.66992	151.29666	0.91847	0.0915206	3.2488702	9	1	3 days	0.31	E	Williams	1998 SV_8
1998 SW_8	16.5	0.15	19980924	352.58260	193.80377	187.28021	9.09219	0.1045426	3.0202481	12	1	7 days	0.28		Williams	1998 SW_8
1998 SX_8	14.0	0.15	19980904	4.47695	170.66169	186.75052	13.39336	0.1795996	2.6870755	18	1	11 days	0.93		Williams	1998 SX_8
1998 SY_8	16.0	0.15	19980924	248.01118	347.75762	154.78110	1.45262	0.1887881	2.7408488	9	1	7 days	0.26	E	Williams	1998 SY_8
1998 SZ_8	15.0	0.15	19980904	13.25030	334.25485	13.92259	14.94951	0.1600263	3.1076833	20	1	6 days	0.48	E	Williams	1998 SZ_8
1998 SA_9	16.5	0.15	19980924	328.34215	354.46082	61.88640	0.94528	0.1762210	3.0336214	12	1	7 days	0.19		Williams	1998 SA_9
1998 SC_9	16.0	0.15	19980904	37.80818	298.66906	15.91140	6.60043	0.1471615	2.4516665	19	1	8 days	0.65		Williams	1998 SC_9
1998 SD_9	24.0	0.15	19980706	60.02060	6.26202	167.16269	2.90302	0.5039428	0.7029987	26	1	4 days	0.89	M-v 9	Williams	1998 SD_9
1998 SF_9	14.0	0.15	19980924	29.10729	248.37819	66.87632	0.60211	0.3298231	3.2573744	25	1	12 days	0.81		Williams	1998 SF_9
1998 SH_9	14.5	0.15	19980904	291.66927	263.97394	187.11806	5.23986	0.1380037	2.7252174	10	1	8 days	0.42		Williams	1998 SH_9
1998 SJ_9	16.0	0.15	19980904	1.60003	349.78268	5.93370	1.84002	0.2356341	2.1913122	9	1	8 days	0.17		Williams	1998 SJ_9
1998 SK_9	14.0	0.15	19980924	302.75319	154.68040	290.74217	1.19061	0.1467340	2.3955277	15	1	14 days	0.74		Williams	1998 SK_9
1998 SM_9	13.5	0.15	19980904	319.26126	225.91448	199.01550	9.48164	0.1828184	2.7586228	9	1	8 days	0.15		Williams	1998 SM_9
1998 SN_9	16.0	0.15	19980924	2.73537	157.11776	209.51845	2.01671	0.2122032	2.3525384	12	1	14 days	0.23		Williams	1998 SN_9
1998 SO_9	13.5	0.15	19980924	342.52785	193.21000	202.34244	5.35986	0.1025529	2.8086591	12	1	14 days	0.27		Williams	1998 SO_9
1998 SR_9	14.5	0.15	19980904	340.93944	295.30466	92.13868	4.43835	0.0390998	2.7221343	9	1	9 days	0.22		Williams	1998 SR_9
1998 SS_9	13.0	0.15	19980904	196.95443	38.54419	138.75549	5.84737	0.2174792	2.3195053	12	1	8 days	0.75		Williams	1998 SS_9
1998 SU_9	14.0	0.15	19980904	248.52121	111.53936	41.05980	9.43062	0.3736273	2.4053247	12	1	8 days	0.64		Williams	1998 SU_9
1998 SV_9	13.0	0.15	19980904	36.04196	153.84730	162.88177	1.79356	0.1061635	3.1036502	16	1	9 days	0.66		Williams	1998 SV_9
1998 SW_9	13.5	0.15	19980904	17.07676	217.69039	126.61193	1.43953	0.1428936	3.0987161	20	1	8 days	0.60		Williams	1998 SW_9
1998 SX_9	15.0	0.15	19980904	6.06507	162.67764	184.12708	6.03165	0.3255333	2.5951578	21	1	12 days	0.48		Williams	1998 SX_9
1998 SY_9	15.5	0.15	19980904	305.30763	198.51915	230.57687	1.34862	0.2030771	2.3717007	24	1	11 days	0.84		Williams	1998 SY_9
1998 SZ_9	15.0	0.15	19980924	292.58179	193.00104	248.31192	24.90985	0.1850805	2.2647955	11	1	7 days	0.78		Williams	1998 SZ_9
1998 SA_{10}	13.5	0.15	19980924	4.75673	127.60590	214.47946	33.95444	0.2057382	2.8186114	18	1	7 days	0.56		Williams	1998 SA_{10}
1998 SC_{10}	14.0	0.15	19980904	66.82649	266.51361	29.76796	9.11323	0.1810349	2.8817738	12	1	8 days	0.22		Williams	1998 SC_{10}
1998 SE_{10}	16.0	0.15	19980904	87.94924	249.00589	31.20574	8.76765	0.1064025	2.2626291	9	1	7 days	0.15		Williams	1998 SE_{10}
1998 SF_{10}	16.0	0.15	19980904	339.50529	13.98244	33.95618	5.61726	0.1713052	2.5964546	9	1	7 days	0.17		Williams	1998 SF_{10}
1998 SH_{10}	13.5	0.15	19980904	281.74256	72.69056	56.93364	1.06052	0.2486437	2.6847074	9	1	6 days	0.08	E	Williams	1998 SH_{10}
1998 SK_{10}	15.5	0.15	19980904	286.31535	267.15017	213.32513	5.97054	0.1105620	2.6882003	9	1	5 days	0.11		Williams	1998 SK_{10}
1998 SL_{10}	15.0	0.15	19980904	288.74219	262.38464	216.99436	13.26498	0.1357192	2.7319507	9	1	4 days	0.09		Williams	1998 SL_{10}
1998 SM_{10}	14.2	0.15	19980924	295.00204	207.76953	238.69944	12.36967	0.2143682	3.1221630	6	1	4 days	0.44		Nakano	1998 SM_{10}
1998 SO_{10}	14.7	0.15	19980924	45.23291	22.01950	199.97867	41.67451	0.7725549	2.3003855	42	1	13 days	0.48		Nakano	1998 SO_{10}
1998 SP_{10}	16.0	0.15	19980924	352.70903	206.20804	171.67952	15.78033	0.2147790	2.6880865	16	1	9 days	0.63		Williams	1998 SP_{10}
1998 SU_{10}	14.0	0.15	19980904	321.91199	196.37102	200.91894	0.55148	0.1479215	3.1382061	15	1	9 days	0.86		Williams	1998 SU_{10}
1998 SV_{10}	15.5	0.15	19980924	7.15584	184.22912	164.42062	1.59127	0.2462554	2.5294372	11	1	3 days	0.15		Williams	1998 SV_{10}
1998 SW_{10}	16.5	0.15	19980924	31.50126	151.53014	182.89569	12.25475	0.2920078	2.5131513	12	1	5 days	0.28		Williams	1998 SW_{10}
1998 SX_{10}	16.5	0.15	19980904	349.10931	7.00325	28.24239	4.56622	0.2949395	2.7482938	9	1	8 days	0.15		Williams	1998 SX_{10}
1998 SZ_{11}	18.5	0.15	19980924	34.97854	143.14153	175.24662	25.92046	0.1628785	1.9848189	9	1	7 days	0.13		Williams	1998 SZ_{11}
1998 SA_{12}	15.0	0.15	19980924	283.87272	284.45377	206.31223	8.56539	0.2273789	3.1128634	9	1	8 days	0.14		Williams	1998 SA_{12}
1998 SE_{12}	17.0	0.15	19980904	353.03546	2.14707	21.29034	17.76232	0.2911078	2.4366175	9	1	2 days	0.31	E	Williams	1998 SE_{12}
1998 SJ_{12}	14.5	0.15	19980904	79.84412	66.01300	172.93587	2.43439	0.2596152	2.4503585	15	1	9 days	0.61		Williams	1998 SJ_{12}

1998 SK_{12}	16.5	0.15	19980924	354.62176	185.74703	183.20583	8.38155	0.2572730	2.3546280	28	1	19 days	0.49		Williams	1998 SK_{12}
1998 SL_{12}	13.0	0.15	19980924	227.30700	357.65315	162.22451	2.96958	0.1876270	2.7715544	13	1	4 days	1.26	E	Williams	1998 SL_{12}
1998 SM_{12}	16.0	0.15	19980904	11.53537	159.64654	181.50161	4.72740	0.2201430	2.1949819	18	1	12 days	0.78		Williams	1998 SM_{12}
1998 SN_{12}	15.5	0.15	19980904	10.89129	64.53178	280.44917	1.23818	0.2290966	2.4805899	12	1	9 days	0.60		Williams	1998 SN_{12}
1998 SO_{12}	16.5	0.15	19980904	304.20955	62.98100	5.02209	19.70734	0.0960970	1.9418415	22	1	12 days	0.86		Williams	1998 SO_{12}
1998 SP_{12}	15.0	0.15	19980924	331.23078	117.76475	289.99754	24.82700	0.1913383	2.3137836	11	1	7 days	0.65		Williams	1998 SP_{12}
1998 ST_{12}	17.0	0.15	19980924	359.64823	80.38030	292.00887	15.75911	0.3845856	3.0108855	8	1	3 days	0.43		Williams	1998 ST_{12}
1998 SU_{12}	16.0	0.15	19980924	344.08870	247.96339	157.04544	21.05603	0.3087296	2.3673740	7	1	2 days	0.26		Williams	1998 SU_{12}
1998 SV_{12}	13.5	0.15	19980924	317.90888	280.03106	159.34613	28.71454	0.1545683	3.2352141	7	1	2 days	0.45		Williams	1998 SV_{12}
1998 SW_{12}	14.5	0.15	19980924	8.20885	309.68952	49.51148	33.86447	0.3122910	2.7077246	7	1	2 days	0.14		Williams	1998 SW_{12}
1998 SY_{12}	14.5	0.15	19980924	69.34926	172.79966	107.62263	14.63334	0.1380348	2.5489118	12	1	9 days	0.25		Williams	1998 SY_{12}
1998 SZ_{12}	14.5	0.15	19980924	57.79383	207.96670	90.17761	13.46923	0.0664278	2.6873185	11	1	8 days	0.76		Williams	1998 SZ_{12}
1998 SA_{13}	14.0	0.15	19980924	179.65189	346.31256	292.54577	14.33499	0.0386052	2.7552451	7	1	3 days	0.28	E	Williams	1998 SA_{13}
1998 SB_{13}	16.0	0.15	19980924	54.36490	149.17006	147.94092	6.49036	0.1834653	2.1983110	11	1	3 days	0.46		Williams	1998 SB_{13}
1998 SD_{13}	16.5	0.15	19980924	66.10053	147.11428	143.64892	6.59811	0.1353382	2.3612541	6	1	3 days	0.41		Williams	1998 SD_{13}
1998 SH_{13}	18.5	0.15	19980924	346.98267	354.90324	31.44404	7.93061	0.2597005	2.5291986	9	1	7 days	0.09		Williams	1998 SH_{13}
1998 SV_{13}	16.0	0.15	19980904	333.34317	355.06390	32.97810	4.07995	0.2887140	2.5785701	15	1	8 days	0.61		Williams	1998 SV_{13}
1998 SW_{13}	14.5	0.15	19980904	18.61378	161.26614	149.69941	15.56533	0.2291178	2.8238940	15	1	8 days	0.38		Williams	1998 SW_{13}
1998 SR_{14}	15.0	0.15	19980924	336.80126	346.80512	54.25796	5.51176	0.1489413	2.4362187	18	1	13 days	0.77		Williams	1998 SR_{14}
1998 SS_{14}	16.0	0.15	19980904	356.70936	284.23838	82.92730	4.13572	0.2861866	2.6572204	9	1	7 days	0.27		Williams	1998 SS_{14}
1998 SU_{14}	15.5	0.15	19980904	17.93987	264.84025	79.46127	4.47532	0.1669339	2.5461483	9	1	6 days	0.41		Williams	1998 SU_{14}
1998 SV_{14}	15.0	0.15	19980924	137.65108	141.53247	93.52175	4.91242	0.0766802	2.2172587	12	1	13 days	0.41		Williams	1998 SV_{14}
1998 SX_{14}	15.0	0.15	19980904	45.23577	306.16962	344.31647	13.31361	0.1725600	2.9653401	15	1	11 days	0.73		Williams	1998 SX_{14}
1998 SY_{14}	20.0	0.15	19980904	343.27013	21.83974	40.08946	3.51392	0.6612055	2.8174363	24	1	4 days	0.67		Williams	1998 SY_{14}
1998 SZ_{14}	19.5	0.15	19980924	1.77410	270.65549	80.50677	5.67172	0.4859851	2.4376565	29	1	7 days	0.76		Williams	1998 SZ_{14}
1998 SA_{15}	19.5	0.15	19980904	323.47484	330.66894	114.98732	7.17378	0.5604217	1.9231324	20	1	4 days	0.50		Williams	1998 SA_{15}
1998 SB_{15}	20.3	0.15	19980924	302.54846	67.55506	6.88913	15.60148	0.1607856	1.2252940	53	1	10 days	0.49		Nakano	1998 SB_{15}
1998 SC_{15}	19.0	0.15	19980924	287.16889	277.32967	198.82326	16.13445	0.4158610	1.2752625	54	1	8 days	0.61		Nakano	1998 SC_{15}
1998 SD_{15}	18.3	0.15	19980924	107.44311	35.80869	184.00777	26.83344	0.3451719	0.9326948	110	1	8 days	0.68		Nakano	1998 SD_{15}
1998 SG_{15}	15.0	0.15	19980924	254.72416	175.83373	306.81783	1.76033	0.1285636	2.3974031	6	1	7 days	0.46		Williams	1998 SG_{15}
1998 SJ_{15}	15.0	0.15	19980904	65.21857	284.12781	344.42430	6.80611	0.1457311	2.6653663	15	1	9 days	1.10		Williams	1998 SJ_{15}
1998 SN_{15}	15.5	0.15	19980904	325.38423	170.91429	217.45848	1.35575	0.0462319	2.9198964	9	1	11 days	0.36		Williams	1998 SN_{15}
1998 SP_{15}	16.5	0.15	19980904	154.60699	343.03587	211.16779	1.42734	0.0485801	2.8622441	9	1	11 days	0.15		Williams	1998 SP_{15}
1998 SQ_{15}	16.5	0.15	19980904	302.65937	207.31423	218.95763	1.13111	0.1749799	2.5408707	9	1	11 days	0.26		Williams	1998 SQ_{15}
1998 SR_{15}	16.0	0.15	19980904	55.40786	33.44038	253.40796	0.79673	0.0879347	2.9458125	9	1	11 days	0.25		Williams	1998 SR_{15}
1998 SS_{15}	16.5	0.15	19980904	3.15885	40.40921	305.39586	0.89856	0.1009797	2.3373301	17	1	13 days	1.00		Williams	1998 SS_{15}
1998 SX_{15}	17.5	0.15	19980904	59.40474	100.06324	178.76548	4.30613	0.1209869	2.5259588	9	1	10 days	0.61		Williams	1998 SX_{15}
1998 SY_{15}	12.5	0.15	19980904	205.07275	198.54326	319.55736	1.05816	0.2645108	3.0056984	14	1	9 days	0.49		Williams	1998 SY_{15}
1998 SB_{16}	16.5	0.15	19980904	223.46628	209.09332	287.91759	0.42684	0.1190663	2.3963300	9	1	11 days	0.23		Williams	1998 SB_{16}
1998 SD_{16}	17.5	0.15	19980904	260.68985	102.17967	356.77092	2.50522	0.0692472	2.3342749	9	1	11 days	0.19	E	Williams	1998 SD_{16}
1998 SF_{16}	16.0	0.15	19980904	312.49888	230.98131	177.85117	1.75454	0.0942185	2.8736699	9	1	11 days	0.13		Williams	1998 SF_{16}
1998 SH_{16}	15.5	0.15	19980904	147.10653	198.97010	358.40067	2.75010	0.1811725	2.7982768	9	1	11 days	0.17	E	Williams	1998 SH_{16}
1998 SO_{16}	15.5	0.15	19980904	7.05174	342.47488	8.38760	1.54428	0.0934914	2.6429080	8	1	8 days	0.27	E	Williams	1998 SO_{16}
1998 SX_{16}	14.5	0.15	19980904	167.97117	12.70469	178.95264	6.90449	0.1374737	2.3742686	12	1	8 days	0.64	E	Williams	1998 SX_{16}
1998 SC_{17}	14.5	0.15	19980904	294.10104	333.23899	116.06979	2.06991	0.1586817	3.1222301	12	1	8 days	0.46	E	Williams	1998 SC_{17}
1998 SF_{17}	16.5	0.15	19980904	22.65360	258.99414	62.18618	1.95801	0.2573265	2.4609087	12	1	8 days	0.38		Williams	1998 SF_{17}
1998 SG_{17}	14.5	0.15	19980904	94.92937	174.41343	88.35592	2.41749	0.0805374	3.0203494	12	1	8 days	0.60	E	Williams	1998 SG_{17}
1998 SM_{17}	16.0	0.15	19980904	346.59315	217.29765	164.27184	4.85060	0.1845126	2.5985411	12	1	8 days	0.37		Williams	1998 SM_{17}
1998 SQ_{18}	14.5	0.15	19980904	14.70262	172.15110	170.39141	6.32110	0.1365599	2.4274071	12	1	8 days	0.23		Williams	1998 SQ_{18}
1998 ST_{18}	17.0	0.15	19980904	356.13362	189.82166	181.22508	15.57379	0.1427933	2.8764994	9	1	6 days	0.29		Williams	1998 ST_{18}
1998 SV_{18}	17.0	0.15	19980904	8.12372	185.63300	163.47136	5.23675	0.1655782	2.1775979	9	1	6 days	0.23		Williams	1998 SV_{18}
1998 SM_{19}	16.0	0.15	19980904	45.44005	284.62079	7.91787	16.96421	0.2474060	2.6312064	16	1	8 days	1.08		Williams	1998 SM_{19}
1998 SS_{19}	15.0	0.15	19980904	317.81770	129.56197	272.69389	0.80188	0.2130030	2.6877571	12	1	12 days	0.17		Williams	1998 SS_{19}

1998 ST_{19}	15.5	0.15	19980904	278.91162	240.54433	200.63861	1.28838	0.1703727	2.5878155	9	1	6 days	0.24		Williams	1998 ST_{19}
1998 SU_{19}	16.5	0.15	19980904	346.10454	185.95370	171.54696	5.54070	0.1079191	3.2180107	9	1	6 days	0.23		Williams	1998 SU_{19}
1998 SW_{19}	16.5	0.15	19980924	309.87742	218.96304	191.66971	0.62061	0.1361671	2.5673956	12	1	9 days	0.28		Williams	1998 SW_{19}
1998 SX_{19}	15.5	0.15	19980924	94.51326	56.45796	182.56082	0.82645	0.1059978	2.9859369	9	1	7 days	0.17	E	Williams	1998 SX_{19}
1998 SY_{19}	18.5	0.15	19980924	346.31914	21.71579	346.19736	3.93001	0.1445956	2.2805067	9	1	7 days	0.70		Williams	1998 SY_{19}
1998 SA_{20}	17.0	0.15	19980924	43.59546	310.59282	344.25004	1.13116	0.1200363	2.2419924	12	1	9 days	0.23		Williams	1998 SA_{20}
1998 SC_{20}	17.5	0.15	19980924	90.39197	90.79774	159.40490	1.12569	0.0732775	2.1953894	11	1	9 days	0.20		Williams	1998 SC_{20}
1998 SE_{20}	15.0	0.15	19980904	334.84860	206.40641	177.66563	7.83088	0.1414814	2.9976551	16	1	12 days	0.91		Williams	1998 SE_{20}
1998 SF_{20}	19.0	0.15	19980904	326.59664	219.17192	187.03453	1.47503	0.2760717	2.5042381	8	1	6 days	0.19		Williams	1998 SF_{20}
1998 SG_{20}	16.5	0.15	19980904	338.26735	200.61496	178.62848	4.29748	0.1410720	2.6689361	8	1	6 days	0.15		Williams	1998 SG_{20}
1998 SH_{20}	17.0	0.15	19980924	42.67232	302.83155	354.78784	11.97466	0.1741699	3.1024569	8	1	7 days	0.32		Williams	1998 SH_{20}
1998 SK_{20}	17.5	0.15	19980924	12.27831	162.66933	173.66336	5.45452	0.2608802	3.0478472	11	1	10 days	0.23		Williams	1998 SK_{20}
1998 SM_{20}	19.0	0.15	19980924	334.81708	210.88441	181.68951	5.53020	0.1815405	2.2055454	9	1	5 days	0.18		Williams	1998 SM_{20}
1998 SO_{20}	17.0	0.15	19980924	325.58943	54.37476	352.22603	4.26019	0.1919853	2.2981225	9	1	6 days	0.12		Williams	1998 SO_{20}
1998 SQ_{20}	17.0	0.15	19980924	111.56468	235.50836	0.51018	4.88874	0.0967264	2.6273517	9	1	6 days	0.19	E	Williams	1998 SQ_{20}
1998 SR_{20}	16.5	0.15	19980924	299.10175	62.61146	358.27585	16.42232	0.0276371	3.0449953	9	1	6 days	0.19	E	Williams	1998 SR_{20}
1998 ST_{20}	17.0	0.15	19980924	287.96974	279.22555	166.16824	2.67463	0.1349611	2.5791719	8	1	5 days	0.21	E	Williams	1998 ST_{20}
1998 SW_{20}	17.5	0.15	19980924	316.15274	229.16512	191.60795	8.10879	0.0937377	2.7314698	9	1	6 days	0.14	E	Williams	1998 SW_{20}
1998 SY_{20}	17.0	0.15	19980924	280.15421	274.30943	191.75684	4.95735	0.1467828	2.5860350	9	1	6 days	0.56	E	Williams	1998 SY_{20}
1998 SA_{21}	18.0	0.15	19980924	20.30498	130.83010	203.98117	0.58835	0.2338665	2.4388171	9	1	6 days	0.18	E	Williams	1998 SA_{21}
1998 SB_{21}	18.0	0.15	19980924	326.51787	195.34395	216.03718	0.31813	0.1317463	2.3278940	9	1	6 days	0.21	E	Williams	1998 SB_{21}
1998 SC_{21}	15.5	0.15	19980924	242.82806	303.63755	191.24837	10.95346	0.0660216	3.3601772	9	1	6 days	0.30	E	Williams	1998 SC_{21}
1998 SE_{21}	17.0	0.15	19980924	61.62439	109.69928	186.20801	2.90317	0.1248065	2.8242705	9	1	6 days	0.26	E	Williams	1998 SE_{21}
1998 SF_{21}	17.0	0.15	19980924	343.86848	205.24655	184.30042	4.45138	0.0583890	2.7522849	9	1	6 days	0.24	E	Williams	1998 SF_{21}
1998 SH_{21}	17.5	0.15	19980924	71.84760	244.00195	31.53107	2.05622	0.2083838	2.5393324	9	1	6 days	0.15	E	Williams	1998 SH_{21}
1998 SK_{21}	14.0	0.15	19980904	102.84792	54.48558	190.23907	18.68986	0.2166731	2.8290817	13	1	3 days	0.65	E	Williams	1998 SK_{21}
1998 SL_{21}	15.0	0.15	19980924	302.57687	179.69721	270.99000	2.31436	0.1014742	3.1342309	11	1	10 days	0.61		Williams	1998 SL_{21}
1998 SM_{21}	15.5	0.15	19980924	127.03774	291.74823	313.60676	1.95090	0.1152588	2.4390359	14	1	10 days	0.86		Williams	1998 SM_{21}
1998 SN_{21}	17.0	0.15	19980924	66.25047	312.74277	346.27065	2.76332	0.1252080	2.1903671	11	1	10 days	0.30		Williams	1998 SN_{21}
1998 SO_{21}	16.0	0.15	19980924	56.81882	313.44698	345.97322	2.51844	0.2065250	2.2106903	11	1	10 days	0.30		Williams	1998 SO_{21}
1998 SP_{21}	16.0	0.15	19980924	18.58159	103.33661	239.38731	1.79142	0.2868505	2.4547435	8	1	6 days	0.60	E	Williams	1998 SP_{21}
1998 SQ_{21}	16.5	0.15	19980924	42.16899	318.65912	0.98104	4.32464	0.1869951	2.3363552	11	1	10 days	0.24		Williams	1998 SQ_{21}
1998 SR_{21}	15.0	0.15	19980924	275.35179	269.13743	213.05278	6.66683	0.1420427	2.3790939	8	1	6 days	0.14	E	Williams	1998 SR_{21}
1998 SU_{21}	15.0	0.15	19980904	246.12659	288.02156	185.71079	3.25140	0.1157757	2.2767094	15	1	11 days	0.81		Williams	1998 SU_{21}
1998 SW_{21}	15.0	0.15	19980904	331.40749	35.36381	353.62833	7.78380	0.1988364	2.4268929	17	1	11 days	0.37		Williams	1998 SW_{21}
1998 SB_{22}	14.5	0.15	19980924	62.22930	101.30976	196.18569	5.23483	0.1303170	2.4140108	12	1	7 days	0.41		Williams	1998 SB_{22}
1998 SC_{22}	14.0	0.15	19980924	52.52867	119.05243	195.93550	3.32351	0.0621481	2.2734988	21	1	7 days	0.59		Williams	1998 SC_{22}
1998 SF_{22}	16.0	0.15	19980904	3.30100	105.62776	237.25253	3.34233	0.1807497	2.3548483	20	1	11 days	0.63		Williams	1998 SF_{22}
1998 SJ_{22}	12.0	0.15	19980924	49.70938	299.61218	353.25667	12.97670	0.1690928	3.0634695	14	1	15 days	0.79		Williams	1998 SJ_{22}
1998 SK_{22}	13.5	0.15	19980904	321.19173	212.33643	186.34426	6.78544	0.0611570	3.1675547	12	1	12 days	0.74	E	Williams	1998 SK_{22}
1998 SN_{22}	13.5	0.15	19980904	227.97619	311.11499	191.43226	12.39034	0.0631956	2.6827410	12	1	12 days	0.38		Williams	1998 SN_{22}
1998 SP_{22}	12.5	0.15	19980924	143.77033	218.28280	2.64747	7.10196	0.0810464	2.7280561	9	1	9 days	0.78	E	Williams	1998 SP_{22}
1998 SS_{22}	15.5	0.15	19980924	350.36642	22.02775	358.94147	6.85297	0.1283575	2.4262676	15	1	17 days	0.57		Williams	1998 SS_{22}
1998 SY_{22}	14.5	0.15	19980924	16.66618	157.26326	207.42473	10.52310	0.0625548	2.9039329	7	1	7 days	0.20		Williams	1998 SY_{22}
1998 SB_{24}	16.0	0.15	19980904	311.49466	9.65184	40.52674	4.76504	0.1118101	2.2389925	17	1	10 days	0.90		Williams	1998 SB_{24}
1998 SD_{24}	16.0	0.15	19980924	43.18405	295.68668	25.39953	19.56337	0.0864564	1.8839877	13	1	5 days	0.44		Williams	1998 SD_{24}
1998 SG_{24}	15.5	0.15	19980904	308.97922	347.61001	62.31465	3.88259	0.0810059	2.4035325	14	1	10 days	0.41		Williams	1998 SG_{24}
1998 SH_{24}	17.5	0.15	19980904	350.80515	236.85802	127.61523	3.11283	0.2285444	2.3548185	16	1	10 days	0.79		Williams	1998 SH_{24}
1998 SM_{24}	15.0	0.15	19980904	319.06433	356.79796	45.40841	3.46336	0.1048264	2.6531259	21	1	10 days	0.78		Williams	1998 SM_{24}
1998 SO_{24}	16.5	0.15	19980904	339.15682	255.62275	126.34385	3.38483	0.2046579	2.3220378	14	1	10 days	0.87		Williams	1998 SO_{24}
1998 SU_{24}	14.0	0.15	19980904	294.74318	4.66335	73.34907	4.99160	0.0808105	2.2727500	12	1	7 days	0.51		Williams	1998 SU_{24}
1998 SB_{25}	16.0	0.15	19980904	357.79796	327.95559	37.15918	5.22940	0.1997929	2.3963473	9	1	6 days	0.51	E	Williams	1998 SB_{25}
1998 SC_{25}	15.0	0.15	19980924	135.44039	192.23274	37.91209	6.11611	0.0817394	2.2389540	12	1	12 days	0.39		Williams	1998 SC_{25}

1998 SR_{25}	16.0	0.15	19980924	13.21397	278.25644	73.27864	4.99798	0.2490341	2.6244679	9	1	9 days	0.18		Williams	1998 SR_{25}
1998 SZ_{25}	15.0	0.15	19980924	265.77262	333.15828	164.92217	6.59982	0.2904041	2.3381027	9	1	3 days	0.46		Williams	1998 SZ_{25}
1998 SM_{26}	15.5	0.15	19980924	0.17803	51.64459	318.49156	1.01808	0.2159476	3.0812631	8	1	5 days	0.13		Marsden	1998 SM_{26}
1998 SN_{26}	14.0	0.15	19980904	62.47934	323.98400	320.93728	5.24778	0.0479688	3.1218835	17	1	12 days	0.57		Williams	1998 SN_{26}
1998 SR_{26}	15.0	0.15	19980904	302.01314	229.81266	206.63384	8.87492	0.1642626	2.7639784	12	1	13 days	0.32		Williams	1998 SR_{26}
1998 SS_{26}	14.0	0.15	19980924	330.70497	61.93013	17.21821	13.96628	0.1529578	2.5535608	10	1	4 days	0.08		Williams	1998 SS_{26}
1998 SU_{26}	14.0	0.15	19980924	224.46611	290.92043	297.50838	18.67861	0.3281381	1.9850645	9	1	6 days	0.29		Williams	1998 SU_{26}
1998 SW_{26}	15.0	0.15	19980904	283.04420	97.39180	359.82193	4.81714	0.1224019	2.2093427	9	1	8 days	0.34		Williams	1998 SW_{26}
1998 SZ_{26}	15.5	0.15	19980924	17.34554	161.32474	182.41809	5.01078	0.1876114	2.2773447	13	1	10 days	0.56		Williams	1998 SZ_{26}
1998 SB_{27}	15.5	0.15	19980904	2.63527	316.94511	39.27307	1.39924	0.1747951	2.1910171	14	1	4 days	0.35	E	Williams	1998 SB_{27}
1998 SF_{27}	14.5	0.15	19980904	282.67394	284.97545	162.00220	1.68974	0.1553023	2.4355850	16	1	10 days	0.69		Williams	1998 SF_{27}
1998 SG_{27}	13.0	0.15	19980924	324.12902	115.59990	270.17049	12.10048	0.2445987	3.9142725	19	1	8 days	0.36	E	Williams	1998 SG_{27}
1998 SH_{27}	16.5	0.15	19980924	346.11882	313.65072	95.49497	6.09763	0.1858132	2.3219303	9	1	5 days	0.29		Williams	1998 SH_{27}
1998 SJ_{27}	18.0	0.15	19980924	22.28752	323.77012	7.32941	24.60853	0.2053647	2.1582164	11	1	4 days	0.54		Williams	1998 SJ_{27}
1998 SL_{27}	16.0	0.15	19980924	351.38688	75.05663	302.04454	21.08194	0.2250093	2.9716725	8	1	3 days	0.65	E	Williams	1998 SL_{27}
1998 SN_{27}	13.5	0.15	19980924	267.27633	220.07711	271.21875	26.72506	0.1976866	2.5124075	8	1	2 days	0.44	E	Williams	1998 SN_{27}
1998 SR_{27}	15.0	0.15	19980924	340.42453	133.12205	270.45223	23.00373	0.2634298	2.3633191	9	1	5 days	0.85		Williams	1998 SR_{27}
1998 ST_{27}	19.5	0.15	19980924	226.07554	322.38451	197.68765	20.96831	0.5290984	0.8192626	59	1	7 days	0.75		Marsden	1998 ST_{27}
1998 SU_{27}	18.8	0.15	19980924	339.81793	169.04429	271.92633	7.12724	0.5981855	2.1515753	62	1	8 days	0.65		Nakano	1998 SU_{27}
1998 SV_{27}	13.5	0.15	19980924	343.56574	271.58369	113.01934	16.22072	0.0676310	3.2106041	12	1	9 days	0.40		Williams	1998 SV_{27}
1998 SW_{27}	14.0	0.15	19980924	325.64434	154.60463	280.91406	15.56496	0.2246743	3.0301264	7	1	2 days	0.65	E	Williams	1998 SW_{27}
1998 SX_{27}	16.5	0.15	19980924	11.11020	275.44404	64.54287	11.83693	0.3032248	2.7449312	14	1	9 days	1.05		Williams	1998 SX_{27}
1998 SZ_{27}	20.5	0.15	19980924	91.17120	47.50184	166.83619	23.42789	0.5038279	0.9032513	24	1	8 days	0.67		Williams	1998 SZ_{27}
1998 SA_{28}	14.0	0.15	19980924	38.55098	285.07628	27.84574	3.78932	0.2957313	3.1498184	8	1	3 days	0.07		Marsden	1998 SA_{28}
1998 SB_{28}	13.0	0.15	19980924	274.10678	116.96129	24.84203	14.66762	0.3055646	3.0104102	8	1	3 days	0.61	E	Marsden	1998 SB_{28}
1998 SU_{28}	16.0	0.15	19980924	297.49188	67.29227	19.06311	9.35699	0.1306645	3.1174463	9	1	13 days	0.34	E	Williams	1998 SU_{28}
1998 SC_{29}	15.0	0.15	19980924	14.86901	321.86290	30.16612	6.21937	0.1123907	3.0855724	9	1	13 days	0.10		Williams	1998 SC_{29}
1998 SQ_{29}	17.5	0.15	19980924	49.48118	259.35001	37.51586	4.86847	0.2299381	2.3416854	9	1	13 days	0.12		Williams	1998 SQ_{29}
1998 SC_{31}	16.5	0.15	19980924	2.64525	356.77835	345.90686	9.35811	0.0649760	3.0820343	9	1	9 days	0.21	E	Williams	1998 SC_{31}
1998 SE_{31}	15.0	0.15	19980924	29.35568	329.59384	345.80523	21.51100	0.0134879	3.1474387	9	1	7 days	0.36	E	Williams	1998 SE_{31}
1998 SH_{31}	16.5	0.15	19980924	7.99450	348.41816	347.90721	17.32136	0.1237886	3.1289307	9	1	9 days	0.23	E	Williams	1998 SH_{31}
1998 SG_{32}	15.5	0.15	19980924	287.84751	83.79526	3.34050	6.18734	0.1515255	2.6739592	9	1	9 days	0.14		Williams	1998 SG_{32}
1998 SH_{32}	17.0	0.15	19980924	65.02013	103.15778	198.73397	20.76768	0.0860640	1.8822401	16	1	6 days	0.87		Williams	1998 SH_{32}
1998 SL_{32}	17.5	0.15	19980924	75.86514	75.74497	173.37369	2.60937	0.1894373	2.4527693	9	1	6 days	0.24	E	Williams	1998 SL_{32}
1998 SO_{32}	15.5	0.15	19980924	219.58236	323.66575	165.99992	6.16564	0.0422761	2.7404137	9	1	6 days	0.16	E	Williams	1998 SO_{32}
1998 SQ_{32}	16.0	0.15	19980924	252.80894	298.74205	161.47291	2.94471	0.0378189	2.3296665	9	1	6 days	0.17	E	Williams	1998 SQ_{32}
1998 SX_{32}	15.0	0.15	19980904	60.20200	239.00256	45.64397	0.95256	0.0850235	2.9694927	19	1	16 days	0.87		Williams	1998 SX_{32}
1998 SY_{32}	16.5	0.15	19980924	325.66328	356.10991	43.71014	0.98494	0.1053878	3.1323752	9	1	7 days	0.21		Williams	1998 SY_{32}
1998 SD_{33}	17.5	0.15	19980904	1.33608	355.34923	0.05360	22.06328	0.0812145	1.9202603	13	1	9 days	0.99		Williams	1998 SD_{33}
1998 SE_{33}	16.5	0.15	19980904	210.70602	333.73926	178.81823	22.00903	0.0383131	1.9387373	13	1	9 days	0.95		Williams	1998 SE_{33}
1998 SX_{33}	16.5	0.15	19980924	43.20021	297.77696	7.49315	24.51870	0.1125832	2.0371277	19	1	3 days	0.74		Williams	1998 SX_{33}
1998 SA_{34}	14.5	0.15	19980924	36.71583	315.39383	354.00621	17.19587	0.2446655	2.7246502	22	1	4 days	0.87		Williams	1998 SA_{34}
1998 SB_{34}	14.0	0.15	19980924	0.63083	11.51928	356.00926	20.05270	0.0447063	2.5822510	18	1	3 days	0.78		Williams	1998 SB_{34}
1998 SH_{34}	15.5	0.15	19980924	73.18178	273.44273	3.92852	24.58934	0.1309859	2.3620643	12	1	2 days	0.74	E	Williams	1998 SH_{34}
1998 SS_{34}	16.0	0.15	19980924	345.54232	17.97593	14.38663	12.82546	0.2694830	2.5189084	16	1	5 days	0.42		Williams	1998 SS_{34}
1998 SE_{35}	19.0	0.15	19980924	357.89598	43.27631	334.62554	14.96535	0.6034004	3.0740885	57	1	8 days	0.66		Marsden	1998 SE_{35}
1998 SF_{35}	17.5	0.15	19980924	285.98739	253.84288	218.76131	35.08345	0.2708215	1.6808331	30	1	8 days	0.79		Marsden	1998 SF_{35}
1998 SG_{35}	11.5	0.15	19980904	239.04204	321.99708	173.01195	14.00763	0.2348102	8.9379449	18	1	17 days	0.80		Williams	1998 SG_{35}
1998 SJ_{35}	17.0	0.15	19980904	0.09578	205.51881	142.40136	2.74830	0.2033910	2.2258714	17	1	14 days	0.95		Williams	1998 SJ_{35}
1998 SK_{35}	14.5	0.15	19980904	26.23749	310.30305	4.52512	6.55847	0.1174509	2.6769616	15	1	14 days	0.53		Williams	1998 SK_{35}
1998 SL_{35}	15.5	0.15	19980904	313.81103	244.99595	164.67959	5.04186	0.1673166	2.2711039	16	1	14 days	0.51		Williams	1998 SL_{35}
1998 SM_{35}	16.0	0.15	19980904	292.71527	295.42339	87.33394	11.44666	0.0625817	2.7048263	5	1	2 days	0.37	E	Williams	1998 SM_{35}
1998 SY_{35}	17.0	0.15	19980924	349.91997	150.25941	228.19412	1.69016	0.1948649	2.3801475	6	1	5 days	0.43		Williams	1998 SY_{35}

1998 SD_{36}	15.5	0.15	19980924	268.00625	66.11327	36.12285	5.48993	0.0961869	2.2355329	23	1	4 days	0.58		Williams	1998 SD_{36}
1998 SE_{36}	19.2	0.15	19980924	130.00188	26.84656	199.29486	11.78968	0.1001821	1.3434933	21	1	6 days	0.69		Nakano	1998 SE_{36}
1998 SF_{36}	18.8	0.15	19980924	105.02891	159.66785	72.84549	1.64213	0.2605009	1.3129448	38	1	5 days	0.61		Nakano	1998 SF_{36}
1998 SG_{36}	15.5	0.15	19980924	138.46892	29.77871	186.65592	24.72641	0.3361062	1.6456451	48	1	14 days	0.73		Nakano	1998 SG_{36}
1998 SH_{36}	20.1	0.15	19980924	290.45460	278.52551	218.16288	2.10761	0.5703846	1.0870746	65	1	5 days	0.63		Nakano	1998 SH_{36}
1998 SJ_{36}	18.0	0.15	19980924	342.33985	30.55486	6.70776	27.68205	0.3586667	2.2023238	44	1	3 days	0.66		Williams	1998 SJ_{36}
1998 SL_{36}	20.5	0.15	19980924	291.76520	116.52557	353.25672	19.15425	0.4197697	1.3945666	16	1	5 days	0.35		Williams	1998 SL_{36}
1998 SK_{37}	15.5	0.15	19980924	128.06118	335.83268	273.52773	1.79533	0.0885701	2.9206749	12	1	10 days	0.62	E	Williams	1998 SK_{37}
1998 SM_{37}	16.5	0.15	19980924	301.19237	102.91949	342.32255	2.14341	0.0374732	2.6136189	12	1	10 days	0.43	E	Williams	1998 SM_{37}
1998 SN_{37}	16.0	0.15	19980924	290.17149	119.80692	347.25434	2.38534	0.1435296	2.3388335	9	1	10 days	0.27		Williams	1998 SN_{37}
1998 SO_{37}	17.0	0.15	19980924	269.03917	120.28712	9.20103	5.24620	0.1313407	2.6399982	12	1	10 days	0.91	E	Williams	1998 SO_{37}
1998 SP_{37}	15.0	0.15	19980904	305.11314	220.02213	218.80775	3.68820	0.0915804	2.3320753	12	1	16 days	0.30		Williams	1998 SP_{37}
1998 SQ_{37}	15.0	0.15	19980924	35.00809	350.57076	345.42270	2.25552	0.1624917	3.0428178	9	1	9 days	0.18		Williams	1998 SQ_{37}
1998 SR_{37}	14.5	0.15	19980904	28.31741	125.39541	216.41062	5.26588	0.1090332	2.6550410	12	1	16 days	0.33		Williams	1998 SR_{37}
1998 SV_{38}	15.5	0.15	19980904	320.02179	213.99613	184.36214	6.29214	0.1073869	2.3537924	15	1	13 days	0.72		Williams	1998 SV_{38}
1998 SZ_{38}	16.5	0.15	19980904	31.09207	80.52850	223.03523	0.78665	0.2107389	2.8267532	13	1	13 days	0.81		Williams	1998 SZ_{38}
1998 SH_{39}	15.0	0.15	19980904	213.25911	146.56189	358.69011	2.54270	0.0919216	2.5611624	15	1	13 days	1.56	E	Williams	1998 SH_{39}
1998 SN_{40}	15.0	0.15	19980904	33.49940	313.75758	5.88365	6.37046	0.0563646	2.8402553	12	1	12 days	0.37		Williams	1998 SN_{40}
1998 SV_{40}	15.5	0.15	19980924	120.26755	239.65452	354.63696	11.43168	0.0534165	3.1553377	9	1	6 days	0.24	E	Williams	1998 SV_{40}
1998 SX_{40}	17.0	0.15	19980924	274.86673	101.15486	355.04397	9.21126	0.0961110	2.6227099	9	1	6 days	0.25	E	Williams	1998 SX_{40}
1998 SN_{41}	14.5	0.15	19980924	172.22271	187.73610	0.67179	17.35455	0.0568569	3.0582095	9	1	6 days	0.15	E	Williams	1998 SN_{41}
1998 SU_{41}	17.5	0.15	19980924	304.67889	64.37299	3.99278	6.42439	0.1075111	2.3523540	9	1	6 days	0.12	E	Williams	1998 SU_{41}
1998 SL_{42}	14.0	0.15	19980924	282.62552	110.28130	335.49303	1.35370	0.0652208	2.6385879	9	1	3 days	0.35	E	Williams	1998 SL_{42}
1998 SM_{42}	17.0	0.15	19980924	280.44533	245.04969	208.20388	1.20442	0.1107162	2.5359961	9	1	3 days	0.43	E	Williams	1998 SM_{42}
1998 SN_{42}	19.5	0.15	19980924	13.58539	341.06193	355.96817	3.11925	0.2658541	2.3264559	9	1	3 days	0.38	E	Williams	1998 SN_{42}
1998 SP_{42}	15.0	0.15	19980924	314.63726	67.21330	350.97254	1.98242	0.1272955	2.2968218	15	1	15 days	0.35		Williams	1998 SP_{42}
1998 SC_{43}	15.5	0.15	19980924	25.73442	281.17066	40.14227	2.74941	0.3079369	2.6370284	13	1	9 days	0.32		Williams	1998 SC_{43}
1998 SE_{43}	14.0	0.15	19980924	170.67102	193.44153	8.41697	6.99757	0.0390216	2.2877894	12	1	16 days	0.47		Williams	1998 SE_{43}
1998 SF_{43}	15.0	0.15	19980924	56.50607	287.86691	6.97408	6.12136	0.1936479	2.2731759	12	1	16 days	0.29		Williams	1998 SF_{43}
1998 SN_{43}	14.0	0.15	19980924	328.15000	359.10863	51.91385	5.22657	0.0813424	2.7333916	15	1	8 days	0.25		Williams	1998 SN_{43}
1998 SR_{43}	12.0	0.15	19980924	282.39693	130.07107	8.06725	2.88080	0.4185602	3.1822988	15	1	7 days	0.37		Williams	1998 SR_{43}
1998 ST_{43}	14.5	0.15	19980924	358.69909	233.01017	139.84914	2.87386	0.2294483	2.3953703	15	1	14 days	0.79		Williams	1998 ST_{43}
1998 SU_{43}	14.5	0.15	19980924	29.80047	329.76545	25.54486	2.56223	0.1783779	2.2272696	9	1	7 days	0.19		Williams	1998 SU_{43}
1998 SV_{43}	14.0	0.15	19980924	6.72274	51.57650	300.32331	14.99230	0.2569106	3.1339058	9	1	5 days	0.38		Williams	1998 SV_{43}
1998 SW_{43}	12.0	0.15	19980924	3.32669	109.52117	246.04112	4.84631	0.2298973	3.9751691	9	1	5 days	0.14		Williams	1998 SW_{43}
1998 SX_{43}	14.5	0.15	19980924	304.89503	247.60868	186.24701	12.17297	0.1647163	2.7907116	9	1	5 days	0.38		Williams	1998 SX_{43}
1998 SC_{44}	17.5	0.15	19980924	8.98065	60.98162	303.85033	1.39604	0.1869441	2.3897113	9	1	10 days	0.18		Williams	1998 SC_{44}
1998 SE_{44}	13.0	0.15	19980904	289.97134	266.54050	171.53710	7.26338	0.1223960	3.1642021	22	1	16 days	0.66		Williams	1998 SE_{44}
1998 SP_{44}	16.0	0.15	19980924	14.91499	320.46919	23.36335	3.61581	0.1892169	2.1668687	9	1	6 days	0.27	E	Williams	1998 SP_{44}
1998 SR_{44}	18.0	0.15	19980924	346.11125	16.89419	14.25322	14.22436	0.2477547	2.8876489	9	1	7 days	0.19		Williams	1998 SR_{44}
1998 ST_{44}	17.5	0.15	19980924	56.42770	76.82203	239.04289	2.51959	0.0870876	2.4487018	8	1	7 days	0.21	E	Williams	1998 ST_{44}
1998 SU_{44}	17.5	0.15	19980924	71.50837	58.11755	236.73851	2.66947	0.1258748	2.3199392	11	1	7 days	0.58	E	Williams	1998 SU_{44}
1998 SA_{46}	17.0	0.15	19980924	0.55057	2.74792	16.04793	7.05521	0.1723076	2.6136414	9	1	6 days	0.20		Williams	1998 SA_{46}
1998 SB_{46}	16.0	0.15	19980924	329.66183	52.62260	14.16898	6.16398	0.2440329	2.3774714	9	1	6 days	0.12		Williams	1998 SB_{46}
1998 SG_{46}	15.0	0.15	19980924	336.43704	44.13185	12.66278	3.25333	0.2257609	2.5756792	9	1	6 days	0.10		Williams	1998 SG_{46}
1998 SJ_{46}	17.0	0.15	19980924	358.95273	2.15226	22.72731	14.00072	0.1263614	3.0651216	9	1	6 days	0.23	E	Williams	1998 SJ_{46}
1998 SK_{46}	16.5	0.15	19980924	347.50197	59.38460	342.84546	0.41334	0.2229342	3.0186673	9	1	6 days	0.31	E	Williams	1998 SK_{46}
1998 SU_{46}	16.0	0.15	19980924	296.50104	92.93989	24.57576	2.97590	0.2784253	2.3194195	9	1	6 days	0.15	E	Williams	1998 SU_{46}
1998 SV_{46}	16.0	0.15	19980924	259.62207	114.27418	27.51239	4.38717	0.1489119	2.5853183	9	1	6 days	0.25	E	Williams	1998 SV_{46}
1998 SG_{47}	15.5	0.15	19980904	322.99408	35.49979	1.47923	6.96886	0.1152150	2.3423717	16	1	16 days	0.51		Williams	1998 SG_{47}
1998 SL_{47}	15.5	0.15	19980924	96.79177	231.60299	15.99553	2.33127	0.1289864	2.2649982	12	1	13 days	0.40		Williams	1998 SL_{47}
1998 SO_{47}	17.0	0.15	19980924	23.10632	132.91156	217.77453	3.32964	0.1402464	2.7650632	9	1	5 days	0.23	E	Williams	1998 SO_{47}
1998 SP_{47}	17.0	0.15	19980924	131.91490	225.34689	17.14185	20.91882	0.0507564	1.9143016	9	1	5 days	0.16		Williams	1998 SP_{47}

1998 SQ_{47}	16.0	0.15	19980924	238.10001	291.55201	232.69113	1.77451	0.2346095	2.3601263	9	1	5 days	0.24		E	Williams		1998 SQ_{47}
1998 SV_{47}	17.5	0.15	19980924	10.56355	154.23822	207.10126	3.26502	0.1973029	2.2402489	9	1	5 days	0.11			Williams		1998 SV_{47}
1998 SW_{47}	15.0	0.15	19980924	199.08912	319.02718	235.37728	1.11089	0.2405180	2.7831625	9	1	5 days	0.28		E	Williams		1998 SW_{47}
1998 SX_{47}	15.5	0.15	19980924	274.08753	115.37994	19.41064	2.90649	0.2167921	2.6190356	9	1	5 days	0.14		E	Williams		1998 SX_{47}
1998 SY_{47}	17.5	0.15	19980924	27.77312	141.62455	207.60736	3.59093	0.0837070	2.4203922	9	1	5 days	0.16		E	Williams		1998 SY_{47}
1998 SF_{48}	15.5	0.15	19980924	356.17264	11.34106	13.45511	7.12411	0.1337922	2.3583613	9	1	4 days	0.10			Williams		1998 SF_{48}
1998 SG_{48}	17.5	0.15	19980924	13.06957	348.40601	12.06547	5.98760	0.1466645	2.1568572	9	1	4 days	0.15			Williams		1998 SG_{48}
1998 SP_{48}	15.5	0.15	19980924	53.66076	85.30382	227.67937	3.49831	0.1522713	2.6801594	9	1	4 days	0.28		E	Williams		1998 SP_{48}
1998 SQ_{48}	16.0	0.15	19980924	212.04306	238.79357	300.79415	1.52625	0.1718379	2.2204771	9	1	4 days	0.41		E	Williams		1998 SQ_{48}
1998 SR_{48}	14.5	0.15	19980924	16.39305	353.25522	5.05211	4.33109	0.1350839	2.4162768	9	1	4 days	0.28		E	Williams		1998 SR_{48}
1998 SS_{48}	17.5	0.15	19980924	17.08423	143.13403	211.69993	6.57259	0.1766488	2.4309549	9	1	4 days	0.27			Williams		1998 SS_{48}
1998 SU_{48}	17.0	0.15	19980924	256.26823	165.76392	343.44274	2.03134	0.2223066	2.2650791	9	1	4 days	0.24		E	Williams		1998 SU_{48}
1998 SV_{48}	17.5	0.15	19980924	0.94631	163.00890	216.59332	4.75583	0.2115465	2.8078337	9	1	4 days	0.35		E	Williams		1998 SV_{48}
1998 SW_{48}	16.5	0.15	19980924	140.14531	229.35394	5.07041	3.91058	0.1718962	2.6097055	9	1	4 days	0.19		E	Williams		1998 SW_{48}
1998 SA_{49}	13.5	0.15	19980904	238.56688	311.81359	172.71887	8.94644	0.1155908	2.7063224	12	1	16 days	0.82		E	Williams		1998 SA_{49}
1998 SB_{49}	14.5	0.15	19980904	200.47202	340.31272	172.32221	5.38272	0.0225145	2.5064787	17	1	16 days	1.29		E	Williams		1998 SB_{49}
1998 SC_{49}	13.5	0.15	19980904	270.45641	287.97379	158.60573	2.41546	0.0371772	2.8621400	22	1	16 days	0.82			Williams		1998 SC_{49}
1998 SF_{49}	13.0	0.15	19980924	297.22122	78.83687	17.93432	2.04544	0.0754283	3.2370855	8	1	6 days	1.35		E	Williams		1998 SF_{49}
1998 SK_{49}	16.0	0.15	19980904	6.34614	102.55349	210.35574	6.28733	0.1857300	2.2419381	12	1	3 days	0.36		E	Williams		1998 SK_{49}
1998 SM_{49}	15.0	0.15	19980924	4.91339	295.00376	74.09871	0.42814	0.2712416	3.2358347	15	1	3 days	0.25		E	Williams		1998 SM_{49}
1998 SN_{49}	17.0	0.15	19980924	295.74886	83.48988	20.85586	4.94937	0.2038704	2.3059107	10	1	2 days	0.40		E	Williams		1998 SN_{49}
1998 SO_{49}	13.5	0.15	19980924	244.72776	320.94245	180.24308	1.60875	0.0554059	2.7492277	9	1	2 days	0.21		E	Williams		1998 SO_{49}
1998 SP_{49}	16.0	0.15	19980924	79.07570	92.73094	193.47422	8.44021	0.1046341	2.1618259	9	1	2 days	0.68		E	Williams		1998 SP_{49}
1998 SQ_{49}	18.0	0.15	19980924	34.35309	257.50821	42.86649	8.22859	0.3919666	2.1853669	20	1	5 days	1.17			Williams		1998 SQ_{49}
1998 SR_{49}	17.5	0.15	19980924	345.56806	54.68011	21.53694	29.11810	0.5285810	2.4427765	30	1	3 days	0.57			Williams		1998 SR_{49}
1998 SS_{49}	16.5	0.15	19980924	322.14373	103.04593	41.54890	10.67256	0.6309200	1.8689948	34	1	3 days	0.46			Williams		1998 SS_{49}
1998 ST_{49}	18.0	0.15	19980924	347.35677	47.47332	18.74744	24.57910	0.5903451	2.2871608	35	1	3 days	0.56			Williams		1998 ST_{49}
1998 SK_{52}	15.0	0.15	19980924	9.75971	336.78124	11.19773	0.04565	0.1840036	3.1402495	12	1	15 days	0.42			Williams		1998 SK_{52}
1998 SK_{53}	14.0	0.15	19980904	63.57682	84.60140	194.70792	14.54451	0.1018986	3.2226928	15	1	11 days	0.71			Williams		1998 SK_{53}
1998 SL_{53}	16.5	0.15	19980904	36.57629	108.39944	191.81503	6.75961	0.1583870	2.2316456	15	1	11 days	0.62			Williams		1998 SL_{53}
1998 SN_{53}	16.0	0.15	19980904	11.41237	357.23614	337.13719	5.39057	0.1427219	2.1770217	16	1	11 days	0.42			Williams		1998 SN_{53}
1998 SO_{53}	14.5	0.15	19980904	349.94710	171.20217	194.14895	9.04833	0.1107006	3.1252243	15	1	11 days	0.76			Williams		1998 SO_{53}
1998 SQ_{53}	14.5	0.15	19980904	352.00638	22.12625	342.95251	13.20679	0.1915319	3.0975363	15	1	11 days	0.38			Williams		1998 SQ_{53}
1998 SS_{53}	14.5	0.15	19980904	325.16956	217.16252	188.49415	9.46498	0.2263434	2.7636434	15	1	11 days	0.31			Williams		1998 SS_{53}
1998 ST_{53}	15.5	0.15	19980904	319.73132	79.33555	335.19365	7.08876	0.2384677	2.5457405	15	1	11 days	0.65			Williams		1998 ST_{53}
1998 SV_{53}	13.5	0.15	19980904	273.68559	242.76041	206.60602	5.96123	0.0999972	3.2170315	15	1	11 days	0.64			Williams		1998 SV_{53}
1998 SW_{53}	16.0	0.15	19980904	51.94530	20.25900	271.02342	2.57630	0.0695849	2.1321469	18	1	11 days	0.60			Williams		1998 SW_{53}
1998 SX_{53}	14.5	0.15	19980904	336.86897	180.17648	198.08269	9.10270	0.0793110	2.7730926	15	1	11 days	0.40			Williams		1998 SX_{53}
1998 SY_{53}	14.5	0.15	19980904	355.76256	163.53915	195.70061	9.63476	0.0916226	2.4613464	16	1	11 days	0.38			Williams		1998 SY_{53}
1998 SE_{55}	13.0	0.15	19980924	264.63444	97.10739	0.11254	13.25317	0.0135552	3.2478975	12	1	15 days	0.50		E	Williams		1998 SE_{55}
1998 SW_{55}	15.5	0.15	19980904	294.14356	74.39046	354.30863	6.28729	0.0984590	2.2384497	16	1	11 days	0.64			Williams		1998 SW_{55}
1998 SX_{55}	14.5	0.15	19980904	265.14225	116.46961	352.42513	14.07153	0.1796071	2.5988636	16	1	11 days	0.70			Williams		1998 SX_{55}
1998 SC_{56}	15.0	0.15	19980904	313.60265	206.07729	206.99852	3.56934	0.1438779	2.6546458	16	1	11 days	0.47			Williams		1998 SC_{56}
1998 SD_{56}	15.0	0.15	19980904	65.52241	289.26453	339.64966	5.39732	0.1630977	2.2095404	16	1	11 days	0.64			Williams		1998 SD_{56}
1998 SE_{56}	15.0	0.15	19980904	41.07704	317.18637	349.52078	16.06353	0.0856135	2.5650677	16	1	11 days	0.95			Williams		1998 SE_{56}
1998 SP_{56}	14.0	0.15	19980904	15.88408	316.57733	16.76847	3.36744	0.1028921	2.7990980	16	1	11 days	0.37			Williams		1998 SP_{56}
1998 SQ_{56}	15.5	0.15	19980904	61.31649	180.03037	91.07905	1.42689	0.1781035	2.3458520	15	1	11 days	0.63			Williams		1998 SQ_{56}
1998 SS_{56}	16.0	0.15	19980904	27.77792	148.10014	162.05936	3.65431	0.2017493	2.4808723	15	1	11 days	1.26		E	Williams		1998 SS_{56}
1998 SC_{63}	12.5	0.15	19980924	319.96423	52.33453	42.57323	9.43183	0.1170111	2.6684474	9	1	6 days	0.19			Williams		1998 SC_{63}
1998 SL_{63}	16.0	0.15	19980904	359.25118	26.44877	324.81446	6.77294	0.1684488	2.2270833	15	1	17 days	0.26			Williams		1998 SL_{63}
1998 ST_{63}	13.5	0.15	19980924	323.39974	201.76541	211.81974	3.19529	0.2070969	2.6127080	15	1	19 days	0.51			Williams		1998 ST_{63}
1998 SU_{63}	16.5	0.15	19980924	345.36225	93.38975	282.77174	12.13428	0.2156221	2.5247711	9	1	5 days	0.21			Marsden		1998 SU_{63}
2023 P-L	13.5	0.15	19980706	22.97862	358.87972	322.76036	0.61655	0.1662327	3.0821886	47	9	1954–1998	0.80	M-v	1	Williams	29141	2023 P-L

2085 P-L	14.0	0.15	19980706	128.97467	192.58346	278.91045	1.00009	0.0267181	2.9038080	22	3	1960–1998	0.51	M-v	6	Williams	32536	2085 P-L
2095 P-L	15.5	0.15	19980706	233.49658	117.61478	330.26012	2.53556	0.1268940	2.6361435	17	5	1960–1998	0.85	M-v	2	Williams	24764	2095 P-L
2110 P-L	15.5	0.15	19980706	6.97265	23.92743	299.96307	1.91412	0.1482430	2.6174978	28	4	1960–1998	0.79	M-v	3	Williams	24409	2110 P-L
2121 P-L	15.5	0.15	19980706	287.26219	63.95634	6.61715	14.52895	0.1843037	2.6197458	36	3	1960–1998	0.95	M-v	4	Williams	22432	2121 P-L
2158 P-L	15.0	0.15	19980706	263.94005	234.06255	206.16573	6.01008	0.1015344	2.4440680	43	3	1960–1998	0.67	M-v	4	Williams	32536	2158 P-L
2208 P-L	15.5	0.15	19980706	284.98662	212.17690	225.27610	4.49472	0.2522839	2.6219308	35	4	1960–1998	0.81	M-v	2	Williams	32536	2208 P-L
2530 P-L	14.5	0.15	19980706	292.89347	35.36611	22.95564	4.68720	0.1313253	2.2877391	39	3	1960–1998	0.62	M-v	5	Williams	32536	2530 P-L
2532 P-L	13.5	0.15	19980706	8.00487	131.35207	189.19928	8.57111	0.2617589	3.0829513	53	6	1960–1998	0.61	M-v	1	Williams	29668	2532 P-L
2551 P-L	14.0	0.15	19980706	350.23391	295.88485	25.68287	1.74088	0.1011604	2.8461001	27	5	1960–1998	0.77	M-v	2	Williams	32502	2551 P-L
2566 P-L	15.0	0.15	19980706	283.47147	238.71987	190.63464	1.94833	0.1843673	2.4412322	40	3	1960–1998	0.78	M-v	4	Williams	32536	2566 P-L
2584 P-L	16.0	0.15	19980706	13.86826	132.76245	194.20241	2.41165	0.2125351	2.6093465	25	4	1960–1998	0.79	M-v	2	Williams	29948	2584 P-L
2590 P-L	15.0	0.15	19980706	47.38122	264.74175	11.09707	4.65902	0.1760177	2.4366087	41	3	1960–1998	0.84	M-v	4	Williams	32536	2590 P-L
2592 P-L	14.0	0.15	19980706	39.50375	73.78041	176.68898	5.25586	0.0867849	2.4567425	25	4	1960–1998	0.67	M-v	2	Williams	32343	2592 P-L
2599 P-L	15.0	0.15	19980706	91.23026	257.39984	193.62699	7.03286	0.1294692	2.5189725	25	4	1960–1998	0.75	M-v	3	Williams	32502	2599 P-L
2600 P-L	16.0	0.15	19980706	0.13891	157.84053	191.01946	1.25724	0.1693626	2.4318573	33	6	1960–1998	0.84	M-v	2	Williams	30094	2600 P-L
2613 P-L	15.5	0.15	19980706	260.64956	220.79439	192.90800	4.51393	0.1477962	3.1268289	20	3	1960–1998	0.42	M-v	4	Williams	32536	2613 P-L
2626 P-L	13.5	0.15	19980706	211.47211	78.36057	154.03736	1.92723	0.0970205	3.0075024	21	5	1954–1997	0.59	M-v	1	Williams	32503	2626 P-L
2643 P-L	14.0	0.15	19980706	137.96254	71.77547	8.62197	21.94663	0.0624036	2.6887622	28	2	1960–1998	0.58	M-v	5	Williams	32503	2643 P-L
2757 P-L	14.0	0.15	19980706	236.70468	307.55079	38.72687	1.41920	0.2148300	3.1852485	34	4	1960–1998	0.91	M-v	3	Williams	32536	2757 P-L
2768 P-L	15.0	0.15	19980706	98.42313	111.32388	126.60483	2.77542	0.1185534	2.6168305	18	3	1960–1998	0.82	M-v	7	Williams	15902	2768 P-L
2785 P-L	15.0	0.15	19980706	350.81074	251.28057	93.22155	2.17017	0.1031939	2.6191408	45	4	1960–1998	0.93	M-v	2	Williams	32536	2785 P-L
2796 P-L	16.0	0.15	19980706	316.56346	247.46594	141.38436	3.27957	0.2247872	2.6189949	21	3	1960–1998	0.94	M-v	5	Williams	15902	2796 P-L
3024 P-L	13.5	0.15	19980706	156.70752	251.50323	291.02469	11.10609	0.1821993	2.6214434	33	4	1960–1998	0.62	M-v	3	Williams	32536	3024 P-L
4026 P-L	13.0	0.15	19980706	60.20790	249.08383	359.76034	13.28516	0.1237856	2.6261840	37	4	1960–1998	0.73	M-v	4	Williams	32536	4026 P-L
4032 P-L	15.0	0.15	19980706	241.21102	125.01619	326.60207	4.95066	0.1283604	2.2951422	26	2	1960–1998	0.70	M-v	5	Williams	32503	4032 P-L
4069 P-L	13.5	0.15	19980706	162.19844	354.91792	202.89448	9.06202	0.0370002	3.0879951	38	6	1952–1998	0.81	M-v	1	Williams	30696	4069 P-L
4073 P-L	15.5	0.15	19980706	57.81176	20.38025	260.96491	2.76417	0.0216941	2.1565830	33	4	1960–1998	0.63	M-v	1	Williams	30696	4073 P-L
4098 P-L	14.5	0.15	19980706	284.66637	248.43866	208.36401	8.34179	0.1210941	2.8155826	15	3	1960–1998	0.73	M-v	4	Williams	27320	4098 P-L
4113 P-L	14.5	0.15	19980706	242.45772	286.00427	204.03319	1.90481	0.1375745	2.4314131	52	7	1949–1998	0.72	M-v	1	Williams	27457	4113 P-L
4115 P-L	15.0	0.15	19980706	291.62292	169.41382	223.56757	1.05788	0.0998267	2.6268551	20	2	1960–1998	0.70	M-v	6	Williams	32503	4115 P-L
4247 P-L	14.5	0.15	19980706	161.56894	303.78239	259.07974	1.27375	0.1297014	2.4251398	37	5	1960–1998	0.89	M-v	2	Williams	24241	4247 P-L
4526 P-L	14.0	0.15	19980706	224.88183	136.21384	358.31984	2.34666	0.1421705	2.4373034	45	4	1960–1998	0.66	M-v	2	Williams	32536	4526 P-L
4587 P-L	15.0	0.15	19980706	348.72096	122.48897	193.47076	2.48151	0.1774452	2.4454659	46	3	1960–1998	0.65	M-v	3	Williams	32536	4587 P-L
4604 P-L	15.5	0.15	19980706	18.26059	305.15189	27.88276	2.32784	0.1147391	2.2795424	23	6	1953–1998	0.74	M-v	2	Williams	31608	4604 P-L
4614 P-L	13.5	0.15	19980706	273.29771	75.39080	15.92941	6.06349	0.0057948	2.8171177	48	8	1951–1998	0.77	M-v	1	Williams	29668	4614 P-L
4665 P-L	14.5	0.15	19980706	341.05741	328.65910	40.55814	4.33159	0.1313303	2.4329873	35	7	1960–1998	0.74	M-v	2	Williams	30293	4665 P-L
4778 P-L	16.0	0.15	19980706	39.35025	87.55102	171.91380	4.50651	0.1208153	2.1655535	25	2	1960–1998	0.57	M-v	5	Williams	32503	4778 P-L
4831 P-L	14.5	0.15	19980706	248.79247	108.94516	12.03518	13.46311	0.1538439	2.6106118	40	5	1960–1998	0.87	M-v	2	Williams	29141	4831 P-L
4845 P-L	14.0	0.15	19980706	290.70940	243.25269	172.01916	10.97841	0.1148834	3.1058475	32	3	1960–1998	0.73	M-v	4	Williams	32536	4845 P-L
6053 P-L	14.5	0.15	19980706	35.43300	84.16351	211.41533	3.31472	0.1959895	2.6097721	37	6	1960–1998	0.73	M-v	1	Williams	30474	6053 P-L
6077 P-L	14.0	0.15	19980706	303.32959	60.40266	343.33588	3.22544	0.0807487	3.0992631	50	3	1960–1998	0.67	M-v	4	Williams	32536	6077 P-L
6105 P-L	14.5	0.15	19980706	339.45748	151.08770	198.95744	11.97336	0.1118948	2.8339382	26	2	1960–1998	0.63	M-v	4	Williams	32504	6105 P-L
6106 P-L	15.0	0.15	19980706	319.60203	55.55753	324.54608	2.51882	0.0818167	2.6169358	30	4	1960–1998	0.73	M-v	2	Williams	27123	6106 P-L
6111 P-L	14.5	0.15	19980706	349.08534	339.51465	352.40272	9.77077	0.1264451	3.0989945	21	2	1960–1998	0.79	M-v	4	Williams	32504	6111 P-L
6217 P-L	13.5	0.15	19980706	113.15293	8.79348	196.70271	16.01534	0.1306091	3.1181369	34	3	1960–1998	0.98	M-v	4	Williams	32536	6217 P-L
6245 P-L	14.5	0.15	19980706	145.54042	14.24040	193.49564	13.02365	0.0853932	2.6057644	25	3	1960–1998	1.01	M-v	5	Williams	22701	6245 P-L
6297 P-L	15.5	0.15	19980706	325.89059	24.92451	0.02167	14.97222	0.0486365	2.6108471	28	3	1960–1998	0.82	M-v	5	Williams	16035	6297 P-L
6335 P-L	13.5	0.15	19980706	76.47763	59.63645	179.97235	0.89459	0.1288303	3.1143821	26	3	1960–1998	0.82	M-v	4	Williams	26912	6335 P-L
6354 P-L	16.5	0.15	19980706	341.95319	189.93884	176.88687	2.53685	0.1891245	2.4327065	30	4	1960–1998	0.85	M-v	2	Williams	26929	6354 P-L
6523 P-L	13.5	0.15	19980706	340.53431	326.54671	13.75160	13.40527	0.1816550	2.6199002	25	4	1960–1998	0.76	M-v	2	Williams	31023	6523 P-L
6581 P-L	10.5	0.15	19980706	332.32505	63.44688	351.00573	4.91692	0.0403547	5.2826449	24	5	1960–1998	0.65	M-v	1	Williams	30696	6581 P-L
6583 P-L	14.5	0.15	19980706	264.65034	274.24354	173.29475	4.14559	0.0984665	2.2847729	45	5	1953–1998	0.58	M-v	2	Williams	30293	6583 P-L
6594 P-L	15.0	0.15	19980706	329.33542	195.79915	177.78081	6.35587	0.0725707	2.4349527	40	3	1960–1998	0.92	M-v	4	Williams	32537	6594 P-L

6607 P-L	14.5	0.15	19980706	141.21347	75.10337	134.43838	3.84869	0.1407684	2.4279081	25	3	1960–1998	0.68	M-v	5	Williams	22087	6607 P-L
6608 P-L	16.0	0.15	19980706	305.18953	43.80117	12.94822	6.05285	0.3088970	2.6178706	58	4	1960–1998	0.91	M-v	3	Williams	32537	6608 P-L
6628 P-L	15.5	0.15	19980706	2.18260	186.54396	158.72103	1.28080	0.1890298	2.4300922	38	5	1960–1998	0.70	M-v	2	Williams	29948	6628 P-L
6634 P-L	14.0	0.15	19980706	248.33328	19.62418	80.88133	3.65164	0.1227029	3.1099548	18	3	1960–1998	0.71	M-v	5	Williams	23130	6634 P-L
6670 P-L	14.5	0.15	19980706	204.18884	119.42347	10.45730	3.95646	0.1314915	2.6239701	18	5	1960–1998	0.76	M-v	2	Williams	32537	6670 P-L
6745 P-L	14.0	0.15	19980706	244.21618	323.85596	139.60324	2.02628	0.1496259	3.1160072	27	4	1960–1998	0.87	M-v	1	Williams	27328	6745 P-L
6761 P-L	13.0	0.15	19980706	246.03807	315.93835	174.80677	9.73450	0.0567748	3.0724976	21	3	1960–1998	0.75	M-v	5	Williams	22087	6761 P-L
7061 P-L	15.0	0.15	19980706	321.14178	178.79291	213.49179	5.55936	0.1289585	2.4338311	26	4	1960–1998	0.95	M-v	2	Williams	30466	7061 P-L
7072 P-L	14.5	0.15	19980706	197.04978	298.43420	196.93014	21.21284	0.0778382	1.9491323	58	4	1960–1998	0.72	M-v	3	Williams	32537	7072 P-L
9518 P-L	14.5	0.15	19980706	47.47451	258.74957	12.74916	2.42645	0.1658554	2.4347017	12	3	1960–1998	0.42	M-v	3	Williams	18132	9518 P-L
9534 P-L	14.5	0.15	19980706	99.91642	63.10327	172.35312	3.21344	0.1320265	2.4311304	44	4	1960–1998	0.62	M-v	3	Williams	29937	9534 P-L
9578 P-L	12.5	0.15	19980706	250.98921	75.75673	3.59087	5.90747	0.1127763	3.1133855	39	4	1960–1998	0.79	M-v	4	Williams	32537	9578 P-L
1064 T-1	16.0	0.15	19980706	114.60037	216.86879	354.31020	4.41587	0.0846966	2.1963831	23	3	1971–1998	0.57	M-v	5	Williams	29314	1064 T-1
1290 T-1	15.5	0.15	19980706	192.39150	282.07340	195.13560	6.18078	0.0682060	2.3942537	29	3	1971–1998	0.96	M-v	4	Williams	30797	1290 T-1
1295 T-1	14.0	0.15	19980706	311.77832	215.51149	193.63370	5.42987	0.0466503	2.9120624	48	6	1953–1998	0.74	M-v	1	Williams	27328	1295 T-1
2104 T-1	15.0	0.15	19980706	107.76831	205.11016	21.99913	2.53557	0.1418066	2.3887232	31	4	1971–1998	0.77	M-v	2	Williams	29668	2104 T-1
2175 T-1	14.5	0.15	19980706	247.18921	302.55594	177.14357	5.79399	0.0888953	2.3592894	31	3	1971–1998	0.76	M-v	4	Williams	24764	2175 T-1
2205 T-1	14.0	0.15	19980706	166.46534	187.37974	7.79390	7.36321	0.0504319	2.3677614	27	5	1971–1998	0.83	M-v	2	Williams	29948	2205 T-1
3024 T-1	14.5	0.15	19980706	141.44763	266.49957	163.66048	0.55692	0.1034679	2.4517132	42	3	1971–1998	0.80	M-v	4	Williams	32537	3024 T-1
3051 T-1	13.5	0.15	19980706	2.26033	111.97510	189.19952	10.95063	0.2050514	2.9950446	34	4	1955–1998	0.92	M-v	3	Williams	32537	3051 T-1
3058 T-1	15.0	0.15	19980706	328.84294	13.29441	352.47946	6.24563	0.1655746	2.1912742	46	5	1971–1998	0.83	M-v	2	Williams	32537	3058 T-1
3119 T-1	15.0	0.15	19980706	149.67695	260.19786	252.11949	1.55280	0.1088638	2.4003093	20	3	1971–1998	0.63	M-v	4	Williams	26415	3119 T-1
3285 T-1	15.0	0.15	19980706	77.09575	297.52260	189.34639	4.85715	0.2111568	2.4523622	32	3	1971–1998	0.80	M-v	3	Williams	32291	3285 T-1
3314 T-1	14.5	0.15	19980706	77.47529	55.45175	194.94561	12.69267	0.1448488	2.6458601	38	2	1971–1998	0.73	M-v	4	Williams	32504	3314 T-1
3329 T-1	13.5	0.15	19980706	315.20197	118.77174	195.91469	9.97614	0.0512846	3.0152453	23	3	1971–1998	0.86	M-v	4	Williams	32291	3329 T-1
4206 T-1	15.0	0.15	19980706	170.70490	37.31417	140.57490	2.75219	0.1747431	2.3763780	22	4	1971–1998	0.75	M-v	3	Williams	29668	4206 T-1
4214 T-1	14.5	0.15	19980706	220.62158	331.41999	153.99036	4.37080	0.1216632	2.6109167	16	4	1971–1998	0.75	M-v	2	Williams	27123	4214 T-1
4321 T-1	14.0	0.15	19980706	192.39987	75.97518	59.70099	2.55051	0.1507559	2.6232830	23	5	1971–1998	0.90	M-v	2	Williams	25652	4321 T-1
4406 T-1	14.5	0.15	19980706	176.28518	143.99178	18.77943	15.05704	0.0084593	2.6249224	29	2	1971–1998	0.92	M-v	4	Williams	32504	4406 T-1
1041 T-2	14.0	0.15	19980706	342.26169	161.67978	175.96202	2.04903	0.1188624	2.9443823	67	5	1973–1998	0.76	M-v	3	Williams	32537	1041 T-2
1083 T-2	14.5	0.15	19980706	225.48192	119.16867	0.18622	2.99576	0.1942530	2.6085782	61	4	1971–1998	0.78	M-v	2	Williams	27457	1083 T-2
1102 T-2	14.5	0.15	19980706	38.09617	78.93703	198.95179	1.58420	0.0731432	2.9496533	31	3	1973–1998	0.97	M-v	4	Williams	30095	1102 T-2
1150 T-2	15.5	0.15	19980706	321.69900	259.43996	44.85593	1.21977	0.1969498	2.3712269	37	3	1973–1998	1.08	M-v	5	Williams	32343	1150 T-2
1157 T-2	15.0	0.15	19980706	139.94435	356.05443	203.63119	2.59804	0.1292397	2.3362076	50	4	1973–1998	0.84	M-v	1	Williams	30294	1157 T-2
1196 T-2	14.5	0.15	19980706	72.85949	241.58902	2.21021	5.10539	0.1492848	2.6001426	39	3	1973–1998	0.89	M-v	4	Williams	32537	1196 T-2
1231 T-2	13.5	0.15	19980706	287.94736	45.53132	9.21445	1.88725	0.0529772	2.9378826	35	3	1973–1998	0.86	M-v	6	Williams	24115	1231 T-2
1237 T-2	14.5	0.15	19980706	227.10990	131.97006	350.39933	1.43530	0.0311094	2.9310705	32	3	1973–1998	0.97	M-v	6	Williams	30914	1237 T-2
1264 T-2	14.0	0.15	19980706	277.10516	38.63473	355.43034	2.18112	0.1258632	2.6213979	29	4	1973–1998	0.81	M-v	2	Williams	32537	1264 T-2
1266 T-2	14.5	0.15	19980706	347.61389	324.87555	352.63325	6.36239	0.0630054	2.3563504	56	4	1973–1998	0.75	M-v	2	Williams	32537	1266 T-2
2039 T-2	14.0	0.15	19980706	119.26099	187.76292	359.87116	6.58961	0.0510088	2.3596613	31	2	1973–1998	0.75	M-v	5	Williams	32504	2039 T-2
2040 T-2	14.0	0.15	19980706	304.17051	205.69074	188.22733	7.28687	0.0179782	2.9410576	65	7	1971–1998	1.01	M-v	2	Williams	32537	2040 T-2
2104 T-2	14.5	0.15	19980706	339.98884	118.85941	251.30152	1.15643	0.1118864	2.9262195	37	3	1973–1998	0.90	M-v	5	Williams	30914	2104 T-2
2108 T-2	15.0	0.15	19980706	37.48812	110.67772	200.19486	3.03185	0.1043369	2.3281685	42	5	1973–1998	0.85	M-v	1	Williams	30294	2108 T-2
2124 T-2	16.0	0.15	19980706	300.94586	95.98454	286.38242	1.61215	0.1635187	2.3518472	24	3	1973–1998	0.87	M-v	5	Williams	32537	2124 T-2
2132 T-2	15.0	0.15	19980706	295.42290	229.47898	189.10967	11.75085	0.0446738	2.9284891	23	3	1973–1998	0.97	M-v	6	Williams	32292	2132 T-2
2168 T-2	14.0	0.15	19980706	319.09525	185.62212	198.24831	1.63461	0.1209117	2.9374032	64	4	1973–1998	0.77	M-v	3	Marsden	32537	2168 T-2
2199 T-2	15.0	0.15	19980706	96.37313	54.70207	181.90264	3.05716	0.0354577	2.6007683	42	4	1973–1998	0.91	M-v	2	Williams	32537	2199 T-2
3013 T-2	13.5	0.15	19980706	235.81949	260.74034	161.84775	4.38740	0.0708188	2.6295938	43	3	1973–1998	0.87	M-v	5	Williams	32344	3013 T-2
3061 T-2	14.0	0.15	19980706	197.27703	197.51121	171.66824	16.74375	0.0045931	3.0849301	21	3	1973–1998	0.84	M-v	4	Williams	32292	3061 T-2
3063 T-2	14.5	0.15	19980706	242.42815	79.43366	9.71105	14.80648	0.0806070	2.6061522	24	3	1973–1998	0.87	M-v	5	Williams	26416	3063 T-2
3118 T-2	15.5	0.15	19980706	15.51820	144.51072	161.50187	6.45536	0.1769888	2.3377967	46	2	1973–1998	0.81	M-v	5	Williams	32505	3118 T-2
3146 T-2	15.5	0.15	19980706	295.10791	311.33945	106.30599	3.72564	0.0683193	2.3327497	39	5	1973–1998	0.93	M-v	1	Williams	26583	3146 T-2
3180 T-2	13.5	0.15	19980706	67.75752	136.04385	114.70204	3.31304	0.0323058	2.9526633	48	4	1973–1998	1.04	M-v	3	Williams	32537	3180 T-2

4149 T-2	16.0	0.15	19980706	314.01688	294.15346	58.34483	2.67991	0.1651516	2.1515653	24	3	1973–1998	0.76	M-v	4	Williams	32293	4149 T-2
4616 T-2	14.0	0.15	19980706	288.87623	170.34289	171.98212	10.24910	0.0104270	3.0107097	19	2	1973–1998	0.94	M-v	6	Williams	32293	4616 T-2
5469 T-2	14.0	0.15	19980706	249.56321	226.15789	252.17277	6.99900	0.0572262	2.3275282	20	5	1954–1998	0.86	M-v	2	Williams	27732	5469 T-2
1036 T-3	14.0	0.15	19980706	260.55016	123.88032	334.13596	9.13563	0.1964423	3.0702336	26	3	1977–1998	0.91	M-v	4	Williams	24910	1036 T-3
1078 T-3	14.0	0.15	19980706	211.11458	267.80356	237.52487	14.04216	0.0700453	2.6115169	15	4	1954–1998	0.97	M-v	3	Williams	30294	1078 T-3
1080 T-3	13.0	0.15	19980706	118.19841	257.39749	332.59323	11.16790	0.1080891	2.6071436	27	4	1977–1998	0.93	M-v	2	Williams	32537	1080 T-3
1177 T-3	12.5	0.15	19980706	146.19633	242.90727	285.31874	7.56651	0.1671783	3.1192776	24	2	1977–1998	0.81	M-v	5	Williams	32505	1177 T-3
2077 T-3	15.5	0.15	19980706	115.95837	210.06758	3.44990	9.06141	0.2017029	2.3197707	32	3	1977–1998	0.99	M-v	4	Williams	30797	2077 T-3
2288 T-3	15.5	0.15	19980706	344.21383	7.47876	351.93002	5.07962	0.1979524	2.3069290	40	4	1977–1998	0.68	M-v	4	Williams	30095	2288 T-3
2676 T-3	15.0	0.15	19980706	59.29525	39.86948	212.16717	3.98443	0.1143514	2.3270567	53	3	1977–1998	0.80	M-v	4	Williams	32505	2676 T-3
3101 T-3	15.0	0.15	19980706	23.26995	285.56329	39.65891	8.49626	0.0976012	2.3024292	31	3	1977–1998	1.02	M-v	5	Williams	20347	3101 T-3
3137 T-3	13.5	0.15	19980706	315.48068	11.44686	24.97363	10.74520	0.1360227	3.0466847	56	4	1977–1998	0.61	M-v	1	Williams	28620	3137 T-3
3149 T-3	16.0	0.15	19980706	252.92455	284.56362	173.81253	1.91909	0.1584939	2.3205303	33	3	1977–1998	0.69	M-v	3	Williams	32537	3149 T-3
3150 T-3	14.5	0.15	19980706	171.97075	255.62973	126.78781	1.32563	0.0821295	2.7766269	43	4	1977–1998	0.85	M-v	2	Williams	32344	3150 T-3
3176 T-3	14.0	0.15	19980706	197.79634	127.82904	51.00392	0.42995	0.0997813	3.0093800	31	5	1977–1998	0.69	M-v	1	Williams	30474	3176 T-3
3226 T-3	14.0	0.15	19980706	279.45428	58.31156	32.50361	11.10786	0.1429380	2.6070709	57	5	1977–1998	0.85	M-v	1	Williams	28620	3226 T-3
3261 T-3	14.0	0.15	19980706	68.89679	201.41863	71.93318	1.30010	0.0681104	3.0418055	20	3	1977–1998	0.82	M-v	4	Williams	26913	3261 T-3
3268 T-3	16.0	0.15	19980706	187.19583	319.20552	205.59093	5.88058	0.0424792	2.3092465	27	4	1977–1998	0.67	M-v	4	Williams	30294	3268 T-3
3378 T-3	15.0	0.15	19980706	199.97246	8.17593	137.99961	0.87841	0.1599202	2.3231471	57	4	1977–1998	0.89	M-v	5	Williams	32537	3378 T-3
3424 T-3	15.0	0.15	19980706	355.77558	175.77403	152.37926	2.29425	0.0317998	2.6327045	63	5	1971–1998	0.88	M-v	2	Williams	32538	3424 T-3
3449 T-3	13.0	0.15	19980706	250.05770	312.01394	36.48243	6.84845	0.1684486	3.1818176	32	4	1977–1998	0.82	M-v	2	Williams	32294	3449 T-3
3517 T-3	14.5	0.15	19980706	311.27133	353.40599	34.41875	2.05522	0.1109363	2.6220868	36	3	1977–1998	0.82	M-v	5	Williams	24410	3517 T-3
4012 T-3	13.5	0.15	19980706	5.17377	285.56773	41.10056	10.63831	0.0702545	3.0535580	22	3	1977–1998	0.59	M-v	3	Williams	29315	4012 T-3
4032 T-3	15.0	0.15	19980706	315.99436	325.83202	54.96082	4.68528	0.1767594	2.3160805	41	4	1949–1998	0.80	M-v	4	Williams	32538	4032 T-3
4064 T-3	13.5	0.15	19980706	316.77766	217.61835	171.19292	10.94697	0.1076607	3.0488229	42	3	1977–1998	0.75	M-v	3	Williams	32538	4064 T-3
4072 T-3	14.0	0.15	19980706	243.28293	294.08691	159.48352	5.86885	0.1331314	3.0844799	28	2	1977–1998	0.80	M-v	5	Williams	32505	4072 T-3
4140 T-3	14.5	0.15	19980706	218.85868	34.81062	116.40989	5.89905	0.1737978	2.6066522	30	4	1977–1998	0.86	M-v	2	Williams	27929	4140 T-3
4197 T-3	14.0	0.15	19980706	333.40633	290.29468	69.84244	4.67630	0.1133125	2.6228532	41	4	1977–1998	0.74	M-v	2	Williams	30095	4197 T-3
4203 T-3	14.0	0.15	19980706	175.80350	4.92714	185.61100	13.01224	0.1040762	2.5978850	29	4	1960–1998	0.83	M-v	3	Williams	27117	4203 T-3
4333 T-3	12.5	0.15	19980706	94.56547	224.51245	139.00500	4.95454	0.0889164	3.4554887	29	4	1977–1997	0.77	M-v	1	Williams	31270	4333 T-3
4391 T-3	16.5	0.15	19980706	348.52331	240.51251	96.55761	5.10031	0.2852734	2.3108432	34	5	1949–1998	1.07	M-v	4	Williams	25540	4391 T-3
5041 T-3	13.0	0.15	19980706	62.39473	118.41046	152.29384	11.72217	0.0982018	3.0488523	42	4	1977–1998	1.04	M-v	2	Williams	30696	5041 T-3
5170 T-3	13.5	0.15	19980706	159.89370	25.40936	153.38497	10.91619	0.1773497	2.6365801	40	4	1977–1998	0.77	M-v	2	Williams	27732	5170 T-3

1998 FT_{12} = 1997 YX_4 (A. Doppler)
1998 OU_{14} = 1998 NH_1 (G. V. Williams)
1998 QD_{26} = 1998 QD_{51} (G. V. Williams)
1998 QS_{56} = 1998 QC_{59} (G. V. Williams)

NEW NAMES OF MINOR PLANETS

(3297) Hong Kong = 1978 WN_{14}

Discovered 1978 Nov. 26 at the Purple Mountain Observatory.

Named for the island and city in southeast Asia, a key center of international finance and trade.

(3543) Ningbo = 1964 VA_3

Discovered 1964 Nov. 11 at the Purple Mountain Observatory.

Named for the historic Chinese port city, birthplace of the Neolithic Hemudu culture, dating back 7000 years and symbolized by oars and rice. It is also a birthplace of modern Chinese industry.

(3570) Wuyeesun = 1979 XO

Discovered 1979 Dec. 14 at the Purple Mountain Observatory.

Named in honor of Wu Yeesun, a famous bonsai artist, who has been engaged in research on the art of bonsai for many years and who is regarded as a representative of the Lingnan School. His book *Potted Landscape of Wennong*, published in 1969, is the most highly regarded Chinese-English bilingual volume on the subject, and it has exerted a great influence in the bonsai art circles of the world.

(3960) Chaliubieju = 1955 BG

Discovered 1955 Jan. 20 at the Purple Mountain Observatory.

Named in honor of Cha Liubieju, a friend of the discoverer. She devotes her every effort to caring for and educating sick and destitute mothers and children in China.

(4168) Millan = 1979 EE

Discovered 1979 Mar. 6 at the Felix Aguilar Observatory.

Named in memory of Julio Rodolfo Millan (1923–1995), first rector of the San Juan National University at the time that the old Yale-Columbia Southern Station was transferred there. Trained as a mining engineer and known for his research on the promotion and development of mining in Argentina, Millan was a professor of metallurgy and later a dean at Cuyo National University, prior to his being appointed organizing delegate of the San Juan National University on its creation in 1973.

(4566) Chaokuangpiu = 1981 WM_4

Discovered 1981 Nov. 27 at the Purple Mountain Observatory.

Named in honor of Kuang-Piu Chao, consulting professor at Tsinghua University and Zhejiang University. For many years, he made remarkable contributions to the development of Chinese educational and cultural programs.

(4651) Wongkwancheng = 1957 UK_1

Discovered 1957 Oct. 31 at the Purple Mountain Observatory.

Named in memory of Kwan-cheng Wong (1907–1986), a leader in Chinese industrial and commercial circles. Wong was devoted to educational and social welfare projects all his life. The K. C. Wong Education Foundation he established has supported thousands of Chinese scholars studying abroad.

(5155) Denisyuk = 1972 HR

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

Named in honor of academician Yurij Nikolaevich Denisyuk (b. 1927), head of a laboratory at the Ioffe Physical and Technical Institute in St. Petersburg and a member of the Royal Photographic Society, known worldwide for his discoveries in holography. Name suggested by the Institute of Applied Astronomy.

(5156) Golant = 1972 KL

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

Named in honor of academician Victor Evgen'evich Golant (b. 1928), director of the department of plasma physics, atomic physics and astrophysics at the Ioffe Physical and Technical Institute in St. Petersburg. Golant is widely known for his work in the fields of controlled thermonuclear fusion, interaction of electromagnetic waves with plasma, transfer processes, plasma diagnostics and heating of plasma in tokamaks. Name suggested by the Institute of Applied Astronomy.

(5453) Zakharchenya = 1975 VS_5

Discovered 1975 Nov. 3 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Named in honor of academician Boris Petrovich Zakharchenya (b. 1928), outstanding Russian scientist, director of a department in the Ioffe Physical and Technical Institute in St. Petersburg. Zakharchenya is well known for his investigations in the fields of solid state physics, magneto-optics and optical orientation of electrons and nuclei in semiconductors. Name suggested by the Institute of Applied Astronomy.

(5862) Sakanoue = 1983 AB

Discovered 1983 Jan. 13 by T. Seki at Geisei.

Named in honor of Tsutomu Sakanoue (b. 1921), professor emeritus of Kyushu University whose specialties included agricultural meteorology, countermeasures against meteorological disasters, medical meteorology and rainmaking. An amateur astronomer with particular interests in atmospheric seeing, the green flash and shadow bands, he contributed to the popularization of astronomy as an advisor at several science museums. He also served as vice president and president of the Oriental Astronomical Association. Name proposed by the discoverer following a suggestion by S. Murayama, T. Sato and A. Fujii.

(6447) Terrycole = 1990 TO_1

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

Named in honor of Terry Cole, chief technologist at the Jet Propulsion Laboratory and senior faculty associate in the Caltech Division of Chemistry and Chemical Engineering. In addition to his numerous technical contributions to JPL and Caltech, Cole played a central role in the development of the Caltech/JPL Summer Undergraduate Research Fellowship (SURF) program through his vision while chairing the SURF Fellowship Executive Committee.

(6449) Kudara = 1991 CL_1

Discovered 1991 Feb. 7 by T. Seki at Geisei.

Named in memory of Kyoyu Kudara (1894–1964), Japanese astronomer and Buddhist priest. A staff member of the Tokyo Astronomical Observatory from 1917 to 1925, he recovered comet 10P/Tempel 2 in 1920 according to his own prediction, and he observed this comet again in 1925. Later he taught positional astronomy and the science of the calendar at Kyoto University. One of the cofounders of the Oriental Astronomical Association, he served as its president from 1959 to 1964. Name proposed by the discoverer following a suggestion by I. Hasegawa and T. Sato. Citation by I. Hasegawa.

(6458) Nouda = 1992 TD_1

Discovered 1992 Oct. 2 by T. Seki at Geisei.

Named in memory of Tadasuke Nouda (1901–1989), Japanese astronomer. A pioneer in the field of ancient Chinese astronomy, he made important contributions to the study of early luni-solar calendars. He was a professor at the Osaka University of Education and Kyoto Sangyo University. He served as president of the Japan Calendar Association (1959–1989) and of the Oriental Astronomical Association (1965–1989). Name proposed by the discoverer following a suggestion by I. Hasegawa and T. Sato. Citation by I. Hasegawa.

(6529) Rhoads = 1993 XR_2

Discovered 1993 Dec. 14 at Palomar.

Named in honor of R. Rhoads Stephenson for his significant contributions to the advancement of technology needed and used for the exploration of outer space by robotic spacecraft. A mechanical engineer by training, he was a deputy director at the California Institute of Technology Jet Propulsion Laboratory, where he was responsible for the development and application of technology which broadly supports the United States space exploration mission. He has published in the areas of earth-based tracking and orbit determination, orbit evaluation techniques, spacecraft attitude and articulation control, flight computers, telerobotics, space power and electric propulsion.

(6711) Holliman = 1989 HG

Discovered 1989 Apr. 30 by E. F. Helin at Palomar.

Named in memory of John Holliman (1948–1998), a national correspondent for CNN, the U.S. Cable News Network. Holliman reported extensively on the role of the Jet Propulsion Laboratory in space exploration. Specifically, he served as the network's lead reporter for the Pathfinder mission to Mars, anchoring CNN's continous coverage of the landing and mission as the spacecraft beamed live video of the planet's surface. Holliman possessed a special ability to make the complex and complicated process of space exploration understandable and accessible to his viewers.

(6925) Susumu = 1993 UW_2

Discovered 1993 Oct. 24 by T. Seki at Geisei.

Named in honor of Augustin Susumu Yamamoto (b. 1915), agronomist and director of the Yamamoto Observatory and, from 1988 to 1994, chairman of the board of directors of the Oriental Astronomical Association, which maintains its headquarters there. He published a *Catalogue of Cometary Orbits* in 1936. His father was the

astronomer Issei Yamamoto. Name proposed by the discoverer following a suggestion by I. Hasegawa and T. Sato.

(6980) Kyusakamoto = 1993 SV_1

Discovered 1993 Sept. 16 by K. Endate and K. Watanabe at Kitami.

Named in memory of Kyu Sakamoto (1941–1985), a popular singer in Japan who was beloved as Kyu-chan. His songs "Let's walk turning our faces upward", "Look up at the stars at night" and others were big hits. The first song (English title "Sukiyaki") became one of the world's bestsellers. This planet also symbolizes the famous trio of which Kyu Sakamoto was a member, with songwriter Rokusuke Ei and pianist Hachidai Nakamura: in Japanese, Roku is 6, Kyu 9 and Hachi 8. Name proposed by the discoverers following a suggestion by T. Sato, A. Fujii and Y. Katagiri.

(7108) Nefedov = 1981 RM_3

Discovered 1981 Sept. 2 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Named in honor of Oleg Matveevich Nefedov (b. 1931), vice president of the Russian Academy of Sciences and chairman of the National Committee of Russian chemists. An outstanding scientist in the field of physical, synthetic and technical organic chemistry, he is best known for his fundamental research on highly reactive intermediates and small cycles. Name proposed by the discoverer following a suggestion by the Institute of Applied Astronomy.

(7122) Iwasaki = 1989 EN_2

Discovered 1989 Mar. 12 by K. Endate and K. Watanabe at Kitami.

Named in honor of Kazuaki Iwasaki (b. 1935), amateur astronomer and world-renowned space artist. His work has been frequently exhibited and he has published many books on the subject of space art. In July 1998 he opened his own space art gallery in Ito City, Shizuoka Prefecture. Name proposed by the discoverers following a suggestion by T. Sato and A. Fujii.

(7125) Eitarodate = 1991 CN_1

Discovered 1991 Feb. 7 by T. Seki at Geisei.

Named in memory of Eitaro Date (1912–1953), Japanese amateur astronomer who observed the planets, particularly Mars, and who taught other planetary observers. Name proposed by the discoverer following a suggestion by T. Sato and A. Fujii.

(7133) Kasahara = 1993 TX_1

Dscovered 1993 Oct. 15 by K. Endate and K. Watanabe at Kitami.

Named in honor of Shin Kasahara (b. 1953), doctor of dentistry and senior lecturer at Tohoku University. An amateur astronomer, he has been enthusiastically engaged in positional observation and orbit calculation of minor planets and comets since 1973. He also played an important role in designing and constructing the biggest portable telescope in Japan, the 84-cm Chiro Memorial Telescope, which went on a national tour to allow the observation of comet 1P/Halley. Name proposed by the discoverers following a suggestion by M. Koishikawa and A. Fujii.

(7162) Sidwell = 1982 VB_1

Discovered 1982 Nov. 15 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of Daniel R. Sidwell (b. 1932), the facility operations manager of the Table Mountain Facility, upon his retirement after 42 years of dedicated service to the Jet Propulsion Laboratory. Sidwell was hired in 1956, and he worked with the wind-tunnel group at JPL's Pasadena facility before moving to Table Mountain in 1976. He has been a source of dedicated and sustained help beyond the call of duty for all aspects of the Table Mountain Facility. The success of many astronomy-related science assignments conducted at Table Mountain is a direct consequence of his eagerness to serve. Name suggested and citation prepared by J. W. Young.

(7169) Linda = 1986 TK_1

Discovered 1986 Oct. 4 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in memory of Linda McCartney (1941–1998), wife of Beatle Paul McCartney, member of the musical group Wings, photographer, and author of vegetarian cookbooks. McCartney's strength of purpose as a friend of the environment, of animals, and of all humanity, together with her devotion to her family, provided a shining example to others. Name proposed by the discoverer following a suggestion by J. Dunne, who prepared the citation.

(7176) Kuniji = 1989 XH

Dscovered 1989 Dec. 1 by A. Takahashi and K. Watanabe at Kitami.

Named in honor of Kuniji Saito (b. 1913), who joined the Tokyo Astronomical Observatory in 1936 and was engaged mainly in research on the solar corona. Following his retirement in 1974, he has collected historical materials from Japan, China and other countries to analyze them from the viewpoint of modern astronomy, using computers. He named this field of research "paleoastronomy" and hopes that many other researchers will enter into this kind of research. He also served as president of the Astronomical Society of Japan. Name proposed by the discoverers following a suggestion by A. Fujii and A. Tanno.

(7186) Tomioka = 1991 YF

Dscovered 1991 Dec. 26 by K. Endate and K. Watanabe at Kitami.

Named in honor of Hiroyuki Tomioka (b. 1942), director of weather information in Hitachi City. An amateur astronomer, he is a charter member of the Nippon Meteor Society and has observed meteors for more than 40 years, both visually and photographically. In addition to his observations from Japan, he often visits the Chiro Observatory Southern Station in Australia to observe southern meteor showers. Name proposed by the discoverers following a suggestion by A. Fujii and T. Sato.

(7188) Yoshii = 1992 SF_1

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

Named in honor of Koichi Yoshii (b. 1914), retired postmaster and amateur astronomer. He was a pioneer in meteor photography in Japan. In the 1930s, when the sensitivity of photographic emulsion was still very low, he succeeded in photographing 86 meteors with his homemade camera. Name proposed by the discoverers following a suggestion by A. Fujii, Y. Yabu and T. Sato.

(7189) Kuniko = 1992 SX_{12}

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

Named in honor of Kuniko Fujita (1923–1992), née Sofue, amateur astronomer and poet. She became interested in astronomy at an early age and made an important discovery—a nova, later named CP Pup—when she was a 19-year-old schoolgirl; she was awarded a prize from the Japan Astronomical Society as the first discoverer. She became a member of the Kawasaki Astronomical Club in 1972, and she visited Australia and New Zealand in 1986 to observe comet 1P/Halley. She joined expeditions to the Okinawa annular eclipse in 1986 and to the total eclipse in Mexico in 1991. A talented poet and calligrapher, she published a book of poetry, *Hoshinagisa*. Named by the discoverer following suggestions by S. Morikubo and T. Minowa.

(7220) Philnicholson = 1981 QE

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

Named in honor Philip D. Nicholson (b. 1951), professor of astronomy at Cornell University, an Australian by birth. Nicholson's research centers on the orbital dynamics of planetary ring systems and natural satellites, and infrared observational studies of planets, their satellites and rings. He has also investigated the dynamics of a planetary system around the pulsar PSR 1257 + 12 and has studied the zodiacal dust bands. Nicholson is codiscoverer of two irregular satellites of Uranus and is currently editor of the journal *Icarus*, which is devoted to planetary science.

(7250) Kinoshita = 1992 SG_1

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

Named in honor of Hiroshi Kinoshita (b. 1941), a celestial mechanician at the National Astronomical Observatory (formerly known as the Tokyo Astronomical Observatory) who works mainly on the dynamics of the solar system bodies. The present IAU Nutation Series is based on his nutation theory of the rigid earth. He served as president of Commission 4 during 1994–1997. Name proposed by the discoverers following a suggestion by K. Hurukawa.

(7490) Babička = 1995 OF_1

Discovered 1995 July 31 by P. Pravec at Ondřejov.

Named in memory of Marie Macháčová (1922–1998) and Marie Petrželová (1912–1998), the grandmothers of the discoverer's wife; and Emilie Dudková (1914–1977) and Aloisie Pravcová (b. 1917), the grandmothers of the discoverer. This naming is also devoted to all grandmothers, who traditionally have a major role in bringing up children in the Czech nation. This role is also reflected in the novel "Babička" ("Granny"), written by Božena Němcová, based on her own childhood experience.

(7594) Shotaro = 1993 BH_2

Discovered 1993 Jan. 19 by T. Seki at Geisei.

Named in memory of Shotaro Miyamoto (1912–1992), professor of astrophysics at Kyoto University. His interests included relativistic cosmology, planetary nebulae, solar physics, lunar geology and Martian meteorology. He also contributed greatly to the popularization of astronomy through his many books and radio and television broadcasts. Director of the Kwasan and Hida Observatories, he also served as president of the International Lunar Society, vice president of the International Association of Planetology, president of the Astronomical Society of Japan and vice president of the Oriental Astronomical Association. Name proposed by the discoverer following a suggestion by K. Sakka and T. Sato.

(7650) Kaname = 1990 UG

Discovered 1990 Oct. 16 by T. Seki at Geisei.

Named in memory of Kaname Nakamura (1904–1932), Japanese amateur astronomer and volunteer at the Kwasan Observatory. As a member of W. H. Pickering's League of Mars Observers, he was the first in Japan to make systematic observations of that planet. He was also a pioneer in astronomical optics and made many precision mirrors and lenses. Name proposed by the discoverer following a suggestion by T. Sato and A. Fujii.

(7691) Brady = 3186 T-3

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in honor of Charles E. "Chuck" Brady, Jr. (b. 1951), captain in the U.S. Navy, NASA astronaut, surgeon, experienced amateur radio operator and close friend to the name proposer. As a mission specialist, Chuck flew on the Life and Microgravity Spacelab mission aboard "Columbia" and has logged over 405 hours in space. In 1997, Chuck organized a radio expedition to Palmyra Island and the Kingman Reef in the Pacific. His ham call sign, N4BQW, could have been heard around the globe. Name proposed and citation prepared by L. D. Schmadel, DK8UH, who contacted him on Palmyra.

(7766) Jododaira = 1991 BH_2

Discovered 1991 Jan. 23 by K. Endate and K. Watanabe at Kitami.

Named for the place where the first really big star parties were held in Japan, the "Chiro's Star Festivals", from 1975 to 1984. Jododaira (1600 m above the sea) is near the top of Mt. Azuma, a famous volcano in Fukushima Prefecture in northeastern Japan. After the violent eruption of the volcano in 1893, Percival Lowell climbed the mountain to investigate the result of the eruption. One hundred years later, an astronomical observatory was established there and is open to the public. Name proposed by the discoverers following a suggestion by M. Koishikawa and T. Sato.

(7794) Sanvito = 1996 AD_4

Discovered 1996 Jan. 15 by U. Munari and M. Tombelli at Cima Ekar.

Named in honor of Roberto di San Vito, amateur astronomer. Strongly committed to astronomy and astrometry, he is supporting a new observatory in Montelupo that will bear his name, the "San Vito Observatory".

(7853) Confucius = 2086 T-2

Discovered 1973 Jan. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named after Confucius (551–471 B.C.), the famous Chinese philosopher. Nothing written by Confucius has survived, but his pupils compiled a collection of his sayings and anecdotes in the *Master Cung*. Confucius was convinced that the self-discipline and virtue shown by society's leaders would influence everyone. During the Han dynasty, Confucius was venerated as a god, and in the Sung dynasty his rules of living filtered into politics and education.

(7854) Laotse = 1076 T-3

Discovered 1977 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named after Laotse (sixth century B.C.), the famous Chinese philosopher. He worked at the court of the emperor as a registrar, and it is said that he became a hermit and went to the West. Before he left, he was asked to record his doctrine. The result is the famous book of Tao, *Tao-Te-King*, which describes the origin of the universe and of Te, the strength possessed by all human beings.

(7855) Tagore = 4092 T-3

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in memory of Rabindranath Tagore (1861–1941), Indian poet and writer. Opposed to the Indian caste system, he created a school (*Viśva-Bharati*) in Santiniketan, and it became a state university in 1951. Tagore tried to unite the positive elements of European and Eastern philosophy. He received the 1913 Nobel Prize in literature for his lyric work *Gitanjali*.

(7906) Melanchton = 3081 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named after Philipp Melanchton (1497–1560), German reformer who worked closely with Martin Luther. At the early age of twelve, he took lectures at the

University of Heidelberg. His personal synthesis of humanism and the Christian faith left a strong mark on German Protestantism, expressed in the *Confessio Augustana* in 1530.

(7907) Erasmus = 4047 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Erasmus of Rotterdam (1469–1536) was the son of a priest and became a priest himself. In 1517 he was released by the pope from his holy vows, becoming an advisor to the emperor Charles V. He published papers critical of the practices of the Church; eventually he became the father of European humanism. He translated the classics, books of the church fathers and the New Testament into Latin in a critical way. His collection of proverbs helped shed new light on ancient literature and influenced religion, art and sciences.

(7934) Sinatra = 1989 SG_1

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

Named in memory of Frank Sinatra (1915–1998), American singer. Beginning in 1935 when he won a radio talent show, Sinatra showed impeccable taste as an American song stylist for over 50 years. He won an Oscar in 1954 for his role in the movie "From Here to Eternity", and in 1985 he was awarded the Presidential Medal of Freedom. Throughout his career, he "did it his way".

(7939) Asphaug = 1991 AP_1

Discovered 1991 Jan. 14 by E. F. Helin at Palomar.

Named in honor of Erik Asphaug (b. 1961), currently in the Earth Sciences Department at the University of California at Santa Cruz. Asphaug has pioneered the application of fracture mechanics and hydrodynamics to numerous problems in planetary science. Using a radar-derived model of (4769) Castalia, he has explored how effects of a hypervelocity impact depend on the projectile's energy, the equation of state of the target material and the target's internal configuration of fractures and voids. His calculations have important implications for our understanding of the collisional evolution of minor planets and for the mitigation of hazards due to comets and minor planets.

(8083) Mayeda = 1988 VB

Discovered 1988 Nov. 1 by T. Seki at Geisei.

Named in memory of Shizuo (Haruhisa) Mayeda (1914–1952), amateur astronomer and pioneer Mars observer who studied changes in the colors of albedo features on that planet. Name proposed by the discoverer following a suggestion by T. Sato and A. Fujii.

(8088) Australia = 1990 SL_{27}

Discovered 1990 Sept. 23 by G. R. Kastel' and L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Named for the continent in the Southern Hemisphere. With this naming the first discoverer pays tribute to the feelings she experienced during her recent visit to this marvelous country.

(8111) Hoepli = 1995 GE

Discovered 1995 Apr. 2 by A. Testa and V. Giuliani at Sormano.

Named in memory of Ulrico Hoepli (1847–1935), the founder of Hoepli Publishing Company and Hoepli International Bookstore in Milan. One of the greatest publishers of his time, Ulrico Hoepli published several important astronomy works within the 8000 titles the company printed; he was the publisher of G. V. Schiaparelli. Today the company is still managed by the Hoepli family. A city patron and benefactor, in 1930 he donated a planetarium to the city of Milan, among the first in the world. Citation prepared by Hoepli family.

(8163) Ishizaki = 1990 UF_2

Discovered 1990 Oct. 27 by T. Seki at Geisei.

Named in honor of Masako Ishizaki (b. 1902), long-time Japanese amateur astronomer and pioneer in the study of meteoric dust. In particular, she studied dust collected for her at the Showa Base in Antarctica, where terrestrial contamination is low. Name proposed by the discoverer following a suggestion by S. Morikubo, I. Hasegawa and T. Sato.

(8220) Nanyou = 1996 JD_1

Discovered 1996 May 13 by T. Okuni at Nanyou.

Named for the city where the discoverer lives and his observatory is located. Nanyou City lies to the north of Tokyo, two and a half hours away on the Yamagata line (the new express train). It is famous for Akayu-onsen (hot springs), the Kumano shrine and Kikuningyou (a doll made of chrysanthemums).

(8229) Kozelský = 1996 YU_2

Discovered 1996 Dec. 28 by M. Wolf and L. Šarounová at Ondřejov.

Named in honor of František Kozelský (b. 1913), a Czech telescope maker well-known for his work in collaboration with V. Gajdušek. Kozelský made a set of unique fine-mechanics tools that allowed Gajdušek to produce a number of telescope mirrors, resulting finally in the production of six excellent 0.6-m mirrors, two of them now used at the Ondřejov and the Klet̆ observatories in telescopes devoted to observations of minor planets. Kozelský also made a series of eight 0.2-m refracting telescopes, twenty 0.3-m reflecting telescopes, and several coelostats for small observatories in Czech Republic and Slovakia. Name proposed by the discoverers, following a suggestion by C. Polášek.

(8241) Agrius = 1973 SE_1

Discovered 1973 Sept. 19 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named after Agrius, a Greek from Aetolia and father of Thersites. Thersites was the ugliest Greek in Troy.

(8316) Wolkenstein = 3002 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for Oswald von Wolkenstein (?1377–1445), one of the last minstrels. We know much about his life and times from his own songs, which have been preserved. At the age of ten he became shield-bearer for a knight and traveled throughout the world as a groom, cook and singer, eventually returning to his home castle of Wolkenstein in the Grödner valley in Tirol. He was also ambassador to the emperor Sigismund and traveled to England and the Iberian peninsula in his name. Especially interesting are his financial documents, which have all been saved and show the difficult position of knights around 1400.

(8317) Eurysaces = 4523 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for the son of Ajax by Tecmessa, known for his enormous shield.

(8318) Averroes = 1306 T-2

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for Averroes (1126–1198), whose Arabian name was Ibn Roschd Abdul Walid and who studied law and medicine in Córdoba. He brought together the philosophy of Aristotle, Islam and Christianity. Both Islam and the Christian church, especially Thomas Aquinas, condemned him. Most of his publications have been translated into Latin.

(8418) Mogamigawa = 1996 VS_{30}

Discovered 1996 Nov. 10 by T. Okuni at Nanyo.

Named for the longest river in the discoverer's home prefecture of Yamagata. One of the three wildest rivers in Japan, Mogamigawa has its source in Mt. Azuma, south of Yamagata. It flows north and pours into the Sea of Japan in Sakata City. Called "Mother River", it is very popular in this area.

(8423) Macao = 1997 AO_{22}

Discovered 1997 Jan. 11 by the Beijing Schmidt CCD Asteroid Program at Xinglong.

Named in honor of Macao, the beautiful peninsula near Zhuhai. An international tourist attraction as well as a free trading port, Macao is famous for its combination of Chinese and Western cultures.

(8500) Hori = 1990 TU

Discovered 1990 Oct. 10 by K. Endate and K. Watanabe at Kitami.

Named in honor of Gen-Ichiro Hori (b. 1930), professor emeritus at Tokyo University who gave lectures on celestial mechanics at Tokyo University, Yale University and the University of Texas at Austin. He developed the famous perturbation theory based on Lie transformations that has been adopted by many scientists to solve a set of differential equations by perturbation methods. In fact, his publication on this in 1966 is the most frequently cited paper during the 50-year history of the *Publication of the Astronomical Society of Japan*. Name proposed by the discoverers, following a suggestion by S. Murayama, K. Hurukawa and A. Fujii, and endorsed by Y. Kozai, K. Aksnes and B. G. Marsden.

(8666) Reuter = 1991 GG_{10}

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

Named for the German poet and social critic Fritz Reuter (1810–1874), co-founder of the new Low German literature and one of its greatest humorists. He often expressed worldly wisdom by descriptions of celestial bodies, especially the sun. His work, most of which takes place in Mecklenburg, criticizes unjust social conditions. As a student he was imprisoned for seven years because of his views in favor of democracy and the unity of Germany. Although written in a regional dialect, his work has been widely translated.

(8667) Fontane = 1991 GH_{10}

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

Named for Theodor Fontane (1819–1898) on the occasion of the 100th anniversary of his death. He brought the German novel to worldwide importance. Descended from a Huguenot family, he worked as an apothecary, travel writer, editor, drama critic and finally as a full-time writer. Besides ballads and the multivolume *Wanderungen durch die Mark Brandenburg*, his novels are especially significant (e.g. *Effi Briest*, *Der Stechlin*). He chose his material mostly from Prussian history and the Berlin of his times. He combined love of tradition with open-mindedness for the new and skepticism with religious faith.

(8710) Hawley = 1994 JK_9

Discovered 1994 May 15 by C. P. de Saint-Aignan at Palomar.

Named in honor of the discoverer's friend and mentor, Walter N. Hawley, a physics and astronomy teacher at Saint Paul's School in Concord, New Hampshire. He is also the director of the Saint Paul's Astronomy Center, an observatory of unequaled quality at the high-school level. Hawley has observed the night sky with his students since 1972, acquainting them with such wonders as the Aurora Borealis and Messier Objects, as well as lesser wonders, such as Murphy's Law—and frostbite.

(8720) Takamizawa = 1995 WE_1

Discovered 1995 Nov. 16 by A. Nakamura at Kuma Kogen.

Named in honor of Kesao Takamizawa (b. 1952), one of the most renowned amateur astronomers in Japan. During his 25-year visual search for comets, Takamizawa made two new discoveries and one independent discovery. In 1994, he moved from visual to photographic surveying. Since then, he has discovered two more comets, one supernova, two galactic novae, and many variable stars.

(8827) Kollwitz = 1988 PO_2

Discovered 1988 Aug. 13 by F. Börngen at Tautenburg.

Named for the distinguished German graphic artist and sculptor Käthe Kollwitz (1867–1945). She studied art in Berlin and Munich and was married to a physician. She became a professor and a member of the Prussian Academy of Arts in 1919 but was ousted in 1933. In her pictures, woodcuts, lithographs and sculptures, Kollwitz represented the destitution and misery of the poor, the unhappy fate of poor mothers and children, and the death of young men in war. She was deeply influenced by the tragedies of both world wars and the horrors of fascism, always hoping for a peaceful and humane society.

(8831) Brändström = 1989 CO_5

Discovered 1989 Feb. 2 by F. Börngen at Tautenburg.

Named in memory of the uncommon Swede Elsa Brändström (1888–1948). Born in St. Petersburg , she was a daughter of the diplomat general Edvard Brändström. During World War I, she stood up beyond all measure for indigent German prisoners in Russia. Under the sign of the Red Cross, she organized numerous relief missions to Siberian camps; from 1914 to 1920, about 700 000 prisoners benefited of her help, which gave her the honorary title "Angel of Siberia". After 1918, she founded several homes for war orphans and repatriates of war in Germany. After the fascists' seizure of power, she left Berlin together with her husband and emigrated in the U.S. There she stood up anew for needy refugees from Europe, persecuted for racial or political motives.

(8847) Huch = 1990 TO_3

Discovered 1990 Oct. 12 by F. Börngen and L. D. Schmadel at Tautenburg.

Named in honor of the German novelist and poet Ricarda Huch (1864–1947). Born into a prosperous commercial family, she earned a doctorate in history in Zurich in 1891, afterwards working as a librarian and teacher. In 1897 she decided to become a writer. Her novels and stories depict historical figures and events. She was a critic of the fascist regime, and her last unfinished work was to portray the German resistance movement. In 1933, she retired from the Prussian Academy of Arts. Name proposed by the first discoverer.

(8885) Sette = 1994 EL_3

Discovered 1994 Mar. 13 by M. Tombelli and V. Goretti at Cima Ekar.

Named in honor of Giancarlo Sette (b. 1927), Italian amateur astronomer. Since 1950 he has focused his attention mainly on astronomical photography with several groups of amateur astronomers in Bologna. From 1975 to 1981, at San Vittore

Observatory, he was involved in the International Planetary Patrol Program of the Lowell Observatory. He still devotes his time to wide-field Schmidt astronomical photography.

(8887) Scheeres = 1994 LK$_1$

Discovered 1994 June 9 by E. F. Helin at Palomar.

Named in honor of Daniel J. Scheeres (b. 1963), currently in the Department of Aerospace Engineering and Engineering Mechanics at Iowa State University. Scheeres has pioneered the investigation of the dynamics of orbits close to small, irregularly shaped minor planets. His research has included studies of the short-term evolution and the long-term stability of orbits around radar-derived models of (4179) Toutatis and (4769) Castalia. His work has far-reaching implications for the operation of spacecraft orbiting minor planets, for the cosmogony of satellites of minor planets and for understanding the distribution of non-escaping impact ejecta on small bodies.

(8944) Ortigara = 1997 BF$_9$

Discovered 1997 Jan. 30 by U. Munari and M. Tombelli at Cima Ekar.

Mount Ortigara, located near the Asiago Astrophysical Observatory, is one of the highest peaks in the Asiago Tableland and was the location of one of the most famous and bloodiest alpine battles of World War I.

(8945) Cavaradossi = 1997 CM

Discovered 1997 Feb. 1 by P. G. Comba at Prescott.

Named for a character in Puccini's opera *Tosca*. Cavaradossi, a revolutionary and fighter against despotism, is imprisoned and condemned to die. While awaiting execution, he sings the nostalgic aria "E lucevan le stelle", recalling the sweet times he had with his mistress Tosca and bemoaning his impending death. Meanwhile, Tosca tries to gain his release by bargaining with the lecherous chief of police Scarpia. They double-cross each other, and everyone dies a violent death.

(9052) Uhland = 1991 UJ$_4$

Discovered 1991 Oct. 30 by F. Börngen at Tautenburg.

Named for the German poet Johann Ludwig Uhland (1787–1862), best known for lyric poetry and ballads in which historical and legendary themes dominate, and which were set to music by well-known composers. Uhland is the most famous representative of Swabian Romanticism. In his lifetime, his "Gedichte" (1815) were printed in 42 editions. He also engaged himself in political issues, and in 1848–49 was a member of the Frankfurt parliament.

EPHEMERIDES

1998 RO$_1$ a, e, i = 0.99, 0.72, 23 Elements *MPC* 32773

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998	10 04	20 44.48	−17 26.6	0.450	1.276	118.3	43.7	19.0
1998	10 14	20 06.29	−15 25.3	0.486	1.182	99.9	56.2	19.3
1998	10 24	19 39.35	−13 10.2	0.525	1.076	84.1	66.9	19.6
1998	11 03	19 18.77	−10 58.3	0.556	0.955	69.7	77.1	19.8
1998	11 13	18 58.72	−08 59.2	0.576	0.817	55.7	88.8	20.0
1998	11 23	18 32.14	−07 34.5	0.584	0.662	40.4	104.7	20.3

1998 ST$_{27}$ a, e, i = 0.82, 0.53, 21 Elements *MPC* 32782

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998	10 04	21 15.23	+14 07.8	0.221	1.152	128.9	42.6	18.2
1998	10 14	20 39.00	−02 51.9	0.234	1.100	110.2	58.3	18.7
1998	10 24	20 14.81	−16 36.8	0.266	1.038	91.8	73.4	19.3
1998	11 03	19 56.86	−26 51.8	0.304	0.963	75.7	86.5	19.9
1998	11 13	19 38.18	−34 44.0	0.343	0.876	60.9	99.1	20.5
1998	11 23	19 11.10	−40 48.7	0.380	0.777	46.5	112.7	21.2

1998 SV$_4$ a, e, i = 0.82, 0.64, 53 Elements *MPC* 32778

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998	10 04	21 52.50	−13 40.8	0.430	1.340	135.0	31.9	18.0
1998	10 14	21 33.20	−23 10.9	0.536	1.332	117.4	41.7	18.7
1998	10 24	21 24.73	−28 49.4	0.654	1.314	103.7	47.4	19.3
1998	11 03	21 23.70	−32 16.5	0.772	1.284	92.6	50.5	19.7
1998	11 13	21 27.64	−34 29.1	0.881	1.244	83.1	52.2	19.9
1998	11 23	21 35.00	−35 57.4	0.977	1.192	74.7	53.1	20.1
1998	12 03	21 44.66	−36 59.1	1.053	1.127	67.0	53.6	20.1
1998	12 13	21 55.72	−37 44.9	1.105	1.049	59.9	54.3	20.1

1998 SL$_{36}$ a, e, i = 1.39, 0.42, 19 Elements *MPC* 32783

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998	10 04	21 55.11	−07 05.6	0.438	1.356	137.6	29.8	20.7
1998	10 14	21 28.66	−03 43.2	0.447	1.292	122.2	40.8	20.9
1998	10 24	21 10.45	−00 10.2	0.465	1.227	108.9	50.1	21.1
1998	11 03	20 59.74	+03 26.9	0.483	1.159	97.6	58.0	21.3
1998	11 13	20 54.56	+07 08.8	0.496	1.092	88.1	64.9	21.5
1998	11 23	20 52.88	+10 58.7	0.500	1.026	80.0	71.3	21.6
1998	12 03	20 52.59	+14 58.6	0.493	0.964	72.9	77.8	21.6
1998	12 13	20 51.33	+19 04.6	0.472	0.908	66.6	84.8	21.6
1998	12 23	20 46.45	+23 03.3	0.439	0.861	61.0	92.6	21.7

1998 SC$_{15}$ a, e, i = 1.28, 0.42, 16 Elements *MPC* 32780

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998	10 04	22 01.71	+07 30.7	0.330	1.274	140.8	29.8	18.4
1998	10 14	21 42.79	−01 46.9	0.313	1.209	126.1	41.9	18.5
1998	10 24	21 30.04	−11 21.1	0.308	1.141	110.8	54.6	18.7
1998	11 03	21 23.39	−20 27.9	0.310	1.072	96.4	66.9	19.0
1998	11 13	21 20.77	−29 04.9	0.313	1.002	83.3	78.7	19.2
1998	11 23	21 18.63	−37 32.2	0.313	0.935	71.1	90.4	19.5
1998	12 03	21 10.53	−46 11.2	0.311	0.871	59.7	102.4	19.9
1998	12 13	20 44.18	−54 44.1	0.310	0.816	49.1	114.1	20.4
1998	12 23	19 42.65	−61 00.9	0.317	0.774	41.2	123.1	21.0
1999	01 02	18 16.96	−61 15.2	0.338	0.749	38.7	124.9	21.3
1999	01 12	17 20.96	−55 39.1	0.375	0.746	41.7	118.7	21.0
1999	01 22	17 04.71	−48 16.0	0.423	0.765	47.5	108.4	20.6
1999	02 01	17 10.06	−41 18.7	0.473	0.802	53.8	97.8	20.4
1999	02 11	17 24.67	−35 12.1	0.519	0.854	59.9	88.4	20.3
1999	02 21	17 42.16	−29 45.9	0.555	0.916	66.0	80.4	20.3
1999	03 03	17 59.31	−24 45.0	0.580	0.983	72.1	73.7	20.4
1999	03 13	18 14.48	−19 57.5	0.594	1.052	78.6	67.8	20.4
1999	03 23	18 26.51	−15 15.1	0.599	1.122	85.5	62.3	20.4
1999	04 02	18 34.57	−10 32.8	0.595	1.190	93.0	57.0	20.3
1999	04 12	18 37.91	−05 48.8	0.585	1.255	101.2	51.5	20.2
1999	04 22	18 35.70	−01 05.6	0.574	1.318	110.1	45.7	20.1
1999	05 02	18 27.40	+03 27.5	0.566	1.377	119.6	39.5	20.0
1999	05 12	18 12.97	+07 33.7	0.564	1.433	128.9	33.3	19.9
1999	05 22	17 53.34	+10 49.4	0.574	1.485	137.1	27.6	19.9
1999	06 01	17 30.96	+12 52.5	0.599	1.533	142.5	23.8	19.9
1999	06 11	17 09.02	+13 34.6	0.641	1.577	143.4	22.6	20.1

1999 06 21	16 50.40	+13 03.3	0.701	1.617	140.1	23.8	20.4
1999 07 01	16 36.84	+11 38.2	0.775	1.654	134.3	26.1	20.7
1999 07 11	16 28.68	+09 40.1	0.862	1.686	127.4	28.6	21.1
1999 07 21	16 25.54	+07 25.2	0.959	1.714	120.4	30.7	21.4
1999 07 31	16 26.72	+05 05.1	1.063	1.739	113.5	32.4	21.7
1999 08 10	16 31.46	+02 46.9	1.173	1.759	106.9	33.5	22.0

1998 ST$_4$ a, e, i = 2.82, 0.60, 9 Elements *MPC* 32778

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	22 10.46	+06 24.6	0.956	1.855	143.0	18.9	18.6
1998 10 14	22 03.62	+04 31.5	0.948	1.779	132.2	24.5	18.7
1998 10 24	22 01.11	+02 45.4	0.953	1.703	121.9	29.7	18.7
1998 11 03	22 03.37	+01 16.3	0.966	1.628	112.4	34.3	18.8
1998 11 13	22 10.36	+00 10.0	0.982	1.554	103.9	38.2	18.8
1998 11 23	22 21.85	−00 30.8	0.998	1.482	96.5	41.5	18.9
1998 12 03	22 37.52	−00 45.1	1.011	1.413	90.0	44.3	18.9
1998 12 13	22 57.03	−00 33.6	1.019	1.348	84.5	46.6	18.9
1998 12 23	23 20.14	+00 02.5	1.022	1.289	79.9	48.7	18.8
1999 01 02	23 46.68	+01 01.2	1.021	1.237	76.2	50.5	18.8
1999 01 12	00 16.46	+02 19.6	1.015	1.194	73.4	52.1	18.7
1999 01 22	00 49.41	+03 54.0	1.008	1.162	71.4	53.4	18.7
1999 02 01	01 25.39	+05 39.2	1.002	1.142	70.2	54.2	18.7
1999 02 11	02 04.16	+07 28.8	0.999	1.136	69.8	54.6	18.7
1999 02 21	02 45.38	+09 15.3	1.004	1.143	70.0	54.4	18.7
1999 03 03	03 28.42	+10 50.3	1.019	1.163	70.7	53.5	18.7
1999 03 13	04 12.44	+12 06.0	1.048	1.196	71.7	52.1	18.8
1999 03 23	04 56.47	+12 56.6	1.092	1.239	72.6	50.1	18.9
1999 04 02	05 39.50	+13 19.2	1.152	1.291	73.4	47.9	19.1
1999 04 12	06 20.65	+13 14.0	1.229	1.351	73.7	45.4	19.2
1999 04 22	06 59.39	+12 44.1	1.322	1.415	73.5	42.9	19.4
1999 05 02	07 35.43	+11 53.3	1.429	1.485	72.7	40.4	19.6
1999 05 12	08 08.75	+10 46.4	1.550	1.557	71.4	37.9	19.8
1999 05 22	08 39.51	+09 27.2	1.681	1.631	69.5	35.5	20.0
1999 06 01	09 07.95	+07 59.1	1.821	1.706	67.2	33.2	20.3
1999 06 11	09 34.34	+06 24.9	1.969	1.782	64.4	30.9	20.5
1999 06 21	09 58.97	+04 46.6	2.121	1.858	61.2	28.6	20.6

1998 SY$_{14}$ a, e, i = 2.82, 0.66, 4 Elements *MPC* 32780

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	22 17.94	−22 04.6	0.235	1.182	136.7	35.5	18.7
1998 10 14	21 57.86	−22 48.9	0.186	1.109	122.7	49.2	18.4
1998 10 24	21 34.42	−22 34.2	0.139	1.046	108.0	64.7	18.1
1998 11 03	20 57.52	−20 40.4	0.092	0.997	90.6	84.2	17.8
1998 11 13	19 15.77	−12 23.3	0.048	0.966	58.9	118.7	18.1
1998 11 23	14 45.99	+15 16.7	0.043	0.955	39.2	139.2	19.8
1998 12 03	12 35.70	+21 48.9	0.085	0.965	73.2	102.0	18.3
1998 12 13	11 56.71	+22 08.9	0.133	0.995	90.7	81.7	18.5
1998 12 23	11 36.77	+22 14.1	0.179	1.043	104.6	65.9	18.7
1999 01 02	11 19.72	+22 35.1	0.222	1.105	118.1	51.7	18.9
1999 01 12	11 01.12	+23 08.5	0.266	1.178	132.0	38.4	19.0
1999 01 22	10 40.49	+23 40.1	0.315	1.258	146.1	25.9	19.2
1999 02 01	10 19.95	+23 54.2	0.376	1.343	159.4	14.9	19.3
1999 02 11	10 02.16	+23 43.8	0.451	1.432	168.8	7.7	19.6
1999 02 21	09 48.89	+23 11.0	0.543	1.521	166.1	9.0	20.2
1999 03 03	09 40.82	+22 21.5	0.653	1.612	156.8	14.0	20.9
1999 03 13	09 37.51	+21 21.6	0.780	1.702	147.1	18.5	21.6

1998 SD$_{15}$ a, e, i = 0.93, 0.35, 27 Elements *MPC* 32780

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	22 44.39	−14 13.4	0.177	1.152	146.2	28.9	16.1
1998 10 14	22 50.16	−26 27.8	0.262	1.185	130.7	39.7	17.3
1998 10 24	22 58.72	−31 35.1	0.355	1.212	119.9	45.4	18.2
1998 11 03	23 09.59	−33 35.6	0.451	1.232	111.6	48.5	18.8
1998 11 13	23 22.24	−34 01.0	0.547	1.246	104.7	50.2	19.3
1998 11 23	23 36.34	−33 30.3	0.639	1.253	98.5	51.2	19.7
1998 12 03	23 51.68	−32 23.8	0.725	1.254	93.0	51.7	20.0
1998 12 13	00 08.02	−30 52.7	0.805	1.249	87.9	52.0	20.2
1998 12 23	00 25.27	−29 03.1	0.876	1.236	83.1	52.2	20.4
1999 01 02	00 43.37	−26 59.1	0.936	1.218	78.7	52.4	20.5
1999 01 12	01 02.26	−24 43.2	0.984	1.193	74.6	52.7	20.6
1999 01 22	01 21.96	−22 16.4	1.019	1.161	70.8	53.2	20.6
1999 02 01	01 42.51	−19 39.3	1.039	1.123	67.3	54.0	20.6
1999 02 11	02 03.91	−16 51.2	1.044	1.079	64.1	55.4	20.6
1999 02 21	02 26.24	−13 50.2	1.033	1.029	61.1	57.3	20.5

1998 SO a, e, i = 0.73, 0.70, 30 Elements *MPC* 32776

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	22 47.69	−27 56.5	0.268	1.213	138.2	33.4	20.0
1998 10 14	21 52.34	−36 34.8	0.334	1.178	114.8	50.3	20.8
1998 10 24	21 17.34	−40 30.7	0.413	1.128	97.9	60.9	21.5
1998 11 03	20 56.74	−42 26.2	0.488	1.062	84.5	68.3	22.0

1998 SA$_{15}$ a, e, i = 1.92, 0.56, 7 Elements *MPC* 32780

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	23 06.34	−36 19.9	0.304	1.231	134.1	35.7	18.8
1998 10 14	22 40.34	−42 32.0	0.268	1.149	118.3	49.8	18.8
1998 10 24	22 08.75	−48 26.9	0.236	1.070	102.2	65.3	18.8
1998 11 03	21 25.76	−54 24.7	0.206	0.997	85.5	82.6	19.0
1998 11 13	20 08.23	−60 18.5	0.176	0.934	66.7	103.3	19.4
1998 11 23	17 41.33	−60 56.5	0.154	0.885	44.9	128.1	20.7
1998 12 03	15 27.79	−48 00.7	0.155	0.854	29.3	145.6	22.8
1998 12 13	14 34.00	−31 12.8	0.185	0.846	37.5	134.8	21.7
1998 12 23	14 19.90	−19 40.8	0.234	0.860	52.0	115.7	20.5
1999 01 02	14 21.09	−12 51.2	0.287	0.895	63.9	99.3	20.1
1999 01 12	14 27.63	−08 36.5	0.336	0.948	74.0	86.0	20.0
1999 01 22	14 34.47	−05 32.4	0.376	1.013	83.6	74.8	20.0
1999 02 01	14 38.70	−02 53.1	0.407	1.088	93.4	64.7	20.0
1999 02 11	14 38.51	−00 15.2	0.429	1.168	104.0	55.1	20.0
1999 02 21	14 32.60	+02 30.8	0.448	1.251	115.8	45.4	20.0
1999 03 03	14 20.56	+05 21.0	0.469	1.334	128.5	35.5	19.9
1999 03 13	14 03.24	+08 00.9	0.497	1.418	141.7	25.7	19.9
1999 03 23	13 42.82	+10 09.8	0.541	1.501	153.8	17.0	19.9
1999 04 02	13 22.52	+11 30.6	0.603	1.582	161.1	11.8	20.1
1999 04 12	13 05.14	+11 59.9	0.685	1.661	159.2	12.4	20.5
1999 04 22	12 52.26	+11 44.8	0.788	1.738	151.3	16.1	21.1
1999 05 02	12 44.26	+10 56.9	0.908	1.813	142.1	20.0	21.6

1998 SB$_{15}$ a, e, i = 1.23, 0.16, 16 Elements *MPC* 32780

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	23 15.16	−01 21.8	0.129	1.121	158.3	19.2	17.1
1998 10 14	22 23.18	+14 44.4	0.132	1.099	137.3	38.0	17.6
1998 10 24	21 42.58	+27 30.3	0.153	1.078	119.5	53.4	18.3
1998 11 03	21 15.98	+36 18.0	0.181	1.061	107.5	63.1	19.0
1998 11 13	21 00.27	+42 36.8	0.211	1.047	99.9	68.7	19.4
1998 11 23	20 52.37	+47 37.0	0.238	1.036	95.1	71.6	19.8
1998 12 03	20 50.09	+52 01.9	0.261	1.030	92.4	73.0	20.0
1998 12 13	20 52.22	+56 13.5	0.278	1.028	91.1	73.2	20.1
1998 12 23	20 59.16	+60 28.9	0.290	1.031	91.1	72.5	20.2
1999 01 02	21 12.43	+65 04.1	0.296	1.038	92.3	71.2	20.2
1999 01 12	21 36.8	+70 09.0	0.296	1.049	94.5	69.2	20.2
1999 01 22	22 27.7	+75 45.0	0.293	1.064	97.7	66.4	20.1
1999 02 01	00 39.3	+80 40.4	0.288	1.082	101.9	63.0	20.0
1999 02 11	04 32.3	+79 19.8	0.285	1.103	106.5	59.1	19.9
1999 02 21	06 33.2	+70 47.6	0.289	1.125	111.1	55.1	19.9
1999 03 03	07 26.01	+59 49.6	0.302	1.149	114.5	51.7	19.9
1999 03 13	07 57.88	+48 33.6	0.327	1.174	116.0	49.5	20.1
1999 03 23	08 22.18	+38 08.1	0.365	1.200	115.4	48.6	20.3
1999 04 02	08 43.36	+29 05.5	0.416	1.225	113.3	48.5	20.7
1999 04 12	09 03.09	+21 28.9	0.476	1.249	110.2	48.8	21.0
1999 04 22	09 22.28	+15 06.1	0.544	1.273	106.8	49.1	21.3
1999 05 02	09 41.37	+09 41.6	0.617	1.296	103.2	49.2	21.7
1999 05 12	10 00.54	+05 01.2	0.695	1.317	99.5	49.1	21.9

1998 QA$_{105}$ a, e, i = 2.71, 0.54, 9 Elements *MPC* 32772

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	23 21.85	+17 42.3	0.272	1.255	156.8	18.3	20.1
1998 10 14	23 28.81	+23 09.8	0.283	1.251	150.2	23.3	20.4
1998 10 24	23 40.93	+27 22.7	0.305	1.258	145.2	26.8	20.6
1998 11 03	23 58.19	+30 18.9	0.338	1.274	141.6	28.9	20.9
1998 11 13	00 19.53	+32 08.4	0.380	1.299	138.7	30.2	21.3
1998 11 23	00 43.62	+33 05.0	0.432	1.333	136.1	30.9	21.6
1998 12 03	01 09.25	+33 25.2	0.496	1.375	133.3	31.5	22.0

1998 SU$_{27}$ a, e, i = 2.15, 0.60, 7 Elements *MPC* 32782

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	23 33.44	+48 53.6	0.194	1.142	133.2	39.7	17.1
1998 10 14	22 36.69	+67 46.0	0.138	1.062	114.6	58.6	16.7
1998 10 24	14 36.8	+73 06.5	0.112	0.991	85.0	88.5	17.1
1998 11 03	12 50.58	+39 25.3	0.131	0.932	59.3	113.8	18.6
1998 11 13	12 35.05	+17 15.8	0.183	0.889	52.2	118.5	19.6
1998 11 23	12 35.09	+04 34.3	0.250	0.867	54.6	111.8	19.8
1998 12 03	12 42.23	−03 35.0	0.322	0.868	59.5	101.8	19.8
1998 12 13	12 53.32	−09 28.1	0.392	0.892	64.9	91.6	19.8
1998 12 23	13 05.92	−14 02.6	0.455	0.936	70.5	82.2	19.8
1999 01 02	13 18.02	−17 43.6	0.506	0.996	76.6	73.8	19.9
1999 01 12	13 28.06	−20 43.6	0.545	1.068	83.4	66.1	20.0
1999 01 22	13 34.58	−23 07.3	0.572	1.148	91.1	59.0	20.0
1999 02 01	13 36.36	−24 55.0	0.589	1.232	99.9	52.0	20.0
1999 02 11	13 32.51	−26 03.2	0.600	1.319	110.0	44.7	20.0
1999 02 21	13 22.62	−26 24.0	0.610	1.406	121.3	36.9	20.0
1999 03 03	13 07.43	−25 49.2	0.625	1.493	133.7	28.7	19.9
1999 03 13	12 49.01	−24 17.1	0.652	1.579	146.6	20.3	19.9
1999 03 23	12 30.30	−21 58.0	0.698	1.664	158.1	12.9	19.9
1999 04 02	12 14.20	−19 15.5	0.765	1.747	163.8	9.2	20.0
1999 04 12	12 02.34	−16 35.5	0.856	1.828	159.4	11.1	20.5
1999 04 22	11 55.18	−14 16.5	0.968	1.907	150.2	15.2	21.0
1999 05 02	11 52.37	−12 27.6	1.100	1.984	140.5	18.9	21.5
1999 05 12	11 53.17	−11 09.8	1.248	2.058	131.1	21.7	21.9

1998 SG$_{35}$ a, e, i = 8.94, 0.23, 14 Elements *MPC* 32782

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	23 37.07	−03 07.0	9.330	10.291	162.9	1.6	21.6
1998 10 14	23 34.68	−03 26.9	9.388	10.282	152.4	2.6	21.7
1998 10 24	23 32.62	−03 44.4	9.472	10.273	141.8	3.4	21.8
1998 11 03	23 31.00	−03 58.8	9.581	10.264	131.4	4.2	21.8
1998 11 13	23 29.91	−04 09.6	9.709	10.255	121.0	4.7	21.9
1998 11 23	23 29.40	−04 16.5	9.853	10.245	110.8	5.2	21.9
1998 12 03	23 29.50	−04 19.3	10.008	10.236	100.7	5.4	22.0
1998 12 13	23 30.22	−04 18.1	10.168	10.227	90.7	5.5	22.0
1998 12 23	23 31.53	−04 12.8	10.328	10.218	80.8	5.5	22.1
1999 01 02	23 33.41	−04 03.8	10.483	10.208	71.1	5.2	22.1
1999 01 12	23 35.81	−03 51.5	10.630	10.199	61.6	4.9	22.1

1998 SO$_{10}$ a, e, i = 2.30, 0.77, 42 Elements *MPC* 32779

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	23 51.92	+18 50.1	1.402	2.371	161.4	7.7	17.9
1998 10 14	23 40.09	+14 46.9	1.511	2.455	155.6	9.6	18.2
1998 10 24	23 31.97	+11 13.6	1.652	2.535	145.4	12.9	18.6
1998 11 03	23 27.41	+08 18.3	1.820	2.612	134.4	15.7	18.9
1998 11 13	23 25.97	+06 01.7	2.008	2.687	123.7	17.8	19.3
1998 11 23	23 27.15	+04 20.4	2.212	2.759	113.5	19.2	19.6
1998 12 03	23 30.48	+03 09.6	2.426	2.828	103.8	19.8	19.9
1998 12 13	23 35.53	+02 23.9	2.645	2.895	94.5	19.8	20.1
1998 12 23	23 41.95	+01 58.9	2.866	2.959	85.7	19.4	20.3
1999 01 02	23 49.46	+01 50.4	3.083	3.021	77.2	18.5	20.5
1999 01 12	23 57.80	+01 55.1	3.295	3.081	68.9	17.3	20.6
1999 01 22	00 06.82	+02 10.3	3.497	3.139	60.9	15.9	20.8

1998 SZ$_{14}$ a, e, i = 2.44, 0.49, 6 Elements *MPC* 32780

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	23 52.81	−26 33.2	0.303	1.266	147.3	25.3	18.6
1998 10 14	00 05.96	−21 52.6	0.332	1.285	145.6	26.0	18.8
1998 10 24	00 18.90	−16 51.0	0.373	1.313	143.2	27.0	19.2
1998 11 03	00 32.14	−11 51.7	0.427	1.347	140.0	28.2	19.5
1998 11 13	00 45.86	−07 10.2	0.493	1.388	136.1	29.6	20.0
1998 11 23	01 00.21	−02 53.3	0.574	1.434	131.6	31.0	20.4
1998 12 03	01 15.30	+00 57.6	0.667	1.485	126.8	32.1	20.8
1998 12 13	01 31.06	+04 23.7	0.772	1.538	121.8	33.0	21.3
1998 12 23	01 47.49	+07 27.6	0.890	1.595	116.6	33.5	21.7
1999 01 02	02 04.54	+10 12.2	1.018	1.653	111.4	33.6	22.0

1998 SS$_{4}$ a, e, i = 2.29, 0.51, 10 Elements *MPC* 32778

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	23 52.96	−12 59.1	0.131	1.124	159.4	18.3	18.3
1998 10 14	00 53.12	−17 17.0	0.162	1.145	154.1	22.3	18.9
1998 10 24	01 33.12	−18 12.6	0.206	1.177	149.8	25.2	19.6

1998 11 03	01 58.90	−17 12.7	0.261	1.219	146.8	26.4	20.2
1998 11 13	02 16.43	−15 11.0	0.325	1.268	144.2	27.1	20.8
1998 11 23	02 29.73	−12 35.2	0.399	1.323	141.2	27.9	21.4
1998 12 03	02 41.38	−09 42.2	0.484	1.382	137.6	28.8	21.9

P/1998 QP$_{54}$ (LONEOS-Tucker) Elements *MPC* xxxxx

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 10 04	00 02.44	+19 48.2	0.905	1.882	162.0	9.4		16.8
1998 10 14	23 53.55	+21 17.5	0.927	1.883	156.2	12.4		16.9
1998 10 24	23 47.33	+22 20.9	0.969	1.889	148.1	16.1		17.2
1998 11 03	23 44.83	+23 06.3	1.030	1.899	139.8	19.7		17.4
1998 11 13	23 46.36	+23 42.5	1.106	1.914	131.8	22.7		17.7
1998 11 23	23 51.74	+24 16.3	1.195	1.933	124.4	24.9		18.0
1998 12 03	00 00.57	+24 52.7	1.295	1.956	117.4	26.6		18.2
1998 12 13	00 12.30	+25 34.1	1.404	1.983	111.0	27.6		18.5
1998 12 23	00 26.42	+26 21.2	1.522	2.013	104.8	28.2		18.7
1999 01 02	00 42.50	+27 13.7	1.647	2.047	99.0	28.3		18.9
1999 01 12	01 00.15	+28 10.3	1.778	2.083	93.5	28.1		19.1
1999 01 22	01 19.06	+29 09.5	1.914	2.123	88.1	27.6		19.3
1999 02 01	01 38.99	+30 09.7	2.054	2.165	82.8	26.8		19.4
1999 02 11	01 59.71	+31 09.0	2.198	2.209	77.7	25.9		19.6
1999 02 21	02 21.08	+32 05.7	2.344	2.255	72.6	24.7		19.8
1999 03 03	02 42.93	+32 58.5	2.491	2.302	67.5	23.4		19.9
1999 03 13	03 05.12	+33 45.8	2.638	2.352	62.5	22.0		20.0
1999 03 23	03 27.55	+34 26.7	2.785	2.402	57.6	20.5		20.1
1999 04 02	03 50.08	+35 00.3	2.929	2.454	52.6	18.9		20.2
1999 04 12	04 12.59	+35 26.0	3.069	2.506	47.7	17.2		20.3
1999 04 22	04 35.00	+35 43.3	3.205	2.560	42.7	15.5		20.4
1999 05 02	04 57.17	+35 52.2	3.336	2.614	37.8	13.7		20.5
1999 05 12	05 19.02	+35 52.7	3.459	2.668	32.9	11.9		20.5

1998 SF$_{36}$ a, e, i = 1.31, 0.26, 2 Elements *MPC* 32783

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	00 19.37	−02 42.2	0.507	1.504	171.5	5.6	18.7
1998 10 14	00 03.58	−03 51.7	0.559	1.531	158.5	13.8	19.3
1998 10 24	23 53.17	−04 23.6	0.627	1.556	146.1	20.9	19.8
1998 11 03	23 48.51	−04 19.9	0.710	1.578	135.2	26.3	20.2
1998 11 13	23 48.92	−03 47.0	0.804	1.597	125.5	30.3	20.7
1998 11 23	23 53.53	−02 51.1	0.905	1.613	116.9	33.1	21.0
1998 12 03	00 01.49	−01 37.2	1.012	1.627	109.1	34.9	21.3
1998 12 13	00 12.05	−00 09.7	1.122	1.638	101.9	36.0	21.6
1998 12 23	00 24.70	+01 28.4	1.233	1.647	95.3	36.5	21.8
1999 01 02	00 39.04	+03 14.3	1.343	1.652	89.1	36.5	22.0

1998 SE$_{36}$ a, e, i = 1.34, 0.10, 12 Elements *MPC* 32783

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	00 20.82	+09 06.8	0.448	1.447	173.3	4.6	18.7
1998 10 14	00 10.48	+04 00.4	0.471	1.455	163.3	11.3	19.1
1998 10 24	00 04.00	−00 18.5	0.512	1.462	150.4	19.6	19.6
1998 11 03	00 02.38	−03 27.1	0.569	1.468	138.7	26.5	20.0
1998 11 13	00 05.45	−05 25.0	0.636	1.472	128.5	31.8	20.4
1998 11 23	00 12.60	−06 21.8	0.712	1.476	119.6	35.6	20.8
1998 12 03	00 23.12	−06 29.6	0.793	1.478	111.8	38.3	21.1
1998 12 13	00 36.28	−06 00.0	0.877	1.478	105.0	40.1	21.3
1998 12 23	00 51.56	−05 02.0	0.962	1.477	98.8	41.2	21.6
1999 01 02	01 08.58	−03 42.8	1.047	1.475	93.2	41.7	21.8
1999 01 12	01 27.01	−02 08.5	1.130	1.472	88.0	41.9	21.9

1998 RO$_4$ a, e, i = 2.14, 0.43, 5 Elements *MPC* 32774

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	00 24.15	+03 30.7	0.488	1.488	176.2	2.5	17.6
1998 10 14	00 20.59	+01 26.9	0.554	1.539	164.8	9.8	18.3
1998 10 24	00 19.67	+00 05.3	0.638	1.593	154.1	15.8	18.9
1998 11 03	00 21.74	−00 34.9	0.737	1.647	144.3	20.6	19.4
1998 11 13	00 26.57	−00 39.8	0.850	1.703	135.3	24.1	19.9
1998 11 23	00 33.78	−00 16.7	0.977	1.758	127.1	26.6	20.4
1998 12 03	00 42.98	+00 27.9	1.114	1.814	119.4	28.3	20.8
1998 12 13	00 53.75	+01 28.1	1.261	1.869	112.1	29.2	21.1
1998 12 23	01 05.79	+02 39.4	1.415	1.924	105.2	29.6	21.5
1999 01 02	01 18.86	+03 58.4	1.576	1.978	98.5	29.5	21.8
1999 01 12	01 32.75	+05 21.9	1.741	2.031	92.1	28.9	22.0

1998 SF$_{35}$ a, e, i = 1.68, 0.27, 35 Elements *MPC* 32782

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	00 28.01	+42 22.1	0.734	1.641	141.7	22.2	19.0
1998 10 14	00 16.12	+36 33.9	0.667	1.604	148.4	19.0	18.6
1998 10 24	00 06.71	+28 43.0	0.625	1.567	149.9	18.6	18.4
1998 11 03	00 01.87	+19 36.9	0.611	1.529	144.0	22.4	18.4
1998 11 13	00 02.32	+10 30.5	0.626	1.492	133.6	28.7	18.6
1998 11 23	00 07.84	+02 28.9	0.665	1.456	122.3	35.0	18.9
1998 12 03	00 17.78	−03 57.4	0.720	1.420	111.8	40.1	19.1
1998 12 13	00 31.29	−08 48.7	0.784	1.386	102.6	43.9	19.4
1998 12 23	00 47.67	−12 18.8	0.851	1.354	94.8	46.4	19.6
1999 01 02	01 06.38	−14 44.4	0.917	1.324	88.3	47.9	19.7
1999 01 12	01 26.99	−16 20.3	0.978	1.297	82.8	48.8	19.8
1999 01 22	01 49.27	−17 17.6	1.032	1.274	78.4	49.2	19.9
1999 02 01	02 13.09	−17 44.8	1.077	1.255	74.8	49.3	20.0
1999 02 11	02 38.38	−17 48.0	1.114	1.240	72.1	49.2	20.0
1999 02 21	03 05.21	−17 30.9	1.142	1.231	70.1	49.1	20.1
1999 03 03	03 33.62	−16 56.8	1.162	1.226	68.9	49.0	20.1

1998 SG$_2$ a, e, i = 2.25, 0.46, 3 Elements *MPC* 32777

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	00 48.91	−04 08.2	0.218	1.216	171.3	7.1	17.1
1998 10 14	01 06.83	−03 38.7	0.225	1.219	168.2	9.7	17.3
1998 10 24	01 23.20	−02 33.3	0.244	1.231	164.0	12.9	17.6
1998 11 03	01 38.26	−00 54.9	0.273	1.251	159.3	16.2	18.0
1998 11 13	01 52.42	+01 06.5	0.314	1.280	154.3	19.6	18.5
1998 11 23	02 06.24	+03 20.7	0.367	1.315	148.9	22.8	19.0
1998 12 03	02 20.36	+05 39.2	0.432	1.357	143.3	25.7	19.5
1998 12 13	02 35.01	+07 55.5	0.509	1.403	137.7	28.2	20.0
1998 12 23	02 50.40	+10 05.8	0.598	1.453	132.0	30.2	20.5
1999 01 02	03 06.63	+12 07.7	0.699	1.507	126.3	31.7	21.0
1999 01 12	03 23.61	+13 59.5	0.812	1.562	120.7	32.8	21.4
1999 01 22	03 41.30	+15 40.6	0.935	1.620	115.1	33.4	21.8

1998 SE$_{35}$ a, e, i = 3.07, 0.60, 15 Elements *MPC* 32782

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	00 55.04	+54 07.5	0.306	1.219	130.0	39.0	18.4
1998 10 14	01 02.81	+60 55.9	0.328	1.224	127.0	40.6	18.6
1998 10 24	01 13.06	+64 58.0	0.357	1.239	126.2	40.4	18.8
1998 11 03	01 27.42	+66 37.4	0.390	1.266	127.2	38.6	19.0
1998 11 13	01 45.74	+66 21.1	0.427	1.304	129.5	35.9	19.2
1998 11 23	02 06.46	+64 33.1	0.470	1.349	132.3	32.8	19.4
1998 12 03	02 28.12	+61 40.4	0.521	1.402	134.7	30.0	19.6
1998 12 13	02 49.58	+58 10.2	0.584	1.461	135.9	28.0	19.9
1998 12 23	03 10.49	+54 26.5	0.660	1.525	135.3	27.0	20.2
1999 01 02	03 30.93	+50 49.0	0.750	1.592	132.9	26.9	20.6
1999 01 12	03 50.92	+47 29.8	0.857	1.662	129.1	27.4	21.0
1999 01 22	04 10.60	+44 33.6	0.978	1.734	124.2	28.0	21.4
1999 02 01	04 30.07	+42 01.2	1.114	1.807	118.7	28.6	21.8

1998 RR$_{2}$ a, e, i = 2.66, 0.41, 3 Elements *MPC* 32773

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	00 57.49	+08 21.5	0.578	1.576	173.8	3.9	16.8
1998 10 14	00 52.67	+08 44.8	0.571	1.566	174.3	3.6	16.7
1998 10 24	00 48.70	+09 06.0	0.581	1.562	164.0	10.1	17.0
1998 11 03	00 47.30	+09 32.1	0.609	1.562	153.9	16.2	17.4
1998 11 13	00 49.44	+10 08.4	0.652	1.567	144.7	21.4	17.7
1998 11 23	00 55.38	+10 57.3	0.708	1.577	136.3	25.6	18.0
1998 12 03	01 04.95	+11 59.2	0.777	1.592	128.8	28.9	18.3
1998 12 13	01 17.62	+13 12.1	0.857	1.612	122.0	31.2	18.6
1998 12 23	01 32.83	+14 33.1	0.947	1.635	115.8	32.8	18.9
1999 01 02	01 50.11	+15 59.0	1.045	1.663	110.0	33.8	19.2
1999 01 12	02 08.98	+17 26.6	1.153	1.694	104.6	34.2	19.5
1999 01 22	02 29.10	+18 52.9	1.267	1.728	99.5	34.2	19.7
1999 02 01	02 50.21	+20 15.3	1.389	1.764	94.5	33.8	20.0
1999 02 11	03 12.03	+21 31.5	1.516	1.803	89.6	33.2	20.2
1999 02 21	03 34.42	+22 39.8	1.649	1.845	84.8	32.3	20.4
1999 03 03	03 57.19	+23 38.6	1.785	1.887	80.1	31.2	20.6
1999 03 13	04 20.18	+24 26.9	1.925	1.932	75.4	29.9	20.7
1999 03 23	04 43.29	+25 03.9	2.067	1.977	70.8	28.4	20.9
1999 04 02	05 06.38	+25 29.3	2.210	2.023	66.1	26.8	21.1
1999 04 12	05 29.33	+25 42.8	2.353	2.070	61.5	25.2	21.2

1998 SD$_{4}$ a, e, i = 1.52, 0.13, 14 Elements *MPC* 32777

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	01 07.70	−02 14.3	0.376	1.372	170.4	7.0	17.6
1998 10 14	01 02.39	−07 54.3	0.400	1.386	163.8	11.6	17.9
1998 10 24	00 58.28	−12 04.8	0.440	1.400	152.7	19.0	18.4
1998 11 03	00 57.06	−14 34.1	0.494	1.416	142.3	25.4	18.9
1998 11 13	00 59.33	−15 34.6	0.559	1.432	133.3	30.2	19.3
1998 11 23	01 05.03	−15 25.7	0.633	1.449	125.4	33.8	19.7
1998 12 03	01 13.83	−14 26.0	0.713	1.466	118.5	36.2	20.1
1998 12 13	01 25.17	−12 51.0	0.798	1.484	112.3	37.9	20.4
1998 12 23	01 38.60	−10 51.7	0.888	1.502	106.6	38.9	20.7
1999 01 02	01 53.77	−08 36.9	0.980	1.519	101.4	39.4	20.9
1999 01 12	02 10.34	−06 13.3	1.075	1.537	96.5	39.5	21.2
1999 01 22	02 28.13	−03 45.7	1.172	1.554	91.8	39.3	21.4
1999 02 01	02 46.98	−01 18.3	1.269	1.570	87.3	38.8	21.5
1999 02 11	03 06.74	+01 05.5	1.368	1.586	83.0	38.1	21.7
1999 02 21	03 27.36	+03 22.9	1.466	1.601	78.8	37.3	21.9

1998 SG$_{36}$ a, e, i = 1.65, 0.34, 25 Elements *MPC* 32783

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	01 26.22	+00 43.8	1.147	2.135	167.7	5.7	17.9
1998 10 14	01 13.76	−02 38.7	1.162	2.150	169.4	4.9	17.9
1998 10 24	01 01.89	−05 36.8	1.206	2.163	158.6	9.7	18.2
1998 11 03	00 52.08	−07 56.5	1.278	2.174	146.3	14.7	18.5
1998 11 13	00 45.24	−09 33.2	1.371	2.183	134.6	18.8	18.8
1998 11 23	00 41.74	−10 29.2	1.482	2.190	123.7	22.0	19.1
1998 12 03	00 41.53	−10 50.1	1.604	2.195	113.8	24.3	19.4
1998 12 13	00 44.29	−10 42.9	1.732	2.198	104.6	25.7	19.6
1998 12 23	00 49.63	−10 13.6	1.864	2.199	96.2	26.4	19.8
1999 01 02	00 57.16	−09 27.3	1.995	2.198	88.3	26.6	19.9
1999 01 12	01 06.52	−08 28.5	2.122	2.194	80.9	26.3	20.0
1999 01 22	01 17.44	−07 20.3	2.245	2.189	74.0	25.6	20.1
1999 02 01	01 29.68	−06 05.5	2.360	2.181	67.5	24.7	20.2
1999 02 11	01 43.05	−04 46.5	2.466	2.172	61.3	23.5	20.3

1994 JC a, e, i = 3.38, 0.51, 31 Elements *MPC* 24409

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	02 30.19	+10 27.6	3.337	4.245	151.7	6.4	21.2
1998 10 14	02 22.67	+10 21.6	3.246	4.211	163.3	3.9	21.0
1998 10 24	02 14.17	+10 13.3	3.186	4.177	174.7	1.3	20.8
1998 11 03	02 05.25	+10 04.8	3.158	4.142	171.9	1.9	20.8
1998 11 13	01 56.52	+09 58.1	3.162	4.107	160.1	4.7	21.0
1998 11 23	01 48.56	+09 55.4	3.198	4.070	148.2	7.3	21.1
1998 12 03	01 41.89	+09 58.5	3.260	4.034	136.6	9.7	21.2
1998 12 13	01 36.83	+10 09.0	3.345	3.996	125.4	11.6	21.3
1998 12 23	01 33.57	+10 27.4	3.447	3.958	114.5	13.1	21.4
1999 01 02	01 32.18	+10 54.2	3.560	3.919	104.2	14.1	21.5
1999 01 12	01 32.60	+11 29.2	3.679	3.879	94.3	14.6	21.6
1999 01 22	01 34.71	+12 11.7	3.799	3.838	84.9	14.8	21.6
1999 02 01	01 38.38	+13 01.2	3.916	3.797	75.9	14.6	21.7
1999 02 11	01 43.44	+13 56.8	4.025	3.755	67.2	14.0	21.7

1994 VA$_{1}$ a, e, i = 1.57, 0.17, 8 Elements *MPC* 28888

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	03 26.32	+23 49.9	0.946	1.800	135.2	23.1	21.3
1998 10 14	03 21.35	+22 55.8	0.869	1.787	146.3	18.0	20.9
1998 10 24	03 11.75	+21 29.9	0.809	1.773	158.8	11.7	20.5
1998 11 03	02 58.61	+19 33.4	0.770	1.758	172.1	4.4	20.0
1998 11 13	02 44.02	+17 15.6	0.754	1.741	173.3	3.8	19.9
1998 11 23	02 30.52	+14 54.2	0.763	1.723	159.6	11.5	20.3
1998 12 03	02 20.40	+12 49.3	0.794	1.704	146.4	18.7	20.6
1998 12 13	02 14.86	+11 14.7	0.841	1.684	134.5	24.7	20.9
1998 12 23	02 14.21	+10 15.4	0.902	1.663	123.8	29.4	21.2
1999 01 02	02 18.14	+09 50.0	0.970	1.642	114.4	33.1	21.4
1999 01 12	02 26.08	+09 53.1	1.042	1.619	106.1	35.7	21.6
1999 01 22	02 37.45	+10 18.8	1.116	1.596	98.7	37.6	21.8
1999 02 01	02 51.75	+11 00.8	1.189	1.572	92.1	38.8	21.9
1999 02 11	03 08.56	+11 53.7	1.259	1.548	86.2	39.5	22.0

1998 SJ$_2$ a, e, i = 2.33, 0.50, 10 Elements *MPC* 32777

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	03 31.17	+27 47.8	0.355	1.269	132.7	35.4	17.2
1998 10 14	03 22.62	+32 01.9	0.376	1.315	142.0	27.9	17.2
1998 10 24	03 08.60	+34 52.8	0.408	1.366	151.1	20.6	17.3
1998 11 03	02 52.75	+36 17.7	0.453	1.423	158.1	15.1	17.4
1998 11 13	02 38.95	+36 31.5	0.513	1.482	160.0	13.2	17.7
1998 11 23	02 29.74	+35 59.5	0.589	1.544	155.9	15.2	18.1
1998 12 03	02 26.05	+35 07.9	0.681	1.607	148.8	18.5	18.6
1998 12 13	02 27.44	+34 14.7	0.788	1.672	140.9	21.8	19.2
1998 12 23	02 33.04	+33 29.5	0.910	1.737	133.0	24.5	19.6
1999 01 02	02 42.00	+32 55.9	1.044	1.802	125.4	26.4	20.1
1999 01 12	02 53.51	+32 34.0	1.190	1.867	118.1	27.7	20.5
1999 01 22	03 06.97	+32 21.9	1.344	1.931	111.1	28.4	20.8
1999 02 01	03 21.94	+32 17.5	1.507	1.994	104.4	28.6	21.1
1999 02 11	03 38.03	+32 18.2	1.676	2.057	97.8	28.4	21.4
1999 02 21	03 55.01	+32 21.5	1.848	2.118	91.5	27.8	21.7
1999 03 03	04 12.66	+32 25.7	2.024	2.179	85.3	27.0	21.9

1997 BQ a, e, i = 1.75, 0.48, 11 Elements *MPC* 30473

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	03 56.93	+18 01.6	1.621	2.387	129.7	18.8	21.9
1998 10 14	03 51.02	+18 10.9	1.497	2.357	140.9	15.5	21.6
1998 10 24	03 41.16	+18 13.0	1.393	2.324	153.1	11.2	21.2
1998 11 03	03 27.69	+18 06.6	1.313	2.289	166.3	5.9	20.9
1998 11 13	03 11.63	+17 51.8	1.262	2.252	179.9	0.0	20.3
1998 11 23	02 54.69	+17 30.6	1.241	2.212	165.9	6.3	20.7
1998 12 03	02 38.92	+17 08.5	1.250	2.170	152.0	12.3	20.9
1998 12 13	02 26.05	+16 52.3	1.283	2.126	138.8	17.7	21.1
1998 12 23	02 17.14	+16 47.8	1.336	2.079	126.6	22.3	21.3
1999 01 02	02 12.57	+16 58.7	1.403	2.030	115.5	25.9	21.5
1999 01 12	02 12.19	+17 25.7	1.475	1.978	105.3	28.7	21.6
1999 01 22	02 15.65	+18 08.1	1.550	1.924	96.2	30.6	21.7
1999 02 01	02 22.54	+19 04.1	1.623	1.867	87.9	31.8	21.8
1999 02 11	02 32.47	+20 11.3	1.689	1.808	80.4	32.6	21.8
1999 02 21	02 45.18	+21 27.1	1.748	1.747	73.5	32.9	21.8
1999 03 03	03 00.45	+22 49.0	1.796	1.684	67.3	32.9	21.8
1999 03 13	03 18.18	+24 14.0	1.833	1.618	61.7	32.7	21.7

1996 TR$_6$ a, e, i = 1.59, 0.18, 22 Elements *MPC* 32675

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	04 02.05	+08 27.5	0.613	1.468	129.4	31.8	19.6
1998 10 14	04 00.73	+02 19.6	0.591	1.493	138.5	26.3	19.4
1998 10 24	03 54.00	−03 52.0	0.587	1.518	146.2	21.4	19.3
1998 11 03	03 43.25	−09 24.6	0.602	1.543	149.9	18.8	19.3
1998 11 13	03 30.71	−13 41.1	0.638	1.568	148.1	19.5	19.5
1998 11 23	03 18.85	−16 23.6	0.692	1.592	142.4	22.2	19.8
1998 12 03	03 09.78	−17 36.0	0.761	1.617	135.1	25.5	20.1
1998 12 13	03 04.57	−17 35.5	0.843	1.640	127.6	28.4	20.5
1998 12 23	03 03.46	−16 41.6	0.934	1.663	120.3	30.7	20.8
1999 01 02	03 06.21	−15 11.8	1.031	1.686	113.6	32.3	21.1
1999 01 12	03 12.28	−13 19.5	1.133	1.707	107.3	33.4	21.3
1999 01 22	03 21.17	−11 14.3	1.239	1.727	101.3	34.0	21.6
1999 02 01	03 32.42	−09 03.2	1.346	1.746	95.7	34.2	21.8
1999 02 11	03 45.61	−06 51.6	1.454	1.764	90.4	34.0	22.0

1991 EE a, e, i = 2.25, 0.62, 10 Elements *MPC* 32743

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	04 51.80	+10 15.3	1.443	2.097	117.1	25.1	21.1
1998 10 14	04 45.93	+08 59.3	1.410	2.172	128.0	21.2	21.0
1998 10 24	04 36.39	+07 42.7	1.392	2.245	139.6	16.7	20.9
1998 11 03	04 23.93	+06 31.0	1.396	2.315	151.3	11.9	20.8
1998 11 13	04 09.79	+05 30.3	1.425	2.384	161.2	7.7	20.7
1998 11 23	03 55.48	+04 45.9	1.484	2.450	164.5	6.2	20.8
1998 12 03	03 42.51	+04 21.3	1.572	2.514	158.1	8.4	21.1
1998 12 13	03 31.95	+04 16.8	1.688	2.575	147.8	11.7	21.4
1998 12 23	03 24.37	+04 30.4	1.828	2.635	137.1	14.7	21.7
1999 01 02	03 19.91	+04 58.8	1.988	2.693	126.6	17.0	22.0

1998 SS$_{49}$ a, e, i = 1.87, 0.63, 11 Elements *MPC* 32784

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	04 58.44	+20 20.4	0.664	1.415	115.0	39.8	17.9
1998 10 14	05 33.40	+23 09.2	0.522	1.317	116.6	42.6	17.3
1998 10 24	06 25.17	+26 49.7	0.398	1.216	114.7	48.0	16.7
1998 11 03	07 51.31	+30 37.4	0.302	1.114	106.1	58.8	16.2
1998 11 13	10 05.32	+29 45.8	0.255	1.012	87.8	77.6	16.3
1998 11 23	12 16.78	+20 15.7	0.278	0.914	66.7	97.1	17.0
1998 12 03	13 40.56	+09 33.5	0.358	0.824	53.4	106.2	17.8
1998 12 13	14 33.35	+01 22.6	0.470	0.750	47.3	105.2	18.1
1998 12 23	15 13.37	−05 00.4	0.600	0.703	45.1	97.7	18.1
1999 01 02	15 49.43	−10 18.4	0.739	0.690	44.5	86.9	18.1
1999 01 12	16 24.81	−14 43.4	0.875	0.717	44.9	75.6	18.1
1999 01 22	16 59.75	−18 14.8	0.999	0.775	46.0	66.0	18.3
1999 02 01	17 33.39	−20 54.9	1.105	0.856	47.9	58.7	18.5
1999 02 11	18 05.00	−22 51.1	1.191	0.950	50.7	53.5	18.7
1999 02 21	18 34.06	−24 13.2	1.257	1.050	54.2	49.8	19.0
1999 03 03	19 00.32	−25 11.1	1.304	1.152	58.4	47.1	19.2
1999 03 13	19 23.70	−25 53.7	1.333	1.254	63.3	45.1	19.3
1999 03 23	19 44.12	−26 28.8	1.345	1.354	68.8	43.3	19.5
1999 04 02	20 01.47	−27 03.2	1.342	1.451	75.0	41.7	19.6
1999 04 12	20 15.63	−27 42.9	1.326	1.545	81.8	40.0	19.6
1999 04 22	20 26.34	−28 33.2	1.300	1.635	89.4	37.9	19.7
1999 05 02	20 33.22	−29 38.2	1.267	1.723	97.8	35.4	19.6
1999 05 12	20 35.83	−31 00.5	1.231	1.806	107.0	32.3	19.6
1999 05 22	20 33.56	−32 40.2	1.196	1.887	117.2	28.5	19.5
1999 06 01	20 25.96	−34 32.7	1.169	1.964	128.1	24.0	19.4
1999 06 11	20 12.94	−36 27.9	1.156	2.037	139.5	18.9	19.3
1999 06 21	19 55.13	−38 10.6	1.162	2.108	150.8	13.6	19.2
1999 07 01	19 34.30	−39 25.1	1.193	2.175	159.8	9.3	19.2
1999 07 11	19 13.05	−40 02.1	1.250	2.240	162.1	8.0	19.3
1999 07 21	18 54.05	−40 02.3	1.335	2.301	156.0	10.3	19.6
1999 07 31	18 39.17	−39 34.7	1.445	2.360	146.6	13.7	20.0
1999 08 10	18 29.10	−38 50.7	1.577	2.415	136.6	16.8	20.3
1999 08 20	18 23.76	−37 59.4	1.725	2.469	126.8	19.2	20.6
1999 08 30	18 22.58	−37 06.9	1.888	2.519	117.5	20.8	20.9
1999 09 09	18 24.88	−36 16.1	2.059	2.567	108.7	21.8	21.2
1999 09 19	18 30.01	−35 27.9	2.237	2.612	100.4	22.2	21.4

1999 09 29	18 37.42	−34 42.1	2.418	2.655	92.4	22.2	21.6
1999 10 09	18 46.62	−33 57.9	2.598	2.696	84.7	21.7	21.8
1999 10 19	18 57.27	−33 14.3	2.776	2.734	77.2	20.8	21.9

1998 SR$_{49}$ a, e, i = 2.44, 0.53, 29 Elements *MPC* 32784

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	05 13.57	+37 50.7	0.512	1.266	109.4	48.2	18.4
1998 10 14	06 06.39	+49 53.1	0.473	1.224	107.2	51.1	18.2
1998 10 24	07 27.89	+60 33.1	0.464	1.190	103.2	54.5	18.2
1998 11 03	09 24.26	+66 27.4	0.483	1.166	98.6	57.3	18.3
1998 11 13	11 20.52	+66 34.1	0.519	1.154	94.6	58.8	18.5
1998 11 23	12 40.10	+63 40.5	0.562	1.153	91.9	58.9	18.7
1998 12 03	13 28.15	+60 20.7	0.604	1.163	90.8	57.9	18.8
1998 12 13	13 57.42	+57 33.7	0.642	1.185	91.0	56.2	18.9
1998 12 23	14 14.88	+55 35.0	0.671	1.217	92.8	53.8	19.0
1999 01 02	14 23.42	+54 24.7	0.691	1.258	95.8	51.0	19.1
1999 01 12	14 23.85	+53 57.2	0.703	1.306	100.2	47.8	19.1
1999 01 22	14 15.53	+54 02.2	0.709	1.361	105.9	44.1	19.1
1999 02 01	13 57.38	+54 18.9	0.712	1.420	112.6	39.9	19.1
1999 02 11	13 29.21	+54 15.4	0.719	1.483	119.9	35.2	19.1
1999 02 21	12 53.34	+53 12.7	0.735	1.548	127.2	30.6	19.1
1999 03 03	12 15.70	+50 41.9	0.766	1.615	133.1	26.6	19.2
1999 03 13	11 42.87	+46 46.3	0.818	1.683	136.3	24.1	19.3
1999 03 23	11 18.44	+41 56.4	0.892	1.751	135.9	23.3	19.6
1999 04 02	11 02.71	+36 49.2	0.990	1.820	132.3	24.0	19.9
1999 04 12	10 54.17	+31 51.8	1.109	1.888	126.7	25.2	20.3
1999 04 22	10 51.09	+27 16.9	1.246	1.955	120.2	26.4	20.6
1999 05 02	10 52.04	+23 08.3	1.399	2.022	113.4	27.2	21.0
1999 05 12	10 55.90	+19 24.5	1.563	2.088	106.5	27.6	21.3
1999 05 22	11 01.91	+16 01.9	1.736	2.153	99.8	27.6	21.6
1999 06 01	11 09.50	+12 56.8	1.915	2.217	93.2	27.2	21.9

1998 ST$_{49}$ a, e, i = 2.29, 0.59, 25 Elements *MPC* 32784

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	06 20.59	+31 02.3	0.212	1.044	96.1	72.2	17.3
1998 10 14	08 37.96	+46 41.1	0.240	0.993	82.1	84.1	17.8
1998 10 24	10 40.68	+49 12.7	0.309	0.957	74.1	87.9	18.4
1998 11 03	11 54.83	+46 20.7	0.393	0.939	70.7	86.0	18.9
1998 11 13	12 38.86	+42 34.3	0.479	0.940	69.9	81.5	19.1
1998 11 23	13 07.88	+38 57.6	0.557	0.961	70.7	76.0	19.3
1998 12 03	13 28.69	+35 44.4	0.624	0.999	72.8	70.5	19.4
1998 12 13	13 44.25	+32 59.6	0.676	1.052	76.1	65.3	19.6
1998 12 23	13 55.59	+30 46.6	0.713	1.116	80.5	60.4	19.7
1999 01 02	14 02.80	+29 06.5	0.735	1.188	86.2	55.7	19.7
1999 01 12	14 05.54	+27 58.6	0.743	1.265	93.2	50.9	19.8
1999 01 22	14 03.06	+27 20.4	0.742	1.346	101.5	45.8	19.7
1999 02 01	13 54.48	+27 04.4	0.737	1.428	111.3	40.0	19.7
1999 02 11	13 39.25	+26 58.1	0.732	1.511	122.4	33.5	19.6
1999 02 21	13 17.63	+26 43.1	0.738	1.594	134.4	26.3	19.5
1999 03 03	12 51.57	+25 58.6	0.760	1.677	146.1	19.2	19.5
1999 03 13	12 24.52	+24 33.3	0.806	1.758	155.0	13.8	19.5
1999 03 23	12 00.14	+22 30.7	0.879	1.837	156.7	12.4	19.8
1999 04 02	11 40.93	+20 05.0	0.980	1.915	150.9	14.7	20.2
1999 04 12	11 27.59	+17 32.1	1.104	1.991	142.0	18.1	20.6
1999 04 22	11 19.68	+15 01.7	1.249	2.066	132.6	21.0	21.1
1999 05 02	11 16.32	+12 38.5	1.410	2.138	123.5	23.1	21.5
1999 05 12	11 16.52	+10 23.3	1.583	2.208	115.0	24.5	21.9

1993 RR$_2$ a, e, i = 2.66, 0.49, 11 Elements *MPC* 30471

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	07 02.99	+11 31.8	2.796	2.886	85.0	20.2	21.0
1998 10 14	07 08.02	+10 55.6	2.700	2.932	93.4	19.9	21.0
1998 10 24	07 10.87	+10 21.3	2.603	2.978	102.3	19.1	20.9
1998 11 03	07 11.36	+09 50.8	2.509	3.022	111.8	17.7	20.8
1998 11 13	07 09.37	+09 26.2	2.424	3.065	121.9	15.9	20.7
1998 11 23	07 04.91	+09 09.3	2.353	3.107	132.6	13.5	20.6
1998 12 03	06 58.15	+09 01.8	2.300	3.148	143.5	10.7	20.5
1998 12 13	06 49.53	+09 04.5	2.272	3.188	154.4	7.7	20.3
1998 12 23	06 39.74	+09 17.8	2.272	3.227	163.5	5.0	20.2
1999 01 02	06 29.63	+09 40.8	2.302	3.265	166.0	4.2	20.3
1999 01 12	06 20.12	+10 11.8	2.363	3.301	159.2	6.1	20.4
1999 01 22	06 11.97	+10 48.7	2.454	3.337	149.0	8.7	20.7
1999 02 01	06 05.75	+11 29.2	2.572	3.372	138.3	11.2	20.9
1999 02 11	06 01.75	+12 11.2	2.710	3.405	127.7	13.2	21.1
1999 02 21	06 00.04	+12 53.1	2.866	3.438	117.6	14.8	21.3
1999 03 03	06 00.53	+13 33.3	3.034	3.469	107.9	15.8	21.5
1999 03 13	06 03.01	+14 10.8	3.210	3.500	98.6	16.3	21.6
1999 03 23	06 07.27	+14 44.8	3.388	3.529	89.8	16.4	21.8
1999 04 02	06 13.06	+15 14.6	3.566	3.558	81.4	16.1	21.9
1999 04 12	06 20.14	+15 39.8	3.741	3.585	73.4	15.5	22.0

(8507) 1991 CB$_1$ a, e, i = 1.69, 0.59, 15 Elements *MPC* 31498

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	07 20.30	+38 41.5	1.366	1.615	84.6	38.1	21.0
1998 10 14	07 28.96	+39 20.5	1.328	1.696	92.5	36.0	21.0
1998 10 24	07 32.92	+40 09.6	1.285	1.772	101.3	33.4	21.0
1998 11 03	07 31.38	+41 08.6	1.239	1.845	111.1	30.1	20.9
1998 11 13	07 23.60	+42 12.8	1.198	1.914	121.8	26.1	20.8
1998 11 23	07 09.13	+43 11.7	1.168	1.980	133.3	21.3	20.7
1998 12 03	06 48.55	+43 48.9	1.155	2.043	145.1	16.0	20.5
1998 12 13	06 24.03	+43 48.2	1.166	2.102	155.5	11.2	20.4
1998 12 23	05 59.01	+43 02.2	1.206	2.158	160.4	8.8	20.5
1999 01 02	05 37.08	+41 37.9	1.275	2.211	156.1	10.4	20.7
1999 01 12	05 20.46	+39 52.3	1.373	2.260	146.7	13.8	21.1
1999 01 22	05 09.75	+38 02.8	1.495	2.307	136.1	17.2	21.4
1999 02 01	05 04.53	+36 21.0	1.636	2.351	125.7	19.9	21.7
1999 02 11	05 03.90	+34 52.5	1.791	2.392	115.8	21.8	22.0

1991 VE a, e, i = 0.89, 0.66, 7 Elements *MPC* 31138

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	07 40.08	+22 47.4	1.320	1.476	77.6	41.5	21.6
1998 10 14	07 56.27	+22 43.3	1.209	1.482	83.8	42.0	21.4
1998 10 24	08 11.29	+22 44.8	1.090	1.480	90.4	42.2	21.2
1998 11 03	08 24.90	+22 57.2	0.964	1.469	97.3	42.1	20.9
1998 11 13	08 36.80	+23 28.0	0.835	1.449	104.8	41.3	20.5
1998 11 23	08 46.36	+24 29.2	0.704	1.419	112.9	39.9	20.1
1998 12 03	08 52.53	+26 20.1	0.576	1.380	122.0	37.3	19.5
1998 12 13	08 53.29	+29 35.0	0.452	1.331	132.2	33.3	18.8

1998 12 23	08 43.54	+35 19.7	0.338	1.271	143.6	27.3	17.9
1999 01 02	08 07.47	+45 32.0	0.240	1.201	152.3	22.4	16.9
1999 01 12	05 54.72	+59 50.7	0.173	1.118	138.2	35.9	16.4
1999 01 22	01 30.43	+52 52.4	0.160	1.022	99.2	71.9	17.1
1999 02 01	23 45.53	+30 58.5	0.202	0.912	63.0	105.6	18.7
1999 02 11	23 03.45	+15 33.7	0.273	0.785	36.7	131.3	21.0

1997 CU$_{29}$ a, e, i = 43.38, 0.03, 1 Elements *MPC* 30765

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	07 51.62	+22 10.9	45.041	44.791	74.9	1.2	23.2
1998 10 14	07 51.91	+22 10.4	44.872	44.791	84.7	1.3	23.2
1998 10 24	07 52.04	+22 10.3	44.700	44.791	94.6	1.3	23.2
1998 11 03	07 52.01	+22 10.6	44.531	44.791	104.6	1.2	23.2
1998 11 13	07 51.82	+22 11.4	44.369	44.791	114.7	1.2	23.2
1998 11 23	07 51.48	+22 12.5	44.219	44.791	124.8	1.0	23.1
1998 12 03	07 51.00	+22 14.0	44.088	44.791	135.1	0.9	23.1
1998 12 13	07 50.39	+22 15.7	43.978	44.791	145.4	0.7	23.1
1998 12 23	07 49.69	+22 17.6	43.893	44.791	155.7	0.5	23.1
1999 01 02	07 48.92	+22 19.7	43.836	44.791	166.0	0.3	23.0
1999 01 12	07 48.10	+22 21.8	43.810	44.791	176.3	0.1	23.0
1999 01 22	07 47.27	+22 23.9	43.814	44.791	173.0	0.2	23.0
1999 02 01	07 46.45	+22 25.8	43.849	44.791	162.7	0.4	23.0
1999 02 11	07 45.69	+22 27.6	43.914	44.791	152.4	0.6	23.1
1999 02 21	07 45.01	+22 29.1	44.006	44.791	142.2	0.8	23.1
1999 03 03	07 44.44	+22 30.3	44.122	44.791	132.0	0.9	23.1
1999 03 13	07 43.99	+22 31.2	44.258	44.791	121.9	1.1	23.1
1999 03 23	07 43.68	+22 31.6	44.410	44.791	111.9	1.2	23.2
1999 04 02	07 43.52	+22 31.7	44.574	44.791	102.0	1.3	23.2
1999 04 12	07 43.53	+22 31.4	44.743	44.791	92.1	1.3	23.2
1999 04 22	07 43.69	+22 30.7	44.913	44.791	82.4	1.3	23.2
1999 05 02	07 44.01	+22 29.6	45.080	44.791	72.7	1.2	23.2
1999 05 12	07 44.48	+22 28.2	45.238	44.791	63.2	1.2	23.2
1999 05 22	07 45.08	+22 26.4	45.384	44.791	53.7	1.0	23.2
1999 06 01	07 45.81	+22 24.4	45.512	44.791	44.2	0.9	23.2
1999 06 11	07 46.63	+22 22.1	45.621	44.791	34.9	0.7	23.2

1997 CS$_{29}$ a, e, i = 43.77, 0.01, 2 Elements *MPC* 31279

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	07 58.21	+20 59.3	43.882	43.603	73.2	1.3	21.6
1998 10 14	07 58.53	+20 58.4	43.714	43.603	83.0	1.3	21.6
1998 10 24	07 58.69	+20 57.9	43.542	43.603	92.9	1.3	21.6
1998 11 03	07 58.69	+20 57.9	43.372	43.603	102.8	1.3	21.6
1998 11 13	07 58.53	+20 58.4	43.208	43.603	112.9	1.2	21.5
1998 11 23	07 58.21	+20 59.2	43.056	43.603	123.1	1.1	21.5
1998 12 03	07 57.74	+21 00.5	42.921	43.603	133.3	0.9	21.5
1998 12 13	07 57.15	+21 02.1	42.806	43.603	143.6	0.8	21.5
1998 12 23	07 56.45	+21 04.0	42.717	43.603	154.0	0.6	21.5
1999 01 02	07 55.68	+21 06.1	42.655	43.602	164.3	0.3	21.4
1999 01 12	07 54.85	+21 08.3	42.623	43.602	174.7	0.1	21.4
1999 01 22	07 54.01	+21 10.5	42.622	43.602	174.9	0.1	21.4
1999 02 01	07 53.19	+21 12.6	42.652	43.602	164.5	0.3	21.4
1999 02 11	07 52.41	+21 14.6	42.711	43.602	154.2	0.6	21.5
1999 02 21	07 51.70	+21 16.3	42.799	43.602	144.0	0.8	21.5
1999 03 03	07 51.10	+21 17.8	42.910	43.602	133.8	0.9	21.5
1999 03 13	07 50.63	+21 18.9	43.043	43.602	123.6	1.1	21.5
1999 03 23	07 50.30	+21 19.6	43.193	43.602	113.6	1.2	21.5
1999 04 02	07 50.12	+21 20.0	43.354	43.602	103.7	1.3	21.6
1999 04 12	07 50.10	+21 19.8	43.523	43.601	93.8	1.3	21.6
1999 04 22	07 50.24	+21 19.3	43.693	43.601	84.1	1.3	21.6
1999 05 02	07 50.55	+21 18.4	43.861	43.601	74.4	1.3	21.6
1999 05 12	07 51.00	+21 17.0	44.021	43.601	64.9	1.2	21.6
1999 05 22	07 51.60	+21 15.3	44.169	43.601	55.4	1.1	21.6
1999 06 01	07 52.32	+21 13.3	44.300	43.601	45.9	1.0	21.6
1999 06 11	07 53.15	+21 10.9	44.412	43.601	36.6	0.8	21.6

1992 KD a, e, i = 2.34, 0.43, 29 Elements *MPC* 28615

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	08 20.16	+00 08.7	2.857	2.593	64.8	20.4	20.9
1998 10 14	08 31.95	−02 08.6	2.698	2.550	70.8	21.7	20.7
1998 10 24	08 42.92	−04 38.1	2.536	2.506	76.9	22.7	20.6
1998 11 03	08 52.85	−07 19.9	2.374	2.460	83.1	23.6	20.4
1998 11 13	09 01.56	−10 13.8	2.213	2.414	89.3	24.2	20.3
1998 11 23	09 08.74	−13 19.4	2.056	2.366	95.6	24.5	20.1
1998 12 03	09 14.06	−16 35.1	1.905	2.317	101.8	24.6	19.9
1998 12 13	09 17.13	−19 58.3	1.763	2.268	107.9	24.4	19.6
1998 12 23	09 17.48	−23 24.6	1.630	2.217	113.7	24.0	19.4
1999 01 02	09 14.68	−26 46.5	1.511	2.165	119.0	23.4	19.2
1999 01 12	09 08.39	−29 54.0	1.406	2.113	123.4	22.9	19.0
1999 01 22	08 58.58	−32 34.0	1.316	2.060	126.6	22.6	18.7
1999 02 01	08 45.83	−34 31.9	1.243	2.007	128.1	22.7	18.6
1999 02 11	08 31.44	−35 36.0	1.185	1.953	127.8	23.5	18.4
1999 02 21	08 17.33	−35 40.1	1.143	1.899	125.8	25.0	18.3
1999 03 03	08 05.63	−34 47.0	1.113	1.845	122.4	27.0	18.3
1999 03 13	07 57.96	−33 06.9	1.093	1.791	118.1	29.3	18.2
1999 03 23	07 55.30	−30 53.2	1.082	1.738	113.4	31.8	18.2
1999 04 02	07 57.93	−28 20.1	1.076	1.686	108.6	34.2	18.2
1999 04 12	08 05.67	−25 38.8	1.073	1.635	103.9	36.5	18.2
1999 04 22	08 18.18	−22 57.7	1.073	1.586	99.4	38.7	18.2
1999 05 02	08 35.04	−20 22.5	1.075	1.539	95.2	40.7	18.2
1999 05 12	08 55.78	−17 56.7	1.078	1.495	91.4	42.5	18.2
1999 05 22	09 20.01	−15 42.3	1.083	1.455	87.9	44.1	18.2
1999 06 01	09 47.28	−13 40.8	1.092	1.419	84.6	45.4	18.2
1999 06 11	10 17.10	−11 52.4	1.105	1.388	81.7	46.4	18.2
1999 06 21	10 48.99	−10 17.7	1.123	1.363	79.0	47.0	18.2
1999 07 01	11 22.37	−08 56.6	1.148	1.344	76.5	47.4	18.2
1999 07 11	11 56.67	−07 48.6	1.180	1.332	74.2	47.3	18.3
1999 07 21	12 31.43	−06 53.3	1.220	1.327	72.1	46.8	18.3
1999 07 31	13 06.16	−06 09.3	1.267	1.329	70.2	46.0	18.4
1999 08 10	13 40.53	−05 35.4	1.322	1.338	68.4	44.8	18.5
1999 08 20	14 14.35	−05 09.8	1.384	1.355	66.8	43.4	18.5
1999 08 30	14 47.46	−04 50.4	1.452	1.378	65.2	41.7	18.6
1999 09 09	15 19.82	−04 34.8	1.525	1.406	63.7	39.9	18.7
1999 09 19	15 51.44	−04 21.0	1.604	1.441	62.1	38.1	18.8
1999 09 29	16 22.32	−04 06.4	1.687	1.479	60.5	36.1	19.0

1995 DB$_2$ a, e, i = 46.33, 0.14, 4 Elements *MPC* 30093

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998	10 04	09 11.82	+16 36.1	40.834	40.272	55.2	1.2	23.8
1998	10 14	09 12.46	+16 33.6	40.686	40.273	64.9	1.3	23.8
1998	10 24	09 12.94	+16 31.7	40.524	40.274	74.7	1.4	23.8
1998	11 03	09 13.27	+16 30.5	40.355	40.275	84.7	1.4	23.7
1998	11 13	09 13.43	+16 30.1	40.184	40.276	94.6	1.4	23.7
1998	11 23	09 13.42	+16 30.4	40.015	40.277	104.7	1.4	23.7
1998	12 03	09 13.25	+16 31.5	39.853	40.278	114.9	1.3	23.7
1998	12 13	09 12.91	+16 33.3	39.704	40.279	125.1	1.1	23.7
1998	12 23	09 12.43	+16 35.8	39.573	40.280	135.4	1.0	23.7
1999	01 02	09 11.81	+16 38.7	39.464	40.281	145.8	0.8	23.6
1999	01 12	09 11.10	+16 42.1	39.381	40.282	156.2	0.6	23.6
1999	01 22	09 10.31	+16 45.9	39.326	40.283	166.5	0.3	23.6
1999	02 01	09 09.48	+16 49.7	39.301	40.284	176.9	0.1	23.5
1999	02 11	09 08.64	+16 53.6	39.306	40.285	172.7	0.2	23.6
1999	02 21	09 07.81	+16 57.4	39.343	40.286	162.4	0.4	23.6
1999	03 03	09 07.05	+17 00.8	39.408	40.287	152.2	0.7	23.6
1999	03 13	09 06.36	+17 03.9	39.501	40.289	142.0	0.9	23.7
1999	03 23	09 05.79	+17 06.5	39.617	40.290	131.9	1.1	23.7
1999	04 02	09 05.35	+17 08.5	39.754	40.291	121.9	1.2	23.7
1999	04 12	09 05.05	+17 09.9	39.906	40.292	112.0	1.3	23.7
1999	04 22	09 04.91	+17 10.5	40.069	40.293	102.2	1.4	23.7
1999	05 02	09 04.94	+17 10.5	40.238	40.294	92.4	1.4	23.7
1999	05 12	09 05.13	+17 09.7	40.409	40.295	82.8	1.4	23.8
1999	05 22	09 05.48	+17 08.3	40.576	40.296	73.3	1.4	23.8
1999	06 01	09 05.99	+17 06.1	40.735	40.297	63.8	1.3	23.8
1999	06 11	09 06.63	+17 03.4	40.881	40.298	54.4	1.2	23.8
1999	06 21	09 07.41	+17 00.2	41.011	40.299	45.0	1.0	23.7
1999	07 01	09 08.29	+16 56.4	41.121	40.300	35.7	0.8	23.7

1995 DA$_2$ a, e, i = 36.21, 0.07, 7 Elements *MPC* 29664

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998	10 04	09 14.72	+16 48.9	34.611	34.042	54.6	1.4	23.5
1998	10 14	09 15.49	+16 46.0	34.464	34.043	64.3	1.5	23.5
1998	10 24	09 16.09	+16 43.9	34.303	34.044	74.1	1.6	23.5
1998	11 03	09 16.51	+16 42.6	34.135	34.045	84.0	1.7	23.5
1998	11 13	09 16.73	+16 42.2	33.964	34.046	94.0	1.7	23.5
1998	11 23	09 16.74	+16 42.8	33.795	34.048	104.0	1.6	23.5
1998	12 03	09 16.56	+16 44.2	33.633	34.049	114.2	1.5	23.5
1998	12 13	09 16.19	+16 46.5	33.483	34.050	124.5	1.4	23.5
1998	12 23	09 15.64	+16 49.6	33.351	34.051	134.8	1.2	23.4
1999	01 02	09 14.94	+16 53.3	33.241	34.052	145.1	0.9	23.4
1999	01 12	09 14.12	+16 57.5	33.156	34.053	155.5	0.7	23.4
1999	01 22	09 13.20	+17 02.1	33.099	34.054	165.9	0.4	23.3
1999	02 01	09 12.22	+17 06.9	33.072	34.055	176.3	0.1	23.3
1999	02 11	09 11.23	+17 11.6	33.076	34.057	173.2	0.2	23.3
1999	02 21	09 10.26	+17 16.2	33.111	34.058	162.9	0.5	23.4
1999	03 03	09 09.36	+17 20.5	33.176	34.059	152.6	0.8	23.4
1999	03 13	09 08.55	+17 24.2	33.267	34.060	142.4	1.0	23.4
1999	03 23	09 07.88	+17 27.3	33.383	34.061	132.3	1.2	23.5
1999	04 02	09 07.35	+17 29.7	33.518	34.062	122.3	1.4	23.5
1999	04 12	09 07.01	+17 31.3	33.670	34.063	112.3	1.6	23.5
1999	04 22	09 06.85	+17 32.1	33.833	34.064	102.5	1.7	23.5
1999	05 02	09 06.88	+17 32.0	34.002	34.066	92.8	1.7	23.5
1999	05 12	09 07.11	+17 31.1	34.172	34.067	83.2	1.7	23.5
1999	05 22	09 07.53	+17 29.4	34.339	34.068	73.6	1.6	23.6
1999	06 01	09 08.13	+17 26.8	34.498	34.069	64.2	1.5	23.6
1999	06 11	09 08.89	+17 23.6	34.645	34.070	54.8	1.4	23.5
1999	06 21	09 09.81	+17 19.7	34.776	34.071	45.5	1.2	23.5
1999	07 01	09 10.85	+17 15.3	34.888	34.072	36.2	1.0	23.5

1997 CT$_{29}$ a, e, i = 43.61, 0.03, 1 Elements *MPC* 30878

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998	10 04	09 17.10	+16 42.7	45.460	44.880	54.1	1.0	21.7
1998	10 14	09 17.67	+16 40.3	45.312	44.880	63.8	1.1	21.7
1998	10 24	09 18.10	+16 38.6	45.150	44.880	73.6	1.2	21.7
1998	11 03	09 18.39	+16 37.5	44.981	44.880	83.5	1.3	21.7
1998	11 13	09 18.54	+16 37.0	44.808	44.880	93.5	1.3	21.7
1998	11 23	09 18.53	+16 37.3	44.637	44.880	103.6	1.2	21.7
1998	12 03	09 18.37	+16 38.3	44.473	44.879	113.8	1.2	21.7
1998	12 13	09 18.07	+16 39.9	44.321	44.879	124.0	1.0	21.7
1998	12 23	09 17.63	+16 42.0	44.187	44.879	134.3	0.9	21.6
1999	01 02	09 17.07	+16 44.7	44.074	44.879	144.6	0.7	21.6
1999	01 12	09 16.43	+16 47.8	43.986	44.879	155.0	0.5	21.6
1999	01 22	09 15.71	+16 51.1	43.926	44.879	165.3	0.3	21.5
1999	02 01	09 14.95	+16 54.6	43.896	44.879	175.6	0.1	21.5
1999	02 11	09 14.17	+16 58.1	43.897	44.879	173.9	0.1	21.5
1999	02 21	09 13.41	+17 01.5	43.929	44.878	163.7	0.4	21.6
1999	03 03	09 12.70	+17 04.6	43.990	44.878	153.4	0.6	21.6
1999	03 13	09 12.05	+17 07.4	44.078	44.878	143.3	0.8	21.6
1999	03 23	09 11.50	+17 09.7	44.190	44.878	133.2	0.9	21.6
1999	04 02	09 11.07	+17 11.5	44.323	44.878	123.2	1.1	21.7
1999	04 12	09 10.76	+17 12.6	44.472	44.878	113.3	1.2	21.7
1999	04 22	09 10.60	+17 13.2	44.633	44.878	103.5	1.2	21.7
1999	05 02	09 10.58	+17 13.1	44.801	44.878	93.7	1.3	21.7
1999	05 12	09 10.71	+17 12.3	44.971	44.878	84.1	1.3	21.7
1999	05 22	09 10.99	+17 10.9	45.137	44.877	74.5	1.2	21.7
1999	06 01	09 11.40	+17 08.9	45.296	44.877	65.0	1.2	21.7
1999	06 11	09 11.94	+17 06.3	45.443	44.877	55.6	1.1	21.7
1999	06 21	09 12.60	+17 03.2	45.575	44.877	46.2	0.9	21.7
1999	07 01	09 13.36	+16 59.7	45.686	44.877	36.9	0.8	21.7

1997 CR$_{29}$ a, e, i = 44.82, 0.07, 19 Elements *MPC* 31393

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998	10 04	09 27.75	+18 35.2	42.189	41.585	52.3	1.1	22.9
1998	10 14	09 28.42	+18 33.6	42.044	41.585	62.0	1.2	22.9
1998	10 24	09 28.95	+18 32.7	41.886	41.585	71.8	1.3	22.9
1998	11 03	09 29.33	+18 32.5	41.718	41.586	81.6	1.4	22.9
1998	11 13	09 29.56	+18 33.2	41.546	41.586	91.6	1.4	22.9
1998	11 23	09 29.62	+18 34.6	41.375	41.586	101.7	1.3	22.9
1998	12 03	09 29.51	+18 36.8	41.210	41.586	111.8	1.3	22.8
1998	12 13	09 29.24	+18 39.7	41.056	41.587	122.0	1.2	22.8
1998	12 23	09 28.82	+18 43.2	40.919	41.587	132.3	1.0	22.8
1999	01 02	09 28.28	+18 47.3	40.802	41.587	142.6	0.8	22.8
1999	01 12	09 27.62	+18 51.7	40.710	41.587	152.8	0.6	22.8
1999	01 22	09 26.87	+18 56.3	40.645	41.588	163.0	0.4	22.7

1999 02 01	09 26.08	+19 01.1	40.610	41.588	172.8	0.2	22.7
1999 02 11	09 25.25	+19 05.7	40.606	41.588	174.4	0.1	22.7
1999 02 21	09 24.44	+19 10.1	40.632	41.589	165.1	0.4	22.7
1999 03 03	09 23.66	+19 14.2	40.688	41.589	155.0	0.6	22.8
1999 03 13	09 22.96	+19 17.7	40.772	41.589	144.9	0.8	22.8
1999 03 23	09 22.35	+19 20.6	40.880	41.589	134.9	1.0	22.8
1999 04 02	09 21.86	+19 22.9	41.010	41.590	124.9	1.1	22.8
1999 04 12	09 21.51	+19 24.5	41.157	41.590	115.0	1.3	22.8
1999 04 22	09 21.31	+19 25.2	41.316	41.590	105.2	1.3	22.9
1999 05 02	09 21.27	+19 25.3	41.482	41.591	95.5	1.4	22.9
1999 05 12	09 21.39	+19 24.5	41.652	41.591	85.8	1.4	22.9
1999 05 22	09 21.66	+19 23.1	41.819	41.591	76.3	1.4	22.9
1999 06 01	09 22.09	+19 21.0	41.980	41.592	66.8	1.3	22.9
1999 06 11	09 22.66	+19 18.3	42.130	41.592	57.4	1.2	22.9
1999 06 21	09 23.36	+19 15.1	42.264	41.592	48.1	1.0	22.9
1999 07 01	09 24.18	+19 11.5	42.380	41.592	38.8	0.9	22.9

1997 CU$_{26}$ a, e, i = 15.71, 0.17, 23 Elements *MPC* 32058

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	09 27.82	+07 09.5	14.212	13.577	49.0	3.2	18.2
1998 10 14	09 29.91	+06 49.8	14.071	13.572	58.2	3.6	18.2
1998 10 24	09 31.63	+06 31.1	13.916	13.567	67.5	3.9	18.2
1998 11 03	09 32.94	+06 13.8	13.751	13.562	77.0	4.1	18.2
1998 11 13	09 33.81	+05 58.2	13.579	13.557	86.7	4.2	18.2
1998 11 23	09 34.22	+05 44.7	13.405	13.552	96.5	4.2	18.2
1998 12 03	09 34.14	+05 33.4	13.235	13.547	106.4	4.0	18.1
1998 12 13	09 33.58	+05 24.6	13.074	13.542	116.5	3.7	18.1
1998 12 23	09 32.56	+05 18.5	12.926	13.538	126.7	3.3	18.0
1999 01 02	09 31.13	+05 15.1	12.797	13.533	137.0	2.8	18.0
1999 01 12	09 29.33	+05 14.2	12.691	13.528	147.2	2.3	17.9
1999 01 22	09 27.26	+05 15.8	12.611	13.523	157.2	1.6	17.9
1999 02 01	09 25.00	+05 19.5	12.560	13.519	166.2	1.0	17.8
1999 02 11	09 22.66	+05 24.9	12.540	13.514	170.5	0.7	17.8
1999 02 21	09 20.35	+05 31.5	12.550	13.509	165.3	1.1	17.8
1999 03 03	09 18.19	+05 38.9	12.591	13.505	156.3	1.7	17.9
1999 03 13	09 16.25	+05 46.5	12.661	13.500	146.4	2.3	17.9
1999 03 23	09 14.64	+05 53.7	12.756	13.496	136.4	2.9	18.0
1999 04 02	09 13.42	+06 00.0	12.873	13.491	126.5	3.4	18.0
1999 04 12	09 12.64	+06 05.2	13.007	13.486	116.6	3.8	18.1
1999 04 22	09 12.32	+06 08.7	13.155	13.482	106.9	4.1	18.1
1999 05 02	09 12.48	+06 10.3	13.311	13.477	97.4	4.3	18.1
1999 05 12	09 13.11	+06 09.8	13.471	13.473	88.0	4.3	18.2
1999 05 22	09 14.18	+06 07.1	13.630	13.468	78.7	4.2	18.2
1999 06 01	09 15.68	+06 02.1	13.783	13.464	69.6	4.0	18.2
1999 06 11	09 17.56	+05 54.8	13.927	13.460	60.7	3.8	18.2
1999 06 21	09 19.78	+05 45.1	14.058	13.455	51.9	3.4	18.2
1999 07 01	09 22.29	+05 33.3	14.173	13.451	43.3	3.0	18.2
1999 07 11	09 25.04	+05 19.4	14.269	13.446	34.8	2.5	18.2

1997 CV$_{29}$ a, e, i = 43.43, 0.18, 8 Elements *MPC* 31393

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	09 34.98	+17 00.3	41.148	40.514	50.1	1.1	23.3
1998 10 14	09 35.68	+16 57.8	41.011	40.519	59.8	1.2	23.3
1998 10 24	09 36.24	+16 56.0	40.860	40.524	69.6	1.3	23.3
1998 11 03	09 36.66	+16 54.9	40.698	40.528	79.5	1.4	23.3
1998 11 13	09 36.91	+16 54.7	40.531	40.533	89.4	1.4	23.3
1998 11 23	09 37.00	+16 55.3	40.363	40.538	99.5	1.4	23.3
1998 12 03	09 36.91	+16 56.7	40.201	40.543	109.6	1.3	23.2
1998 12 13	09 36.67	+16 58.9	40.049	40.547	119.8	1.2	23.2
1998 12 23	09 36.27	+17 01.7	39.912	40.552	130.1	1.1	23.2
1999 01 02	09 35.74	+17 05.2	39.794	40.557	140.4	0.9	23.2
1999 01 12	09 35.08	+17 09.1	39.701	40.562	150.7	0.7	23.2
1999 01 22	09 34.34	+17 13.3	39.635	40.567	161.0	0.5	23.1
1999 02 01	09 33.54	+17 17.7	39.597	40.571	171.2	0.2	23.1
1999 02 11	09 32.70	+17 22.1	39.591	40.576	176.7	0.1	23.1
1999 02 21	09 31.87	+17 26.4	39.615	40.581	167.5	0.3	23.1
1999 03 03	09 31.07	+17 30.3	39.669	40.586	157.4	0.5	23.1
1999 03 13	09 30.34	+17 33.8	39.751	40.591	147.2	0.8	23.2
1999 03 23	09 29.70	+17 36.8	39.859	40.595	137.1	1.0	23.2
1999 04 02	09 29.18	+17 39.0	39.989	40.600	127.1	1.1	23.2
1999 04 12	09 28.80	+17 40.6	40.137	40.605	117.2	1.3	23.2
1999 04 22	09 28.56	+17 41.4	40.298	40.610	107.4	1.4	23.3
1999 05 02	09 28.49	+17 41.4	40.468	40.615	97.6	1.4	23.3
1999 05 12	09 28.57	+17 40.6	40.642	40.619	88.0	1.4	23.3
1999 05 22	09 28.82	+17 39.1	40.815	40.624	78.4	1.4	23.3
1999 06 01	09 29.22	+17 36.8	40.982	40.629	68.9	1.3	23.3
1999 06 11	09 29.77	+17 33.9	41.139	40.634	59.5	1.2	23.3
1999 06 21	09 30.45	+17 30.4	41.282	40.639	50.2	1.1	23.3
1999 07 01	09 31.25	+17 26.5	41.407	40.643	40.8	0.9	23.3
1999 07 11	09 32.15	+17 22.1	41.511	40.648	31.6	0.8	23.3

1995 DC$_2$ a, e, i = 43.85, 0.07, 2 Elements *MPC* 32308

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	10 38.50	+08 42.9	46.023	45.185	32.7	0.7	23.7
1998 10 14	10 39.25	+08 38.6	45.915	45.183	42.4	0.9	23.7
1998 10 24	10 39.91	+08 34.7	45.785	45.181	52.1	1.0	23.7
1998 11 03	10 40.46	+08 31.5	45.638	45.180	62.0	1.1	23.7
1998 11 13	10 40.90	+08 29.1	45.476	45.178	71.9	1.2	23.7
1998 11 23	10 41.20	+08 27.4	45.306	45.177	81.9	1.2	23.7
1998 12 03	10 41.35	+08 26.6	45.131	45.175	92.0	1.2	23.7
1998 12 13	10 41.37	+08 26.6	44.957	45.173	102.1	1.2	23.7
1998 12 23	10 41.24	+08 27.5	44.789	45.172	112.3	1.2	23.7
1999 01 02	10 40.98	+08 29.2	44.633	45.170	122.6	1.1	23.7
1999 01 12	10 40.59	+08 31.6	44.494	45.169	132.9	0.9	23.7
1999 01 22	10 40.08	+08 34.7	44.375	45.167	143.2	0.7	23.6
1999 02 01	10 39.49	+08 38.4	44.282	45.166	153.5	0.6	23.6
1999 02 11	10 38.83	+08 42.4	44.215	45.164	163.8	0.3	23.6
1999 02 21	10 38.12	+08 46.7	44.179	45.162	174.1	0.1	23.5
1999 03 03	10 37.40	+08 51.1	44.173	45.161	175.6	0.1	23.5
1999 03 13	10 36.69	+08 55.4	44.197	45.159	165.4	0.3	23.6
1999 03 23	10 36.02	+08 59.4	44.250	45.158	155.3	0.5	23.6
1999 04 02	10 35.41	+09 03.1	44.331	45.156	145.3	0.7	23.6
1999 04 12	10 34.89	+09 06.3	44.437	45.155	135.3	0.9	23.7
1999 04 22	10 34.46	+09 08.9	44.564	45.153	125.4	1.0	23.7
1999 05 02	10 34.16	+09 10.7	44.708	45.151	115.6	1.2	23.7
1999 05 12	10 33.98	+09 11.8	44.864	45.150	105.8	1.2	23.7
1999 05 22	10 33.93	+09 12.1	45.028	45.148	96.2	1.3	23.7

1999 06 01	10 34.03	+09 11.6	45.195	45.147	86.6	1.3	23.7
1999 06 11	10 34.25	+09 10.3	45.361	45.145	77.1	1.3	23.7
1999 06 21	10 34.61	+09 08.3	45.521	45.144	67.6	1.2	23.7
1999 07 01	10 35.10	+09 05.5	45.669	45.142	58.2	1.1	23.7
1999 07 11	10 35.69	+09 02.0	45.803	45.141	48.9	1.0	23.7
1999 07 21	10 36.38	+08 58.0	45.918	45.139	39.5	0.8	23.7
1999 07 31	10 37.15	+08 53.4	46.012	45.137	30.2	0.6	23.7

1997 CQ$_{29}$ a, e, i = 44.38, 0.07, 3 Elements *MPC* 31393

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 04	10 41.23	+09 36.1	41.978	41.137	32.4	0.7	22.8
1998 10 14	10 42.08	+09 31.4	41.872	41.137	42.0	0.9	22.8
1998 10 24	10 42.83	+09 27.2	41.744	41.136	51.8	1.1	22.8
1998 11 03	10 43.46	+09 23.8	41.599	41.136	61.6	1.2	22.8
1998 11 13	10 43.96	+09 21.2	41.439	41.136	71.5	1.3	22.8
1998 11 23	10 44.31	+09 19.6	41.270	41.135	81.5	1.4	22.8
1998 12 03	10 44.51	+09 18.8	41.096	41.135	91.6	1.4	22.8
1998 12 13	10 44.56	+09 19.0	40.924	41.135	101.7	1.3	22.8
1998 12 23	10 44.44	+09 20.1	40.757	41.134	111.9	1.3	22.8
1999 01 02	10 44.18	+09 22.1	40.602	41.134	122.2	1.2	22.8
1999 01 12	10 43.77	+09 24.9	40.463	41.134	132.5	1.0	22.8
1999 01 22	10 43.25	+09 28.5	40.345	41.133	142.8	0.8	22.7
1999 02 01	10 42.61	+09 32.6	40.252	41.133	153.1	0.6	22.7
1999 02 11	10 41.90	+09 37.1	40.186	41.133	163.4	0.4	22.7
1999 02 21	10 41.15	+09 41.8	40.149	41.132	173.6	0.2	22.6
1999 03 03	10 40.37	+09 46.6	40.143	41.132	175.8	0.1	22.6
1999 03 13	10 39.60	+09 51.2	40.168	41.132	165.7	0.3	22.7
1999 03 23	10 38.87	+09 55.6	40.222	41.131	155.6	0.6	22.7
1999 04 02	10 38.20	+09 59.5	40.303	41.131	145.5	0.8	22.7
1999 04 12	10 37.63	+10 02.8	40.409	41.131	135.5	1.0	22.8
1999 04 22	10 37.17	+10 05.4	40.537	41.130	125.6	1.1	22.8
1999 05 02	10 36.84	+10 07.1	40.681	41.130	115.8	1.3	22.8
1999 05 12	10 36.64	+10 08.1	40.838	41.130	106.1	1.4	22.8
1999 05 22	10 36.60	+10 08.1	41.003	41.129	96.4	1.4	22.8
1999 06 01	10 36.70	+10 07.3	41.172	41.129	86.9	1.4	22.8
1999 06 11	10 36.96	+10 05.6	41.339	41.129	77.4	1.4	22.8
1999 06 21	10 37.36	+10 03.0	41.499	41.128	67.9	1.3	22.8
1999 07 01	10 37.89	+09 59.7	41.650	41.128	58.5	1.2	22.8
1999 07 11	10 38.55	+09 55.6	41.785	41.128	49.2	1.1	22.8
1999 07 21	10 39.31	+09 51.0	41.902	41.128	39.9	0.9	22.8
1999 07 31	10 40.17	+09 45.8	41.998	41.127	30.5	0.7	22.8

A908 SA a, e, i = 2.60, 0.45, 6 Elements *MPC* 31942

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 10 24	09 42.74	+09 16.2	4.072	3.772	65.6	13.9	20.7
1998 11 03	09 49.25	+08 37.0	3.925	3.771	73.9	14.6	20.7
1998 11 13	09 54.60	+08 02.4	3.770	3.770	82.4	15.1	20.6
1998 11 23	09 58.63	+07 33.8	3.612	3.768	91.4	15.2	20.5
1998 12 03	10 01.16	+07 12.8	3.453	3.764	100.8	14.9	20.4
1998 12 13	10 02.01	+07 00.8	3.299	3.760	110.6	14.2	20.3
1998 12 23	10 01.04	+06 59.0	3.153	3.755	121.0	13.0	20.1
1999 01 02	09 58.18	+07 08.6	3.021	3.749	131.8	11.3	20.0
1999 01 12	09 53.47	+07 29.9	2.908	3.742	143.1	9.1	19.8
1999 01 22	09 47.07	+08 02.2	2.820	3.734	154.8	6.4	19.6
1999 02 01	09 39.40	+08 43.8	2.759	3.725	166.5	3.5	19.4
1999 02 11	09 30.99	+09 31.7	2.730	3.715	175.1	1.3	19.2
1999 02 21	09 22.51	+10 22.5	2.734	3.704	166.9	3.5	19.4
1999 03 03	09 14.68	+11 12.2	2.768	3.692	155.3	6.4	19.5
1999 03 13	09 08.08	+11 57.6	2.831	3.679	143.7	9.2	19.7
1999 03 23	09 03.16	+12 36.3	2.918	3.665	132.5	11.6	19.9
1999 04 02	09 00.17	+13 06.9	3.024	3.651	121.8	13.5	20.0
1999 04 12	08 59.17	+13 28.7	3.144	3.635	111.6	14.8	20.1
1999 04 22	09 00.10	+13 41.6	3.273	3.618	102.0	15.8	20.2
1999 05 02	09 02.83	+13 45.7	3.406	3.601	92.9	16.2	20.3
1999 05 12	09 07.17	+13 41.7	3.539	3.582	84.3	16.3	20.4
1999 05 22	09 12.93	+13 29.7	3.668	3.563	76.1	16.0	20.4
1999 06 01	09 19.90	+13 10.3	3.792	3.542	68.2	15.4	20.5
1999 06 11	09 27.91	+12 44.0	3.906	3.521	60.6	14.6	20.5

P/1993 K2 (Helin-Lawrence) Elements *MPC* 31069

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 11 03	06 31.12	+22 38.8	5.192	5.795	123.2	8.2	20.1	22.5
1998 11 13	06 28.69	+22 46.6	5.059	5.789	133.8	7.1	20.0	22.4
1998 11 23	06 25.05	+22 55.5	4.948	5.782	144.7	5.7	19.9	22.2
1998 12 03	06 20.37	+23 04.9	4.862	5.776	155.9	4.0	19.9	22.1
1998 12 13	06 14.89	+23 14.4	4.804	5.769	167.4	2.1	19.9	22.0
1998 12 23	06 08.96	+23 23.5	4.779	5.762	178.9	0.2	19.9	21.8
1999 01 02	06 02.97	+23 31.7	4.785	5.755	169.5	1.8	19.9	21.9
1999 01 12	05 57.30	+23 39.1	4.823	5.747	158.0	3.7	19.9	22.1
1999 01 22	05 52.33	+23 45.5	4.891	5.739	146.7	5.4	19.9	22.2
1999 02 01	05 48.35	+23 51.3	4.985	5.731	135.7	6.9	19.9	22.3
1999 02 11	05 45.57	+23 56.8	5.101	5.723	124.9	8.1	20.0	22.4
1999 02 21	05 44.09	+24 02.2	5.234	5.714	114.4	9.1	20.0	22.5

129P/Shoemaker-Levy 3 Elements *MPC* 30739

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 11 03	12 25.46	−06 17.3	3.857	3.063	32.2	9.9	18.8	21.0
1998 11 13	12 38.52	−07 50.7	3.793	3.082	38.6	11.6	18.8	21.0
1998 11 23	12 51.10	−09 20.9	3.716	3.101	45.2	13.1	18.8	21.1
1998 12 03	13 03.10	−10 46.9	3.628	3.120	52.1	14.4	18.7	21.1
1998 12 13	13 14.40	−12 08.3	3.530	3.140	59.1	15.6	18.7	21.1
1998 12 23	13 24.86	−13 24.2	3.422	3.160	66.4	16.6	18.7	21.1
1999 01 02	13 34.30	−14 34.1	3.307	3.181	74.0	17.3	18.6	21.0
1999 01 12	13 42.55	−15 37.2	3.187	3.201	82.0	17.7	18.6	21.0
1999 01 22	13 49.39	−16 32.9	3.064	3.222	90.2	17.8	18.5	20.9
1999 02 01	13 54.61	−17 20.2	2.942	3.244	98.9	17.5	18.5	20.8
1999 02 11	13 58.01	−17 58.2	2.822	3.265	108.0	16.7	18.4	20.7
1999 02 21	13 59.40	−18 26.0	2.710	3.287	117.6	15.5	18.3	20.6
1999 03 03	13 58.69	−18 42.3	2.610	3.309	127.6	13.7	18.3	20.5
1999 03 13	13 55.92	−18 46.4	2.525	3.331	138.0	11.5	18.2	20.3
1999 03 23	13 51.29	−18 37.8	2.461	3.353	148.8	8.9	18.2	20.2
1999 04 02	13 45.21	−18 16.9	2.421	3.376	159.7	5.9	18.2	20.0
1999 04 12	13 38.26	−17 45.6	2.407	3.398	169.7	3.0	18.2	19.9
1999 04 22	13 31.14	−17 06.8	2.423	3.421	171.9	2.4	18.3	19.9
1999 05 02	13 24.55	−16 24.6	2.467	3.443	163.0	4.9	18.3	20.1
1999 05 12	13 19.07	−15 43.3	2.539	3.466	152.5	7.7	18.4	20.3
1999 05 22	13 15.14	−15 06.9	2.635	3.489	142.1	10.3	18.5	20.5
1999 06 01	13 12.98	−14 38.3	2.752	3.512	132.0	12.4	18.7	20.7

1999 06 11	13 12.65	−14 19.2	2.886	3.534	122.3	14.1	18.8	20.8
1999 06 21	13 14.09	−14 10.3	3.033	3.557	113.1	15.2	18.9	21.0
1999 07 01	13 17.20	−14 11.6	3.190	3.580	104.3	16.0	19.1	21.2
1999 07 11	13 21.79	−14 22.3	3.352	3.603	95.9	16.3	19.2	21.3
1999 07 21	13 27.71	−14 41.5	3.517	3.625	87.9	16.3	19.3	21.4
1999 07 31	13 34.78	−15 08.1	3.682	3.648	80.1	15.9	19.5	21.5
1999 08 10	13 42.87	−15 40.8	3.844	3.670	72.6	15.3	19.6	21.6
1999 08 20	13 51.85	−16 18.7	4.000	3.693	65.3	14.4	19.7	21.7
1999 08 30	14 01.58	−17 00.4	4.149	3.715	58.1	13.3	19.8	21.7
1999 09 09	14 11.98	−17 45.1	4.288	3.737	51.0	12.1	19.9	21.8
1999 09 19	14 22.95	−18 31.6	4.416	3.759	44.0	10.7	20.0	21.8
1999 09 29	14 34.40	−19 19.2	4.532	3.781	37.1	9.2	20.1	21.8
1999 10 09	14 46.27	−20 07.0	4.633	3.803	30.2	7.6	20.1	21.8

C/1998 J1 (SOHO) Elements *MPC* 32168

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 11 03	14 07.05	−68 05.5	3.836	3.340	53.3	13.8	16.2	
1998 11 13	14 35.73	−69 35.7	3.988	3.469	52.0	13.0	16.4	
1998 11 23	15 05.5	−71 00.8	4.130	3.595	51.2	12.4	16.6	
1998 12 03	15 36.6	−72 20.6	4.260	3.720	51.0	11.9	16.9	
1998 12 13	16 09.0	−73 34.7	4.379	3.842	51.4	11.5	17.1	
1998 12 23	16 42.8	−74 42.9	4.486	3.963	52.4	11.3	17.2	
1999 01 02	17 17.9	−75 45.2	4.581	4.082	54.0	11.2	17.4	
1999 01 12	17 54.3	−76 41.5	4.665	4.199	56.3	11.2	17.6	
1999 01 22	18 31.9	−77 32.5	4.737	4.315	59.1	11.3	17.7	
1999 02 01	19 10.5	−78 18.6	4.800	4.429	62.4	11.4	17.9	
1999 02 11	19 50.0	−79 00.5	4.853	4.542	66.0	11.5	18.0	
1999 02 21	20 30.2	−79 39.3	4.898	4.654	70.0	11.5	18.1	
1999 03 03	21 11.2	−80 16.0	4.938	4.764	74.2	11.5	18.2	
1999 03 13	21 53.1	−80 51.3	4.973	4.873	78.5	11.5	18.4	
1999 03 23	22 36.2	−81 25.8	5.005	4.981	82.9	11.5	18.5	
1999 04 02	23 21.1	−81 59.8	5.038	5.088	87.2	11.3	18.6	
1999 04 12	00 08.5	−82 33.0	5.072	5.193	91.4	11.1	18.7	
1999 04 22	00 59.1	−83 04.5	5.110	5.298	95.3	10.9	18.8	
1999 05 02	01 53.8	−83 32.7	5.154	5.402	98.8	10.6	18.9	
1999 05 12	02 53.0	−83 55.5	5.206	5.504	101.9	10.3	19.0	
1999 05 22	03 56.2	−84 10.5	5.267	5.606	104.4	10.1	19.1	
1999 06 01	05 01.6	−84 15.9	5.339	5.707	106.3	9.8	19.2	
1999 06 11	06 06.6	−84 10.8	5.423	5.807	107.4	9.6	19.3	
1999 06 21	07 08.3	−83 56.3	5.518	5.906	107.7	9.4	19.4	
1999 07 01	08 05.1	−83 34.4	5.626	6.005	107.2	9.3	19.5	
1999 07 11	08 56.4	−83 07.7	5.745	6.102	105.9	9.2	19.7	
1999 07 21	09 42.6	−82 38.9	5.875	6.199	103.9	9.2	19.8	
1999 07 31	10 24.5	−82 10.1	6.016	6.295	101.4	9.1	19.9	

P/1997 G1 (Montani) Elements *MPC* 31347

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 11 13	12 54.09	−09 27.7	5.967	5.181	34.5	6.2	20.0	
1998 11 23	13 01.70	−10 17.8	5.895	5.209	42.5	7.4	20.0	
1998 12 03	13 08.77	−11 04.8	5.806	5.236	50.6	8.4	20.0	
1998 12 13	13 15.23	−11 48.1	5.703	5.264	59.0	9.2	20.0	
1998 12 23	13 20.94	−12 27.1	5.587	5.292	67.6	9.9	20.0	
1999 01 02	13 25.80	−13 01.2	5.463	5.320	76.5	10.4	19.9	
1999 01 12	13 29.70	−13 30.0	5.333	5.348	85.6	10.6	19.9	
1999 01 22	13 32.53	−13 52.7	5.200	5.376	95.0	10.5	19.9	
1999 02 01	13 34.21	−14 08.9	5.071	5.405	104.7	10.2	19.9	
1999 02 11	13 34.69	−14 18.2	4.948	5.433	114.6	9.5	19.8	
1999 02 21	13 33.96	−14 20.1	4.837	5.462	124.8	8.5	19.8	
1999 03 03	13 32.08	−14 14.8	4.742	5.490	135.3	7.3	19.8	
1999 03 13	13 29.18	−14 02.4	4.668	5.519	145.9	5.8	19.8	
1999 03 23	13 25.46	−13 43.6	4.619	5.548	156.7	4.1	19.8	
1999 04 02	13 21.18	−13 19.7	4.598	5.577	167.3	2.3	19.8	
1999 04 12	13 16.67	−12 52.2	4.606	5.606	175.5	0.8	19.8	
1999 04 22	13 12.23	−12 23.0	4.645	5.635	169.0	1.9	19.8	
1999 05 02	13 08.19	−11 54.2	4.714	5.664	158.7	3.7	19.9	
1999 05 12	13 04.80	−11 27.6	4.810	5.693	148.2	5.4	20.0	
1999 05 22	13 02.26	−11 04.9	4.931	5.722	137.9	6.8	20.0	
1999 06 01	13 00.70	−10 47.5	5.073	5.752	127.9	8.0	20.1	
1999 06 11	13 00.18	−10 35.9	5.232	5.781	118.2	8.9	20.2	
1999 06 21	13 00.70	−10 30.7	5.403	5.810	108.8	9.5	20.3	
1999 07 01	13 02.24	−10 31.8	5.583	5.839	99.6	9.9	20.4	
1999 07 11	13 04.73	−10 39.0	5.768	5.869	90.7	10.0	20.5	
1999 07 21	13 08.10	−10 52.0	5.953	5.898	82.0	9.8	20.6	
1999 07 31	13 12.26	−11 10.1	6.135	5.928	73.5	9.5	20.7	
1999 08 10	13 17.12	−11 32.9	6.310	5.957	65.2	8.9	20.8	
1999 08 20	13 22.61	−11 59.6	6.476	5.986	57.0	8.2	20.8	
1999 08 30	13 28.63	−12 29.6	6.630	6.016	49.0	7.3	20.9	
1999 09 09	13 35.10	−13 02.4	6.769	6.045	41.0	6.3	21.0	
1999 09 19	13 41.94	−13 37.2	6.892	6.074	33.0	5.2	21.0	

P/1997 C1 (Gehrels) Elements *MPC* 31204

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 11 13	12 54.15	−07 24.6	7.196	6.412	35.1	5.1	20.4	
1998 11 23	12 59.83	−08 00.1	7.122	6.444	43.7	6.1	20.4	
1998 12 03	13 05.02	−08 32.5	7.031	6.476	52.4	6.9	20.3	
1998 12 13	13 09.63	−09 01.3	6.924	6.509	61.3	7.6	20.3	
1998 12 23	13 13.55	−09 25.9	6.804	6.541	70.4	8.1	20.3	
1999 01 02	13 16.70	−09 45.8	6.675	6.572	79.8	8.5	20.3	
1999 01 12	13 18.99	−10 00.6	6.542	6.604	89.3	8.6	20.3	
1999 01 22	13 20.36	−10 09.9	6.408	6.636	99.2	8.4	20.3	
1999 02 01	13 20.75	−10 13.3	6.278	6.667	109.2	8.0	20.2	
1999 02 11	13 20.17	−10 10.8	6.158	6.699	119.5	7.4	20.2	
1999 02 21	13 18.62	−10 02.4	6.052	6.730	130.0	6.5	20.2	
1999 03 03	13 16.21	−09 48.4	5.965	6.761	140.7	5.3	20.2	
1999 03 13	13 13.05	−09 29.4	5.902	6.792	151.5	4.0	20.2	
1999 03 23	13 09.34	−09 06.4	5.866	6.822	162.4	2.5	20.2	
1999 04 02	13 05.30	−08 40.7	5.860	6.853	173.3	1.0	20.2	
1999 04 12	13 01.16	−08 13.7	5.884	6.884	175.3	0.7	20.2	
1999 04 22	12 57.19	−07 47.0	5.940	6.914	164.6	2.2	20.3	
1999 05 02	12 53.60	−07 22.1	6.024	6.944	154.0	3.7	20.3	
1999 05 12	12 50.58	−07 00.2	6.136	6.974	143.5	4.9	20.4	
1999 05 22	12 48.27	−06 42.6	6.272	7.004	133.2	6.0	20.4	
1999 06 01	12 46.77	−06 29.8	6.427	7.034	123.2	6.9	20.5	
1999 06 11	12 46.12	−06 22.4	6.598	7.063	113.4	7.6	20.6	
1999 06 21	12 46.33	−06 20.4	6.780	7.092	103.9	8.0	20.7	
1999 07 01	12 47.37	−06 23.7	6.967	7.122	94.6	8.2	20.7	
1999 07 11	12 49.20	−06 32.1	7.157	7.151	85.6	8.1	20.8	

1999 07 21	12 51.76	−06 45.3	7.345	7.180	76.7	7.9	20.9	
1999 07 31	12 54.98	−07 02.7	7.527	7.208	68.0	7.5	21.0	
1999 08 10	12 58.79	−07 23.9	7.700	7.237	59.4	6.9	21.0	
1999 08 20	13 03.11	−07 48.3	7.860	7.266	51.0	6.2	21.1	
1999 08 30	13 07.87	−08 15.4	8.005	7.294	42.6	5.4	21.1	
1999 09 09	13 12.99	−08 44.6	8.133	7.322	34.3	4.4	21.2	

119P/Parker-Hartley Elements *MPC* 25513

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 11 13	13 03.09	−10 30.1	5.572	4.762	32.0	6.3	20.8	21.6
1998 11 23	13 11.17	−11 20.5	5.498	4.782	39.9	7.6	20.8	21.6
1998 12 03	13 18.75	−12 07.9	5.406	4.802	48.0	8.8	20.8	21.7
1998 12 13	13 25.72	−12 51.7	5.299	4.822	56.3	9.8	20.8	21.7
1998 12 23	13 31.96	−13 31.2	5.178	4.841	64.8	10.6	20.8	21.7
1999 01 02	13 37.33	−14 05.8	5.048	4.861	73.5	11.2	20.8	21.6
1999 01 12	13 41.72	−14 35.0	4.909	4.880	82.5	11.5	20.7	21.6
1999 01 22	13 44.98	−14 58.0	4.768	4.898	91.8	11.6	20.7	21.6
1999 02 01	13 47.00	−15 14.1	4.627	4.917	101.4	11.3	20.7	21.5
1999 02 11	13 47.70	−15 23.0	4.490	4.935	111.3	10.7	20.6	21.4
1999 02 21	13 47.03	−15 23.9	4.364	4.953	121.5	9.8	20.6	21.3
1999 03 03	13 45.02	−15 16.6	4.253	4.971	132.0	8.5	20.6	21.2
1999 03 13	13 41.76	−15 01.3	4.161	4.988	142.8	6.9	20.6	21.1
1999 03 23	13 37.45	−14 38.3	4.092	5.005	153.7	5.1	20.5	21.0
1999 04 02	13 32.39	−14 08.9	4.052	5.022	164.7	3.0	20.6	20.8
1999 04 12	13 26.92	−13 34.6	4.040	5.039	174.6	1.1	20.6	20.7
1999 04 22	13 21.44	−12 57.8	4.060	5.056	171.2	1.7	20.6	20.8
1999 05 02	13 16.33	−12 20.8	4.110	5.072	160.7	3.8	20.7	20.9
1999 05 12	13 11.92	−11 46.2	4.188	5.088	150.0	5.7	20.7	21.1
1999 05 22	13 08.47	−11 15.9	4.292	5.103	139.4	7.4	20.8	21.2
1999 06 01	13 06.15	−10 51.5	4.417	5.119	129.2	8.8	20.9	21.4
1999 06 11	13 05.02	−10 34.1	4.560	5.134	119.3	9.9	21.0	21.5
1999 06 21	13 05.12	−10 24.2	4.716	5.149	109.7	10.7	21.1	21.6
1999 07 01	13 06.40	−10 21.8	4.881	5.163	100.5	11.2	21.2	21.7
1999 07 11	13 08.78	−10 26.5	5.050	5.178	91.5	11.3	21.3	21.8
1999 07 21	13 12.19	−10 37.9	5.220	5.192	82.9	11.2	21.4	21.9
1999 07 31	13 16.52	−10 55.4	5.386	5.206	74.4	10.8	21.5	21.9
1999 08 10	13 21.66	−11 18.1	5.546	5.219	66.2	10.2	21.6	22.0
1999 08 20	13 27.53	−11 45.3	5.697	5.233	58.1	9.4	21.7	22.0
1999 08 30	13 34.02	−12 16.4	5.836	5.246	50.1	8.5	21.7	22.0
1999 09 09	13 41.04	−12 50.5	5.961	5.259	42.2	7.4	21.8	22.0
1999 09 19	13 48.52	−13 27.0	6.069	5.271	34.4	6.2	21.9	22.0

OPPOSITION DATA

Planet	Opposition	α_{2000}	δ_{2000}	V	$\dot{\alpha}$	$\dot{\delta}$	$\phi_{\rm MIN}$	*MPC*
1994 SE_{12}	1998 09 05.0	22 54.63	−07 19.9	20.1	−0.83	− 6.0	0.1/04.9	32668
1998 OH_2	1998 09 05.0	22 54.67	−07 33.1	17.5	−0.89	− 6.4	0.2/04.8	32756
1998 QB_{40}	1998 09 05.0	22 54.77	−07 09.7	16.7	−0.66	−10.8	0.1/05.0	32705
1988 XT_1	1998 09 05.0	22 54.96	−35 56.7	16.3	−1.06	− 1.2	10.2/26.1	32741
(9291)	1998 09 05.0	22 55.01	−07 19.1	16.9	−0.68	− 8.2	0.1/04.9	32603
1998 QR_{43}	1998 09 05.1	22 55.00	−13 23.1	17.1	−1.06	− 3.2	2.9/03.3	32709
1995 WR_{17}	1998 09 05.1	22 55.28	−08 22.3	20.4	−0.97	− 5.0	0.5/04.7	32671
1997 GD_{24}	1998 09 05.2	22 55.37	−01 21.3	18.8	−0.85	− 7.5	1.9/07.1	30767
(7788)	1998 09 05.2	22 55.42	−14 42.1	17.3	−0.72	− 6.9	2.7/02.5	30267
1991 RO_3	1998 09 05.2	22 55.51	−03 55.2	17.6	−1.02	− 2.9	1.2/06.1	32661
(9477)	1998 09 05.2	22 55.53	−05 38.2	17.9	−0.93	− 6.6	0.5/05.6	32648
(9417)	1998 09 05.2	22 55.54	+02 28.9	17.5	−0.94	− 5.0	3.2/08.1	32634
1998 QT_{41}	1998 09 05.2	22 55.70	−08 50.2	17.3	−0.90	− 2.7	0.8/04.7	32707
(9404)	1998 09 05.3	22 55.83	−12 17.8	17.0	−0.87	− 3.8	1.8/03.6	32631
(7765)	1998 09 05.3	22 55.84	+07 40.5	15.5	−0.83	− 3.8	5.8/10.0	30261
1995 UP_8	1998 09 05.3	22 55.96	−08 25.4	16.3	−1.00	− 3.5	0.7/04.9	32749
1998 QS_{41}	1998 09 05.3	22 55.99	−09 40.5	17.4	−0.83	− 5.2	1.0/04.4	32707
(9320)	1998 09 05.4	22 56.12	+01 33.4	17.5	−0.92	− 6.6	3.4/08.1	32610
1083 T-2	1998 09 05.4	22 56.29	−08 18.3	18.3	−0.89	− 4.6	0.5/05.0	32786
1988 RL_9	1998 09 05.4	22 56.29	−03 55.6	15.8	−1.04	− 2.5	1.3/06.2	32741
(9335)	1998 09 05.4	22 56.32	−15 03.0	16.5	−0.82	− 5.4	3.0/02.7	32614
1993 WH	1998 09 05.5	22 56.52	+38 01.6	17.8	−1.05	− 3.1	20.8/26.2	32665
1995 LC	1998 09 05.5	22 56.54	−55 41.2	19.3	−1.50	− 0.9	21.7/21.0	25963
1997 GZ_{14}	1998 09 05.5	22 56.79	−06 49.9	19.0	−0.96	− 4.9	0.0/05.6	32678
1996 HF_{18}	1998 09 05.6	22 56.77	−02 05.6	17.7	−0.72	− 4.8	1.3/07.1	27720
1998 QJ_4	1998 09 05.6	22 56.93	−13 35.3	17.4	−0.97	− 5.6	2.9/03.5	32759
1998 QP_{40}	1998 09 05.7	22 57.15	+02 29.5	16.7	−0.97	− 1.6	3.2/08.2	32706
1995 WL_{42}	1998 09 05.7	22 57.25	−07 24.6	18.8	−0.77	− 5.0	0.2/05.5	32671
1993 HA_6	1998 09 05.7	22 57.54	−16 20.7	17.1	−0.94	− 4.0	3.4/02.9	32746
1987 CH	1998 09 05.8	22 57.49	−09 21.1	17.2	−0.94	− 8.4	1.0/04.9	32740
1998 QP_{43}	1998 09 05.9	22 57.85	−13 56.8	17.7	−0.88	− 1.1	2.1/03.8	32708
1981 EW_{15}	1998 09 05.9	22 57.86	−06 42.2	20.3	−0.82	− 3.0	0.0/05.9	26918
1998 QV_{40}	1998 09 05.9	22 57.92	−00 28.7	17.0	−0.78	− 5.7	2.1/08.0	32706
(9342)	1998 09 05.9	22 58.13	−05 24.9	16.4	−1.00	− 0.9	0.6/06.3	32616
1998 QU_{40}	1998 09 06.0	22 58.48	−02 39.5	17.3	−0.73	− 9.5	1.6/07.5	32706
1991 RS_8	1998 09 06.1	22 58.57	−09 22.2	16.8	−1.08	− 1.4	1.2/05.4	32743
1994 PK_{17}	1998 09 06.1	22 58.57	−06 49.7	17.7	−0.75	− 8.1	0.1/06.0	32747
(7771)	1998 09 06.1	22 58.87	−04 50.0	16.7	−0.80	− 6.7	0.6/06.7	30263
1997 ES_{17}	1998 09 06.1	22 58.97	−00 01.0	16.2	−0.89	− 3.8	3.1/08.2	32752
1998 QU_{43}	1998 09 06.1	22 59.01	−16 16.0	17.9	−0.91	− 8.0	4.1/02.9	32709
1998 QB_{43}	1998 09 06.2	22 58.99	+03 32.0	18.2	−0.80	− 6.1	3.1/09.6	32708
6745 P-L	1998 09 06.2	22 59.29	−07 44.4	18.5	−0.73	− 5.0	0.4/05.9	32786
1998 QD_{44}	1998 09 06.3	22 59.41	−09 39.2	16.8	−0.96	− 2.0	1.6/05.4	32709
1996 BM_{17}	1998 09 06.3	22 59.43	−14 08.2	17.9	−0.93	− 4.6	2.7/03.9	32673
1996 AW_6	1998 09 06.3	22 59.45	−10 20.3	17.9	−0.94	− 4.2	1.8/05.2	32750
1998 QG_{43}	1998 09 06.3	22 59.47	−11 07.5	17.2	−0.69	− 7.7	1.4/04.7	32708
1998 QZ_{85}	1998 09 06.3	22 59.55	+15 50.7	18.1	−1.05	− 0.1	6.1/12.7	32719
1989 TN_1	1998 09 06.3	22 59.62	−05 54.2	16.9	−1.02	+ 0.5	0.2/06.5	32741
(9371)	1998 09 06.3	22 59.65	−11 20.8	17.2	−0.89	− 6.2	1.8/04.8	32622
1997 CC_{22}	1998 09 06.4	22 59.70	−08 30.1	18.2	−1.03	− 4.3	0.8/05.8	29928
(9440)	1998 09 06.4	22 59.87	−06 39.1	18.1	−0.92	− 5.6	0.1/06.4	32639
1998 QM_{42}	1998 09 06.4	22 59.96	−03 12.7	18.1	−0.93	− 6.7	1.3/07.5	32708
1998 QN_{42}	1998 09 06.4	22 59.98	−01 02.6	16.9	−0.93	− 0.5	2.3/07.9	32765
1996 AG_5	1998 09 06.4	23 00.07	−10 37.1	19.7	−0.88	− 4.6	1.5/05.2	26750
1997 GT_{18}	1998 09 06.5	23 00.09	−05 26.4	16.4	−0.87	− 7.0	0.5/06.8	32752
1979 MA_7	1998 09 06.5	23 00.20	−00 47.7	18.6	−0.80	− 5.3	1.9/08.4	30779
1979 OZ_9	1998 09 06.5	23 00.21	−04 48.2	19.1	−0.86	−10.0	0.8/07.1	27553
1991 PA_5	1998 09 06.5	23 00.45	−02 08.9	17.1	−0.94	− 3.8	2.0/07.9	32743
1998 QK_{42}	1998 09 06.6	23 00.52	−05 02.1	16.7	−0.88	− 6.8	0.6/07.1	32707
1998 QB_{41}	1998 09 06.6	23 00.56	−03 52.9	18.2	−0.79	− 7.4	1.0/07.5	32706

1998 QW_{15}	1998 09 06.6	23 00.59	−04 49.7	17.6	−0.76	−	4.9	0.5/07.1	32693
1998 QB_{44}	1998 09 06.7	23 01.17	−11 07.6	16.6	−0.88	−	1.4	1.7/05.4	32709
1991 VN_9	1998 09 06.8	23 01.14	−00 07.8	19.2	−0.85	−	7.6	2.2/08.9	29915
(7722)	1998 09 06.8	23 01.22	−13 29.4	17.6	−1.02	−	3.3	2.7/04.8	30074
1996 DB_3	1998 09 06.8	23 01.35	+04 05.5	18.3	−0.98	−	1.5	3.5/09.7	32751
1998 QP_{42}	1998 09 06.8	23 01.37	−01 19.9	17.6	−0.92	−	3.6	2.4/08.4	32708
1995 VB	1998 09 06.8	23 01.50	+02 38.2	17.9	−0.96	−	5.3	3.5/09.6	32749
1998 SK_{14}	1998 09 06.9	23 01.50	−20 35.3	16.9	−1.44	+	9.6	6.6/04.8	32726
1978 CK	1998 09 06.9	23 01.85	+15 06.6	17.3	−0.88	−	0.2	6.2/13.3	32738
1987 QT	1998 09 07.0	23 01.84	−02 44.7	16.9	−1.05	+	1.5	1.7/07.8	32740
1997 GE_{17}	1998 09 07.0	23 02.01	−08 42.3	18.6	−1.05	−	3.7	1.0/06.3	32752
1998 QL_{42}	1998 09 07.0	23 02.14	−03 54.8	18.1	−0.78	−	5.3	0.8/07.8	32707
1997 FT_3	1998 09 07.0	23 02.26	−00 15.0	18.6	−0.91	−	7.1	2.2/09.1	32752
1998 QM_{74}	1998 09 07.1	23 02.58	+06 50.5	17.7	−0.75	−	4.2	4.4/11.5	32719
1998 QD_{45}	1998 09 07.2	23 02.55	+04 07.8	17.3	−0.95	−	3.6	4.5/10.3	32710
1998 QZ_{46}	1998 09 07.2	23 02.64	−11 47.4	17.2	−0.97	−	6.8	2.2/05.4	32766
1993 SA_6	1998 09 07.2	23 02.78	−06 43.4	17.4	−0.74	−	5.0	0.2/07.1	29137
1996 AH_9	1998 09 07.2	23 02.81	−03 41.1	19.1	−0.80	−	5.2	0.7/08.1	32750
2796 P-L	1998 09 07.2	23 02.94	−08 40.2	18.1	−0.78	−	7.1	1.1/06.4	32785
1998 QM_{44}	1998 09 07.3	23 03.10	−09 50.8	18.3	−0.90	−	7.4	1.5/06.1	32710
1998 QQ_{44}	1998 09 07.3	23 03.11	−07 44.1	18.0	−0.73	−	6.1	0.6/06.8	32710
1994 JU	1998 09 07.3	23 03.27	+01 48.8	17.3	−0.87	−	9.1	3.3/10.2	32747
1986 XT	1998 09 07.4	23 03.33	−07 31.9	16.1	−0.82	−	1.6	0.8/07.0	32740
1997 JU_3	1998 09 07.4	23 03.54	−19 57.5	19.4	−0.86	−	3.8	4.2/03.1	32753
(9311)	1998 09 07.5	23 03.68	−04 59.6	16.2	−0.89	−	4.2	0.5/07.8	32608
1992 EE_{32}	1998 09 07.5	23 03.93	−02 41.5	18.6	−0.82	−	6.2	1.0/08.7	26758
(9021)	1998 09 07.6	23 04.19	+06 40.8	14.8	−1.06	+	1.6	5.6/10.8	32179
1998 QE_{44}	1998 09 07.6	23 04.30	−09 34.6	17.2	−0.88	−	2.6	2.0/06.6	32709
1998 QS_{44}	1998 09 07.6	23 04.38	−03 09.8	17.4	−0.86	−	3.4	0.9/08.5	32710
1998 QX_{40}	1998 09 07.7	23 04.45	−01 57.5	16.8	−0.60	−	10.3	2.0/09.3	32706
1997 KW_1	1998 09 07.7	23 04.59	−04 45.5	18.5	−0.68	−	9.5	0.4/08.2	32681
3465 T-3	1998 09 07.8	23 04.88	−18 33.2	18.1	−0.90	−	1.1	4.5/04.2	32294
1998 QA_{47}	1998 09 07.8	23 04.92	−13 11.3	16.9	−0.72	−	5.9	2.4/05.3	32711
1998 QB_{46}	1998 09 07.9	23 05.16	−03 38.3	18.3	−0.90	−	4.3	0.8/08.6	32711
1998 QH_{44}	1998 09 07.9	23 05.20	−12 17.9	16.7	−0.72	−	11.4	3.1/05.4	32709
4845 P-L	1998 09 07.9	23 05.25	−03 49.3	17.9	−0.68	−	8.0	0.6/08.7	32785
1998 QD_{46}	1998 09 07.9	23 05.30	−03 53.1	17.9	−0.89	−	4.0	1.0/08.6	32766
1998 QK_{44}	1998 09 07.9	23 05.38	−09 50.9	16.7	−0.85	−	4.6	1.9/06.7	32710
1997 NU	1998 09 08.0	23 05.48	−20 13.6	17.1	−0.81	−	7.5	4.5/02.9	32753
1998 QN_4	1998 09 08.0	23 05.55	−11 39.9	17.5	−1.02	−	3.4	2.2/06.3	32759
(7777)	1998 09 08.0	23 05.67	−00 13.3	17.1	−0.91	−	6.8	2.1/09.9	30264
(9499)	1998 09 08.1	23 05.79	−04 36.4	17.6	−0.78	−	4.7	0.4/08.5	32653
(9318)	1998 09 08.1	23 06.11	−10 22.3	17.1	−0.89	−	7.4	2.1/06.6	32610
1998 QW_{42}	1998 09 08.2	23 06.37	−04 11.7	17.6	−0.72	−	4.8	0.4/08.8	32708
(9492)	1998 09 08.2	23 06.47	−08 48.9	16.2	−0.89	−	7.8	1.4/07.2	32651
(7640)	1998 09 08.2	23 06.51	−09 11.8	15.7	−0.84	−	9.6	1.6/07.1	29897
1998 QW_{45}	1998 09 08.3	23 06.49	−01 20.1	17.9	−0.95	−	6.7	1.8/10.0	32711
(9488)	1998 09 08.3	23 06.80	−10 31.3	17.9	−1.04	−	3.7	1.8/07.0	32650
1990 TN_3	1998 09 08.3	23 06.94	−38 40.8	16.5	−1.80	+	8.3	17.0/02.0	32742
1993 FS_{10}	1998 09 08.4	23 06.99	−03 56.8	16.9	−0.78	−	9.2	0.7/09.1	32745
1998 QM_{49}	1998 09 08.4	23 07.02	−08 56.9	17.4	−1.00	−	1.3	1.5/07.5	32713
(9275)	1998 09 08.5	23 07.31	−07 54.2	17.2	−0.86	−	1.7	0.8/07.9	32599
1995 WE_5	1998 09 08.5	23 07.34	−16 37.3	17.5	−1.01	−	4.8	4.7/05.1	32671
1990 VN_1	1998 09 08.6	23 07.59	−20 07.7	16.6	−0.94	−	3.1	5.6/04.1	32742
1997 GL_6	1998 09 08.6	23 07.61	−02 49.3	17.5	−0.88	−	7.7	1.2/09.5	32678
(9418)	1998 09 08.6	23 07.88	−07 46.6	17.0	−0.85	−	5.2	1.1/08.0	32634
4032 T-3	1998 09 08.6	23 07.98	−15 23.8	16.8	−0.93	−	4.2	4.6/05.6	32787
1994 VU_6	1998 09 08.7	23 08.21	+12 11.9	15.9	−0.63	−	10.6	7.5/16.1	32748
1997 ED_{23}	1998 09 08.8	23 08.40	−06 31.4	18.9	−0.92	−	4.7	0.3/08.5	30473
1998 QG_{50}	1998 09 08.8	23 08.68	−09 47.8	17.0	−1.12	+	3.6	2.0/08.0	32767
1995 UO_3	1998 09 08.8	23 08.68	+01 29.7	17.2	−0.96	−	5.8	2.8/11.1	32749
1981 DR	1998 09 08.8	23 08.68	+07 23.0	18.0	−0.85	−	2.2	4.2/12.8	32738
(9368)	1998 09 08.8	23 08.71	+04 15.1	17.1	−0.99	−	4.2	3.6/11.8	32622
(9321)	1998 09 09.0	23 09.22	−12 16.6	17.0	−0.79	−	5.3	2.1/06.7	32610
(9414)	1998 09 09.0	23 09.24	−26 56.3	15.9	−1.04	−	2.5	8.2/02.7	32633
(9332)	1998 09 09.0	23 09.33	−05 39.2	16.8	−0.99	−	1.8	0.1/09.0	32613
(9411)	1998 09 09.0	23 09.37	−13 40.5	17.1	−0.73	−	5.7	2.6/06.2	32632
1990 WN_2	1998 09 09.0	23 09.44	−30 13.9	16.9	−0.93	−	4.8	8.4/31.2	32742
1990 BA_2	1998 09 09.1	23 09.60	+06 34.6	17.4	−0.79	−	3.0	3.3/12.9	32741
1993 FE_8	1998 09 09.2	23 09.73	−14 09.7	16.6	−0.84	−	5.3	3.9/06.3	32745
1998 QQ_{49}	1998 09 09.2	23 09.99	−11 20.0	18.5	−0.77	−	7.3	1.9/07.2	32713
(9384)	1998 09 09.2	23 10.14	−08 49.2	17.9	−0.71	−	5.0	0.9/08.1	32626
(9234)	1998 09 09.2	23 10.16	−09 46.5	16.6	−0.96	−	6.1	2.0/07.9	32431
1998 QN_{46}	1998 09 09.3	23 10.09	−05 19.1	16.4	−0.77	−	7.4	0.0/09.3	32711
1998 QP_{47}	1998 09 09.3	23 10.13	−06 37.8	16.3	−0.76	−	5.8	0.4/08.9	32767
(7542)	1998 09 09.3	23 10.15	−05 32.4	17.0	−0.91	−	8.4	0.1/09.2	29587
1998 QU_{45}	1998 09 09.3	23 10.29	+00 35.9	16.7	−0.87	−	9.4	2.7/11.4	32711
(9308)	1998 09 09.3	23 10.39	+08 57.1	15.9	−0.91	−	2.0	7.0/13.8	32607
1995 DG	1998 09 09.3	23 10.41	−12 53.0	16.8	−0.69	−	9.3	2.2/06.5	32669
(9161)	1998 09 09.3	23 10.41	−15 41.0	16.7	−0.76	−	10.5	3.7/05.4	32415
(9303)	1998 09 09.4	23 10.59	−12 51.3	16.9	−0.83	−	7.6	2.9/06.8	32606
(9383)	1998 09 09.4	23 10.63	−07 41.7	17.5	−0.75	−	5.3	0.8/08.6	32626
(7637)	1998 09 09.4	23 10.72	−08 12.7	17.4	−0.82	−	7.1	0.9/08.5	29896
1990 WS_1	1998 09 09.4	23 10.75	+06 53.8	17.8	−0.76	−	7.6	3.7/13.9	32742
1998 QP_{88}	1998 09 09.4	23 10.85	+06 47.1	17.3	−0.65	−	7.6	4.3/14.0	32720
1998 QG_{49}	1998 09 09.5	23 10.84	−08 38.8	17.0	−0.95	−	4.5	1.6/08.5	32713
(9196)	1998 09 09.5	23 11.10	−11 12.6	15.7	−0.96	−	6.7	2.5/07.6	32423
1998 QU_{15}	1998 09 09.5	23 11.15	−05 44.5	17.8	−0.80	−	7.8	0.2/09.4	32693
(9484)	1998 09 09.6	23 11.20	−08 34.5	17.2	−0.74	−	4.8	1.2/08.5	32649
1996 KA	1998 09 09.6	23 11.28	+10 55.1	19.1	−0.68	−	4.5	3.8/15.3	32751
1998 QF_{50}	1998 09 09.6	23 11.47	−11 29.0	17.3	−0.93	−	1.2	2.5/07.9	32713
1998 QN_{75}	1998 09 09.7	23 11.82	+08 00.4	16.2	−0.69	−	14.1	4.6/15.2	32770
(9326)	1998 09 09.7	23 11.85	−10 34.4	17.4	−0.78	−	6.4	1.8/07.9	32612
1998 QJ_{45}	1998 09 09.8	23 11.94	−00 08.0	16.9	−0.68	−	12.9	2.0/11.8	32710
1981 WL_2	1998 09 09.8	23 12.19	−62 21.8	17.8	−2.46	+	10.9	28.8/21.0	30780
1995 XN_1	1998 09 09.8	23 12.31	−29 54.4	16.2	−0.96	−	3.3	8.8/01.9	32750
1998 QK_{75}	1998 09 09.9	23 12.43	+09 48.7	16.9	−0.75	−	5.1	5.0/15.1	32719
1998 QL_{50}	1998 09 09.9	23 12.64	−11 43.2	18.2	−0.94	−	5.2	2.9/07.9	32713
1998 QF_{49}	1998 09 09.9	23 12.64	−09 59.9	17.0	−0.76	−	9.1	1.8/08.2	32713
1996 CU_8	1998 09 10.0	23 12.84	−07 42.8	18.1	−0.88	−	2.8	0.8/09.3	32750
3517 T-3	1998 09 10.1	23 12.99	−07 54.3	17.3	−0.86	−	4.7	1.1/09.2	32787
1994 VJ_1	1998 09 10.1	23 13.13	−16 39.3	17.3	−0.82	−	5.0	4.2/06.3	32748

1998 QN_{50}	1998 09 10.1	23 13.33	−12 40.8	17.0	−0.92	−	7.4	3.2/07.6	32714
1991 RY_{29}	1998 09 10.2	23 13.60	+06 44.5	17.3	−0.97	−	3.9	5.2/13.8	32744
1036 T-3	1998 09 10.2	23 13.69	−01 22.3	18.3	−0.83	−	2.7	1.1/11.4	32787
1989 GR_3	1998 09 10.3	23 13.89	+02 33.1	17.2	−0.89	−	6.0	3.0/12.9	32741
1992 EX	1998 09 10.3	23 13.92	−13 06.8	18.0	−0.79	−	7.7	2.6/07.5	32662
1991 PB_{20}	1998 09 10.4	23 14.22	−13 11.4	17.3	−0.93	−	7.7	3.2/07.6	32660
1998 QO_{50}	1998 09 10.4	23 14.36	−11 00.4	17.6	−0.70	−	8.0	2.0/08.2	32714
1998 QE_{49}	1998 09 10.5	23 14.41	−07 09.0	17.3	−0.82	−	4.8	0.8/09.8	32713
1998 QW_{47}	1998 09 10.5	23 14.45	−00 45.4	17.3	−0.88	−	4.5	1.9/11.8	32712
1987 QH	1998 09 10.5	23 14.61	+06 13.8	15.4	−0.95	+	2.9	6.2/13.4	32740
1998 QO_{47}	1998 09 10.6	23 15.11	−05 03.3	17.4	−0.61	−	8.6	0.1/10.6	32712
1992 EX_7	1998 09 10.8	23 15.59	−02 53.1	20.8	−0.88	−	4.2	0.6/11.4	25639
1998 QM_{52}	1998 09 10.8	23 15.66	−10 03.4	17.5	−0.85	−	9.1	2.1/09.0	32716
1991 TW_8	1998 09 10.8	23 15.86	−10 12.7	18.6	−1.01	−	4.0	2.1/09.3	32744
(9313)	1998 09 10.8	23 15.87	+14 28.5	17.8	−0.92	−	3.2	6.3/17.1	32609
(9002)	1998 09 10.9	23 15.84	−13 43.2	15.9	−0.75	−	9.0	3.5/07.6	32174
1998 QX_{50}	1998 09 10.9	23 16.07	−06 09.6	16.7	−1.00	−	1.4	0.6/10.6	32714
1998 QQ_{45}	1998 09 10.9	23 16.11	+04 43.5	17.3	−0.81	−	2.0	2.6/13.8	32711
(9490)	1998 09 10.9	23 16.27	−02 27.9	17.4	−0.78	−	4.1	0.7/11.7	32651
1997 FP_4	1998 09 11.0	23 16.33	−02 13.1	18.8	−0.90	−	5.1	0.9/11.8	32677
2208 P-L	1998 09 11.0	23 16.37	+02 10.8	18.5	−0.86	−	6.3	2.6/13.3	32785
1998 QY_{47}	1998 09 11.0	23 16.50	−02 34.7	18.0	−0.85	−	9.1	0.8/11.8	32712
1993 TX_{26}	1998 09 11.1	23 16.63	−00 14.7	17.6	−0.68	−	8.2	1.5/12.8	32746
1994 RE_{11}	1998 09 11.1	23 16.73	−01 56.1	16.9	−0.22	−22.4		1.3/12.5	32748
4197 T-3	1998 09 11.1	23 16.83	−13 30.3	16.8	−0.86	−	4.7	3.5/08.3	32787
1981 EL_{45}	1998 09 11.1	23 16.86	+04 34.2	19.2	−0.88	−	5.5	3.1/14.2	26923
1998 QV_{47}	1998 09 11.1	23 16.98	−02 39.0	17.8	−0.69	−	7.6	0.7/11.9	32712
(9485)	1998 09 11.1	23 16.99	−00 12.2	18.0	−0.84	−	6.2	1.6/12.7	32649
1989 HA	1998 09 11.2	23 16.96	−15 36.6	16.6	−0.77	−10.9		4.0/07.0	32741
1991 RU_7	1998 09 11.2	23 17.25	−02 03.0	17.0	−0.77	−10.7		1.2/12.2	32743
2168 T-2	1998 09 11.3	23 17.34	−03 10.3	17.3	−0.76	−	5.5	0.5/11.8	32786
1995 UA_{45}	1998 09 11.3	23 17.49	−16 45.1	17.3	−1.02	−	5.7	5.3/07.4	32749
1990 HL_1	1998 09 11.3	23 17.52	+30 34.1	18.3	−0.96	−	8.0	11.8/26.8	32742
1998 QR_1	1998 09 11.4	23 17.72	+05 03.3	18.1	−0.89	−	5.5	3.3/14.6	32690
1993 TX_{23}	1998 09 11.4	23 18.01	−11 06.1	17.2	−0.76	−	5.0	2.2/09.3	30275
2158 P-L	1998 09 11.5	23 18.14	+02 05.2	18.0	−0.84	−	7.7	2.5/13.8	32785
(9277)	1998 09 11.5	23 18.43	−07 51.5	16.6	−1.04	−	1.9	1.5/10.7	32599
1995 XX_4	1998 09 11.6	23 18.58	−02 10.5	18.1	−0.87	−	8.1	0.9/12.4	32672
1998 QR_{51}	1998 09 11.6	23 18.68	+05 13.9	16.7	−1.31	+	2.3	3.8/13.7	32715
1979 DF	1998 09 11.6	23 18.68	−23 18.7	17.1	−0.96	−	2.4	5.6/05.9	32738
6608 P-L	1998 09 11.7	23 18.82	−09 45.3	18.2	−0.99	−	2.6	2.3/10.2	32786
1990 UA_2	1998 09 11.7	23 18.83	−11 58.9	17.4	−0.78	−	7.2	3.4/09.0	32742
1998 QY_{50}	1998 09 11.7	23 18.92	−04 46.5	17.2	−1.04	−	1.5	0.2/11.7	32714
1997 GO_{18}	1998 09 11.7	23 19.11	+02 08.8	18.4	−0.75	−10.7		2.4/14.3	32752
1998 QD_{48}	1998 09 11.9	23 19.63	+02 43.2	17.3	−0.87	−	7.0	3.3/14.3	32767
1985 RD_3	1998 09 11.9	23 19.82	−08 29.9	16.7	−0.91	−	7.1	1.9/10.6	32740
1979 MD_8	1998 09 12.0	23 19.86	+08 14.0	18.2	−0.81	−	5.0	3.9/16.2	32738
2040 T-2	1998 09 12.0	23 20.14	−00 30.0	17.9	−0.72	−	7.0	1.2/13.4	32786
1991 PJ_{15}	1998 09 12.1	23 20.21	−09 05.4	17.1	−0.90	−	6.8	2.1/10.5	32743
1981 EJ_{14}	1998 09 12.1	23 20.22	+01 22.3	20.0	−0.94	−	3.8	2.0/13.8	26917
1998 QC_{51}	1998 09 12.1	23 20.31	−05 48.6	16.7	−0.86	−	8.8	0.7/11.6	32714
6634 P-L	1998 09 12.1	23 20.45	−10 01.4	18.5	−0.75	−	4.7	1.7/10.2	32786
7072 P-L	1998 09 12.2	23 20.64	+14 24.7	16.9	−0.91	−17.5		7.6/19.9	32786
1991 VO_3	1998 09 12.2	23 20.82	−11 32.2	17.5	−0.96	−	5.4	2.8/09.9	32744
1998 QR_{48}	1998 09 12.3	23 20.89	−01 54.2	16.7	−0.70	−	4.1	1.1/13.1	32712
1998 QG_{48}	1998 09 12.3	23 20.97	+01 45.0	17.5	−0.86	−	8.1	2.2/14.4	32712
(9435)	1998 09 12.3	23 21.02	−07 55.1	17.1	−1.06	−	4.4	1.6/11.2	32638
1994 YU	1998 09 12.4	23 21.60	+11 38.5	17.6	−0.82	−	2.9	5.6/17.6	32669
1989 SK_3	1998 09 12.4	23 21.62	−02 07.6	17.5	−0.76	−	7.1	0.6/13.2	32658
1998 QB	1998 09 12.5	23 21.84	+02 20.6	17.0	−0.99	−	4.0	2.5/14.5	32758
1993 FH_{16}	1998 09 12.5	23 21.95	−09 09.7	17.9	−0.91	−	6.3	1.8/10.9	30451
1998 QB_{26}	1998 09 12.6	23 22.03	−03 08.0	15.6	−0.84	−	3.4	0.5/12.9	32762
1981 EH_6	1998 09 12.6	23 22.09	+02 05.1	20.5	−0.78	−	4.8	1.6/14.7	26915
6110 P-L	1998 09 12.7	23 22.65	−03 59.9	17.5	−1.02	−	2.3	0.0/12.8	32730
1994 YF_1	1998 09 12.7	23 22.66	+08 51.5	17.8	−0.80	−	3.4	4.0/17.0	32669
1993 OS_{10}	1998 09 12.8	23 22.80	+02 50.5	17.0	−0.83	−	4.9	2.4/15.1	32746
1997 JU_7	1998 09 12.8	23 23.05	+10 48.7	16.9	−0.74	−12.4		6.1/18.8	32753
2246 T-3	1998 09 12.8	23 23.05	−00 11.3	18.6	−0.99	−	3.8	1.5/14.0	32735
1998 QM_2	1998 09 12.9	23 23.28	+02 34.1	16.6	−0.87	−	8.0	2.6/15.2	32759
1997 GJ_{22}	1998 09 13.1	23 23.81	+02 35.8	19.4	−0.84	−	6.8	2.3/15.3	32679
1998 RF_1	1998 09 13.1	23 24.05	+01 21.2	16.7	−0.94	+	0.3	2.7/14.6	32773
1996 HV_{19}	1998 09 13.2	23 24.25	+04 08.6	18.4	−0.70	−	5.8	2.3/16.0	32675
1996 ED_4	1998 09 13.2	23 24.33	−06 46.6	17.2	−0.87	−	1.7	1.0/12.4	32751
1998 QE_{51}	1998 09 13.2	23 24.34	−01 56.9	16.8	−0.94	−	3.6	1.0/13.8	32768
(9265)	1998 09 13.2	23 24.52	−01 55.0	16.8	−1.00	−	2.9	0.9/13.8	32596
(9486)	1998 09 13.3	23 24.55	−00 59.1	17.7	−0.86	−	7.1	1.0/14.3	32650
1196 T-2	1998 09 13.3	23 24.67	−05 43.2	17.8	−0.92	−	3.8	0.7/12.8	32786
1998 QT_{51}	1998 09 13.3	23 24.73	+04 15.1	16.9	−1.01	−	2.3	3.7/15.7	32715
2566 P-L	1998 09 13.4	23 24.84	−02 29.8	17.4	−0.89	−	6.7	0.5/13.8	32785
1996 CW_3	1998 09 13.4	23 24.97	+07 53.7	17.6	−0.95	−	2.0	4.2/16.9	32750
(9280)	1998 09 13.4	23 25.13	+04 36.2	17.2	−0.97	−	1.3	3.8/15.8	32600
1998 QM_{76}	1998 09 13.5	23 25.49	+11 30.8	17.3	−0.82	−	5.7	4.6/18.9	32719
1994 UA_3	1998 09 13.5	23 25.53	−01 44.1	17.2	−0.85	−	5.6	0.7/14.2	32748
1998 RO_{20}	1998 09 13.6	23 25.65	−04 30.4	16.7	−0.86	−	8.8	0.4/13.3	32725
1987 RR	1998 09 13.6	23 25.78	−08 54.7	16.2	−0.63	−10.2		1.8/11.6	32740
1978 RL_7	1998 09 13.7	23 26.12	−02 16.5	17.0	−0.77	−	5.2	0.5/14.2	32738
1997 GP_6	1998 09 13.7	23 26.12	−09 44.6	17.8	−0.95	−	4.4	2.2/11.9	32752
1991 RK_{15}	1998 09 13.7	23 26.26	−06 22.8	15.5	−0.99	−	1.7	1.3/13.0	32744
1979 MZ_1	1998 09 13.8	23 26.50	−09 11.5	18.3	−0.76	−	7.0	2.0/11.9	32657
(9401)	1998 09 13.8	23 26.54	−25 21.3	15.5	−1.07	+	2.3	9.6/08.1	32630
1991 XH_1	1998 09 13.8	23 26.64	−06 51.7	16.8	−0.93	−	5.3	1.4/12.8	32662
1998 QF_{51}	1998 09 13.8	23 26.69	−02 55.1	16.7	−0.88	−	5.5	0.3/14.1	32714
1998 QO_{51}	1998 09 13.9	23 26.61	+04 36.1	17.4	−0.91	−	0.4	4.2/16.3	32768
(9218)	1998 09 13.9	23 26.78	+00 40.5	15.8	−0.83	−	7.5	2.0/15.4	32428
1994 VZ_6	1998 09 13.9	23 26.83	+04 11.8	17.3	−0.75	−	5.8	3.6/16.6	32748
(9179)	1998 09 13.9	23 26.83	−05 15.4	16.4	−0.67	−	9.3	0.6/13.3	32419
(9223)	1998 09 13.9	23 26.96	+02 07.1	16.3	−0.92	−	6.9	2.3/15.9	32429
1998 QP_{51}	1998 09 14.0	23 27.36	+01 35.2	17.5	−0.92	−	5.8	2.1/15.7	32715
1998 QC_{52}	1998 09 14.1	23 27.39	+02 39.9	17.4	−0.73	−13.7		2.1/16.6	32715
1998 QS_{51}	1998 09 14.2	23 27.70	+01 55.3	17.8	−0.86	−	6.3	2.5/16.0	32768
1988 UV	1998 09 14.2	23 27.95	+06 14.6	17.4	−0.86	−	9.0	4.1/17.7	32741
(7594)	1998 09 14.2	23 27.99	−09 10.8	16.1	−0.92	−	6.5	2.1/12.4	29599

1988 BY_3	1998 09 14.3	23 28.19	−04 54.1	17.2	−0.82	−	8.3	0.5/13.8	32740
1979 MM_2	1998 09 14.3	23 28.24	+07 45.9	18.6	−0.89	−	5.7	4.6/18.1	30778
1998 QV_{51}	1998 09 14.3	23 28.28	+06 11.4	17.2	−1.00	−	1.8	4.3/17.1	32768
6106 P-L	1998 09 14.3	23 28.32	−01 16.2	17.8	−0.87	−	4.4	0.8/15.0	32785
1981 EB_{25}	1998 09 14.3	23 28.37	−00 44.1	16.2	−0.63	−	10.9	1.0/15.4	32739
1996 FU_{13}	1998 09 14.3	23 28.42	−23 10.9	16.0	−0.73	−	1.9	6.0/07.8	32751
1231 T-2	1998 09 14.3	23 28.42	−04 23.5	17.2	−0.79	−	4.4	0.3/14.1	32786
1998 QU_{97}	1998 09 14.3	23 28.51	+20 09.6	18.1	−1.35	+	2.0	9.5/20.6	32721
(9408)	1998 09 14.4	23 28.63	−07 55.2	16.8	−0.76	−	5.6	1.6/12.9	32632
1991 PQ_5	1998 09 14.5	23 29.15	−09 57.5	17.4	−0.83	−	9.4	2.9/12.2	32743
1994 GA_1	1998 09 14.6	23 29.47	−13 43.9	16.4	−0.94	−	5.3	4.8/11.4	32747
1994 PE_{39}	1998 09 14.7	23 29.50	−04 50.5	18.1	−0.82	−	8.7	0.6/14.2	32748
(9170)	1998 09 14.7	23 29.56	+01 28.3	15.9	−0.84	−	7.4	2.3/16.4	32417
4064 T-3	1998 09 14.7	23 29.65	−03 26.3	17.0	−0.68	−	8.7	0.1/14.7	32787
1997 CZ_{21}	1998 09 14.7	23 29.68	−04 59.4	18.2	−1.06	−	5.2	0.7/14.2	29928
1996 BU	1998 09 14.7	23 29.88	+10 35.2	17.5	−0.92	−	4.1	5.9/19.2	32750
1997 AW	1998 09 14.8	23 29.97	−03 47.9	18.4	−0.95	−	5.6	8.0/05.0	30084
1998 QE_{52}	1998 09 14.8	23 30.07	+06 00.8	17.3	−0.80	−	5.6	3.0/18.0	32716
4012 T-3	1998 09 14.8	23 30.08	−17 30.3	17.5	−0.85	−	2.3	4.7/10.4	32787
1988 DE	1998 09 14.9	23 30.57	−03 37.1	16.6	−0.99	−	1.8	8.3/26.0	32658
1998 QX_{51}	1998 09 15.0	23 30.78	+03 08.8	17.8	−0.90	−	7.6	2.4/17.2	32715
1997 GZ_6	1998 09 15.1	23 30.99	−08 08.2	19.2	−0.96	−	5.2	1.8/13.6	32752
1992 EC_1	1998 09 15.2	23 31.34	+08 43.0	19.5	−0.78	−	10.8	3.3/19.7	20342
1998 QH_{52}	1998 09 15.2	23 31.51	+04 38.9	16.8	−0.97	−	3.4	2.8/17.6	32716
1980 GB	1998 09 15.3	23 31.93	−16 54.5	17.3	−0.95	−	6.7	5.1/10.7	32738
1993 EK	1998 09 15.4	23 32.01	+00 07.4	17.7	−1.07	−	3.3	1.3/16.3	32745
1998 SH_4	1998 09 15.4	23 32.04	−04 57.3	17.9	−0.71	−	5.0	0.5/14.8	32726
(9355)	1998 09 15.4	23 32.08	+04 01.2	17.1	−0.87	−	7.2	3.1/17.8	32619
3058 T-1	1998 09 15.4	23 32.27	−03 00.9	15.9	−1.05	−	0.1	0.0/15.5	32786
1994 TW_{15}	1998 09 15.4	23 32.36	+02 48.4	17.3	−0.73	−	6.7	2.6/17.5	32748
4214 T-1	1998 09 15.5	23 32.42	−05 15.8	18.2	−0.82	−	6.7	0.7/14.7	32786
(9424)	1998 09 15.5	23 32.46	−07 55.1	16.9	−0.91	−	6.1	2.1/13.9	32635
1995 WD_2	1998 09 15.5	23 32.73	+00 14.9	18.2	−0.93	−	6.6	1.2/16.6	32749
1992 PU_1	1998 09 15.6	23 32.91	−03 07.7	17.8	−0.71	−	5.6	0.1/15.6	27445
1997 GV_3	1998 09 15.6	23 32.95	−10 56.7	18.5	−1.04	−	3.4	3.1/13.3	32678
1996 DO_1	1998 09 15.6	23 32.96	+12 00.0	17.0	−0.80	−	3.6	4.4/20.7	32750
1981 EB_{17}	1998 09 15.7	23 33.09	−01 29.5	17.7	−0.92	−	4.5	0.5/16.1	32739
(9329)	1998 09 15.8	23 33.62	+08 00.8	16.8	−0.92	−	7.1	4.4/19.6	32612
1994 YC_1	1998 09 15.8	23 33.67	−03 28.2	18.1	−0.73	−	4.7	0.2/15.6	32748
1990 RJ_5	1998 09 15.9	23 33.90	+02 14.7	17.7	−0.89	−	5.5	1.9/17.6	32742
1997 HV_{11}	1998 09 15.9	23 33.99	−12 33.7	17.4	−1.03	−	3.2	4.2/13.1	32680
1991 AF_2	1998 09 15.9	23 34.10	+01 33.6	17.5	−0.75	−	10.6	1.6/17.6	32743
6077 P-L	1998 09 15.9	23 34.15	−01 52.8	17.8	−0.77	−	3.9	0.3/16.3	32785
1998 QH_{101}	1998 09 16.0	23 34.17	−06 43.8	17.8	−0.98	−	6.7	1.7/14.7	32722
1981 EF_{47}	1998 09 16.0	23 34.20	−04 07.3	19.5	−0.80	−	4.2	0.4/15.6	18421
1998 QM_{106}	1998 09 16.0	23 34.50	−11 29.6	17.2	−1.00	+	0.4	3.6/13.8	32723
3024 P-L	1998 09 16.1	23 34.62	+13 37.7	18.0	−0.88	−	3.9	4.9/21.5	32785
1996 AA_6	1998 09 16.1	23 34.83	−04 14.4	17.8	−0.91	−	3.5	0.7/15.7	32673
1994 GB_1	1998 09 16.2	23 35.11	−11 32.1	16.1	−1.04	−	2.9	4.0/13.8	32666
1993 TJ_{31}	1998 09 16.2	23 35.15	−09 49.6	18.0	−0.73	−	5.5	2.2/13.8	32665
1991 UR_1	1998 09 16.2	23 35.22	−05 41.7	16.6	−0.93	−	5.2	1.3/15.3	32744
4255 T-1	1998 09 16.2	23 35.22	−03 36.4	19.9	−0.89	−	7.0	0.3/16.0	29938
1998 QB_{52}	1998 09 16.3	23 35.26	+01 25.1	16.3	−0.64	−	13.0	1.6/18.0	32715
1995 YY_5	1998 09 16.3	23 35.39	−11 40.1	17.0	−0.87	−	5.6	4.4/13.4	32750
1998 QK_{52}	1998 09 16.3	23 35.56	+00 40.0	16.7	−0.76	−	9.6	1.4/17.6	32716
1993 TD_{28}	1998 09 16.3	23 35.58	−02 36.4	17.7	−0.72	−	6.0	0.0/16.4	32746
1997 JD_{14}	1998 09 16.3	23 35.60	+11 03.8	17.3	−0.77	−	10.0	4.8/21.6	32753
3149 T-3	1998 09 16.5	23 36.13	−02 33.6	18.5	−0.93	−	7.0	0.0/16.6	32787
1995 BJ	1998 09 16.5	23 36.19	+10 22.3	17.7	−0.82	−	2.8	4.1/20.7	32749
2199 T-2	1998 09 16.5	23 36.24	−01 48.0	18.2	−0.82	−	6.6	0.3/16.8	32786
(7667)	1998 09 16.6	23 36.33	−11 04.8	15.6	−0.69	−	8.6	2.8/13.4	29904
1981 ET_{27}	1998 09 16.6	23 36.44	−02 54.4	18.4	−0.75	−	5.6	0.1/16.5	32739
1996 DL_1	1998 09 16.6	23 36.46	+02 17.0	19.1	−0.91	−	4.4	1.6/18.1	32674
(9150)	1998 09 16.6	23 36.62	−18 32.3	15.8	−0.83	−	4.5	7.2/11.2	32412
1995 AV_4	1998 09 16.6	23 36.66	+09 36.8	17.5	−0.83	−	3.0	3.9/20.5	32748
1990 TB_4	1998 09 16.7	23 36.79	−00 22.2	17.5	−0.86	−	5.4	0.7/17.4	32742
1990 SZ	1998 09 16.7	23 36.99	+00 08.4	16.5	−1.06	−	0.5	1.1/17.5	32742
1997 CF_{29}	1998 09 16.7	23 37.01	−02 44.2	17.6	−0.93	−	6.9	0.1/16.7	32752
1991 UP_3	1998 09 16.8	23 37.04	−09 24.3	17.4	−0.90	−	6.1	3.1/14.5	32744
1998 QZ_{100}	1998 09 16.8	23 37.08	−07 35.1	17.5	−0.72	−	4.6	2.1/15.1	32722
(9507)	1998 09 16.8	23 37.43	+09 36.9	16.6	−1.07	−	2.4	5.5/20.5	32655
(9353)	1998 09 16.9	23 37.46	−05 52.8	16.7	−0.96	−	4.5	1.5/15.9	32618
(9479)	1998 09 17.0	23 37.87	−02 13.3	18.1	−0.91	−	3.8	0.1/17.1	32648
1997 CO_{26}	1998 09 17.0	23 37.88	−01 49.3	18.5	−0.97	−	6.1	0.2/17.2	32752
1981 EC_{22}	1998 09 17.0	23 37.91	−02 21.2	18.7	−0.97	−	7.2	0.0/17.1	32739
1998 QX_{106}	1998 09 17.1	23 38.15	−11 36.5	17.5	−1.07	−	2.2	4.3/14.5	32723
1996 AR	1998 09 17.1	23 38.17	−09 24.9	19.3	−0.93	−	6.1	2.5/14.8	32672
1990 VH_3	1998 09 17.1	23 38.29	+04 38.9	17.1	−0.90	−	5.2	2.9/19.4	32659
1064 T-1	1998 09 17.1	23 38.42	−02 22.2	18.5	−1.05	−	4.4	0.0/17.2	32786
1995 UD_4	1998 09 17.1	23 38.42	−10 10.4	16.7	−1.02	−	1.4	4.1/15.0	32749
1975 LF_1	1998 09 17.1	23 38.43	−21 37.6	16.9	−0.96	+	0.3	6.1/11.7	32738
1996 DT	1998 09 17.1	23 38.47	−08 27.7	17.2	−0.70	−	7.4	1.8/15.0	32673
1997 AS_7	1998 09 17.2	23 38.51	−13 45.0	16.6	−0.90	−	7.1	4.3/13.3	32751
(9362)	1998 09 17.2	23 38.63	−10 33.8	15.7	−0.87	−	3.9	3.2/14.6	32620
1991 PO_{12}	1998 09 17.2	23 38.76	−07 18.0	16.5	−0.87	−	9.2	2.2/15.5	32660
(9337)	1998 09 17.2	23 38.84	−02 22.4	16.7	−0.81	−	4.6	0.0/17.3	32614
1998 QE_{57}	1998 09 17.2	23 38.84	−01 40.9	16.8	−0.84	−	9.2	0.3/17.5	32717
1993 GO	1998 09 17.3	23 38.81	−23 16.4	17.8	−0.97	−	3.0	6.7/10.8	32746
1989 CJ_8	1998 09 17.3	23 38.82	−09 04.6	17.8	−0.85	−	7.8	2.2/15.0	32741
1998 QZ_{101}	1998 09 17.3	23 39.18	−07 12.4	18.2	−0.78	−	9.2	1.7/15.6	32722
(9199)	1998 09 17.4	23 39.23	−16 15.6	14.5	−0.98	−	2.2	6.3/13.2	32424
(9281)	1998 09 17.4	23 39.25	+02 11.8	17.1	−0.89	−	5.4	1.9/18.9	32601
(9354)	1998 09 17.4	23 39.29	+07 04.7	16.9	−0.88	−	6.6	3.5/20.6	32618
1995 YJ_3	1998 09 17.4	23 39.42	−07 53.0	18.7	−0.83	−	6.3	1.7/15.5	32750
1981 JR_2	1998 09 17.4	23 39.46	−06 38.5	17.7	−1.03	−	5.0	1.8/16.1	32739
1993 FF_{22}	1998 09 17.5	23 39.94	−04 16.9	17.2	−1.00	−	3.4	0.9/17.0	32664
1992 EW_9	1998 09 17.6	23 40.07	−11 19.8	15.2	−0.69	−	12.9	3.5/13.9	32744
(9508)	1998 09 17.6	23 40.08	−01 29.4	17.1	−0.89	−	8.0	0.2/17.9	32655
1996 JX_7	1998 09 17.7	23 40.37	−05 59.0	19.1	−0.71	−	4.8	1.0/16.4	27452
1996 CA_3	1998 09 17.7	23 40.52	−05 28.9	17.2	−0.72	−	4.6	0.9/16.6	32750
1988 BH_5	1998 09 17.7	23 40.61	+17 07.0	17.7	−0.87	−	5.0	6.1/24.4	32511
(9421)	1998 09 17.9	23 41.08	−09 31.0	18.2	−0.95	−	5.6	2.9/15.5	32635

1994 TK_{15}	1998 09 17.9	23 41.29	−04 42.1	17.7	−0.91	− 4.2	1.0/17.1	25220
1998 SL_7	1998 09 17.9	23 41.38	−01 49.7	18.4	−0.84	− 5.0	0.1/18.1	32726
(9380)	1998 09 18.0	23 41.31	−02 15.5	17.3	−0.77	− 5.7	0.1/17.9	32625
(9264)	1998 09 18.0	23 41.34	−00 26.0	15.8	−0.86	− 1.9	0.6/18.5	32596
(7834)	1998 09 18.0	23 41.44	−27 58.6	15.9	−0.95	− 3.1	9.0/09.5	30440
(9287)	1998 09 18.0	23 41.55	−00 25.8	17.6	−0.78	− 5.0	0.5/18.6	32602
(7611)	1998 09 18.0	23 41.60	−14 46.7	15.7	−0.76	− 5.6	4.2/13.7	29603
1998 QM_{57}	1998 09 18.0	23 41.67	−00 33.8	18.1	−0.84	− 4.7	0.5/18.5	32717
1998 QO_{105}	1998 09 18.0	23 41.77	−10 44.2	17.1	−1.02	− 4.6	3.3/15.4	32723
1995 XH_1	1998 09 18.1	23 41.69	+07 26.1	16.1	−0.89	− 4.8	4.6/21.2	32671
1991 LK_2	1998 09 18.1	23 41.78	−11 21.9	18.4	−0.73	− 4.2	2.5/15.0	32743
1996 AU_{13}	1998 09 18.1	23 41.81	−06 57.5	18.8	−0.89	− 3.2	2.0/16.6	31387
1996 XH_1	1998 09 18.1	23 41.97	−48 17.4	18.4	−1.50	− 0.9	18.2/01.0	29308
(9330)	1998 09 18.1	23 42.08	−04 03.2	17.2	−0.71	− 5.0	0.6/17.5	32613
(9268)	1998 09 18.2	23 42.06	−04 47.3	17.6	−0.87	− 5.4	1.0/17.3	32597
1997 EW_{25}	1998 09 18.2	23 42.12	−06 55.0	17.7	−1.07	− 3.2	2.0/16.8	32752
(9358)	1998 09 18.2	23 42.14	−06 27.3	16.4	−0.81	− 6.3	1.7/16.7	32619
(9260)	1998 09 18.2	23 42.24	+06 03.0	15.8	−0.66	− 8.9	4.0/21.3	32595
2186 T-2	1998 09 18.2	23 42.30	−02 46.0	18.8	−0.80	− 4.4	0.3/18.0	32733
(9349)	1998 09 18.3	23 42.43	−14 51.0	17.2	−0.77	− 7.4	6.2/13.6	32617
1991 TN	1998 09 18.3	23 42.50	−11 38.7	17.3	−0.93	− 6.1	3.5/15.1	32744
(9375)	1998 09 18.3	23 42.54	−06 04.6	17.3	−0.89	− 6.6	1.4/16.9	32624
1998 QO_{99}	1998 09 18.3	23 42.71	−09 45.5	17.6	−0.94	− 7.8	2.9/15.7	32721
1998 QE_{99}	1998 09 18.4	23 42.86	−02 24.7	17.7	−0.87	− 0.8	0.2/18.3	32721
3039 T-2	1998 09 18.4	23 42.98	−05 53.1	18.9	−0.77	− 7.7	1.6/17.0	27928
(7471)	1998 09 18.4	23 43.16	−01 21.1	16.7	−0.97	− 4.0	0.2/18.6	29081
1998 QH_{99}	1998 09 18.5	23 43.50	−07 12.7	17.9	−0.92	− 4.4	2.5/16.9	32721
1997 BR_3	1998 09 18.6	23 43.46	+10 49.3	17.3	−1.37	+ 2.8	5.3/21.5	32751
2785 P-L	1998 09 18.6	23 43.49	−05 51.9	17.7	−0.83	− 5.5	1.6/17.3	32785
1998 MM_5	1998 09 18.6	23 43.59	+00 35.3	17.9	−0.86	− 1.1	1.2/19.3	32755
1998 QN_{105}	1998 09 18.6	23 43.89	−10 00.3	16.8	−0.96	− 3.2	3.9/16.2	32723
1994 TO_4	1998 09 18.7	23 44.21	+03 49.2	17.6	−0.71	−12.8	2.1/21.0	32668
1994 PP_{37}	1998 09 18.8	23 44.27	+00 21.5	17.9	−0.92	− 5.8	0.8/19.5	32667
1998 QD_{99}	1998 09 18.9	23 44.55	−07 17.9	17.1	−0.78	− 5.1	1.9/17.0	32721
1991 PZ_{17}	1998 09 18.9	23 44.73	−12 54.2	16.7	−0.90	− 7.5	4.9/15.0	32743
1995 TQ_6	1998 09 18.9	23 44.79	−04 17.5	17.1	−1.02	− 4.9	1.1/18.2	32749
1994 RL_1	1998 09 19.0	23 45.04	+03 59.0	16.4	−0.61	−14.6	2.4/21.4	32748
1993 TP_{38}	1998 09 19.0	23 45.20	+05 19.2	18.0	−0.66	− 9.1	1.9/21.7	32746
1980 FH_3	1998 09 19.0	23 45.22	−00 33.7	17.1	−0.70	− 7.7	0.3/19.5	32738
1994 SM_8	1998 09 19.1	23 45.34	−04 29.0	17.9	−0.94	+ 0.6	1.4/18.4	32668
1993 UQ_2	1998 09 19.1	23 45.39	−00 22.4	16.5	−0.67	− 8.4	0.4/19.6	32665
1998 QW_{59}	1998 09 19.1	23 45.41	−02 50.1	19.6	−0.72	− 6.6	0.4/18.7	32718
2110 P-L	1998 09 19.1	23 45.67	+01 34.2	18.0	−0.85	− 4.9	1.3/20.2	32785
1994 YC_2	1998 09 19.2	23 45.64	+20 29.4	16.9	−0.85	− 3.4	9.0/26.8	32748
(9500)	1998 09 19.3	23 46.10	+05 05.5	17.7	−0.78	−10.1	2.3/21.8	32653
1998 QJ_{99}	1998 09 19.3	23 46.16	−09 29.7	16.1	−0.79	− 5.7	3.8/16.6	32721
1996 BP_1	1998 09 19.3	23 46.17	−06 48.5	17.6	−0.96	− 4.9	2.0/17.7	26751
1998 QX_{57}	1998 09 19.3	23 46.20	−01 24.1	17.4	−0.89	− 7.6	0.0/19.4	32717
1998 SE_{24}	1998 09 19.3	23 46.22	−05 08.0	17.0	−0.73	− 8.4	1.7/18.0	32726
(9403)	1998 09 19.4	23 46.44	−09 10.9	16.5	−0.84	− 4.9	2.8/16.9	32630
(9263)	1998 09 19.5	23 46.78	−05 02.2	16.9	−0.74	− 4.4	1.3/18.3	32596
1997 DC	1998 09 19.6	23 47.15	−02 47.8	16.9	−0.91	− 7.0	0.5/19.2	32752
1990 VW_8	1998 09 19.7	23 47.67	+14 13.0	17.1	−0.81	− 8.2	5.3/25.4	32742
1991 PG_{11}	1998 09 19.7	23 47.70	−00 36.1	16.0	−0.69	−11.7	12.3/10.0	32743
(9405)	1998 09 19.8	23 47.81	−04 53.3	17.1	−0.81	− 4.5	1.2/18.6	32631
1998 QW_{57}	1998 09 19.8	23 47.84	−01 55.5	17.8	−0.69	− 8.2	0.2/19.6	32717
(9434)	1998 09 19.8	23 48.00	−05 59.5	17.3	−0.99	− 5.1	2.0/18.4	32638
1978 GA	1998 09 20.0	23 48.55	−05 50.5	17.4	−0.86	− 9.3	1.7/18.4	32738
(8049)	1998 09 20.0	23 48.87	−00 40.0	16.2	−0.79	− 4.7	0.2/20.3	30864
2650 P-L	1998 09 20.1	23 48.85	−01 56.5	18.2	−0.82	− 7.1	0.4/19.8	32728
1998 QL_{59}	1998 09 20.1	23 48.90	−01 57.7	18.8	−0.90	− 3.3	0.2/19.9	32718
1989 EJ_6	1998 09 20.1	23 49.24	−01 38.8	18.6	−0.70	− 4.6	0.1/20.0	32741
1996 DL_2	1998 09 20.2	23 49.49	−06 45.7	17.4	−0.78	− 5.1	1.8/18.4	32750
1994 PL_{12}	1998 09 20.2	23 49.56	+01 23.8	18.0	−0.90	− 5.9	0.8/21.1	32667
(9296)	1998 09 20.3	23 49.66	−01 51.0	15.7	−0.70	−14.3	0.3/20.0	32604
1997 GZ_{31}	1998 09 20.3	23 49.67	−18 16.1	18.1	−0.80	− 4.5	5.0/14.6	32679
3378 T-3	1998 09 20.3	23 49.75	−02 05.1	18.2	−0.94	− 6.4	0.3/20.0	32787
1998 QP_{100}	1998 09 20.3	23 49.89	−08 43.9	17.9	−0.84	− 4.0	2.7/17.9	32722
1998 QA_{56}	1998 09 20.4	23 50.07	+00 57.4	15.7	−0.73	−10.2	1.0/21.2	32717
(9419)	1998 09 20.4	23 50.20	+07 43.5	16.7	−0.90	− 6.9	4.0/23.4	32634
4183 T-3	1998 09 20.4	23 50.33	+01 49.2	17.9	−0.66	−14.8	1.3/21.7	32735
1997 EM_4	1998 09 20.5	23 50.31	−02 04.1	20.9	−0.91	− 6.7	0.4/20.2	32677
(9364)	1998 09 20.5	23 50.33	−02 20.0	16.9	−0.83	− 4.5	0.4/20.1	32621
(9478)	1998 09 20.5	23 50.53	−02 01.0	17.9	−0.80	− 3.5	0.3/20.2	32648
1998 QC_{58}	1998 09 20.5	23 50.58	−00 52.0	17.0	−0.84	− 6.3	0.1/20.6	32718
1998 SW_{32}	1998 09 20.5	23 50.68	−02 18.1	17.3	−0.97	− 3.9	0.5/20.2	32727
6637 P-L	1998 09 20.6	23 50.94	−03 55.4	17.8	−0.91	− 8.2	1.1/19.7	32730
(9489)	1998 09 20.6	23 51.01	+02 08.3	17.7	−0.80	− 7.3	1.1/21.8	32650
1981 EJ_5	1998 09 20.7	23 51.04	+09 56.0	16.1	−0.99	− 5.6	5.3/25.0	32509
(9333)	1998 09 20.7	23 51.07	−22 51.5	15.8	−1.17	+ 2.3	9.3/15.0	32613
(9509)	1998 09 20.7	23 51.18	+01 12.2	17.2	−0.88	− 9.5	0.8/21.5	32656
1993 FH_{25}	1998 09 20.7	23 51.18	+02 40.8	16.4	−0.84	− 7.9	1.4/22.0	32745
2121 P-L	1998 09 20.7	23 51.40	−05 48.4	18.4	−1.10	+ 0.3	1.9/19.5	32785
1993 QL_7	1998 09 20.9	23 51.76	−04 08.9	18.3	−0.76	− 5.9	1.0/19.8	32746
1989 UL	1998 09 20.9	23 51.77	+05 19.3	16.6	−0.77	− 6.9	2.3/23.1	32741
1993 FR_{52}	1998 09 20.9	23 51.78	−03 38.0	20.2	−0.90	− 7.1	0.9/20.0	26402
2532 P-L	1998 09 20.9	23 51.97	+02 09.4	16.3	−0.65	− 9.2	1.1/22.1	32785
1997 ER_{11}	1998 09 20.9	23 52.11	−01 07.6	18.5	−0.96	− 5.7	0.1/20.9	32752
1996 EL_1	1998 09 21.0	23 52.14	+06 50.7	17.4	−1.04	− 1.1	2.8/23.1	32674
1996 CT_7	1998 09 21.0	23 52.22	+05 40.4	16.8	−0.81	− 8.6	2.7/23.4	32750
(7878)	1998 09 21.0	23 52.28	−14 07.8	17.3	−0.79	− 8.5	4.1/16.1	30638
1993 FT_7	1998 09 21.1	23 52.45	−05 38.4	17.1	−0.79	− 9.4	2.1/19.3	32745
1995 WE	1998 09 21.1	23 52.49	−12 50.8	17.2	−1.01	− 5.3	4.5/17.3	32749
1993 FK_9	1998 09 21.1	23 52.64	−08 09.9	17.2	−1.00	− 3.8	3.0/18.9	32663
9518 P-L	1998 09 21.1	23 52.72	−01 59.4	17.1	−0.95	− 4.8	0.5/20.8	32786
1994 PB_3	1998 09 21.2	23 52.80	−04 27.0	18.5	−0.85	− 8.3	1.4/19.9	32666
1998 QR_{58}	1998 09 21.2	23 52.81	+00 12.9	17.6	−1.04	− 2.9	0.4/21.5	32718
1989 GH_8	1998 09 21.2	23 52.90	−07 42.5	18.1	−0.92	− 6.0	2.6/18.9	32741
3118 T-2	1998 09 21.2	23 52.97	−04 32.8	17.4	−0.80	− 9.9	1.7/19.9	32786
2549 P-L	1998 09 21.2	23 53.05	−01 23.7	16.6	−0.78	− 5.8	0.2/21.0	32727
1992 YW_1	1998 09 21.2	23 53.08	+05 02.8	17.6	−0.99	− 5.5	2.2/23.1	32662
1998 SJ_{24}	1998 09 21.2	23 53.12	−07 11.1	17.1	−0.80	− 4.8	2.2/19.1	32727

(7354)	1998 09 21.2	23 53.18	−05 56.6	18.0	−0.72	− 4.3	1.4/19.5	28576
1994 TJ_1	1998 09 21.4	23 53.61	+00 13.9	15.9	−0.64	−10.1	0.4/21.8	32668
4391 T-3	1998 09 21.4	23 53.80	−14 14.2	17.3	−0.66	− 3.6	7.5/16.7	32787
4625 P-L	1998 09 21.4	23 53.88	−03 06.8	18.3	−0.98	− 5.4	0.9/20.7	32729
1988 XX_2	1998 09 21.4	23 53.93	−05 01.1	16.8	−0.97	− 6.0	1.8/20.1	32741
(9285)	1998 09 21.5	23 54.23	+00 44.1	16.9	−0.79	− 4.8	0.5/22.0	32602
1981 EK_{22}	1998 09 21.5	23 54.25	+00 34.1	18.6	−0.77	− 5.0	0.4/22.0	32739
1977 TU_3	1998 09 21.5	23 54.28	+14 16.6	16.5	−0.65	− 9.6	5.3/27.5	32656
1994 PG_{18}	1998 09 21.6	23 54.48	−04 33.7	17.8	−0.84	− 7.9	1.4/20.3	32667
1984 EL	1998 09 21.6	23 54.54	−08 27.4	17.4	−0.73	− 3.9	2.1/19.1	32740
1966 CM	1998 09 21.8	23 55.17	−11 01.4	17.0	−0.77	− 8.8	3.3/18.0	32737
1998 SQ_{24}	1998 09 21.9	23 55.48	−07 47.3	17.8	−0.95	− 3.2	2.9/19.7	32727
5170 T-3	1998 09 21.9	23 55.60	−07 33.0	17.8	−0.78	− 7.6	2.1/19.5	32787
1981 ED_{34}	1998 09 21.9	23 55.73	+03 17.6	17.4	−0.88	− 4.5	1.7/23.2	32739
1995 BV	1998 09 22.0	23 55.69	−03 32.1	17.8	−0.70	− 4.4	0.8/21.0	32749
1994 PP_{26}	1998 09 22.0	23 55.82	−02 39.7	17.6	−0.95	− 4.9	0.8/21.3	32747
(9376)	1998 09 22.0	23 55.97	−01 19.2	16.7	−0.81	− 6.1	0.3/21.8	32624
1998 NA	1998 09 22.2	23 56.53	+08 11.9	15.3	−1.00	− 0.2	3.8/24.6	32756
1996 BH_2	1998 09 22.3	23 56.86	+09 27.4	16.2	−0.94	− 3.0	3.6/25.3	32673
1994 TR_1	1998 09 22.4	23 57.29	+11 42.0	15.5	−0.53	−15.5	5.4/27.9	32748
1997 JV_7	1998 09 22.4	23 57.52	−02 15.1	17.4	−0.88	− 8.9	0.7/21.8	32681
(9338)	1998 09 22.5	23 57.46	+00 48.5	16.2	−0.67	− 9.5	0.3/22.9	32615
1993 GK_1	1998 09 22.5	23 57.73	+01 38.7	18.1	−0.92	− 5.4	0.6/23.2	32746
1997 GC_{19}	1998 09 22.6	23 58.14	+00 36.8	17.2	−1.02	− 2.1	0.4/22.9	32679
1991 RX_{40}	1998 09 22.7	23 58.33	−02 51.0	18.0	−0.82	− 7.6	1.3/21.8	32661
1997 GB_7	1998 09 22.7	23 58.33	−04 51.3	17.8	−0.95	− 4.9	1.8/21.3	32678
1998 QF_{26}	1998 09 22.8	23 58.95	−01 56.6	17.1	−0.93	− 7.2	0.7/22.3	32697
1976 YL_3	1998 09 23.0	23 59.44	−00 33.6	16.7	−0.71	− 5.8	0.2/22.9	32738
(9407)	1998 09 23.0	23 59.64	+04 24.4	16.7	−0.82	− 7.6	1.7/24.6	32631
1981 UR_{27}	1998 09 23.0	23 59.67	−05 52.2	16.4	−0.97	− 1.8	1.9/21.4	32739
(9363)	1998 09 23.1	23 59.63	−21 26.9	17.0	−0.94	− 3.0	6.8/16.1	32620
1996 BB_2	1998 09 23.1	23 59.85	+12 50.9	17.9	−1.04	− 2.7	4.7/26.9	32750
(9204)	1998 09 23.2	00 00.07	+11 16.8	16.6	−0.93	− 6.2	4.3/27.0	32425
1986 GC	1998 09 23.3	00 00.39	−11 04.5	17.2	−0.99	− 4.0	4.2/19.9	32740
3137 T-3	1998 09 23.3	00 00.43	−08 28.6	17.1	−0.88	− 1.5	3.0/20.8	32787
1995 UM_8	1998 09 23.3	00 00.79	−05 10.0	17.8	−1.05	− 4.1	2.2/21.8	32749
1987 QS_5	1998 09 23.4	00 00.72	+09 02.1	17.1	−0.87	− 1.5	3.2/26.1	32740
(9282)	1998 09 23.4	00 00.82	+09 27.7	16.4	−0.84	− 6.8	4.7/26.7	32601
4406 T-1	1998 09 23.5	00 01.08	−09 28.3	18.0	−1.04	− 0.6	3.4/20.9	32786
1975 SU_1	1998 09 23.6	00 01.54	−00 06.4	18.4	−0.69	− 4.8	0.1/23.5	32738
(7703)	1998 09 23.6	00 01.65	−09 44.0	16.6	−0.68	−20.4	4.1/19.3	32737
1994 RW_{17}	1998 09 23.6	00 01.67	+01 40.2	18.3	−0.91	− 5.9	0.6/24.1	32748
1991 VG_2	1998 09 23.7	00 02.06	−02 37.0	17.2	−0.91	− 7.2	1.1/22.8	32744
1998 QL_{103}	1998 09 23.7	00 02.07	−08 09.5	18.2	−1.00	− 6.0	3.3/21.1	32722
1996 FW_4	1998 09 23.7	00 02.10	−02 38.1	17.8	−0.71	− 4.4	0.8/22.8	32751
1997 FY_2	1998 09 23.8	00 02.28	+01 16.0	17.8	−1.02	− 4.0	0.4/24.1	32677
1990 QC_{19}	1998 09 24.0	00 03.07	+45 03.0	17.3	−1.69	+ 7.4	22.2/06.3	32742
1996 EY_5	1998 09 24.1	00 03.38	−01 05.4	18.1	−0.89	− 4.6	0.6/23.7	32674
1993 TT_{19}	1998 09 24.1	00 03.48	−02 57.7	18.4	−0.77	− 4.4	1.0/23.1	27715
5041 T-3	1998 09 24.1	00 03.57	−08 12.2	17.2	−0.70	− 7.5	2.6/21.0	32787
1981 DP_3	1998 09 24.2	00 03.98	+11 13.6	17.8	−0.73	− 8.0	3.5/28.4	30779
(9361)	1998 09 24.2	00 03.98	+05 20.4	17.3	−0.78	− 8.0	1.8/26.1	32620
2049 T-2	1998 09 24.3	00 03.98	+01 27.1	18.6	−0.98	− 5.7	10.0/15.0	32733
1994 PB_{30}	1998 09 24.4	00 04.31	+06 15.1	17.8	−0.86	− 7.7	2.2/26.4	32747
1997 BG	1998 09 24.4	00 04.42	−50 31.9	17.1	−0.70	−13.1	30.8/15.0	32519
1991 VW_4	1998 09 24.4	00 04.46	−15 22.1	16.2	−0.86	− 5.1	7.1/19.1	32744
1993 JB_1	1998 09 24.5	00 04.75	+08 34.8	17.7	−0.89	− 6.9	2.7/27.2	32746
1993 TK_3	1998 09 24.6	00 05.17	−06 34.7	16.7	−0.70	− 4.3	3.1/22.2	32746
3314 T-1	1998 09 24.6	00 05.39	+05 18.9	18.1	−0.77	− 9.7	1.5/26.4	32786
1998 QF_{104}	1998 09 24.8	00 05.86	−05 46.8	16.0	−1.11	+ 0.4	2.5/23.2	32722
1987 SP_{12}	1998 09 24.9	00 06.47	+01 07.6	15.9	−0.68	− 6.2	9.9/15.0	32740
1993 TK_{37}	1998 09 25.0	00 06.47	+00 28.0	17.7	−0.67	− 9.5	0.1/24.9	32665
(9374)	1998 09 25.1	00 07.19	+01 34.1	16.1	−0.92	− 5.1	0.4/25.4	32623
1998 RT_1	1998 09 25.2	00 07.38	+15 58.5	19.0	−1.04	− 1.6	5.5/29.7	32724
1981 DN	1998 09 25.2	00 07.44	+10 47.3	19.5	−0.94	− 4.6	3.2/28.4	22696
(9340)	1998 09 25.3	00 07.59	−02 38.0	17.6	−0.72	− 4.7	1.0/24.1	32615
1993 BM_3	1998 09 25.3	00 07.72	−05 02.7	18.0	−1.01	− 3.6	2.2/23.6	32663
1997 HS_{13}	1998 09 25.3	00 07.83	+11 29.9	17.0	−0.64	−10.6	3.9/30.0	32681
1994 PW_{31}	1998 09 25.3	00 07.90	−00 40.6	17.0	−0.85	− 9.0	0.6/24.8	32747
1237 T-2	1998 09 25.4	00 08.23	+01 22.8	18.4	−0.79	− 4.6	0.2/25.6	32786
(9167)	1998 09 25.5	00 08.47	+01 25.5	16.0	−0.83	− 2.4	0.2/25.7	32416
4303 T-3	1998 09 25.5	00 08.60	−09 46.6	18.1	−0.82	− 3.0	3.2/22.2	27565
1993 TX_{38}	1998 09 25.5	00 08.62	−10 08.7	17.6	−0.74	− 5.1	3.5/21.8	32665
(7791)	1998 09 25.6	00 08.83	−08 31.5	17.7	−0.70	− 6.5	2.6/22.2	30268
1997 MJ_2	1998 09 25.6	00 08.86	−13 23.3	18.1	−0.93	− 5.7	5.4/20.9	32753
1996 GP_1	1998 09 25.6	00 08.98	+00 16.7	17.2	−1.17	+ 1.7	0.2/25.5	32674
1978 UD_7	1998 09 25.6	00 09.01	−01 17.8	16.7	−1.16	− 0.5	1.1/25.1	32657
1998 QP_{90}	1998 09 25.6	00 09.06	−03 39.4	16.1	−1.18	+ 3.0	2.5/24.7	32720
1990 FD_3	1998 09 25.7	00 09.38	−08 17.9	16.5	−0.66	− 8.2	2.6/22.3	32659
1994 PY_{19}	1998 09 25.8	00 09.64	+03 59.1	17.5	−0.92	− 5.5	1.0/26.8	32747
1981 EF_{11}	1998 09 25.8	00 09.71	+09 27.0	17.1	−0.99	− 2.3	3.5/28.3	32739
1997 JB_{10}	1998 09 25.9	00 09.68	−03 52.3	18.1	−0.94	− 6.6	1.8/24.3	32753
1989 RX	1998 09 25.9	00 09.83	+12 34.5	15.4	−0.73	− 7.5	4.8/30.2	32658
(7677)	1998 09 25.9	00 09.86	−02 32.6	16.4	−0.85	− 6.5	1.5/24.7	32508
(9156)	1998 09 26.0	00 10.15	+08 57.6	15.8	−1.01	− 3.0	3.9/28.4	32413
1995 YL_3	1998 09 26.1	00 10.65	−07 16.3	17.3	−0.88	− 7.6	3.6/23.2	32750
(9325)	1998 09 26.1	00 10.71	+06 04.6	16.9	−0.86	− 7.8	1.7/27.9	32611
3200 T-2	1998 09 26.1	00 10.80	−04 30.3	18.9	−0.77	− 5.3	2.0/24.3	32734
(9288)	1998 09 26.2	00 10.91	+02 52.2	17.2	−0.92	− 5.0	0.9/26.8	32602
6594 P-L	1998 09 26.2	00 10.96	+00 06.7	17.4	−0.81	− 9.1	0.4/25.9	32785
1981 EE_{26}	1998 09 26.3	00 11.39	+02 08.3	20.0	−0.86	− 7.1	0.3/26.7	26919
1998 RJ_4	1998 09 26.3	00 11.49	+00 36.0	17.6	−0.77	−26.1	0.3/26.1	32724
1986 TV_6	1998 09 26.4	00 11.55	+10 49.5	15.9	−0.97	− 2.4	4.1/29.3	32740
1993 TW_{16}	1998 09 26.4	00 11.72	−01 35.0	18.1	−0.76	− 5.7	0.9/25.5	32746
1991 RS_2	1998 09 26.4	00 11.79	+06 46.4	16.6	−0.88	− 8.9	2.2/28.4	32743
1972 PA	1998 09 26.4	00 11.82	+16 16.1	15.1	−0.77	− 5.3	5.2/01.8	32737
1996 GT_{19}	1998 09 26.5	00 11.88	+04 32.7	16.6	−0.70	− 7.3	1.0/27.7	30689
1997 NQ_2	1998 09 26.5	00 12.12	+47 13.2	18.6	−1.07	− 1.7	12.3/15.5	32753
6722 P-L	1998 09 26.6	00 12.58	−02 11.2	18.5	−1.06	− 2.0	1.6/25.7	32731
(9324)	1998 09 26.7	00 12.83	+03 25.8	17.3	−0.92	− 5.4	0.7/27.4	32611
(7477)	1998 09 26.8	00 13.26	+15 39.6	16.5	−0.81	− 8.7	4.7/02.2	29083
1997 GX_{14}	1998 09 26.8	00 13.36	+00 13.5	16.9	−1.06	+ 0.2	0.5/26.6	32752

1993 BX_{13}	1998 09 27.0	00 14.02	+01 39.9	15.8	−0.80	−	9.7	0.1/27.1	32745
1992 PB_{2}	1998 09 27.1	00 14.29	+09 53.4	16.7	−0.73	−	5.7	2.8/30.1	32745
6645 P-L	1998 09 27.2	00 14.36	−04 38.4	16.9	−1.04	+	3.0	3.2/25.8	32730
1989 CE_{5}	1998 09 27.2	00 14.46	+04 13.3	18.9	−0.92	−	5.6	0.9/28.1	32741
1998 QP_{104}	1998 09 27.2	00 14.53	−07 09.0	16.5	−0.84	−	1.7	2.5/24.6	32722
1997 GR_{23}	1998 09 27.2	00 14.56	−04 30.1	17.9	−0.85	−	2.6	2.2/25.4	32752
1997 AB_{15}	1998 09 27.2	00 14.73	−51 36.7	22.7	−1.30	−	4.3	15.6/10.0	29926
1989 AJ_{6}	1998 09 27.2	00 14.82	+09 16.3	17.2	−0.98	−	4.5	2.8/29.7	32741
2530 P-L	1998 09 27.3	00 14.91	−01 40.9	16.5	−1.02	−	3.4	1.5/26.4	32785
1995 VW_{1}	1998 09 27.4	00 15.41	+16 49.4	17.5	−0.97	−	5.4	6.0/02.4	32670
(7831)	1998 09 27.5	00 15.55	+09 16.9	17.3	−0.87	−	7.9	2.5/30.2	30439
3340 T-3	1998 09 27.5	00 15.81	+00 26.9	18.6	−0.83	−	6.3	0.4/27.2	30915
(9493)	1998 09 27.5	00 15.84	+07 33.6	16.8	−0.81	−	8.3	2.2/29.7	32652
1981 DF_{1}	1998 09 27.6	00 16.05	+16 32.2	18.6	−0.88	−	2.6	4.8/02.4	26914
(9271)	1998 09 27.6	00 16.10	+07 16.7	17.6	−0.74	−	5.8	1.7/29.6	32598
1993 VL_{1}	1998 09 27.7	00 16.48	−38 53.2	17.8	−0.92	−	1.1	14.3/10.8	23126
1979 MS_{4}	1998 09 27.8	00 16.54	−02 12.5	18.9	−0.90	−	7.0	1.5/26.5	32738
1998 QU_{90}	1998 09 27.8	00 16.54	−07 04.3	16.7	−1.02	−	4.2	3.6/25.1	32720
(9445)	1998 09 27.8	00 16.60	+02 34.3	17.0	−0.87	−	7.2	0.3/28.1	32640
(7317)	1998 09 27.8	00 16.79	+01 36.6	17.0	−0.91	−	7.7	0.1/27.8	28566
1998 QT_{90}	1998 09 27.9	00 16.88	−05 59.4	17.0	−0.93	−	3.8	3.0/25.5	32720
1997 FM	1998 09 28.0	00 17.38	−18 58.5	17.2	−0.81	−	6.2	7.3/20.6	32752
1984 SZ_{5}	1998 09 28.0	00 17.65	−00 53.2	16.4	−1.14	−	1.0	1.3/27.4	32740
1988 BL_{5}	1998 09 28.0	00 17.69	+24 08.4	17.2	−0.95	−	3.7	8.6/05.5	19501
1980 FY_{2}	1998 09 28.1	00 17.83	+01 58.8	17.4	−0.77	−	4.7	0.0/28.2	25061
(9276)	1998 09 28.1	00 17.83	+09 58.1	16.7	−0.91	−	7.4	3.0/30.9	32599
1991 EY_{3}	1998 09 28.2	00 18.40	+03 33.7	18.4	−0.78	−	4.8	0.4/28.8	32743
1978 VY_{3}	1998 09 28.3	00 18.33	+08 28.3	17.4	−0.84	−	5.6	2.7/30.5	32738
1994 YA_{1}	1998 09 28.3	00 18.47	−05 37.8	17.3	−0.80	−	6.1	2.7/25.7	32748
1981 EV_{35}	1998 09 28.3	00 18.52	+07 32.3	18.2	−1.05	+	1.1	2.1/30.0	26921
(7514)	1998 09 28.3	00 18.52	−02 15.6	17.1	−0.96	−	5.0	1.4/27.0	29290
1995 UQ_{3}	1998 09 28.3	00 18.54	+05 34.4	16.9	−0.98	−	7.1	1.5/29.5	32749
1996 AL_{2}	1998 09 28.3	00 18.55	−20 51.9	17.1	−0.85	−	4.9	7.4/20.5	32750
(7704)	1998 09 28.3	00 18.62	−09 44.2	17.4	−0.85	−	4.8	4.1/24.5	30070
1990 UO_{1}	1998 09 28.4	00 18.93	−06 37.2	16.5	−0.79	−	6.8	3.6/25.4	32742
(9501)	1998 09 28.4	00 18.98	+05 10.4	16.4	−0.74	−	7.4	1.5/30.0	32654
1992 PB_{1}	1998 09 28.4	00 19.02	−05 32.5	17.3	−0.69	−	6.9	2.5/25.7	32662
1993 TL_{28}	1998 09 28.5	00 19.20	−01 18.6	18.5	−0.75	−	5.2	1.0/27.4	25068
1997 GD_{8}	1998 09 28.5	00 19.22	+01 52.3	18.8	−0.94	−	6.0	0.1/28.5	32752
1998 RV_{4}	1998 09 28.5	00 19.22	−11 50.6	17.9	−0.69	−27.0		6.0/22.1	32724
1993 EJ	1998 09 28.5	00 19.29	−07 03.9	17.9	−0.97	−	3.8	3.3/25.8	32745
1994 PO_{7}	1998 09 28.5	00 19.37	+01 20.9	17.7	−0.92	−	6.2	0.3/28.3	32747
1994 PN_{25}	1998 09 28.5	00 19.44	−01 46.6	18.4	−0.92	−	5.9	1.4/27.3	29138
1993 FN_{6}	1998 09 28.5	00 19.45	−01 29.5	18.6	−0.99	−	3.3	1.3/27.5	32745
(9299)	1998 09 28.5	00 19.46	−02 50.9	16.9	−0.92	−	4.3	1.7/27.1	32605
1991 VC_{5}	1998 09 28.6	00 19.79	−09 09.4	16.3	−1.01	−	3.3	4.6/25.3	32744
2077 T-3	1998 09 28.7	00 19.84	+02 43.3	18.9	−1.04	−	3.5	0.2/28.9	32787
2590 P-L	1998 09 28.7	00 20.05	+01 15.8	17.6	−0.99	−	3.9	0.4/28.5	32785
(9255)	1998 09 28.8	00 20.36	+03 51.0	16.0	−1.08	−	1.3	0.7/29.3	32436
2104 T-2	1998 09 28.8	00 20.45	+04 04.4	17.7	−0.78	−	5.2	0.7/29.5	32786
1986 GF	1998 09 29.0	00 20.91	+15 27.6	17.2	−0.86	−13.0		4.3/04.1	32740
1991 RL_{1}	1998 09 29.0	00 21.10	+05 13.3	16.0	−0.80	−13.7		1.2/30.2	32743
6583 P-L	1998 09 29.0	00 21.27	+00 35.1	16.8	−0.90	−	8.3	0.7/28.5	32785
1984 YE_{4}	1998 09 29.2	00 21.82	−10 09.8	16.5	−0.96	−	4.5	5.4/25.3	32740
1996 DV_{1}	1998 09 29.2	00 22.01	+08 03.8	18.8	−0.85	−	4.4	1.8/01.1	27316
(9496)	1998 09 29.3	00 22.03	−02 25.0	17.4	−0.78	−	5.2	1.5/27.7	32652
(7676)	1998 09 29.4	00 22.42	−09 34.4	16.6	−0.85	−	9.0	4.2/25.2	29906
1998 QE_{98}	1998 09 29.4	00 22.53	−06 07.6	17.6	−0.91	−	3.6	4.2/26.9	32721
1998 QW_{53}	1998 09 29.4	00 22.57	+00 22.8	15.8	−0.85	−	9.4	0.8/28.7	32716
1993 QV_{4}	1998 09 29.5	00 22.72	+02 00.4	17.6	−0.81	−	4.6	0.1/29.4	32746
1993 TH_{19}	1998 09 29.5	00 22.74	+01 42.3	18.3	−0.77	−	5.0	0.2/29.3	32746
1989 GA_{3}	1998 09 29.6	00 23.15	+04 21.0	17.9	−0.91	−	6.3	0.6/30.2	32741
1997 JS_{14}	1998 09 29.6	00 23.33	+01 22.1	17.6	−0.83	−	6.7	0.5/29.3	32753
1995 WO_{7}	1998 09 29.8	00 23.85	+10 01.0	17.6	−0.94	−	6.8	3.3/02.3	32749
3261 T-3	1998 09 29.8	00 24.00	+00 40.0	18.1	−0.76	−	4.7	0.6/29.2	32787
1993 TB_{26}	1998 09 29.9	00 24.14	−03 11.0	16.5	−0.80	−	4.6	2.0/28.0	32232
1998 MJ_{14}	1998 09 29.9	00 24.30	+33 20.1	15.4	−0.85	−	3.0	8.6/11.4	32688
1157 T-2	1998 09 29.9	00 24.54	+03 57.9	18.3	−0.92	−	6.9	0.5/30.4	32786
1994 PE_{9}	1998 09 30.0	00 24.81	−06 38.0	18.8	−0.90	−	7.8	3.3/27.0	32235
(9481)	1998 09 30.1	00 24.95	−01 57.6	17.1	−0.97	−	5.7	1.7/28.7	32648
1995 YH_{3}	1998 09 30.1	00 24.95	−17 37.3	16.4	−0.72	−	6.3	10.2/22.2	32750
1997 JJ_{16}	1998 09 30.1	00 24.96	+01 28.2	17.4	−0.87	−	6.4	0.4/29.7	32753
1993 FY_{55}	1998 09 30.2	00 25.33	−04 54.4	18.4	−0.95	−	3.6	3.0/28.0	32746
2132 T-2	1998 09 30.2	00 25.42	+03 27.4	18.7	−0.70	−	8.8	0.2/30.5	32786
1993 PS_{5}	1998 09 30.3	00 25.70	−05 24.3	17.9	−0.60	−11.7		3.3/27.0	23981
1997 GK_{25}	1998 09 30.3	00 25.71	+03 12.8	18.0	−0.92	−	6.9	0.2/30.5	30462
1078 T-3	1998 09 30.4	00 26.32	+20 14.4	17.9	−0.82	−	7.9	5.7/06.9	32787
1992 EG_{11}	1998 09 30.5	00 26.32	−07 00.5	18.2	−0.76	−	8.8	3.2/26.9	32662
(9502)	1998 09 30.5	00 26.55	+02 42.5	17.7	−0.92	−	8.4	0.1/30.5	32654
1995 YA_{7}	1998 09 30.5	00 26.58	+02 18.3	19.5	−0.93	−	6.9	0.2/30.4	30457
1996 AX_{3}	1998 09 30.6	00 27.04	+08 19.3	16.7	−0.89	−	4.1	1.8/02.4	32672
1977 VL_{1}	1998 09 30.7	00 27.38	−05 50.0	16.4	−0.87	−	1.8	4.1/28.2	32738
1996 CE_{3}	1998 09 30.8	00 27.49	+10 42.8	16.4	−1.18	+	1.8	2.8/02.6	32750
(7702)	1998 09 30.8	00 27.60	+06 43.6	15.9	−1.02	−	2.5	1.8/01.9	30069
1998 QK_{53}	1998 09 30.9	00 27.79	+10 49.8	16.7	−1.00	−	4.2	2.9/03.3	32716
4073 P-L	1998 09 30.9	00 27.87	+08 21.7	17.8	−0.99	−	6.9	2.3/02.7	32785
1978 SJ_{7}	1998 09 30.9	00 28.01	+06 13.8	16.7	−1.00	+	0.2	1.2/01.8	32738
1997 CG_{6}	1998 10 01.0	00 28.32	−08 24.1	16.7	−1.05	−	3.8	4.3/27.7	32676
4526 P-L	1998 10 01.2	00 29.00	+03 49.9	17.2	−0.94	−	5.1	0.2/01.5	32785
1997 JO	1998 10 01.2	00 29.01	+06 56.3	17.7	−1.08	−	3.2	1.4/02.3	32753
1992 EX_{8}	1998 10 01.3	00 29.27	−14 43.5	16.1	−0.78	−	9.2	6.1/24.5	32744
1997 JH_{6}	1998 10 01.3	00 29.29	−06 21.0	17.4	−0.79	−	4.9	3.4/28.2	32681
1991 GW_{10}	1998 10 01.3	00 29.44	+00 50.6	19.7	−0.83	−	2.6	0.7/30.7	27711
1995 DL_{1}	1998 10 01.5	00 30.28	−24 38.8	18.9	−0.78	−	2.6	6.4/21.8	27568
1988 SS_{2}	1998 10 01.6	00 30.28	+00 30.7	17.4	−0.86	−	7.0	1.3/30.7	32658
1995 YR	1998 10 01.7	00 31.04	−11 53.4	16.8	−1.02	−	3.5	5.7/27.3	32750
1981 EA_{14}	1998 10 01.8	00 31.19	+06 53.9	18.8	−0.84	−	8.1	1.2/03.1	26917
1991 RA_{17}	1998 10 01.8	00 31.34	−04 20.1	16.7	−1.04	−	0.5	3.7/29.9	32744
1979 MD_{5}	1998 10 01.9	00 31.42	−12 15.3	18.6	−0.80	−	5.5	5.0/26.6	30778
6297 P-L	1998 10 01.9	00 31.47	+08 03.4	18.6	−1.09	+	0.2	1.8/03.1	32785
1994 TN_{15}	1998 10 01.9	00 31.70	+03 33.8	18.4	−0.84	−	6.1	0.1/02.0	32748
(7836)	1998 10 02.0	00 31.71	+05 46.7	16.8	−0.70	−	6.6	0.6/02.8	30440

1989 GO_4	1998 10 02.0	00 31.76	+06 04.7	17.4	−0.92	− 5.6	0.9/02.9	32741
(9206)	1998 10 02.1	00 32.07	+01 29.3	15.2	−0.84	− 3.9	0.9/01.5	32425
1979 MY_7	1998 10 02.1	00 32.20	+16 49.8	19.5	−0.86	− 5.1	4.3/06.6	30779
(7602)	1998 10 02.1	00 32.28	+18 12.6	16.9	−0.81	− 3.8	4.3/07.1	32737
1990 FH	1998 10 02.2	00 32.69	−28 38.5	18.8	−1.22	+ 0.6	10.5/23.6	30289
2768 P-L	1998 10 02.3	00 32.90	−00 34.6	18.7	−0.84	− 5.8	1.4/31.0	32785
1993 LU_1	1998 10 02.3	00 33.16	+17 53.7	16.6	−0.72	−10.4	5.7/08.1	32746
(9198)	1998 10 02.3	00 33.21	+02 56.2	16.8	−0.96	− 6.8	0.3/02.2	32423
(9200)	1998 10 02.4	00 33.14	+03 57.8	15.0	−0.79	− 6.9	0.2/02.5	32424
1995 YM_1	1998 10 02.4	00 33.21	+16 20.6	17.7	−0.97	− 5.9	5.2/06.5	30784
(7758)	1998 10 02.4	00 33.39	+12 34.1	17.5	−0.83	−15.1	3.1/06.0	30260
1995 EF_8	1998 10 02.4	00 33.45	−01 13.2	18.3	−0.74	− 5.0	1.4/30.9	32670
(9392)	1998 10 02.4	00 33.50	−04 22.3	16.8	−0.79	− 8.5	3.4/29.6	32628
4206 T-1	1998 10 02.4	00 33.53	+00 09.7	18.7	−0.91	− 6.4	1.1/01.4	32786
A913 CF	1998 10 02.5	00 33.70	+04 36.3	17.5	−0.70	− 8.1	0.3/02.9	23120
1996 AQ_2	1998 10 02.5	00 33.75	+01 31.8	17.7	−0.94	− 6.3	0.9/01.9	32750
1978 WU	1998 10 02.5	00 33.78	+17 15.3	17.2	−0.75	− 9.1	5.9/07.8	32738
1981 EP_{25}	1998 10 02.5	00 33.90	+05 18.6	18.7	−0.78	− 5.3	0.5/03.1	32739
1981 EZ_{29}	1998 10 02.7	00 34.33	+06 24.9	18.7	−1.09	− 4.5	1.2/03.5	26920
(7727)	1998 10 02.7	00 34.42	+01 34.4	16.9	−0.96	− 4.9	0.7/02.1	30251
1977 QD_2	1998 10 02.7	00 34.46	+08 10.0	15.8	−1.00	− 1.2	2.2/04.0	32738
1996 AP_3	1998 10 03.0	00 35.55	+19 14.2	14.8	−0.89	− 6.4	7.3/08.5	32750
1985 RJ	1998 10 03.0	00 35.66	+01 09.0	16.8	−0.73	−12.5	1.1/02.0	32740
1993 TM_{15}	1998 10 03.0	00 35.74	−00 55.2	18.2	−0.79	− 4.4	1.6/01.6	32664
1991 YW	1998 10 03.1	00 35.72	−05 20.2	17.3	−0.84	− 7.2	3.9/29.9	32744
2104 T-1	1998 10 03.1	00 35.76	+02 53.5	18.3	−0.95	− 5.1	0.3/02.8	32786
3338 T-1	1998 10 03.2	00 36.08	+02 10.0	20.0	−0.95	− 5.1	0.6/02.7	29948
1971 UQ	1998 10 03.2	00 36.10	−02 10.1	16.9	−0.93	− 3.2	3.0/01.4	32737
1997 GL_{11}	1998 10 03.3	00 36.49	+05 41.5	17.9	−1.06	− 3.3	0.7/03.8	32752
1995 YS	1998 10 03.3	00 36.59	−39 27.4	18.2	−1.31	+ 0.9	15.8/17.7	30784
(7764)	1998 10 03.3	00 36.69	−16 33.4	15.8	−0.74	− 7.8	8.3/25.4	30261
1991 RR_{10}	1998 10 03.4	00 36.83	+05 17.7	17.2	−1.06	− 1.3	0.6/03.8	32661
1998 QA_{55}	1998 10 03.4	00 37.15	+04 07.5	15.6	−0.64	−11.2	0.1/03.5	32717
1997 GY	1998 10 03.5	00 37.17	+05 00.4	19.1	−0.99	− 7.7	0.4/03.8	32678
1991 OV	1998 10 03.5	00 37.48	−00 26.0	16.7	−0.85	− 9.1	2.0/02.0	32660
(9379)	1998 10 03.6	00 37.86	+05 41.1	16.6	−0.80	− 5.1	0.6/04.2	32624
1998 RS_{14}	1998 10 03.7	00 38.06	+05 42.5	18.4	−0.88	− 1.9	0.6/04.2	32724
1995 YV	1998 10 03.8	00 38.25	−08 23.3	17.9	−0.94	− 6.0	5.3/29.7	30082
1985 CP_2	1998 10 03.8	00 38.61	+07 34.1	17.4	−0.94	− 5.6	1.4/05.0	32740
1998 SR_1	1998 10 03.9	00 38.67	−06 22.4	16.6	−0.85	− 4.3	5.2/30.6	32725
1981 EC_{13}	1998 10 03.9	00 38.95	+13 44.7	18.7	−0.83	− 4.1	3.0/07.1	32739
1990 VN_4	1998 10 03.9	00 38.97	+09 16.8	18.0	−0.78	− 8.7	1.5/05.8	32742
1996 BZ	1998 10 03.9	00 38.99	−06 03.1	18.1	−0.89	− 6.4	3.5/30.6	32673
1993 LS_1	1998 10 04.0	00 39.19	+28 18.8	16.5	−1.02	− 3.0	9.8/12.3	24109
4230 T-2	1998 10 04.1	00 39.32	−01 36.3	18.5	−0.79	− 4.7	2.0/02.2	32734
9534 P-L	1998 10 04.1	00 39.36	+02 30.2	17.8	−0.89	− 6.9	0.6/03.5	32786
2664 P-L	1998 10 04.1	00 39.40	+05 41.1	18.7	−0.84	− 2.4	0.5/04.6	32728
(9297)	1998 10 04.1	00 39.47	+15 48.6	16.2	−0.80	− 8.8	3.7/08.4	32605
1993 FN_9	1998 10 04.2	00 39.69	−00 25.2	16.7	−0.98	− 4.4	1.9/02.8	32663
1996 HE_1	1998 10 04.3	00 40.06	−18 14.1	18.4	−0.80	− 1.7	5.7/27.2	32675
1997 FQ_1	1998 10 04.3	00 40.27	+09 36.2	19.1	−0.98	− 5.4	2.0/06.0	30787
(7756)	1998 10 04.4	00 40.42	−21 21.4	17.0	−0.74	− 4.1	7.4/25.3	30259
1979 MT_3	1998 10 04.4	00 40.78	+12 10.3	18.5	−0.87	− 7.1	4.0/07.2	30778
(9420)	1998 10 04.5	00 41.04	+05 23.3	17.3	−0.92	− 8.1	0.4/04.9	32634
(9302)	1998 10 04.5	00 41.17	+02 13.2	15.9	−0.81	− 8.9	1.1/03.8	32606
1978 VK_3	1998 10 04.6	00 41.24	+11 08.8	17.7	−0.86	− 6.2	2.2/06.9	32738
1993 QU_3	1998 10 04.6	00 41.31	+04 22.2	16.8	−0.79	− 5.7	0.0/04.6	32664
1981 EW_{34}	1998 10 04.6	00 41.34	+08 51.9	19.6	−1.01	− 3.2	1.6/05.9	26921
1981 ER_{40}	1998 10 04.6	00 41.36	+06 29.5	19.9	−0.91	− 5.5	0.7/05.3	22271
1994 EW	1998 10 04.7	00 41.62	+04 58.7	18.7	−0.99	− 6.5	12.3/25.0	32666
(9406)	1998 10 04.7	00 41.68	−01 06.5	16.5	−0.79	− 6.9	1.9/02.8	32631
1995 WB_{22}	1998 10 04.7	00 41.91	−05 13.1	18.9	−0.99	− 5.9	3.8/01.7	32749
1995 WA_8	1998 10 04.7	00 41.92	+06 50.0	16.9	−1.06	− 1.8	1.1/05.4	32749
1993 TG_{26}	1998 10 04.8	00 42.17	−03 13.0	17.2	−0.85	− 2.4	2.4/02.6	32746
1993 FS_{26}	1998 10 04.9	00 42.33	+09 09.4	17.3	−0.93	− 5.8	1.6/06.4	32745
4178 T-1	1998 10 04.9	00 42.40	+00 20.8	19.6	−0.94	− 5.1	1.4/03.6	30095
1993 UP_8	1998 10 04.9	00 42.61	−00 56.9	16.5	−0.70	− 7.7	1.7/03.0	32746
1993 FV_{45}	1998 10 05.0	00 42.65	+00 26.3	16.0	−0.79	− 8.7	1.8/03.6	32664
1988 RQ_5	1998 10 05.1	00 43.15	+04 48.3	16.4	−0.77	− 6.3	0.1/05.2	32741
7061 P-L	1998 10 05.1	00 43.37	+08 43.6	17.2	−0.81	− 8.7	1.7/06.6	32786
1993 FY_5	1998 10 05.2	00 43.41	+02 34.7	17.8	−1.01	− 4.2	0.8/04.6	32663
1979 MS_5	1998 10 05.2	00 43.72	−06 08.8	18.9	−0.91	− 6.2	3.9/01.8	30778
1989 GU_3	1998 10 05.4	00 44.10	+11 39.2	17.6	−0.90	− 6.5	2.6/07.7	32741
1993 MR	1998 10 05.5	00 44.67	+06 37.2	18.6	−0.84	− 8.1	0.6/06.2	32746
1993 FX_{79}	1998 10 05.5	00 44.71	+05 00.8	16.3	−0.87	− 6.7	0.1/05.6	32746
1998 SW_1	1998 10 05.7	00 45.36	−05 41.5	17.5	−0.83	− 2.5	3.1/02.6	32725
1994 RT_2	1998 10 05.7	00 45.43	+00 53.0	18.5	−0.80	− 8.2	1.7/04.4	32667
1980 FS_1	1998 10 05.8	00 45.78	+05 09.8	18.0	−0.94	− 8.2	0.1/05.9	32738
1981 EE_1	1998 10 05.9	00 46.07	+01 19.1	17.5	−0.89	− 6.3	1.2/04.8	32739
(7584)	1998 10 05.9	00 46.20	−00 27.7	17.1	−0.79	− 5.1	1.8/04.2	29597
1997 GC_{38}	1998 10 06.0	00 46.55	+03 55.4	17.6	−0.88	− 9.2	0.4/05.7	32680
1996 HT_{14}	1998 10 06.1	00 46.70	+01 35.5	17.9	−0.71	− 4.6	0.9/05.0	32751
1991 FL_2	1998 10 06.1	00 46.78	+14 05.0	15.9	−0.97	− 1.2	3.3/08.7	32660
1981 EB_{34}	1998 10 06.1	00 46.93	+05 41.8	18.7	−0.95	− 8.6	0.3/06.4	30075
1992 HA_4	1998 10 06.1	00 47.00	+05 21.8	17.6	−0.83	− 5.2	0.1/06.3	32745
1993 MB	1998 10 06.3	00 47.32	+09 03.1	17.1	−0.78	−10.0	1.3/07.8	32746
(7826)	1998 10 06.3	00 47.68	+08 01.8	16.3	−0.88	− 8.6	1.1/07.4	30438
1998 RX	1998 10 06.4	00 47.76	+09 46.7	16.0	−0.84	− 1.9	1.4/07.8	32723
(7537)	1998 10 06.4	00 48.02	+02 14.5	16.2	−0.76	− 4.4	1.0/05.5	32737
1996 CX_8	1998 10 06.5	00 48.15	+05 48.0	17.4	−0.96	− 2.7	0.2/06.7	32673
1080 T-3	1998 10 06.6	00 48.78	+18 16.0	17.0	−0.98	− 3.0	4.3/10.6	32787
1998 SD	1998 10 06.7	00 48.87	+42 49.9	17.0	−1.59	+ 2.2	17.2/17.9	32725
1997 HP_2	1998 10 06.8	00 49.15	+04 37.0	18.2	−0.88	− 6.0	0.2/06.6	32753
1991 RB_{10}	1998 10 06.8	00 49.46	+14 39.5	16.5	−0.97	− 5.1	4.2/10.0	32743
1992 AP_3	1998 10 06.9	00 49.73	+10 07.5	16.8	−0.95	− 4.9	2.0/08.4	32744
6053 P-L	1998 10 07.0	00 50.18	+07 13.0	17.3	−0.85	− 7.1	0.7/07.7	32785
1989 CY_2	1998 10 07.1	00 50.28	+09 58.1	17.7	−0.88	− 8.5	1.9/08.7	32741
1993 TJ_{27}	1998 10 07.2	00 50.85	+02 51.8	18.6	−0.71	− 7.7	0.8/06.3	32665
1993 FC_{37}	1998 10 07.2	00 50.95	+02 49.5	18.3	−0.87	− 7.8	0.9/06.4	32664
1997 GR_{21}	1998 10 07.2	00 50.98	+10 56.8	18.3	−0.78	−10.0	1.9/09.3	32679
4831 P-L	1998 10 07.3	00 51.35	+06 22.1	17.8	−1.04	− 1.2	0.3/07.6	32785
1981 EH_{28}	1998 10 07.4	00 51.69	+04 37.3	18.3	−0.94	− 4.8	0.3/07.2	26920

1998 QZ	1998 10 07.5	00 52.05	+04 41.4	17.2	−0.79	− 5.5	0.3/07.3	32690
1992 CS_2	1998 10 07.7	00 52.78	+12 51.2	18.0	−0.89	− 6.2	2.5/10.1	32744
1996 FR_1	1998 10 07.8	00 52.90	+11 24.7	17.8	−0.72	− 7.8	1.8/10.0	32751
(9254)	1998 10 07.8	00 53.16	−02 16.6	15.3	−0.75	− 9.1	3.7/05.0	32436
1989 EE	1998 10 07.9	00 53.24	−15 06.5	18.4	−0.71	−10.1	5.5/29.6	30686
1992 EK_{12}	1998 10 07.9	00 53.30	−07 31.7	18.1	−0.74	−10.5	5.3/02.9	32745
1993 JF_1	1998 10 07.9	00 53.59	+01 58.9	16.7	−0.97	− 4.7	1.5/06.9	32746
1994 WA_4	1998 10 08.0	00 53.57	+10 30.1	16.5	−0.77	− 9.3	1.6/09.7	32669
1997 GF_{36}	1998 10 08.0	00 53.63	+03 24.1	19.4	−0.97	− 5.0	0.8/07.3	30086
1997 LZ_4	1998 10 08.0	00 53.96	+10 33.2	17.5	−0.77	− 7.3	1.9/09.8	32681
1990 QY_2	1998 10 08.1	00 54.20	+06 56.5	16.4	−0.93	− 4.4	0.5/08.5	32742
2288 T-3	1998 10 08.1	00 54.23	+10 34.0	16.8	−0.99	− 1.4	2.4/09.5	32787
1997 FM_1	1998 10 08.3	00 54.70	+00 31.5	17.5	−0.92	−20.7	2.2/06.2	32677
1993 FV_{26}	1998 10 08.4	00 55.03	+10 06.0	16.5	−0.91	− 9.4	1.8/09.8	32745
(9443)	1998 10 08.4	00 55.40	+03 21.7	17.1	−0.90	− 4.5	1.1/07.7	32640
4806 P-L	1998 10 08.4	00 55.43	+03 25.0	18.7	−0.85	− 6.1	0.8/07.7	22701
1997 GZ_{25}	1998 10 08.5	00 55.36	−00 14.5	18.1	−0.92	− 7.3	2.3/06.5	32752
(9147)	1998 10 08.5	00 55.45	−03 55.8	15.6	−0.88	− 8.2	4.5/05.2	32411
(9415)	1998 10 08.5	00 55.57	+07 04.8	17.1	−1.03	− 4.1	0.5/08.9	32633
1997 GX_{27}	1998 10 08.5	00 55.58	−19 25.3	22.1	−1.23	+ 0.4	7.8/02.4	30788
1992 BQ_2	1998 10 08.5	00 55.62	+10 52.4	17.8	−0.88	− 6.8	1.7/10.2	26563
1981 EC_{47}	1998 10 08.6	00 56.01	−00 34.5	18.8	−0.86	− 7.1	2.3/06.5	26923
(7580)	1998 10 08.7	00 56.13	+02 32.0	15.5	−0.99	− 1.7	1.5/07.8	29596
1994 TZ_{14}	1998 10 08.7	00 56.32	+03 46.2	16.3	−0.73	− 8.6	1.0/07.9	32748
3146 T-2	1998 10 08.7	00 56.36	−01 19.0	18.0	−0.93	− 5.8	3.1/06.5	32786
1981 EN_{21}	1998 10 08.7	00 56.38	+05 38.3	17.8	−0.78	− 5.5	0.1/08.6	32739
1997 CT_{16}	1998 10 08.8	00 56.63	−02 02.3	18.1	−1.00	− 6.8	3.3/06.3	32676
1994 PW_{15}	1998 10 08.8	00 56.65	+02 07.7	18.1	−0.76	− 7.8	1.8/07.5	32747
(7798)	1998 10 08.8	00 56.83	−04 31.8	16.2	−0.90	− 5.2	4.2/05.5	32737
1990 VL_1	1998 10 08.9	00 57.12	+17 56.3	16.1	−0.75	− 9.6	5.1/13.5	29942
1994 PO_{32}	1998 10 09.2	00 58.17	+16 23.3	17.3	−0.99	− 5.0	3.7/12.4	24902
3268 T-3	1998 10 09.2	00 58.26	+08 01.1	18.7	−0.90	− 8.5	0.7/09.9	32787
1981 UU_{26}	1998 10 09.2	00 58.35	+05 08.1	17.0	−0.90	− 9.0	0.4/08.9	20630
4646 P-L	1998 10 09.3	00 58.34	+03 29.0	16.7	−0.70	− 7.5	0.8/08.3	32729
1994 UJ_1	1998 10 09.3	00 58.50	+09 18.1	16.0	−0.89	− 3.5	1.3/10.3	32748
1997 HV_2	1998 10 09.4	00 58.90	+07 08.5	18.5	−1.03	− 4.5	10.3/30.0	30691
1996 DG_2	1998 10 09.6	00 59.57	+05 15.5	17.5	−0.74	− 4.7	0.3/09.3	32750
2023 P-L	1998 10 09.8	01 00.35	+07 17.2	17.0	−0.78	− 4.7	0.3/10.1	32784
1988 RR_5	1998 10 10.0	01 00.93	+06 37.3	17.2	−1.05	− 5.0	0.1/10.1	32741
1996 BK	1998 10 10.0	01 01.08	+23 14.8	17.9	−1.14	− 2.1	6.8/14.6	27123
1998 SA_{43}	1998 10 10.0	01 01.19	+03 44.6	15.6	−0.82	− 5.3	1.0/09.2	32727
1996 LA	1998 10 10.0	01 01.26	+11 31.9	17.8	−0.72	− 6.0	1.3/11.8	32751
3335 T-2	1998 10 10.0	01 01.27	+01 01.1	16.9	−0.89	− 3.9	2.3/08.4	32734
1998 QV_{63}	1998 10 10.1	01 01.42	+04 31.4	16.5	−0.77	− 6.8	0.7/09.5	32718
1996 AS	1998 10 10.2	01 01.66	−01 13.0	17.6	−0.89	− 6.6	2.9/07.7	32750
1992 RF_7	1998 10 10.3	01 02.18	+03 10.4	17.5	−0.76	− 3.5	1.0/09.3	32745
1981 EL_{14}	1998 10 10.3	01 02.20	+17 06.9	18.9	−0.94	− 1.7	3.5/13.3	26917
1997 CC_{17}	1998 10 10.3	01 02.21	+05 35.5	17.4	−1.06	− 5.3	0.4/10.1	32751
1998 SX_{22}	1998 10 10.5	01 02.76	−01 13.3	16.7	−0.77	− 6.5	3.1/07.9	32726
(9289)	1998 10 10.6	01 03.25	+17 26.2	16.6	−1.11	− 0.4	4.2/13.4	32603
1986 PL_1	1998 10 10.7	01 03.53	−02 41.8	16.6	−0.73	− 5.0	3.0/07.6	32657
(7904)	1998 10 10.7	01 03.68	+10 40.3	16.2	−0.88	− 6.1	1.6/12.0	30646
4069 P-L	1998 10 10.8	01 03.94	+08 07.0	17.8	−0.71	− 6.9	0.4/11.3	32785
(7655)	1998 10 10.8	01 04.00	−00 36.3	17.6	−0.93	− 5.7	2.8/08.5	32737
1998 RF_{16}	1998 10 11.0	01 04.80	−01 08.4	17.3	−0.86	− 6.0	2.9/08.5	32724
1295 T-1	1998 10 11.0	01 04.91	+06 18.2	17.6	−0.76	− 6.7	0.2/10.9	32786
1997 HQ_1	1998 10 11.1	01 05.00	+07 13.5	17.7	−1.04	− 4.4	0.1/11.2	32752
1991 BK	1998 10 11.1	01 05.03	−01 03.8	17.3	−0.95	− 4.5	2.9/08.7	32743
1995 WW_{17}	1998 10 11.1	01 05.13	+06 19.0	17.9	−1.08	− 4.4	0.2/11.0	32749
1994 PL_{11}	1998 10 11.1	01 05.21	+16 58.1	17.2	−0.98	− 5.1	4.1/14.3	32747
1993 FU_{28}	1998 10 11.1	01 05.34	+13 16.0	16.4	−0.95	− 5.1	2.7/13.1	32745
(7509)	1998 10 11.2	01 05.42	−03 24.1	16.8	−0.98	− 6.7	4.0/08.0	29288
(7361)	1998 10 11.3	01 05.73	+08 28.7	16.3	−0.89	− 4.2	0.6/11.8	28578
(7363)	1998 10 11.3	01 05.89	+04 40.0	15.8	−0.77	− 8.3	0.8/10.5	28579
4136 T-2	1998 10 11.3	01 05.99	+03 17.9	16.8	−0.91	− 1.3	1.5/10.4	32734
(9262)	1998 10 11.4	01 06.16	+14 23.9	15.5	−1.19	+ 2.7	3.2/13.0	32595
(9387)	1998 10 11.4	01 06.34	+47 27.3	16.0	−1.95	+ 9.1	21.0/20.4	32626
6354 P-L	1998 10 11.5	01 06.63	+05 07.2	18.1	−0.80	− 7.0	0.9/10.9	32785
1990 TJ	1998 10 11.6	01 06.90	+01 18.9	16.4	−0.93	− 3.6	2.3/09.9	32742
1990 UG_4	1998 10 11.7	01 07.19	+05 47.8	17.2	−0.80	−10.6	0.5/11.2	32742
1992 EB_{26}	1998 10 11.7	01 07.29	+15 59.7	18.2	−1.08	− 1.9	3.5/14.1	27713
6245 P-L	1998 10 11.7	01 07.40	+05 29.3	18.2	−0.79	− 9.3	0.5/11.2	32785
1994 PV_{37}	1998 10 11.8	01 07.76	+05 14.5	17.0	−0.92	− 6.8	0.8/11.2	32667
1998 RU_{15}	1998 10 11.8	01 07.85	+03 44.8	16.9	−0.93	− 7.8	1.3/10.8	32724
(9272)	1998 10 11.9	01 07.90	+03 45.2	17.0	−0.80	− 7.2	1.3/10.8	32598
1990 SK_{28}	1998 10 12.0	01 08.26	+09 57.5	15.6	−0.91	− 4.0	1.2/12.8	32742
4665 P-L	1998 10 12.0	01 08.36	+03 49.8	16.6	−0.96	− 2.9	1.5/11.1	32785
1994 UQ_1	1998 10 12.0	01 08.49	+07 40.9	16.0	−0.81	− 7.5	0.2/12.2	32748
1993 BQ_4	1998 10 12.2	01 09.13	+03 39.4	17.6	−0.96	− 6.1	1.3/11.1	32745
1991 UR	1998 10 12.2	01 09.25	+09 29.2	15.9	−1.08	− 1.4	1.0/12.8	32661
1982 UE_{12}	1998 10 12.2	01 09.30	+21 34.5	16.3	−1.03	− 2.7	5.3/16.4	32739
1998 SS_{43}	1998 10 12.2	01 09.37	+02 52.5	17.2	−0.72	− 9.8	1.7/10.7	32727
1991 RU_2	1998 10 12.2	01 09.41	+14 01.7	17.8	−0.97	− 6.9	2.5/14.4	32660
(7721)	1998 10 12.3	01 09.34	+04 05.2	17.8	−0.83	− 6.9	1.3/11.2	30074
1987 WD	1998 10 12.3	01 09.47	+09 04.2	15.6	−1.10	− 0.7	0.7/12.8	32740
1992 OB	1998 10 12.5	01 10.10	−09 12.3	18.3	−0.93	0.0	5.2/08.2	22407
(7663)	1998 10 12.5	01 10.21	−08 58.1	15.9	−0.85	−12.7	5.9/06.5	29902
(7786)	1998 10 12.8	01 11.43	+16 01.7	15.5	−0.91	− 2.7	4.0/15.3	30267
1994 VF_2	1998 10 12.9	01 11.82	−06 49.3	16.8	−1.00	− 2.1	5.0/08.9	32748
1989 TD_{16}	1998 10 13.0	01 11.92	+10 25.6	17.0	−0.88	− 4.1	1.1/13.8	32741
1996 ES_1	1998 10 13.0	01 12.13	+05 44.3	18.2	−0.72	− 5.1	0.5/12.4	32674
1977 TO_6	1998 10 13.0	01 12.22	−06 40.0	16.3	−0.95	− 1.9	6.9/09.1	26187
1993 FT_{26}	1998 10 13.0	01 12.22	+11 31.7	17.0	−0.94	− 7.8	1.7/14.3	32745
1989 AF_3	1998 10 13.1	01 12.53	−04 21.2	17.3	−0.97	− 6.0	4.4/09.4	32741
1985 QP	1998 10 13.1	01 12.57	+10 32.5	16.6	−0.99	− 2.9	1.5/14.0	32740
3226 T-3	1998 10 13.3	01 13.15	+02 51.6	17.0	−1.03	− 1.0	1.9/12.1	32787
1990 UU_1	1998 10 13.3	01 13.38	+04 26.0	16.6	−0.68	−14.0	1.4/12.1	32742
4140 T-3	1998 10 13.4	01 13.63	−01 49.8	18.5	−0.86	− 5.4	3.1/10.4	32787
(9143)	1998 10 13.5	01 13.97	+15 34.7	15.1	−1.04	− 3.3	3.9/15.8	32411
1997 KH	1998 10 13.5	01 14.14	+07 31.6	17.4	−0.85	− 6.1	0.1/13.5	32753
1494 T-2	1998 10 13.5	01 14.16	+05 37.7	19.2	−0.89	− 5.0	0.8/12.9	23867
1985 CN	1998 10 13.7	01 14.72	−03 30.7	17.2	−0.83	−11.1	4.9/09.5	32740

1993 FY_{34}	1998 10 13.7	01 14.73	+02 52.3	18.2	−0.88	− 7.6	1.8/12.1	30092
1990 EL_2	1998 10 13.9	01 15.52	+10 14.8	18.5	−0.95	− 8.3	0.8/14.7	32741
1997 EB_{54}	1998 10 13.9	01 15.66	+09 29.4	16.9	−0.99	− 4.7	10.5/04.0	32752
1148 T-1	1998 10 14.0	01 15.68	+09 38.5	17.5	−1.06	− 5.2	0.7/14.5	30682
(7688)	1998 10 14.0	01 16.00	+07 41.9	16.1	−1.11	− 0.9	0.2/14.0	29908
1994 PS_{11}	1998 10 14.4	01 17.43	+10 32.9	16.4	−0.91	− 6.6	1.0/15.2	32747
1993 XS	1998 10 14.5	01 17.47	+04 29.4	18.1	−0.78	− 4.4	1.1/13.4	32746
1991 RY_8	1998 10 14.5	01 17.74	+10 00.9	15.6	−1.00	− 2.9	0.9/15.1	32743
1985 UG_2	1998 10 14.6	01 17.97	+04 58.6	16.1	−0.93	− 6.7	1.5/13.6	32740
(7601)	1998 10 14.6	01 18.15	−03 00.6	15.6	−1.10	+ 1.6	4.5/12.2	29601
6607 P-L	1998 10 14.9	01 19.10	+02 26.2	18.2	−0.91	− 5.9	2.0/13.1	32786
1979 QA_2	1998 10 14.9	01 19.36	+08 22.9	17.4	−0.96	− 5.2	8.8/04.0	23778
1998 QH_{56}	1998 10 15.0	01 19.34	−26 51.9	18.9	−0.90	−39.9	34.3/09.0	32768
1991 RE_2	1998 10 15.0	01 19.55	+17 15.0	16.4	−0.93	− 6.8	4.1/17.9	31381
1995 YE_6	1998 10 15.1	01 19.69	+09 37.5	19.5	−0.99	− 7.0	0.4/15.5	29946
1985 AE	1998 10 15.2	01 20.20	+05 28.4	17.3	−0.94	− 6.0	1.2/14.3	32740
1988 RQ_8	1998 10 15.2	01 20.29	+05 18.6		−1.07	− 2.0	1.5/14.4	30780
1994 OB	1998 10 15.2	01 20.47	+02 07.6	16.5	−0.97	− 5.5	2.6/13.4	32747
(7382)	1998 10 15.5	01 21.29	+04 57.8	15.5	−0.73	− 4.7	1.4/14.4	32737
1978 SH_3	1998 10 15.5	01 21.59	+10 26.5	15.6	−0.82	− 8.9	0.9/16.2	32738
1990 VS_4	1998 10 15.6	01 21.59	+10 29.5	16.6	−0.73	−12.8	0.8/16.3	32742
1996 AJ	1998 10 15.6	01 21.95	+11 57.2	17.0	−0.97	− 5.6	1.3/16.7	32750
(9295)	1998 10 15.7	01 22.17	+13 28.7	16.7	−1.06	− 2.6	2.1/17.1	32604
1989 TU_4	1998 10 15.8	01 22.37	+00 39.4	18.3	−0.86	− 4.6	2.9/13.4	30272
1993 FM_{10}	1998 10 15.9	01 22.71	+05 12.2	18.9	−0.95	− 5.0	1.2/14.9	32745
1984 SD_6	1998 10 15.9	01 22.71	+11 07.8	16.4	−1.06	− 1.0	1.2/16.5	32740
1990 WE_2	1998 10 15.9	01 22.74	+08 43.6	16.8	−0.82	−11.1	0.0/15.9	32742
(9447)	1998 10 15.9	01 22.92	−07 50.8	16.6	−0.88	− 2.3	6.3/11.3	32641
1997 JL_{13}	1998 10 16.0	01 23.41	+08 04.2	17.3	−0.90	− 6.6	0.2/15.9	32753
1995 UW_4	1998 10 16.1	01 23.42	+00 35.1	16.3	−1.13	− 0.2	3.9/14.2	32749
1987 RG	1998 10 16.2	01 24.19	+02 56.1	16.1	−0.77	− 4.6	2.0/14.5	32740
1978 VP_3	1998 10 16.3	01 24.19	+02 58.5	17.5	−0.80	− 4.1	1.9/14.5	32738
1992 GA	1998 10 16.3	01 24.41	+27 18.1	18.3	−0.97	− 3.8	5.7/22.0	32745
1994 NO_1	1998 10 16.4	01 24.65	+16 13.8	17.8	−1.01	− 7.0	2.6/18.7	23984
2635 P-L	1998 10 16.5	01 25.15	+07 41.4	17.8	−0.97	− 7.2	0.5/16.2	30474
(9390)	1998 10 16.6	01 25.38	+10 02.9	16.5	−0.96	− 6.7	0.5/17.0	32627
1995 YH_1	1998 10 16.8	01 26.11	+16 14.0	15.3	−0.94	− 6.2	3.3/19.1	26582
1996 AJ_2	1998 10 16.8	01 26.19	+03 02.3	17.8	−0.94	− 5.6	2.2/15.0	30277
1978 SD_7	1998 10 16.8	01 26.32	+10 54.8	16.2	−0.95	− 8.6	0.8/17.5	32738
1982 US_6	1998 10 16.8	01 26.35	+02 13.6	15.8	−1.00	− 0.5	3.0/15.2	32739
1988 FM	1998 10 16.9	01 26.59	+12 43.5	17.3	−1.04	− 1.6	1.2/17.9	32741
1993 SO_2	1998 10 16.9	01 26.73	+10 01.3	18.1	−0.79	− 6.8	0.3/17.3	32746
1997 FB	1998 10 16.9	01 26.79	+06 25.7	18.3	−1.00	− 7.6	1.0/16.2	32752
1990 TO_4	1998 10 17.0	01 27.10	−08 11.2	17.6	−0.96	− 2.7	6.8/12.0	21974
1991 FG	1998 10 17.1	01 27.55	+09 27.0	18.1	−0.80	− 7.5	0.1/17.3	32743
2584 P-L	1998 10 17.2	01 27.82	+08 26.8	18.3	−0.86	− 6.5	0.3/17.0	32785
4113 P-L	1998 10 17.3	01 28.32	+09 16.2	17.4	−0.93	− 6.4	0.0/17.4	32785
1296 T-2	1998 10 17.4	01 28.56	+07 05.5	18.9	−0.87	− 5.6	0.7/16.8	30294
1981 EH_{24}	1998 10 17.4	01 28.66	+08 54.6	17.9	−0.84	− 4.0	0.1/17.4	32739
1996 DD_3	1998 10 17.5	01 29.08	+07 02.2	17.9	−1.01	− 4.3	0.9/17.0	32751
1997 FQ_3	1998 10 17.6	01 29.21	+11 22.3	17.1	−1.02	− 4.2	1.0/18.2	32752
(9290)	1998 10 17.6	01 29.40	+09 31.7	15.9	−0.87	− 9.0	0.1/17.7	32603
1986 QL_2	1998 10 17.7	01 29.40	+12 50.3	17.2	−0.78	− 3.9	1.0/18.8	32740
1004 T-2	1998 10 17.7	01 29.54	+15 21.7	18.5	−0.99	− 2.7	2.3/19.4	27927
(7773)	1998 10 17.8	01 29.88	+07 18.6	16.3	−0.92	− 3.2	0.7/17.2	30263
(7531)	1998 10 17.8	01 30.09	+09 41.4	17.1	−0.95	− 7.1	0.1/18.0	29294
1991 RJ_{41}	1998 10 18.0	01 30.67	+12 59.6	16.3	−1.12	− 0.2	1.7/18.9	32661
1997 ES_2	1998 10 18.2	01 31.58	+03 47.2	16.7	−0.98	− 5.5	2.3/16.6	32752
1982 UJ_7	1998 10 18.2	01 31.66	+05 20.7	16.7	−0.78	− 4.5	1.4/17.0	32739
1994 UM_1	1998 10 18.3	01 31.69	+14 08.6	16.1	−0.90	− 6.7	1.8/20.0	32748
1992 OF_1	1998 10 18.3	01 32.04	−07 21.4	15.3	−0.73	− 4.3	6.4/13.0	32745
1991 RG	1998 10 18.3	01 32.05	+12 22.8	17.4	−0.99	− 7.4	1.0/19.2	32743
1991 RL_8	1998 10 18.5	01 32.62	+10 42.2	15.9	−1.10	+ 0.8	0.5/18.8	32661
1993 NA_2	1998 10 18.5	01 32.64	−08 13.2	16.4	−0.83	− 5.5	7.2/12.7	32746
1994 PH_{18}	1998 10 18.6	01 32.84	+07 02.4	19.4	−0.95	− 6.2	0.9/17.8	30092
1997 NU_6	1998 10 18.6	01 33.21	+16 38.9	17.7	−0.81	− 6.7	2.1/20.9	32753
1995 YS_{25}	1998 10 18.7	01 33.15	+05 03.5	19.3	−1.03	− 3.3	1.9/17.5	32750
1987 UX	1998 10 18.7	01 33.53	+09 55.5	15.9	−0.55	−29.3	0.1/18.8	32658
(9322)	1998 10 18.9	01 34.05	+06 37.0	17.0	−0.76	− 4.7	1.1/18.0	32611
1991 UF	1998 10 18.9	01 34.18	+14 48.9	16.3	−0.93	− 6.0	2.3/20.5	32744
4614 P-L	1998 10 19.0	01 34.31	+11 34.9	17.2	−0.90	− 3.0	0.6/19.5	32785
1997 GM_{22}	1998 10 19.0	01 34.36	+07 20.7	16.6	−1.09	+ 0.7	1.0/18.5	32752
1981 EO_{26}	1998 10 19.1	01 34.67	+11 21.9	17.6	−0.83	− 4.8	0.5/19.6	32739
1987 WJ_1	1998 10 19.1	01 35.00	+08 13.9	16.4	−0.85	− 2.0	0.6/18.7	32740
1995 BQ_8	1998 10 19.2	01 35.14	+05 01.1	18.3	−0.80	− 4.2	1.6/17.8	27917
1991 TH_1	1998 10 19.2	01 35.25	+18 48.8	15.7	−1.79	+15.5	4.9/20.0	32744
1985 TY_1	1998 10 19.3	01 35.48	+19 30.2	16.6	−0.85	− 7.7	3.6/22.5	32740
1104 T-1	1998 10 19.3	01 35.54	+23 51.4	15.9	−1.21	+ 0.9	6.3/22.5	32537
1992 BZ	1998 10 19.3	01 35.64	+05 32.3	16.7	−0.96	− 4.5	1.8/18.1	32744
1994 TK_{11}	1998 10 19.3	01 35.72	+11 57.0	17.2	−0.91	− 6.3	0.8/20.0	32748
1997 CX_5	1998 10 19.4	01 35.89	+57 03.2	20.2	−2.07	+ 6.6	26.0/31.1	29310
(7368)	1998 10 19.5	01 36.18	−01 30.4	17.2	−0.98	− 6.3	4.3/16.1	28818
1991 VM_5	1998 10 19.6	01 36.97	+00 04.6	15.3	−1.01	− 0.9	4.9/17.3	32744
1987 QT_1	1998 10 19.8	01 37.57	+18 26.1	17.1	−1.10	− 4.9	3.1/22.2	32740
1991 GZ_9	1998 10 19.8	01 37.57	+21 48.0	18.2	−0.90	− 5.1	3.6/23.4	30687
1981 EU_{14}	1998 10 19.8	01 37.65	+17 22.6	19.7	−0.99	− 4.3	2.5/21.9	26917
1990 WU_5	1998 10 19.9	01 37.67	+03 18.7	17.9	−0.87	− 5.5	2.4/17.8	32743
1975 VW_5	1998 10 20.0	01 38.08	−01 26.5	16.0	−1.01	− 1.0	5.1/17.2	32738
2175 T-1	1998 10 20.0	01 38.33	+05 07.0	17.3	−0.91	− 7.9	2.0/18.5	32786
1997 FX_3	1998 10 20.0	01 38.33	+11 38.2	15.6	−0.85	− 6.8	0.6/20.5	32677
1984 DQ	1998 10 20.0	01 38.41	+25 15.1	18.0	−1.00	− 3.6	4.5/24.4	30468
(9261)	1998 10 20.1	01 38.43	+08 29.5	15.5	−0.82	− 8.9	0.8/19.5	32595
1993 KR	1998 10 20.2	01 39.01	+22 41.8	17.9	−0.96	−11.1	4.0/24.5	26744
1992 SF_{11}	1998 10 20.2	01 39.02	+09 05.0	18.3	−0.75	− 4.7	0.4/19.9	32745
1982 UE_7	1998 10 20.2	01 39.22	+09 01.2	16.5	−0.77	− 4.9	0.5/19.9	32739
1995 CD_2	1998 10 20.5	01 40.30	+23 12.9	17.3	−0.73	− 8.5	3.4/25.1	30277
1993 FV_{24}	1998 10 20.5	01 40.35	+12 34.5	18.9	−0.96	− 5.7	0.8/21.2	32745
1994 PK_8	1998 10 20.7	01 40.67	+11 50.1	18.2	−0.99	− 5.9	0.5/21.1	32667
1973 SG_5	1998 10 20.7	01 41.08	+07 31.0	16.7	−1.03	− 4.0	1.4/20.0	32738
1997 GR_{24}	1998 10 20.8	01 41.24	+06 09.2	16.4	−0.77	−10.5	1.6/19.3	32752
1990 RY_2	1998 10 20.9	01 41.55	+14 04.3	16.6	−0.69	− 4.2	1.1/22.0	30448
1981 TP	1998 10 20.9	01 41.56	+10 33.3	16.4	−0.79	− 4.0	0.0/20.9	32739

1997 GA_{38}	1998 10 21.0	01 41.80	+06 05.5	16.4	−0.90	− 7.2	1.9/19.6	29936
1993 HC_{1}	1998 10 21.0	01 42.20	+18 22.9	18.5	−1.40	+ 2.1	2.8/22.6	32746
1991 VZ_{2}	1998 10 21.1	01 42.19	+11 28.3	15.3	−0.75	+ 2.9	0.5/21.3	32744
1991 UO_{2}	1998 10 21.1	01 42.37	−00 07.9	15.6	−0.87	− 4.5	5.3/18.0	32744
1993 FD_{40}	1998 10 21.1	01 42.50	+04 43.1	19.1	−0.91	− 7.7	2.2/19.3	30471
1990 UE_{5}	1998 10 21.1	01 42.59	+05 43.2	17.2	−0.85	−25.4	2.2/19.2	32659
1992 DS_{6}	1998 10 21.1	01 42.60	+17 38.2	16.4	−1.03	− 2.8	2.5/23.1	32744
1994 YJ_{1}	1998 10 21.6	01 44.50	+09 30.3	16.2	−0.92	− 2.8	0.5/21.3	32748
2205 T-1	1998 10 21.7	01 44.47	+15 37.0	17.1	−1.07	− 2.8	1.8/22.9	32786
1996 BX_{1}	1998 10 21.7	01 44.54	−10 04.8	16.5	−0.97	− 4.7	8.3/15.3	30292
1990 VP_{6}	1998 10 21.7	01 44.61	+08 59.8	16.0	−0.80	−10.4	0.7/21.1	32742
1990 HG	1998 10 21.7	01 44.92	−08 02.6	16.8	−1.30	+ 3.2	7.4/18.3	26189
(7516)	1998 10 21.8	01 44.82	+02 06.8	15.6	−0.94	− 8.3	3.7/19.1	29290
1993 FX_{17}	1998 10 21.8	01 45.10	−00 35.9	16.1	−0.96	− 5.8	4.8/18.5	25531
1979 MC_{8}	1998 10 21.9	01 45.43	+12 13.4	19.2	−0.99	− 6.4	0.5/22.3	30779
1997 KC	1998 10 21.9	01 45.44	−12 05.1	18.1	−0.96	− 2.6	7.6/15.7	30691
2600 P-L	1998 10 21.9	01 45.48	+10 08.4	17.9	−0.90	− 5.9	0.3/21.7	32785
1982 BM	1998 10 21.9	01 45.51	+16 29.7	17.4	−0.90	− 4.7	1.8/23.6	32739
1981 EF_{25}	1998 10 22.0	01 45.63	+10 25.0	17.8	−0.96	− 5.3	0.2/21.9	32739
1981 ES_{26}	1998 10 22.0	01 45.76	+10 59.3	18.8	−0.92	− 6.1	0.0/22.1	26920
1991 PV	1998 10 22.0	01 45.89	+11 48.3	17.2	−1.00	− 7.0	0.4/22.3	32660
1997 MJ_{6}	1998 10 22.0	01 46.00	−02 03.2	19.1	−0.90	− 3.5	5.0/18.5	30284
1996 EJ	1998 10 22.1	01 45.97	−06 53.5	16.2	−0.81	− 6.4	5.6/16.4	30689
1988 AX_{4}	1998 10 22.1	01 46.12	+04 39.3	16.3	−0.84	− 8.1	2.7/20.1	32740
1989 CT_{2}	1998 10 22.2	01 46.50	+13 58.0	16.7	−0.93	− 8.2	1.2/23.2	32741
1994 PD_{18}	1998 10 22.3	01 47.03	+02 03.6	17.6	−0.91	− 6.9	3.4/19.7	32747
1991 RT_{3}	1998 10 22.3	01 47.08	+13 53.4	16.1	−0.86	− 9.0	1.3/23.3	32743
1981 DS	1998 10 22.4	01 47.13	+18 11.9	17.9	−0.68	− 5.7	1.9/24.7	32739
2158 T-2	1998 10 22.4	01 47.29	+08 00.4	19.6	−0.97	− 6.5	1.2/21.6	29650
1994 RN_{5}	1998 10 22.4	01 47.44	+10 17.0	18.1	−0.93	− 6.4	0.3/22.2	32748
1996 HU_{18}	1998 10 22.5	01 47.74	+09 55.2	18.7	−0.75	− 4.4	0.3/22.2	32751
(7846)	1998 10 22.5	01 47.89	+17 07.6	17.8	−1.02	− 5.6	2.2/24.3	30443
1994 PY_{21}	1998 10 22.6	01 48.01	+05 58.2	18.2	−0.96	− 5.8	1.9/21.2	30453
1997 NE_{3}	1998 10 22.7	01 48.38	+22 08.0	17.7	−1.01	− 5.4	3.8/25.9	32753
1991 PR_{16}	1998 10 22.9	01 49.02	+08 23.2	16.7	−0.98	− 5.6	1.3/22.1	32743
1992 AT_{2}	1998 10 22.9	01 49.08	+17 24.3	18.2	−0.95	− 5.4	2.1/25.0	25065
1981 EH_{23}	1998 10 22.9	01 49.22	+13 06.6	17.3	−0.95	− 5.5	0.8/23.5	32739
1991 AS_{1}	1998 10 22.9	01 49.24	+67 22.2	16.4	−2.03	+ 5.9	22.5/12.1	25226
1997 GQ_{6}	1998 10 22.9	01 49.40	+11 59.4	17.3	−1.00	− 2.9	0.3/23.2	32752
(7792)	1998 10 23.0	01 49.40	+04 23.2	16.3	−1.04	− 3.4	2.4/21.2	30268
4203 T-3	1998 10 23.0	01 49.68	+03 11.4	17.9	−0.82	− 8.4	2.6/20.4	32787
6871 P-L	1998 10 23.1	01 49.89	+07 43.5	19.5	−1.00	− 5.6	1.4/22.1	30088
1989 RD_{1}	1998 10 23.1	01 49.97	−11 08.6	15.9	−0.95	+ 0.8	9.5/17.8	30894
(9307)	1998 10 23.1	01 50.11	+23 33.1	16.5	−1.08	− 4.2	5.3/26.6	32607
1993 PW_{7}	1998 10 23.2	01 50.15	+15 30.1	16.9	−0.90	− 4.4	1.5/24.4	32746
1995 BY	1998 10 23.2	01 50.57	+10 52.7	16.3	−0.85	− 3.6	0.2/23.2	32749
3101 T-3	1998 10 23.3	01 50.74	+08 19.7	17.3	−1.13	− 0.8	1.3/22.7	32787
1990 EQ_{2}	1998 10 23.3	01 50.96	+16 18.1	16.7	−1.02	− 7.1	2.1/24.8	32742
1993 FE_{76}	1998 10 23.4	01 50.97	+10 58.7	16.8	−0.89	− 7.8	0.2/23.3	32664
1991 CL	1998 10 23.5	01 51.33	−09 33.0	17.2	−0.81	− 4.6	6.1/17.0	30895
(9298)	1998 10 23.6	01 51.70	+12 19.5	15.2	−0.75	−14.1	0.4/23.9	32605
(7905)	1998 10 23.6	01 51.72	−07 11.8	16.2	−0.81	− 2.1	6.1/18.4	30646
6628 P-L	1998 10 23.6	01 51.89	+09 26.7	17.4	−0.91	− 5.5	0.9/23.1	32786
1993 FQ_{8}	1998 10 23.6	01 51.91	+10 07.5	16.5	−1.10	− 0.3	0.6/23.3	32745
1997 JF_{16}	1998 10 23.7	01 52.23	+08 08.0	18.0	−0.93	− 7.4	1.4/22.7	32681
(7895)	1998 10 23.8	01 52.50	−07 02.6	16.1	−0.72	− 4.4	4.9/18.0	30643
1998 SV_{22}	1998 10 23.8	01 52.58	+10 35.5	17.1	−0.87	− 8.8	0.4/23.5	32726
1994 TQ_{3}	1998 10 23.8	01 52.82	+16 36.3	15.2	−1.15	+ 0.8	2.1/25.0	32668
1983 XN_{1}	1998 10 23.9	01 53.03	+25 26.0	17.5	−0.89	− 3.6	4.6/28.0	32299
5469 T-2	1998 10 24.0	01 53.30	+20 04.4	16.8	−0.97	− 7.9	3.3/26.6	32787
1995 WS_{7}	1998 10 24.0	01 53.47	+09 49.5	17.2	−1.03	− 5.4	0.7/23.6	32749
1995 BB	1998 10 24.0	01 53.59	+13 26.7	16.9	−0.85	− 4.6	0.6/24.6	32748
(7804)	1998 10 24.0	01 53.64	+21 39.8	17.0	−0.99	− 6.5	3.5/27.1	30271
4247 P-L	1998 10 24.1	01 53.70	+13 15.2	18.0	−0.95	− 5.5	0.5/24.6	32785
1997 GX_{22}	1998 10 24.2	01 54.05	+09 04.1	18.7	−0.96	− 5.6	0.9/23.5	32752
1981 SA_{7}	1998 10 24.3	01 54.51	+06 13.1	15.8	−0.96	− 1.2	2.4/23.0	32739
2108 T-2	1998 10 24.3	01 54.52	+10 41.9	17.4	−0.96	− 7.0	0.4/24.0	32786
(7779)	1998 10 24.3	01 54.69	−01 02.3	17.9	−1.20	+ 0.9	4.3/21.7	30265
(9348)	1998 10 24.4	01 54.81	+02 01.5	16.1	−1.04	− 0.3	4.7/22.2	32617
1998 SQ_{2}	1998 10 24.5	01 55.27	+45 40.0	17.0	−1.15	− 6.8	14.5/07.9	32725
1985 SC_{3}	1998 10 24.6	01 55.51	+14 22.2	16.1	−0.84	−11.4	1.3/25.5	32740
3176 T-3	1998 10 24.6	01 55.84	+11 37.8	18.4	−0.80	− 4.2	0.1/24.6	32787
4882 P-L	1998 10 24.6	01 55.91	+15 10.4	18.6	−1.02	− 1.8	1.1/25.5	21978
1993 YO	1998 10 24.7	01 56.20	−10 45.2	18.9	−0.78	− 2.0	6.3/18.4	32746
(7768)	1998 10 24.9	01 56.61	+15 09.6	16.2	−1.05	− 5.2	1.4/25.8	30262
1993 FR_{3}	1998 10 25.0	01 57.19	+11 33.6	16.9	−0.92	− 7.6	0.2/24.9	32745
1991 GP_{3}	1998 10 25.1	01 57.37	+12 10.1	17.8	−0.79	− 4.9	0.0/25.2	32743
1987 DN_{6}	1998 10 25.1	01 57.59	+16 12.0	17.5	−0.93	− 5.1	1.6/26.3	32740
1996 AK_{10}	1998 10 25.1	01 57.60	+14 23.6	17.8	−0.95	− 6.3	1.1/25.8	32750
(9369)	1998 10 25.2	01 58.02	+11 42.4	16.9	−0.99	− 5.3	0.1/25.2	32622
1994 VL	1998 10 25.4	01 58.58	+13 52.9	16.9	−1.01	− 1.2	0.8/25.8	32669
1984 MQ	1998 10 25.5	01 58.97	−04 10.0	16.0	−0.84	− 5.5	6.4/20.8	32510
1990 VQ_{5}	1998 10 25.8	02 00.50	−01 47.4	17.9	−0.86	− 5.0	4.7/21.8	26925
1997 JD_{12}	1998 10 25.9	02 00.45	+14 07.1	17.3	−0.89	− 9.7	0.8/26.5	30086
1994 PA_{19}	1998 10 26.1	02 01.20	+10 52.1	16.6	−0.86	− 6.0	0.7/25.7	32747
1996 AV_{1}	1998 10 26.1	02 01.22	+08 51.4	19.1	−0.95	− 5.1	1.2/25.1	27111
6761 P-L	1998 10 26.1	02 01.48	+03 25.2	17.4	−0.73	− 6.2	2.7/23.4	32786
1994 UY	1998 10 26.1	02 01.64	+17 58.5	16.2	−0.94	− 4.4	2.5/27.8	32748
1994 PA_{39}	1998 10 26.2	02 01.84	+12 44.8	18.6	−1.00	− 6.3	0.1/26.4	30472
1981 EP_{27}	1998 10 26.3	02 02.33	+03 42.7	17.9	−0.75	− 7.9	2.8/23.6	32739
1996 HR_{10}	1998 10 26.4	02 02.65	+12 23.0	15.8	−0.79	− 4.0	0.0/26.4	32675
1993 BN_{3}	1998 10 26.4	02 02.76	+12 36.9	17.2	−1.13	− 1.7	0.1/26.5	31585
1997 MR_{1}	1998 10 26.5	02 03.01	+36 48.6	18.6	−1.08	−11.8	8.5/04.4	32682
1996 DK_{1}	1998 10 26.5	02 03.15	+03 23.7	17.0	−0.97	− 5.8	3.5/24.0	29947
1979 ML_{5}	1998 10 26.6	02 03.13	+06 26.6	17.9	−0.80	− 6.3	2.3/24.8	22429
6581 P-L	1998 10 26.6	02 03.35	+16 59.5	17.2	−0.54	− 2.4	0.8/28.0	32785
1988 RY_{5}	1998 10 26.7	02 03.51	+10 58.1	16.3	−0.84	− 5.2	0.6/26.3	30894
4098 P-L	1998 10 26.8	02 04.30	+11 27.1	17.8	−0.80	− 7.8	0.4/26.5	32785
1992 DJ_{8}	1998 10 26.8	02 04.35	+12 16.3	18.8	−0.90	− 6.0	0.1/26.8	30687
6625 P-L	1998 10 26.9	02 04.46	+08 05.1	17.1	−0.96	− 5.2	1.7/25.7	23532
1995 XG	1998 10 26.9	02 04.46	+11 35.5	16.3	−1.05	− 1.9	0.5/26.7	29946
1991 RC_{22}	1998 10 27.0	02 04.75	+11 17.5	16.8	−1.11	− 3.5	0.6/26.7	29943

1995 YG	1998 10 27.0	02 04.92	+12 35.3	17.4	−1.01	−	6.7	0.0/27.0	30093
1994 TO_{15}	1998 10 27.2	02 05.63	+15 24.2	18.6	−1.02	−	3.1	0.8/27.9	32517
1981 EP_{41}	1998 10 27.4	02 06.29	+15 59.6	18.3	−0.97	−	3.5	1.5/28.3	27102
(7903)	1998 10 27.6	02 07.40	+13 43.6	17.8	−0.77	−	6.5	0.3/28.0	30645
1996 AF_2	1998 10 27.8	02 07.93	+22 29.3	16.9	−1.02	−	4.5	3.2/30.4	30689
1993 HR_1	1998 10 27.9	02 08.42	+08 05.2	18.2	−0.96	−	4.8	1.6/26.7	23980
(7805)	1998 10 28.1	02 09.06	+05 41.0	17.7	−1.01	−	5.0	2.7/26.2	30271
1993 FU_{13}	1998 10 28.1	02 09.32	+07 05.7	15.2	−1.03	−	2.8	2.8/26.7	32515
1997 OY	1998 10 28.3	02 09.80	+27 01.5	17.5	−0.98	−	3.4	5.1/01.0	30903
1991 RU_{17}	1998 10 28.3	02 10.09	+10 35.8	15.7	−0.98	−	7.0	1.1/27.7	32744
1994 RA_{11}	1998 10 28.4	02 10.15	+16 58.2	17.6	−1.06	−	5.0	1.5/30.0	30689
1993 FL_9	1998 10 28.4	02 10.41	+03 30.8	17.4	−0.94	−	5.3	3.8/25.9	30079
1993 FS_{50}	1998 10 28.6	02 11.03	+16 22.8	17.9	−1.02	−	4.7	1.2/29.5	24241
1994 WW_2	1998 10 28.6	02 11.05	+15 07.1	17.3	−0.93	−	3.6	0.7/29.1	32461
(7896)	1998 10 28.7	02 11.22	+12 21.7	17.3	−0.77	−	3.6	0.2/28.5	30644
2272 T-3	1998 10 28.7	02 11.64	+18 50.4	16.2	−1.08	−	2.0	2.7/30.0	26755
4604 P-L	1998 10 28.8	02 11.91	+13 52.6	17.5	−1.05	−	3.9	0.3/29.0	32785
(9370)	1998 10 29.1	02 13.23	+12 09.7	17.1	−0.97	−	5.6	0.5/28.9	32622
1993 FL_8	1998 10 29.2	02 13.36	+13 14.2	16.9	−1.08	−	2.3	0.1/29.2	23522
1981 ES_{11}	1998 10 29.2	02 13.37	+18 39.8	19.0	−0.97	−	6.2	1.8/30.7	26917
1995 AO_4	1998 10 29.3	02 13.60	+19 10.4	16.7	−0.90	−	4.8	2.1/30.9	32748
5193 T-3	1998 10 29.3	02 13.65	−02 37.0	18.2	−0.74	−	4.6	4.2/24.7	22702
1998 QO_{55}	1998 10 29.3	02 13.84	+11 37.2	19.0	−0.98	−	6.0	0.7/28.9	32717
1987 SJ_1	1998 10 29.3	02 13.90	+12 41.8	16.3	−0.91	−	6.0	0.4/29.2	32511
1993 SQ_{13}	1998 10 29.4	02 13.95	+12 49.4	17.5	−0.87	−	4.2	0.2/29.2	30899
1993 YF	1998 10 29.4	02 14.10	+09 10.5	17.4	−0.80	−	3.9	1.5/28.3	23791
1987 ST_{11}	1998 10 29.4	02 14.40	+11 25.2	15.3	−1.05	−	1.0	1.0/29.0	29941
1982 VB_4	1998 10 29.6	02 14.69	+10 58.4	17.1	−0.98	−	3.5	0.9/29.0	24759
(7830)	1998 10 29.6	02 14.73	+08 27.3	17.7	−0.98	−	5.0	1.8/28.3	30439
1996 BL_3	1998 10 29.6	02 15.14	+06 31.1	18.5	−0.94	−	5.7	2.5/27.8	26753
1997 NJ_{10}	1998 10 29.7	02 15.23	+03 27.5	17.3	−0.75	−	6.1	3.1/26.7	32753
1988 GQ	1998 10 29.7	02 15.25	−04 18.9	18.2	−0.86	−	3.8	5.2/24.9	32741
1994 RU	1998 10 29.7	02 15.29	+12 24.2	15.7	−1.03	−	3.4	10.8/19.0	32748
1996 HE_2	1998 10 29.8	02 15.69	+03 50.3	18.0	−0.82	−	1.9	2.9/27.4	30763
1978 VV_6	1998 10 29.9	02 15.94	+12 27.1	17.2	−1.09	−	3.4	11.7/19.0	26578
1994 VH	1998 10 29.9	02 15.94	+14 50.7	15.3	−1.04	+	1.8	0.6/30.2	32748
(7690)	1998 10 29.9	02 16.24	+09 24.9	16.4	−0.97	−	3.1	1.7/28.9	29909
(7996)	1998 10 30.0	02 16.29	−03 01.1	16.4	−0.82	−	7.2	6.1/25.1	30851
1994 VB	1998 10 30.0	02 16.31	+13 38.3	16.7	−1.19	+	2.5	2.8/04.0	29922
1996 GS	1998 10 30.0	02 16.38	+06 26.6	16.2	−0.76	−	8.6	2.9/27.8	32751
1978 VM_7	1998 10 30.0	02 16.48	+18 57.9	17.6	−0.91	−	9.2	2.3/31.7	28610
1996 AN_2	1998 10 30.0	02 16.56	+02 14.0	17.2	−0.99	−	4.8	4.7/27.0	27315
1996 GM_{20}	1998 10 30.1	02 17.01	+13 14.3	18.3	−0.78	−	3.8	0.1/30.1	32751
1997 PM_1	1998 10 30.2	02 17.19	+03 28.8	18.0	−0.76	−	3.9	3.0/27.4	32682
1993 FC_{46}	1998 10 30.2	02 17.39	+14 01.1	19.1	−0.99	−	5.2	0.1/30.3	30451
1995 WP_8	1998 10 30.3	02 17.71	+09 02.8	15.6	−1.14	−	1.0	2.3/29.4	32518
1981 RB_2	1998 10 30.4	02 17.92	+27 10.8	16.4	−0.96	−	9.1	4.8/04.0	24759
1991 RE_{15}	1998 10 30.6	02 18.60	+26 55.6	16.4	−1.23	−	3.3	5.8/02.9	32514
1997 OJ	1998 10 30.6	02 18.69	+13 08.3	18.4	−0.80	−	3.7	0.2/30.4	32753
(8048)	1998 10 30.7	02 18.99	+15 55.8	16.4	−0.93	−	1.1	0.7/31.2	30863
2674 P-L	1998 10 30.7	02 19.21	+12 43.4	18.9	−0.93	−	4.1	0.4/30.4	32728
1991 PJ_{13}	1998 10 30.8	02 19.47	+18 40.3	17.7	−1.10	−	4.8	2.1/01.0	30782
1981 FP	1998 10 30.9	02 19.92	+11 39.8	19.1	−0.95	−	5.4	0.8/30.3	22697
1995 FM_3	1998 10 30.9	02 19.96	+12 51.4	18.5	−0.79	−	3.0	0.3/30.7	32670
1994 PQ_{32}	1998 10 31.0	02 20.39	+09 19.9	18.0	−0.92	−	7.4	1.9/29.7	30092
1996 GR_{20}	1998 10 31.2	02 21.05	+11 04.3	18.6	−0.76	−	3.4	0.8/30.4	28890
1993 SL_6	1998 10 31.2	02 21.08	+11 43.4	16.8	−0.85	−	4.9	0.8/30.6	32746
(9438)	1998 10 31.2	02 21.25	+09 54.1	18.4	−1.02	−	7.0	1.8/30.1	32639
(7740)	1998 10 31.3	02 21.77	+20 28.6	16.0	−1.12	−	2.4	2.5/01.9	30255
1989 AK_6	1998 10 31.4	02 21.82	+01 18.3	18.6	−0.76	−	3.4	3.8/28.0	32741
1988 UC	1998 10 31.4	02 21.93	+14 00.9	16.9	−0.87	−	3.3	0.0/31.4	32511
1981 EZ	1998 10 31.7	02 23.15	+14 56.5	17.3	−1.02	−	4.3	0.3/31.9	32509
1991 UQ	1998 10 31.8	02 23.53	+16 14.5	16.0	−1.10	−	3.7	0.8/01.3	29943
4271 T-1	1998 10 31.9	02 23.99	+14 09.4	17.7	−1.09	−	2.0	0.1/31.9	30474
5192 T-3	1998 11 01.0	02 24.04	+04 31.6	17.5	−0.88	−	1.0	3.2/29.7	30474
1989 TH_1	1998 11 01.0	02 24.33	+29 07.5	14.9	−0.97		0.0	7.2/04.6	32741
1988 RS_6	1998 11 01.1	02 24.59	+13 02.8	16.7	−1.03	−	5.9	0.6/31.8	32741
1987 EQ	1998 11 01.1	02 24.61	+18 30.2	17.6	−1.11	−	5.0	1.7/02.2	26188
6513 P-L	1998 11 01.2	02 24.87	+27 11.8	18.2	−1.08	−	1.9	4.1/04.3	23786
1993 FH_{38}	1998 11 01.3	02 25.48	+08 46.5	16.3	−0.96	−	5.1	2.4/30.9	29944
1987 SH_7	1998 11 01.3	02 25.67	+51 05.8	15.7	−1.44	−	8.5	16.9/15.6	32511
1997 GL_8	1998 11 01.4	02 25.66	+16 35.5	16.9	−1.06	−	3.1	0.8/01.9	30094
4336 T-3	1998 11 01.5	02 26.16	+03 11.0	17.6	−0.95	−	6.5	4.4/29.5	24579
1982 UM_2	1998 11 01.5	02 26.46	+10 43.0	16.3	−0.90	−	5.2	1.6/31.6	32510
1981 EW_{24}	1998 11 01.6	02 26.59	+11 15.4	16.5	−0.84	−	4.6	1.1/31.8	27726
1977 DF_2	1998 11 01.7	02 26.81	+19 21.7	17.2	−0.94	−	2.9	1.7/02.9	30892
1986 CB_2	1998 11 01.7	02 26.98	+22 25.0	17.3	−1.07	−	5.3	2.9/03.8	26188
1990 OS_1	1998 11 01.9	02 27.70	+24 18.1	17.9	−1.12	−	2.6	3.3/04.2	28614
4033 T-1	1998 11 02.0	02 28.22	+07 46.0	17.9	−0.95	−	6.3	2.7/31.2	30914
(7780)	1998 11 02.1	02 28.60	+09 24.3	17.6	−0.87	−	7.7	1.7/31.6	30265
1981 EG_{20}	1998 11 02.1	02 28.70	+24 09.0	18.0	−0.94	−	3.2	3.1/04.6	26918
1994 RX	1998 11 02.2	02 28.82	−03 51.1	15.1	−0.80	−	2.0	9.5/28.5	32748
1993 XB	1998 11 02.3	02 29.20	+12 12.1	17.7	−0.78	−	6.2	0.8/01.6	32746
(7362)	1998 11 02.3	02 29.37	+18 10.8	15.6	−0.93	−	4.3	1.6/03.2	28578
1995 DZ_3	1998 11 02.3	02 29.53	+42 38.9	16.9	−1.11	−	3.0	9.5/11.0	25341
(7715)	1998 11 02.4	02 29.76	−10 24.9	16.9	−0.84	−	4.8	9.5/26.4	30073
6328 P-L	1998 11 02.4	02 29.81	+17 20.3	18.1	−0.96	−	3.7	0.9/03.1	27328
1994 PX_{31}	1998 11 02.5	02 30.34	+25 37.5	16.9	−1.08	−	5.3	4.2/05.4	26403
2369 T-3	1998 11 02.6	02 30.45	+19 25.5	18.6	−1.05	−	5.8	1.9/03.8	24120
(7433)	1998 11 02.6	02 30.46	+07 54.5	18.1	−0.92	−	8.0	2.3/31.7	28834
1986 RB_{12}	1998 11 02.6	02 30.48	+30 31.9	15.7	−0.83	−	7.0	4.9/07.5	32740
1991 PM_{16}	1998 11 02.9	02 31.61	−19 55.8	17.2	−0.96	−	5.3	14.2/24.2	32743
1992 OP_1	1998 11 02.9	02 31.67	+22 48.9	16.9	−0.80	−	8.7	2.5/05.4	27309
1991 DK_1	1998 11 03.0	02 32.11	+16 41.2	19.4	−0.54	−	1.9	0.3/03.5	32743
1973 SR_1	1998 11 03.1	02 32.36	+14 57.9	19.0	−0.56	−	1.6	0.0/03.1	32437
1997 HC_{16}	1998 11 03.1	02 32.40	+13 13.5	16.6	−0.98	−	5.8	0.7/02.7	30293
1992 CG_3	1998 11 03.1	02 32.42	+06 52.6	16.5	−0.90	−	7.1	3.4/31.9	32452
1981 UO_{11}	1998 11 03.2	02 32.76	+06 41.6	15.7	−0.97	−	3.7	4.0/01.2	32510
1996 CE_1	1998 11 03.4	02 33.79	+23 59.6	16.5	−1.12	−	1.8	4.2/05.4	30784
(9314)	1998 11 03.5	02 33.85	+04 45.9	15.7	−0.86	−	5.5	4.8/31.7	32609
1989 BW_1	1998 11 03.5	02 34.03	+10 41.6	17.6	−1.03	−	4.3	1.8/02.5	30686
1140 T-3	1998 11 03.5	02 34.09	+22 47.0	17.5	−0.84	−	6.0	2.7/05.7	30683

1980 BA	1998 11 03.5	02 34.26	+02 31.7	16.4	−0.95	−	2.9	5.5/31.5	32509
6547 P-L	1998 11 03.6	02 34.71	+15 24.5	16.1	−1.01	−	2.3	11.6/24.0	32536
1990 QM	1998 11 03.9	02 35.74	+11 00.3	16.7	−0.99	−	5.1	1.6/02.9	30470
1996 HC_{12}	1998 11 03.9	02 35.88	+15 13.9	19.7	−0.85	−	4.4	8.0/24.0	32471
1996 FO_5	1998 11 04.0	02 35.88	+21 17.9	16.8	−1.17	−	0.9	2.5/05.2	30293
4075 P-L	1998 11 04.0	02 35.90	+16 33.8	17.7	−0.99	−	4.5	0.6/04.3	22701
4157 P-L	1998 11 04.2	02 36.71	+19 25.9	16.9	−1.09	−	5.0	1.8/05.2	24764
(7942)	1998 11 04.3	02 37.02	+29 26.7	17.1	−0.86	−	3.8	4.0/08.1	30746
1993 EQ	1998 11 04.5	02 38.05	+21 39.4	16.4	−1.16	−	1.9	2.5/05.9	29102
1993 PU_7	1998 11 04.6	02 38.24	+18 22.4	16.7	−0.93	−	4.0	1.1/05.3	31007
1992 EP_{10}	1998 11 04.6	02 38.33	−04 48.2	18.3	−0.86	−	6.4	7.0/29.9	27455
1990 SG_{11}	1998 11 04.6	02 38.52	+14 15.2	17.4	−0.99	−	5.7	0.5/04.4	32742
4602 P-L	1998 11 04.6	02 38.64	+13 56.5	17.5	−0.81	−	3.9	0.6/04.3	32503
1988 VY	1998 11 04.8	02 39.05	+14 24.3	17.2	−0.84	−	4.6	0.4/04.5	31004
1992 PH_2	1998 11 04.8	02 39.29	+26 45.0	16.4	−0.86	−	6.1	3.7/08.1	30657
1993 GA_1	1998 11 04.9	02 39.59	+24 03.5	16.6	−1.16	−	0.8	4.0/06.7	27446
1994 VE_1	1998 11 04.9	02 39.82	+11 55.4	15.4	−0.91	−	5.1	1.5/04.1	29622
1991 QJ	1998 11 04.9	02 39.84	+05 08.7	16.7	−1.00	−	5.9	4.7/02.4	32448
(7739)	1998 11 05.0	02 40.14	+10 20.9	17.5	−1.00	−	5.4	2.0/03.8	30254
1996 CQ_1	1998 11 05.1	02 40.32	+27 43.3	16.9	−1.09	−	4.3	5.3/08.2	29139
1993 FS_6	1998 11 05.3	02 41.39	+13 32.3	15.4	−1.06	−	2.8	0.9/04.9	26564
1990 FK_1	1998 11 05.4	02 41.50	+03 58.9	17.3	−0.72	−	4.7	3.0/02.3	30870
1997 NC_3	1998 11 05.5	02 42.22	+16 17.1	16.6	−0.80	−	3.8	0.2/05.7	32753
1996 JS_5	1998 11 05.6	02 42.48	+11 13.4	18.5	−0.78	−	4.1	1.3/04.5	30473
1997 MR_8	1998 11 05.6	02 42.56	−03 44.8	19.7	−0.87	−	3.6	5.7/31.8	30474
1994 PS_{10}	1998 11 05.6	02 42.57	+20 04.4	17.1	−1.04	−	4.5	1.9/06.7	24748
1981 EQ_{47}	1998 11 05.7	02 43.01	+12 28.7	17.4	−0.94	−	4.2	1.5/05.0	32215
1981 EW_{30}	1998 11 05.7	02 43.04	+14 13.3	16.4	−1.05	−	5.2	0.8/05.4	32509
(7935)	1998 11 05.8	02 43.15	+15 56.8	17.9	−0.80	−	3.7	0.0/05.9	30744
1996 ER_2	1998 11 06.0	02 43.79	+18 35.5	17.8	−0.99	−	5.5	1.1/06.7	30293
1997 MB_9	1998 11 06.0	02 43.81	+48 09.6	16.9	−1.06	−	4.2	10.0/16.1	32520
1993 BJ_5	1998 11 06.0	02 43.83	+26 26.9	17.8	−0.69	−	2.8	2.3/08.8	30658
5046 T-3	1998 11 06.1	02 44.28	+04 29.2	17.6	−1.02	−	3.7	4.9/03.5	26577
1991 LU_1	1998 11 06.1	02 44.34	+15 35.6	18.1	−0.80	−	5.2	0.1/06.1	27556
1994 VA_2	1998 11 06.1	02 44.56	+01 54.2	15.9	−1.10	+	4.0	6.4/04.1	26581
1991 SM_2	1998 11 06.2	02 44.81	+22 29.1	16.3	−1.18	−	1.0	2.9/07.6	32514
(7807)	1998 11 06.3	02 45.35	+08 46.3	17.6	−0.73	−	6.1	2.0/04.4	30433
1981 EX_{38}	1998 11 06.5	02 45.76	+25 16.4	17.2	−1.03	−	6.8	3.5/09.0	32299
(7902)	1998 11 06.5	02 45.84	+11 45.6	17.2	−0.85	−	4.0	1.4/05.5	30645
1993 VV_4	1998 11 06.6	02 46.19	+05 43.5	17.1	−0.86	−	1.3	3.4/04.3	27447
1214 T-3	1998 11 06.6	02 46.24	+30 45.3	16.5	−0.95	−	3.0	5.1/10.3	22972
1991 AK	1998 11 06.6	02 46.61	+19 09.3	16.4	−0.95	−	3.9	1.1/07.4	30470
1054 T-3	1998 11 06.8	02 47.22	+46 03.7	19.2	−2.03	+	5.4	14.9/11.6	19330
1992 EK_{14}	1998 11 06.8	02 47.31	+22 56.5	15.5	−1.00	−	3.7	3.2/09.0	32514
1981 VN	1998 11 07.0	02 48.13	+18 45.0	15.7	−1.19	+	3.3	1.1/07.5	21564
1990 DM_3	1998 11 07.0	02 48.15	+22 20.6	17.4	−1.17	−	3.6	2.5/08.5	30289
1997 NR_6	1998 11 07.0	02 48.18	−02 22.7	16.4	−0.82	−	2.5	6.4/02.7	31010
1986 SC_2	1998 11 07.1	02 48.59	+18 17.5	16.7	−0.96	−	8.8	0.7/07.8	30288
2577 P-L	1998 11 07.1	02 48.60	+16 59.3	18.1	−1.02	−	4.4	0.3/07.4	24409
1988 PL	1998 11 07.2	02 48.89	+14 59.0	16.2	−1.05	−	6.0	0.6/07.0	26579
1996 DL	1998 11 07.2	02 48.90	+08 08.3	17.2	−0.98	−	5.3	3.3/05.3	26910
1991 YL_1	1998 11 07.3	02 48.92	+17 38.3	17.9	−1.04	−	4.6	0.5/07.6	30687
1994 PM_{25}	1998 11 07.3	02 48.96	+10 31.1	17.0	−0.97	−	4.5	2.6/05.9	27568
1995 BA_3	1998 11 07.4	02 49.74	+15 04.2	16.7	−0.91	−	3.5	0.4/07.2	28889
(7835)	1998 11 07.7	02 50.76	+14 51.0	18.1	−0.91	−	7.6	0.5/07.3	30440
1992 PD_2	1998 11 07.7	02 50.98	+13 01.2	16.8	−0.82	−	5.4	1.0/06.9	30688
1996 GC_{18}	1998 11 07.8	02 51.07	+14 56.4	17.7	−0.94	−	4.1	0.5/07.5	32751
4114 T-1	1998 11 07.8	02 51.18	+13 34.8	18.1	−1.03	−	3.7	1.0/07.2	28620
2808 P-L	1998 11 07.8	02 51.37	+13 50.4	17.7	−1.00	−	5.2	1.0/07.3	26929
1992 EA_6	1998 11 07.9	02 51.40	+02 40.0	16.5	−0.94	−	3.6	6.1/04.6	32452
1992 RO_3	1998 11 07.9	02 51.41	+16 08.3	18.8	−0.83	−	3.7	0.1/07.8	30757
1985 SM_2	1998 11 07.9	02 51.72	+19 29.8	16.2	−0.91	−	7.7	1.0/08.8	30780
1995 DQ_2	1998 11 08.0	02 51.83	+64 54.8	19.2	−2.61	+10.1		18.9/11.4	30292
(7459)	1998 11 08.1	02 52.29	+18 29.7	16.6	−1.00	−	2.7	0.7/08.6	29079
1996 AW_4	1998 11 08.2	02 52.53	+13 44.7	17.9	−1.04	−	3.6	1.0/07.6	31241
1978 PA_3	1998 11 08.2	02 52.92	+12 46.3	16.7	−1.04	−	5.3	1.8/07.4	32738
1978 RH_9	1998 11 08.3	02 53.20	+09 05.0	18.1	−1.06	−	4.9	3.2/06.7	22270
1981 EW_{13}	1998 11 08.3	02 53.38	+18 45.4	18.0	−1.01	−	4.9	0.8/08.9	24239
1992 HS_4	1998 11 08.5	02 53.91	+04 19.7	17.3	−0.89	−	2.0	3.9/05.9	30657
2114 T-3	1998 11 08.7	02 54.66	+14 15.0	17.4	−0.81	−	6.4	0.8/08.1	30474
1991 UE_5	1998 11 08.8	02 55.06	+30 46.3	16.6	−1.09	−	4.9	6.6/12.2	27120
(7743)	1998 11 08.8	02 55.10	−00 59.9	17.1	−0.95	−	5.2	6.2/04.6	30255
1996 HT_{16}	1998 11 08.8	02 55.29	+14 45.9	17.6	−0.85	−	4.1	0.7/08.4	32675
3036 T-1	1998 11 08.9	02 55.44	+07 25.7	17.0	−0.89	−	7.4	3.3/06.5	30293
1988 JW	1998 11 08.9	02 55.71	−01 44.6	18.4	−0.90	−	2.2	5.3/05.0	30469
1993 FG_8	1998 11 08.9	02 55.80	−04 54.0	15.9	−0.80	−	7.9	10.5/02.6	32454
2206 P-L	1998 11 09.0	02 55.76	+11 43.3	17.6	−0.91	−	6.1	1.9/07.7	28891
1991 RK_{26}	1998 11 09.0	02 55.94	+22 56.4	17.4	−1.23	−	1.4	2.7/10.2	29943
1987 DH_6	1998 11 09.0	02 56.09	+18 05.3	17.4	−0.92	−	4.3	0.4/09.4	30469
1995 FV_{14}	1998 11 09.0	02 56.12	+19 17.6	17.1	−0.87	−	1.6	0.7/09.6	25539
1997 GK_{21}	1998 11 09.0	02 56.18	+14 24.1	19.1	−1.06	−	5.4	0.9/08.5	30085
5211 T-2	1998 11 09.0	02 56.19	+17 23.5	15.1	−0.80	−	8.6	0.2/09.3	22972
1987 BS_1	1998 11 09.1	02 56.25	+36 56.8	16.6	−1.06	−	5.6	8.1/14.5	32511
1991 RE_{11}	1998 11 09.2	02 56.73	+26 09.9	15.6	−1.00	−	5.5	4.7/11.6	32514
1996 KO_1	1998 11 09.2	02 56.81	+09 18.0	18.1	−0.95	−	5.0	2.6/07.5	27453
1992 DV_9	1998 11 09.3	02 57.02	+14 30.8	19.3	−0.97	−	5.9	1.0/08.8	27308
1997 JH_{16}	1998 11 09.3	02 57.24	+13 03.4	17.5	−0.98	−	6.4	1.5/08.4	32753
1973 SP_1	1998 11 09.3	02 57.35	+11 48.9	17.7	−0.53	−	2.4	0.9/08.1	30892
1984 WJ_1	1998 11 09.3	02 57.36	+22 14.2	14.9	−1.24	+	4.9	2.8/10.1	32740
(9425)	1998 11 09.4	02 57.45	+36 31.2	15.5	−1.14	−	0.4	10.3/14.0	32636
1989 EZ_2	1998 11 09.4	02 57.52	+24 53.6	18.1	−1.08	−	6.4	3.1/11.4	30469
1993 EE	1998 11 09.4	02 57.67	+10 12.7	17.9	−1.04	−	4.5	2.4/08.0	30471
(9431)	1998 11 09.5	02 58.12	+05 37.0	17.0	−0.52	−	4.7	2.2/06.5	32637
4655 P-L	1998 11 09.6	02 58.25	+32 24.3	17.5	−0.64	−	0.9	2.8/13.3	29649
1981 EJ_{24}	1998 11 09.6	02 58.46	+23 17.8	19.0	−1.09	−	2.6	2.3/11.0	26919
1992 SB_1	1998 11 09.7	02 58.86	+37 33.5	15.7	−1.11	+	0.1	6.8/14.2	32515
1996 JN_6	1998 11 10.2	03 00.80	+12 36.4	17.2	−0.86	−	3.2	1.5/09.2	29925
1994 YA_2	1998 11 10.2	03 01.02	+47 35.6	17.3	−1.47	+	2.2	11.1/16.0	29663
1986 QJ_2	1998 11 10.3	03 01.31	+21 45.8	17.7	−0.86	−	2.7	1.3/11.4	30685
1989 CB_3	1998 11 10.4	03 01.58	+23 11.3	16.4	−1.06	−	6.7	2.6/11.9	32512
1981 QJ_3	1998 11 10.4	03 01.80	+12 56.3	17.2	−0.84	−	3.5	1.4/09.5	21101
1987 US_4	1998 11 10.5	03 01.89	+22 11.5	16.0	−1.00	−	3.0	2.5/11.6	32511

1981 EC_{14}	1998 11 10.5	03 01.94	+23 53.9	19.5	−1.05	−	4.2	2.4/12.0	22270
1973 SA_2	1998 11 10.5	03 02.06	+13 13.9	17.7	−0.55	−	1.7	0.7/09.6	27725
3347 T-2	1998 11 10.5	03 02.07	+13 34.6	16.8	−1.06	−	3.3	1.4/09.8	32537
1992 QL_2	1998 11 10.5	03 02.22	+20 41.6	16.0	−0.84	−	6.3	1.1/11.5	32515
1995 YD_1	1998 11 10.7	03 02.76	+02 52.2	16.9	−1.05	−	1.7	5.9/07.9	31588
(7487)	1998 11 10.8	03 03.08	−04 00.2	15.3	−0.94	+	1.2	9.0/06.9	29087
1997 JJ_{14}	1998 11 10.8	03 03.24	+13 26.9	20.3	−1.03	−	4.4	1.4/10.0	30293
1990 RT_8	1998 11 10.8	03 03.28	+12 06.3	18.8	−1.01	−	4.4	2.1/09.7	27710
1002 T-2	1998 11 10.8	03 03.40	+19 18.4	17.3	−1.05	−	3.5	0.9/11.3	24236
1981 EK_{17}	1998 11 10.9	03 03.44	+13 49.2	17.8	−0.96	−	6.0	1.3/10.1	26918
1982 UC_{11}	1998 11 10.9	03 03.84	+19 08.1	16.3	−0.91	−	6.3	0.8/11.4	32510
1993 GA	1998 11 11.2	03 04.63	+23 36.7	18.8	−1.13	−	2.3	2.3/12.5	24231
(7726)	1998 11 11.3	03 05.14	+26 51.2	17.1	−1.20	−	3.8	3.6/13.4	30251
1993 FV_{27}	1998 11 11.3	03 05.17	+20 19.7	17.0	−1.09	−	4.8	1.2/12.0	26580
1988 VP_3	1998 11 11.3	03 05.46	+20 44.7	16.6	−1.17	+	0.3	1.6/12.0	21972
1992 AO_2	1998 11 11.3	03 05.47	+04 06.8	17.8	−0.98	−	3.0	4.7/08.6	28886
1983 TU_1	1998 11 11.4	03 05.50	+17 18.0	15.2	−1.14	+	0.4	0.1/11.4	32510
1164 T-3	1998 11 11.5	03 05.91	+21 39.9	18.3	−0.84	−	6.4	1.3/12.6	30474
1990 EN_4	1998 11 11.5	03 05.99	+29 25.0	18.2	−0.95	−	2.7	3.8/14.2	25440
1996 OO	1998 11 11.7	03 06.94	+18 13.9	18.3	−0.64	−	4.1	0.2/11.9	32751
1989 TB_5	1998 11 11.8	03 07.27	+08 08.8	17.8	−0.88	−	4.5	3.2/09.7	28613
1997 JH_{18}	1998 11 11.9	03 07.61	+09 35.7	18.6	−0.97	−	3.1	2.8/10.3	30463
1987 DF_6	1998 11 11.9	03 07.79	+36 49.6	17.9	−1.10	−	2.8	6.1/16.3	31273
1997 MD_8	1998 11 12.0	03 08.22	+16 05.4	17.5	−1.03	−	4.6	0.6/11.7	32254
1989 CS_2	1998 11 12.0	03 08.25	+11 55.3	17.1	−0.99	−	6.4	2.2/10.7	25648
1981 ES_{28}	1998 11 12.1	03 08.33	+25 07.9	18.4	−1.14	−	2.0	3.1/13.6	26920
(7817)	1998 11 12.1	03 08.51	+16 47.4	16.6	−0.91	−	3.6	0.3/12.0	30435
1989 AT	1998 11 12.1	03 08.62	+00 25.5	16.0	−0.87	−	0.4	5.9/08.8	30469
6591 P-L	1998 11 12.2	03 09.11	+22 44.7	17.9	−0.57	−	1.5	0.9/13.5	28620
1990 QJ_4	1998 11 12.3	03 09.12	+13 47.3	17.4	−1.02	−	4.3	1.4/11.5	30289
1992 FV_1	1998 11 12.4	03 09.72	+18 29.2	16.5	−1.02	−	1.6	0.3/12.6	29660
1996 GL_1	1998 11 12.4	03 09.83	+20 00.5	16.0	−1.16	+	0.1	1.1/12.9	32519
1994 RV	1998 11 12.4	03 09.89	+27 06.9	16.4	−1.13	−	3.9	3.8/14.5	32517
1991 RS_{13}	1998 11 12.5	03 10.02	+24 17.1	17.3	−1.14	−	5.7	2.6/14.0	26398
1981 EY_{19}	1998 11 12.5	03 10.21	+18 35.0	17.3	−0.89	−	3.8	0.3/12.8	28314
1997 OV_2	1998 11 12.5	03 10.25	+31 06.7	18.1	−0.99	−	4.7	4.4/15.7	30675
(7901)	1998 11 12.6	03 10.46	+15 38.6	18.0	−0.95	−	3.8	0.7/12.2	30645
1993 YD	1998 11 12.7	03 10.79	−00 06.8	16.2	−0.82	−	0.6	5.3/09.2	27568
1989 SW_8	1998 11 12.7	03 10.93	+00 18.4	16.3	−0.80	−	7.8	7.3/08.1	32741
1996 BL_2	1998 11 12.9	03 11.68	+17 49.5	15.8	−0.95	−	7.3	0.0/12.9	32469
1993 FZ_6	1998 11 13.0	03 12.04	+16 02.9	17.9	−1.06	−	3.0	0.7/12.7	30291
1995 DZ_{11}	1998 11 13.1	03 12.54	+13 23.2	17.3	−0.86	−	3.4	1.5/12.2	32670
1987 SX_{17}	1998 11 13.2	03 12.97	+19 08.8	15.4	−1.05	−	6.6	11.4/04.0	32511
2079 P-L	1998 11 13.2	03 12.98	+25 40.3	16.9	−0.97	−	3.0	2.8/14.9	27938
1987 WT_1	1998 11 13.3	03 13.49	+13 05.5	17.4	−0.82	−	2.4	1.5/12.4	29655
1990 MR	1998 11 13.4	03 13.60	+21 14.1	18.2	−1.05	−	6.2	1.1/14.2	30470
1985 XA	1998 11 13.4	03 13.77	−12 59.4	16.1	−1.61	+	11.5	15.7/11.9	32510
1981 ED_{15}	1998 11 13.4	03 13.94	+22 49.1	17.2	−1.02	−	4.9	2.1/14.5	25423
1979 MS_7	1998 11 13.4	03 14.00	+20 39.1	18.9	−0.93	−	5.3	1.0/14.1	30779
1990 WR_2	1998 11 13.5	03 14.35	+04 33.4	15.3	−0.96	+	1.9	6.7/11.4	32742
1984 SA	1998 11 13.6	03 14.41	+22 29.8	16.0	−1.08	−	8.1	2.0/14.7	32510
1995 CN	1998 11 13.6	03 14.49	+06 13.2	18.4	−0.90	−	2.2	4.5/11.3	28075
3064 T-1	1998 11 13.7	03 15.24	+18 23.6	18.5	−1.07	−	4.2	9.3/25.0	30696
1991 GA_6	1998 11 13.8	03 15.20	+19 15.6	17.3	−0.89	−	3.6	0.4/14.1	28316
1988 XB_5	1998 11 13.9	03 15.87	+16 16.0	16.6	−1.15	−	2.1	0.8/13.6	32512
1981 UU_{29}	1998 11 14.0	03 16.13	+18 44.3	17.5	−1.06	−	5.1	0.3/14.2	32510
(9154)	1998 11 14.0	03 16.17	+31 39.9	15.8	−1.02	−	0.9	4.8/16.7	32413
1997 NG_3	1998 11 14.1	03 16.67	+02 19.0	16.8	−0.80	−	3.8	5.1/10.6	32520
1986 QB_3	1998 11 14.2	03 16.83	+15 28.4	16.6	−0.85	−	2.3	0.9/13.7	32511
1993 DG_2	1998 11 14.2	03 16.88	+06 51.6	17.0	−1.07	−	3.6	4.5/11.9	31585
1980 FH_1	1998 11 14.2	03 16.98	+35 25.6	17.3	−1.05	−	1.6	5.5/17.7	25225
1992 EP_7	1998 11 14.3	03 17.37	−02 54.9	18.8	−0.90	−	2.5	6.9/10.2	30471
4327 T-3	1998 11 14.3	03 17.73	+17 03.4	18.1	−1.04	−	0.9	0.4/14.2	22702
1987 SO_5	1998 11 14.4	03 17.65	+29 18.5	16.4	−0.96	−	1.9	3.6/16.6	22698
1993 TS_{16}	1998 11 14.4	03 17.68	+13 31.5	17.8	−0.90	−	3.9	1.6/13.4	31538
1991 EJ	1998 11 14.4	03 17.70	+39 38.2	17.1	−0.67	−	4.0	4.2/20.1	30976
1990 VN_5	1998 11 14.5	03 18.16	+02 01.2	17.5	−1.11	+	3.7	6.8/12.6	23975
1991 UK_1	1998 11 14.5	03 18.21	+27 59.1	16.0	−1.18	−	4.1	4.6/16.6	32451
(7641)	1998 11 14.6	03 18.60	+25 44.3	16.1	−0.59	−	5.9	1.4/16.6	32737
1997 SR_8	1998 11 14.6	03 18.80	+24 43.3	18.2	−0.87	−	2.4	1.9/16.0	30880
1994 AC_3	1998 11 14.6	03 18.91	+18 37.4	17.0	−0.84	−	3.0	0.1/14.8	23242
(7808)	1998 11 14.7	03 18.87	+24 50.9	16.3	−1.00	−	5.3	2.2/16.2	30433
(7828)	1998 11 14.7	03 18.94	+10 26.6	16.5	−0.78	−	6.0	2.4/12.8	30438
6605 P-L	1998 11 14.7	03 19.07	+11 18.1	16.3	−0.89	−	3.7	3.2/13.3	23986
1996 RH_{10}	1998 11 14.8	03 19.39	−02 41.8	19.5	−0.51	−	2.4	3.8/09.8	31545
1991 GK_4	1998 11 14.8	03 19.56	+18 18.7	16.7	−0.90	−	3.9	0.0/14.8	32513
1975 SB_1	1998 11 14.8	03 19.65	+23 34.7	17.7	−0.92	−	0.7	1.6/15.8	30684
1997 HM_{10}	1998 11 14.8	03 19.77	+16 54.8	19.8	−1.04	−	4.5	0.5/14.6	29936
1996 HC_1	1998 11 14.9	03 19.92	+16 29.1	16.7	−1.12	+	1.5	0.7/14.7	32519
1981 EE_{19}	1998 11 15.1	03 20.58	+17 05.3	18.6	−1.00	−	4.3	0.4/14.8	26918
(8086)	1998 11 15.1	03 20.70	+25 40.5	16.9	−0.80	−	0.9	1.8/16.6	30963
1996 HP_1	1998 11 15.2	03 21.22	+08 50.8	19.5	−0.89	−	6.3	3.2/13.0	30690
1981 EN_{16}	1998 11 15.2	03 21.24	+30 52.8	20.1	−1.14	−	3.5	4.5/17.8	30468
4310 T-3	1998 11 15.2	03 21.32	+16 12.2	18.0	−1.12	−	1.9	0.9/14.9	31577
1981 EG_{22}	1998 11 15.3	03 21.35	+32 37.5	19.6	−1.17	−	2.4	4.7/18.0	26919
1997 JC_{14}	1998 11 15.3	03 21.43	+07 35.1	16.6	−0.90	−	7.6	4.6/12.7	32753
1981 EY_{22}	1998 11 15.5	03 22.33	+13 42.2	18.8	−1.11	−	4.9	1.9/14.6	26919
1976 YF_3	1998 11 15.6	03 22.83	+24 34.0	16.3	−0.84	−	6.7	1.9/17.1	32508
1994 WJ	1998 11 15.6	03 22.97	+18 27.3	15.3	−1.04	+	1.2	0.0/15.7	32669
1994 HB	1998 11 15.8	03 23.86	+15 57.3	19.0	−1.16	−	5.0	1.2/15.4	29945
1991 EL	1998 11 15.9	03 23.81	+38 16.2	19.0	−0.61	−	3.2	3.3/20.8	18437
(7741)	1998 11 15.9	03 23.83	−05 28.0	15.6	−0.88	−	5.7	11.0/10.2	30255
1993 MG_1	1998 11 16.0	03 24.25	+34 06.7	17.6	−1.13	−	7.2	5.0/19.9	29944
1986 QR_1	1998 11 16.1	03 24.70	+25 09.0	17.3	−1.10	−	3.1	2.4/17.4	17819
1981 EF_2	1998 11 16.2	03 25.42	+28 46.9	16.7	−1.09	−	4.8	3.8/18.4	29653
1996 CH_1	1998 11 16.3	03 25.71	+10 11.7	16.6	−1.02	−	2.6	3.7/14.8	32519
1990 RS_6	1998 11 16.3	03 25.92	+28 22.4	18.3	−1.15	−	2.7	3.7/18.2	26740
1996 FJ_5	1998 11 16.4	03 25.97	+38 17.2	15.5	−1.33	+	2.4	8.2/19.3	32519
1994 SS_9	1998 11 16.4	03 26.02	+17 02.9	18.9	−1.07	−	3.9	0.7/16.1	32517
3087 P-L	1998 11 16.4	03 26.13	+24 36.2	16.0	−0.87	−	5.5	1.9/17.8	32536
4812 P-L	1998 11 16.4	03 26.15	+18 35.8	17.7	−0.86	−	2.7	0.1/16.4	25224
1981 RQ_2	1998 11 16.5	03 26.32	+17 52.9	15.5	−0.96	−	7.9	0.3/16.3	32510