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 Syuichi Nakano, Liaison in Japan

ERRATA

MPC	Line	
16963	− 9 to −10	The observations erroneously published under the omitted designation 1990 QF_1 should be removed.
29904	−25	*For* P. Pravec *read* L. Šarounová
30836	−25	*For* 17 rue P. Mendes-France *read* 18 rue P. Mendes-France
30836	−23	*For* J.-M. Azema *read* J.-C. Merlin
30882	40	*Add* 2496 T-3 = 1986 LV (*MPC* 16038) is invalid
30886	−37	The identification 1997 UK_8 = 1986 TG_7 is invalid.

NEW OBSERVATORY CODES

The following listing is a continuation to that on *MPC* 30819. 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	$\rho\cos\phi'$	$\rho\sin\phi'$	
142	7.1874	0.62156	+0.78075	Sinsen
143	9.0250	0.6930	+0.7186	Gnosca
725	261.3450	0.8688	+0.4936	Fair Oaks Ranch
829	290.6979	0.85102	−0.52411	Complejo Astronómico El Leoncito
948	0.2189	0.61048	+0.78937	Pymoor

CORRECTED OBSERVATIONS

The following observations correct those previously published.

Object	Date	UT	α_{2000}	δ_{2000}	Reference	Mag.	N Obs.
1997 UL_7	1997 11	07.53512	02 00 03.34	+06 11 00.3	*MPS* 132	17.5 V	1 369
1997 UL_7	1997 11	07.55265	02 00 02.33	+06 10 56.3	*MPS* 132		1 369
1997 UM_7	1997 11	07.53005	02 01 34.33	+06 29 18.9	*MPS* 132	17.8 V	1 369
1997 UM_7	1997 11	07.54867	02 01 33.49	+06 29 15.0	*MPS* 132		1 369

Note 1: time corrected by −1 hour.

IDENTIFICATION CHANGES

Continuation to *MPC* 30820.

Object		Date	UT	α_{2000}	δ_{2000}	Originally	Mag.	Obs.
1938 EK_1	*	1938 03	06.02083	12 07.7	+01 27	1938 DC_2	15.0	053
1986 RY_{17}	*	1986 09	11.95554	00 42 13.56	+06 29 36.1	1986 RD_8	16.0 V	095
1988 QR_1	*	1988 08	16.17430	19 32 45.07	−19 21 45.9	1982 BS		675
1988 QR_1		1988 08	16.20451	19 32 44.07	−19 21 44.1	1982 BS		675
1990 FT_5	*	1990 03	19.91771	12 06 41.14	+03 44 41.7	1990 FB_2		046
1990 FT_5		1990 03	19.93194	12 06 40.37	+03 44 44.6	1990 FB_2		046
1990 SU_{29}	*	1990 09	21.03021	23 35 18.61	−03 58 05.1	1990 RS_8		809
1990 SU_{29}		1990 09	21.04340	23 35 17.99	−03 58 10.9	1990 RS_8		809
1990 SU_{29}		1990 09	21.05661	23 35 17.35	−03 58 16.8	1990 RS_8		809
1991 UJ_5	*	1991 10	18.69661	01 57 05.11	+12 57 55.6	1991 UX_3	17	399
1991 UJ_5		1991 10	18.71215	01 57 04.13	+12 57 52.1	1991 UX_3		399
1992 GL_8	*	1992 04	06.06285	10 01 20.63	+13 19 41.2	1992 ET_4	18.8	809
1993 UE_9	*	1993 10	24.27348	01 20 16.33	+12 30 27.3	1993 TB_8		691
1993 UE_9		1993 10	24.28144	01 20 15.92	+12 30 24.8	1993 TB_8	18.6 V	691
1993 UE_9		1993 10	24.28936	01 20 15.50	+12 30 22.3	1993 TB_8		691
1996 QT_3	*	1996 08	19.44797	22 02 00.71	−10 08 30.3	1996 PD_6	19.3 V	566
1996 QT_3		1996 08	19.45823	22 02 00.20	−10 08 31.1	1996 PD_6	19.6 V	566
1996 QT_3		1996 08	19.46671	22 01 59.78	−10 08 33.4	1996 PD_6	19.7 V	566

IDENTIFICATION

The following identification with a numbered minor planet, by G. V. Williams, continues the list on *MPC* 30309:

1994 EF_9 = (5911)

NUMBERING OF A PERIODIC COMET

Continuation to the list on *MPC* 30714.

134P/1983 J3 = 1983 JG = 1997 X2 (Kowal-Vávrová)

OBSERVATIONS OF COMETS

Observations are published here for the following observatory codes:

026 Zimmerwald. 0.4-m Schmidt. Observer P. Wild.
046 Kleť. 0.57-m $f/5.2$ reflector + CCD. Observers J. Tichá, M. Tichý and Z. Moravec.
104 San Marcello Pistoise. 0.40-m $f/5$ reflector. Observers L. Tesi and A. Caronia. Measured by L. Tesi, G. Forti and A. Boattini.
108 Montelupo. 0.30-m $f/5.7$ Schmidt-Cassegrain + CCD. Observers M. Tombelli and G. Forti.
118 Modra. 0.6-m $f/5.5$ reflector + CCD. Observers A. Galád, P. Kolény, L. Kornoš and A. Pravda.
249 SOHO. SOHO-LASCO coronagraphs C3 and C2. Observers D. A. Biesecker and C. St. Cyr. Reduction by G. V. Williams.
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.
403 Kani. 0.25-m $f/6.3$ Schmidt-Cassegrain + CCD. Observer Y. Mizuno.
422 Loomberah. 0.25-m $f/4.1$ reflector + CCD. Observer G. J. Garradd.
426 Woomera. 0.30-m $f/3.3$ Schmidt-Cassegrain + CCD. Observer F. B. Zoltowski.
504 Le Creusot. 0.40-m $f/5$ reflector + CCD. Observer J. C. Merlin.
566 Haleakala-NEAT/GEODSS. 1-m $f/2.2$ Ritchey-Chrétien + CCD. Observers E. F. Helin, S. H. Pravdo, K. J. Lawrence, S. Groom, C. Clark, R. Bambery, S. Levin, J. Lorre, S. Shaklan, R. Byrd, A. Esquibel, C. Cotton and D. Bascon.
589 Santa Lucia Stroncone. 0.50-m $f/2.8$ Ritchey-Chrétien + CCD. Observer A. Vagnozzi.
605 Marl. 0.2-m reflector + CCD. Observer E. Jung.
628 Mülheim-Ruhr. 0.2-m Schmidt-Cassegrain + CCD. Observer A. Martin.
658 Dominion Astrophysical Observatory. 1.82-m Plaskett telescope + CCD. Observer D. D. Balam.
670 Camarillo. 0.25-m Schmidt-Cassegrain + CCD. Observers D. McClain and J. E. Rogers.
688 Lowell Observatory, Anderson Mesa Station. 1.1-m $f/8$ Hall reflector + CCD. Observer B. A. Skiff.
691 Kitt Peak. 0.91-m Spacewatch telescope. Observers T. Gehrels, J. Larsen, J. Montani and J. V. Scotti.
696 Mt. Hopkins. 1.2-m reflector + CCD. Observer C. W. Hergenrother.
700 Chinle. 0.30-m $f/10$ Schmidt-Cassegrain + CCD. Observer J. Bruton.
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 J. Sharma.
758 Cocoa. 0.3-m reflector + CCD. Observer I. Griffin.
808 El Leoncito. 0.5-m $f/7.5$ double astrograph. Observers M. R. Cesco, H. S. Lepez, J. G. Sanguin and J. E. Torres.
844 Los Molinos. 0.35-m reflector + CCD. Observers N. Sosa and J. C. Tulic.
864 Kumamoto. 0.41-m $f/5.0$ reflector + CCD. Observer J. Kobayashi.
867 Saji Observatory. 1.03-m $f/4.8$ reflector + CCD. Observers M. Yamanishi, A. Miyamoto, M. Aimoto and T. Oribe.
897 YGCO Chiyoda Observatory. 0.25-m $f/6.0$ reflector + CCD. Observer T. Kojima.
900 Moriyama. 0.25-m $f/6.3$ reflector + CCD. Observer Y. Ikari.
910 Caussols-ODAS. 0.9-m Schmidt + CCD. Observers A. Maury, D. Albanese and G. Hahn.
958 Dax. 0.20-m $f/10$ Schmidt-Cassegrain + CCD. Observer P. Dupouy.
978 Conder Brow. 0.33-m $f/3$ reflector + CCD. Observer D. Buczynski.

Object	Date	UT	α_{2000}	δ_{2000}	Mag.	N	Obs.
C/1995 O1 (Hale-Bopp)							
C/1995 O1	1995 08	26.01748	18 23 55.79	−30 57 38.2			808
C/1995 O1	1995 08	26.04934	18 23 54.92	−30 57 32.8			808
C/1995 O1	1995 08	30.98928	18 21 54.98	−30 44 21.5			808
C/1995 O1	1995 08	31.01006	18 21 54.50	−30 44 17.6			808
C/1995 O1	1995 09	19.00181	18 16 59.12	−29 51 28.7			808
C/1995 O1	1995 09	19.02951	18 16 58.79	−29 51 23.8			808
C/1995 O1	1996 04	21.32962	19 45 04.18	−18 06 49.3			808
C/1995 O1	1996 04	21.34348	19 45 04.07	−18 06 44.7			808
C/1995 O1	1996 06	21.22332	19 07 34.98	−12 51 25.6			808
C/1995 O1	1996 06	21.24410	19 07 33.30	−12 51 18.8			808
C/1995 O1	1996 07	10.15551	18 41 46.10	−10 58 56.1		1	808
C/1995 O1	1996 07	10.17283	18 41 44.61	−10 58 50.3		1	808
C/1995 O1	1996 07	15.14532	18 34 30.78	−10 29 15.6		2	808
C/1995 O1	1996 07	15.15571	18 34 29.78	−10 29 11.0		2	808
C/1995 O1	1996 08	09.04936	18 00 31.64	−08 11 59.5		3	808
C/1995 O1	1996 08	09.06737	18 00 30.32	−08 11 54.7		3	808
C/1995 O1	1996 09	07.99169	17 34 51.73	−06 09 26.8		3	808
C/1995 O1	1996 09	08.00554	17 34 51.37	−06 09 21.4			808
C/1995 O1	1996 09	16.99620	17 31 22.82	−05 40 52.5		3	808
C/1995 O1	1996 09	17.00659	17 31 22.63	−05 40 52.0		3	808
C/1995 O1	1997 11	08.29241	08 00 55.07	−53 06 10.2			844
C/1995 O1	1997 11	08.29696	08 00 54.84	−53 06 16.0			844
C/1995 O1	1997 11	08.30360	08 00 54.48	−53 06 24.9			844
C/1995 O1	1997 11	08.31116	08 00 54.08	−53 06 34.8			844
C/1995 O1	1997 11	08.31683	08 00 53.79	−53 06 42.4			844
C/1995 O1	1997 11	08.32383	08 00 53.40	−53 06 51.6			844
C/1995 O1	1997 11	15.39206	07 53 43.41	−55 37 00.2	11.0 N		758
C/1995 O1	1997 11	15.40110	07 53 42.78	−55 37 10.4	10.4 N		758
C/1995 O1	1997 11	15.41372	07 53 41.82	−55 37 26.8	10.5 N		758
C/1995 O1	1997 11	17.40880	07 51 15.40	−56 17 31.3	10.4 N		758
C/1995 O1	1997 11	17.44090	07 51 12.84	−56 18 08.7	10.1 N		758
C/1995 O1	1997 11	17.44904	07 51 12.19	−56 18 17.5	10.0 N		758
C/1995 O1	1997 11	18.42153	07 49 56.64	−56 37 23.0	10.7 N		758
C/1995 O1	1997 11	18.42516	07 49 56.24	−56 37 26.3	10.8 N		758
C/1995 O1	1997 11	18.43330	07 49 55.62	−56 37 38.5	10.9 N		758
C/1995 O1	1997 11	25.52444	07 39 20.43	−58 47 55.6	13.0 N		422
C/1995 O1	1997 11	25.52505	07 39 20.40	−58 47 56.3	13.1 N		422
C/1995 O1	1997 11	25.52565	07 39 20.34	−58 47 56.9	13.1 N		422
C/1995 O1	1997 12	02.74320	07 26 02.74	−60 42 06.2	11.3 N		426
C/1995 O1	1997 12	02.74682	07 26 02.29	−60 42 09.3	11.3 N		426
C/1995 O1	1997 12	02.75283	07 26 01.56	−60 42 14.6	11.2 N		426
C/1996 J1 (Evans-Drinkwater)							
C/1996 J1-B	1997 09	23.61267	03 06 55.75	+41 25 58.4	15.5 T		372
C/1996 J1-B	1997 09	24.75382	03 06 15.54	+41 27 00.7	15.5 T		372
C/1996 J1-B	1997 10	26.63462	02 39 43.17	+40 24 20.2	15.2 T		897

C/1996 J1-B	1997 10 26.64844	02 39 42.37	+40 24 16.2			897
C/1996 J1-B	1997 11 06.65147	02 29 34.07	+39 23 01.7			897
C/1996 J1-B	1997 11 06.65523	02 29 33.83	+39 23 00.4	15.4	T	897
C/1996 J1-B	1997 11 06.66174	02 29 33.53	+39 22 57.6			897
C/1996 J1-B	1997 11 07.49549	02 28 49.80	+39 17 40.7	15.9	T	403
C/1996 J1-B	1997 11 07.50232	02 28 49.39	+39 17 37.6			403
C/1996 J1-B	1997 11 08.72369	02 27 45.61	+39 09 45.0	15.2	T	900
C/1996 J1-B	1997 11 08.73630	02 27 44.98	+39 09 39.8	15.1	T	900
C/1996 J1-B	1997 11 09.57668	02 27 01.95	+39 04 09.5	15.7	T	403
C/1996 J1-B	1997 11 09.57986	02 27 01.82	+39 04 07.9			403
C/1996 J1-B	1997 11 22.04133	02 17 28.99	+37 35 51.6			504
C/1996 J1-B	1997 11 22.04420	02 17 28.88	+37 35 50.7			504
C/1996 J1-B	1997 11 22.05021	02 17 28.61	+37 35 48.3	14.7	T	504
C/1996 J1-B	1997 11 22.05197	02 17 28.56	+37 35 47.2			504
C/1996 J1-B	1997 11 22.05388	02 17 28.44	+37 35 46.1			504
C/1996 J1-B	1997 11 22.06064	02 17 28.21	+37 35 42.9			504
C/1996 J1-A	1997 11 23.43750	02 16 19.27	+37 24 58.7	18.7	T	360
C/1996 J1-B	1997 11 23.43750	02 16 34.09	+37 25 28.8	15.6	T	360
C/1996 J1-A	1997 11 23.48715	02 16 17.34	+37 24 36.7			360
C/1996 J1-B	1997 11 23.48715	02 16 32.13	+37 25 06.7			360
C/1996 J1-B	1997 11 23.58075	02 16 28.40	+37 24 24.4	16.1	T	403
C/1996 J1-B	1997 11 23.59902	02 16 27.57	+37 24 16.3			403
C/1996 J1-B	1997 11 24.43082	02 15 56.03	+37 18 03.2	15.8	T	403
C/1996 J1-B	1997 11 24.43670	02 15 55.88	+37 18 00.7			403
C/1996 J1-B	1997 11 24.44479	02 15 55.54	+37 17 58.1			403
C/1996 J1-B	1997 11 24.57620	02 15 50.46	+37 16 58.2			897
C/1996 J1-B	1997 11 24.58662	02 15 50.10	+37 16 53.2			897
C/1996 J1-B	1997 11 24.59232	02 15 49.83	+37 16 50.7	15.2	T	897
C/1996 J1-B	1997 11 24.60999	02 15 49.15	+37 16 42.8			352
C/1996 J1-B	1997 11 24.61207	02 15 49.08	+37 16 42.1			352
C/1996 J1-B	1997 11 24.61415	02 15 49.01	+37 16 40.7	15.5	T	352
C/1996 J1-B	1997 11 24.62433	02 15 48.59	+37 16 36.2	15.4	T	867
C/1996 J1-A	1997 11 24.63127	02 15 33.61	+37 16 03.1	17.9	T	867
C/1996 J1-B	1997 11 24.63127	02 15 48.32	+37 16 32.9			867
C/1996 J1-A	1997 11 24.63891	02 15 33.36	+37 15 58.8			867
C/1996 J1-B	1997 11 24.63891	02 15 48.01	+37 16 29.4			867
C/1996 J1-B	1997 11 27.04672	02 14 20.88	+36 58 27.8	15.6	T	758
C/1996 J1-B	1997 11 27.06063	02 14 20.50	+36 58 19.0	15.4	T	758
C/1996 J1-B	1997 11 27.48380	02 14 05.89	+36 55 06.4	16.0	T	403
C/1996 J1-B	1997 11 27.48867	02 14 05.87	+36 55 06.7			403
C/1996 J1-B	1997 11 30.23659	02 12 35.34	+36 34 25.2	16.5	T	700
C/1996 J1-B	1997 11 30.24501	02 12 35.01	+36 34 22.0	16.4	T	700
C/1996 J1-B	1997 11 30.25527	02 12 34.76	+36 34 17.1	16.2	T	700
C/1996 J1-B	1997 12 06.93640	02 09 31.20	+35 44 31.1	16.3	T	118
C/1996 J1-B	1997 12 06.93895	02 09 31.13	+35 44 30.1			118
C/1996 J1-A	1997 12 06.94465	02 09 17.12	+35 43 57.1	18.0	T	3 118
C/1996 J1-B	1997 12 06.94465	02 09 31.00	+35 44 27.4			118
C/1996 J1-A	1997 12 06.94838	02 09 17.13	+35 43 56.1			3 118
C/1996 J1-B	1997 12 07.71516	02 09 13.30	+35 38 48.9			108
C/1996 J1-B	1997 12 07.72269	02 09 13.19	+35 38 44.8			108
C/1996 J1-B	1997 12 07.72888	02 09 13.05	+35 38 38.9			108
C/1996 J1-B	1997 12 07.73623	02 09 12.96	+35 38 37.9	16.0	T	108

C/1997 A1 (NEAT)

C/1997 A1	1997 10 26.70201	05 24 15.08	+63 59 27.0	17.7	T	897
C/1997 A1	1997 10 26.73881	05 24 05.02	+63 59 58.2			897
C/1997 A1	1997 11 24.65419	02 41 45.10	+64 04 41.7	18.8	T	867
C/1997 A1	1997 11 24.66148	02 41 42.91	+64 04 35.4			867

C/1997 BA_6 (Spacewatch)

C/1997 BA_6	1997 12 03.82428	09 49 02.28	−02 08 06.3	18.3	T	864
C/1997 BA_6	1997 12 03.83370	09 49 02.21	−02 08 08.7			864
C/1997 BA_6	1997 12 04.77553	09 48 54.11	−02 12 40.9	18.0	T	402
C/1997 BA_6	1997 12 04.77970	09 48 54.07	−02 12 41.7			402
C/1997 BA_6	1997 12 04.78387	09 48 54.02	−02 12 43.7			402
C/1997 BA_6	1997 12 04.80174	09 48 53.88	−02 12 48.5	18.0	T	360
C/1997 BA_6	1997 12 04.81146	09 48 53.79	−02 12 51.2			360
C/1997 BA_6	1997 12 04.82329	09 48 53.66	−02 12 54.2	18.6	T	867
C/1997 BA_6	1997 12 04.82988	09 48 53.58	−02 12 56.4			867
C/1997 BA_6	1997 12 04.83579	09 48 53.57	−02 12 58.2			867
C/1997 BA_6	1997 12 05.52626	09 48 47.12	−02 16 16.1	20.1	N	691
C/1997 BA_6	1997 12 05.53537	09 48 47.03	−02 16 18.5	18.1	T	691
C/1997 BA_6	1997 12 05.54278	09 48 46.97	−02 16 20.6	18.1	T	691
C/1997 BA_6	1997 12 06.18538	09 48 40.85	−02 19 24.0	18.5	T	118
C/1997 BA_6	1997 12 06.19701	09 48 40.73	−02 19 27.3			118

C/1997 D1 (Mueller)

C/1997 D1	1997 08 27.81667	08 27 35.3	+25 21 17	15	T	372
C/1997 D1	1997 11 08.77866	07 15 23.28	+08 12 27.8			900
C/1997 D1	1997 11 08.78779	07 15 21.59	+08 12 14.4	13.8	T	900
C/1997 D1	1997 11 21.98735	06 27 16.55	+02 13 18.7			504
C/1997 D1	1997 11 21.98775	06 27 16.45	+02 13 17.9			504
C/1997 D1	1997 11 21.99362	06 27 14.97	+02 13 08.0			504
C/1997 D1	1997 11 21.99434	06 27 14.77	+02 13 06.7			504
C/1997 D1	1997 11 21.99501	06 27 14.59	+02 13 05.6			504
C/1997 D1	1997 11 21.99575	06 27 14.42	+02 13 04.2			504
C/1997 D1	1997 11 21.99813	06 27 13.82	+02 12 59.9	12.9	T	504
C/1997 D1	1997 11 23.67324	06 20 03.42	+01 23 19.6			900
C/1997 D1	1997 11 23.68241	06 20 00.98	+01 23 03.0	14.0	T	900
C/1997 D1	1997 11 24.62118	06 15 54.73	+00 55 00.4			897
C/1997 D1	1997 11 24.62677	06 15 53.25	+00 54 51.5			897
C/1997 D1	1997 11 24.65625	06 15 45.43	+00 53 58.1	12.7	T	360
C/1997 D1	1997 11 24.65938	06 15 44.59	+00 53 52.6			360
C/1997 D1	1997 12 03.52440	05 34 41.94	−03 28 35.0			897
C/1997 D1	1997 12 03.54963	05 34 34.67	−03 29 18.4			897
C/1997 D1	1997 12 04.68350	05 29 09.74	−04 01 23.8	13.8	T	402
C/1997 D1	1997 12 04.68627	05 29 08.99	−04 01 28.2			402
C/1997 D1	1997 12 04.68905	05 29 08.15	−04 01 33.0			402
C/1997 D1	1997 12 05.07907	05 27 16.35	−04 12 27.4			118
C/1997 D1	1997 12 05.08589	05 27 14.42	−04 12 38.3	14.5	T	118
C/1997 D1	1997 12 07.03637	05 17 56.31	−05 05 55.8	15.0	T	118
C/1997 D1	1997 12 07.03826	05 17 55.76	−05 05 58.8			118

P/1997 G1 (Montani)

P/1997 G1	1997 11 24.50735	10 57 44.42	+02 50 27.3	18.9	T	691
P/1997 G1	1997 11 24.51317	10 57 44.65	+02 50 24.9	19.9	T	691
P/1997 G1	1997 11 24.51980	10 57 44.80	+02 50 23.3	19.7	T	691

P/1997 G1	1997 12 05.80106	11 03 26.27	+02 03 01.2	18.8 T	867
P/1997 G1	1997 12 05.81009	11 03 26.48	+02 02 59.3		867
P/1997 G1	1997 12 05.81704	11 03 26.66	+02 02 57.4		867

C/1997 J1 (Mueller)

C/1997 J1	1997 11 08.80631	09 03 04.92	+36 14 49.6	14.4 T	900
C/1997 J1	1997 11 08.81890	09 03 03.95	+36 14 49.7	14.4 T	900
C/1997 J1	1997 11 09.84701	09 01 41.19	+36 15 08.4	15.0 T	897
C/1997 J1	1997 11 23.76985	08 38 39.36	+36 19 24.8	16.0 T	403
C/1997 J1	1997 11 23.77838	08 38 38.46	+36 19 23.7		403
C/1997 J1	1997 11 23.78104	08 38 38.11	+36 19 22.1		403
C/1997 J1	1997 12 04.74595	08 14 43.47	+36 12 30.1	14.3 T	402
C/1997 J1	1997 12 04.74874	08 14 43.06	+36 12 30.1		402
C/1997 J1	1997 12 04.75152	08 14 42.66	+36 12 29.7		402
C/1997 J1	1997 12 04.79201	08 14 36.81	+36 12 26.3	14.3 T	360
C/1997 J1	1997 12 04.79497	08 14 36.38	+36 12 26.1		360
C/1997 J1	1997 12 04.80343	08 14 35.10	+36 12 24.9	14.4 T	900
C/1997 J1	1997 12 04.81321	08 14 33.70	+36 12 24.3		867
C/1997 J1	1997 12 04.81618	08 14 33.19	+36 12 23.7		900
C/1997 J1	1997 12 04.81784	08 14 33.00	+36 12 23.5		867
C/1997 J1	1997 12 05.65573	08 12 32.02	+36 11 02.7	15.3 T	355
C/1997 J1	1997 12 05.65978	08 12 31.43	+36 11 02.2		355
C/1997 J1	1997 12 05.66351	08 12 30.87	+36 11 01.9		355
C/1997 J1	1997 12 06.13323	08 11 22.09	+36 10 12.7	15.9 T	118

C/1997 J2 (Meunier-Dupouy)

C/1997 J2	1997 10 27.43876	16 21 38.71	+55 50 03.5		897
C/1997 J2	1997 10 27.45522	16 21 41.80	+55 49 51.1		897
C/1997 J2	1997 11 08.05850	16 57 23.41	+53 16 31.0		696
C/1997 J2	1997 11 08.06319	16 57 24.26	+53 16 27.1	11.8 T	696
C/1997 J2	1997 11 08.06678	16 57 24.91	+53 16 24.1	11.8 T	696
C/1997 J2	1997 11 12.01470	17 09 17.95	+52 21 45.2	12.8 T	758
C/1997 J2	1997 11 12.02778	17 09 20.30	+52 21 35.0	12.9 T	758
C/1997 J2	1997 11 15.80108	17 20 32.51	+51 28 32.1		958
C/1997 J2	1997 11 15.80458	17 20 33.11	+51 28 29.0		958
C/1997 J2	1997 11 15.81177	17 20 34.42	+51 28 22.9		958
C/1997 J2	1997 11 18.43203	17 28 15.37	+50 51 08.8		897
C/1997 J2	1997 11 18.43391	17 28 15.67	+50 51 06.8	11.5 T	897
C/1997 J2	1997 11 18.44433	17 28 17.46	+50 50 57.9		897
C/1997 J2	1997 11 18.76067	17 29 12.90	+50 46 26.7	12.4 T	628
C/1997 J2	1997 11 18.77734	17 29 15.83	+50 46 12.2	12.1 T	628
C/1997 J2	1997 11 18.80512	17 29 20.71	+50 45 48.9	12.3 T	628
C/1997 J2	1997 11 19.38958	17 31 02.72	+50 37 28.7	12.1 T	360
C/1997 J2	1997 11 19.39514	17 31 03.68	+50 37 23.8		360
C/1997 J2	1997 11 19.75222	17 32 05.88	+50 32 15.7	13.8 T	118
C/1997 J2	1997 11 19.75628	17 32 06.65	+50 32 12.9		118
C/1997 J2	1997 11 19.76270	17 32 07.75	+50 32 06.4		118
C/1997 J2	1997 11 19.76623	17 32 08.40	+50 32 03.8	12.9 T	628
C/1997 J2	1997 11 19.79053	17 32 12.56	+50 31 43.3	13.1 T	628
C/1997 J2	1997 11 19.81900	17 32 17.55	+50 31 18.2	12.6 T	628
C/1997 J2	1997 11 24.40000	17 45 26.98	+49 25 32.2		867
C/1997 J2	1997 11 24.40417	17 45 27.68	+49 25 27.9		867
C/1997 J2	1997 11 24.41278	17 45 29.02	+49 25 22.4		900
C/1997 J2	1997 11 24.42209	17 45 30.56	+49 25 13.3	12.6 T	900
C/1997 J2	1997 12 01.97222	18 06 35.45	+47 36 36.5	12.9 T	758
C/1997 J2	1997 12 01.97339	18 06 35.69	+47 36 35.6	13.0 T	758
C/1997 J2	1997 12 01.98137	18 06 36.92	+47 36 29.7	13.0 T	758
C/1997 J2	1997 12 06.96223	18 20 04.99	+46 25 30.5	13.0 T	758
C/1997 J2	1997 12 06.96720	18 20 05.63	+46 25 26.0	12.8 T	758
C/1997 J2	1997 12 06.96880	18 20 05.91	+46 25 24.6	12.8 T	758

C/1997 O1 (Tilbrook)

C/1997 O1	1997 11 23.84730	15 00 35.94	+20 11 40.9	15.2 T	897
C/1997 O1	1997 11 23.84993	15 00 36.20	+20 11 44.1		897
C/1997 O1	1997 12 02.82736	15 10 37.11	+22 42 00.0		897
C/1997 O1	1997 12 02.84176	15 10 38.13	+22 42 13.8		897
C/1997 O1	1997 12 04.86528	15 12 52.22	+23 18 28.5	15.3 T	360
C/1997 O1	1997 12 04.86806	15 12 52.43	+23 18 31.9		360

C/1997 T1 (Utsunomiya)

C/1997 T1	1997 10 12.93833	20 34 04.99	+63 51 11.4		978
C/1997 T1	1997 10 12.96076	20 33 50.24	+63 49 14.2		978
C/1997 T1	1997 10 12.98270	20 33 35.61	+63 47 20.4		978
C/1997 T1	1997 10 13.83531	20 24 38.50	+62 32 40.4		978
C/1997 T1	1997 10 13.87124	20 24 16.93	+62 29 27.2		978
C/1997 T1	1997 10 18.77632	19 46 51.62	+55 00 12.8		978
C/1997 T1	1997 10 18.80902	19 46 40.17	+54 57 11.8		978
C/1997 T1	1997 10 24.86645	19 20 49.80	+45 58 21.8		978
C/1997 T1	1997 10 28.84757	19 10 26.49	+40 38 11.3		978
C/1997 T1	1997 10 28.85995	19 10 24.84	+40 37 14.0		978
C/1997 T1	1997 11 03.41356	19 00 52.31	+34 05 47.5	12.2 T	403
C/1997 T1	1997 11 03.41870	19 00 51.87	+34 05 27.3		403
C/1997 T1	1997 11 03.42075	19 00 51.71	+34 05 20.0		403
C/1997 T1	1997 11 04.72569	18 59 12.56	+32 42 37.4	11.1 T	605
C/1997 T1	1997 11 04.72907	18 59 12.25	+32 42 24.3	11.2 T	605
C/1997 T1	1997 11 04.73859	18 59 11.53	+32 41 49.8	11.2 T	605
C/1997 T1	1997 11 07.47687	18 56 14.62	+29 59 06.2	12.8 T	403
C/1997 T1	1997 11 07.48132	18 56 14.35	+29 58 51.4		403
C/1997 T1	1997 11 08.07785	18 55 41.03	+29 25 16.4	10.6 T	696
C/1997 T1	1997 11 08.08145	18 55 40.83	+29 25 04.5	10.7 T	696
C/1997 T1	1997 11 08.08325	18 55 40.72	+29 24 58.4	10.6 T	696
C/1997 T1	1997 11 09.37869	18 54 33.67	+28 14 16.5		900
C/1997 T1	1997 11 09.38663	18 54 33.28	+28 13 51.1		900
C/1997 T1	1997 11 14.74206	18 51 01.81	+23 51 07.3	11.0 T	104
C/1997 T1	1997 11 14.75176	18 51 01.46	+23 50 40.1		104
C/1997 T1	1997 11 14.75396	18 51 01.43	+23 50 33.7		104
C/1997 T1	1997 11 14.75590	18 51 01.35	+23 50 28.2		104
C/1997 T1	1997 11 17.02163	18 49 57.31	+22 12 17.2	11.9 T	758
C/1997 T1	1997 11 17.04736	18 49 56.50	+22 11 11.7	12.5 T	758
C/1997 T1	1997 11 17.04869	18 49 56.47	+22 11 08.3	12.5 T	758
C/1997 T1	1997 11 19.37394	18 49 03.35	+20 37 21.3		402
C/1997 T1	1997 11 19.37552	18 49 03.32	+20 37 17.6		402
C/1997 T1	1997 11 19.37711	18 49 03.28	+20 37 13.7		402
C/1997 T1	1997 11 19.40000	18 49 02.78	+20 36 20.1	10.7 T	360
C/1997 T1	1997 11 19.40937	18 49 02.65	+20 35 59.2	12.9 T	403
C/1997 T1	1997 11 19.41094	18 49 02.55	+20 35 54.7		360
C/1997 T1	1997 11 19.72337	18 48 56.32	+20 23 50.7	12.5 T	118
C/1997 T1	1997 11 19.72749	18 48 56.21	+20 23 41.3		118

C/1997 T1	1997 11 23.07500	18 47 59.88	+18 21 17.8	12.7	N	670
C/1997 T1	1997 11 23.08576	18 47 59.79	+18 20 55.3			670
C/1997 T1	1997 11 23.09722	18 47 59.53	+18 20 31.2			670
C/1997 T1	1997 11 23.42294	18 47 55.08	+18 09 15.0			897
C/1997 T1	1997 11 23.43308	18 47 54.93	+18 08 54.0			897
C/1997 T1	1997 11 24.37406	18 47 42.90	+17 37 00.2			900
C/1997 T1	1997 11 24.37943	18 47 42.82	+17 36 50.4	12.9	T	403
C/1997 T1	1997 11 24.38339	18 47 42.79	+17 36 42.0			403
C/1997 T1	1997 11 24.38472	18 47 42.79	+17 36 38.6			867
C/1997 T1	1997 11 24.38754	18 47 42.77	+17 36 33.1			900
C/1997 T1	1997 11 24.38820	18 47 42.77	+17 36 33.0			403
C/1997 T1	1997 11 24.38889	18 47 42.74	+17 36 30.6			867
C/1997 T1	1997 11 26.98101	18 47 15.74	+16 13 04.1	13.0	N	758
C/1997 T1	1997 11 27.00611	18 47 15.61	+16 12 19.1	12.1	N	758
C/1997 T1	1997 12 01.98649	18 46 45.34	+13 48 19.0	12.9	N	758
C/1997 T1	1997 12 01.99998	18 46 45.34	+13 47 58.2	12.4	N	758
C/1997 T1	1997 12 02.97981	18 46 42.06	+13 21 51.5	12.6	N	758
C/1997 T1	1997 12 02.98184	18 46 42.10	+13 21 50.5	12.6	N	758
C/1997 T1	1997 12 02.99289	18 46 42.01	+13 21 31.7	12.6	N	758
C/1997 T1	1997 12 06.98116	18 46 36.35	+11 42 08.7	12.4	N	758
C/1997 T1	1997 12 06.98278	18 46 36.32	+11 42 06.7	12.5	N	758
C/1997 T1	1997 12 06.99550	18 46 36.35	+11 41 48.7	12.5	N	758

P/1997 T3

P/1997 T3	1997 10 25.30468	01 05 18.54	+02 17 27.9	18.8	T	688
P/1997 T3	1997 10 25.32179	01 05 18.10	+02 17 26.3			688
P/1997 T3	1997 10 26.22867	01 04 52.78	+02 15 44.0	18.8	T	688
P/1997 T3	1997 10 26.24512	01 04 52.30	+02 15 42.2			688
P/1997 T3	1997 11 20.42684	00 56 04.43	+01 52 16.9	18.7	T	402
P/1997 T3	1997 11 20.43101	00 56 04.36	+01 52 17.0			402
P/1997 T3	1997 11 20.43579	00 56 04.30	+01 52 16.4			402
P/1997 T3	1997 12 04.47344	00 54 34.95	+02 03 09.2	19.4	T	360
P/1997 T3	1997 12 04.55399	00 54 34.86	+02 03 15.9			360
P/1997 T3	1997 12 04.56094	00 54 34.88	+02 03 16.7			360

P/1997 V1 (Larsen)

P/1997 V1	1997 11 08.16437	00 13 23.65	+11 59 02.7	16.1	T	696
P/1997 V1	1997 11 08.16826	00 13 23.62	+11 59 01.4	16.0	T	696
P/1997 V1	1997 11 08.17213	00 13 23.59	+11 59 00.0	16.1	T	696
P/1997 V1	1997 11 09.43641	00 13 15.41	+11 51 40.7	16.3	T	900
P/1997 V1	1997 11 09.45264	00 13 15.32	+11 51 35.3	16.4	T	900
P/1997 V1	1997 11 09.57094	00 13 14.49	+11 50 54.6	16.3	T	352
P/1997 V1	1997 11 09.57346	00 13 14.47	+11 50 53.5			352
P/1997 V1	1997 11 09.57598	00 13 14.46	+11 50 52.1			352
P/1997 V1	1997 11 14.78159	00 13 00.39	+11 22 35.1	15.5	T	504
P/1997 V1	1997 11 14.80095	00 13 00.38	+11 22 29.2			504
P/1997 V1	1997 11 14.91842	00 13 00.17	+11 21 53.2	16.8	T	589
P/1997 V1	1997 11 14.95260	00 13 00.19	+11 21 42.8			589
P/1997 V1	1997 11 14.96456	00 13 00.23	+11 21 39.4			589
P/1997 V1	1997 11 15.80650	00 13 01.12	+11 17 22.2			118
P/1997 V1	1997 11 15.82271	00 13 01.09	+11 17 17.3	16.2	T	118
P/1997 V1	1997 11 16.20666	00 13 01.70	+11 15 22.9	16.6	T	700
P/1997 V1	1997 11 16.21016	00 13 01.62	+11 15 20.6	16.4	T	700
P/1997 V1	1997 11 16.22565	00 13 01.60	+11 15 17.0	16.4	T	700
P/1997 V1	1997 11 16.23284	00 13 01.69	+11 15 14.4	16.5	T	700
P/1997 V1	1997 11 16.24709	00 13 01.65	+11 15 09.9	17.3	T	700
P/1997 V1	1997 11 16.84799	00 13 03.03	+11 12 11.9			118
P/1997 V1	1997 11 16.85111	00 13 03.00	+11 12 10.8	16.3	T	118
P/1997 V1	1997 11 17.03294	00 13 03.56	+11 11 19.4	16.3	T	758
P/1997 V1	1997 11 17.05514	00 13 03.63	+11 11 11.8	16.3	T	758
P/1997 V1	1997 11 17.13881	00 13 03.84	+11 10 46.8	16.9	T	700
P/1997 V1	1997 11 17.15461	00 13 03.86	+11 10 42.4	16.6	T	700
P/1997 V1	1997 11 17.16235	00 13 03.89	+11 10 40.5	17.0	T	700
P/1997 V1	1997 11 17.17265	00 13 03.95	+11 10 36.9	17.0	T	700
P/1997 V1	1997 11 18.55394	00 13 08.78	+11 04 00.2			897
P/1997 V1	1997 11 18.56435	00 13 08.88	+11 03 56.8			897
P/1997 V1	1997 11 18.57493	00 13 08.81	+11 03 54.5	16.2	T	897
P/1997 V1	1997 11 19.44583	00 13 13.27	+10 59 52.2		4	360
P/1997 V1	1997 11 19.44713	00 13 13.27	+10 59 51.7	16.6	T	402
P/1997 V1	1997 11 19.44991	00 13 13.27	+10 59 50.8			402
P/1997 V1	1997 11 19.45104	00 13 13.29	+10 59 50.9		4	360
P/1997 V1	1997 11 19.45268	00 13 13.29	+10 59 50.1			402
P/1997 V1	1997 11 19.45556	00 13 13.33	+10 59 49.5		4	360
P/1997 V1	1997 11 19.50524	00 13 13.47	+10 59 35.5	16.0	T	355
P/1997 V1	1997 11 19.52346	00 13 13.58	+10 59 30.3			355
P/1997 V1	1997 11 19.52695	00 13 13.63	+10 59 29.0			355
P/1997 V1	1997 11 20.44062	00 13 19.16	+10 55 21.7	16.6	T	402
P/1997 V1	1997 11 20.44410	00 13 19.17	+10 55 20.8			402
P/1997 V1	1997 11 20.44757	00 13 19.19	+10 55 19.9			402
P/1997 V1	1997 11 22.93688	00 13 38.68	+10 44 35.9	16.9	T	046
P/1997 V1	1997 11 22.93940	00 13 38.73	+10 44 35.4			046
P/1997 V1	1997 11 22.94352	00 13 38.77	+10 44 34.0			046
P/1997 V1	1997 11 22.94736	00 13 38.79	+10 44 33.1			046
P/1997 V1	1997 11 23.14305	00 13 40.85	+10 43 45.9	17.2	T	670
P/1997 V1	1997 11 23.17622	00 13 41.02	+10 43 36.0			670
P/1997 V1	1997 11 23.21632	00 13 41.37	+10 43 24.9			670
P/1997 V1	1997 11 23.49740	00 13 44.15	+10 42 18.7	16.7	T	360
P/1997 V1	1997 11 23.50208	00 13 44.20	+10 42 17.5			360
P/1997 V1	1997 11 24.55567	00 13 55.19	+10 38 03.7			352
P/1997 V1	1997 11 24.55775	00 13 55.24	+10 38 03.4			352
P/1997 V1	1997 11 25.47879	00 14 05.93	+10 34 32.9	17.4	T	5 422
P/1997 V1	1997 11 25.47993	00 14 05.93	+10 34 32.3	17.4	T	5 422
P/1997 V1	1997 11 25.48108	00 14 05.98	+10 34 31.9	17.4	T	5 422
P/1997 V1	1997 11 30.13553	00 15 14.43	+10 18 10.8	16.6	T	700
P/1997 V1	1997 11 30.14494	00 15 14.55	+10 18 08.5	17.1	T	700
P/1997 V1	1997 11 30.16014	00 15 14.76	+10 18 05.8	17.3	T	700
P/1997 V1	1997 12 02.46645	00 15 57.43	+10 11 07.4	16.7	T	355
P/1997 V1	1997 12 02.47402	00 15 57.57	+10 11 05.5			355
P/1997 V1	1997 12 02.47738	00 15 57.67	+10 11 05.3			355
P/1997 V1	1997 12 04.44115	00 16 38.62	+10 05 44.6	16.7	T	360
P/1997 V1	1997 12 04.44983	00 16 38.79	+10 05 43.2			360
P/1997 V1	1997 12 04.54241	00 16 40.72	+10 05 28.6	16.4	T	402
P/1997 V1	1997 12 04.54519	00 16 40.75	+10 05 28.2			402
P/1997 V1	1997 12 04.54796	00 16 40.83	+10 05 27.4			402
P/1997 V1	1997 12 04.57648	00 16 41.50	+10 05 22.9			897
P/1997 V1	1997 12 04.60716	00 16 42.07	+10 05 17.2	16.5	T	897
P/1997 V1	1997 12 05.47990	00 17 01.92	+10 03 06.4	16.6	T	900

P/1997 V1	1997 12 05.50059	00 17 02.27	+10 03 04.0		900
P/1997 V1	1997 12 06.68831	00 17 30.46	+10 00 14.6	16.5 T	046
P/1997 V1	1997 12 06.69319	00 17 30.60	+10 00 14.3		046
P/1997 V1	1997 12 06.69750	00 17 30.69	+10 00 13.2		046

C/1997 V2 (SOHO)

C/1997 V2	1997 11 08.57809	14 41 55.6	−19 23 01	249
Geocentric position (AU)	−0.00517369	−0.00858197	−0.00449318	
C/1997 V2	1997 11 08.58916	14 42 09.5	−19 21 18	249
Geocentric position (AU)	−0.00517301	−0.00858225	−0.00449352	
C/1997 V2	1997 11 08.60035	14 42 18.7	−19 20 03	249
Geocentric position (AU)	−0.00517233	−0.00858253	−0.00449386	
C/1997 V2	1997 11 08.61145	14 42 32.4	−19 19 29	249
Geocentric position (AU)	−0.00517165	−0.00858281	−0.00449420	
C/1997 V2	1997 11 08.62247	14 42 46.7	−19 17 38	249
Geocentric position (AU)	−0.00517097	−0.00858309	−0.00449453	
C/1997 V2	1997 11 08.63358	14 43 00.3	−19 17 01	249
Geocentric position (AU)	−0.00517030	−0.00858337	−0.00449487	
C/1997 V2	1997 11 08.64461	14 43 08.9	−19 15 52	249
Geocentric position (AU)	−0.00516962	−0.00858365	−0.00449520	
C/1997 V2	1997 11 08.65561	14 43 23.0	−19 13 59	249
Geocentric position (AU)	−0.00516895	−0.00858393	−0.00449554	
C/1997 V2	1997 11 08.66661	14 43 37.7	−19 12 28	249
Geocentric position (AU)	−0.00516828	−0.00858420	−0.00449587	
C/1997 V2	1997 11 08.67760	14 43 45.5	−19 12 02	249
Geocentric position (AU)	−0.00516761	−0.00858448	−0.00449620	
C/1997 V2	1997 11 08.68862	14 44 00.1	−19 10 30	249
Geocentric position (AU)	−0.00516694	−0.00858475	−0.00449653	
C/1997 V2	1997 11 08.69975	14 44 09.2	−19 09 13	249
Geocentric position (AU)	−0.00516626	−0.00858503	−0.00449687	
C/1997 V2	1997 11 08.71071	14 44 22.4	−19 08 30	249
Geocentric position (AU)	−0.00516560	−0.00858531	−0.00449720	
C/1997 V2	1997 11 08.72166	14 44 36.9	−19 06 55	249
Geocentric position (AU)	−0.00516493	−0.00858558	−0.00449753	
C/1997 V2	1997 11 08.73265	14 44 47.0	−19 05 53	249
Geocentric position (AU)	−0.00516426	−0.00858585	−0.00449786	
C/1997 V2	1997 11 08.74362	14 44 59.0	−19 04 51	249
Geocentric position (AU)	−0.00516360	−0.00858613	−0.00449819	
C/1997 V2	1997 11 08.75462	14 45 13.4	−19 03 13	249
Geocentric position (AU)	−0.00516293	−0.00858640	−0.00449852	
C/1997 V2	1997 11 08.76557	14 45 23.3	−19 02 09	249
Geocentric position (AU)	−0.00516227	−0.00858667	−0.00449885	
C/1997 V2	1997 11 08.77654	14 45 37.6	−19 00 30	249
Geocentric position (AU)	−0.00516160	−0.00858694	−0.00449918	
C/1997 V2	1997 11 08.78749	14 45 47.4	−18 59 25	249
Geocentric position (AU)	−0.00516094	−0.00858722	−0.00449951	
C/1997 V2	1997 11 08.79844	14 46 00.2	−18 58 33	249
Geocentric position (AU)	−0.00516028	−0.00858749	−0.00449984	
C/1997 V2	1997 11 08.80942	14 46 14.4	−18 56 51	249
Geocentric position (AU)	−0.00515961	−0.00858776	−0.00450017	
C/1997 V2	1997 11 08.82043	14 46 27.6	−18 56 18	249
Geocentric position (AU)	−0.00515895	−0.00858803	−0.00450050	
C/1997 V2	1997 11 08.87098	14 47 23.3	−18 49 15	249
Geocentric position (AU)	−0.00515589	−0.00858927	−0.00450201	
C/1997 V2	1997 11 08.88178	14 47 36.5	−18 48 27	249
Geocentric position (AU)	−0.00515524	−0.00858954	−0.00450233	
C/1997 V2	1997 11 08.89277	14 47 49.3	−18 47 44	249
Geocentric position (AU)	−0.00515458	−0.00858981	−0.00450266	
C/1997 V2	1997 11 08.90374	14 48 00.6	−18 45 37	249
Geocentric position (AU)	−0.00515392	−0.00859007	−0.00450298	
C/1997 V2	1997 11 08.91471	14 48 15.0	−18 43 57	249
Geocentric position (AU)	−0.00515326	−0.00859034	−0.00450331	
C/1997 V2	1997 11 08.92564	14 48 27.5	−18 43 10	249
Geocentric position (AU)	−0.00515260	−0.00859061	−0.00450364	
C/1997 V2	1997 11 08.93664	14 48 36.9	−18 41 56	249
Geocentric position (AU)	−0.00515194	−0.00859088	−0.00450396	
C/1997 V2	1997 11 08.94758	14 48 51.9	−18 40 22	249
Geocentric position (AU)	−0.00515129	−0.00859114	−0.00450429	
C/1997 V2	1997 11 08.95856	14 49 02.5	−18 38 20	249
Geocentric position (AU)	−0.00515063	−0.00859141	−0.00450461	
C/1997 V2	1997 11 08.96947	14 49 15.6	−18 37 38	249
Geocentric position (AU)	−0.00514997	−0.00859167	−0.00450494	
C/1997 V2	1997 11 08.98038	14 49 30.3	−18 35 59	249
Geocentric position (AU)	−0.00514932	−0.00859194	−0.00450526	
C/1997 V2	1997 11 08.99125	14 49 44.9	−18 34 18	249
Geocentric position (AU)	−0.00514867	−0.00859220	−0.00450558	
C/1997 V2	1997 11 09.00216	14 49 57.5	−18 33 30	249
Geocentric position (AU)	−0.00514801	−0.00859246	−0.00450591	
C/1997 V2	1997 11 09.01314	14 50 08.3	−18 31 16	249
Geocentric position (AU)	−0.00514736	−0.00859273	−0.00450623	
C/1997 V2	1997 11 09.02404	14 50 21.6	−18 30 34	249
Geocentric position (AU)	−0.00514670	−0.00859299	−0.00450655	
C/1997 V2	1997 11 09.03493	14 50 32.6	−18 28 35	249
Geocentric position (AU)	−0.00514605	−0.00859325	−0.00450688	
C/1997 V2	1997 11 09.04581	14 50 50.8	−18 27 19	249
Geocentric position (AU)	−0.00514540	−0.00859352	−0.00450720	
C/1997 V2	1997 11 09.05679	14 51 00.3	−18 26 05	249
Geocentric position (AU)	−0.00514475	−0.00859378	−0.00450752	
C/1997 V2	1997 11 09.06769	14 51 11.0	−18 24 03	249
Geocentric position (AU)	−0.00514410	−0.00859404	−0.00450784	
C/1997 V2	1997 11 09.07862	14 51 23.7	−18 23 11	249
Geocentric position (AU)	−0.00514345	−0.00859430	−0.00450816	
C/1997 V2	1997 11 09.08950	14 51 33.3	−18 22 09	249
Geocentric position (AU)	−0.00514280	−0.00859456	−0.00450848	
C/1997 V2	1997 11 09.10047	14 51 53.0	−18 19 50	249
Geocentric position (AU)	−0.00514214	−0.00859483	−0.00450881	
C/1997 V2	1997 11 09.11132	14 52 02.4	−18 18 45	249
Geocentric position (AU)	−0.00514150	−0.00859508	−0.00450913	
C/1997 V2	1997 11 09.12220	14 52 17.0	−18 17 10	249
Geocentric position (AU)	−0.00514085	−0.00859534	−0.00450945	
C/1997 V2	1997 11 09.13308	14 52 27.9	−18 15 07	249
Geocentric position (AU)	−0.00514020	−0.00859560	−0.00450976	
C/1997 V2	1997 11 09.14410	14 52 42.2	−18 13 27	249
Geocentric position (AU)	−0.00513955	−0.00859586	−0.00451009	

C/1997 V2	1997 11 09.15196	14 52 54.0	−18 15 40	249
Geocentric position (AU)	−0.00513908	−0.00859605	−0.00451032	
C/1997 V2	1997 11 09.16284	14 53 07.4	−18 14 01	249
Geocentric position (AU)	−0.00513844	−0.00859631	−0.00451064	
C/1997 V2	1997 11 09.16583	14 53 05.5	−18 08 27	249
Geocentric position (AU)	−0.00513826	−0.00859638	−0.00451072	
C/1997 V2	1997 11 09.17370	14 53 19.9	−18 12 17	249
Geocentric position (AU)	−0.00513779	−0.00859657	−0.00451096	
C/1997 V2	1997 11 09.17671	14 53 21.0	−18 08 49	249
Geocentric position (AU)	−0.00513761	−0.00859664	−0.00451104	
C/1997 V2	1997 11 09.18461	14 53 33.4	−18 10 40	249
Geocentric position (AU)	−0.00513714	−0.00859682	−0.00451127	
C/1997 V2	1997 11 09.19530	14 53 47.0	−18 08 49	249
Geocentric position (AU)	−0.00513651	−0.00859708	−0.00451159	
C/1997 V2	1997 11 09.20620	14 53 59.9	−18 07 08	249
Geocentric position (AU)	−0.00513586	−0.00859733	−0.00451191	
C/1997 V2	1997 11 09.21707	14 54 13.5	−18 05 16	249
Geocentric position (AU)	−0.00513522	−0.00859759	−0.00451222	
C/1997 V2	1997 11 09.22796	14 54 27.3	−18 03 27	249
Geocentric position (AU)	−0.00513458	−0.00859785	−0.00451254	
C/1997 V2	1997 11 09.23884	14 54 40.7	−18 01 35	249
Geocentric position (AU)	−0.00513393	−0.00859810	−0.00451286	
C/1997 V2	1997 11 09.24985	14 54 54.3	−17 59 44	249
Geocentric position (AU)	−0.00513328	−0.00859836	−0.00451318	
C/1997 V2	1997 11 09.26072	14 55 07.7	−17 57 39	249
Geocentric position (AU)	−0.00513264	−0.00859862	−0.00451349	
C/1997 V2	1997 11 09.27160	14 55 21.4	−17 55 48	249
Geocentric position (AU)	−0.00513200	−0.00859887	−0.00451381	
C/1997 V2	1997 11 09.28255	14 55 35.0	−17 53 57	249
Geocentric position (AU)	−0.00513135	−0.00859913	−0.00451413	

C/1997 W1 (SOHO)

C/1997 W1	1997 11 21.72527	15 33 45.5	−25 00 20	249
Geocentric position (AU)	−0.00459739	−0.00883174	−0.00477804	
C/1997 W1	1997 11 21.77582	15 34 33.2	−24 52 45	249
Geocentric position (AU)	−0.00459555	−0.00883276	−0.00477883	
C/1997 W1	1997 11 21.78922	15 34 40.2	−24 51 44	249
Geocentric position (AU)	−0.00459506	−0.00883303	−0.00477904	
C/1997 W1	1997 11 21.81578	15 35 06.3	−24 48 51	249
Geocentric position (AU)	−0.00459410	−0.00883357	−0.00477945	
C/1997 W1	1997 11 21.84821	15 35 33.5	−24 44 59	249
Geocentric position (AU)	−0.00459291	−0.00883423	−0.00477995	
C/1997 W1	1997 11 21.86507	15 35 48.2	−24 42 43	249
Geocentric position (AU)	−0.00459230	−0.00883457	−0.00478021	
C/1997 W1	1997 11 21.90650	15 36 25.6	−24 38 14	249
Geocentric position (AU)	−0.00459079	−0.00883541	−0.00478085	
C/1997 W1	1997 11 21.94926	15 37 07.7	−24 33 03	249
Geocentric position (AU)	−0.00458923	−0.00883628	−0.00478151	
C/1997 W1	1997 11 21.97417	15 37 31.1	−24 29 21	249
Geocentric position (AU)	−0.00458832	−0.00883678	−0.00478189	
C/1997 W1	1997 11 22.00201	15 37 50.5	−24 26 20	249
Geocentric position (AU)	−0.00458730	−0.00883735	−0.00478232	
C/1997 W1	1997 11 22.03366	15 38 19.7	−24 22 09	249
Geocentric position (AU)	−0.00458614	−0.00883799	−0.00478280	
C/1997 W1	1997 11 22.07560	15 38 59.8	−24 15 51	249
Geocentric position (AU)	−0.00458461	−0.00883884	−0.00478344	
C/1997 W1	1997 11 22.11762	15 39 37.4	−24 11 16	249
Geocentric position (AU)	−0.00458307	−0.00883970	−0.00478408	
C/1997 W1	1997 11 22.13091	15 39 50.3	−24 09 45	249
Geocentric position (AU)	−0.00458258	−0.00883997	−0.00478429	
C/1997 W1	1997 11 22.15725	15 40 11.7	−24 05 29	249
Geocentric position (AU)	−0.00458162	−0.00884050	−0.00478469	
C/1997 W1	1997 11 22.17457	15 40 26.6	−24 04 32	249
Geocentric position (AU)	−0.00458098	−0.00884086	−0.00478495	
C/1997 W1	1997 11 22.21775	15 41 07.3	−23 58 12	249
Geocentric position (AU)	−0.00457940	−0.00884173	−0.00478560	
C/1997 W1	1997 11 22.24961	15 41 36.5	−23 53 55	249
Geocentric position (AU)	−0.00457823	−0.00884238	−0.00478609	
C/1997 W1	1997 11 22.26993	15 41 55.2	−23 51 29	249
Geocentric position (AU)	−0.00457749	−0.00884280	−0.00478639	
C/1997 W1	1997 11 22.28727	15 42 10.6	−23 49 02	249
Geocentric position (AU)	−0.00457685	−0.00884315	−0.00478665	
C/1997 W1	1997 11 22.32787	15 42 48.7	−23 43 28	249
Geocentric position (AU)	−0.00457536	−0.00884397	−0.00478726	
C/1997 W1	1997 11 22.34752	15 43 06.7	−23 40 55	249
Geocentric position (AU)	−0.00457464	−0.00884437	−0.00478756	
C/1997 W1	1997 11 22.36846	15 43 22.3	−23 38 35	249
Geocentric position (AU)	−0.00457387	−0.00884480	−0.00478787	
C/1997 W1	1997 11 22.40480	15 43 59.7	−23 32 56	249
Geocentric position (AU)	−0.00457253	−0.00884554	−0.00478842	
C/1997 W1	1997 11 22.50921	15 45 31.4	−23 19 49	249
Geocentric position (AU)	−0.00456868	−0.00884767	−0.00478998	
C/1997 W1	1997 11 22.53355	15 45 50.2	−23 15 45	249
Geocentric position (AU)	−0.00456778	−0.00884816	−0.00479034	
C/1997 W1	1997 11 22.57573	15 46 28.6	−23 10 07	249
Geocentric position (AU)	−0.00456623	−0.00884902	−0.00479096	
C/1997 W1	1997 11 22.61694	15 47 06.0	−23 03 26	249
Geocentric position (AU)	−0.00456470	−0.00884986	−0.00479157	
C/1997 W1	1997 11 22.65899	15 47 44.9	−22 57 45	249
Geocentric position (AU)	−0.00456315	−0.00885072	−0.00479219	
C/1997 W1	1997 11 22.68115	15 48 01.4	−22 54 29	249
Geocentric position (AU)	−0.00456233	−0.00885117	−0.00479252	
C/1997 W1	1997 11 22.70024	15 48 21.2	−22 51 02	249
Geocentric position (AU)	−0.00456162	−0.00885156	−0.00479280	
C/1997 W1	1997 11 22.78509	15 49 37.5	−22 38 35	249
Geocentric position (AU)	−0.00455848	−0.00885329	−0.00479404	
C/1997 W1	1997 11 22.82571	15 50 11.1	−22 30 36	249
Geocentric position (AU)	−0.00455697	−0.00885412	−0.00479463	
C/1997 W1	1997 11 22.86699	15 50 46.3	−22 24 33	249
Geocentric position (AU)	−0.00455544	−0.00885496	−0.00479523	
C/1997 W1	1997 11 22.90896	15 51 29.3	−22 16 22	249
Geocentric position (AU)	−0.00455388	−0.00885582	−0.00479584	
C/1997 W1	1997 11 22.95186	15 52 05.3	−22 10 26	249
Geocentric position (AU)	−0.00455228	−0.00885670	−0.00479646	

C/1997 W1	1997 11 22.99255	15 52 44.4	−22 03 20	249
Geocentric position (AU)	−0.00455077	−0.00885753	−0.00479705	
C/1997 W1	1997 11 23.00204	15 52 53.3	−22 00 24	249
Geocentric position (AU)	−0.00455041	−0.00885772	−0.00479719	
C/1997 W1	1997 11 23.03361	15 53 19.8	−21 55 52	249
Geocentric position (AU)	−0.00454924	−0.00885836	−0.00479764	
C/1997 W1	1997 11 23.06205	15 53 50.2	−21 53 32	249
Geocentric position (AU)	−0.00454818	−0.00885894	−0.00479805	
C/1997 W1	1997 11 23.07498	15 53 58.8	−21 47 15	249
Geocentric position (AU)	−0.00454769	−0.00885921	−0.00479824	
C/1997 W1	1997 11 23.09559	15 54 20.7	−21 46 32	249
Geocentric position (AU)	−0.00454693	−0.00885963	−0.00479853	
C/1997 W1	1997 11 23.10444	15 54 29.3	−21 44 58	249
Geocentric position (AU)	−0.00454659	−0.00885981	−0.00479866	
C/1997 W1	1997 11 23.11762	15 54 36.3	−21 40 25	249
Geocentric position (AU)	−0.00454610	−0.00886008	−0.00479885	
C/1997 W1	1997 11 23.12872	15 54 50.4	−21 39 56	249
Geocentric position (AU)	−0.00454569	−0.00886030	−0.00479900	
C/1997 W1	1997 11 23.13090	15 54 47.8	−21 36 40	249
Geocentric position (AU)	−0.00454561	−0.00886035	−0.00479904	
C/1997 W1	1997 11 23.14589	15 55 06.5	−21 36 15	249
Geocentric position (AU)	−0.00454505	−0.00886065	−0.00479925	
C/1997 W1	1997 11 23.15877	15 55 15.8	−21 34 42	249
Geocentric position (AU)	−0.00454456	−0.00886092	−0.00479943	
C/1997 W1	1997 11 23.19994	15 55 53.7	−21 24 26	249
Geocentric position (AU)	−0.00454302	−0.00886176	−0.00480002	
C/1997 W1	1997 11 23.20521	15 55 58.5	−21 22 57	249
Geocentric position (AU)	−0.00454283	−0.00886186	−0.00480009	
C/1997 W1	1997 11 23.23889	15 56 28.9	−21 15 02	249
Geocentric position (AU)	−0.00454157	−0.00886255	−0.00480057	
C/1997 W1	1997 11 23.26995	15 56 54.1	−21 07 29	249
Geocentric position (AU)	−0.00454040	−0.00886319	−0.00480101	

C/1997 X1 (SOHO)

C/1997 X1	1997 12 01.66478	16 26 00.3	−26 26 34	249
Geocentric position (AU)	−0.00418792	−0.00901208	−0.00487883	
C/1997 X1	1997 12 01.75894	16 27 11.4	−26 12 08	249
Geocentric position (AU)	−0.00418359	−0.00901328	−0.00487916	
C/1997 X1	1997 12 01.79369	16 27 35.2	−26 06 42	249
Geocentric position (AU)	−0.00418198	−0.00901372	−0.00487928	
C/1997 X1	1997 12 01.80179	16 27 39.3	−26 04 52	249
Geocentric position (AU)	−0.00418161	−0.00901383	−0.00487931	
C/1997 X1	1997 12 01.80791	16 27 45.6	−26 04 21	249
Geocentric position (AU)	−0.00418133	−0.00901390	−0.00487933	
C/1997 X1	1997 12 01.81823	16 27 52.3	−26 02 38	249
Geocentric position (AU)	−0.00418085	−0.00901403	−0.00487937	
C/1997 X1	1997 12 01.86684	16 28 27.3	−25 54 51	249
Geocentric position (AU)	−0.00417861	−0.00901465	−0.00487953	
C/1997 X1	1997 12 01.90294	16 28 52.0	−25 49 25	249
Geocentric position (AU)	−0.00417694	−0.00901510	−0.00487965	
C/1997 X1	1997 12 01.96326	16 29 39.4	−25 39 25	249
Geocentric position (AU)	−0.00417416	−0.00901585	−0.00487985	
C/1997 X1	1997 12 01.97959	16 29 46.1	−25 36 50	249
Geocentric position (AU)	−0.00417340	−0.00901605	−0.00487990	
C/1997 X1	1997 12 02.01485	16 30 10.6	−25 31 19	249
Geocentric position (AU)	−0.00417177	−0.00901649	−0.00488001	
C/1997 X1	1997 12 02.04880	16 30 35.8	−25 25 58	249
Geocentric position (AU)	−0.00417021	−0.00901691	−0.00488012	
C/1997 X1	1997 12 02.11405	16 31 25.0	−25 14 56	249
Geocentric position (AU)	−0.00416719	−0.00901771	−0.00488031	
C/1997 X1	1997 12 02.14557	16 31 44.7	−25 09 08	249
Geocentric position (AU)	−0.00416573	−0.00901809	−0.00488041	
C/1997 X1	1997 12 02.20521	16 32 26.6	−24 58 41	249
Geocentric position (AU)	−0.00416297	−0.00901881	−0.00488058	
C/1997 X1	1997 12 02.21807	16 32 36.3	−24 57 18	249
Geocentric position (AU)	−0.00416237	−0.00901897	−0.00488062	
C/1997 X1	1997 12 02.23490	16 32 49.1	−24 54 01	249
Geocentric position (AU)	−0.00416159	−0.00901917	−0.00488066	
C/1997 X1	1997 12 02.27655	16 33 17.6	−24 46 49	249
Geocentric position (AU)	−0.00415967	−0.00901967	−0.00488078	
C/1997 X1	1997 12 02.29880	16 33 33.7	−24 42 44	249
Geocentric position (AU)	−0.00415863	−0.00901994	−0.00488084	
C/1997 X1	1997 12 02.31822	16 33 43.7	−24 38 23	249
Geocentric position (AU)	−0.00415773	−0.00902017	−0.00488089	
C/1997 X1	1997 12 02.32727	16 33 52.6	−24 36 54	249
Geocentric position (AU)	−0.00415732	−0.00902028	−0.00488092	
C/1997 X1	1997 12 02.34601	16 34 05.4	−24 33 41	249
Geocentric position (AU)	−0.00415645	−0.00902050	−0.00488097	
C/1997 X1	1997 12 02.37869	16 34 26.5	−24 27 59	249
Geocentric position (AU)	−0.00415493	−0.00902088	−0.00488105	
C/1997 X1	1997 12 02.42628	16 35 00.2	−24 18 05	249
Geocentric position (AU)	−0.00415272	−0.00902145	−0.00488118	
C/1997 X1	1997 12 02.46417	16 35 27.9	−24 10 45	249
Geocentric position (AU)	−0.00415097	−0.00902189	−0.00488127	
C/1997 X1	1997 12 02.50560	16 35 54.0	−24 02 10	249
Geocentric position (AU)	−0.00414904	−0.00902237	−0.00488137	
C/1997 X1	1997 12 02.51249	16 35 57.5	−24 01 23	249
Geocentric position (AU)	−0.00414873	−0.00902245	−0.00488139	
C/1997 X1	1997 12 02.54792	16 36 20.8	−23 53 47	249
Geocentric position (AU)	−0.00414708	−0.00902286	−0.00488147	
C/1997 X1	1997 12 02.59490	16 36 54.1	−23 43 53	249
Geocentric position (AU)	−0.00414490	−0.00902340	−0.00488158	
C/1997 X1	1997 12 02.61368	16 37 13.7	−23 41 54	249
Geocentric position (AU)	−0.00414403	−0.00902362	−0.00488162	
C/1997 X1	1997 12 02.61663	16 37 05.9	−23 39 29	249
Geocentric position (AU)	−0.00414389	−0.00902365	−0.00488163	
C/1997 X1	1997 12 02.64192	16 37 31.9	−23 35 21	249
Geocentric position (AU)	−0.00414272	−0.00902394	−0.00488169	
C/1997 X1	1997 12 02.64490	16 37 26.0	−23 32 43	249
Geocentric position (AU)	−0.00414258	−0.00902398	−0.00488169	
C/1997 X1	1997 12 02.64801	16 37 35.2	−23 34 07	249
Geocentric position (AU)	−0.00414243	−0.00902401	−0.00488170	
C/1997 X1	1997 12 02.69698	16 38 05.6	−23 22 01	249
Geocentric position (AU)	−0.00414016	−0.00902457	−0.00488181	

C/1997 X1	1997 12 02.69995	16 37 54.5	−23 25 10			249
Geocentric position (AU)		−0.00414002	−0.00902460	−0.00488181		
C/1997 X1	1997 12 02.71516	16 38 16.7	−23 17 27			249
Geocentric position (AU)		−0.00413931	−0.00902478	−0.00488185		
C/1997 X1	1997 12 02.74877	16 38 36.8	−23 08 35			249
Geocentric position (AU)		−0.00413775	−0.00902516	−0.00488192		
C/1997 X1	1997 12 02.75487	16 38 40.4	−23 07 08			249
Geocentric position (AU)		−0.00413747	−0.00902523	−0.00488193		
C/1997 X1	1997 12 02.76090	16 38 43.7	−23 05 21			249
Geocentric position (AU)		−0.00413719	−0.00902529	−0.00488194		

22P/Kopff

22P	1997 11 09.34081	04 08 18.07	+15 22 15.8			696
22P	1997 11 09.34855	04 08 17.64	+15 22 15.0			696
22P	1997 11 10.24115	04 07 34.93	+15 20 15.7			696
22P	1997 11 10.25279	04 07 34.34	+15 20 13.3			696

26P/Grigg-Skjellerup

26P	1997 10 27.37321	16 28 12.10	−09 43 04.7			897
26P	1997 10 27.37737	16 28 13.10	−09 43 01.5	16.5	T	897

29P/Schwassmann-Wachmann 1

29P	1997 11 23.84110	13 13 51.10	−16 01 19.5	13.1	T	897
29P	1997 12 02.85550	13 19 12.16	−16 42 17.2	13.8	T	897

43P/Wolf-Harrington

43P	1997 10 31.83829	09 11 12.68	+06 35 27.6	12.4	T	897
43P	1997 10 31.84030	09 11 12.85	+06 35 24.7			897
43P	1997 10 31.84469	09 11 13.37	+06 35 18.7			897
43P	1997 11 08.83665	09 25 45.05	+03 24 31.0	12.4	T	900
43P	1997 11 08.84587	09 25 45.97	+03 24 17.3	12.4	T	900
43P	1997 11 23.81347	09 48 36.23	−02 34 38.1	13.2	T	864
43P	1997 11 23.82310	09 48 36.98	−02 34 51.9			864
43P	1997 11 24.70284	09 49 46.25	−02 55 46.1			897
43P	1997 11 24.70934	09 49 46.75	−02 55 54.7			897
43P	1997 12 04.81771	10 01 21.04	−06 51 53.6	13.1	T	360
43P	1997 12 04.82083	10 01 21.23	−06 51 58.0			360
43P	1997 12 05.83161	10 02 20.11	−07 15 00.5			867
43P	1997 12 05.83751	10 02 20.42	−07 15 08.9			867
43P	1997 12 05.84272	10 02 20.70	−07 15 15.7			867
43P	1997 12 06.20647	10 02 41.41	−07 23 33.0	14.3	T	118
43P	1997 12 06.21442	10 02 41.82	−07 23 43.9			118

48P/Johnson

48P	1997 08 24.56632	19 05 33.00	−24 42 13.0	17	T	372
48P	1997 10 26.43032	20 03 22.88	−26 53 09.8	16.5	T	897
48P	1997 10 26.43727	20 03 23.59	−26 53 09.4			897
48P	1997 10 26.44074	20 03 24.04	−26 53 08.9			897
48P	1997 11 23.39862	20 52 10.60	−25 07 52.9	16.8	T	897
48P	1997 11 23.40116	20 52 10.92	−25 07 51.7			897
48P	1997 11 23.40369	20 52 11.35	−25 07 51.6			897

49P/Arend-Rigaux

49P	1997 12 05.08199	22 07 28.93	−24 59 41.8	19.5	T	691
49P	1997 12 05.08657	22 07 29.19	−24 59 40.4	19.8	T	691

55P/Tempel-Tuttle

55P	1997 12 02.76523	12 31 19.16	+15 13 23.0			897
55P	1997 12 02.77860	12 31 19.59	+15 13 31.5	17.7	T	897
55P	1997 12 02.78485	12 31 19.84	+15 13 35.3			897
55P	1997 12 02.79417	12 31 19.99	+15 13 42.3			897
55P	1997 12 03.84233	12 31 49.16	+15 25 59.1	17.1	T	864
55P	1997 12 03.84930	12 31 49.38	+15 26 04.7			864
55P	1997 12 03.85631	12 31 49.53	+15 26 10.8			864
55P	1997 12 04.84250	12 32 16.41	+15 38 27.7	17.1	T	867
55P	1997 12 04.84262	12 32 16.45	+15 38 27.1	17.8	N	402
55P	1997 12 04.84829	12 32 16.55	+15 38 31.8			867
55P	1997 12 04.85454	12 32 16.71	+15 38 36.6			867
55P	1997 12 04.85573	12 32 16.76	+15 38 37.8	17.6	T	360
55P	1997 12 04.86007	12 32 16.88	+15 38 41.6			360
55P	1997 12 05.79032	12 32 41.79	+15 50 58.2	15.6	T	402
55P	1997 12 05.79380	12 32 41.86	+15 51 00.5			402
55P	1997 12 05.79727	12 32 41.93	+15 51 02.8			402
55P	1997 12 05.80610	12 32 42.14	+15 51 10.4	18.3	N	402

62P/Tsuchinshan 1

62P	1997 11 08.23291	02 15 45.28	−03 29 21.3	19.9	T	696
62P	1997 11 08.23678	02 15 45.02	−03 29 21.8	19.8	T	696
62P	1997 11 08.24068	02 15 44.78	−03 29 22.2	19.8	T	696

65P/Gunn

65P	1997 11 08.15236	00 11 53.71	−10 54 47.5	15.4	T	696
65P	1997 11 08.15624	00 11 53.64	−10 54 47.0	15.4	T	696
65P	1997 11 08.15984	00 11 53.58	−10 54 46.5	15.4	T	696
65P	1997 11 20.45208	00 09 45.51	−10 17 04.1	15.4	T	360
65P	1997 11 20.45503	00 09 45.48	−10 17 03.5			360
65P	1997 11 23.45703	00 09 39.27	−10 05 14.2	16.6	T	897
65P	1997 11 23.46744	00 09 39.29	−10 05 12.0			897
65P	1997 11 23.47786	00 09 39.36	−10 05 09.1			897
65P	1997 11 24.45653	00 09 39.45	−10 01 05.7			900
65P	1997 11 24.48587	00 09 39.47	−10 00 57.8			900
65P	1997 11 24.52114	00 09 39.52	−10 00 49.4	17.1	T	900
65P	1997 12 04.43333	00 10 38.63	−09 14 25.8	16.2	T	360
65P	1997 12 04.43611	00 10 38.65	−09 14 24.9			360

69P/Taylor

69P	1997 11 24.67799	08 17 33.19	+12 55 51.4			897
69P	1997 11 24.68515	08 17 33.66	+12 55 55.0			897
69P	1997 11 24.69269	08 17 34.12	+12 55 58.9	16.8	T	897
69P	1997 12 03.58068	08 24 28.05	+14 20 45.1			897
69P	1997 12 03.59065	08 24 28.37	+14 20 52.0	16.1	T	897
69P	1997 12 04.75921	08 25 12.22	+14 33 56.0	16.7	T	402
69P	1997 12 04.76199	08 25 12.31	+14 33 57.9			402
69P	1997 12 04.76477	08 25 12.39	+14 33 59.6			402
69P	1997 12 04.76580	08 25 12.49	+14 34 00.7	16.4	T	360
69P	1997 12 04.77101	08 25 12.66	+14 34 04.3			360
69P	1997 12 04.78559	08 25 13.16	+14 34 14.3			360
69P	1997 12 04.78579	08 25 13.10	+14 34 14.6	16.2	T	867
69P	1997 12 04.79238	08 25 13.32	+14 34 18.9			867

74P/Smirnova-Chernykh

74P	1997 11 08.17684	00 52 11.47	−01 59 08.0	17.6	T	696
74P	1997 11 08.18074	00 52 11.37	−01 59 08.2	17.5	T	696
74P	1997 11 08.18462	00 52 11.27	−01 59 08.5	17.6	T	696
74P	1997 12 04.45694	00 45 30.23	−01 56 09.7	18.1	T	360
74P	1997 12 04.46719	00 45 30.19	−01 56 08.9			360

78P/Gehrels 2

78P	1997 09 09.75265	05 46 33.92	+20 26 38.3	14	T	372
78P	1997 09 10.75583	05 48 26.06	+20 23 45.7	14	T	372
78P	1997 10 12.62542	06 37 26.94	+18 04 16.5			897
78P	1997 10 12.63183	06 37 27.37	+18 04 14.2	12.6	T	897
78P	1997 10 12.65017	06 37 28.70	+18 04 08.5			897
78P	1997 10 26.75056	06 50 55.94	+16 45 44.8			897
78P	1997 11 01.83913	06 54 48.66	+16 11 50.1			897
78P	1997 11 01.84404	06 54 48.78	+16 11 48.6			897
78P	1997 11 03.62194	06 55 43.12	+16 02 04.0			403
78P	1997 11 03.62572	06 55 43.21	+16 02 02.8	13.5	T	403
78P	1997 11 03.63236	06 55 43.40	+16 02 00.4			403
78P	1997 11 08.75328	06 57 41.88	+15 34 36.2			900
78P	1997 11 08.76241	06 57 42.04	+15 34 33.1			900
78P	1997 11 23.69231	06 58 16.28	+14 23 33.4	12.8	T	864
78P	1997 11 23.70160	06 58 16.16	+14 23 31.4			864
78P	1997 11 23.76171	06 58 15.15	+14 23 16.9	13.5	T	403
78P	1997 11 23.76324	06 58 15.17	+14 23 16.5			403
78P	1997 11 23.76471	06 58 15.10	+14 23 16.1			403
78P	1997 11 24.67847	06 58 02.45	+14 19 29.8	12.5	T	360
78P	1997 11 24.68142	06 58 02.40	+14 19 29.0			360
78P	1997 12 03.55758	06 54 34.62	+13 47 27.3			897
78P	1997 12 03.57336	06 54 34.12	+13 47 24.3			897
78P	1997 12 04.80209	06 53 54.01	+13 43 40.1			867
78P	1997 12 04.80696	06 53 53.85	+13 43 39.2			867
78P	1997 12 05.63388	06 53 26.13	+13 41 14.0	13.3	T	355
78P	1997 12 05.63616	06 53 26.06	+13 41 13.7			355
78P	1997 12 05.63769	06 53 25.99	+13 41 13.3			355
78P	1997 12 05.65419	06 53 25.46	+13 41 10.0	12.2	T	402
78P	1997 12 05.65766	06 53 25.32	+13 41 09.6			402
78P	1997 12 05.66113	06 53 25.19	+13 41 08.9			402
78P	1997 12 07.08087	06 52 34.47	+13 37 10.1	13.5	T	118
78P	1997 12 07.09096	06 52 34.09	+13 37 07.7			118

81P/Wild 2

81P	1997 01 13.87708	08 12 56.57	+17 46 14.5			026
81P	1997 01 14.89236	08 12 11.52	+17 50 56.2			026
81P	1997 02 02.86319	07 56 42.31	+19 31 48.9			026
81P	1997 03 03.81667	07 47 23.60	+21 38 52.3			026
81P	1997 03 03.82639	07 47 23.80	+21 38 53.0			026
81P	1997 03 27.88750	08 08 01.98	+21 53 49.8			026
81P	1997 04 06.85417	08 23 38.86	+21 28 13.3			026
81P	1997 04 10.85139	08 30 51.05	+21 12 08.8			026
81P	1997 04 10.88819	08 30 55.07	+21 11 59.4			026
81P	1997 05 01.87917	09 15 21.85	+18 51 00.4			026
81P	1997 05 28.89271	10 21 41.09	+13 39 01.6			026

103P/Hartley 2

103P	1997 11 06.44416	19 51 20.65	−08 22 06.3			897
103P	1997 11 06.44728	19 51 21.11	−08 22 07.9			897
103P	1997 11 06.45885	19 51 22.91	−08 22 11.0			897
103P	1997 11 08.08454	19 55 45.52	−08 29 55.2	11.1	T	696
103P	1997 11 08.08773	19 55 45.82	−08 29 55.7	11.7	T	696
103P	1997 11 08.08956	19 55 46.12	−08 29 56.1	11.8	T	696
103P	1997 11 09.40759	19 59 24.17	−08 35 53.7			897
103P	1997 11 09.41157	19 59 24.87	−08 35 54.7			900
103P	1997 11 09.41904	19 59 26.06	−08 35 57.0			900
103P	1997 11 09.46284	19 59 33.29	−08 36 08.1			897
103P	1997 11 11.68848	20 05 52.77	−08 45 35.4			118
103P	1997 11 11.69286	20 05 53.52	−08 45 36.5	14.1	T	118
103P	1997 11 14.75991	20 14 58.42	−08 57 12.5			504
103P	1997 11 14.76035	20 14 58.51	−08 57 12.7			504
103P	1997 11 14.76140	20 14 58.69	−08 57 12.9			504
103P	1997 11 14.76331	20 14 59.02	−08 57 13.3			504
103P	1997 11 14.76402	20 14 59.17	−08 57 13.4			504
103P	1997 11 14.76477	20 14 59.29	−08 57 13.7			504
103P	1997 11 17.38822	20 23 06.01	−09 05 51.7			897
103P	1997 11 17.39356	20 23 07.10	−09 05 52.8			897
103P	1997 11 17.39742	20 23 07.80	−09 05 53.8			897
103P	1997 11 19.38359	20 29 29.25	−09 11 36.8	12.6	T	402
103P	1997 11 19.38567	20 29 29.62	−09 11 37.3			402
103P	1997 11 19.38775	20 29 30.02	−09 11 37.6			402
103P	1997 11 19.41458	20 29 35.17	−09 11 41.7	10.8	T	360
103P	1997 11 19.41910	20 29 36.04	−09 11 42.4			360
103P	1997 11 19.70015	20 30 31.06	−09 12 30.3	13.4	T	118
103P	1997 11 19.70524	20 30 32.08	−09 12 30.1			118
103P	1997 11 19.70811	20 30 32.60	−09 12 31.0			118
103P	1997 11 23.43899	20 43 02.28	−09 20 56.5			897
103P	1997 11 23.45141	20 43 04.91	−09 20 57.8			897
103P	1997 12 02.43646	21 15 54.47	−09 29 20.0			897
103P	1997 12 02.45266	21 15 58.15	−09 29 20.5			897

104P/Kowal 2

104P	1997 11 09.55691	22 11 11.52	+09 36 49.6			352
104P	1997 11 09.55899	22 11 11.59	+09 36 46.6			352
104P	1997 11 09.56108	22 11 11.71	+09 36 46.6			352
104P	1997 11 12.15478	22 13 25.57	+09 14 10.0			658
104P	1997 11 12.15810	22 13 25.75	+09 14 08.2			658
104P	1997 11 12.16461	22 13 26.07	+09 14 04.9			658
104P	1997 11 18.47545	22 19 54.24	+08 25 14.4			897
104P	1997 11 18.48587	22 19 54.91	+08 25 09.7	14.2	T	897
104P	1997 11 19.46956	22 21 03.30	+08 18 19.5	14.8	T	900
104P	1997 11 19.48228	22 21 04.20	+08 18 14.0			900
104P	1997 11 20.41337	22 22 10.85	+08 11 58.7	13.6	T	360
104P	1997 11 20.41649	22 22 11.06	+08 11 57.5			360
104P	1997 11 20.45922	22 22 14.05	+08 11 40.2	13.9	T	402
104P	1997 11 20.46200	22 22 14.27	+08 11 39.2			402
104P	1997 11 20.46478	22 22 14.47	+08 11 38.1			402
104P	1997 11 20.88211	22 22 44.89	+08 08 52.5	15.6	T	118
104P	1997 11 20.88643	22 22 45.25	+08 08 51.3			118

104P	1997 11 24.42019	22 27 17.83	+07 47 19.8	15.5	T	403
104P	1997 11 24.42182	22 27 17.97	+07 47 20.0			403
104P	1997 11 24.42426	22 27 18.28	+07 47 19.0			403
104P	1997 12 02.45992	22 39 10.92	+07 09 13.0	14.0	T	897
104P	1997 12 02.46686	22 39 11.60	+07 09 11.6			897
104P	1997 12 02.47381	22 39 12.23	+07 09 09.7			897
104P	1997 12 04.41181	22 42 22.82	+07 02 16.3	13.4	T	360
104P	1997 12 04.41476	22 42 23.11	+07 02 15.7			360

116P/Wild 4

116P	1997 08 21.50486	19 04 00.47	−27 38 43.0	16	T	372

117P/Helin-Roman-Alu 1

117P	1997 11 08.09566	20 45 13.83	−27 19 32.0	17.1	T	696
117P	1997 11 08.09925	20 45 14.00	−27 19 31.1	17.1	T	696
117P	1997 11 08.10282	20 45 14.16	−27 19 30.1	17.0	T	696

128P/Shoemaker-Holt 1

128P-B	1997 11 08.60447	04 33 31.21	+18 59 40.9	15.3	T	897
128P-B	1997 11 08.61810	04 33 30.77	+18 59 39.1			897
128P-B	1997 11 21.03256	04 25 57.72	+18 23 27.6	15.9	T	118
128P-B	1997 11 21.03872	04 25 57.50	+18 23 26.5			118
128P-B	1997 11 23.61337	04 24 13.18	+18 15 49.4	15.2	T	360
128P-B	1997 11 23.61823	04 24 12.99	+18 15 48.5			360
128P-B	1997 11 23.68619	04 24 10.10	+18 15 36.0	15.8	T	403
128P-B	1997 11 23.68949	04 24 09.96	+18 15 36.0			403
128P-B	1997 11 23.69610	04 24 09.67	+18 15 35.1			403
128P-B	1997 11 24.59694	04 23 32.71	+18 12 54.7	15.0	T	897
128P-B	1997 11 24.60736	04 23 32.31	+18 12 52.5			897
128P-B	1997 11 24.62492	04 23 31.56	+18 12 49.8	15.0	T	900
128P-B	1997 11 24.64120	04 23 30.82	+18 12 47.0			900
128P-B	1997 11 24.69343	04 23 28.61	+18 12 38.0			867
128P-B	1997 11 24.70037	04 23 28.31	+18 12 36.9			867
128P-B	1997 11 26.16872	04 22 28.13	+18 08 16.6			704
128P-B	1997 11 26.19276	04 22 26.96	+18 08 12.8			704
128P-B	1997 11 26.21662	04 22 25.83	+18 08 08.4			704
128P-B	1997 11 30.27608	04 19 37.06	+17 56 22.8	15.7	T	700
128P-B	1997 11 30.29425	04 19 36.24	+17 56 19.6	15.8	T	700
128P-B	1997 11 30.51987	04 19 26.72	+17 55 42.9	16.0	T	566
128P-B	1997 11 30.52977	04 19 26.33	+17 55 41.1	16.1	T	566
128P-B	1997 11 30.53993	04 19 25.90	+17 55 39.7	16.6	T	566
128P-B	1997 12 04.23907	04 16 54.07	+17 45 20.1	17.5	T	704
128P-B	1997 12 04.25625	04 16 53.19	+17 45 15.4	18.6	T	704
128P-B	1997 12 04.27285	04 16 52.45	+17 45 13.9	18.8	T	704
128P-B	1997 12 04.28939	04 16 51.61	+17 45 08.0	18.5	T	704
128P-B	1997 12 04.31281	04 16 50.70	+17 45 03.0	18.5	T	704

129P/Shoemaker-Levy 3

129P	1997 11 23.47370	08 05 32.54	+22 47 27.2	17.0	T	691
129P	1997 11 23.49687	08 05 32.64	+22 47 24.3	17.1	T	691
129P	1997 11 23.51960	08 05 32.82	+22 47 23.3	17.2	T	691
129P	1997 11 24.64177	08 05 42.21	+22 46 07.2	16.6	T	897
129P	1997 11 24.66819	08 05 42.53	+22 46 07.0			897
129P	1997 12 04.73472	08 05 36.25	+22 38 22.8	17.1	T	360
129P	1997 12 04.74028	08 05 36.20	+22 38 22.5			360
129P	1997 12 04.77120	08 05 35.86	+22 38 21.7	16.8	T	867
129P	1997 12 04.77816	08 05 35.78	+22 38 21.5			867
129P	1997 12 05.73333	08 05 26.91	+22 37 54.8	16.7	T	402
129P	1997 12 05.73682	08 05 26.85	+22 37 54.7			402
129P	1997 12 05.74029	08 05 26.83	+22 37 54.8			402

131P/Mueller 2

131P	1997 11 06.60465	01 09 13.21	+08 30 06.6			897
131P	1997 11 06.62056	01 09 12.61	+08 29 57.0	18.2	T	897
131P	1997 12 04.47917	01 08 34.00	+06 37 02.6	17.8	T	360
131P	1997 12 04.48385	01 08 34.09	+06 37 01.8			360
131P	1997 12 06.84752	01 09 24.23	+06 34 20.9	19.4	T	910
131P	1997 12 06.87057	01 09 24.69	+06 34 19.5	20.0	T	910
131P	1997 12 06.89373	01 09 25.19	+06 34 19.1	20.4	T	910

132P/Helin-Roman-Alu 2

132P	1997 11 06.63214	02 04 38.16	+04 41 12.5	15.6	T	897
132P	1997 11 06.63979	02 04 37.96	+04 41 10.2			897
132P	1997 11 06.64778	02 04 37.80	+04 41 07.7	15.7	T	897
132P	1997 11 23.56441	02 02 19.02	+03 50 22.1	16.2	T	360
132P	1997 11 23.56788	02 02 19.04	+03 50 21.9			360
132P	1997 11 23.57800	02 02 19.00	+03 50 21.5	16.0	T	897
132P	1997 11 23.59122	02 02 19.07	+03 50 21.1			897
132P	1997 11 24.59036	02 02 23.08	+03 49 42.5			352
132P	1997 11 24.59244	02 02 23.06	+03 49 42.3			352
132P	1997 11 30.19718	02 03 16.21	+03 51 05.7	16.7	T	700
132P	1997 11 30.20659	02 03 16.34	+03 51 07.0	16.7	T	700
132P	1997 11 30.21368	02 03 16.45	+03 51 07.0	16.7	T	700
132P	1997 11 30.22053	02 03 16.48	+03 51 07.1	16.8	T	700

134P/Kowal-Vávrová

134P	1997 12 05.48725	10 26 08.29	+05 23 55.5	21.8	T	691
134P	1997 12 05.49825	10 26 08.57	+05 23 53.6	20.8	T	691
134P	1997 12 05.50948	10 26 08.97	+05 23 50.7	21.6	T	691
134P	1997 12 06.48070	10 26 36.39	+05 20 25.1	22.3	N	691
134P	1997 12 06.50146	10 26 36.93	+05 20 19.3	22.9	N	691
134P	1997 12 06.52285	10 26 37.50	+05 20 16.5	22.3	N	691

Note 1: poor image, bad seeing. 2: poor image, dark plate. 3: poor image. 4: poor sky. 5: faint image.

OBSERVATIONS OF MINOR PLANETS

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

010 Caussols

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C. Pollas, Observatoire de la Côte d'Azur, Avenue Copernic, F-06130 Grasse, France [pollas@ocar01.obs-azur.fr]

Observers C. Pollas, D. Albanese
Measurer E. W. Elst
0.9-m Schmidt telescope

1991 NZ_6, 2, 1, 0; 1992 UR_{10} *, 5, 2, 11; 1996 QF_2 *, 6, 2, 2; 1996 QG_2 *, 6, 2, 2; 1996 QH_2 *, 6, 2, 2; 1996 QJ_2 *, 6, 2, 2; 1996 QK_2 *, 6, 2, 2; 1996 QL_2 *, 6, 2, 2; 1996 QM_2 *, 6, 2, 2; 1996 QN_2 *, 6, 2, 2; 1996 QO_2 *, 6, 2, 2; 1996 QP_2 *, 6, 2, 2; 1996 QQ_2 *, 6, 2, 2; 1996 QR_2 *, 6, 2, 2; 1996 QS_2 *, 6, 2, 2; 1996 QT_2 *, 6, 2, 2; 1996 QU_2 *, 6, 2, 2; 1996 QV_2 *, 6, 2, 2; 1996 QW_2 *, 6, 2, 2; 1996 QX_2 *, 6, 2, 2; 1996 QY_2 *, 6, 2, 2; 1996 QZ_2 *, 6, 2, 2; 1996 QA_3 *, 6, 2, 2; 1996 QB_3 *, 6, 2, 2; 1996 QC_3 *, 6, 2, 2; 1996 QD_3 *, 6, 2, 2; 1996 QE_3 *, 6, 2, 2; 1996 QF_3 *, 6, 2, 2; 1996 QH_3 *, 6, 2, 2; 1996 QJ_3 *, 6, 2, 2; 1996 QK_3 *, 6, 2, 2; 1996 QL_3 *, 6, 2, 2; 1996 QM_3 *, 6, 2, 2; 1996 QN_3 *, 6, 2, 2; 1996 QO_3 *, 6, 2, 2; 1996 QP_3 *, 6, 2, 2; 1996 QQ_3 *, 6, 2, 2; 1996 QR_3 *, 6, 2, 2; 1996 QS_3 *, 6, 2, 2; 1997 SJ_4, 6, 2, 2; *[235, 40, 38*, 1992/10/23–1996/08/20]*

026 Zimmerwald

P. Wild, Astronomisches Institut der Universität, Sidlerstrasse 5, CH-3012 Berne, Switzerland [schildknecht@aiub.unibe.ch]
0.4-m Schmidt telescope
PPM

(92), 2, 2, 2; (339), 1, 1, 0; (351), 2, 2, 4; (403), 1, 1, 0; (410), 1, 1, 0; (516), 1, 1, 0; (602), 1, 1, 0; (912), 1, 1, 0; (977), 2, 1, 0; (1024), 1, 1, 0; (1293), 3, 3, 24; (1331), 2, 2, 3; (1368), 2, 2, 1; (1657), 1, 1, 0; (1659), 1, 1, 0; (1665), 1, 1, 0; (1830), 2, 2, 3; (1845), 4, 4, 441; (1860), 1, 1, 0; (1891), 1, 1, 0; (1980), 6, 6, 65; (2001), 1, 1, 0; (2014), 2, 1, 0; (2063), 4, 2, 5; (2081), 2, 2, 4; (2115), 1, 1, 0; (2320), 2, 1, 0; (2843), 1, 1, 0; (2864), 2, 2, 3; (3376), 2, 2, 9; (3813), 1, 1, 0; (3908), 8, 6, 79; (4197), 3, 2, 9; (7081), 3, 3, 8; *[69, 34, 0*, 1996/03/19–1997/10/01]*

033 Tautenburg

F. Börngen, Thüringer Landessternwarte, Sternwarte 5, D-07778 Tautenburg, Germany [boerg@tls.tautenburg.de]
1.3-m Schmidt telescope
PPM

1979 ML_2, 3, 2, 2; 1990 TB_4, 3, 2, 16; 1991 PB, 2, 1, 0; 1995 FK_{21} *, 2, 1, 0; 1995 ON_{10} *, 3, 2, 2; 1995 OO_{10} *, 3, 2, 2; 1995 OP_{10} *, 3, 2, 2; 1997 HE_{14}, 2, 1, 0; 1997 SZ_1, 2, 1, 0; 6523 P-L, 2, 1, 0; 1017 T-3, 3, 2, 2; (47), 2, 1, 0; (88), 3, 2, 2; (2448), 3, 2, 2; (2994), 2, 1, 0; (3759), 3, 2, 2; (4230), 1, 1, 0; (6133), 2, 1, 0; (6538), 3, 2, 2; (6937), 2, 1, 0; *[49, 20, 4*, 1993/10/17–1995/10/26]*

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

1979 SJ, 3, 1, 0; 1984 BQ, 3, 1, 0; 1988 QA, 6, 2, 4; 1995 EO, 3, 1, 0; 1997 CU_{26}, 3, 1, 0; 1997 SE_5, 11, 3, 17; 1997 TN_{17}, 10, 2, 1; 1997 TT_{25}, 3, 1, 0; 1997 UA, 16, 5, 11; 1997 UK, 11, 4, 12; 1997 UL, 10, 4, 10; 1997 UN, 5, 2, 10; 1997 UO, 6, 2, 10; 1997 UP, 6, 2, 10; 1997 UQ, 6, 2, 6; 1997 UY, 10, 3, 11; 1997 UZ, 12, 4, 11; 1997 UN_1, 6, 2, 1; 1997 US_2, 4, 1, 0; 1997 UD_7, 12, 4, 9; 1997 UZ_7, 15, 5, 22; 1997 UA_8, 12, 4, 10; 1997 UD_8, 13, 4, 22; 1997 UF_9, 3, 1, 0; 1997 UH_9, 8, 2, 2; 1997 US_9, 3, 1, 0; 1997 UE_{15}, 12, 4, 8; 1997 VC, 9, 3, 19; 1997 VD, 6, 2, 7; 1997 VE, 10, 4, 19; 1997 VF, 9, 3, 7; 1997 VA_1, 7, 1, 0; 1997 VB_1, 9, 3, 31; 1997 VT_1, 6, 2, 12; 1997 VM_4, 8, 2, 1; 1997 VG_6, 5, 1, 0; 1997 VR_6 *, 11, 3, 12; 1997 VZ_8 *, 14, 2, 12; 1997 WU *, 13, 2, 1; 1997 WU_3 *, 9, 2, 3; 1997 WV_3 *, 7, 2, 3; 1997 WB_{16}, 13, 2, 12; 1997 WS_{22}, 4, 1, 0; 1997 WT_{22}, 4, 1, 0; 1997 WU_{22}, 4, 1, 0; 1997 WP_{23}, 3, 1, 0; 1997 WQ_{23}, 4, 1, 0; 1997 XR_2, 12, 2, 1; 1997 XS_2, 6, 2, 1; (433), 3, 1, 0; (2340), 5, 1, 0; (3102), 3, 1, 0; (3688), 3, 1, 0; *[399, 53, 5*, 1997/10/22–1997/12/06]*

098 Asiago Observatory, Cima Ekar

U. Munari, Osservatorio Astronomico di Padova, Sede di Asiago, I-36012 Asiago (VI), Italy [munari@astras.pd.astro.it]
Observers U. Munari, A. Boattini, M. Tombelli
Measurers A. Boattini, M. Tombelli, G. Forti
0.67-m $f/3.2$ Schmidt

1993 VE_2, 2, 1, 0; 1997 QN, 4, 2, 3; 1997 UC_{21}, 4, 2, 3; 1997 UM_{22} *, 4, 2, 3; 1997 UN_{22} *, 4, 2, 3; 1997 UO_{22} *, 4, 2, 3; 1997 UP_{22} *, 4, 2, 3; 1997 UQ_{22} *, 4, 2, 3; 1997 UR_{22} *, 4, 2, 3; 1997 US_{22} *, 4, 2, 3; 1997 UT_{24} *, 4, 2, 3; 1997 UU_{24} *, 4, 2, 3; 1997 UV_{24} *, 4, 2, 3; 1997 UW_{24} *, 4, 2, 3; 1997 UX_{24} *, 4, 2, 3; 1997 UA_{25} *, 4, 2, 4; (35), 2, 1, 0; (101), 2, 1, 0; (142), 2, 1, 0; (231), 2, 1, 0; (620), 2, 1, 0; (659), 4, 2, 3; (842), 2, 1, 0; (1396), 2, 1, 0; (1787), 2, 1, 0; (1900), 2, 1, 0; (2303), 2, 1, 0; (2370), 4, 2, 3; (2637), 4, 2, 3; (2698), 2, 1, 0; (3137), 2, 1, 0; (3576), 4, 2, 3; (3931), 4, 2, 3; (4172), 2, 1, 0; (4789), 2, 1, 0; (4961), 2, 1, 0; (5345), 2, 1, 0; (5454), 2, 1, 0; (5702), 4, 2, 3; (5839), 2, 1, 0; (8026), 2, 1, 0; *[124, 41, 13*, 1997/10/02–1997/10/29]*

104 San Marcello Pistoiese

L. Tesi, Osservatorio di Pian dei Termini, Viale Panoramico 45, I-51028 San Marcello Pistoiese (PT), Italy [iau@arcetri.astro.it]
Observers L. Tesi, A. Caronia, A. Boattini, M. Tombelli
Measurers A. Boattini, G. Forti, L. Tesi, M. Tombelli
0.40-m $f/5$ reflector + CCD
GSC

1966 BL, 3, 1, 0; 1991 EA, 3, 1, 0; 1991 PE_5, 4, 1, 0; 1994 WY_2, 3, 1, 0; 1996 PJ_5, 4, 1, 0; 1997 PQ_4, 3, 1, 0; 1997 SE_5, 4, 1, 0; 1997 SL_{17}, 3, 1, 0; 1997 UB_1, 3, 1, 0; 1997 UJ_5, 4, 1, 0; 1997 UK_5, 3, 1, 0; 1997 VA_5, 15, 3, 3; 1997 VG_6, 3, 1, 0; (1955), 5, 1, 0; (5603), 3, 1, 0; (8023), 3, 1, 0; (8051), 3, 1, 0; *[69, 17, 0*, 1997/11/13–1997/12/06]*

106 Crni vrh

H. Mikuž, Kersnikova 11, SI-61000 Ljubljana, Slovenia [herman.mikuz@uni-lj.si]
0.36-m $f/6.7$ Schmidt-Cassegrain + CCD
GSC

1997 VV_8 *, 6, 3, 18; 1997 VW_8 *, 8, 4, 33; *[14, 2, 2*, 1997/11/02–1997/12/05]*

108 Montelupo

M. Tombelli, Via Bozzeto 26, I-50056 Montelupo (Fi), Italy [iau@arcetri.astro.it]
Observers M. Tombelli, A. Boattini, G. Forti
0.30-m $f/5.7$ Schmidt-Cassegrain + CCD
GSC

1996 PD_3, 2, 1, 0; 1996 PJ_5, 4, 1, 0; 1997 UN_{22}, 2, 1, 0; 1997 XR_2, 4, 1, 0; *[12, 4, 0*, 1997/11/18–1997/12/07]*

113 Volkssternwarte Drebach, Schönbrunn

G. Lehmann, Volkssternwarte Drebach, D-09430 Drebach, Germany [lehmann@stw-drebach.zp.sn.schule.de]
Observers J. Kandler, G. Lehmann
0.18-m $f/9$ refractor + CCD, 0.50-m $f/4$ reflector + CCD
GSC

1995 BC_{16}, 3, 1, 0; *[3, 1, 0*, 1997/10/22]*

117 Sendling

H. Beuchat, European Patent Office, Erhardstrasse 27, D-80331 Munich, Germany [100341.75@compuserve.com]
0.20-m $f/10$ reflector + CCD
GSC

1997 SG_1, 9, 1, 0; (79), 2, 1, 0; *[11, 2, 0*, 1997/11/19]*

118 Modra

A. Galád, AGO MFF UK, P.O. Box 4, SK-90001 Modra, Slovakia [ago_modra@center.fmph.uniba.sk]
Observers P. Kolény, L. Kornoš, A. Galád, A. Pravda
0.6-m $f/5.5$ reflector + CCD
GSC

1991 WA, 4, 2, 2; 1992 AB, 4, 2, 1; 1995 DE_2, 2, 1, 0; 1997 QA, 5, 2, 1; 1997 RD_1, 2, 1, 0; 1997 SC, 3, 1, 0; 1997 TR, 3, 1, 0; 1997 TS, 2, 1, 0; 1997 TW_{24}, 11, 5, 29; 1997 TT_{25}, 8, 3, 2;

1997 WS_{22}, 3, 1, 0; 1997 WT_{22}, 2, 1, 0; 1997 WU_{22}, 6, 2, 1; 1997 WP_{23}, 2, 1, 0; 1997 WQ_{23}, 5, 2, 2; (1468), 2, 1, 0; (1951), 2, 1, 0; (2952), 2, 1, 0; (3102), 2, 1, 0; (3688), 4, 2, 17; (3691), 6, 3, 18; (3800), 3, 1, 0; (4033), 4, 2, 1; (4187), 2, 1, 0; (5184), 2, 1, 0; (6542), 2, 1, 0; (7304), 4, 2, 1; *[97, 27, 0*, 1997/10/18–1997/12/07]*

121 Kharkov University, Chuguevskaya Station
V. G. Shevchenko, Astronomical Observatory of the Kharkov State University, Sumskaya Str. 35, UA-310022 Kharkov, Ukraine [shevchenko@astron.kharkov.ua]
0.70-m $f/4$ reflector + CCD
GSC
1997 UH_9, 5, 1, 0; (5), 26, 6, 50; (433), 2, 1, 0; (620), 19, 5, 18; (857), 17, 3, 2; (1369), 9, 2, 11; (1796), 6, 1, 0; (3200), 4, 2, 1; (6587), 6, 1, 0; *[94, 9, 0*, 1995/07/07–1997/11/10]*

127 Bornheim
N. Ehring, Stationenweg 54, D-53332 Bornheim, Germany [norbert.ehring@t-online.de]
0.19-m $f/4$ FFC + CCD
GSC
1977 EZ, 4, 2, 1; 1980 RU, 2, 1, 0; 1984 QB, 2, 1, 0; 1993 OX_9, 2, 1, 0; 1997 UE_9, 2, 1, 0; (1437), 2, 1, 0; (1642), 4, 2, 1; (6420), 4, 2, 1; *[22, 8, 0*, 1997/11/17–1997/11/19]*

132 Bedoin
P. Antonini, 47 rue Guillaume Puy, F-84000 Avignon, France [Pierre.Antonini@wanadoo.fr]
0.16-m $f/3.3$ reflector + CCD
GSC
1992 GM_4, 3, 1, 0; 1994 CM, 2, 1, 0; 1995 CQ, 1, 1, 0; 1997 SA_{34}, 2, 1, 0; 1997 UP_9, 3, 1, 0; 1997 UR_9, 3, 1, 0; 1997 UV_{10}, 3, 1, 0; 1997 UW_{10}, 2, 1, 0; 1997 WC_8, 5, 2, 1; 1997 XT_5 *, 6, 2, 1; 1997 XU_5 *, 5, 2, 1; *[35, 11, 2*, 1997/11/20–1997/12/07]*

133 Les Tardieux
M. Boeuf, Les Tardieux, St Julien, F-13500 Martigues, France [Michel.Boeuf@wanadoo.fr]
0.20-m $f/6.3$ reflector + CCD
GSC
1997 UV_{10}, 4, 2, 1; (258), 6, 3, 4; *[10, 2, 0*, 1997/10/25–1997/12/01]*

134 Groszschwabhausen
H.-G. Reimann, Astrophysikalisches Institut und Universitätssternwarte Jena, Schillergäßchen 2, D-07745 Jena, Germany [rei@astro.uni-jena.de]
Observers H.-G. Reimann, H. Linz, R. Krieg
Measurer H.-G. Reimann
0.90-m $f/2$ Schmidt + CCD
GSC
1995 BC_{16}, 3, 1, 0; *[3, 1, 0*, 1997/11/19]*

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 $f/3.3$ Schmidt-Cassegrain + CCD
GSC
1988 UO, 4, 1, 0; 1991 AU_1, 2, 1, 0; 1993 OB, 2, 1, 0; 1997 SV, 2, 1, 0; 1997 SA_{34}, 4, 1, 0; 1997 VV, 6, 2, 3; *[20, 6, 0*, 1997/11/02–1997/11/22]*

142 Sinsen
H. Tomsik, Haselnussweg 15, D-45770 Marl-Sinsen, Germany [Harald.Tomsik@ruhr-uni-bochum.de]
Observer H. Tomsik
Measurers H. Tomsik, S. Binnewies, P. Riepe
0.45-m $f/4.5$ Newtonian + CCD
GSC, USNO-SA1.0
1997 UW_{21} *, 6, 2, 5; (2295), 6, 2, 1; *[12, 2, 1*, 1997/10/22–1997/10/28]*

143 Gnosca
S. Sposetti, CH-6525 Gnosca, Switzerland [spo@dial.eunet.ch]
0.20-m $f/6.3$ reflector + CCD
GSC
(1235), 5, 1, 0; (1264), 3, 1, 0; (1468), 5, 2, 1; (2865), 6, 2, 2; (3141), 6, 2, 2; (4187), 2, 1, 0; (4543), 6, 2, 2; (5184), 5, 2, 1; (5288), 6, 2, 2; *[44, 9, 0*, 1997/11/03–1997/12/01]*

292 Burlington
T. Handley, 13 Linden Road, Burlington, NJ 08016, U.S.A.
0.30-m $f/3.0$ Schmidt-Cassegrain + focal reducer + CCD
GSC
1997 UB_{25}, 11, 4, 22; *[11, 1, 0*, 1997/11/03–1997/11/25]*

294 Astrophysical Observatory, College of Staten Island
I. Robbins, The College of Staten Island, 2800 Victory Boulevard, Staten Island, NY 10314, U.S.A. [robbins@postbox.csi.cuny.edu]
Observers I. Robbins, K. Rowan, S. Parello
Measurers S. Parello, K. Rowan
0.41-m $f/6.3$ Schmidt-Cassegrain + CCD
GSC, USNO-SA1.0
(1959), 5, 2, 1; (1983), 4, 2, 1; (2100), 6, 3, 6; (3540), 4, 2, 1; (3568), 4, 2, 1; (3619), 4, 2, 1; (4680), 4, 2, 1; (5819), 4, 2, 1; *[35, 8, 0*, 1997/09/19–1997/10/31]*

327 Peking Observatory, Xinglong Station
J. Zhu, Peking Astronomical Observatory, Chinese Academy of Sciences, Zhongguancun, Peking 100080, Peoples Republic of China [jinzhu@sun.ihep.ac.cn]
Observers R. Chen, J. Zhu, B. Zhao, X. Y. Li, Y. J. Chen, Z. Y. Zheng, H. T. Zhang, X. M. Teng
Measurers Y. J. Chen, X. Y. Li, J. Zhu, X. M. Teng
0.60-m Schmidt + CCD
1966 BL, 6, 1, 0; 1981 EW_{38}, 7, 2, 12; 1985 PN, 3, 1, 0; 1986 RB_5, 3, 1, 0; 1988 CQ_7, 9, 3, 26; 1988 DD, 11, 3, 15; 1989 UH_7, 6, 2, 36; 1990 SU_9, 3, 1, 0; 1990 TK_{15}, 3, 1, 0; 1990 UQ_3, 4, 1, 0; 1992 DG_1, 6, 2, 1; 1992 EG_{14}, 3, 1, 0; 1993 BC_5, 3, 1, 0; 1993 FB_{24}, 3, 1, 0; 1993 TE, 6, 2, 2; 1993 TL_{13}, 7, 2, 1; 1993 TL_{25}, 2, 1, 0; 1995 BQ_{15}, 3, 1, 0; 1996 EL, 3, 1, 0; 1996 GB_{18}, 3, 1, 0; 1996 HU_{24}, 3, 1, 0; 1996 RE_4, 6, 2, 5; 1996 SD_1, 6, 2, 7; 1996 SJ_4, 3, 1, 0; 1996 SS_6, 6, 2, 6; 1996 TV_1, 6, 2, 6; 1996 TB_6, 3, 1, 0; 1996 TO_{13}, 3, 1, 0; 1996 TU_{13}, 9, 3, 29; 1996 UC_4, 3, 1, 0; 1996 VD_4, 6, 2, 6; 1996 WG_3, 9, 3, 6; 1996 YH_3, 4, 2, 7; 1997 ET_1, 6, 2, 8; 1997 NZ, 7, 2, 2; 1997 NR_6, 8, 2, 1; 1997 RR_8, 6, 2, 9; 1997 ST, 4, 1, 0; 1997 SV, 3, 1, 0; 1997 SM_3, 6, 2, 2; 1997 SD_{10}, 3, 1, 0; 1997 SR_{10}, 3, 1, 0; 1997 SU_{10}, 4, 1, 0; 1997 SU_{15}, 3, 1, 0; 1997 SB_{34}, 9, 3, 20; 1997 SC_{34}, 9, 3, 28; 1997 TO_{18}, 3, 1, 0; 1997 TS_{18}, 4, 1, 0; 1997 TK_{24}, 3, 1, 0; 1997 TN_{24}, 4, 1, 0; 1997 TS_{24}, 3, 1, 0; 1997 TM_{25}, 3, 1, 0; 1997 TP_{25}, 7, 2, 8; 1997 TR_{25}, 7, 2, 5; 1997 TT_{25}, 3, 1, 0; 1997 TC_{26}, 3, 1, 0; 1997 TD_{26}, 6, 2, 2; 1997 TE_{26}, 3, 1, 0; 1997 TF_{26}, 3, 1, 0; 1997 TG_{26}, 6, 2, 4; 1997 TH_{26}, 3, 1, 0; 1997 TS_{26}, 6, 2, 1; 1997 TW_{26} *, 6, 2, 8; 1997 TX_{26} *, 6, 2, 6; 1997 TY_{26} *, 6, 2, 7; 1997 TZ_{26} *, 6, 2, 2; 1997 TA_{27} *, 7, 2, 4; 1997 TB_{27} *, 6, 2, 14; 1997 TC_{27} *, 6, 2, 10; 1997 TD_{27} *, 6, 2, 1; 1997 UX, 3, 1, 0; 1997 UO_1, 3, 1, 0; 1997 UU_4, 3, 1, 0; 1997 UZ_4, 3, 1, 0; 1997 UA_5, 3, 1, 0; 1997 UU_8, 3, 1, 0; 1997 UQ_{10}, 13, 4, 16; 1997 UR_{20}, 3, 1, 0; 1997 US_{20}, 3, 1, 0; 1997 UC_{21}, 6, 1, 0; 1997 UD_{21}, 6, 2, 14; 1997 UJ_{21}, 3, 1, 0; 1997 UK_{21}, 6, 2, 6; 1997 UV_{21}, 6, 2, 3; 1997 UB_{22} *, 9, 3, 31; 1997 UC_{22} *, 6, 2, 9; 1997 UD_{22} *, 7, 2, 5; 1997 UE_{22} *, 7, 2, 6; 1997 UP_{22}, 6, 2, 14; 1997 UL_{24} *, 6, 2, 9; 1997 UM_{24} *, 6, 2, 9; 1997 UN_{24} *, 12, 4, 39; 1997 VU,

3, 1, 0; 1997 VH_2, 3, 1, 0; 1997 VQ_2, 9, 3, 18; 1997 VR_2, 6, 2, 18; 1997 VS_2, 3, 1, 0; 1997 VQ_3, 4, 1, 0; 1997 VC_7 *, 7, 2, 6; 1997 VD_7 *, 7, 2, 6; 1997 VE_7 *, 9, 3, 17; 1997 VF_7 *, 19, 6, 29; 1997 VG_7 *, 9, 3, 19; 1997 VH_7 *, 6, 2, 5; 1997 VJ_7 *, 6, 2, 4; 1997 VK_7 *, 6, 2, 4; 1997 VL_7 *, 6, 2, 4; 1997 VM_7 *, 9, 3, 26; 1997 VN_7 *, 6, 2, 4; 1997 VP_7 *, 13, 3, 6; 1997 VQ_7 *, 10, 3, 5; 1997 VR_7 *, 12, 4, 18; 1997 VS_7 *, 9, 2, 4; 1997 VT_7 *, 6, 2, 4; 1997 VU_7 *, 6, 2, 5; 1997 VV_7 *, 12, 4, 29; 1997 VW_7 *, 6, 2, 3; 1997 VX_7 *, 9, 3, 16; 1997 VY_7 *, 6, 2, 4; 1997 VZ_7 *, 15, 5, 25; 1997 VA_8 *, 10, 3, 13; 1997 VB_8 *, 7, 2, 1; 1997 VC_8 *, 7, 2, 1; 1997 VD_8 *, 7, 2, 1; 1997 VE_8 *, 9, 3, 14; 1997 VF_8 *, 6, 2, 1; 1997 VL_8 *, 15, 5, 47; 1997 VM_8 *, 7, 2, 6; 1997 VN_8 *, 6, 2, 6; 1997 VO_8 *, 9, 2, 1; 1997 VP_8 *, 6, 2, 4; 1997 VQ_8 *, 9, 3, 25; 1997 VR_8 *, 11, 4, 28; 1997 VS_8 *, 6, 2, 4; 1997 VT_8 *, 10, 3, 21; 1997 VU_8 *, 13, 4, 18; 1997 WE_1 *, 6, 2, 3; 1997 WF_1 *, 6, 2, 2; 1997 WG_1 *, 6, 2, 2; 1997 WH_1 *, 6, 2, 2; 1997 WJ_1 *, 6, 2, 2; 1997 WK_1 *, 6, 2, 1; 1997 WL_1 *, 16, 5, 12; 1997 WM_1 *, 13, 4, 12; 1997 WN_1 *, 7, 2, 1; 1997 WO_1 *, 13, 4, 10; 1997 WP_1 *, 13, 4, 10; 1997 WQ_1 *, 8, 3, 10; 1997 WR_1 *, 13, 4, 10; 1997 WS_1 *, 16, 5, 49; 1997 WN_3 *, 6, 2, 6; 1997 WO_3 *, 6, 2, 6; 1997 WP_3 *, 7, 2, 4; 1997 WQ_3 *, 8, 2, 2; 1997 WZ_{16}, 3, 1, 0; 1997 WA_{17}, 3, 1, 0; 1997 WW_{21} *, 6, 2, 12; 1997 WX_{21} *, 8, 2, 11; 1997 WY_{21} *, 6, 2, 8; 1997 WZ_{21} *, 6, 2, 6; 1997 WA_{22} *, 6, 2, 6; 1997 WB_{22} *, 6, 2, 6; 1997 WC_{22} *, 6, 2, 3; 1997 WD_{22} *, 5, 2, 3; 1997 WE_{22} *, 5, 2, 3; 1997 WF_{22} *, 6, 2, 3; 1997 WG_{22} *, 6, 2, 3; 1997 WH_{22} *, 6, 2, 3; 1997 WJ_{22} *, 6, 2, 3; 1997 WK_{22} *, 6, 2, 3; 1997 WL_{22} *, 6, 2, 3; 1997 WT_{29} *, 7, 2, 2; 1997 WU_{29} *, 7, 2, 8; 1997 XL, 3, 1, 0; 1997 XQ_5 *, 9, 2, 3; 1997 XR_5 *, 6, 2, 3; 1997 XS_5 *, 6, 2, 3; 1997 XP_6, 3, 1, 0; 1997 XK_9 *, 7, 2, 4; 4038 P-L, 9, 2, 4; (206), 5, 1, 0; (296), 3, 1, 0; (540), 3, 1, 0; (635), 7, 2, 1; (731), 6, 2, 6; (835), 6, 2, 6; (848), 3, 1, 0; (975), 6, 2, 3; (1073), 3, 1, 0; (1305), 3, 1, 0; (1379), 3, 1, 0; (1425), 7, 2, 2; (1629), 3, 1, 0; (1850), 3, 1, 0; (2136), 3, 1, 0; (2170), 4, 1, 0; (2470), 6, 2, 3; (2708), 3, 1, 0; (2900), 6, 2, 7; (3113), 3, 1, 0; (3233), 6, 2, 3; (3343), 3, 1, 0; (3525), 3, 1, 0; (3576), 6, 1, 0; (3681), 3, 1, 0; (3799), 6, 2, 4; (4007), 3, 1, 0; (4365), 7, 2, 1; (4654), 3, 1, 0; (5419), 3, 1, 0; (5702), 3, 1, 0; (6276), 3, 1, 0; (6320), 3, 1, 0; (6366), 4, 1, 0; (7145), 7, 2, 3; (7152), 3, 1, 0; (7876), 3, 1, 0; (7906), 3, 1, 0; (7988), 4, 1, 0; (8044), 3, 1, 0; *[1311, 220, 92*, 1996/12/18–1997/12/08]*

355 Hadano

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

1978 SA_7, 3, 1, 0; 1982 BE_1, 3, 1, 0; 1982 UE_6, 3, 1, 0; 1988 BX, 3, 1, 0; 1990 SA_2, 3, 1, 0; 1997 SE_5, 3, 1, 0; 1997 UO_1, 9, 3, 14; 1997 UF_{15}, 9, 3, 14; 1997 VH, 8, 3, 14; 1997 XL_1, 3, 1, 0; 1997 XR_2, 6, 2, 2; *[53, 11, 0*, 1997/11/18–1997/12/07]*

358 Nanyou

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

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

1997 RX_6, 3, 1, 0; 1997 SU, 6, 3, 3; 1997 SO_{17}, 4, 2, 1; 1997 SP_{17}, 5, 2, 1; 1997 SX_{21}, 3, 1, 0; 1997 SN_{25}, 4, 2, 1; 1997 TT_3, 2, 1, 0; 1997 TC_{17}, 2, 1, 0; 1997 TR_{26}, 5, 2, 4; 1997 TU_{26} *, 8, 4, 16; 1997 UL_8, 2, 1, 0; 1997 UN_8, 5, 2, 1; 1997 UG_{15}, 2, 1, 0; 1997 UH_{15}, 4, 2, 1; 1997 UW_{18}, 6, 3, 2; 1997 UT_{21} *, 6, 3, 11; 1997 UU_{21} *, 6, 3, 5; 1997 UV_{21} *, 10, 5, 11; 1997 UN_{24}, 4, 2, 4; 1997 VM_1, 4, 2, 4; 1997 VR_1, 4, 2, 1; 1997 VB_7 *, 6, 3, 2; 1997 WC_2 *, 4, 2, 4; 1997 WS_{23} *, 5, 2, 4; 1997 WT_{23} *, 4, 2, 4; *[114, 25, 8*, 1997/10/07–1997/12/04]*

360 Kuma Kogen Astronomical Observatory

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0.60-m f/6.0 Ritchey-Chrétien + CCD
GSC, USNO-SA1.0

1989 VA, 3, 1, 0; 1991 WA, 6, 2, 11; 1992 AB, 3, 1, 0; 1993 WD, 6, 2, 7; 1994 AH_2, 3, 1, 0; 1995 BU_4, 4, 2, 7; 1995 HE, 2, 1, 0; 1996 NW, 5, 2, 11; 1996 UC, 2, 1, 0; 1997 SE_5, 6, 2, 55; 1997 TD, 6, 2, 10; 1997 TW_{25}, 5, 2, 6; 1997 US_2, 3, 1, 0; 1997 UF_9, 3, 1, 0; 1997 UH_9, 3, 1, 0; 1997 US_9, 3, 1, 0; 1997 VP, 7, 3, 11; 1997 VM_4, 3, 1, 0; 1997 VG_6, 3, 1, 0; 1997 WJ, 6, 2, 1; 1997 WT_3 *, 6, 2, 1; 1997 WS_{22}, 3, 1, 0; 1997 WT_{22}, 3, 1, 0; 1997 WU_{22}, 3, 1, 0; 1997 WP_{23}, 6, 2, 4; 1997 WQ_{23}, 6, 2, 4; 1997 XO_2 *, 6, 2, 1; 1997 XP_2 *, 6, 2, 1; 1997 XS_2, 3, 1, 0; (1514), 3, 1, 0; (1904), 2, 1, 0; (2102), 2, 1, 0; (2340), 2, 1, 0; (2715), 6, 2, 1; (7788), 1, 1, 0; *[140, 35, 3*, 1997/05/09–1997/12/05]*

367 Yatsuka

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

0.26-m f/6.0 reflector + CCD
GSC

1993 TE, 4, 2, 11; 1994 AQ_2, 2, 1, 0; 1995 BG_2, 2, 1, 0; 1995 EH, 2, 1, 0; 1995 GF, 2, 1, 0; 1996 HD_1, 4, 2, 11; 1996 HZ_1, 4, 2, 11; 1997 UK_3, 2, 1, 0; 1997 VT, 6, 3, 16; 1997 WS_7 *, 4, 2, 2; *[32, 10, 1*, 1997/11/08–1997/12/05]*

369 Chichibu

N. Sato, 743-27, Kitairiso Sayama, Saitama-Ken 350-13, Japan
[mxf05524@niftyserve.or.jp]

0.31-m f/4.0 reflector + CCD, 0.25-m f/4.2 Wright-Schmidt + CCD
GSC

1985 RV_4, 5, 2, 1; 1997 UO_7, 2, 1, 0; 1997 UF_{22} *, 7, 3, 28; 1997 UG_{22} *, 6, 3, 24; 1997 UH_{22} *, 7, 3, 24; 1997 UJ_{22} *, 7, 3, 24; 1997 UK_{22} *, 15, 6, 29; 1997 UL_{22} *, 9, 4, 28; 1997 VH_5, 6, 2, 1; 1997 VJ_5, 5, 2, 1; 1997 VW_6 *, 8, 3, 13; 1997 VX_6 *, 8, 3, 13; 1997 VY_6 *, 8, 3, 13; 1997 WZ_1 *, 6, 3, 5; 1997 WA_2 *, 10, 4, 23; 1997 WB_2 *, 6, 3, 5; 1997 WV_7 *, 6, 3, 10; 1997 WW_7 *, 8, 3, 10; 1997 WX_7 *, 8, 3, 12; 1997 WY_7 *, 7, 3, 10; 1997 WZ_7 *, 7, 3, 10; 1997 WA_8 *, 8, 3, 10; 1997 WB_8 *, 7, 3, 10; 1997 WF_8 *, 7, 3, 9; 1997 WR_{23} *, 7, 3, 10; 1997 XZ_1 *, 4, 2, 2; 1997 XA_2 *, 4, 2, 2; 1997 XB_2 *, 4, 2, 2; 1997 XC_2 *, 4, 2, 2; 1997 XD_2 *, 4, 2, 2; 1997 XE_2 *, 5, 2, 2; 1997 XF_2 *, 6, 2, 2; 1997 XG_2 *, 6, 2, 2; 1997 XH_2 *, 6, 2, 2; 1997 XJ_2 *, 5, 2, 2; 1997 XK_2 *, 6, 2, 2; 1997 XL_2 *, 4, 2, 2; 1997 XM_2 *, 5, 2, 2; (2081), 6, 2, 1; (6294), 5, 2, 2; (6451), 7, 3, 28; *[261, 41, 34*, 1997/10/26–1997/12/05]*

372 Geisei

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

0.60-m f/3.5 reflector
GSC

1983 RP_2, 5, 3, 8; 1992 DN_6, 4, 2, 4; 1997 QK, 1, 1, 0; 1997 ST, 4, 3, 4; 1997 VK_1, 2, 1, 0; 1997 VM_2, 2, 1, 0; 1997 VY_2, 2, 2, 2; 1997 VD_5, 1, 1, 0; 1997 VE_5, 2, 2, 2; 1997 VJ_8 *, 6, 3, 4; 1997 VK_8 *, 4, 3, 4; (3825), 5, 3, 4; (5014), 4, 2, 2; (8003), 3, 3, 6; *[45, 14, 2*, 1997/08/28–1997/11/09]*

376 Uenohara

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

0.30-m reflector + CCD
GSC

1997 TY_{24}, 2, 1, 0; 1997 TV_{26} *, 6, 3, 19; *[8, 2, 1*, 1997/10/08–1997/10/27]*

381 Kiso

D. J. Asher, Communications Research Laboratory, Hirai 893-1, Kashima, Ibaraki-Ken, 314 Japan [david@crl.go.jp]
Observers S. Isobe, Y. Asakura, M. Saito, K. Sasahara, H. Maehara, K. Nakajima, N. Ohshiba
Measurer D. J. Asher

1.05-m Kiso Schmidt + CCD
GSC

1995 OO, 2, 1, 0; 1997 TM_{17}, 6, 1, 0; *[8, 2, 0*, 1995/01/20–1997/11/06]*

385 Nihondaira Observatory

T. Urata, 1-8, Dobayashi 1 Chome, Shimizu, Shizuoka-Ken 424, Japan
[urata@sannet.ne.jp]

0.31-m f/4.7 reflector + CCD
GSC, USNO-A1.0

1992 BG, 4, 2, 16; 1997 QB_2, 2, 1, 0; 1997 QF_2, 2, 1, 0; 1997 RP_1, 2, 1, 0; 1997 RF_8, 2, 1, 0; 1997 SF_{25}, 2, 1, 0; 1997 SJ_{25}, 2, 1, 0; 1997 UT_2, 2, 1, 0; 1997 UB_{11}, 4, 2, 14; 1997 UC_{11}, 4, 2, 14; 1997 VF_1, 3, 1, 0; 1997 VH_1, 2, 1, 0; 1997 VJ_1, 2, 1, 0; *[33, 13, 0*, 1997/10/25–1997/12/05]*

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

1992 WS_2, 4, 2, 14; 1993 VE_2, 6, 3, 14; 1997 SW_{33}, 2, 1, 0; 1997 TH_{19}, 4, 2, 1; 1997 TN_{26}, 2, 1, 0; 1997 UE_1, 10, 5, 22; 1997 UN_8, 2, 1, 0; 1997 UO_8, 4, 2, 1; 1997 UP_8, 4, 2, 1; 1997 UA_9, 6, 3, 11; 1997 VO_1, 2, 1, 0; 1997 VO_6, 6, 3, 11; 1997 VY_8 *, 6, 3, 23; 1997 WR_{28} *, 5, 3, 11; *[63, 14, 2*, 1993/01/22–1997/12/05]*

400 Kitami
K. Endate, 3-17, Hinode 1 Chome, Mihoro Cho, Abashiri-Gun, Hokkaido, 092 Japan
Observer K. Endate
0.25-m $f/3.4$ hyperboloid astrocamera + CCD
GSC

1981 EO_{15}, 4, 2, 6; 1993 SJ_{16} *, 2, 1, 0; 1997 TR_{17}, 4, 2, 15; 1997 TS_{17}, 4, 2, 5; 1997 TT_{17}, 3, 2, 5; 1997 TU_{17}, 4, 2, 5; 1997 TV_{17}, 4, 2, 5; 1997 TW_{17}, 4, 2, 15; 1997 TX_{17}, 4, 2, 15; 1997 TY_{17}, 6, 3, 15; 1997 TE_{25}, 2, 1, 0; 1997 UY_2, 2, 1, 0; 1997 UQ_8, 4, 2, 7; 1997 US_8, 2, 1, 0; 1997 UU_8, 2, 1, 0; 1997 UV_8, 2, 1, 0; 1997 UW_8, 2, 1, 0; 1997 UY_{10}, 2, 1, 0; 1997 UJ_{11}, 2, 1, 0; 1997 VQ, 2, 1, 0; 1997 VR, 2, 1, 0; 1997 VS, 2, 1, 0; 1997 VE_2, 2, 1, 0; 1997 VU_6 *, 6, 3, 8; 1997 VV_6 *, 6, 3, 8; 1997 WD_2, 4, 2, 6; *[83, 26, 3*, 1993/09/19–1997/12/04]*

402 Dynic Astronomical Observatory
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0.60-m $f/5.0$ reflector + CCD
GSC

1993 TE, 6, 2, 16; 1997 QN, 6, 2, 16; 1997 RD_1, 3, 1, 0; 1997 SG_2, 3, 1, 0; 1997 SE_5, 3, 1, 0; 1997 SL_{16}, 3, 1, 0; 1997 TD, 3, 1, 0; 1997 TA_{18}, 6, 2, 1; 1997 UF_9, 2, 1, 0; 1997 UH_9, 3, 1, 0; 1997 US_9, 3, 1, 0; 1997 UT_9, 3, 1, 0; 1997 VY_2, 3, 1, 0; 1997 VM_4, 3, 1, 0; 1997 VG_6, 3, 1, 0; 1997 WM_{16}, 3, 1, 0; 1997 WB_{21}, 3, 1, 0; 1997 WC_{21} *, 6, 2, 14; 1997 WS_{22}, 3, 1, 0; 1997 WT_{22}, 3, 1, 0; 1997 WU_{22}, 3, 1, 0; 1997 WP_{23}, 3, 1, 0; 1997 WQ_{23}, 3, 1, 0; 1997 XJ_1 *, 6, 2, 1; 1997 XL_1, 6, 2, 1; 1997 XN_2, 3, 1, 0; 1997 XR_2, 3, 1, 0; 1997 XS_2, 3, 1, 0; *[101, 28, 2*, 1997/11/09–1997/12/05]*

408 Nyukasa
M. Hirasawa, 6-62, Minami Koshigaya 1 Chome, Koshigaya, Saitama-Kem, 343 Japan
Observers M. Hirasawa, S. Suzuki
Measurer K. Watanabe
0.30-m $f/2.7$ Schmidt camera
GSC

1997 UX_{21} *, 6, 2, 2; 1997 UY_{21} *, 9, 3, 15; 1997 UZ_{21} *, 8, 3, 15; 1997 UA_{22} *, 9, 3, 15; 1997 UT_{22} *, 6, 2, 2; 1997 UK_{24} *, 6, 2, 2; 1997 VX_8 *, 3, 1, 0; *[47, 7, 7*, 1997/10/25–1997/11/09]*

409 Kiyose
S. Suzuki, 3-15-302, Midorimachi 2 chome, Musashino, Tokyo, 180 Japan
0.28-m $f/6.3$ Schmidt-Cassegrain + CCD
GSC

1997 VX_8, 7, 2, 5; *[7, 1, 0*, 1997/11/19–1997/11/24]*

411 Oizumi
T. Kobayashi, 8-6, Nishi Koizumi 1 Chome, Oizumi, Ora-Gun, Gunma-Ken, 370-05 Japan [kobataka@oaa.iijnet.or.jp]
0.25-m $f/4.4$ reflector + CCD, 0.41-m $f/4.3$ reflector + CCD
GSC

1985 UQ_4, 2, 1, 0; 1986 XF_1, 2, 1, 0; 1990 VR_{14}, 4, 2, 1; 1991 RT_{40}, 2, 1, 0; 1992 HN, 4, 2, 2; 1992 UO_5, 4, 2, 1; 1994 BW_4, 2, 1, 0; 1994 CM, 3, 1, 0; 1995 AG, 2, 1, 0; 1995 AJ, 2, 1, 0; 1995 AW_2, 2, 1, 0; 1995 CO_1, 2, 1, 0; 1996 QD_1, 4, 2, 1; 1997 SJ_4, 2, 1, 0; 1997 TN_{17}, 3, 1, 0; 1997 UJ_3, 4, 2, 11; 1997 UK_3, 2, 1, 0; 1997 UL_3, 4, 2, 11; 1997 UM_3, 2, 1, 0; 1997 UN_3, 2, 1, 0; 1997 UO_3, 4, 2, 11; 1997 UP_3, 2, 1, 0; 1997 UQ_3, 2, 1, 0; 1997 UR_3, 4, 2, 11; 1997 US_3, 4, 2, 11; 1997 UT_3, 4, 2, 11; 1997 UV_3, 2, 1, 0; 1997 UW_3, 2, 1, 0; 1997 UX_3, 4, 2, 11; 1997 UY_8, 3, 1, 0; 1997 VJ, 3, 2, 9; 1997 VW, 4, 2, 13; 1997 VX, 4, 2, 13; 1997 VY, 2, 1, 0; 1997 VZ, 4, 2, 13; 1997 VZ_1, 2, 1, 0; 1997 VC_2, 4, 2, 9; 1997 VD_2, 2, 1, 0; 1997 VH_2, 2, 1, 0; 1997 VZ_2, 2, 1, 0; 1997 VB_3, 4, 2, 11; 1997 VC_3, 4, 2, 11; 1997 VD_3, 4, 2, 11; 1997 VE_3, 4, 2, 11; 1997 VF_3, 5, 3, 11; 1997 VG_3, 2, 1, 0; 1997 VH_3, 6, 3, 12; 1997 VJ_3, 4, 2, 11; 1997 VK_3, 4, 2, 11; 1997 VL_3, 4, 2, 11; 1997 VM_3, 4, 2, 11; 1997 VN_3, 2, 1, 0; 1997 VO_3, 4, 2, 11; 1997 VP_3, 4, 2, 11; 1997 VQ_3, 4, 2, 11; 1997 VR_3, 4, 2, 11; 1997 VS_3, 4, 2, 11; 1997 VU_3, 4, 2, 11; 1997 VV_3, 4, 2, 11; 1997 VW_3, 4, 2, 11; 1997 VF_4, 7, 3, 12; 1997 VG_4, 2, 1, 0; 1997 VH_5, 4, 2, 14; 1997 VJ_5, 4, 2, 14; 1997 VK_5, 4, 2, 14; 1997 VL_5, 4, 2, 14; 1997 VM_5, 2, 1, 0; 1997 VN_5, 4, 2, 14; 1997 VO_5, 4, 2, 10; 1997 VP_5, 4, 2, 14; 1997 VQ_5, 4, 2, 14; 1997 VR_5, 4, 2, 14; 1997 VS_5, 4, 2, 14; 1997 VT_5, 4, 2, 10; 1997 VZ_5, 4, 2, 10; 1997 VA_6, 5, 3, 10; 1997 VB_6, 4, 2, 10; 1997 VD_6, 4, 2, 9; 1997 VF_6, 4, 2, 10; 1997 WC *, 8, 4, 16; 1997 WD *, 8, 4, 16; 1997 WE *, 9, 4, 16; 1997 WF *, 12, 6, 15; 1997 WG *, 8, 4, 16; 1997 WH *, 8, 4, 16; 1997 WJ *, 8, 4, 16; 1997 WK *, 8, 4, 16; 1997 WL *, 8, 4, 16; 1997 WM *, 8, 4, 15; 1997 WN *, 8, 4, 16; 1997 WO *, 8, 4, 16; 1997 WP *, 8, 4, 16; 1997 WQ *, 8, 4, 16; 1997 WR *, 8, 4, 16; 1997 WT_1 *, 8, 3, 13; 1997 WU_1 *, 8, 3, 8; 1997 WV_1 *, 6, 3, 8; 1997 WW_1 *, 6, 3, 14; 1997 WD_2 *, 8, 4, 12; 1997 WE_2 *, 12, 6, 12; 1997 WF_2 *, 8, 4, 12; 1997 WG_2 *, 8, 4, 12; 1997 WH_2 *, 8, 4, 12; 1997 WJ_2 *, 8, 4, 12; 1997 WK_2 *, 8, 4, 12; 1997 WL_2 *, 8, 4, 12; 1997 WM_2 *, 4, 2, 1; 1997 WN_2 *, 8, 4, 12; 1997 WO_2 *, 6, 3, 4; 1997 WP_2 *, 10, 5, 12; 1997 WQ_2 *, 8, 4, 12; 1997 WR_2 *, 8, 4, 12; 1997 WS_2 *, 8, 4, 12; 1997 WT_2 *, 8, 4, 12; 1997 WU_2 *, 8, 4, 12; 1997 WV_2 *, 8, 4, 12; 1997 WW_2 *, 8, 4, 12; 1997 WX_2 *, 8, 4, 12; 1997 WY_2 *, 8, 4, 12; 1997 WZ_2 *, 8, 4, 12; 1997 WA_3 *, 8, 4, 12; 1997 WB_3 *, 8, 4, 12; 1997 WC_3 *, 8, 4, 12; 1997 WD_3 *, 8, 4, 12; 1997 WE_3 *, 8, 4, 12; 1997 WF_3 *, 8, 4, 12; 1997 WS_3 *, 8, 4, 12; 1997 WS_7, 4, 2, 1; 1997 WC_8 *, 6, 3, 9; 1997 WD_8 *, 6, 3, 9; 1997 WE_{21} *, 7, 3, 9; 1997 WF_{21} *, 6, 3, 5; 1997 WG_{21} *, 6, 3, 5; 1997 WH_{21} *, 6, 3, 5; 1997 WJ_{21} *, 6, 3, 5; 1997 WK_{21} *, 6, 3, 5; 1997 WL_{21} *, 6, 3, 5; 1997 WM_{21} *, 6, 3, 5; 1997 WN_{21} *, 6, 3, 5; 1997 WO_{21} *, 6, 3, 5; 1997 WP_{21} *, 6, 3, 5; 1997 WQ_{21} *, 6, 3, 5; 1997 WR_{21} *, 6, 3, 5; 1997 WS_{21} *, 6, 3, 5; 1997 WT_{21} *, 6, 3, 5; 1997 WU_{21} *, 6, 3, 5; 1997 WV_{21} *, 6, 3, 5; 1997 XB *, 4, 2, 1; 1997 XJ *, 4, 2, 1; 1997 XK *, 4, 2, 1; 1997 XL *, 4, 2, 1; 1997 XM *, 4, 2, 1; 1997 XN *, 4, 2, 1; 1997 XO *, 4, 2, 1; 1997 XP *, 4, 2, 1; 1997 XQ *, 4, 2, 1; 1997 XR *, 4, 2, 1; 1997 XS *, 4, 2, 1; 1997 XT *, 4, 2, 1; 1997 XU *, 4, 2, 1; 1997 XV *, 4, 2, 1; 1997 XW *, 4, 2, 1; 1997 XX *, 4, 2, 1; 1997 XY *, 4, 2, 1; 1997 XZ *, 4, 2, 1; 1997 XA_1 *, 4, 2, 1; 1997 XB_1 *, 4, 2, 1; 1997 XH_1 *, 5, 2, 1; 1997 XK_1 *, 4, 2, 1; 2017 P-L, 2, 1, 0; 3520 P-L, 2, 1, 0; *[866, 171, 89*, 1997/11/06–1997/12/05]*

413 Siding Spring
R. H. McNaught, Anglo-Australian Observatory, Coonabarabran, NSW 2357, Australia [rmn@aaocbn2.aao.gov.au] (1)
C.-I. Lagerkvist, Uppsala Observatory, Box 515, S-75120 Uppsala, Sweden [classe@laban.uu.se] (3)
Observers K. S. Russell, C. P. Cass
Measurers O. Hernius, R. H. McNaught
1.2-m U.K. Schmidt

(1) 1997 SN_{31}, 2, 1, 0; 1997 WS_{22} *, 2, 1, 0; *[4, 2, 1*, 1996/05/17–1997/11/24]*

(3) 1981 TH_3, 1, 1, 0; 1990 QB_{19}, 1, 1, 0; 1995 UP_7, 1, 1, 0; 1996 BE_2, 1, 1, 0; 1997 TW_{16}, 1, 1, 0; *[5, 5, 0*, 1993/04/16–1993/04/18]*

422 Loomberah
G. J. Garradd, P.O. Box 157, Tamworth, NSW 2340, Australia [gjg@mpx.com.au]
0.25-m $f/4.1$ reflector + CCD
GSC

(40), 2, 1, 0; (41), 3, 1, 0; (67), 3, 1, 0; (132), 3, 1, 0; (146), 3, 1, 0; (163), 3, 1, 0; (245), 3, 1, 0; (313), 3, 1, 0; (347), 2, 1, 0; (369), 4, 1, 0; (389), 3, 1, 0; (1373), 2, 1, 0; (2100), 2, 1, 0; (2212), 3, 1, 0; (3362), 1, 1, 0; (3840), 3, 1, 0; (5131), 1, 1, 0; (5803), 1, 1, 0; *[45, 18, 0*, 1997/11/12–1997/11/25]*

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

1989 WA_2, 8, 2, 1; (2291), 7, 2, 1; (5751), 4, 2, 3; *[19, 3, 0∗, 1997/11/18–1997/12/04]*

424 Macquarie, near Canberra
J. B. Child, 7 DeGillern Place, Macquarie, ACT 2614, Australia [jbchild@pcug.org.au]
Observer J. B. Child
Measurers J. B. Child, J. E. Rogers
0.32-m f/4.8 reflector + CCD
1992 SE_1, 2, 1, 0; 1996 HT, 4, 1, 0; 1997 UB_8, 3, 1, 0; 1997 UH_9, 2, 1, 0; 1997 UK_9, 2, 1, 0; *[13, 5, 0∗, 1997/11/18–1997/11/23]*

426 Woomera
F. B. Zoltowski, 10 Gundawarra St., P.O. Box 84, Woomera, SA 5720, Australia [100356.23@CompuServe.com]
0.30-m f/3.3 Schmidt-Cassegrain + CCD
USNO-SA1.0, GSC
1978 US_5, 4, 2, 5; 1981 EQ_{28}, 6, 2, 2; 1981 EO_{41}, 8, 2, 5; 1983 RP_2, 6, 2, 3; 1990 QC_5, 6, 2, 1; 1991 RX_{23}, 6, 2, 5; 1993 FB_{24}, 6, 2, 3; 1993 XK_1, 6, 2, 2; 1994 AW, 6, 2, 6; 1994 YO, 6, 2, 11; 1996 QL, 6, 2, 1; 1997 RF_4, 5, 2, 1; 1997 SZ_1, 6, 2, 3; 1997 SL_{15}, 9, 3, 3; 1997 UP_{10}, 10, 4, 28; 1997 UQ_{10}, 8, 3, 19; 1997 UV_{14}, 6, 2, 3; 1997 VA, 12, 4, 23; 1997 VP_2, 6, 2, 3; 1997 VG_8 ∗, 7, 2, 3; 1997 WA ∗, 6, 2, 1; 1997 WB ∗, 6, 2, 1; 1997 WD_1 ∗, 6, 2, 2; 1997 WX_1 ∗, 9, 3, 3; 1997 WY_1 ∗, 7, 3, 3; 1997 WU_7 ∗, 10, 3, 5; 1997 WP_{23}, 3, 1, 0; 1997 WQ_{23}, 4, 1, 0; 4232 T-1, 5, 2, 1; 5493 T-2, 5, 2, 5; (35), 6, 2, 1; (142), 6, 2, 10; (231), 6, 2, 4; (1033), 6, 2, 2; (1396), 6, 2, 4; (3343), 5, 2, 7; (4187), 5, 2, 6; (4311), 6, 2, 11; (5789), 6, 2, 9; (8010), 6, 2, 14; (8057), 6, 2, 2; *[260, 41, 7∗, 1997/11/04–1997/12/02]*

476 Grange Observatory
P. Pognant, Via Massimo d'Azeglio 34, I-10053 Bussoleno (TO), Italy [mc2213@mclink.it]
0.30-m f/4.0 reflector + CCD
GSC
(1980), 6, 2, 12; *[6, 1, 0∗, 1997/11/23–1997/12/05]*

494 Stakenbridge
B. G. W. Manning, Moonrakers, Stakenbridge, Churchill, Kidderminster, Worcs. DY10 3LS, England [bgwm@star.sr.bham.ac.uk]
0.26-m f/7.3 reflector + CCD
PPM
1989 UB_3, 6, 2, 9; 1991 AH_1, 5, 2, 2; 1997 WL_{23} ∗, 5, 2, 2; *[16, 3, 1∗, 1997/11/21–1997/12/02]*

504 Le Creusot
J.-C. Merlin, 18 rue P. Mendès-France, F-71200 Le Creusot, France [merlin@obspm.fr]
0.40-m f/5.1 reflector + CCD
GSC
1997 XQ_2 ∗, 12, 3, 2; *[12, 1, 1∗, 1997/12/05–1997/12/07]*

544 Wilhelm Foerster Observatory, Berlin
W. Hasse, Wilhelm-Foerster-Sternwarte, Munsterdamm 90, D-12169 Berlin, Germany [cwkl@uni.de]
Observers W. Hasse, E. Kismann, S. Klose, C. Linke, K. Toedte
Measurers M. Dentel, C.Haase, W.Hasse, F.Kugler, K.Toedte, F.Vetter
0.15-m f/15 double refractor, 0.75-m f/7.7 Ritchey-Chrétien reflector + CCD
PPM, GSC
(2), 3, 1, 0; (13), 2, 1, 0; (7778), 12, 6, 42; *[17, 3, 0∗, 1997/04/20–1997/08/16]*

552 San Vittore
E. Colombini, Via S. Vittore 44, I-40136 Bologna, Italy [ermes.colombini@iol.it]
Observers C. Vacchi, G. Sassi, E. Colombini, R. Di Luca
0.45-m f/3.3 reflector + CCD
GSC
1986 TB, 4, 2, 16; 1988 DD, 4, 2, 16; 1988 QA, 3, 1, 0; 1996 NS, 5, 2, 16; 1996 PF_5, 4, 2, 16; 1997 SW_2, 2, 1, 0; 1997 SP_4, 2, 1, 0; 1997 ST_{17}, 6, 3, 64; 1997 TE, 4, 2, 18; 1997 VE_5, 2, 1, 0; (4512), 2, 1, 0; (8006), 2, 1, 0; *[40, 12, 0∗, 1997/10/01–1997/12/06]*

557 Ondřejov
P. Pravec, Astronomical Institute, Czech Academy of Sciences, CZ-25165 Ondřejov, Czech Republic [ppravec@asu.cas.cz]
Observers P. Pravec, L. Šarounová, M. Wolf
0.65-m f/3.6 reflector + CCD
USNO-SA1.0, GSC
1993 VM_2, 1, 1, 0; 1997 QR, 2, 1, 0; 1997 QV_2, 2, 1, 0; 1997 RA_1, 2, 1, 0; 1997 RM_9, 3, 1, 0; 1997 SH, 2, 1, 0; 1997 SL, 1, 1, 0; 1997 SY_1, 2, 1, 0; 1997 SZ_1, 2, 1, 0; 1997 SA_2, 6, 2, 9; 1997 SC_2, 2, 1, 0; 1997 SE_2, 2, 1, 0; 1997 SN_2, 1, 1, 0; 1997 SC_4, 2, 1, 0; 1997 SA_{16}, 3, 1, 0; 1997 SO_{25}, 2, 1, 0; 1997 TT_9, 3, 1, 0; 1997 TW_9, 2, 1, 0; 1997 TZ_9, 3, 2, 1; 1997 TB_{10}, 2, 1, 0; 1997 TG_{10}, 3, 1, 0; 1997 TH_{10}, 2, 1, 0; 1997 TJ_{10}, 2, 1, 0; 1997 TA_{17}, 1, 1, 0; 1997 TX_{17}, 4, 1, 0; 1997 TM_{19}, 2, 1, 0; 1997 TO_{19}, 2, 1, 0; 1997 TN_{20}, 2, 1, 0; 1997 TF_{25}, 1, 1, 0; 1997 TG_{25}, 3, 1, 0; 1997 TT_{25}, 5, 1, 0; 1997 UJ, 2, 1, 0; 1997 UT, 2, 1, 0; 1997 UU, 4, 2, 9; 1997 UV, 4, 2, 9; 1997 UB_1, 2, 1, 0; 1997 UG_1, 3, 1, 0; 1997 UE_2, 2, 1, 0; 1997 UQ_7, 2, 1, 0; 1997 UR_7, 2, 1, 0; 1997 US_7, 2, 1, 0; 1997 UT_7, 2, 1, 0; 1997 UU_7, 2, 1, 0; 1997 UX_7, 4, 2, 9; 1997 UY_7, 2, 1, 0; 1997 UH_9, 2, 1, 0; 1997 UL_9, 5, 2, 9; 1997 UM_9, 2, 1, 0; 1997 UN_9, 5, 2, 9; 1997 UO_9, 4, 2, 9; 1997 US_{10}, 5, 2, 10; 1997 UU_{10}, 4, 2, 9; 1997 UW_{14}, 3, 1, 0; 1997 UX_{14}, 3, 1, 0; 1997 UB_{15}, 2, 1, 0; 1997 VV_1, 6, 2, 14; 1997 VU_2, 3, 1, 0; 1997 VV_2, 2, 1, 0; 1997 VV_4, 3, 1, 0; 1997 VC_5, 3, 1, 0; 1997 VH_6, 2, 1, 0; 1997 VJ_6, 2, 1, 0; 1997 VL_6, 4, 1, 0; 1997 VM_6, 6, 1, 0; 1997 VH_8 ∗, 5, 2, 8; 1997 WX ∗, 7, 3, 10; 1997 WY ∗, 5, 2, 1; 1997 WZ ∗, 4, 2, 1; 1997 WP_{28} ∗, 5, 2, 6; *[199, 69, 5∗, 1997/10/28–1997/12/05]*

563 Seewalchen
M. Bressler, Sachsenstrasse 40, A-4863 Seewalchen a. A., Austria
0.25-m f/6 reflector + CCD
GSC
1979 MY_5, 8, 2, 29; 1993 HL_6, 6, 2, 2; 1993 UL, 6, 2, 1; 1995 DE_2, 9, 2, 1; (3498), 8, 1, 0; (7887), 7, 2, 14; (8019), 8, 2, 1; *[52, 7, 0∗, 1997/08/10–1997/10/06]*

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
1957 JP, 3, 1, 0; 1975 SK_1, 3, 1, 0; 1975 UA, 3, 1, 0; 1976 UY, 3, 1, 0; 1976 UR_{15}, 3, 1, 0; 1976 YA_6, 3, 1, 0; 1978 SQ_7, 3, 1, 0; 1978 SA_8, 3, 1, 0; 1978 VP_{10}, 3, 1, 0; 1979 FD_3, 3, 1, 0; 1979 KD, 3, 1, 0; 1979 MK_3, 3, 1, 0; 1979 MN_3, 3, 1, 0; 1979 MK_5, 3, 1, 0; 1979 SU_2, 3, 1, 0; 1979 SP_{14}, 3, 1, 0; 1980 PB_2, 3, 1, 0; 1981 GO, 3, 1, 0; 1981 SC_7, 3, 1, 0; 1983 RP_2, 3, 1, 0; 1985 PE, 3, 1, 0; 1985 RJ_3, 3, 1, 0; 1986 WO_1, 3, 1, 0; 1987 SB_3, 3, 1, 0; 1988 CQ_7, 3, 1, 0; 1988 NR, 3, 1, 0; 1988 VB, 3, 1, 0; 1989 GE, 3, 1, 0; 1989 RB_6, 12, 4, 85; 1989 SY, 3, 1, 0; 1989 UB_3, 3, 1, 0; 1989 UJ_3, 3, 1, 0; 1989 UH_7, 3, 1, 0; 1990 ON_2, 3, 1, 0; 1990 QK_3, 3, 1, 0; 1990 QM_4, 3, 1, 0; 1990 RR_5, 6, 2, 560; 1990 SZ_7, 3, 1, 0; 1990 SX_{10}, 3, 1, 0; 1990 SL_{27}, 3, 1, 0; 1990 TK_{15}, 3, 1, 0; 1990 UQ_3, 3, 1, 0; 1990 VW_6, 3, 1, 0; 1991 AL, 6, 1, 0; 1991 BV_1, 3, 1, 0; 1991 FX_2, 3, 1, 0; 1991 PO_4, 3, 1, 0; 1991 SC_1, 3, 1, 0; 1991 SR_3, 3, 1, 0; 1991 VA_1, 3, 1, 0; 1992 DC_{10}, 3, 1, 0; 1992 DQ_{10}, 3, 1, 0; 1992 OB_9, 3, 1, 0; 1992 TW, 3, 1, 0; 1992 UG_3, 3, 1, 0; 1993 NH, 3, 1, 0; 1993 PV_6, 3, 1, 0; 1993 PU_7, 3, 1, 0; 1993 QN_4, 3, 1, 0; 1993 RK, 3, 1, 0; 1993 RC_2, 3, 1, 0; 1993 TL_{13}, 3, 1, 0; 1993 TU_{36}, 3, 1, 0; 1993 UV, 3, 1, 0; 1993 UC_1, 3, 1, 0; 1993 VT, 3, 1, 0; 1993 WD, 3, 1, 0; 1993 XF, 3, 1, 0; 1993 XR, 3, 1, 0; 1994 WH_2, 3, 1, 0; 1995 CB_1, 6, 1, 0; 1995 GJ_7, 3, 1, 0; 1996 FU_{23} ∗, 3, 1, 0; 1996 HD_1, 3, 1, 0; 1996 HB_2, 3, 1,

0; 1996 HD_{24}, 3, 1, 0; 1996 JL, 3, 1, 0; 1996 QB_3, 3, 1, 0; 1997 GD_{20}, 3, 1, 0; 1997 QG_1, 12, 2, 22; 1997 QC_2, 3, 1, 0; 1997 QZ_2, 3, 1, 0; 1997 QR_3, 3, 1, 0; 1997 QV_3, 3, 1, 0; 1997 RA_7, 6, 1, 0; 1997 RP_7, 3, 1, 0; 1997 RS_9, 3, 1, 0; 1997 RK_{13} *, 3, 1, 0; 1997 ST, 3, 1, 0; 1997 SD_1, 3, 1, 0; 1997 SS_3, 3, 1, 0; 1997 SE_5, 3, 1, 0; 1997 SB_{10}, 3, 1, 0; 1997 SL_{15}, 3, 1, 0; 1997 SZ_{15}, 3, 1, 0; 1997 SA_{34}, 3, 1, 0; 1997 TD, 3, 1, 0; 1997 TR_6, 9, 2, 1; 1997 TN_{17}, 3, 1, 0; 1997 TY_{24}, 3, 1, 0; 1997 TK_{26}, 3, 1, 0; 1997 TR_{26}, 3, 1, 0; 1997 UO_1, 3, 1, 0; 1997 UE_2, 3, 1, 0; 1997 UL_3, 3, 1, 0; 1997 UY_3, 3, 1, 0; 1997 UU_4, 3, 1, 0; 1997 UA_7, 3, 1, 0; 1997 UB_7, 3, 1, 0; 1997 UX_7, 3, 1, 0; 1997 UA_9, 3, 1, 0; 1997 UG_9, 3, 1, 0; 1997 UC_{11}, 3, 1, 0; 1997 UH_{11}, 3, 1, 0; 1997 UC_{15}, 3, 1, 0; 1997 UF_{15}, 3, 1, 0; 1997 UQ_{17}, 3, 1, 0; 1997 UV_{21}, 3, 1, 0; 1997 UZ_{21}, 3, 1, 0; 1997 UA_{22}, 6, 2, 29; 1997 UF_{22}, 3, 1, 0; 1997 UG_{22}, 3, 1, 0; 1997 UY_{24}, 3, 1, 0; 1997 VK, 3, 1, 0; 1997 VQ, 3, 1, 0; 1997 VR, 3, 1, 0; 1997 VT, 3, 1, 0; 1997 VV, 3, 1, 0; 1997 VF_1, 3, 1, 0; 1997 VM_1, 6, 1, 0; 1997 VO_1, 3, 1, 0; 1997 VR_1, 3, 1, 0; 1997 VZ_1, 3, 1, 0; 1997 VC_2, 3, 1, 0; 1997 VE_3, 3, 1, 0; 1997 VJ_3, 3, 1, 0; 1997 VL_3, 3, 1, 0; 1997 VM_3, 3, 1, 0; 1997 VN_3, 3, 1, 0; 1997 VQ_3, 3, 1, 0; 1997 VY_3, 3, 1, 0; 1997 VY_5, 3, 1, 0; 1997 VQ_6, 3, 1, 0; 1997 VS_6, 3, 1, 0; 1997 VW_6, 3, 1, 0; 1997 VG_7, 3, 1, 0; 1997 VJ_8, 3, 1, 0; 1997 VK_8, 3, 1, 0; 1997 VX_8, 6, 1, 0; 1997 WX, 3, 1, 0; 1997 WE_1, 3, 1, 0; 1997 WP_1, 3, 1, 0; 1997 WQ_1, 3, 1, 0; 1997 WR_1, 3, 1, 0; 1997 WC_2, 6, 2, 4; 1997 WU_3, 3, 1, 0; 1997 WR_5, 3, 1, 0; 1997 WO_7, 3, 1, 0; 1997 WS_7, 3, 1, 0; 1997 WV_{10}, 3, 1, 0; 1997 WD_{15}, 3, 1, 0; 1997 WH_{16} *, 6, 2, 2; 1997 WJ_{16} *, 6, 2, 1; 1997 WK_{16} *, 6, 2, 3; 1997 WL_{16} *, 6, 2, 3; 1997 WM_{16}, 3, 1, 0; 1997 WN_{16} *, 6, 2, 4; 1997 WO_{16} *, 6, 2, 4; 1997 WP_{16} *, 6, 2, 4; 1997 WQ_{16} *, 6, 2, 4; 1997 WR_{16} *, 6, 2, 4; 1997 WS_{16} *, 6, 2, 4; 1997 WT_{16} *, 6, 2, 2; 1997 WU_{16} *, 6, 2, 2; 1997 WZ_{20} *, 6, 2, 4; 1997 WB_{21} *, 12, 3, 4; 1997 WU_{22} *, 3, 1, 0; 1997 XC, 3, 1, 0; 2017 P-L, 3, 1, 0; 2572 P-L, 3, 1, 0; 3520 P-L, 3, 1, 0; 4038 P-L, 6, 1, 0; 4634 P-L, 3, 1, 0; 6570 P-L, 3, 1, 0; 9076 P-L, 3, 1, 0; 4062 T-1, 3, 1, 0; (1), 3, 1, 0; (45), 3, 1, 0; (77), 3, 1, 0; (138), 3, 1, 0; (144), 3, 1, 0; (196), 3, 1, 0; (200), 3, 1, 0; (215), 6, 2, 2; (246), 3, 1, 0; (274), 3, 1, 0; (309), 3, 1, 0; (333), 3, 1, 0; (335), 3, 1, 0; (371), 3, 1, 0; (380), 3, 1, 0; (392), 3, 1, 0; (420), 3, 1, 0; (486), 3, 1, 0; (553), 3, 1, 0; (603), 3, 1, 0; (635), 3, 1, 0; (669), 3, 1, 0; (710), 3, 1, 0; (808), 3, 1, 0; (825), 3, 1, 0; (836), 3, 1, 0; (842), 3, 1, 0; (848), 3, 1, 0; (859), 3, 1, 0; (866), 3, 1, 0; (905), 6, 2, 59; (943), 3, 1, 0; (953), 3, 1, 0; (1011), 3, 1, 0; (1014), 3, 1, 0; (1066), 3, 1, 0; (1150), 3, 1, 0; (1161), 3, 1, 0; (1171), 6, 2, 59; (1193), 3, 1, 0; (1209), 3, 1, 0; (1216), 3, 1, 0; (1267), 3, 1, 0; (1310), 3, 1, 0; (1336), 3, 1, 0; (1344), 3, 1, 0; (1350), 3, 1, 0; (1359), 3, 1, 0; (1492), 3, 1, 0; (1497), 3, 1, 0; (1503), 3, 1, 0; (1553), 3, 1, 0; (1582), 3, 1, 0; (1594), 3, 1, 0; (1629), 3, 1, 0; (1652), 3, 1, 0; (1676), 3, 1, 0; (1705), 3, 1, 0; (1751), 3, 1, 0; (1752), 3, 1, 0; (1795), 6, 2, 63; (1812), 3, 1, 0; (1848), 3, 1, 0; (1911), 3, 1, 0; (1968), 3, 1, 0; (2020), 3, 1, 0; (2103), 3, 1, 0; (2121), 6, 1, 0; (2168), 3, 1, 0; (2190), 3, 1, 0; (2197), 3, 1, 0; (2221), 3, 1, 0; (2235), 3, 1, 0; (2286), 3, 1, 0; (2298), 3, 1, 0; (2343), 3, 1, 0; (2348), 3, 1, 0; (2390), 3, 1, 0; (2413), 3, 1, 0; (2437), 6, 2, 63; (2505), 6, 2, 59; (2522), 3, 1, 0; (2540), 3, 1, 0; (2547), 3, 1, 0; (2575), 3, 1, 0; (2577), 3, 1, 0; (2587), 3, 1, 0; (2606), 3, 1, 0; (2678), 3, 1, 0; (2693), 6, 2, 59; (2733), 3, 1, 0; (2763), 3, 1, 0; (2819), 3, 1, 0; (2829), 3, 1, 0; (2840), 3, 1, 0; (2851), 3, 1, 0; (2880), 3, 1, 0; (2889), 3, 1, 0; (2936), 6, 2, 4; (2942), 3, 1, 0; (2950), 6, 1, 0; (2962), 3, 1, 0; (2985), 3, 1, 0; (3018), 3, 1, 0; (3049), 6, 2, 59; (3090), 3, 1, 0; (3128), 3, 1, 0; (3250), 3, 1, 0; (3272), 3, 1, 0; (3275), 3, 1, 0; (3319), 3, 1, 0; (3402), 3, 1, 0; (3481), 3, 1, 0; (3493), 3, 1, 0; (3501), 3, 1, 0; (3502), 3, 1, 0; (3504), 3, 1, 0; (3543), 3, 1, 0; (3584), 3, 1, 0; (3586), 3, 1, 0; (3597), 3, 1, 0; (3659), 3, 1, 0; (3696), 3, 1, 0; (3721), 3, 1, 0; (3722), 3, 1, 0; (3763), 3, 1, 0; (3828), 3, 1, 0; (3830), 3, 1, 0; (3837), 3, 1, 0; (3862), 3, 1, 0; (3924), 6, 2, 59; (4074), 6, 2, 2; (4078), 3, 1, 0; (4131), 3, 1, 0; (4139), 3, 1, 0; (4170), 3, 1, 0; (4183), 3, 1, 0; (4225), 3, 1, 0; (4260), 3, 1, 0; (4285), 3, 1, 0; (4324), 3, 1, 0; (4327), 3, 1, 0; (4350), 3, 1, 0; (4365), 3, 1, 0; (4492), 3, 1, 0; (4606), 3, 1, 0; (4607), 3, 1, 0; (4617), 3, 1, 0; (4626), 3, 1, 0; (4682), 3, 1, 0; (4689), 3, 1, 0; (4742), 3, 1, 0; (4789), 3, 1, 0; (4873), 3, 1, 0; (4941), 3, 1, 0; (4979), 3, 1, 0; (5014), 3, 1, 0; (5205), 3, 1, 0; (5323), 3, 1, 0; (5345), 3, 1, 0; (5361), 3, 1, 0; (5372), 3, 1, 0; (5385), 3, 1, 0; (5656), 3, 1, 0; (5722), 3, 1, 0; (5735), 3, 1, 0; (5768), 3, 1, 0; (5775), 3, 1, 0; (5793), 3, 1, 0; (5811), 3, 1, 0; (5854), 3, 1, 0; (5889), 3, 1, 0; (5936), 3, 1, 0; (5945), 3, 1, 0; (6185), 3, 1, 0; (6207), 3, 1, 0; (6242), 3, 1, 0; (6299), 3, 1, 0; (6301), 3, 1, 0; (6329), 3, 1, 0; (6424), 3, 1, 0; (6503), 3, 1, 0; (6867), 3, 1, 0; (6954), 3, 1, 0; (6975), 3, 1, 0; (6977), 3, 1, 0; (7020), 3, 1, 0; (7069), 3, 1, 0; (7076), 3, 1, 0; (7110), 3, 1, 0; (7118), 3, 1, 0; (7136), 6, 1, 0; (7171), 3, 1, 0; (7292), 3, 1, 0; (7800), 3, 1, 0; (7837), 3, 1, 0; (7921), 6, 1, 0; (7923), 3, 1, 0; (7941), 3, 1, 0; (7952), 3, 1, 0; (7984), 3, 1, 0; (7987), 3, 1, 0; (7992), 6, 2, 1; (7998), 3, 1, 0; (8000), 3, 1, 0; (8020), 6, 2, 4; *[1326, 392, 17*, 1996/02/15–1997/11/30]*

568 Mauna Kea

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

3.6-m telescope + CCD

USNO-A1.0

1997 VS_2, 3, 1, 0; *[3, 1, 0*, 1997/11/02]*

587 Sormano

P. Sicoli, Via Valli 9, I-23846 Garbagnate Monastero (Lecco), Italy [sormano@tin.it]

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

0.5-m reflector + CCD

GSC

1994 YB, 5, 3, 35; 1995 DL_2, 5, 2, 23; 1995 DM_2, 4, 2, 29; 1995 GE, 6, 3, 35; 1997 QH_1, 2, 1, 0; 1997 RD_1, 3, 1, 0; 1997 SE_5, 2, 1, 0; 1997 SZ_9, 4, 2, 5; 1997 TC, 4, 2, 5; 1997 TD, 2, 1, 0; 1997 TV, 2, 1, 0; 1997 TW, 2, 1, 0; 1997 US_2, 2, 1, 0; 1997 UF_5, 2, 1, 0; 1997 UF_9, 5, 2, 18; 1997 UH_9, 2, 1, 0; 1997 US_9, 4, 2, 18; 1997 VS_1, 5, 3, 15; 1997 VM_4, 3, 1, 0; 1997 VO_4, 4, 2, 2; 1997 VJ_6, 4, 1, 0; 1997 WB_{21}, 2, 1, 0; 1997 WS_{22}, 2, 1, 0; 1997 WT_{22}, 2, 1, 0; 1997 WU_{22}, 3, 1, 0; 1997 WQ_{23}, 3, 1, 0; 1997 XR_2, 3, 1, 0; 1997 XS_2, 2, 1, 0; *[89, 28, 0*, 1997/10/26–1997/12/06]*

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, E. Gregori, F. Lombardi

0.50-m $f/2.8$ Ritchey-Chrétien + CCD

GSC

1995 JJ, 8, 2, 3; 1997 TS_{16}, 7, 2, 1; 1997 VS_6 *, 13, 4, 15; 1997 VA_7 *, 11, 4, 4; *[39, 4, 2*, 1997/11/03–1997/11/18]*

592 Solingen

B. Koch, Fliederweg 10, D-42699 Solingen, Germany [BerndKoch@aol.com]

z0.36-m $f/5$ Schmidt-Cassegrain + CCD

GSC

1997 VD_5, 4, 2, 12; 1997 VE_5, 9, 2, 12; (5819), 3, 1, 0; *[16, 3, 0*, 1997/11/19–1997/12/01]*

595 Farra d'Isonzo

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

Observers A. Toso, W. Boschin, L. Drigo, G. Lombardi, E. Pettarin, F. Piani

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

0.4-m $f/4.5$ reflector + CCD

GSC

1994 BE, 2, 2, 1; 1994 CV, 2, 2, 1; 1996 PS_1, 3, 2, 1; 1997 SP_1, 6, 3, 15; 1997 SB_3, 4, 2, 14; 1997 XN_5 *, 6, 3, 2; 1997 XO_5 *, 4, 2, 1; *[27, 7, 2*, 1997/11/21–1997/12/07]*

605 Marl

J. Jahn, Neustaedter Strasse 11, D-29389 Bodenteich, Germany [j.jahn@abbs.heide.de]

Observer E. Jung

0.20-m $f/10$ reflector + CCD

GSC

(142), 3, 1, 0; (258), 3, 1, 0; *[6, 2, 0*, 1997/11/08]*

608 Haleakala-AMOS

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

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

Observers A. Alday, K. Moore, M. Tranilla, T. Goggia, A. Sylva

Measurers J. Africano, P. Sydney, D. Nishimoto, A. Angara, B. McCarthy, P. Kervin, B. Kraszewski, V. Soo Hoo, B. Africano

1.2-m reflector + CCD

1991 WA, 2, 1, 0; 1993 DJ, 5, 3, 15; 1993 UH_1, 2, 1, 0; 1995 AM, 2, 1, 0; 1995 DU_1, 2, 1, 0; (129), 1, 1, 0; (419), 2, 1, 0; (441), 2, 1, 0; (1111), 2, 1, 0; (2952), 2, 1, 0; (3362), 2, 1, 0; (3688), 2, 1, 0; (4187), 2, 1, 0; (5184), 2, 1, 0; (5634), 3, 2, 15; (5819), 1, 1, 0; (5836), 4, 2, 13; (7304), 2, 1, 0; (7959), 2, 1, 0; *[42, 19, 0∗, 1997/11/07–1997/11/26]*

610 Pianoro
V. Goretti, Via Resistenza 93, I-40065 Pianoro (BO), Italy [gorbiv@ntt.it]
0.25-m $f/4$ Schmidt-Cassegrain + CCD
GSC
1979 MD_2, 3, 1, 0; 1997 XR_2, 5, 1, 0; 1997 XM_9 ∗, 9, 3, 5; *[17, 3, 1∗, 1997/11/08–1997/12/07]*

611 Starkenburg Sternwarte, Heppenheim
M. Busch, Giessener Strasse 4, D-64646 Heppenheim, Germany [mab@iez.com]
Observers M. Busch, W. Ernst, J. Rothermel, A. Seib, K. Sonneberg
Measurer M. Busch
0.45-m $f/4.4$ Newtonian reflector + CCD
USNO-SA1.0
1997 SS_4, 1, 1, 0; 1997 US, 2, 1, 0; 1997 UK_7, 1, 1, 0; 1997 VN, 3, 1, 0; *[7, 4, 0∗, 1997/11/07–1997/11/19]*

620 Observatorio Astronómico de Mallorca
M. Blasco, Afueras s/n, E-07144 Costitx, Baleares, Spain [astroam@dinky.bitel.es]
Observers R. Pacheco, A. Lopez
0.30-m $f/3.3$ Schmidt-Cassegrain + CCD
PPM, GSC 1.2
1996 UX_3, 3, 1, 0; 1997 UG_2, 6, 2, 4; *[9, 2, 0∗, 1997/11/06–1997/11/11]*

621 Bergisch Gladbach
W. Bickel, Schau ins Land 21, D-51429 Bergisch Gladbach, Germany [0220455671-0001@t-online.de]
0.60-m $f/5$ reflector + CCD
GSC
1997 QV_4, 1, 1, 0; 1997 RB_9, 6, 2, 7; 1997 RC_9, 2, 2, 1; 1997 RD_9, 2, 2, 1; 1997 RM_{10}, 5, 4, 9; 1997 SD_{32}, 7, 2, 1; 1997 SE_{32}, 1, 1, 0; 1997 SF_{32}, 9, 3, 9; 1997 TE_{16}, 14, 4, 3; 1997 UO_{24} ∗, 15, 5, 6; 1997 UP_{24} ∗, 17, 4, 3; 1997 UQ_{24} ∗, 19, 4, 3; 1997 UR_{24} ∗, 10, 3, 2; 1997 US_{24} ∗, 9, 3, 2; 1997 UZ_{24} ∗, 6, 2, 1; *[123, 15, 6∗, 1997/10/21–1997/11/02]*

627 Blauvac
P. Antonini, 47 Rue Guillaume Puy, F-84000 Avignon, France [Pierre.Antonini@wanadoo.fr]
Observer R. Roy
0.26-m $f/4.7$ reflector + CCD
GSC
1997 UG_3, 3, 1, 0; *[3, 1, 0∗, 1997/11/27]*

628 Mülheim-Ruhr
A. Martin, Turtle Star Observatory, Friedhostr. 15, D-45478 Mülheim-Ruhr, Germany [axelm@bph.ruhr-uni-bochum.de]
0.2-m Schmidt-Cassegrain + CCD
GSC
(376), 7, 3, 2; *[7, 1, 0∗, 1997/11/17–1997/11/19]*

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
1972 TC, 4, 2, 2; 1983 RY_4, 4, 2, 1; 1987 WU_2, 4, 2, 1; 1988 BX, 4, 2, 1; 1992 PY_2, 4, 2, 1; (142), 4, 2, 2; (258), 4, 2, 2; (376), 4, 2, 2; (419), 4, 2, 2; *[36, 9, 0∗, 1997/11/16–1997/11/20]*

658 Dominion Astrophysical Observatory, Victoria
J. B. Tatum, Dept. of Physics, University of Victoria, P.O. Box 3055, Victoria, BC V8W 3P6, Canada [universe@uvvm.uvic.ca]
Observers D. D. Balam, G. C. L. Aikman
1.82-m Plaskett telescope + CCD
GSC, USNO-A1.0
1992 AB, 6, 2, 2; 1992 TA, 6, 2, 1; 1996 FG_3, 3, 1, 0; 1996 NS_3, 3, 1, 0; 1997 LY_4, 3, 1, 0; 1997 MD_{10}, 3, 1, 0; 1997 RD_1, 3, 1, 0; 1997 SE_5, 3, 1, 0; 1997 TR_6, 6, 2, 1; 1997 TT_{25}, 6, 2, 1; 1997 UR, 2, 1, 0; 1997 US_2, 5, 2, 3; 1997 UK_8, 2, 1, 0; 1997 UF_9, 3, 1, 0; 1997 UH_9, 8, 3, 3; 1997 UZ_{10}, 3, 1, 0; 1997 VJ, 3, 1, 0; 1997 VU_2, 2, 1, 0; 1997 VM_4, 6, 2, 3; 1997 VN_4, 3, 1, 0; 1997 VG_6, 3, 1, 0; 1997 WB_{21}, 12, 4, 3; 1997 WS_{22}, 9, 3, 3; 1997 WT_{22}, 9, 3, 3; 1997 WU_{22}, 6, 2, 1; 1997 WP_{23}, 6, 2, 1; 1997 WQ_{23}, 9, 3, 4; 1997 XR_2, 4, 1, 0; 1997 XS_2, 6, 2, 1; *[143, 29, 0∗, 1997/11/12–1997/12/07]*

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
1991 WA, 3, 1, 0; 1997 SE_5, 3, 1, 0; *[6, 2, 0∗, 1997/11/23]*

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)
B. Gladman, Canadian Institute for Theoretical Astrophysics, 60 St. George Street, Toronto, ON M5S 1A7, Canada [gladman@cita.utoronto.ca] (8)
9 = 6 + 3
Observers J. A. Burns (8, H), D. J. Chadwick (3, S), T. Gehrels (4, L), B. Gladman (8, H), E. F. Helin (2, S), H. E. Holt (3, S), H. R. Holt (3, S), J. J. Kavelaars (8, H), K. Lawrence (2, S), D. H. Levy (3, S), F. J. Méndez (3, S), P. D. Nicholson (8, H), C. M. Olmstead (3, S), T. Rodriguez (3, S), C. S. Shoemaker (3, S), E. M. Shoemaker (3, S), D. K. Williams (3, S), L. A. Zimmerman (3, S)
Measurers B. Gladman (8), J. J. Kavelaars (8), K. J. Lawrence (2), B. A. Skiff (6), C. J. van Houten (4), I. van Houten-Groeneveld (4), A. Wisse (4)
5-m Hale reflector (H), 1.2-m Oschin Schmidt (L), 0.46-m Schmidt (S)
GSC, PPM
(2) 1990 WG_{13}, 2, 1, 0; 1997 ME_3, 4, 2, 2; *[6, 2, 0∗, 1990/11/18–1994/08/11]*

(4) 1989 RB_6, 2, 2, 1; 1991 PT_4, 3, 2, 1; 2211 P-L ∗, 7, 4, 32; 2537 P-L ∗, 8, 8, 32; 2629 P-L ∗, 8, 8, 32; 2660 P-L ∗, 7, 7, 32; 3522 P-L ∗, 9, 5, 9; 4042 P-L ∗, 9, 8, 32; 4572 P-L ∗, 8, 8, 32; 5566 P-L ∗, 3, 3, 8; 6120 P-L ∗, 8, 8, 32; 6133 P-L ∗, 11, 7, 32; 6234 P-L ∗, 8, 4, 4; 4052 T-1 ∗, 5, 4, 9; 4678 T-1 ∗, 3, 3, 3; 4871 T-1 ∗, 3, 3, 3; 2259 T-2 ∗, 15, 8, 16; 1188 T-3 ∗, 8, 4, 10; *[125, 18, 16∗, 1960/09/24–1977/10/22]*

(6) 1993 PU_7, 2, 1, 0; *[2, 1, 0∗, 1954/12/22]*

(9) 1978 SQ_7, 2, 1, 0; 1985 TS_1, 2, 1, 0; 1992 UG_3, 2, 1, 0; 1992 WG_5, 4, 2, 478; 1993 HH, 2, 1, 0; 1993 UE, 2, 1, 0; 1994 YT_1, 2, 1, 0; 1995 BP_3, 2, 1, 0; 1995 CK, 2, 1, 0; 1995 DD, 2, 1,

0; 1995 DR, 2, 1, 0; 1996 DH_2, 2, 1, 0; 1996 UB, 2, 1, 0; 1997 OC_1, 2, 1, 0; 4348 T-1, 2, 1, 0; 4165 T-3, 1, 1, 0; *[33, 16, 0*, 1986/03/04–1994/02/15]*

676 San Clemente

J. E. Root, 1303 S. Ola Vista, San Clemente, CA 92672, U.S.A. [jhoot@exo.com]
0.33-m f/3.3 Schmidt Cassegrain + CCD
GSC
(5819), 2, 2, 7; *[2, 1, 0*, 1997/11/16–1997/11/23]*

683 Goodricke-Pigott Observatory, Tucson

R. A. Tucker, 5500 West Nebraska Street, Tucson, AZ 85746, U.S.A. [tucker@mail.hvs.com]
0.36-m f/11 Schmidt-Cassegrain + CCD
GSC
1997 SE_5, 3, 1, 0; 1997 VT_6 *, 7, 2, 1; 1997 WY_{20} *, 6, 2, 1; (874), 9, 2, 1; *[25, 4, 2*, 1997/11/06–1997/12/01]*

684 Prescott

P. G. Comba, 1411 Galaxy Lane, Prescott, AZ 86303, U.S.A. [comba@northlink.com]
0.46-m f/4.5 reflector + CCD
GSC
1981 EF_{30}, 6, 2, 1; 1986 AW_2, 6, 2, 1; 1991 RQ_{14}, 5, 2, 1; 1996 PD, 4, 2, 2; 1996 PA_1, 7, 2, 1; 1996 RJ_3, 5, 2, 2; 1996 UU_1, 7, 2, 1; 1997 RQ_5, 6, 2, 1; 1997 SP_3, 4, 2, 1; 1997 SE_4, 3, 2, 1; 1997 SH_{11}, 10, 4, 12; 1997 SJ_{11}, 10, 4, 13; 1997 UE, 6, 2, 1; 1997 UJ_1, 6, 2, 1; 1997 UK_1, 3, 1, 0; 1997 UL_1, 2, 1, 0; 1997 UG_2, 8, 4, 14; 1997 UX_2, 6, 2, 1; 1997 UY_2, 6, 2, 1; 1997 UG_5, 7, 3, 11; 1997 UQ_9, 10, 4, 16; 1997 UY_{10}, 12, 4, 13; 1997 VK, 9, 3, 14; 1997 VX_1, 6, 2, 1; 1997 VY_1, 5, 2, 1; 1997 VA_4, 5, 2, 1; 1997 VB_4, 4, 2, 1; 1997 WS *, 11, 4, 6; 1997 WT *, 6, 2, 1; 1997 WV *, 6, 2, 1; 1997 WA_1 *, 6, 2, 1; 1997 WB_1 *, 6, 2, 1; 1997 WC_1 *, 5, 2, 1; 1997 WT_7 *, 5, 2, 2; 1997 XC_1 *, 5, 2, 1; 1997 XD_1 *, 5, 2, 1; 1997 XE_1 *, 4, 2, 1; 4216 T-2, 5, 2, 1; *[232, 38, 10*, 1997/11/17–1997/12/04]*

688 Lowell Observatory, Anderson Mesa Station

E. Bowell, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff AZ 86001, U.S.A. [elgb@lowell.edu]
Observer B. A. Skiff
1.07-m Hall reflector + CCD
USNO-A1.0
1975 LY, 4, 2, 1; 1975 ST, 4, 2, 1; 1975 VV_2, 4, 2, 1; 1977 RC_9, 2, 1, 0; 1979 UH, 2, 1, 0; 1980 RP, 4, 2, 1; 1980 VA, 2, 1, 0; 1981 DS, 2, 1, 0; 1981 DY, 4, 2, 1; 1981 EX_3, 4, 2, 1; 1981 EF_{13}, 4, 2, 1; 1981 ET_{15}, 2, 1, 0; 1981 ES_{21}, 2, 1, 0; 1981 FL, 4, 2, 1; 1981 GO, 4, 2, 1; 1982 BS, 2, 1, 0; 1982 HO_1, 2, 1, 0; 1982 OF, 2, 1, 0; 1982 TS_1, 4, 2, 1; 1982 YR_1, 2, 1, 0; 1983 RG_2, 2, 1, 0; 1983 RP_2, 4, 2, 1; 1983 WG, 4, 2, 1; 1983 WM, 4, 2, 1; 1984 WC_2, 2, 1, 0; 1985 PE, 4, 2, 1; 1985 PN, 4, 2, 1; 1985 PO, 2, 1, 0; 1985 TJ_1, 2, 1, 0; 1985 TS_1, 2, 1, 0; 1985 UF, 4, 2, 1; 1986 AW_2, 4, 2, 1; 1986 EJ_1, 2, 1, 0; 1986 QO_3, 2, 1, 0; 1986 RS_2, 2, 1, 0; 1986 TQ, 2, 1, 0; 1987 DF_6, 4, 2, 1; 1987 SU_1, 4, 2, 1; 1988 DZ_4, 2, 1, 0; 1988 RN_4, 4, 2, 1; 1988 RR_{10}, 2, 1, 0; 1988 TR, 4, 2, 1; 1988 UO, 4, 2, 1; 1988 VY, 2, 1, 0; 1988 VC_1, 2, 1, 0; 1989 RB_6, 6, 3, 32; 1989 TC, 5, 2, 1; 1989 TX_2, 2, 1, 0; 1990 QG_3, 2, 1, 0; 1990 SC_3, 2, 1, 0; 1990 SX_5, 4, 2, 1; 1990 SA_{15}, 4, 2, 1; 1990 TO_9, 4, 2, 1; 1990 UN_1, 2, 1, 0; 1990 VG_6, 2, 1, 0; 1990 WV_1, 4, 2, 1; 1991 CP_1, 4, 2, 1; 1991 PW_9, 2, 1, 0; 1991 PT_{11}, 4, 2, 1; 1992 DL_4, 2, 1, 0; 1992 EE, 2, 1, 0; 1992 EB_{13}, 2, 1, 0; 1992 ES_{13}, 2, 1, 0; 1992 LF, 2, 1, 0; 1992 OE, 5, 2, 1; 1992 RM_2, 2, 1, 0; 1992 UG_3, 4, 2, 1; 1992 UH_4, 2, 1, 0; 1992 WG_5, 2, 1, 0; 1992 YC_1, 4, 2, 1; 1993 HH, 2, 1, 0; 1993 NH, 2, 1, 0; 1993 NU_1, 2, 1, 0; 1993 QU_4, 4, 2, 89; 1993 RK_4, 4, 2, 1; 1993 SS_1, 6, 3, 34; 1993 UE, 4, 2, 1; 1994 AJ_1, 4, 2, 1; 1994 AP_1, 4, 2, 1; 1994 AZ_2, 4, 2, 1; 1994 CK_2, 4, 2, 1; 1994 TF_{15}, 2, 1, 0; 1994 UY_1, 2, 1, 0; 1994 VO_1, 2, 1, 0; 1994 VW_1, 2, 1, 0; 1994 VB_3, 2, 1, 0; 1994 WQ, 4, 2, 1; 1994 YT_1, 2, 1, 0; 1995 BW, 2, 1, 0; 1995 BP_3, 4, 2, 1; 1995 CJ, 4, 2, 1; 1995 CK, 2, 1, 0; 1995 CM_1, 2, 1, 0; 1995 DD, 4, 2, 1; 1995 DH, 2, 1, 0; 1995 DR, 2, 1, 0; 1995 DE_8, 4, 2, 1; 1995 DF_8, 4, 2, 1; 1995 EG_8, 4, 2, 1; 1995 GV_2, 4, 2, 1; 1996 DZ, 2, 1, 0; 1996 DH_2, 4, 2, 1; 1996 DW_2, 2, 1, 0; 1996 EK_{15}, 2, 1, 0; 1996 GV_{18}, 4, 2, 1; 1996 NC, 4, 2, 1; 1996 NG, 4, 2, 1; 1996 NS, 4, 2, 1; 1996 UB, 2, 1, 0; 1996 VA_5, 2, 1, 0; 1996 VV_8, 2, 1, 0; 1997 RW_2, 2, 1, 0; 1997 SL_1, 2, 1, 0; 1997 SR_1, 2, 1, 0; 1997 SO_3, 2, 1, 0; 1997 SF_{28}, 2, 1, 0; 1997 TX_3, 2, 1, 0; 1997 UU_{22} *, 4, 2, 1; 1997 UV_{22} *, 4, 2, 1; 1997 UW_{22} *, 4, 2, 1; 1997 UX_{22} *, 4, 2, 1; 1997 UY_{22} *, 4, 2, 1; 1997 UZ_{22} *, 4, 2, 1; 1997 UA_{23} *, 4, 2, 1; 1997 UB_{23} *, 4, 2, 1; 1997 UC_{23} *, 4, 2, 1; 1997 UD_{23} *, 4, 2, 1; 1997 UE_{23} *, 4, 2, 1; 1997 UF_{23} *, 4, 2, 1; 1997 UG_{23} *, 4, 2, 1; 1997 UH_{23} *, 4, 2, 1; 1997 UJ_{23} *, 4, 2, 1; 1997 UK_{23} *, 4, 2, 1; 1997 UL_{23} *, 4, 2, 1; 1997 UM_{23} *, 4, 2, 1; 1997 UN_{23} *, 4, 2, 1; 1997 UO_{23} *, 4, 2, 1; 1997 UP_{23} *, 4, 2, 1; 1997 UQ_{23} *, 4, 2, 1; 1997 UR_{23} *, 4, 2, 1; 1997 US_{23} *, 4, 2, 1; 1997 UT_{23} *, 4, 2, 1; 1997 UU_{23} *, 4, 2, 1; 1997 UV_{23} *, 4, 2, 1; 1997 UW_{23} *, 4, 2, 1; 1997 UX_{23} *, 4, 2, 1; 1997 UY_{23} *, 4, 2, 1; 1997 UZ_{23} *, 4, 2, 1; 1997 UA_{24} *, 4, 2, 1; 1997 UB_{24} *, 4, 2, 1; 1997 UC_{24} *, 4, 2, 1; 1997 UD_{24} *, 4, 2, 1; 1997 UE_{24} *, 4, 2, 1; 1997 UF_{24} *, 4, 2, 1; 1997 UG_{24} *, 4, 2, 1; 1997 UH_{24} *, 4, 2, 1; 1997 UJ_{24} *, 4, 2, 1; 1997 VF_1, 2, 1, 0; 3039 P-L, 3, 1, 0; 4269 P-L, 2, 1, 0; 9519 P-L, 4, 2, 1; 4348 T-1, 2, 1, 0; 2244 T-2, 2, 1, 0; 3365 T-2, 2, 1, 0; 5159 T-2, 4, 2, 1; (286), 2, 1, 0; (515), 4, 2, 1; (1694), 2, 1, 0; (2274), 4, 2, 1; (2437), 2, 1, 0; (2956), 2, 1, 0; (3688), 2, 1, 0; (3838), 4, 1, 0; (4328), 2, 1, 0; (4460), 4, 2, 1; (4734), 2, 1, 0; (4917), 2, 1, 0; (4931), 2, 1, 0; (5227), 4, 2, 1; (5356), 2, 1, 0; (5436), 4, 2, 1; (5634), 6, 2, 1; (6553), 2, 1, 0; (7000), 4, 2, 1; (7249), 2, 1, 0; (7846), 2, 1, 0; (7994), 4, 2, 1; (7998), 2, 1, 0; *[595, 188, 40*, 1997/07/02–1997/11/29]*

691 Kitt Peak, Steward Observatory

T. Gehrels, Space Sciences Building, University of Arizona, Tucson, AZ 85721, U.S.A. [tgehrels@lpl.arizona.edu]
Observers T. Gehrels, J. Montani, J. V. Scotti
0.91-m Spacewatch telescope + CCD
GSC
1973 SD_1, 3, 1, 0; 1973 SE_1, 5, 2, 7; 1977 XP_2, 3, 1, 0; 1978 RR, 3, 1, 0; 1978 UX_5, 3, 1, 0; 1979 MP_4, 3, 1, 0; 1979 MM_6, 8, 3, 1836; 1980 UM_1, 3, 1, 0; 1981 DM, 3, 1, 0; 1981 DY, 3, 1, 0; 1981 EZ_{21}, 3, 1, 0; 1981 EG_{26}, 3, 1, 0; 1981 EM_{30}, 3, 1, 0; 1983 RY_4, 3, 1, 0; 1984 SH, 6, 2, 13; 1985 CS_2, 3, 1, 0; 1987 SF_5, 3, 1, 0; 1988 TR, 3, 1, 0; 1988 UO, 3, 1, 0; 1988 XG_2, 3, 1, 0; 1990 QJ_2, 3, 1, 0; 1990 SL_{27}, 3, 1, 0; 1990 TK_4, 3, 1, 0; 1990 TG_5, 3, 1, 0; 1991 RQ_{14}, 9, 3, 14; 1991 VV_5, 3, 1, 0; 1992 CN_3, 2, 1, 0; 1992 PJ_2, 3, 1, 0; 1992 UE_3, 12, 4, 13; 1992 UG_3, 3, 1, 0; 1993 PA_9, 3, 1, 0; 1993 RE, 3, 1, 0; 1993 RH_9, 3, 1, 0; 1993 SH_2, 6, 2, 7; 1993 ST_4, 3, 1, 0; 1993 TL_{25}, 3, 1, 0; 1993 TT_{26}, 3, 1, 0; 1993 TN_{29}, 3, 1, 0; 1993 TH_{32}, 6, 2, 6; 1994 AM_1, 6, 2, 1; 1994 AF_{17} *, 6, 2, 5; 1994 WY_2, 2, 1, 0; 1995 BT_2, 3, 1, 0; 1995 FX_{14}, 5, 2, 5; 1995 FL_{21} *, 7, 3, 27; 1995 GV_2, 3, 1, 0; 1995 WB_{43}, 3, 1, 0; 1996 HT_2, 3, 1, 0; 1996 HD_{13}, 6, 2, 7; 1996 HA_{15}, 3, 1, 0; 1996 HC_{19}, 2, 1, 0; 1996 HC_{24}, 3, 1, 0; 1996 PR_1, 3, 1, 0; 1996 SS_4, 9, 3, 2; 1996 VP, 6, 2, 12; 1997 GD_{20}, 3, 1, 0; 1997 OF_1, 1, 1, 0; 1997 PJ, 2, 1, 0; 1997 PC_4, 3, 1, 0; 1997 QN, 3, 1, 0; 1997 QG_1, 3, 1, 0; 1997 QR_3, 6, 2, 466; 1997 RF_4, 3, 1, 0; 1997 ST, 3, 1, 0; 1997 SV, 3, 1, 0; 1997 SL_1, 3, 1, 0; 1997 SN_3, 3, 1, 0; 1997 ST_4, 3, 1, 0; 1997 SZ_{15}, 6, 2, 6; 1997 SA_{16}, 6, 2, 6; 1997 ST_{20}, 6, 2, 8; 1997 SW_{20}, 3, 1, 0; 1997 SZ_{23}, 5, 2, 15; 1997 SJ_{25}, 3, 1, 0; 1997 SL_{30}, 3, 1, 0; 1997 SE_{32}, 2, 1, 0; 1997 SQ_{32}, 3, 1, 0; 1997 TZ_9, 6, 2, 6; 1997 TA_{10}, 9, 3, 12; 1997 TJ_{10}, 3, 1, 0; 1997 TF_{12}, 3, 1, 0; 1997 TS_{16}, 6, 2, 618; 1997 TW_{16}, 5, 2, 411; 1997 TR_{17}, 3, 1, 0; 1997 TS_{17}, 3, 1, 0; 1997 TT_{17}, 3, 1, 0; 1997 TG_{19}, 3, 1, 0; 1997 TQ_{19}, 6, 2, 8; 1997 TM_{20}, 6, 2, 7; 1997 TN_{20}, 6, 2, 6; 1997 TV_{22}, 5, 2, 8; 1997 TW_{23}, 6, 2, 8; 1997 TO_{24}, 3, 1, 0; 1997 TP_{25}, 3, 1, 0; 1997 UX, 9, 3, 8; 1997 UH_1, 8, 3, 14; 1997 UK_1, 9, 3, 54; 1997 UL_1, 3, 1, 0; 1997 UZ_1, 14, 5, 63; 1997 US_2, 6, 2, 4; 1997 UX_3, 6, 2, 5; 1997 UG_5, 2, 1, 0; 1997 UQ_7, 3, 1, 0; 1997 UW_7, 6, 2, 5; 1997 UY_7, 6, 2, 6; 1997 UO_9, 3, 1, 0; 1997 UQ_9, 3, 1, 0; 1997 UK_{10}, 9, 3, 13; 1997 UN_{10}, 6, 2, 6; 1997 UZ_{14}, 3, 1, 0; 1997 UA_{15}, 3, 1, 0; 1997 UL_{16}, 6, 2, 40; 1997 UL_{19}, 3, 1, 0; 1997 UR_{20}, 3, 1, 0; 1997 UC_{21}, 3, 1, 0; 1997 UY_{21}, 3, 1, 0; 1997 UP_{22}, 6, 2, 7; 1997 UD_{24}, 6, 2, 6; 1997 UE_{24}, 5, 2, 7; 1997 UT_{24}, 8, 3, 15; 1997 UY_{24}, 3, 1, 0; 1997 VK, 3, 1, 0; 1997 VP, 9, 3, 12; 1997 VQ, 3, 1, 0; 1997 VR, 3, 1, 0; 1997 VS, 5, 2, 7; 1997 VT, 6, 1, 0; 1997 VL_1, 3, 1, 0; 1997 VO_1, 6, 2, 7; 1997 VD_4, 6, 2, 4; 1997 VW_4, 3, 1, 0; 1997 VH_6, 5, 2, 7; 1997 VS_6, 2, 1, 0; 1997 VV_6, 3, 1, 0; 1997 VB_7, 3, 1, 0; 1997 WW *, 12, 4, 15; 1997 WG_3 *, 6, 2, 1; 1997 WH_3 *, 6, 2, 1; 1997 WJ_3 *, 12, 4, 14; 1997 WK_3 *, 6, 2, 1; 1997 WL_3 *, 6, 2, 1; 1997 WM_3 *, 12, 4, 11; 1997 WW_3 *, 6, 2, 5; 1997 WX_3 *, 6, 2, 5; 1997 WY_3 *, 11, 4, 33; 1997 WZ_3 *, 6, 2, 5; 1997 WA_4 *, 6, 2, 5; 1997 WB_4 *, 6, 2, 5; 1997 WC_4 *, 6, 2, 5; 1997 WD_4 *, 6, 2, 5; 1997 WE_4 *, 6, 2, 5; 1997 WF_4 *, 6, 2, 5; 1997 WG_4 *, 6, 2, 5; 1997 WH_4 *, 6, 2, 5; 1997 WJ_4 *, 9, 3, 14; 1997 WK_4 *, 6, 2, 5; 1997 WL_4 *, 6, 2, 5; 1997 WM_4 *, 6, 2, 5; 1997 WN_4 *, 6, 2, 5; 1997 WO_4 *, 6, 2, 5; 1997 WP_4 *, 9, 3, 14; 1997 WQ_4 *, 5, 2, 5; 1997 WR_4 *, 5, 2, 5; 1997 WS_4 *, 6, 2, 5; 1997 WT_4 *, 5, 2, 5; 1997 WU_4 *, 6, 2, 4; 1997 WV_4 *, 6, 2, 4; 1997 WW_4 *, 6, 2, 4; 1997 WX_4 *, 6, 2, 4; 1997 WY_4 *, 6, 2, 4; 1997 WZ_4 *, 6, 2, 4; 1997 WA_5 *, 6, 2, 4; 1997 WB_5 *, 6, 2, 4; 1997 WC_5 *, 6, 2, 4; 1997 WD_5 *, 6, 2, 4; 1997 WE_5 *, 6, 2, 2; 1997 WF_5 *, 6, 2, 2; 1997 WG_5 *, 9, 3, 6; 1997 WH_5 *, 6, 2, 2; 1997 WJ_5 *, 9, 3, 7; 1997 WK_5 *, 9, 3, 6; 1997 WL_5 *, 9, 3, 6; 1997 WM_5 *, 9, 3, 7; 1997 WN_5 *, 6, 2, 2; 1997 WO_5 *, 9, 3, 7; 1997 WP_5 *, 6, 2, 2; 1997 WQ_5 *, 9, 3, 7; 1997 WR_5 *, 12, 4, 13; 1997 WS_5 *, 9, 3, 7; 1997 WT_5 *, 9, 3, 7; 1997 WU_5 *, 6, 2, 2; 1997 WV_5 *, 6, 2, 2; 1997 WW_5 *, 6, 2, 2; 1997 WX_5 *, 9, 3, 7; 1997 WY_5 *, 6, 2, 2; 1997 WZ_5 *, 9, 3, 6; 1997 WA_6 *, 5, 2, 2; 1997 WB_6 *, 9, 3, 7; 1997 WC_6 *, 6, 2, 2; 1997 WD_6 *, 6, 2, 2; 1997 WE_6 *, 6, 2, 2; 1997 WF_6 *, 12, 4, 13; 1997 WG_6 *, 6, 2, 2; 1997 WH_6 *, 9, 3, 6; 1997 WJ_6 *, 6, 2, 2; 1997 WK_6 *, 9, 3, 7; 1997 WL_6 *, 12, 4, 13; 1997 WM_6 *, 9, 3, 7; 1997 WN_6 *, 9, 3, 7; 1997 WO_6 *, 6, 2, 2; 1997 WP_6 *, 12, 4, 13; 1997 WQ_6 *, 12, 4, 13; 1997 WR_6 *, 12, 4, 13; 1997 WS_6 *, 12, 4, 12; 1997 WT_6 *, 9, 3, 7; 1997 WU_6 *, 6, 2, 2; 1997 WV_6 *, 6, 2, 2; 1997 WW_6 *, 5, 2, 2; 1997 WX_6 *,

11, 4, 12; 1997 WY_6 *, 11, 4, 13; 1997 WZ_6 *, 8, 3, 7; 1997 WA_7 *, 6, 2, 2; 1997 WB_7 *, 6, 2, 1; 1997 WC_7 *, 6, 2, 1; 1997 WD_7 *, 6, 2, 1; 1997 WE_7 *, 6, 2, 1; 1997 WF_7 *, 8, 3, 6; 1997 WG_7 *, 5, 2, 1; 1997 WH_7 *, 6, 2, 1; 1997 WG_8 *, 6, 2, 8; 1997 WH_8 *, 6, 2, 8; 1997 WJ_8 *, 6, 2, 8; 1997 WK_8 *, 6, 2, 8; 1997 WL_8 *, 6, 2, 8; 1997 WM_8 *, 6, 2, 8; 1997 WN_8 *, 6, 2, 8; 1997 WO_8 *, 6, 2, 8; 1997 WP_8 *, 6, 2, 8; 1997 WQ_8 *, 6, 2, 8; 1997 WR_8 *, 6, 2, 8; 1997 WS_8 *, 6, 2, 8; 1997 WT_8 *, 6, 2, 8; 1997 WU_8 *, 6, 2, 8; 1997 WV_8 *, 9, 3, 15; 1997 WW_8 *, 6, 2, 7; 1997 WX_8 *, 6, 2, 7; 1997 WY_8 *, 6, 2, 7; 1997 WZ_8 *, 6, 2, 7; 1997 WA_9 *, 6, 2, 7; 1997 WB_9 *, 6, 2, 7; 1997 WC_9 *, 6, 2, 7; 1997 WD_9 *, 6, 2, 7; 1997 WE_9 *, 6, 2, 7; 1997 WF_9 *, 6, 2, 7; 1997 WG_9 *, 6, 2, 7; 1997 WH_9 *, 9, 3, 13; 1997 WJ_9 *, 6, 2, 7; 1997 WK_9 *, 9, 3, 14; 1997 WL_9 *, 6, 2, 7; 1997 WM_9 *, 6, 2, 7; 1997 WN_9 *, 6, 2, 7; 1997 WO_9 *, 6, 2, 7; 1997 WP_9 *, 6, 2, 7; 1997 WQ_9 *, 6, 2, 7; 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2316 T-3, 3, 1, 0; (336), 3, 1, 0; (608), 6, 2, 1; (659), 6, 2, 8; (763), 2, 1, 0; (1053), 3, 1, 0; (1197), 3, 1, 0; (1328), 3, 1, 0; (1347), 6, 2, 2; (1486), 6, 2, 5; (1780), 9, 3, 2; (1939), 6, 2, 6; (1955), 3, 1, 0; (1960), 5, 2, 7; (1983), 3, 1, 0; (2007), 6, 2, 1; (2232), 3, 1, 0; (2300), 3, 1, 0; (2317), 3, 1, 0; (2333), 5, 2, 13; (2648), 3, 1, 0; (3175), 6, 2, 13; (3303), 3, 1, 0; (3327), 3, 1, 0; (3576), 3, 1, 0; (3734), 6, 2, 7; (4069), 5, 2, 12; (4094), 3, 1, 0; (4631), 3, 1, 0; (4656), 5, 2, 7; (4851), 6, 2, 8; (5041), 6, 2, 12; (5318), 3, 1, 0; (5458), 3, 1, 0; (5478), 6, 2, 11; (5683), 3, 1, 0; (5702), 6, 2, 8; (6224), 3, 1, 0; (7091), 3, 1, 0; (7115), 6, 2, 7; (7323), 3, 1, 0; (7968), 3, 1, 0; (7993), 9, 3, 13; (8032), 3, 1, 0; *[4448, 753, 564*, 1991/11/29–1997/12/06]*

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Observers W. R. Brown, C. W. Hergenrother, M. J. Holman

1.2-m $f/8$ reflector + CCD

USNO-A1.0

1993 PB, 3, 1, 0; 1995 OO, 5, 2, 1; 1996 PW, 3, 1, 0; 1996 TL_{66}, 12, 2, 2; 1996 TO_{66}, 3, 2, 2; 1996 TP_{66}, 2, 1, 0; 1996 TQ_{66}, 2, 1, 0; 1996 TS_{66}, 2, 1, 0; 1996 VA_7, 2, 1, 0; 1997 CU_{26}, 2, 1, 0; 1997 MD_{10}, 3, 1, 0; 1997 PO, 3, 1, 0; 1997 RT, 3, 1, 0; 1997 US_2, 3, 1, 0; 1997 UF_9, 3, 1, 0; 1997 UH_9, 3, 1, 0; 1997 US_9, 3, 1, 0; 1997 UT_9, 3, 1, 0; 1997 UZ_{10}, 3, 1, 0; 1997 UA_{11}, 3, 1, 0; 1997 VG, 3, 1, 0; (7968), 3, 1, 0; *[72, 22, 0*, 1997/11/08–1997/11/30]*

700 Chinle

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

GSC

1997 TZ_7, 9, 3, 13; (1468), 3, 1, 0; (5184), 3, 1, 0; (5819), 3, 1, 0; *[18, 4, 0*, 1997/11/16–1997/11/30]*

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

1.0-m $f/2.15$ reflector + CCD

USNO-SA1.0

1957 JP, 3, 1, 0; 1967 JP, 5, 1, 0; 1975 SK_1, 4, 1, 0; 1975 VV_2, 5, 1, 0; 1976 UY, 5, 1, 0; 1976 YA_6, 5, 1, 0; 1977 DX_3, 5, 1, 0; 1977 XP_2, 5, 1, 0; 1978 PS_2, 5, 1, 0; 1978 SQ_7, 15, 3, 8; 1978 VP_{10}, 5, 1, 0; 1979 HW_6, 4, 1, 0; 1979 MK_7, 4, 1, 0; 1979 SC, 5, 1, 0; 1980 UM_1, 5, 1, 0; 1980 UN_1, 5, 1, 0; 1981 EX_3, 5, 1, 0; 1981 EV_7, 4, 1, 0; 1981 EO_{15}, 5, 1, 0; 1981 EK_{23}, 5, 1, 0; 1981 EM_{30}, 4, 1, 0; 1981 EU_{33}, 4, 1, 0; 1981 EV_{41}, 4, 1, 0; 1981 JE_2, 4, 1, 0; 1982 HJ, 4, 1, 0; 1982 UE_6, 4, 1, 0; 1982 UR_6, 5, 1, 0; 1982 VY_2, 4, 1, 0; 1982 VP_3, 5, 1, 0; 1984 SH, 5, 1, 0; 1984 SU_3, 5, 1, 0; 1984 SN_6, 4, 1, 0; 1985 CX_1, 4, 1, 0; 1985 CR_2, 5, 1, 0; 1985 RJ_3, 5, 1, 0; 1985 RV_4, 5, 1, 0; 1985 UQ_4, 5, 1, 0; 1986 PK_6, 3, 1, 0; 1986 VR_5, 5, 1, 0; 1986 XF_1, 5, 1, 0; 1987 SU_1, 5, 1, 0; 1987 YC_1, 4, 1, 0; 1988 RX_2, 4, 1, 0; 1988 SU_2, 5, 1, 0; 1988 UO, 9, 2, 1; 1989 GE, 5, 1, 0; 1990 BH_1, 5, 1, 0; 1990 MG, 5, 1, 0; 1990 OH_1, 4, 1, 0; 1990 RS_2, 5, 1, 0; 1990 SA_2, 5, 1, 0; 1990 SK_{11}, 10, 2, 1; 1990 UB_3, 5, 1, 0; 1990 UO_3, 5, 1, 0; 1990 VW_6, 5, 1, 0; 1991 AH_1, 4, 1, 0; 1991 CP_1, 9, 2, 1; 1991 JJ, 5, 1, 0; 1991 NZ_6, 8, 2, 8; 1991 PT_{11}, 5, 1, 0; 1991 PG_{16}, 5, 1, 0; 1991 RR_1, 4, 1, 0; 1991 RB_{11}, 3, 1, 0; 1991 SC_1, 4, 1, 0; 1991 VA_1, 5, 1, 0; 1992 EB_8, 5, 1, 0; 1992 GM_4, 5, 1, 0; 1992 GX_4, 5, 1, 0; 1992 HG_4, 5, 1, 0; 1992 RK_7, 5, 1, 0; 1992 ST_{26}, 4, 1, 0; 1992 UK_1, 5, 1, 0; 1992 UZ_2, 5, 1, 0; 1992 UE_3, 5, 1, 0; 1992 WR_2, 4, 1, 0; 1992 XL, 5, 1, 0; 1992 YC_1, 4, 1, 0; 1992 YL_2, 3, 1, 0; 1992 YS_2, 3, 1, 0; 1992 YG_3, 5, 1, 0; 1993 AN, 5, 1, 0; 1993 BC_5, 8, 2, 1; 1993 NH, 4, 1, 0; 1993 RK_4, 4, 1, 0; 1993 RL_5, 5, 1, 0; 1993 TN, 5, 1, 0; 1993 TG_{31}, 4, 1, 0; 1993 TS_{33}, 5, 1, 0; 1993 WQ, 4, 1, 0; 1993 XR, 4, 1, 0; 1994 AW, 4, 1, 0; 1994 AY_1, 5, 1, 0; 1994 AQ_2, 5, 1, 0; 1994 GC_1, 5, 1, 0; 1994 YS_1, 5, 1, 0; 1995 AG, 4, 1, 0; 1995 AJ, 3, 1, 0; 1995 AT_2, 5, 1, 0; 1995 AW_2, 5, 1, 0; 1995 BF_1, 5, 1, 0; 1995 BO_1, 5, 1, 0; 1995 BT_2, 5, 1, 0; 1995 BQ_{15}, 3, 1, 0; 1995 DJ_1, 5, 1, 0; 1995 EO, 5, 1, 0; 1995 FQ, 3, 1, 0; 1995 GF, 4, 1, 0; 1995 KZ_1, 10, 2, 1; 1996 GV_{18}, 5, 1, 0; 1996 HZ_1, 5, 1, 0; 1996 HD_{13}, 5, 1, 0; 1996 HD_{24}, 5, 1, 0; 1996 JH, 4, 1, 0; 1996 JD_1, 4, 1, 0; 1996 NW, 4, 1, 0; 1996 NA_4, 5, 1, 0; 1996 OJ, 4, 1, 0; 1996 QD_1, 4, 1, 0; 1996 TN_{49}, 4, 1, 0; 1997 QW_3, 5, 1, 0; 1997 RC, 3, 1, 0; 1997 RP_7, 5, 1, 0; 1997 SY_1, 4, 1, 0; 1997 SC_4, 8, 2, 3; 1997 SB_{10}, 4, 1, 0; 1997 SX_{15}, 9, 2, 5; 1997 SO_{17}, 4, 1, 0; 1997 SP_{17}, 5, 1, 0; 1997 SX_{21}, 5, 1, 0; 1997 SF_{25}, 5, 1, 0; 1997 SN_{25}, 5, 1, 0; 1997 SO_{25}, 4, 1, 0; 1997 SW_{33}, 5, 1, 0; 1997 TT_3, 5, 1, 0; 1997 TW_9, 9, 2, 4; 1997 TB_{10}, 9, 2, 1; 1997 TH_{10}, 9, 2, 6; 1997 TJ_{10}, 10, 2, 6; 1997 TC_{17}, 5, 1, 0; 1997 TR_{17}, 5, 1, 0; 1997 TS_{17}, 10, 2, 4; 1997 TT_{17}, 9, 2, 4; 1997 TU_{17}, 9, 2, 4; 1997 TV_{17}, 10, 2, 4; 1997 TW_{17}, 9, 2, 4; 1997 TX_{17}, 10, 2, 4; 1997 TY_{17}, 10, 2, 4; 1997 TC_{18}, 4, 1, 0; 1997 TF_{19}, 4, 1, 0; 1997 TJ_{19}, 5, 1, 0; 1997 TO_{24}, 4, 1, 0; 1997 TS_{24}, 4, 1, 0; 1997 TY_{24}, 4, 1, 0; 1997 TE_{25}, 9, 2, 1; 1997 TG_{25}, 4, 1, 0; 1997 TM_{25}, 5, 1, 0; 1997 TC_{26}, 5, 1, 0; 1997 TE_{26}, 4, 1, 0; 1997 TN_{26}, 4, 1, 0; 1997 TU_{26}, 5, 1, 0; 1997 TV_{26}, 5, 1, 0; 1997 UJ, 5, 1, 0; 1997 UT, 5, 1, 0; 1997 UU, 9, 2, 6; 1997 UV, 8, 2, 6; 1997 UB_1, 4, 1, 0; 1997 UE_1, 5, 1, 0; 1997 UG_1, 5, 1, 0; 1997 UH_1, 10, 2, 3; 1997 UO_1, 13, 3, 8; 1997 UE_2, 5, 1, 0; 1997 UG_2, 5, 1, 0; 1997 UT_2, 5, 1, 0; 1997 UJ_3, 5, 1, 0; 1997 UL_3, 9, 2, 1; 1997 UT_3, 5, 1, 0; 1997 UX_3, 5, 1, 0; 1997 UY_3, 5, 1, 0; 1997 UA_4, 13, 2, 1; 1997 UA_5, 5, 1, 0; 1997 UF_5, 4, 1, 0; 1997 UJ_5, 5, 1, 0; 1997 UW_5, 4, 1, 0; 1997 UA_7, 16, 3, 2; 1997 UB_7, 5, 1, 0; 1997 UL_7, 3, 1, 0; 1997 UM_7, 3, 1, 0; 1997 UQ_7, 5, 1, 0; 1997 UR_7, 10, 2, 6; 1997 US_7, 14, 3, 8; 1997 UX_7, 5, 1, 0; 1997 UY_7, 4, 1, 0; 1997 UK_8, 5, 1, 0; 1997 UN_8, 5, 1, 0; 1997 UO_8, 5, 1, 0; 1997 UP_8, 4, 1, 0; 1997 UQ_8, 10, 2, 4; 1997 UT_8, 10, 2, 1; 1997 UU_8, 14, 2, 6; 1997 UV_8, 23, 4, 8; 1997 UW_8, 23, 4, 8; 1997 UY_8, 5, 1, 0; 1997 UZ_8, 4, 1, 0; 1997 UA_9, 5, 1, 0; 1997 UD_9, 14, 2, 1; 1997 UG_9, 5, 1, 0; 1997 UL_9, 4, 1, 0; 1997 UM_9, 10, 2, 4; 1997 UN_9, 4, 1, 0; 1997 UQ_9, 4, 1, 0; 1997 UR_9, 4, 1, 0; 1997 UH_{10}, 8, 2, 1; 1997 UK_{10}, 10, 2, 1; 1997 UN_{10}, 19, 4, 15; 1997 UU_{10}, 5, 1, 0; 1997 UW_{14}, 5, 1, 0; 1997 UX_{14}, 9, 2, 4; 1997 UZ_{14}, 14, 3, 8; 1997 UB_{15}, 5, 1, 0; 1997 UC_{15}, 13, 3, 2; 1997 UF_{15}, 14, 3, 8; 1997 UQ_{17}, 5, 1, 0; 1997 UT_{21}, 5, 1, 0; 1997 UU_{21}, 4, 1, 0; 1997 UV_{21}, 5, 1, 0; 1997 UL_{22}, 5, 1, 0; 1997 UN_{22}, 5, 1, 0; 1997 UP_{22}, 5, 1, 0; 1997 UD_{24}, 9, 2, 8; 1997 UN_{24}, 3, 1, 0; 1997 UT_{24}, 5, 1, 0; 1997 UY_{24} *, 10, 2, 5; 1997 UB_{25} *, 10, 2, 1; 1997 VA, 4, 1, 0; 1997 VH, 5, 1, 0; 1997 VT, 5, 1, 0; 1997 VW, 5, 1, 0; 1997 VZ, 5, 1, 0; 1997 VO_1, 30, 5, 8; 1997 VZ_1, 5, 1, 0; 1997 VC_2, 5, 1, 0; 1997 VG_2, 5, 1, 0; 1997 VP_2, 5, 1, 0; 1997 VB_3, 5, 1, 0; 1997 VD_3, 5, 1, 0; 1997 VE_3, 5, 1, 0; 1997 VJ_3, 5, 1, 0; 1997 VK_3, 5, 1, 0; 1997 VL_3, 5, 1, 0; 1997 VM_3, 5, 1, 0; 1997 VO_3, 4, 1, 0; 1997 VQ_3, 8, 2, 8; 1997 VR_3, 4, 1, 0; 1997 VS_3, 5, 1, 0; 1997 VW_3, 5, 1, 0; 1997 VE_4, 5, 1, 0; 1997 VF_4, 5, 1, 0; 1997 VV_4, 10, 2, 6; 1997 VX_4, 5, 1, 0; 1997 VY_4, 9, 2, 1; 1997 VE_5, 5, 1, 0; 1997 VG_5, 10, 2, 1; 1997 VH_5, 5, 1, 0; 1997 VK_5, 5, 1, 0; 1997 VR_5, 5, 1, 0; 1997 VH_6, 9, 2, 1; 1997 VQ_6, 9, 2, 1; 1997 VZ_6, 15, 3, 8; 1997 VF_7, 5, 1, 0; 1997 VG_7, 6, 2, 1; 1997 VY_7, 4, 1, 0; 1997 VJ_8, 5, 1, 0; 1997 WC, 5, 1, 0; 1997 WE, 5, 1, 0; 1997 WG, 5, 1, 0; 1997 WJ, 4, 1, 0; 1997 WM, 5, 1, 0; 1997 WO, 4, 1, 0; 1997 WQ, 5, 1, 0; 1997 WX, 4, 1, 0; 1997 WZ, 5, 1, 0; 1997 WO_1, 4, 1, 0; 1997 WS_1, 5, 1, 0; 1997 WU_1, 5, 1, 0; 1997 WC_2, 14, 3, 8; 1997 WE_2, 4, 1, 0; 1997 WH_2, 3, 1, 0; 1997 WO_2, 5, 1, 0; 1997 WU_2, 4, 1, 0; 1997 WA_3, 4, 1, 0; 1997 WB_3, 5, 1, 0; 1997 WC_3, 4, 1, 0; 1997 WK_7, 5, 1, 0; 1997 WO_7, 5, 1, 0; 1997 WC_8, 5, 1, 0; 1997 WF_8, 14, 3, 8; 1997 WB_{13}, 8, 2, 8; 1997 WK_{13}, 5, 1, 0; 1997 WL_{13}, 4, 1, 0; 1997 WM_{13}, 5, 1, 0; 1997 WX_{20}, 10, 2, 1; 1997 WL_{21}, 4, 1, 0; 1997 WM_{21}, 5, 1, 0; 1997 WS_{21}, 5, 1, 0; 1997 WT_{22} *, 15, 3, 27; 1997 WP_{23} *, 4, 1, 0; 1997 WQ_{23} *, 6, 2, 5; 1997 WK_{26}, 9, 3, 8; 1997 WR_{28}, 8, 2, 8; 1997 XE, 3, 1, 0; 1997 XF_1 *, 10, 2, 1; 1997 XG_1 *, 9, 2, 1; 1997 XR_2 *, 15, 2, 1; 1997 XS_2 *, 9, 2, 1; 1997 XY_2, 4, 1, 0; 2017 P-L, 3, 1, 0; 3086 P-L, 5, 1, 0; 4110 P-L, 5, 1, 0; 4556 P-L, 4, 1, 0; 4595 P-L, 13, 2, 1; 4637 P-L, 9, 2, 1; 6073 P-L, 4, 1, 0; 6570 P-L, 5, 1, 0; 6579 P-L, 5, 1, 0; 6676 P-L, 5, 1, 0; 2251 T-1, 3, 1, 0; 3138 T-1, 5, 1, 0; 4172 T-2, 5, 1, 0; 4294 T-2, 4, 1, 0; 5058 T-2, 4, 1, 0; 5187 T-2, 4, 1, 0; 3357 T-3, 5, 1, 0; (3873), 5, 1, 0; (5579), 5, 1, 0; *[1984, 334, 9*, 1997/10/22–1997/12/05]*

709 W & B Observatory, Cloudcroft

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0.60-m $f/7$ Ritchey-Chrétien + CCD

USNO-SA1.0

1996 PW, 5, 1, 0; 1997 SP_3, 5, 1, 0; 1997 SE_4, 5, 1, 0; 1997 UC_1, 5, 1, 0; *[20, 4, 0*, 1997/11/21–1997/12/05]*

712 USAF Academy Observatory, Colorado Springs

C. Wetterer, Department of Physics, USAF Academy, CO 80840, U.S.A. [WettererCJ.dfp@usafa.af.mil]

Observers J. Tompkins, J. Alderman, M. Cantore, C. Wetterer

0.41-m $f/8.0$ reflector + CCD

GSC

1997 SE_5, 15, 3, 9; (1983), 3, 1, 0; (2100), 3, 1, 0; (3568), 2, 1, 0; (3750), 5, 2, 15; (4680), 3, 1, 0; (5819), 3, 1, 0; *[34, 7, 0*, 1997/09/25–1997/10/19]*

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

1997 WQ_2, 4, 2, 1; 1997 XC *, 7, 3, 5; *[11, 2, 1*, 1997/11/25–1997/12/06]*

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

GSC

(1121), 4, 2, 2; (1694), 6, 3, 8; (2343), 3, 2, 8; *[13, 3, 0*, 1997/11/23–1997/12/01]*

727 Zeno Observatory, Edmond

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

0.15m $f/6$ refractor + CCD

GSC

1997 UV_3, 6, 2, 1; 1997 UW_3, 3, 1, 0; 1997 VA_3, 11, 6, 24; 1997 VY_3, 9, 5, 24; 1997 WQ_{25} *, 7, 3, 10; (1980), 2, 1, 0; (5868), 4, 2, 1; (5918), 3, 1, 0; (5974), 3, 1, 0; (6369), 3, 1, 0; *[51, 10, 1*, 1997/11/11–1997/12/05]*

734 Farpoint Observatory, Eskridge
G. Hug, RTE 1 Box 35c, Eskridge, KS 66423, U.S.A. [frogstar@inlandnet.net]
0.45-m $f/4.5$ reflector + CCD, 0.30-m Schmidt-Cassegrain + CCD
GSC
1993 XF, 3, 1, 0; 2572 P-L, 8, 3, 9; *[11, 2, 0*, 1997/11/25–1997/12/04]*

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
1981 EQ_{28}, 5, 3, 8; (419), 4, 2, 4; (433), 5, 2, 6; (1468), 5, 2, 4; (1980), 4, 1, 0; (1983), 10, 4, 56; (4680), 4, 2, 4; (7952), 5, 3, 7; (7964), 3, 2, 1; (8000), 6, 3, 8; *[51, 10, 0*, 1997/09/25–1997/11/21]*

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
1980 RU, 5, 2, 5; 1982 BS, 2, 1, 0; 1989 CD_8, 5, 2, 3; 1990 SG_3, 4, 2, 9; 1991 RO_{23}, 4, 2, 14; 1991 SL_2, 2, 1, 0; 1992 DQ_{10}, 2, 1, 0; 1997 XR_2, 3, 1, 0; 4038 P-L, 2, 1, 0; (433), 3, 1, 0; (1177), 2, 1, 0; (1468), 7, 3, 6; (3568), 2, 1, 0; (5184), 4, 2, 4; (5819), 5, 2, 4; *[52, 15, 0*, 1997/11/12–1997/12/07]*

808 Carlos U. Cesco Observatory, El Leoncito
J. G. Sanguin, Felix Aguilar Observatory, Benavidez 8175 (Oeste), AR-5413 Chimbas, San Juan, Argentina [leoncito@unsjfa.edu.ar]
Observers J. E. Torres, M. R. Cesco, R. Gil-Hutton, H. S. Lepez, C. E. Lopez, J. G. Sanguin
0.5-m $f/7.5$ double astrograph
PPM
1990 TS_1, 2, 1, 0; 1991 PV_{17}, 2, 1, 0; 1992 BJ_1, 2, 1, 0; 1997 BA_2, 2, 1, 0; (6), 2, 1, 0; (10), 2, 1, 0; (18), 2, 1, 0; (22), 4, 2, 23; (39), 2, 1, 0; (50), 2, 1, 0; (72), 2, 1, 0; (114), 2, 1, 0; (117), 4, 2, 1; (148), 1, 1, 0; (168), 1, 1, 0; (278), 2, 1, 0; (315), 4, 2, 6; (342), 2, 1, 0; (432), 2, 1, 0; (499), 2, 1, 0; (549), 2, 1, 0; (704), 2, 1, 0; (1255), 2, 1, 0; (1755), 2, 1, 0; (1791), 2, 1, 0; (1859), 6, 3, 28; (2165), 4, 2, 6; (2621), 2, 1, 0; (2835), 4, 2, 6; (3083), 2, 1, 0; (3334), 2, 1, 0; (3371), 2, 1, 0; (3382), 2, 1, 0; (3490), 2, 1, 0; (5989), 2, 1, 0; (6536), 2, 1, 0; *[84, 36, 0*, 1995/07/25–1995/12/22]*

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Observers G. Pizarro, O. Pizarro
Measurers H. Debehogne, E. W. Elst, O. Hernius
1.0-m Schmidt, 0.60-m Bochum $f/15$ reflector + CCD
(3) 1988 CQ_7, 3, 1, 0; *[3, 1, 0*, 1992/05/04]*

(4) 1993 QW_{10} *, 3, 1, 0; 1996 HS_{13}, 3, 1, 0; 1996 JH_{13}, 3, 1, 0; 1996 PX_9 *, 6, 2, 1; 5159 T-2, 6, 2, 1; *[21, 5, 2*, 1993/08/24–1996/10/04]*

(8) 1989 TY, 1, 1, 0; 1990 SL_{27}, 2, 2, 32; 1993 OW_3, 1, 1, 0; 1993 OD_8, 1, 1, 0; 1995 UP_7, 1, 1, 0; 1996 GJ_2, 2, 2, 3; 1996 HA_{15}, 2, 2, 33; 1996 XX_5, 1, 1, 0; 1997 SE_{16}, 1, 1, 0; *[12, 9, 0*, 1992/02/29–1993/03/24]*

817 Sudbury
D. di Cicco, Sky & Telescope, Cambridge, MA 02138, U.S.A. [dicicco@skypub.com]
0.41-m Schmidt-Cassegrain + CCD
GSC
(4833), 5, 2, 1; (4836), 6, 2, 1; *[11, 2, 0*, 1997/11/18–1997/11/19]*

829 Complejo Astronómico El Leoncito
R. Gil-Hutton, Felix Aguilar Observatory, Benavidez 8175 (Oeste), AR-5413 Chimbas, San Juan, Argentina [rgh@castec.edu.ar]
2.15-m reflector + CCD
USNO A1.0
1995 QY_9, 2, 2, 1; 1996 TO_{66}, 3, 2, 1; 1997 UR_{21} *, 2, 2, 1; 1997 US_{21} *, 2, 2, 1; *[9, 4, 2*, 1997/10/23–1997/10/24]*

864 Kumamoto Civil Astronomical Observatory
J. Kobayashi, 2016 Tukahara, Jhonan, Shimomashiki-Gun, Kumamoto-Ken, 861-42 Japan [nag00633@niftyserve.or.jp]
0.41-m $f/5.0$ reflector + CCD
GSC
1997 VX_5, 4, 1, 0; *[4, 1, 0*, 1997/11/23]*

867 Saji Observatory
M. Yamanishi, 1071-1 Takayama, Saji, Yazu-Gun, Tottori-Ken, 689-13 Japan [KYI03040@niftyserve.or.jp]
Observers M. Yamanishi, A. Miyamoto, M. Aimoto, T. Oribe
1.03-m $f/4.2$ reflector + CCD
GSC
1996 HK_1, 5, 2, 10; 1996 TL_{66}, 8, 2, 1; 1996 TP_{66}, 6, 2, 1; 1997 CU_{26}, 3, 1, 0; 1997 SF_{11}, 6, 2, 16; 1997 UE_{21}, 5, 2, 16; 1997 UF_{21}, 6, 2, 16; 1997 UM_{21}, 3, 1, 0; *[42, 8, 0*, 1997/11/08–1997/12/05]*

886 Susono
M. Akiyama, 1655-23, Chabatake, Susono, Shizuoka-Ken, 410-11 Japan
0.25-m $f/6.3$ reflector + CCD
GSC
1995 BR_4, 6, 3, 25; 1997 UE_2, 4, 2, 2; 1997 UF_2, 4, 2, 2; 1997 UP_7, 6, 3, 14; 1997 UZ_{14}, 2, 1, 0; 1997 UA_{15}, 4, 2, 11; 1997 UB_{15}, 4, 2, 11; 1997 UC_{15}, 4, 2, 11; 1997 VE_4, 4, 2, 15; 1997 VW_4, 2, 1, 0; 1997 VZ_4, 2, 1, 0; 1997 VA_5, 6, 3, 16; 1997 VO_6, 6, 3, 14; 1997 WR_3, 4, 2, 9; 1997 WJ_7, 4, 2, 8; 1997 WK_7, 2, 1, 0; 1997 WL_7, 2, 1, 0; 1997 WN_7, 2, 1, 0; 1997 WO_7, 2, 1, 0; 1997 WQ_7, 2, 1, 0; 1997 WR_7, 2, 1, 0; 1997 WJ_{13}, 2, 1, 0; 1997 WK_{13}, 2, 1, 0; 1997 WL_{13}, 2, 1, 0; 1997 WM_{13}, 2, 1, 0; 1997 WO_{13}, 2, 1, 0; 1997 XA *, 6, 3, 2; *[90, 27, 1*, 1997/11/07–1997/12/05]*

888 Gekko Observatory
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Observer T. Kagawa
Measurer T. Urata
0.50-m $f/4.0$ reflector
GSC
1997 RF_8, 2, 1, 0; 1997 TH_{19}, 2, 1, 0; 1997 TJ_{19}, 2, 1, 0; 1997 VY, 4, 2, 2; 1997 VY_1, 4, 2, 20; 1997 VE_4, 6, 3, 19; 1997 VO_6, 2, 1, 0; 1997 WR_3, 2, 1, 0; 1997 WJ_7, 2, 1, 0; 1997 WM_{13} *, 4, 2, 3; 1997 WN_{13} *, 4, 2, 3; 1997 WO_{13} *, 4, 2, 3; 1997 XM_5 *, 4, 2, 2; (6270), 2, 1, 0; *[44, 14, 4*, 1997/10/25–1997/12/05]*

894 Otomo
S. Otomo, Kiyosato 3545-3902, Takane, Kitakoma-Gun, Yamanashi-Ken, 407-03 Japan
0.25-m $f/3.4$ reflector
PPM
1988 QA, 4, 2, 4; 1990 SL_{27}, 4, 2, 4; 1996 UG_3, 4, 2, 6; 1997 TE_{27} *, 4, 2, 4; (239), 4, 2, 4; *[20, 5, 1*, 1996/11/07–1997/10/12]*

897 YGCO Chiyoda Station
T. Kojima, 45 Shimonakamori, Chiyoda, Ohra-Gun, Gunma-Ken, 370-07 Japan [kojitaku@scorpius.bekkoame.or.jp]
0.25-m $f/6.0$ reflector + CCD
GSC
1997 UF_9, 4, 1, 0; 1997 UH_9, 3, 1, 0; 1997 US_9, 2, 1, 0; (648), 3, 1, 0; *[12, 4, 0*, 1997/11/18–1997/12/02]*

900 Moriyama
Y. Ikari, Katube-Cho 626, Moriyama, Shiga-Ken 524, Japan [ikari@gold.ocn.ne.jp]
0.25-m $f/6.3$ Schmidt-Cassegrain + CCD
GSC
1978 SA_7, 2, 1, 0; 1982 BE_1, 2, 1, 0; 1982 UE_6, 2, 1, 0; 1988 BX, 2, 1, 0; 1990 SA_2, 2, 1, 0; 1993 QH_{10}, 2, 1, 0; 1993 SB_1, 2, 1, 0; 1995 FQ, 2, 1, 0; 1997 UA_7, 3, 1, 0; 1997 VM_2, 4, 2, 1; 1997 VK_3, 4, 1, 0; 1997 VY_5, 8, 4, 7; 1997 WM_{16} *, 11, 5, 11; 1997 WC_{21}, 6, 3, 4; 1997 WP_{23}, 2, 1, 0; 1997 WQ_{23}, 2, 1, 0; 1997 WS_{23}, 2, 1, 0; 1997 WT_{23}, 4, 2, 4; 1997 XL_1 *, 4, 2, 1; 1997 XN_2 *, 4, 2, 1; 1997 XS_2, 2, 1, 0; *[72, 21, 3*, 1997/11/08–1997/12/05]*

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Observer Y. Shimizu
Measurer T. Urata
0.40-m $f/3.3$ Baker-Schmidt
GSC
1990 RS_2, 4, 2, 3; 1997 TC_{18}, 2, 1, 0; 1997 UE_1, 2, 1, 0; 1997 UW_5, 4, 2, 3; 1997 UY_8, 2, 1, 0; 1997 UC_{15}, 4, 2, 3; 1997 VV_4, 6, 3, 23; 1997 VW_4, 2, 1, 0; 1997 VX_4, 4, 2, 23; 1997 VK_5, 4, 2, 3; 1997 VP_6, 5, 3, 19; 1997 VQ_6, 5, 3, 21; 1997 VZ_6 *, 6, 3, 9; 1997 WR_3 *, 6, 3, 14; 1997 WJ_7 *, 4, 2, 4; 1997 WK_7 *, 4, 2, 4; 1997 WL_7 *, 4, 2, 4; 1997 WM_7 *, 4, 2, 4; 1997 WN_7 *, 4, 2, 4; 1997 WO_7 *, 4, 2, 4; 1997 WP_7 *, 4, 2, 4; 1997 WQ_7 *, 4, 2, 4; 1997 WR_7 *, 6, 2, 4; 1997 WE_8 *, 4, 2, 4; 1997 WJ_{13} *, 4, 2, 3; 1997 WK_{13} *, 4, 2, 3; 1997 WL_{13} *, 4, 2, 3; 1997 WD_{21} *, 4, 2, 7; 1997 XU_1 *, 4, 2, 1; 1997 XV_1 *, 4, 2, 1; 1997 XW_1 *, 4, 2, 1; 1997 XX_1 *, 4, 2, 1; 1997 XY_1 *, 3, 2, 1; 1997 XJ_5 *, 4, 2, 1; 1997 XK_5 *, 4, 2, 1; 1997 XL_5 *, 4, 2, 1; 1997 XL_9 *, 4, 2, 2; (8015), 2, 1, 0; *[151, 38, 25*, 1997/10/26–1997/12/04]*

908 Tsukioka Toyama
M. Aoki, 6-1339, Tsukioka-Cho, Toyama, 939 Japan
0.43-m reflector $f/6$ + CCD
GSC
1997 VG_5, 13, 4, 24; *[13, 1, 0*, 1997/11/10–1997/12/04]*

910 Caussols-ODAS
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Observers A. Maury, D. Albanese, M. Hoffmann, G. Hahn
Measurers A. Maury, M. Hoffmann, G. Hahn
0.90-m Schmidt + CCD
GSC
1969 TQ_1, 3, 1, 0; 1975 UF, 3, 1, 0; 1978 PE, 3, 1, 0; 1978 SA_8, 3, 1, 0; 1979 TH_2, 3, 1, 0; 1980 TV_2, 3, 1, 0; 1981 EW_2, 3, 1, 0; 1981 GO_1, 3, 1, 0; 1982 FA, 6, 2, 2; 1986 QO_3, 3, 1, 0; 1987 SB_3, 3, 1, 0; 1988 VE_1, 3, 1, 0; 1989 CL_1, 6, 2, 2; 1989 NH_1, 6, 2, 1; 1989 TA_3, 6, 2, 2; 1989 VN_5, 3, 1, 0; 1989 YF_1, 3, 1, 0; 1989 YA_2, 3, 1, 0; 1990 QV_1, 3, 1, 0; 1990 QP_3, 3, 1, 0; 1990 ST_6, 6, 2, 2; 1990 TW_7, 3, 1, 0; 1990 UN_1, 3, 1, 0; 1990 VT_1, 3, 1, 0; 1990 VG_6, 3, 1, 0; 1990 WZ_1, 3, 1, 0; 1991 NZ_6, 6, 2, 5; 1991 PL_8, 6, 2, 2; 1991 PC_{11}, 3, 1, 0; 1992 OZ_9, 3, 1, 0; 1992 SV_{12}, 3, 1, 0; 1993 FO_6, 6, 2, 1; 1993 FT_{32}, 3, 1, 0; 1993 HS, 3, 1, 0; 1994 CK_2, 6, 2, 1; 1994 UY_1, 6, 2, 1; 1994 YL_1, 3, 1, 0; 1995 CD, 3, 1, 0; 1995 DE_2, 3, 1, 0; 1996 RQ_2, 3, 1, 0; 1996 RD_{12}, 3, 1, 0; 1996 TZ_{20}, 6, 2, 6; 1996 VN_8, 6, 2, 1; 1997 AA_1, 3, 1, 0; 1997 PM_2, 3, 1, 0; 1997 QY, 3, 1, 0; 1997 QC_1, 3, 1, 0; 1997 QY_1, 3, 1, 0; 1997 QE_2, 3, 1, 0; 1997 QC_5 *, 6, 2, 8; 1997 RO, 3, 1, 0; 1997 RX_6, 3, 1, 0; 1997 RV_8, 6, 2, 2; 1997 RQ_{10} *, 6, 2, 2; 1997 RR_{10} *, 6, 2, 2; 1997 RS_{10} *, 6, 2, 2; 1997 RT_{10} *, 6, 2, 2; 1997 RU_{10} *, 6, 2, 2; 1997 RV_{10} *, 6, 2, 2; 1997 RW_{10} *, 6, 2, 2; 1997 RX_{10} *, 6, 2, 2; 1997 RY_{10} *, 6, 2, 2; 1997 RZ_{10} *, 6, 2, 2; 1997 RA_{11} *, 6, 2, 2; 1997 RB_{11} *, 6, 2, 2; 1997 RC_{11} *, 6, 2, 2; 1997 RD_{11} *, 6, 2, 2; 1997 RE_{11} *, 6, 2, 2; 1997 RF_{11} *, 6, 2, 2; 1997 RG_{11} *, 6, 2, 2; 1997 RH_{11} *, 6, 2, 2; 1997 RJ_{11} *, 6, 2, 1; 1997 RK_{11} *, 6, 2, 1; 1997 RL_{11} *, 6, 2, 1; 1997 RM_{11} *, 6, 2, 1; 1997 RN_{11} *, 6, 2, 1; 1997 RO_{11} *, 6, 2, 1; 1997 RP_{11} *, 6, 2, 1; 1997 RQ_{11} *, 6, 2, 1; 1997 RR_{11} *, 6, 2, 1; 1997 RS_{11} *, 6, 2, 1; 1997 RT_{11} *, 6, 2, 1; 1997 RU_{11} *, 6, 2, 1; 1997 RV_{11} *, 6, 2, 1; 1997 RW_{11} *, 6, 2, 1; 1997 RX_{11} *, 6, 2, 1; 1997 RY_{11} *, 6, 2, 1; 1997 RZ_{11} *, 6, 2, 1; 1997 RA_{12} *, 6, 2, 1; 1997 RB_{12} *, 6, 2, 1; 1997 RC_{12} *, 6, 2, 1; 1997 RD_{12} *, 6, 2, 1; 1997 RE_{12} *, 6, 2, 1; 1997 RF_{12} *, 6, 2, 1; 1997 RG_{12} *, 6, 2, 1; 1997 RH_{12} *, 6, 2, 1; 1997 RJ_{12} *, 6, 2, 1; 1997 RK_{12} *, 6, 2, 1; 1997 RL_{12} *, 6, 2, 1; 1997 RM_{12} *, 6, 2, 1; 1997 RN_{12} *, 6, 2, 1; 1997 RO_{12} *, 6, 2, 1; 1997 RP_{12} *, 6, 2, 1; 1997 RQ_{12} *, 6, 2, 1; 1997 RR_{12} *, 6, 2, 1; 1997 RS_{12} *, 6, 2, 1; 1997 RT_{12} *, 6, 2, 1; 1997 RU_{12} *, 6, 2, 1; 1997 RV_{12} *, 6, 2, 1; 1997 RW_{12} *, 6, 2, 1; 1997 RX_{12} *, 6, 2, 1; 1997 RY_{12} *, 6, 2, 1; 1997 RZ_{12} *, 6, 2, 1; 1997 RA_{13} *, 6, 2, 1; 1997 RB_{13} *, 6, 2, 1; 1997 RC_{13} *, 6, 2, 1; 1997 RD_{13} *, 6, 2, 1; 1997 RE_{13} *, 6, 2, 1; 1997 RF_{13} *, 6, 2, 1; 1997 RG_{13} *, 6, 2, 1; 1997 RH_{13} *, 6, 2, 1; 1997 RJ_{13} *, 6, 2, 1; 1997 SL, 3, 1, 0; 1997 SL_1, 3, 1, 0; 1997 SN_2, 3, 1, 0; 1997 SE_3, 3, 1, 0; 1997 SE_4, 3, 1, 0; 1997 SM_5, 3, 1, 0; 1997 SP_{12}, 6, 2, 1; 1997 SW_{12}, 6, 2, 1; 1997 SU_{15}, 6, 2, 56; 1997 SW_{15}, 3, 1, 0; 1997 SX_{15}, 3, 1, 0; 1997 SB_{16}, 3, 1, 0; 1997 SC_{16}, 3, 1, 0; 1997 SG_{16}, 3, 1, 0; 1997 SO_{17}, 6, 2, 126; 1997 SR_{28}, 6, 2, 1; 1997 SB_{34}, 3, 1, 0; 1997 TT_9, 3, 1, 0; 1997 TB_{10}, 3, 1, 0; 1997 TZ_{10}, 6, 2, 1; 1997 TE_{11}, 3, 1, 0; 1997 TV_{17}, 3, 1, 0; 1997 TX_{17}, 3, 1, 0; 1997 TH_{19}, 3, 1, 0; 1997 TV_{22}, 3, 1, 0; 1997 TL_{25}, 6, 2, 1; 1997 TV_{26}, 3, 1, 0; 1997 UJ, 3, 1, 0; 1997 UJ_2, 6, 2, 2; 1997 UK_3, 9, 2, 2; 1997 UN_3, 6, 2, 2; 1997 UR_3, 3, 1, 0; 1997 UE_8, 6, 2, 2; 1997 UZ_8, 3, 1, 0; 1997 UM_9, 3, 1, 0; 1997 UH_{11}, 3, 1, 0; 1997 UX_{13}, 6, 1, 0; 1997 UB_{15}, 3, 1, 0; 1997 UC_{15}, 3, 1, 0; 1997 UQ_{17}, 6, 2, 2; 1997 UR_{17}, 6, 2, 1; 1997 UW_{17}, 6, 2, 2; 1997 UW_{18}, 6, 2, 2; 1997 VK, 3, 1, 0; 1997 VD_3, 3, 1, 0; 1997 VD_4, 3, 1, 0; 1997 VX_4, 6, 2, 63; 1997 VP_6, 6, 2, 2; 1997 VU_6, 3, 1, 0; 1997 VM_7, 3, 1, 0; 1997 VW_8, 3, 1, 0; 1997 WS_1, 3, 1, 0; 1997 WE_5, 3, 1, 0; 1997 WE_{11}, 3, 1, 0; 1997 WV_{11}, 3, 1, 0; 1997 WD_{15}, 3, 1, 0; 1997 WM_{22} *, 6, 2, 5; 1997 WN_{22} *, 6, 2, 5; 1997 WO_{22} *, 6, 2, 5; 1997 WP_{22} *, 6, 2, 5; 1997 WQ_{22} *, 9, 3, 6; 1997 WR_{22} *, 9, 3, 6; 1997 WT_{22}, 3, 1, 0; 1997 WM_{23} *, 6, 2, 6; 1997 WN_{23} *, 6, 2, 6; 1997 WO_{23} *, 6, 2, 6; 1997 WN_{24}, 3, 1, 0; 1997 XD *, 9, 3, 89; 1997 XE *, 6, 2, 2; 1997 XF *, 6, 2, 2; 1997 XG *, 6, 2, 1; 1997 XH *, 6, 2, 1; 1997 XT_2 *, 6, 2, 2; 1997 XU_2 *, 6, 2, 2; 1997 XV_2 *, 6, 2, 2; 1997 XW_2 *, 6, 2, 2; 1997 XX_2 *, 6, 2, 2; 1997 XY_2 *, 6, 2, 2; 1997 XZ_2 *, 6, 2, 2; 1997 XA_3 *, 6, 2, 2; 1997 XB_3 *, 6, 2, 2; 1997 XC_3 *, 6, 2, 2; 1997 XD_3 *, 6, 2, 2; 1997 XE_3 *, 6, 2, 2; 1997 XF_3 *, 6, 2, 2; 1997 XG_3 *, 6, 2, 2; 1997 XH_3 *, 6, 2, 2; 1997 XJ_3 *, 6, 2, 2; 1997 XK_3 *, 6, 2, 2; 1997 XL_3 *, 6, 2, 2; 1997 XM_3 *, 6, 2, 2; 1997 XN_3 *, 6, 2, 2; 1997 XO_3 *, 6, 2, 2; 1997 XP_3 *, 6, 2, 2; 1997 XQ_3 *, 6, 2, 2; 1997 XR_3 *, 6, 2, 2; 1997 XS_3 *, 6, 2, 2; 1997 XT_3 *, 6, 2, 2; 1997 XU_3 *, 6, 2, 2; 1997 XV_3 *, 6, 2, 2; 1997 XW_3 *, 6, 2, 2; 1997 XX_3 *, 6, 2, 2; 1997 XY_3 *, 6, 2, 2; 1997 XZ_3 *, 6, 2, 1; 1997 XA_4 *, 6, 2, 1; 1997 XB_4 *, 6, 2, 1; 1997 XC_4 *, 6, 2, 1; 1997 XD_4 *, 6, 2, 1; 1997 XE_4 *, 6, 2, 1; 1997 XF_4 *, 6, 2, 1; 1997 XG_4 *, 6, 2, 1; 1997 XH_4 *, 6, 2, 1; 1997 XJ_4 *, 6, 2, 1; 1997 XK_4 *, 6, 2, 1; 1997 XL_4 *, 6, 2, 1; 1997 XM_4 *, 6, 2, 1; 1997 XN_4 *, 6, 2, 1; 1997 XO_4 *, 6, 2, 1; 1997 XP_4 *, 6, 2, 1; 1997 XQ_4 *, 6, 2, 1; 1997 XR_4 *, 6, 2, 1; 1997 XS_4 *, 6, 2, 1; 1997 XT_4 *, 6, 2, 1; 1997 XU_4 *, 6, 2, 1; 1997 XV_4 *, 6, 2, 1; 1997 XW_4 *, 6, 2, 1; 1997 XX_4 *, 6, 2, 1; 1997 XY_4 *, 6, 2, 1; 1997 XZ_4 *, 6, 2, 1; 1997 XA_5 *, 6, 2, 1; 1997 XB_5 *, 6, 2, 1; 1997 XC_5 *, 6, 2, 1; 1997 XD_5 *, 6, 2, 1; 1997 XE_5 *, 6, 2, 1; 1997 XF_5 *, 6, 2, 1; 1997 XG_5 *, 6, 2, 1; 1997 XH_5 *, 6, 2, 1; 1997 XV_5 *, 6, 2, 2; 1997 XW_5 *, 6, 2, 2; 1997 XX_5 *, 6, 2, 2; 1997 XY_5 *, 6, 2, 2; 1997 XZ_5 *, 6, 2, 2; 1997 XA_6 *, 6, 2, 2; 1997 XB_6 *, 6, 2, 2; 1997 XC_6 *, 6, 2, 2; 1997 XD_6 *, 6, 2, 2; 1997 XE_6 *, 6, 2, 2; 1997 XF_6 *, 6, 2, 2; 1997 XG_6 *, 6, 2, 2; 1997 XH_6 *, 6, 2, 2; 1997 XJ_6 *, 6, 2, 2; 1997 XK_6 *, 6, 2, 2; 1997 XL_6 *, 6, 2, 2; 1997 XM_6 *, 6, 2, 2; 1997 XN_6 *, 6, 2, 2; 1997 XO_6 *, 6, 2, 2; 1997 XP_6 *, 6, 2, 2; 1997 XQ_6 *, 6, 2, 2; 1997 XR_6 *, 6, 2, 2; 1997 XS_6 *, 6, 2, 2; 1997 XT_6 *, 6, 2, 2; 1997 XU_6 *, 6, 2, 2; 1997 XV_6 *, 6, 2, 2; 1997 XW_6 *, 6, 2, 2; 1997 XX_6 *, 6, 2, 2; 1997 XY_6 *, 6, 2, 2; 1997 XZ_6 *, 6, 2, 2; 1997 XA_7 *, 6, 2, 2; 1997 XB_7 *, 6, 2, 2; 1997 XC_7 *, 6, 2, 2; 1997 XD_7 *, 6, 2, 2; 1997 XE_7 *, 6, 2, 2; 1997 XF_7 *, 6, 2, 2; 1997 XG_7 *, 6, 2, 2; 1997 XH_7 *, 6, 2, 2; 1997 XJ_7 *, 6, 2, 2; 1997 XK_7 *, 6, 2, 2; 1997 XL_7 *, 6, 2, 2; 1997 XM_7 *, 6, 2, 2; 1997 XN_7 *, 6, 2, 2; 1997 XO_7 *,

6, 2, 2; 1997 XP_7 *, 6, 2, 1; 1997 XQ_7 *, 6, 2, 1; 1997 XR_7 *, 6, 2, 1; 1997 XS_7 *, 6, 2, 1; 1997 XT_7 *, 6, 2, 1; 1997 XU_7 *, 6, 2, 1; 1997 XV_7 *, 6, 2, 1; 1997 XW_7 *, 6, 2, 1; 1997 XX_7 *, 6, 2, 1; 1997 XY_7 *, 6, 2, 1; 1997 XZ_7 *, 6, 2, 1; 1997 XA_8 *, 6, 2, 1; 1997 XB_8 *, 6, 2, 1; 1997 XC_8 *, 6, 2, 1; 1997 XD_8 *, 6, 2, 1; 1997 XE_8 *, 6, 2, 1; 1997 XF_8 *, 6, 2, 1; 1997 XG_8 *, 6, 2, 1; 1997 XH_8 *, 6, 2, 1; 1997 XJ_8 *, 6, 2, 1; 1997 XK_8 *, 6, 2, 1; 1997 XL_8 *, 6, 2, 1; 1997 XM_8 *, 6, 2, 1; 1997 XN_8 *, 6, 2, 1; 1997 XO_8 *, 6, 2, 1; 1997 XP_8 *, 6, 2, 1; 1997 XQ_8 *, 6, 2, 1; 1997 XR_8 *, 6, 2, 1; 1997 XS_8 *, 6, 2, 1; 1997 XT_8 *, 6, 2, 1; 1997 XU_8 *, 6, 2, 1; 1997 XV_8 *, 6, 2, 1; 1997 XW_8 *, 6, 2, 1; 1997 XX_8 *, 6, 2, 1; 1997 XY_8 *, 6, 2, 1; 1997 XZ_8 *, 6, 2, 1; 1997 XA_9 *, 6, 2, 1; 1997 XB_9 *, 6, 2, 1; 1997 XC_9 *, 6, 2, 1; 1997 XD_9 *, 6, 2, 1; 1997 XE_9 *, 6, 2, 1; 1997 XF_9 *, 6, 2, 1; 1997 XG_9 *, 6, 2, 1; 1997 XH_9 *, 6, 2, 1; 1997 XJ_9 *, 9, 3, 4; 2777 P-L, 3, 1, 0; 4040 P-L, 3, 1, 0; 6571 P-L, 6, 2, 1; 6579 P-L, 3, 1, 0; 2259 T-1, 3, 1, 0; 3219 T-1, 3, 1, 0; 4393 T-1, 6, 2, 6; 4825 T-1, 6, 2, 1; 1306 T-2, 6, 2, 2; (160), 3, 1, 0; (169), 3, 1, 0; (200), 3, 1, 0; (314), 3, 1, 0; (426), 3, 1, 0; (544), 3, 1, 0; (569), 3, 1, 0; (616), 3, 1, 0; (622), 3, 1, 0; (653), 3, 1, 0; (706), 3, 1, 0; (767), 6, 2, 2; (836), 3, 1, 0; (946), 3, 1, 0; (1014), 3, 1, 0; (1022), 3, 1, 0; (1133), 3, 1, 0; (1202), 3, 1, 0; (1467), 3, 1, 0; (1615), 3, 1, 0; (1673), 3, 1, 0; (1681), 6, 2, 4; (1782), 6, 2, 1; (2343), 3, 1, 0; (2450), 6, 2, 2; (2784), 6, 2, 1; (2835), 3, 1, 0; (2868), 3, 1, 0; (2945), 6, 2, 2; (3060), 3, 1, 0; (3130), 6, 2, 1; (3268), 3, 1, 0; (3399), 6, 2, 1; (3408), 6, 2, 2; (3433), 3, 1, 0; (3457), 3, 1, 0; (3481), 3, 1, 0; (3730), 9, 3, 6; (3850), 3, 1, 0; (3975), 6, 2, 2; (4049), 6, 2, 1; (4119), 3, 1, 0; (4256), 6, 2, 2; (4310), 3, 1, 0; (4470), 6, 2, 1; (4527), 6, 2, 2; (4626), 3, 1, 0; (4807), 3, 1, 0; (4812), 3, 1, 0; (4822), 6, 2, 1; (4881), 3, 1, 0; (5072), 6, 2, 1; (5219), 3, 1, 0; (5458), 3, 1, 0; (5466), 3, 1, 0; (5535), 3, 1, 0; (5550), 6, 2, 1; (5609), 3, 1, 0; (5633), 3, 1, 0; (5686), 6, 2, 2; (5745), 3, 1, 0; (5748), 3, 1, 0; (5792), 6, 2, 1; (5859), 3, 1, 0; (5912), 6, 2, 1; (5937), 3, 1, 0; (6301), 6, 2, 1; (6328), 3, 1, 0; (6333), 3, 1, 0; (6366), 3, 1, 0; (6414), 3, 1, 0; (6511), 6, 2, 1; (6603), 6, 2, 1; (6954), 6, 2, 2; (7009), 3, 1, 0; (7013), 3, 1, 0; (7029), 3, 1, 0; (7031), 3, 1, 0; (7101), 3, 1, 0; (7164), 6, 2, 5; (7278), 6, 2, 4; (7292), 3, 1, 0; (7381), 3, 1, 0; (7397), 3, 1, 0; (7414), 3, 1, 0; (7499), 6, 2, 1; (7880), 3, 1, 0; (7881), 6, 2, 2; (7896), 3, 1, 0; (7912), 3, 1, 0; (7981), 6, 2, 1; (8002), 3, 1, 0; (8054), 6, 2, 2; (8058), 3, 1, 0; *[2283, 451, 238*, 1997/08/02–1997/12/08]*

948 Pymoor

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0.26-m Schmidt-Cassegrain + CCD
GSC 1.1
(68), 5, 2, 1; (79), 4, 2, 1; (2307), 9, 3, 2; (2811), 4, 2, 1; (3582), 6, 2, 1; (3857), 4, 2, 1; *[32, 6, 0*, 1997/11/11–1997/11/14]*

951 Highworth

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0.30-m Newtonian reflector + CCD
GSC
(654), 4, 2, 10; (762), 4, 2, 10; (1264), 4, 2, 10; *[12, 3, 0*, 1997/11/11–1997/11/21]*

954 Teide Observatory

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Observers M. Serra, D. Drozdova, M. Kidger, A. Oscoz, P. Santos
Measurer R. Casas
0.8-m $f/11.3$ Cassegrain + CCD
GSC 1.2
(10), 8, 2, 1; (535), 21, 1, 0; (1116), 62, 6, 13; *[91, 3, 0*, 1997/10/11–1997/11/20]*

958 Observatoire de Dax

P. Dupouy, Observatoire de Dax, F-40100 Dax, France [DUPOUY_Philippe@compuserve.com]
Observers P. Dupouy, J.-F. Lahitte
0.254-m $f/6.7$ reflector + CCD
GSC
1997 SO_3, 2, 1, 0; 1997 UV_{10}, 2, 1, 0; 1997 UW_{10}, 2, 1, 0; 1997 VV, 2, 1, 0; (256), 2, 1, 0; *[10, 5, 0*, 1997/11/16–1997/12/03]*

960 Rolvenden

M. Armstrong, Butterfly Cottage, Hastings Road, Rolvenden, Kent TN17 4PN, England [fw04@dial.pipex.com]
Observers M. Armstrong, C. Armstrong
0.26-m Schmidt-Cassegrain + CCD
GSC
1997 WQ_{28} *, 5, 2, 3; *[5, 1, 1*, 1997/11/30–1997/12/03]*

964 Southend Bradfield

G. C. R. Sallit, Jacinth, Stanford Road, Southend Bradfield, Reading, Berkshire RG7 6HL, England [100573.2667@compuserve.com]
0.30-m Schmidt-Cassegrain + CCD
GSC
(419), 4, 2, 1; (1468), 4, 2, 1; (5184), 2, 1, 0; *[10, 3, 0*, 1997/10/27–1997/10/28]*

965 Observação Astronomica no Algarve

B. Ewen-Smith, sitio do Poio, P-8500 Portimão, Portugal [coaa@mail.telepac.pt]
Observers B. Ewen-Smith, R. Johnson
0.5-m reflector + CCD
USNO-SA1.0
1996 QC, 11, 4, 10; *[11, 1, 0*, 1997/11/18–1997/11/28]*

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
1997 WQ_{23}, 2, 1, 0; 1997 WQ_{28}, 2, 1, 0; *[4, 2, 0*, 1997/12/03]*

970 Chelmsford

N. D. James, 11 Tavistock Road, Chelmsford, Essex CM1 6JL, England [ndj@astro1.demon.co.uk]
0.30-m $f/5.25$ reflector + CCD
GSC
1997 WQ_{28}, 3, 2, 1; *[3, 1, 0*, 1997/12/05–1997/12/06]*

ORBITAL ELEMENTS

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C/1997 A1 (NEAT)
Epoch 1997 June 1.0 TT = JDT 2450600.5

				Nakano	
T	1997 June 19.5914 TT				
q	3.157204		(2000.0)	**P**	**Q**
z	−0.000651	ω	40.0129	−0.1810468	+0.8987222
	±0.000002	Ω	135.7668	+0.6902915	−0.1731428
e	1.002055	i	145.0717	+0.7005139	+0.4028896

From 184 observations 1997 Jan. 9–Nov. 24, mean residual 0″.6.

C/1997 D1 (Mueller)
Epoch 1997 Sept. 29.0 TT = JDT 2450720.5

				Nakano	
T	1997 Oct. 11.6117 TT				
q	2.247640		(2000.0)	**P**	**Q**
z	−0.000493	ω	184.9605	−0.0916280	+0.7876288
	±0.000001	Ω	279.1715	+0.9335380	+0.2808957
e	1.001108	i	141.8888	+0.3465705	−0.5483963

From 323 observations 1997 Feb. 20–Dec. 7, mean residual 0″.6.

P/1997 G1 (Montani)
Epoch 1997 Apr. 22.0 TT = JDT 2450560.5

				Nakano	
T	1997 Apr. 6.8506 TT				
q	4.214609		(2000.0)	**P**	**Q**
n	0.0506954	ω	213.5068	−0.5193510	−0.8517281
a	7.230309	Ω	267.8716	+0.7985296	−0.4547148
e	0.417092	i	3.9895	+0.3043437	−0.2603721
P	19.4				

From 48 observations 1997 Apr. 9–Dec. 5, mean residual 0″.6.

C/1997 O1 (Tilbrook)
Epoch 1997 July 11.0 TT = JDT 2450640.5

				Nakano	
T	1997 July 13.4181 TT				
q	1.371747		(2000.0)	**P**	**Q**
z	+0.011655	ω	336.1862	−0.4356001	−0.5633018
	±0.000049	Ω	231.2476	−0.6109310	−0.3878190
e	0.984013	i	115.8036	−0.6610718	+0.7295803

From 91 observations 1997 July 23–Dec. 4, mean residual 0″.7.

C/1997 T1 (Utsunomiya)

				Marsden	
T	1997 Dec. 10.0791 TT				
q	1.359608		(2000.0)	**P**	**Q**
		ω	95.9234	+0.4324792	−0.6398756
		Ω	53.7132	−0.7205966	−0.6687558
e	1.0	i	127.9947	+0.5419430	−0.3785828

From 475 observations 1997 Oct. 5–Dec. 6.

P/1997 T3

				Marsden	
T	1998 Mar. 9.0452 TT				
q	4.243689		(2000.0)	**P**	**Q**
n	0.0571237	ω	333.9226	+0.7962878	−0.6002177
a	6.677164	Ω	63.1678	+0.5687062	+0.7004017
e	0.364447	i	4.8383	+0.2061530	+0.3862334
P	17.3				

From 107 observations 1997 Oct. 5–Dec. 4.

P/1997 V1 (Larsen)

				Marsden	
T	1997 Sept. 13.7204 TT				
q	3.292451		(2000.0)	**P**	**Q**
n	0.0900998	ω	132.5943	+0.9782403	−0.1171659
a	4.927807	Ω	234.8428	+0.0660535	+0.9582167
e	0.331863	i	12.0890	+0.1966798	+0.2609461
P	10.9				

From 188 observations 1997 Nov. 3–Dec. 6.

C/1997 V2 (SOHO)

				Marsden	
T	1997 Nov. 9.63 TT				
q	0.0088		(2000.0)	**P**	**Q**
		ω	87.64	+0.23073	−0.96194
		Ω	13.92	−0.93883	−0.25962
e	1.0	i	142.52	+0.25564	−0.08522

From 63 observations 1997 Nov. 8–9.

C/1997 W1 (SOHO)

				Marsden	
T	1997 Nov. 23.47 TT				
q	0.0062		(2000.0)	**P**	**Q**
		ω	91.41	+0.17813	−0.97185
		Ω	14.72	−0.95212	−0.20980
e	1.0	i	142.64	+0.24847	−0.10720

From 50 observations 1997 Nov. 21–23.

C/1997 X1 (SOHO)

				Marsden	
T	1997 Dec. 2.99 TT				
q	0.0055		(2000.0)	**P**	**Q**
		ω	86.78	+0.18622	−0.97746
		Ω	9.47	−0.95140	−0.20466
e	1.0	i	142.81	+0.24527	−0.05174

From 39 observations 1997 Dec. 1–2.

134P/Kowal-Vávrová
Epoch 1998 Nov. 3.0 TT = JDT 2451120.5

				Williams	
T	1998 Nov. 19.0548 TT				
q	2.575587		(2000.0)	**P**	**Q**
n	0.0632513	ω	18.7359	−0.7547884	+0.6553387
a	6.238637	Ω	202.2878	−0.6111059	−0.7184147
e	0.587156	i	4.3454	−0.2384202	−0.2332628
P	15.6				

From 14 observations 1983–1997, mean residual 0″.8.

(8059)∗ 1957 JP = 1957 KD = 1971 UR$_2$ = 1993 PV$_2$
Discovered 1957 May 6 at the Goethe Link Observatory, Indiana University.

Id. S. Kanda (d, *MPC* 1740), G. V. Williams (*MPC* 22586), L. D. Schmadel (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	149.87949		(2000.0)		**P**		**Q**
n	0.23039090	ω	212.16275		−0.06976903		+0.97761567
a	2.6352743	Ω	54.58655		−0.85591182		+0.04353958
e	0.1393812	i	14.09636		−0.51239364		−0.20584436
P	4.28	H	12.0	G	0.15	U	1

Residuals in seconds of arc

1957 04 24	076	(3.5−	4.1−)	1993 08 16	691	0.8+	0.3−	1995 05 21	658	0.0	0.4−
1957 04 25	076	(3.7−	4.8−)	1993 11 10	801	0.1+	0.0	1995 05 21	658	0.1+	0.6−
1957 05 06	760	0.5+	1.7−	1993 11 10	801	0.1+	0.1+	1996 11 12	689	(8.2−	1.0−)
1957 05 06	760	0.8−	0.0	1993 12 13	801	0.8+	0.6−	1997 10 26	124	0.3+	0.5+
1957 05 29	760	0.2−	0.9+	1993 12 13	801	0.6+	0.8−	1997 10 26	124	0.1+	1.2+
1957 05 29	760	(2.6−	3.2−)	1993 12 17	801	(0.8+	2.4−)	1997 11 11	658	1.2−	0.0
1971 10 21	095	0.8+	1.4−	1993 12 17	801	0.4+	1.1−	1997 11 11	658	1.9−	0.1−
1988 10 09	675	0.5+	0.3−	1995 01 29	801	0.4+	0.2+	1997 11 11	658	0.8−	0.0
1988 10 09	675	0.6+	0.5+	1995 01 29	801	0.3+	0.4+	1997 11 26	566	0.0	0.4+
1988 11 04	675	0.0	1.1−	1995 01 31	801	0.0	1.4+	1997 11 26	566	0.0	0.5+
1988 11 04	675	0.4+	0.1−	1995 01 31	801	1.3+	0.5+	1997 11 26	566	0.7−	0.2+
1993 08 15	691	0.5−	0.0	1995 02 26	801	0.4−	1.3−	1997 12 04	704	0.5+	0.5+
1993 08 15	691	0.7−	0.2−	1995 02 26	801	0.8−	1.1−	1997 12 04	704	0.3−	0.1+
1993 08 15	691	0.5−	0.2−	1995 03 02	801	0.3−	0.4+	1997 12 04	704	0.6+	0.0
1993 08 16	691	0.6+	0.1−	1995 03 02	801	0.4−	0.4+				
1993 08 16	691	0.4+	0.3−	1995 05 21	658	0.0	0.5−				

(8060)∗ 1973 SD$_1$ = 1991 GA$_5$

Discovered 1973 Sept. 19 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. B. G. Marsden (*MPC* 18412)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

M	6.94360		(2000.0)		**P**		**Q**
n	0.08451439	ω	32.38410		+0.78056163		−0.62492932
a	5.1425945	Ω	6.34552		+0.54391665		+0.66827136
e	0.0934660	i	7.10518		+0.30802308		+0.40357991
P	11.66	H	10.6	G	0.15	U	1

Residuals in seconds of arc

1973 09 19	675	0.1+	1.1−	1991 04 08	809	0.7−	1.7−	1997 10 29	704	0.6−	1.3−
1973 09 19	675	0.6−	0.6+	1991 04 10	809	0.3−	0.1+	1997 10 29	704	0.9−	1.0−
1973 09 20	675	1.5−	1.0+	1991 04 10	809	0.6−	0.0	1997 10 29	704	0.7−	1.3−
1973 09 24	675	1.7−	0.0	1991 04 10	809	0.8−	0.4+	1997 10 29	704	0.6+	0.5−
1973 09 24	675	0.9−	1.3+	1991 04 19	809	(1.3+	3.1+)	1997 10 29	704	0.7−	1.2−
1973 09 25	675	(0.9+	2.8−)	1991 04 19	809	(1.6+	2.6+)	1997 10 30	704	0.6+	1.0−
1973 09 25	675	0.3−	0.9+	1991 04 19	809	(1.3+	3.0+)	1997 10 30	704	0.6+	1.3−
1973 09 29	675	0.2+	1.0+	1991 05 15	675	0.5−	0.0	1997 10 30	704	0.2+	0.4−
1973 09 29	675	0.3−	0.9+	1991 05 15	675	(2.2+	0.4−)	1997 10 30	704	0.3+	1.4−
1973 09 30	675	0.2+	0.1−	1995 08 20	905	0.2−	0.6−	1997 11 06	704	0.2+	0.8+
1973 09 30	675	0.4−	1.4+	1995 08 20	905	0.6+	0.4−	1997 11 06	704	0.1−	0.5+
1973 10 04	675	0.7+	0.7−	1995 08 24	905	0.9+	0.0	1997 11 06	704	0.9+	0.6+
1973 10 04	675	0.4−	0.8+	1995 08 24	905	0.4+	1.2−	1997 11 06	704	0.1−	0.6+
1973 10 05	675	1.8+	1.2−	1996 09 14	809	0.9−	0.1+	1997 11 06	704	0.2+	1.3+
1973 10 05	675	0.8−	1.6+	1997 10 22	704	0.8+	0.4+	1997 11 23	691	0.7+	0.2+
1989 02 02	675	0.4+	1.0+	1997 10 22	704	0.9+	1.9−	1997 11 23	691	0.2+	0.3+
1989 02 02	675	1.4+	2.0+	1997 10 22	704	0.7+	1.0−	1997 11 23	691	0.1+	0.4+
1991 04 08	809	0.1+	1.2−	1997 10 22	704	(2.7+	0.1−)				
1991 04 08	809	0.3+	1.5−	1997 10 22	704	0.2+	1.8−				

(8061)∗ 1975 UF = 1986 RC$_3$

Discovered 1975 Oct. 27 by P. Wild at Zimmerwald.

Id. T. Kobayashi (*MPC* 12004)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	344.70402		(2000.0)		**P**		**Q**
n	0.17472303	ω	265.30184		+0.93443222		−0.35439644
a	3.1688567	Ω	115.45117		+0.34025993		+0.85919851
e	0.1929742	i	2.23464		+0.10516468		+0.36902721
P	5.64	H	13.5	G	0.15	U	2

Residuals in seconds of arc

1975 10 27	026	1.9+	0.7+	1992 10 21	675	0.1−	0.1+	1997 09 01	610	0.2+	0.2+
1975 10 28	026	0.1+	0.6−	1992 10 21	675	(0.7−	3.0+)	1997 09 01	610	0.2+	0.3+
1975 10 29	026	(3.4+	0.2−)	1992 10 21	675	0.5+	1.6+	1997 09 01	610	0.1+	0.3+
1975 11 09	381	0.9−	0.2−	1992 11 27	675	0.4−	0.8+	1997 09 02	610	0.6−	1.0+
1975 11 09	381	1.3−	0.1+	1992 11 27	675	0.2+	0.5+	1997 09 02	610	0.2−	0.5+
1986 09 06	688	(8.2+	4.0−)	1992 11 28	675	0.9−	0.8−	1997 09 02	610	0.1+	0.1−
1986 09 06	688	1.6−	1.5−	1992 11 28	675	0.2+	0.1−	1997 09 04	610	0.4+	0.7+
1986 09 06	095	(3.6+	2.2+)	1997 08 23	367	1.2−	0.8−	1997 09 04	610	0.5+	0.3+
1986 09 12	688	0.9+	1.3−	1997 08 23	367	1.3−	0.0	1997 09 04	610	0.5+	0.1−
1986 09 12	688	1.2+	0.2+	1997 08 31	610	0.3+	0.8+	1997 12 07	910	0.2+	0.5−
1986 10 02	095	1.0+	0.9−	1997 08 31	610	0.1+	0.5+	1997 12 07	910	0.0	0.6−
1992 10 21	675	(0.5−	3.3+)	1997 08 31	610	0.1−	0.2+	1997 12 07	910	0.1+	0.5−

(8062)∗ 1977 EZ = 1929 CF$_1$ = 1951 CT$_1$ = 1982 PL$_1$ = 1993 RH$_1$

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

Id. T. Kobayashi (*MPC* 23968)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	264.72615		(2000.0)		**P**		**Q**
n	0.26731116	ω	156.01100		−0.58537347		−0.80326389
a	2.3866642	Ω	329.47267		+0.70443133		−0.43671315
e	0.0989841	i	12.50953		+0.40139057		−0.40502932
P	3.69	H	12.6	G	0.15	U	2

Residuals in seconds of arc

1929 02 10	024	(12.2+	0.5+)	1993 09 14	691	1.3−	0.3+	1995 01 31	801	0.0	0.8+
1951 02 09	711	0.9+	1.7+ Y	1993 09 19	691	(2.7−	0.1+)	1997 09 25	610	1.1+	0.1+
1977 03 13	095	0.6+	0.7+	1993 09 19	691	(2.8−	0.3+)	1997 09 25	610	0.9+	0.1+
1977 03 22	095	1.3−	0.5−	1993 09 19	691	(2.5−	0.4+)	1997 09 25	610	0.6+	0.1+
1977 03 25	095	1.3+	0.1−	1994 12 26	104	0.4−	0.5−	1997 10 05	610	0.7+	0.9+
1982 08 15	095	(7.4−	9.5+)	1994 12 26	104	0.1−	0.3−	1997 10 05	610	0.2+	0.5+
1988 02 16	675	0.2−	0.3−	1994 12 26	104	0.1−	0.2−	1997 10 05	610	0.1−	0.3+
1988 02 16	675	0.4+	0.0	1994 12 26	104	0.2+	0.1−	1997 11 18	127	0.4−	0.8−
1993 08 11	894	1.2−	0.2−	1994 12 26	104	0.0	0.3+	1997 11 18	127	0.7−	0.6−
1993 08 11	894	0.1+	1.9+	1995 01 28	801	0.2−	0.2+	1997 11 19	127	0.0	0.4−
1993 09 14	691	0.7−	0.6+	1995 01 28	801	0.5−	0.5+	1997 11 19	127	0.2+	0.2−
1993 09 14	691	1.4−	0.1−	1995 01 31	801	0.1−	0.5+				

(8063)∗ 1977 XP$_2$ = 1989 CN$_5$ = 1996 PP

Discovered 1977 Dec. 7 by S. J. Bus at Palomar.

Id. A. Lowe (*MPC* 27708), G. V. Williams (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	130.30830		(2000.0)		**P**		**Q**
n	0.19507541	ω	139.41629		+0.25311743		+0.96708259
a	2.9444287	Ω	145.22270		−0.89903871		+0.24511205
e	0.0573937	i	2.62578		−0.35729673		+0.06834723
P	5.05	H	13.3	G	0.15	U	2

Residuals in seconds of arc

1977 12 07	675	0.0	1.1+	1996 08 09	809	1.7+	1.0−	1996 09 13	566	0.1−	0.2+
1977 12 08	675	0.2−	1.5+	1996 08 09	809	1.6+	0.1−	1996 09 13	566	0.4−	0.1+
1989 02 02	033	0.0	0.1+	1996 08 09	809	(2.2+	0.7−)	1996 09 13	566	0.7−	0.1+
1989 02 04	033	0.1+	0.1−	1996 08 09	566	0.3−	0.4−	1997 10 30	566	0.0	0.5−
1992 11 21	691	0.9−	0.8+	1996 08 09	566	0.2−	0.5−	1997 10 30	566	0.3−	0.8−
1992 11 21	691	(2.4−	1.8+)	1996 08 09	566	0.0	0.4−	1997 10 30	566	0.2+	1.0−
1996 07 14	809	(0.2+	2.5−)	1996 08 11	566	0.6−	0.1−	1997 11 28	691	0.3−	0.4+

1996 07 14	809	(0.3−	3.2−)	1996 08 11	566	1.3−	0.4−	1997 11 28	691	0.1−	0.3+
1996 07 14	809	(0.1−	2.1−)	1996 08 11	566	1.0−	0.1+	1997 11 28	691	0.2−	0.2+
1996 07 16	809	0.7+	1.5+	1996 08 15	566	0.6−	0.1−	1997 12 04	704	1.2+	0.7−
1996 07 16	809	0.2+	1.8+	1996 08 15	566	1.0−	0.4+	1997 12 04	704	0.5+	0.7+
1996 07 16	809	0.4−	1.2+	1996 08 15	566	0.4−	0.2−	1997 12 04	704	(2.3+	0.2+)
1996 08 08	809	1.1+	0.3−	1996 09 08	809	(1.5+	2.8+)	1997 12 04	704	0.5−	0.7−
1996 08 08	809	1.4+	0.3−	1996 09 08	809	(1.2+	2.3+)	1997 12 04	704	0.9+	0.9−
1996 08 08	809	0.2−	0.5−	1996 09 08	809	(2.1+	3.1+)				

(8064)∗ 1978 RR = 1988 VH$_6$

Discovered 1978 Sept. 1 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. C. M. Bardwell (*MPC* 14186)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Bardwell

M	98.64772		(2000.0)		**P**	**Q**	
n	0.21211576	ω	285.47078		+0.32549260	+0.94550922	
a	2.7845441	Ω	3.55626		−0.80910938	+0.28299135	
e	0.2057499	i	7.57587		−0.48928170	+0.16102237	
P	4.65	H	13.3	G	0.15	U	1

Residuals in seconds of arc

1978 09 01	095	1.1+	1.7−	1991 04 08	809	0.5−	0.5−	1997 10 29	704	0.5+	0.1−
1978 09 05	095	0.6−	0.4−	1991 04 10	809	0.6+	0.8+	1997 10 29	704	0.8+	0.4+
1978 09 07	095	0.1−	0.4+	1991 04 10	809	0.1+	0.9+	1997 10 29	704	1.3+	0.0
1978 09 12	095	0.1−	0.5+	1991 04 10	809	0.1+	0.6+	1997 10 30	704	1.2−	0.3+
1978 09 28	095	2.3+	0.2+	1995 02 01	411	0.1−	1.6+	1997 10 30	704	0.7−	0.2−
1978 10 04	095	1.4−	1.3+	1995 02 01	411	0.9−	0.1−	1997 10 30	704	1.4−	1.0+
1978 10 09	095	2.4−	0.4+	1997 10 22	704	(2.4+	1.1+)	1997 10 30	704	0.7−	1.2+
1988 11 03	033	0.7+	0.6−	1997 10 22	704	(2.6+	0.1+)	1997 10 30	704	0.9−	1.5+
1988 11 04	033	0.6+	0.2−	1997 10 22	704	(2.5+	1.7+)	1997 11 30	691	0.3+	1.3−
1988 11 04	033	0.6+	0.1+	1997 10 22	704	(3.3+	1.4+)	1997 11 30	691	0.3+	0.6−
1991 04 08	809	0.8+	0.2−	1997 10 29	704	0.6+	0.7−	1997 11 30	691	0.3+	0.7−
1991 04 08	809	0.6+	0.2−	1997 10 29	704	0.3−	0.4+				

(8065)∗ 1979 FD$_3$ = 1979 HE$_2$ = 1979 KY = 1989 CN$_4$

Discovered 1979 Mar. 31 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. S. Nakano (d, *MPC* 10610), B. G. Marsden (*MPC* 14780)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

M	185.21396		(2000.0)		**P**	**Q**	
n	0.29480450	ω	99.17365		−0.69307608	+0.71968820	
a	2.2358705	Ω	126.86904		−0.67994160	−0.63369793	
e	0.1250426	i	2.94940		−0.23942635	−0.28368262	
P	3.34	H	14.3	G	0.15	U	2

Residuals in seconds of arc

1953 10 01	675	0.3−	0.7+	1989 02 11	303	0.9+	1.1+	1997 10 31	704	0.2+	0.2+
1953 10 01	675	0.2−	0.5+	1989 02 11	303	0.2+	0.0	1997 10 31	704	0.5+	1.2+
1979 03 31	095	0.3−	0.3−	1989 02 12	303	0.3+	0.3−	1997 10 31	704	0.7+	0.6+
1979 04 20	095	0.7−	1.0−	1989 02 12	303	0.5+	0.3+	1997 10 31	704	0.1+	0.1−
1979 05 23	809	0.8−	0.5−	1989 02 12	303	0.5+	0.5+	1997 10 31	704	(2.4+	1.3+)
1979 05 24	809	0.3−	0.1−	1989 02 12	303	0.5+	0.4+	1997 11 03	704	0.7+	0.3+
1982 01 30	675	0.6+	1.9−	1989 02 13	303	0.5+	0.2+	1997 11 03	704	0.8+	0.7+
1982 01 31	675	0.8+	1.7−	1989 02 13	303	0.4+	0.5+	1997 11 03	704	0.4−	0.8+
1989 02 05	303	0.3−	0.4+	1989 02 13	303	0.2+	0.0	1997 11 03	704	0.9+	0.9+
1989 02 05	303	0.2−	0.7+	1989 02 13	303	0.7+	0.4+	1997 11 06	704	0.2+	1.6−
1989 02 05	303	0.2+	0.6+	1989 05 09	675	1.0+	0.7−	1997 11 06	704	(2.1−	0.4−)
1989 02 06	303	0.4+	0.7+	1989 05 09	675	0.8−	0.4+	1997 11 06	704	1.8−	0.3+
1989 02 06	303	0.3+	0.8+	1990 09 15	675	0.8−	0.7+	1997 11 06	704	1.5−	0.7+
1989 02 06	303	0.3+	1.1+	1992 02 04	675	1.0−	0.3+	1997 11 06	704	(2.3−	1.2+)
1989 02 10	303	0.2−	0.9+	1992 03 07	950	1.0−	1.0−	1997 11 30	566	0.0	0.3−
1989 02 10	303	0.2−	1.6+	1992 03 07	950	0.8−	1.4−	1997 11 30	566	0.4−	0.3−
1989 02 10	303	0.4+	0.8+	1992 03 07	950	0.9−	1.3−	1997 11 30	566	0.1+	0.4−
1989 02 11	303	0.6+	0.2+	1994 11 04	675	(0.6−	2.4−)				

(8066)∗ 1980 PB$_2$ = 1969 TE$_6$ = 1986 TL$_3$

Discovered 1980 Aug. 6 by R. M. West at the European Southern Observatory.

Id. T. Kobayashi (*MPC* 14015)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	53.24524		(2000.0)		**P**	**Q**	
n	0.17356933	ω	113.76301		+0.55562061	+0.83081027	
a	3.1828833	Ω	190.17784		−0.81371719	+0.53540557	
e	0.1018044	i	10.51574		−0.17073390	+0.15197095	
P	5.68	H	12.4	G	0.15	U	1

Residuals in seconds of arc

1955 04 20	675	1.1−	0.3−	1991 07 19	675	0.6−	1.2−	1996 05 07	596	0.5−	1.4+
1955 04 20	675	0.1+	0.3−	1991 07 19	675	0.7+	0.8−	1996 05 07	596	0.2−	1.3+
1969 10 15	095	(3.7−	0.1−)	1991 08 05	675	0.9−	0.7−	1996 05 16	801	1.0+	0.2−
1969 10 17	095	(0.1+	3.6+)	1991 08 05	675	1.8+	0.7−	1996 05 16	801	0.3+	0.5−
1980 08 06	809	0.5+	0.4−	1991 08 09	675	0.8+	0.4−	1996 05 20	801	0.2+	0.4−
1980 08 07	809	1.0+	0.8−	1991 08 09	675	0.4−	0.4+	1996 05 20	801	0.1+	0.8+
1980 08 09	809	0.4+	0.5−	1991 09 06	801	0.1−	0.3+	1997 08 29	587	0.3−	0.0
1980 08 10	809	0.1+	0.2−	1991 09 06	801	0.1+	0.5+	1997 08 29	587	0.7+	0.2+
1986 10 04	046	1.3+	0.4+	1991 09 08	801	0.1−	0.4+	1997 08 31	587	0.0	0.1+
1986 10 04	046	1.9−	1.3+	1991 09 08	801	0.6−	0.5+	1997 08 31	587	0.2−	0.2+
1986 10 04	046	(1.4+	5.8−)	1991 09 08	801	0.1−	0.4+	1997 09 04	886	0.1−	0.4−
1986 10 05	046	(2.0+	5.1−)	1991 09 13	801	0.0	0.4+	1997 09 04	886	0.7−	0.3−
1986 10 05	046	(4.7−	3.4+)	1991 09 13	801	0.1+	0.4+	1997 09 06	750	1.1−	1.4+
1986 10 05	046	(3.0−	3.1+)	1992 10 22	801	1.0+	1.3+	1997 09 06	750	0.0	0.4+
1986 10 05	046	(1.2−	3.6−)	1992 10 22	801	1.1+	1.4+	1997 09 10	886	0.5+	0.3−
1986 10 05	046	(0.8−	4.4−)	1992 10 22	675	0.2−	0.3+	1997 09 10	886	0.0	0.2−
1986 10 09	046	(7.2−	0.6−)	1992 10 22	675	0.2−	0.6+	1997 09 12	750	0.4+	0.7+
1986 10 09	046	0.2−	0.4−	1992 10 29	801	0.1−	1.1−	1997 09 12	750	0.0	0.9+
1986 10 10	046	(2.9−	0.7+)	1992 10 29	801	0.7−	0.9−	1997 11 30	566	0.5−	0.5−
1986 10 10	046	(4.3−	0.5+)	1992 11 30	675	0.1−	0.4+	1997 11 30	566	0.2−	1.1−
1991 07 13	675	0.9−	1.3−	1992 11 30	675	0.2−	0.2+	1997 11 30	566	0.7−	0.9−
1991 07 13	675	(1.0−	2.7−)	1996 05 07	596	0.2−	1.4+				

(8067)∗ 1980 RU = 1984 UG$_2$ = 1989 YV

Discovered 1980 Sept. 7 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. T. Kobayashi (*MPC* 15878)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	39.00434		(2000.0)		**P**	**Q**	
n	0.23836448	ω	29.55827		+0.96391911	−0.25709906	
a	2.5761730	Ω	344.86174		+0.16111514	+0.76979497	
e	0.1416340	i	15.31882		+0.21190061	+0.58422237	
P	4.13	H	12.7	G	0.15	U	2

Residuals in seconds of arc

1954 04 09	675	0.0	0.7−	1990 01 03	897	(2.3+	0.1+)	1997 09 22	689	0.2−	1.0+
1954 04 09	675	0.2−	0.7−	1991 04 14	675	0.6−	1.6+	1997 09 23	689	0.1−	0.8+
1980 09 04	095	0.2+	0.5+	1991 04 19	675	0.8+	0.9−	1997 11 19	127	0.3+	0.1−
1980 09 07	688	0.8+	1.4−	1991 04 19	675	1.2−	0.1+	1997 11 19	127	0.0	0.3−
1980 10 02	688	1.2+	0.5−	1991 05 07	413	0.7−	0.0	1997 12 02	758	0.4−	0.6+
1980 10 04	688	(1.0+	2.6+)	1991 05 13	413	1.4+	1.3−	1997 12 02	758	0.3−	0.4+
1980 10 08	688	0.1+	2.3−	1993 11 13	801	0.1+	0.5−	1997 12 07	758	0.0	0.2+
1984 10 18	801	0.8−	0.9+	1993 11 13	801	0.1+	0.4−	1997 12 07	758	0.3−	0.4+
1989 12 31	897	1.8−	2.2−	1993 11 24	596	(0.5+	2.3−)	1997 12 07	758	0.1+	0.5+
1989 12 31	897	0.4−	0.7+	1993 12 17	107	0.5+	0.2−				
1990 01 03	897	0.2+	0.9−	1993 12 18	107	0.8+	0.1−				

(8068)∗ 1981 EQ$_{28}$ = 1992 OK$_{10}$

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

Id. G. V. Williams (*MPC* 21562)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	346.27675		(2000.0)		**P**		**Q**
n	0.21565138	ω	257.99654		+0.56512537		−0.82469620
a	2.7540250	Ω	157.54710		+0.77806164		+0.52367240
e	0.1973960	i	3.38818		+0.27432352		+0.21364314
P	4.57	H	13.8	G	0.15	U	1

Residuals in seconds of arc

1981 02 09	413	1.2−	0.3+	1988 11 03	327	0.5+	0.6−	1997 09 26	750	0.8−	0.9−
1981 02 12	413	0.1−	1.7−	1988 11 03	327	0.4+	1.5−	1997 09 26	750	1.0−	0.4−
1981 02 13	413	0.8−	0.4+	1992 06 28	675	1.2+	0.6+	1997 10 01	566	0.5+	0.3−
1981 03 06	413	0.7−	1.7−	1992 06 28	675	0.1−	0.8−	1997 10 01	566	0.2+	0.2−
1981 03 06	413	1.5+	0.9−	1992 07 24	809	0.1+	0.7−	1997 10 01	566	0.5+	0.3−
1981 03 11	413	0.3−	1.2−	1992 07 24	809	1.2+	0.7−	1997 10 03	750	0.2+	0.3−
1981 03 11	413	0.2+	0.7+	1992 07 24	809	0.4+	0.1−	1997 10 18	327	0.1+	0.6−
1981 03 15	413	0.5−	0.1−	1992 07 30	809	0.2+	0.6+	1997 10 18	327	0.2−	0.1−
1981 03 15	413	0.7−	0.5+	1992 07 30	809	0.7−	0.2+	1997 10 18	327	0.5+	0.2−
1981 04 05	413	0.1+	1.6−	1992 07 30	809	0.2−	0.2+	1997 11 20	426	0.2+	0.3+
1981 04 05	413	(3.2+	2.7−)	1993 12 13	801	0.1+	0.7−	1997 11 20	426	0.2+	0.1+
1981 04 06	413	1.2−	0.6+	1993 12 13	801	0.1+	0.9−	1997 11 20	426	0.3+	0.1−
1981 04 06	413	0.4+	0.8−	1994 01 07	675	0.3+	0.8+	1997 11 22	426	0.4+	0.0
1981 04 10	413	1.6−	0.0	1994 01 07	675	0.6+	1.4+	1997 11 22	426	0.6+	0.4+
1981 05 01	413	1.8+	0.7+	1997 09 25	750	1.0−	0.4−	1997 11 22	426	0.3+	0.4+
1988 10 07	675	0.5−	0.9+	1997 09 25	750	1.1−	0.0				

(8069)∗ 1981 EF$_{30}$ = 1938 EK$_1$ = 1990 WL$_1$

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

Id. B. G. Marsden (*MPC* 17431), G. V. Williams (unpublished)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

M	278.01265		(2000.0)		**P**		**Q**
n	0.27511317	ω	333.90682		−0.72602827		−0.68693069
a	2.3413255	Ω	162.58571		+0.64803543		−0.69891344
e	0.0655351	i	6.09326		+0.23007179		−0.19911362
P	3.58	H	14.2	G	0.15	U	1

Residuals in seconds of arc

1938 03 06	053	(1.0+	24.1−)X	1981 03 16	413	1.9+	0.7−	1993 08 17	010	(1.0−	2.7−)
1951 12 27	675	0.7+	0.2+	1981 05 02	413	0.1+	0.7−	1993 08 19	010	1.4+	0.5+
1951 12 27	675	0.0	0.2+	1990 11 11	809	1.5+	1.1−	1993 08 19	010	1.6−	0.9+
1956 03 16	675	0.1+	0.0	1990 11 11	809	1.1+	0.3−	1993 08 19	010	0.8−	1.8+
1956 03 16	675	0.8−	0.1−	1990 11 11	809	1.0+	0.9−	1993 09 18	010	(2.6−	6.1−)
1981 02 02	413	0.5+	0.7−	1990 11 18	809	0.6−	0.2−	1993 09 18	010	(3.2−	4.8−)
1981 02 13	413	0.7+	0.8−	1990 11 18	809	0.1−	0.5+	1993 09 18	010	(2.1−	5.7−)
1981 03 02	413	2.1−	1.9+	1990 11 18	809	0.5−	0.8+	1997 10 19	557	0.4+	0.1−
1981 03 02	413	0.2−	0.7−	1990 11 20	809	1.2−	0.6+	1997 10 20	557	0.4+	0.0
1981 03 03	413	2.1−	0.7+	1990 11 20	809	1.6−	0.1+	1997 10 22	557	0.4+	0.0
1981 03 03	413	1.1+	1.1−	1990 11 20	809	1.6−	0.5+	1997 10 22	557	0.5+	0.1+
1981 03 07	413	0.7−	0.9+	1993 08 13	675	0.1−	0.6−	1997 11 23	684	0.1−	0.1−
1981 03 07	413	1.3+	1.0−	1993 08 13	675	0.3+	0.8+	1997 11 23	684	0.1−	0.1−
1981 03 08	095	(0.8−	4.0−)	1993 08 15	010	(2.1+	1.4−)	1997 11 23	684	0.1−	0.2−
1981 03 11	413	0.1−	0.8+	1993 08 15	010	0.5+	1.4−	1997 11 24	684	0.0	0.2−
1981 03 11	413	0.6+	0.2−	1993 08 15	010	(0.0	2.7−)	1997 11 24	684	0.1+	0.1−
1981 03 16	413	0.6−	1.0+	1993 08 17	010	0.2+	1.4−	1997 11 24	684	0.0	0.1−

(8070)∗ 1981 EM$_{30}$

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

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	32.03372		(2000.0)		**P**		**Q**
n	0.21508134	ω	234.98931		+0.97546429		−0.21795489
a	2.7588890	Ω	137.57553		+0.21400740		+0.90560587
e	0.2484397	i	2.63939		+0.05167455		+0.36383192
P	4.58	H	14.0	G	0.15	U	2

Residuals in seconds of arc

1978 07 07	675	0.6+	0.6+	1981 04 26	413	2.2+	1.3−	1997 10 30	566	1.1+	0.3−
1978 07 08	675	0.6−	0.1+	1981 05 02	413	1.4+	0.2−	1997 10 30	566	0.8+	0.1−
1978 07 09	675	0.7−	0.2+	1992 08 02	675	0.2+	0.9−	1997 11 20	691	(3.1−	2.5−)
1981 02 09	413	0.2−	1.3−	1992 08 02	675	0.2+	1.0−	1997 11 20	691	1.6−	0.5−
1981 02 13	413	0.8−	1.4−	1992 08 06	675	0.6+	0.4−	1997 11 20	691	0.8−	0.6−
1981 03 02	413	(2.6−	0.5+)	1992 08 06	675	0.0	1.8−	1997 12 04	704	(2.6+	0.9+)
1981 03 03	413	0.6+	0.4−	1994 01 10	691	0.9−	0.2+	1997 12 04	704	1.1+	0.7+
1981 03 07	413	1.9−	0.5+	1994 01 10	691	1.0−	0.1−	1997 12 04	704	(2.2+	0.1−)
1981 03 07	413	0.2+	0.2+	1994 01 10	691	1.3−	0.4−	1997 12 04	704	0.1+	0.6+
1981 03 11	413	0.2−	1.4−	1997 10 30	566	0.8+	0.4−				

(8071)∗ 1981 GO = 1981 ER = 1954 YR = 1988 DL$_5$ = 1989 OO$_1$ = 1990 VE$_{16}$ = 1992 JB$_4$ = 1993 SU$_{14}$

Discovered 1981 Apr. 5 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. C. M. Bardwell (d, *MPC* 6287), E. Bowell (*MPC* 27909), G. V. Williams (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	269.41161		(2000.0)		**P**		**Q**
n	0.27522385	ω	355.33203		−0.91724322		−0.39788170
a	2.3406977	Ω	161.18785		+0.36732388		−0.86319962
e	0.0625872	i	3.34976		+0.15407152		−0.31076772
P	3.58	H	14.0	G	0.15	U	1

Residuals in seconds of arc

1954 12 21	675	0.5−	0.7+	1981 03 14	809	1.2−	0.6+	1992 05 02	399	(5.8−	2.2+)
1954 12 21	675	0.1+	0.2+	1981 03 14	809	1.1−	0.7+	1992 05 02	399	(7.5−	0.5−)
1981 03 01	809	0.0	2.0+	1981 03 15	809	0.6+	0.3−	1993 09 19	675	0.5−	0.8+
1981 03 01	809	0.6−	0.2+	1981 03 15	809	1.1+	0.0	1993 09 19	675	0.5−	0.7+
1981 03 01	809	1.5−	1.6−	1981 03 15	809	1.5+	0.4+	1993 09 21	675	0.8+	0.6+
1981 03 05	809	0.1−	0.5+	1981 03 16	809	2.3+	0.8+	1993 09 21	675	0.3+	1.3−
1981 03 05	809	0.1−	0.1+	1981 03 16	809	(2.6+	0.6+)	1993 09 23	675	1.1+	0.6+
1981 03 05	809	0.2−	0.3−	1981 03 16	809	(3.0+	0.3+)	1993 09 23	675	0.0	1.0+
1981 03 06	809	0.3−	1.4−	1981 04 05	688	2.3+	2.1−	1993 10 10	675	0.4+	0.8−
1981 03 06	809	0.1+	0.7−	1981 04 05	688	(3.5+	4.3−)	1993 10 10	675	0.9−	1.0−
1981 03 07	809	0.4−	0.2+	1981 04 07	688	1.1−	0.2−	1993 12 12	595	0.7−	0.7+
1981 03 07	809	0.7−	0.0	1981 04 09	688	(3.4+	1.1−)	1993 12 12	595	(2.5−	0.1−)
1981 03 07	809	1.0−	0.2−	1981 04 09	688	1.4+	1.6+	1995 02 07	691	0.3−	0.1−
1981 03 08	809	1.0−	0.2+	1988 02 16	675	0.9+	0.7−	1995 02 07	691	1.0−	0.2−
1981 03 08	809	0.4−	0.0	1988 02 16	675	0.4+	0.1−	1995 02 07	691	0.7−	0.1−
1981 03 08	809	0.0	0.3−	1988 03 18	675	0.2+	0.1+	1997 10 30	688	0.2+	0.2+
1981 03 09	809	0.0	0.8+	1988 03 18	675	0.2+	0.4−	1997 10 30	688	0.6+	0.2+
1981 03 09	809	0.3+	0.8+	1989 07 29	675	0.4−	0.6+	1997 10 31	688	0.3+	0.3+
1981 03 09	809	0.6+	0.7+	1989 07 29	675	0.9−	0.1+	1997 10 31	688	0.3+	0.3+
1981 03 11	809	0.2+	0.0	1990 11 14	675	0.4+	0.7+	1997 11 26	566	0.5−	0.3−
1981 03 11	809	0.2+	0.0	1990 11 14	675	0.3+	1.7+	1997 11 26	566	0.7−	0.6−
1981 03 11	809	0.3+	0.0	1992 04 08	675	0.2−	0.4−	1997 11 26	566	0.5−	0.4−
1981 03 14	809	1.6−	0.7+	1992 04 08	675	1.3+	1.1+				

(8072)∗ 1981 GO$_1$ = 1981 GS$_1$ = 1955 FH$_2$ = 1992 DH$_{11}$

Discovered 1981 Apr. 1 at the Agassiz Station of the Harvard College Observatory.

Id. B. G. Marsden (d, *MPC* 8530), G. V. Williams (*MPC* 24100)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	196.57958		(2000.0)		**P**	**Q**	
n	0.26750868	ω	163.32032		−0.99694672	−0.07750286	
a	2.3854893	Ω	12.24640		+0.06553879	−0.89677804	
e	0.1452678	i	2.57126		+0.04244894	−0.43564028	
P	3.68	H	15.0	G	0.15	U	2

Residuals in seconds of arc

1955 03 23	675	0.9+	0.9+	1981 04 07	413	1.0−	0.3+	1996 05 22	566	0.6+	0.3+
1955 03 23	675	0.1+	0.2+	1981 04 07	413	0.1+	0.6+	1996 05 22	566	0.2−	0.4−
1981 02 02	413	1.0+	0.3−	1981 04 08	413	0.8−	0.9+	1996 05 22	566	0.3+	0.0
1981 02 13	413	0.5+	0.8−	1981 04 08	413	0.7+	0.1+	1997 08 03	327	0.0	0.1−
1981 03 02	413	1.5−	0.1+	1981 04 11	413	0.6−	0.3−	1997 08 03	327	0.1−	0.0
1981 03 02	413	0.5+	0.1−	1981 04 11	413	1.5+	0.1−	1997 08 03	327	0.0	0.3−
1981 03 03	413	1.7−	0.4−	1981 04 26	413	0.5−	0.7−	1997 08 06	557	0.4+	0.2−
1981 03 03	413	0.8+	0.3−	1981 05 02	413	0.6−	0.2−	1997 08 06	557	0.5+	0.0
1981 03 07	413	0.5−	0.2+	1992 02 29	809	0.3+	0.6+	1997 08 08	557	0.5+	0.0
1981 03 07	413	0.6+	0.0	1992 03 03	809	0.5−	0.3+	1997 08 08	557	0.5−	0.0
1981 03 08	095	1.7−	0.4+	1992 04 06	809	0.4−	0.2−	1997 08 10	327	0.6+	0.4+
1981 03 11	413	0.0	0.2−	1994 11 05	675	1.0+	0.3−	1997 08 10	327	0.5+	0.3−
1981 03 11	413	0.5+	0.4−	1994 11 05	675	0.5+	0.1−	1997 08 10	327	0.2+	0.0
1981 03 16	413	0.3−	0.4−	1996 05 19	566	0.4−	0.1+	1997 08 11	691	1.4−	0.7+
1981 03 16	413	0.8+	0.4−	1996 05 19	566	0.4+	0.2−	1997 08 11	691	1.2−	0.4+
1981 03 29	413	0.6−	0.7+	1996 05 19	566	0.0	0.1−	1997 08 11	691	1.2−	0.6+
1981 03 29	413	1.0+	0.3+	1996 05 22	566	0.2+	0.7−	1997 12 01	910	0.3−	1.0−
1981 04 01	801	(2.8+	1.9+)	1996 05 22	566	0.1+	0.1+	1997 12 01	910	0.1+	1.2−
1981 04 03	801	(2.8−	2.0+)	1996 05 22	566	0.4+	0.5−	1997 12 01	910	0.1−	0.8−

(8073)∗ 1982 BS = 1986 AD$_2$

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

Id. E. Bowell (*MPC* 10529)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	352.47185		(2000.0)		**P**	**Q**	
n	0.23625409	ω	119.23099		+0.54551519	−0.81443048	
a	2.5914917	Ω	296.38029		+0.67171753	+0.56599350	
e	0.1677236	i	12.75413		+0.50120728	+0.12788410	
P	4.17	H	12.9	G	0.15	U	2

Residuals in seconds of arc

1953 03 09	675	0.3−	0.4−	1986 01 17	688	1.1+	0.3+	1997 10 10	367	0.3+	0.0
1953 03 09	675	(2.2−	3.6+)	1986 01 17	688	1.3+	0.7+	1997 10 10	367	0.3+	0.2−
1982 01 24	688	(3.5−	3.5−)	1993 09 15	801	1.0+	0.0	1997 10 19	900	0.2+	0.0
1982 01 24	688	(2.0−	3.3−)	1993 09 15	801	1.1−	0.3−	1997 10 19	900	0.2+	0.0
1982 01 30	688	0.6−	1.1−	1993 09 20	801	0.3−	0.0	1997 10 28	688	0.3+	0.5−
1982 01 30	688	2.0−	2.3−	1993 09 20	801	0.1−	0.1−	1997 10 28	688	0.5+	0.4−
1982 02 21	688	1.4+	0.7+	1993 11 11	801	0.3+	1.1+	1997 11 17	758	0.8−	0.2−
1982 02 21	688	0.1+	1.4+	1993 11 11	801	0.2+	0.9+	1997 11 18	758	0.3−	0.2−
1986 01 12	688	0.6−	0.2+	1993 11 17	801	0.3−	0.9−				
1986 01 12	688	0.9−	0.1+	1997 10 07	689	0.3−	0.1+				

(8074)∗ 1984 WC$_2$ = 1995 AO

Discovered 1984 Nov. 20 by E. Bowell at Palomar.

Id. B. G. Marsden (*MPC* 24734), J. Tichá (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

M	292.73006		(2000.0)		**P**	**Q**	
n	0.21145381	ω	140.99625		+0.60489403	−0.78491147	
a	2.7903523	Ω	271.37148		+0.69285749	+0.60186475	
e	0.1478983	i	7.71621		+0.39249422	+0.14721686	
P	4.66	H	13.2	G	0.15	U	1

Residuals in seconds of arc

1951 08 11	675	0.2−	0.3−	1995 01 07	046	0.2+	0.3−	1997 07 01	688	0.3−	0.3−
1951 08 11	675	0.3+	0.2−	1995 01 07	046	0.2+	0.0	1997 07 01	688	0.5−	0.3+
1984 10 30	010	0.7+	0.0	1995 01 08	046	0.1−	0.7+	1997 07 01	688	0.2−	0.5+
1984 11 20	675	0.4−	0.2+	1995 01 08	046	0.4+	0.1−	1997 07 01	688	0.4−	0.4+
1984 11 21	675	0.3+	0.8+	1995 01 08	046	0.5+	0.7−	1997 07 13	104	0.2−	0.3+
1993 09 18	675	0.4+	1.0+	1995 01 09	046	0.4−	0.3+	1997 07 13	104	0.1+	0.2+
1993 09 22	675	0.7−	1.0−	1995 01 17	046	0.7−	0.4+	1997 07 13	104	0.1−	0.2+
1993 09 22	675	0.7−	0.6−	1995 01 17	046	0.3+	0.8+	1997 10 29	688	1.2+	0.6+
1995 01 07	046	0.4+	0.1−	1995 01 17	046	0.5−	0.4+	1997 10 29	688	1.4+	0.5+

(8075)∗ 1985 PE = 1991 RN$_{25}$

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

Id. H. E. Holt (*MPC* 20143)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	36.29941		(2000.0)		**P**	**Q**	
n	0.17344640	ω	214.06342		+0.98115687	−0.17417021	
a	3.1843871	Ω	155.55551		+0.18868343	+0.95690689	
e	0.2199926	i	11.66126		−0.04159033	+0.23236596	
P	5.68	H	12.8	G	0.15	U	2

Residuals in seconds of arc

1985 08 14	688	(1.0+	2.8+)	1985 09 10	809	0.6−	0.5−	1985 09 19	809	0.1+	0.2−
1985 08 14	688	0.7+	0.0	1985 09 11	809	0.0	0.4−	1985 09 19	809	0.4+	0.2−
1985 08 20	688	0.1−	1.1−	1985 09 11	809	0.3−	0.5−	1985 09 21	809	0.8+	0.4+
1985 08 20	688	0.1−	0.1+	1985 09 11	809	0.4−	0.5−	1985 09 21	809	0.7+	0.9+
1985 08 22	688	0.6−	1.9−	1985 09 12	809	0.8+	0.5+	1985 09 21	809	1.2+	1.5+
1985 08 22	688	2.0+	0.8−	1985 09 12	809	0.9+	0.4+	1991 09 12	675	0.0	0.9−
1985 09 04	809	0.0	0.7+	1985 09 12	809	1.0+	0.7+	1991 09 12	675	0.6+	0.2−
1985 09 04	809	0.3+	0.7+	1985 09 12	688	1.1−	1.2−	1991 09 16	675	1.1+	0.6−
1985 09 04	809	0.6+	0.8+	1985 09 12	688	(1.0−	2.8−)	1991 09 16	675	0.4−	1.6−
1985 09 06	809	1.4−	0.5+	1985 09 14	809	0.8+	0.7+	1996 06 26	292	0.4−	0.2−
1985 09 06	809	1.4−	0.5+	1985 09 14	809	0.7+	0.7+	1996 06 26	292	0.6+	1.2−
1985 09 06	809	1.3−	0.5+	1985 09 14	809	0.5+	0.7+	1996 07 06	292	0.2−	0.2−
1985 09 07	809	0.8−	0.3+	1985 09 15	809	0.7−	0.4−	1997 10 28	688	0.6−	0.7+
1985 09 07	809	0.8−	0.4+	1985 09 15	809	0.7−	0.3−	1997 10 28	688	0.4−	0.7+
1985 09 07	809	0.8−	0.4+	1985 09 15	809	0.7−	0.3−	1997 10 29	688	0.2−	0.7+
1985 09 08	413	0.7+	0.0	1985 09 16	809	0.1−	0.3+	1997 10 29	688	0.3−	0.6+
1985 09 08	413	0.3+	0.8+	1985 09 16	809	0.0	0.2+	1997 11 26	566	0.4+	0.7−
1985 09 10	809	0.6−	0.6−	1985 09 17	809	0.1−	0.2+	1997 11 26	566	0.2+	0.6−
1985 09 10	809	0.6−	0.4−	1985 09 19	809	0.0	0.2−	1997 11 26	566	0.4+	0.8−

(8076)∗ 1985 RV$_4$ = 1962 PH = 1974 VD = 1979 QG$_7$ = 1980 WQ$_2$

Discovered 1985 Sept. 15 by H. Debehogne at the European Southern Observatory.

Id. T. Furuta (*MPC* 11515), H. Oishi (*ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	69.11741		(2000.0)		**P**	**Q**	
n	0.17309795	ω	333.60286		+0.95343432	+0.30159956	
a	3.1886592	Ω	8.84356		−0.27574607	+0.87281706	
e	0.1928552	i	0.31049		−0.12217651	+0.38370312	
P	5.69	H	12.9	G	0.15	U	1

Residuals in seconds of arc

1962 08 03	760	0.6+	0.2+	1985 09 20	809	0.9−	0.2+	1996 08 11	816	0.1−	0.3+
1962 08 03	760	0.5−	0.8−	1985 09 20	809	0.5−	0.1+	1996 08 19	292	1.1−	0.5+
1962 08 09	760	1.1−	0.6+	1985 09 21	809	0.4−	0.0	1996 08 19	292	1.0−	1.5+
1974 11 12	095	1.0−	0.9+	1985 09 21	809	0.2−	0.0	1997 09 16	327	0.0	0.2−
1979 08 20	095	2.0+	1.6+	1985 09 21	809	0.1−	0.0	1997 09 16	327	0.5−	0.2+
1980 11 30	095	(5.8+	5.5+)	1985 09 22	809	1.3−	0.6−	1997 09 16	327	0.2+	0.2+
1985 09 15	809	1.1+	0.3−	1985 09 22	809	0.7−	0.7−	1997 11 23	369	0.2+	0.0
1985 09 15	809	1.3+	0.3−	1991 10 17	675	0.3+	1.1+	1997 11 23	369	0.1+	1.1+
1985 09 15	809	1.5+	0.3−	1991 11 05	095	(2.2+	0.2−)	1997 11 24	369	0.3−	0.8+
1985 09 16	809	0.3+	1.1−	1991 11 08	801	0.8+	0.8+	1997 11 24	369	0.4+	0.2+
1985 09 16	809	0.5+	1.1−	1991 11 08	801	1.0+	0.6+	1997 11 24	369	0.7+	0.2−
1985 09 16	809	0.7+	1.1−	1992 01 09	801	0.5−	0.8−	1997 12 04	704	0.6−	0.8+
1985 09 18	809	0.5+	0.5−	1992 01 09	801	0.5+	0.8−	1997 12 04	704	0.0	0.8−

1985 09 18	809	0.7+	0.5−	1996 08 11	816	0.2−	0.4+	1997 12 04	704	1.0−	0.3+
1985 09 18	809	0.8+	0.4−	1996 08 11	816	0.0	0.5+	1997 12 04	704	0.5−	1.1+
1985 09 20	809	1.2−	0.2+	1996 08 11	816	0.1−	0.5+	1997 12 04	704	0.8−	0.2−

(8077)∗ 1986 AW$_2$ = 1995 KP$_1$

Discovered 1986 Jan. 12 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. B. G. Marsden (*MPC* 25327)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

M	258.50171		(2000.0)		**P**	**Q**	
n	0.23074029	ω	34.77375		−0.96887809	−0.13650272	
a	2.6326134	Ω	135.88912		+0.09846451	−0.97789997	
e	0.2111975	*i*	17.25797		+0.22711227	−0.15836243	
P	4.27	*H*	12.9	*G*	0.15	*U*	1

Residuals in seconds of arc

1954 09 08	675	0.4+	1.0+	1986 03 03	054	2.0+	2.2−	1996 07 15	809	0.3+	1.7−
1954 09 08	675	0.6−	0.2+	1986 03 07	010	1.4+	0.5−	1996 07 15	809	(1.2−	4.8−)
1986 01 12	688	(0.2+	2.6−)	1986 03 07	010	(2.6+	3.0−)	1996 07 21	809	(0.3−	3.0+)
1986 01 12	688	0.6−	0.5−	1995 05 30	693	1.1+	0.6+	1996 07 21	809	1.0−	1.7+
1986 02 06	881	0.9−	0.3+	1995 06 01	693	0.3+	0.2−	1996 07 21	809	(1.2−	2.4+)
1986 02 06	881	1.7+	1.7−	1995 06 01	693	1.4+	0.6+	1997 10 28	688	0.0	0.4+
1986 02 07	054	0.1−	1.1−	1995 06 25	801	0.2+	0.2+	1997 10 28	688	0.1−	0.5+
1986 02 08	054	2.1−	1.4+	1995 06 25	801	0.3−	0.5−	1997 10 29	688	0.0	0.1+
1986 02 11	054	0.6+	0.9+	1995 06 28	801	1.0−	0.7+	1997 10 29	688	0.1+	0.7+
1986 02 12	883	1.7−	0.1+	1995 06 28	801	0.4−	0.2+	1997 11 23	684	0.0	0.1−
1986 02 12	883	0.2+	0.2+	1995 06 28	816	0.0	0.2+	1997 11 23	684	0.0	0.0
1986 02 12	883	1.2+	1.3+	1995 06 28	816	0.2−	0.3+	1997 11 23	684	0.1+	0.0
1986 02 12	883	0.1+	0.0	1995 06 28	816	0.5−	0.2+	1997 11 24	684	0.1−	0.1+
1986 02 15	881	0.0	0.3−	1996 07 14	809	0.1+	0.8−	1997 11 24	684	0.0	0.1+
1986 02 15	881	0.9−	0.5−	1996 07 14	809	0.1−	1.3−	1997 11 24	684	0.0	0.0
1986 02 15	054	0.1−	0.5+	1996 07 14	809	0.0	0.8−				
1986 02 27	054	1.0−	1.0+	1996 07 15	809	(0.5+	3.7−)				

(8078)∗ 1986 RS$_2$ = 1971 SY$_1$

Discovered 1986 Sept. 6 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. S. Nakano (*MPC* 11349)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	347.41197		(2000.0)		**P**	**Q**	
n	0.26141621	ω	187.90906		+0.99069806	−0.13607841	
a	2.4224103	Ω	179.91169		+0.12849510	+0.93521692	
e	0.2150607	*i*	4.17435		+0.04479235	+0.32688222	
P	3.77	*H*	13.8	*G*	0.15	*U*	1

Residuals in seconds of arc

1954 02 26	675	0.6−	1.5+	1986 10 02	095	0.4−	1.1−	1996 03 19	566	0.3−	0.9−
1954 02 26	675	1.4+	1.8−	1986 10 05	688	(2.9−	0.2−)	1996 03 19	566	0.4−	0.7−
1971 09 23	095	0.5−	0.2+	1986 10 05	688	(3.4−	0.8−)	1997 07 15	610	0.2+	0.4+
1971 10 10	095	(0.3−	5.8−)	1990 10 17	801	0.2−	0.2+	1997 07 15	610	0.1+	0.2+
1971 10 11	095	0.2−	1.1−	1990 10 17	801	0.1−	0.4+	1997 07 15	610	0.1+	0.2−
1986 09 06	688	1.5−	1.7−	1990 10 20	801	0.4+	0.7−	1997 07 26	610	1.1−	0.2+
1986 09 06	688	1.5+	1.2−	1990 10 20	801	0.3+	0.7−	1997 07 26	610	0.1−	0.8+
1986 09 06	095	0.3+	0.1−	1990 11 15	801	0.2−	1.2+	1997 07 26	610	0.2+	1.1+
1986 09 12	688	1.5+	0.4−	1990 11 15	801	0.1−	1.2+	1997 10 31	688	0.7−	1.3+
1986 09 12	688	0.8+	0.8+	1995 01 01	689	0.4−	1.2+	1997 10 31	688	0.6+	0.8+
1986 09 15	095	(0.7+	5.6+)	1996 03 19	566	0.6−	1.0−				

(8079)∗ 1986 XF$_1$ = 1975 XQ$_1$ = 1982 RV

Discovered 1986 Dec. 4 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. K. Ichikawa (*MPC* 17959)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	36.44687		(2000.0)		**P**	**Q**	
n	0.26951331	ω	93.91553		+0.92948687	−0.36642196	
a	2.3736457	Ω	287.58354		+0.31836345	+0.85487078	
e	0.1940608	*i*	2.54311		+0.18627634	+0.36732943	
P	3.66	*H*	14.0	*G*	0.15	*U*	1

Residuals in seconds of arc

1955 04 20	675	0.6−	0.8+	1993 08 16	010	0.3+	1.3+	1993 09 20	675	0.1+	0.6−
1955 04 20	675	0.9−	0.5−	1993 08 16	010	1.2−	0.9+	1993 09 20	675	0.4+	1.0−
1975 12 01	095	1.2+	2.1+	1993 08 16	010	0.8−	0.8+	1995 03 05	691	0.4+	1.1−
1982 09 12	095	0.7+	0.8+	1993 08 17	010	0.8−	0.4−	1995 03 05	691	0.0	0.8−
1982 09 15	688	1.2+	0.9−	1993 09 12	801	0.7−	0.5−	1995 03 05	691	0.2−	0.6−
1982 09 15	688	1.8+	0.7−	1993 09 12	801	0.9−	0.5−	1997 11 05	411	0.2+	0.8−
1986 11 30	381	0.4−	0.4−	1993 09 14	801	0.7−	0.2−	1997 11 05	411	0.1+	0.3−
1986 11 30	381	0.3−	0.5−	1993 09 14	801	0.7−	0.1−	1997 11 18	411	0.1+	0.0
1986 12 01	381	1.0−	0.9−	1993 09 15	596	0.3−	0.2+	1997 11 18	411	0.2−	0.0
1986 12 01	381	1.0−	0.6−	1993 09 15	596	(2.3−	1.7+)	1997 12 04	704	1.4+	1.3+
1986 12 04	688	0.7−	0.1−	1993 09 15	596	0.0	1.3+	1997 12 04	704	1.6+	0.3+
1986 12 04	688	0.6−	0.3−	1993 09 18	010	1.2+	0.8−	1997 12 04	704	0.2−	0.2+
1991 01 20	511	(2.9−	0.5+)	1993 09 18	010	0.7+	0.8−	1997 12 04	704	(0.0	3.0+)
1991 01 20	511	0.3+	0.5+	1993 09 18	010	0.6+	0.3−	1997 12 04	704	0.5−	0.2+

(8080)∗ 1987 WU$_2$ = 1958 QC = 1989 AS$_5$

Discovered 1987 Nov. 17 at Caussols.

Id. B. G. Marsden (*MPC* 15251), C. M. Bardwell (*MPC* 23858)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Bardwell

M	34.22761		(2000.0)		**P**	**Q**	
n	0.20364883	ω	58.05250		+0.98678060	−0.09474974	
a	2.8611992	Ω	307.05241		+0.01962294	+0.87517092	
e	0.2836669	*i*	9.48226		+0.16086949	+0.47444531	
P	4.84	*H*	13.0	*G*	0.15	*U*	2

Residuals in seconds of arc

1958 08 22	760	1.3−	0.9+	1989 01 04	413	(4.0+	0.8−)	1994 03 07	691	1.0−	0.2+
1958 08 22	760	1.0+	0.4−	1989 01 08	675	0.8+	0.5+	1994 03 07	691	0.8−	0.2+
1987 08 27	095	(3.7+	5.1−)	1989 01 08	675	0.4−	1.0+	1997 10 30	566	0.3−	0.9−
1987 09 02	095	(0.9−	3.7+)	1989 01 10	413	1.4−	1.0+	1997 10 30	566	0.5−	0.8−
1987 09 16	095	0.9−	1.7+	1989 01 10	413	(3.0+	1.0+)	1997 10 30	566	0.3−	0.9−
1987 09 20	095	0.5−	1.0+	1989 01 11	033	0.5+	0.1+	1997 11 19	631	0.2+	0.3+
1987 11 17	010	(3.4+	2.6−)	1989 01 11	033	0.7+	0.2+	1997 11 19	631	0.2+	0.8+
1987 11 17	010	0.6+	2.0−	1994 02 12	675	1.0+	0.6−	1997 11 20	631	0.1+	0.6+
1987 11 17	010	1.4+	1.3−	1994 02 12	675	0.2+	0.4−	1997 11 20	631	0.3+	0.6+
1989 01 04	413	2.0+	0.2−	1994 03 07	691	1.1−	0.6−				

(8081)∗ 1988 DD = 1995 BE$_4$

Discovered 1988 Feb. 17 at Osservatorio S. Vittore, Bologna.

Id. S. Nakano (*MPC* 24737)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	273.81093		(2000.0)		**P**	**Q**	
n	0.27857754	ω	28.61583		−0.93692534	−0.31211318	
a	2.3218740	Ω	132.29893		+0.26623542	−0.92892625	
e	0.1731801	*i*	12.28214		+0.22647211	−0.19920187	
P	3.54	*H*	14.2	*G*	0.15	*U*	1

Residuals in seconds of arc

1988 02 17	552	1.0−	0.5+	1995 03 07	552	0.3−	0.1−	1996 08 15	566	0.4−	0.5+
1988 02 17	552	1.5−	0.4+	1995 03 07	552	0.0	0.7−	1996 08 17	552	0.5−	1.1+
1988 02 21	552	0.3−	1.6+	1995 03 07	552	0.2−	0.7+	1996 08 17	552	0.6+	0.9+
1988 02 21	552	0.3+	1.7+	1995 03 09	552	1.5+	0.6+	1996 08 17	552	0.8−	1.2+
1988 02 22	552	1.8+	0.5−	1995 03 09	552	0.1+	0.7+	1997 11 04	327	0.2+	0.3+
1988 02 22	552	1.4+	0.2−	1996 07 11	552	0.1−	0.3−	1997 11 04	327	0.4+	0.5+
1988 03 10	552	1.3−	0.4−	1996 07 11	552	0.4−	0.1+	1997 11 04	327	0.4+	0.7+
1988 03 10	552	1.1−	0.2+	1996 07 11	552	0.1+	0.3−	1997 11 04	327	0.4+	0.3+

1988 03 14	552	0.5+	0.6+	1996 07 13	552	0.1+	0.9−	1997 11 04	327	0.4+	0.6+
1988 03 17	552	1.4+	0.1−	1996 07 13	552	0.1+	0.1+	1997 11 05	327	0.0	0.3+
1993 09 18	675	2.1+	0.5+	1996 07 13	552	0.1−	0.4+	1997 11 05	327	0.6+	0.5+
1993 10 10	675	1.0+	0.7+	1996 07 15	552	0.5+	0.9+	1997 11 05	327	0.2+	0.3+
1993 10 10	675	1.5−	0.0	1996 07 15	552	0.7−	0.9+	1997 11 19	327	0.1−	0.1+
1995 01 23	411	0.5+	0.5−	1996 07 15	552	1.1−	1.8+	1997 11 19	327	0.3−	0.1−
1995 01 23	411	0.3+	0.4+	1996 07 21	552	0.2+	0.8+	1997 11 19	327	0.1−	0.2−
1995 01 28	399	0.2+	0.7+	1996 07 21	552	0.0	0.3−	1997 11 20	552	0.4−	0.2−
1995 01 28	399	0.2−	1.5+	1996 07 21	552	0.1+	0.0	1997 11 20	552	0.8−	0.4−
1995 02 03	399	1.0−	0.3+	1996 07 22	552	0.5+	0.2−	1997 12 06	552	1.4−	0.8−
1995 02 03	399	0.5−	0.4−	1996 07 22	552	0.4+	0.3+	1997 12 06	552	1.6−	0.1−
1995 02 07	411	0.5+	0.0	1996 08 15	566	0.3+	0.5+				
1995 02 07	411	0.4+	0.1+	1996 08 15	566	0.2−	0.5+				

(8082)∗ 1988 NR = 1993 VL$_2$

Discovered 1988 July 12 by E. F. Helin at Palomar.

Id. G. V. Williams (*MPC* 22811)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	45.35939		(2000.0)		**P**	**Q**	
n	0.23286691	ω	85.33649		+0.94073573	+0.24786048	
a	2.6165610	Ω	260.17994		−0.31823579	+0.88108251	
e	0.1503597	i	13.58683		+0.11722738	+0.40281361	
P	4.23	H	12.8	G	0.15	U	1

Residuals in seconds of arc

1988 07 12	675	(1.1+	3.0−)	1993 12 09	675	0.5+	0.8+	1997 10 27	127	0.2+	0.5−
1988 07 14	675	0.4−	0.2+	1993 12 09	675	1.0+	0.5+	1997 10 27	127	0.2+	0.6−
1988 08 08	675	0.5−	0.8+	1994 01 11	675	0.4+	1.2+	1997 10 28	127	0.2+	1.1−
1988 08 08	675	0.6+	0.4+	1994 01 11	675	0.3−	0.8+	1997 10 28	127	0.3−	0.8−
1993 11 15	365	(0.2+	5.6+)	1994 01 13	675	0.1−	1.6+	1997 10 28	127	0.0	1.1−
1993 11 15	365	1.0−	0.2+	1994 01 13	675	1.8+	1.3+	1997 10 30	127	0.7+	0.4−
1993 11 16	365	(4.4−	0.8−)	1995 03 24	608	0.2+	0.8−	1997 10 30	127	0.8+	0.7−
1993 11 16	365	(2.6−	0.7−)	1995 03 24	608	0.1+	0.6−	1997 10 30	127	0.5+	0.5−
1993 11 17	691	0.3−	0.1+	1995 03 31	608	0.3−	1.0−	1997 11 26	566	0.3−	0.5+
1993 11 17	691	0.2+	0.4+	1995 03 31	608	0.1−	1.1−	1997 11 26	566	0.0	0.2+
1993 11 17	691	0.3−	0.2+	1996 04 17	608	1.1−	0.4+	1997 11 26	566	0.0	0.5+
1993 11 22	365	0.7−	0.0	1996 04 17	608	(2.4−	1.9+)				
1993 11 22	365	1.6−	0.7−	1997 10 27	127	0.0	0.5−				

(8083)∗ 1988 VB = 1974 VL = 1979 YS$_9$

Discovered 1988 Nov. 1 by T. Seki at Geisei.

Id. T. Kobayashi (*MPC* 13862)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	1.85446		(2000.0)		**P**	**Q**	
n	0.21109774	ω	329.69319		+0.96712523	−0.23007395	
a	2.7934892	Ω	44.04028		+0.25316080	+0.83078179	
e	0.2318067	i	8.96491		+0.02404979	+0.50682108	
P	4.67	H	13.2	G	0.15	U	2

Residuals in seconds of arc

1974 11 12	095	1.3+	1.6−	1988 11 04	046	0.1−	2.1−	1993 12 10	801	1.1+	1.1−
1974 11 17	095	0.5−	1.4+	1988 11 04	046	0.6−	1.6−	1993 12 17	801	0.5−	0.4−
1979 12 25	095	1.4−	0.8+	1988 11 05	372	0.1−	1.1+	1993 12 17	801	0.1+	1.2−
1988 10 31	897	0.5−	0.0	1988 11 05	894	0.0	1.5+	1995 03 04	372	(4.1−	0.5−)
1988 10 31	897	0.4+	1.1+	1988 11 05	894	(0.6−	3.0+)	1995 03 05	372	1.0+	1.1+
1988 11 01	372	0.5+	0.7−	1988 11 05	046	1.3+	1.3+	1997 08 25	423	0.2+	0.2+
1988 11 01	372	2.1+	1.3−	1988 11 05	046	1.2+	0.0	1997 08 25	423	0.4+	0.2−
1988 11 02	372	1.2−	1.3−	1988 11 06	372	0.4−	0.6+	1997 08 25	423	0.6+	0.1−
1988 11 02	372	0.1−	0.7+	1988 11 08	399	0.0	0.0	1997 08 25	423	0.1+	0.0
1988 11 02	399	0.1+	0.9+	1988 11 08	399	2.1+	0.2+	1997 08 25	423	0.4−	0.0
1988 11 02	399	0.4+	0.4+	1988 11 08	399	0.8+	0.6−	1997 08 26	423	0.0	0.1−
1988 11 02	399	1.3−	1.5+	1988 11 11	399	0.2−	0.5+	1997 08 26	423	0.6−	0.1−
1988 11 03	897	1.4+	0.7+	1988 11 11	399	0.3−	1.1−	1997 08 26	423	0.4−	0.0
1988 11 03	897	0.6+	0.9+	1988 11 11	399	0.1−	1.1−	1997 08 26	423	0.1+	0.3−
1988 11 03	372	(0.3−	48.9+)	1988 11 13	071	0.7−	0.0	1997 11 26	566	0.2+	0.3+
1988 11 04	327	1.4−	0.5+	1988 11 13	071	0.1+	0.4−	1997 11 26	566	0.4−	0.0
1988 11 04	327	1.8−	0.4+	1991 05 05	372	(3.2+	1.2−)	1997 11 26	566	0.5−	0.5+
1988 11 04	033	1.4−	0.2−	1991 05 05	372	(1.1+	4.5+)				
1988 11 04	033	1.9−	0.5−	1993 12 10	801	0.1+	0.4+				

(8084)∗ 1989 CL$_1$ = 1973 FX = 1976 UT$_7$

Discovered 1989 Feb. 6 by M. Koishikawa at the Ayashi Station of the Sendai Observatory.

Id. S. Nakano (*MPC* 14360)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	229.50724		(2000.0)		**P**	**Q**	
n	0.18330955	ω	79.20476		−0.87946192	−0.47462358	
a	3.0691114	Ω	72.45221		+0.42072560	−0.81032651	
e	0.2158818	i	2.14975		+0.22256842	−0.34366177	
P	5.38	H	13.2	G	0.15	U	1

Residuals in seconds of arc

1973 03 26	095	1.1+	0.7+	1989 03 06	391	0.4+	0.1+	1992 10 01	691	0.7−	0.4+
1976 10 22	381	0.1+	0.1+	1989 03 06	391	1.3+	1.0+	1992 10 01	691	0.3−	0.4+
1976 10 22	381	1.2−	0.3−	1989 03 08	391	0.3+	1.0−	1997 08 30	557	0.9+	0.3+
1976 10 22	381	0.1+	0.1−	1989 03 08	391	(3.4+	1.2−)	1997 08 31	557	0.4+	0.4+
1976 10 22	381	0.9−	0.2−	1989 03 10	391	0.8+	1.1−	1997 08 31	557	0.9+	0.1+
1976 10 24	381	1.2+	0.4+	1989 03 10	391	(4.1+	0.2−)	1997 09 02	557	0.5−	0.1+
1989 02 05	071	0.5−	0.4−	1991 08 06	809	1.2+	0.1+	1997 09 02	557	1.1+	0.5+
1989 02 05	071	(2.6−	0.6+)	1991 08 06	809	0.1+	0.2−	1997 12 01	910	0.1+	0.1+
1989 02 06	391	0.7−	1.3+	1991 08 06	809	1.0−	0.5−	1997 12 01	910	0.1+	0.2+
1989 02 07	391	0.6−	0.4+	1991 08 14	809	0.9−	0.1−	1997 12 01	910	0.1+	0.1+
1989 02 07	391	1.5−	0.0	1991 08 14	809	1.9−	0.4+	1997 12 03	910	0.2+	0.1−
1989 03 01	391	(10.1+	1.1−)	1991 08 14	809	(2.9−	0.5+)	1997 12 03	910	0.5+	0.6−
1989 03 01	391	(8.0+	0.7+)	1992 10 01	691	0.1−	0.2+	1997 12 03	910	0.2−	0.4−

(8085)∗ 1989 CD$_8$ = 1982 YO$_4$ = 1994 AP$_3$

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

Id. S. Nakano (*MPC* 23123)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	359.87439		(2000.0)		**P**	**Q**	
n	0.18847755	ω	132.45806		+0.80283379	−0.57409156	
a	3.0127490	Ω	263.19996		+0.48835861	+0.78799625	
e	0.1065210	i	9.32313		+0.34199967	+0.22244276	
P	5.23	H	11.3	G	0.15	U	1

Residuals in seconds of arc

1982 12 23	095	0.3+	1.2−	1989 02 12	809	0.2−	0.2−	1996 07 19	801	0.4+	0.7−
1989 02 07	809	0.5−	0.2−	1989 02 12	809	0.0	0.1+	1997 10 23	758	0.2−	0.2−
1989 02 07	809	0.6−	0.0	1989 02 12	809	0.0	0.2+	1997 10 23	758	0.2+	0.2−
1989 02 07	809	0.9−	0.0	1992 11 01	400	0.1−	0.6−	1997 10 24	758	0.9−	0.5−
1989 02 08	809	0.1−	0.3+	1992 11 01	400	(2.4−	0.4+)	1997 10 24	758	1.1−	0.1−
1989 02 08	809	0.0	0.2+	1994 01 09	402	1.0+	0.5−	1997 10 27	758	0.3+	0.3−
1989 02 08	809	0.2+	0.1+	1994 01 09	402	0.1+	1.6+	1997 10 27	758	0.6+	0.2−
1989 02 09	809	0.1+	0.0	1994 01 15	402	1.1−	0.1+	1997 11 17	758	0.1−	0.4+
1989 02 09	809	0.2+	0.1−	1994 01 15	402	0.5+	0.9−	1997 11 18	758	0.9+	0.3−
1989 02 09	809	0.5+	0.4−	1994 02 11	675	0.1+	1.2−	1997 11 18	758	0.6+	0.0
1989 02 11	809	0.5−	0.3−	1994 02 11	675	0.5+	0.5−	1997 11 21	758	(1.1+	2.4+)
1989 02 11	809	0.5−	0.4−	1996 07 18	801	0.4+	1.3−	1997 11 21	758	(2.7+	1.8+)
1989 02 11	809	0.4−	0.5−	1996 07 19	801	0.5+	1.5−				

(8086)∗ 1989 RB$_6$ = 1982 UY$_5$ = 1982 VH$_6$ = 1990 UZ$_{12}$

Discovered 1989 Sept. 1 by E. Bowell at Palomar.

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

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	29.90812		(2000.0)		**P**		**Q**
n	0.12574623	ω	289.44582		+0.73622677		+0.66908338
a	3.9458394	Ω	28.83434		−0.51468487		+0.65096151
e	0.2130693	i	12.14646		−0.43939689		+0.35857573
P	7.84	H	11.5	G	0.15	U	1

Residuals in seconds of arc

1956 05 08	675	0.3−	0.2+	1989 09 04	675	0.1−	0.5−	1997 09 30	566	0.3−	0.7+
1971 05 13	675	0.2−	0.3−	1990 10 22	675	0.5−	0.6+	1997 09 30	566	0.4−	0.7+
1971 05 14	675	0.3+	0.5−	1990 10 22	675	0.4−	0.2+	1997 09 30	566	0.8−	1.0+
1982 10 20	095	0.5+	0.9−	1990 10 23	095	(1.2+	4.8+)	1997 10 28	688	0.3+	0.2+
1982 11 08	095	1.8+	1.8−	1990 11 13	675	0.1−	0.0	1997 10 28	688	0.6+	0.4+
1989 08 01	675	0.1−	0.1+	1990 11 13	675	0.3−	0.3−	1997 10 29	688	0.5+	0.5+
1989 08 01	675	0.2−	0.4+	1997 09 02	566	0.0	0.8−	1997 10 29	688	0.5+	0.4+
1989 08 29	675	0.0	0.6−	1997 09 02	566	0.1+	0.7−	1997 11 26	566	0.3+	0.6+
1989 08 29	675	0.0	0.2−	1997 09 02	566	0.0	0.7−	1997 11 26	566	0.1+	0.1+
1989 09 01	675	0.0	0.2+	1997 09 28	566	0.7−	0.0	1997 11 26	566	0.4−	1.3+
1989 09 01	675	1.5+	1.6−	1997 09 28	566	0.7−	0.4+	1997 11 29	688	0.3+	0.3+
1989 09 04	675	0.6+	0.8−	1997 09 28	566	1.3−	0.2+	1997 11 29	688	0.0	0.4+

(8087)∗ 1989 WA$_2$ = 1993 VH$_1$

Discovered 1989 Nov. 29 by K. Endate and K. Watanabe at Kitami.

Id. S. Nakano (*MPC* 22812)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	18.99495		(2000.0)		**P**		**Q**
n	0.23969480	ω	315.37913		+0.86068518		−0.43358220
a	2.5666322	Ω	72.05785		+0.50910271		+0.72677955
e	0.1450627	i	16.29169		+0.00595490		+0.53272691
P	4.11	H	12.4	G	0.15	U	2

Residuals in seconds of arc

1989 10 30	675	1.0−	0.0	1993 11 17	402	0.1+	0.7−	1997 11 01	423	0.1+	0.2+
1989 10 30	675	1.8−	0.5−	1993 11 17	402	0.2−	0.8+	1997 11 06	423	0.3+	0.6+
1989 11 29	400	0.2+	1.4+	1993 12 16	691	0.7−	0.4−	1997 11 06	423	0.0	0.5+
1989 11 29	400	1.1+	0.4+	1993 12 16	691	1.1−	0.6−	1997 11 06	423	0.1−	0.2+
1989 12 01	400	(2.7−	0.4+)	1993 12 16	691	1.2−	1.1−	1997 11 06	423	0.3+	0.4+
1989 12 01	400	2.0−	2.1+	1995 03 05	801	0.2+	0.8+	1997 11 06	423	0.0	0.2+
1989 12 05	400	1.3+	0.6−	1995 03 05	801	0.1+	0.7+	1997 11 08	758	0.5−	0.2−
1989 12 05	400	0.3+	1.2+	1995 03 30	801	0.3+	0.3+	1997 11 08	758	0.4−	0.2−
1989 12 06	400	1.3+	0.4−	1995 03 30	801	0.4+	0.5+	1997 11 09	758	0.2+	0.2+
1989 12 06	400	0.9+	0.7−	1995 04 01	801	0.5+	0.0	1997 11 09	758	0.3−	0.2−
1989 12 08	385	0.5−	0.9−	1995 04 01	801	0.5+	0.0	1997 11 10	758	0.1−	0.2−
1989 12 08	385	0.5+	0.2+	1996 05 18	400	1.1−	0.1+	1997 11 10	758	0.2−	0.1−
1989 12 18	400	0.0	0.1+	1996 05 18	400	0.6+	0.4+	1997 11 18	423	0.5+	0.1+
1989 12 18	400	2.1+	1.1−	1997 10 30	423	0.2−	0.5+	1997 11 18	423	0.1+	0.3+
1989 12 24	400	0.8−	0.6−	1997 10 30	423	0.5−	0.5+	1997 11 18	423	0.2−	0.1−
1989 12 24	400	0.3−	0.9+	1997 10 30	423	0.2+	0.4+	1997 11 18	423	0.2+	0.1−
1989 12 31	400	0.2+	1.0−	1997 11 01	423	0.8+	0.3+	1997 11 19	423	0.1−	0.0
1989 12 31	400	0.5+	0.9−	1997 11 01	423	0.0	0.8+	1997 11 19	423	0.1−	0.3−
1993 11 15	402	0.7+	0.9−	1997 11 01	423	0.0	0.6+	1997 11 19	423	0.2−	0.3−
1993 11 15	402	(0.9−	3.7+)	1997 11 01	423	0.5−	0.3+	1997 11 19	423	0.1−	0.2−

(8088)∗ 1990 SL$_{27}$ = 1990 SV$_{28}$ = 1990 TD$_{15}$ = 1990 TX$_{15}$ = 1983 RG$_8$ = 1987 WA$_2$ = 1988 AS

Discovered 1990 Sept. 23 by G. R. Kastel' at the Crimean Astrophysical Observatory.

Id. S. Nakano (d, *MPC* 20913), N. S. Chernykh (d, *ibid.*), T. B. Spahr (*MPC* 30654)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	19.84337		(2000.0)		**P**		**Q**
n	0.28468640	ω	209.75078		+0.94485284		−0.32729777
a	2.2885386	Ω	169.33566		+0.31129359		+0.88678390
e	0.1517602	i	3.52246		+0.10173202		+0.32632881
P	3.46	H	14.0	G	0.15	U	2

Residuals in seconds of arc

1983 09 11	095	0.4−	1.7+	1990 10 16	095	1.5−	1.3+	1997 10 08	894	(0.8−	3.0−)
1987 11 26	033	0.1+	0.1+	1990 10 16	095	(2.4−	0.2+)	1997 10 12	894	0.1−	1.4−
1987 11 26	033	0.6+	0.3+	1992 03 06	809	1.2+	0.6+	1997 10 12	894	1.0−	0.5−
1988 01 11	033	0.6−	0.1+	1992 04 07	809	0.1+	0.8+	1997 10 20	367	0.2−	0.5−
1988 01 11	033	0.5−	0.2+	1996 04 13	691	1.3−	0.0	1997 10 20	367	0.1+	0.6−
1990 09 23	095	(0.6−	2.8+)	1996 04 13	691	1.2−	0.1−	1997 10 30	704	1.3+	0.6+
1990 09 26	095	0.2−	0.4+	1996 04 13	691	1.4−	0.7+	1997 10 30	704	(2.4+	0.4−)
1990 09 26	095	0.3+	1.1+	1996 05 20	566	0.4+	0.4−	1997 10 30	704	1.4+	0.8−
1990 10 11	095	(0.8−	3.7+)	1996 05 20	566	1.4+	0.5−	1997 10 30	704	1.0+	0.0
1990 10 14	095	(2.2+	0.9−)	1996 05 20	566	1.2+	1.0−	1997 10 30	704	0.7+	0.4+
1990 10 14	095	0.5+	0.7−	1997 10 08	894	1.8−	0.3−				

(8089)∗ 1990 TW$_7$ = 1979 SZ$_3$ = 1992 HL$_1$

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

Id. G. V. Williams (*MPC* 20336)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	337.03449		(2000.0)		**P**		**Q**
n	0.27281652	ω	25.15410		+0.48345561		−0.87316456
a	2.3544471	Ω	36.02593		+0.78423244		+0.40052204
e	0.2224449	i	6.05923		+0.38890893		+0.27778723
P	3.61	H	15.6	G	0.15	U	2

Residuals in seconds of arc

1979 09 24	095	0.1−	1.1−	1992 04 25	691	0.6−	0.3+	1997 08 10	557	0.6+	0.0
1990 10 13	033	0.4−	0.2−	1992 04 25	691	0.2−	0.6−	1997 08 14	557	0.7+	0.4+
1990 10 13	033	0.2+	0.1+	1992 05 02	691	0.9+	0.1−	1997 08 14	557	0.4+	0.5+
1990 10 14	033	0.2−	0.3−	1992 05 02	691	0.4+	0.4+	1997 12 01	910	1.4−	0.5−
1990 10 18	033	0.0	0.9−	1992 05 02	691	0.1+	0.5+	1997 12 01	910	1.5−	0.4−
1990 11 11	675	(0.3+	3.7+)	1995 02 03	033	0.1−	0.3−	1997 12 01	910	1.3−	0.6−
1990 11 11	675	1.4+	1.9+	1995 02 03	033	0.8−	0.1−				
1992 04 25	691	0.3−	0.8−	1997 08 10	557	0.4+	0.1+				

(8090)∗ 1991 RO$_{23}$ = 1972 GU$_1$ = 1989 GS$_5$

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

Id. T. B. Spahr (*MPC* 30656)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	33.96979		(2000.0)		**P**		**Q**
n	0.17492245	ω	351.28071		+0.99912282		+0.01246235
a	3.1664480	Ω	8.32407		+0.01567452		+0.77399140
e	0.1377598	i	16.03049		−0.03883177		+0.63307346
P	5.63	H	11.7	G	0.15	U	2

Residuals in seconds of arc

1972 04 09	805	1.0−	0.3+	1991 09 09	095	0.6+	0.1−	1997 08 05	910	0.7−	0.3−
1972 04 09	805	0.1+	1.8−	1991 09 15	675	0.1+	0.3+	1997 09 30	900	0.5+	0.1−
1972 04 10	805	0.9−	0.3+	1991 09 15	675	0.0	0.2+	1997 09 30	900	0.6+	0.2−
1972 04 10	805	0.4+	0.4−	1991 09 15	095	(4.0+	1.2−)	1997 10 23	367	0.5+	0.6−
1989 04 10	809	1.3−	0.2+	1991 09 15	095	(4.9+	4.8−)	1997 10 23	367	0.5+	0.5−
1989 04 10	809	0.5−	0.1+	1991 09 17	675	0.2+	0.5−	1997 11 17	758	0.3−	0.8+
1989 04 10	809	1.6+	0.2−	1991 09 17	675	0.1−	0.5−	1997 11 18	758	0.1+	0.6+
1989 04 11	809	0.9−	0.7−	1991 09 17	095	(3.9+	2.0−)	1997 12 02	758	1.3−	0.2−
1989 04 11	809	0.2+	0.1+	1991 09 17	095	(5.1+	3.8−)	1997 12 02	758	0.9+	0.0
1989 04 11	809	1.1+	0.6+	1997 08 05	910	0.7−	0.4−				
1991 09 09	095	(1.8−	3.5+)	1997 08 05	910	0.6−	0.1−				

(8091)∗ 1992 BG = 1985 CH = 1986 PA$_4$

Discovered 1992 Jan. 24 by T. Urata at the Nihondaira Observatory.

Id. T. Urata (*MPC* 27104)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	168.29974		(2000.0)		**P**	**Q**	
n	0.27720829	ω	58.41009		−0.89531763	+0.43555998	
a	2.3295135	Ω	147.14200		−0.44420191	−0.85754913	
e	0.1537144	i	9.89563		−0.03303051	−0.27367315	
P	3.56	H	13.4	G	0.15	U	2

Residuals in seconds of arc

1985 02 13	054	0.2−	0.1+	1992 02 06	809	0.5+	0.2+	1996 05 09	385	0.5−	1.9+
1986 08 02	675	(20.3−	0.6+)	1992 02 06	809	0.1+	0.4+	1996 05 22	385	0.4+	0.5+
1986 08 02	675	(19.1−	2.4+)	1992 02 06	809	0.3+	0.1+	1996 05 22	385	0.0	0.6+
1992 01 24	385	0.8−	0.9+	1992 02 09	385	(3.2−	1.7+)	1996 05 22	385	0.3+	0.4+
1992 01 24	385	(3.0−	1.0+)	1992 02 09	385	(2.9−	1.1+)	1997 10 10	385	0.1−	1.4+
1992 01 25	385	0.4+	0.8+	1992 02 21	385	(2.6−	0.3−)	1997 10 10	385	0.2+	1.1−
1992 01 25	385	2.2−	0.3−	1992 02 21	385	(2.8−	0.5+)	1997 10 21	385	0.7−	0.7+
1992 01 30	809	0.9+	0.8−	1996 04 12	385	0.4+	0.1−	1997 10 21	385	0.6−	1.1+
1992 01 30	809	1.0+	0.6−	1996 04 12	385	0.4+	0.3−	1997 10 26	385	0.3−	0.7+
1992 01 30	809	0.3+	0.1+	1996 04 12	385	0.2+	0.1−	1997 11 19	385	0.5−	1.4+
1992 02 02	809	(2.3+	0.1+)	1996 04 13	385	0.0	0.2−	1997 11 19	385	0.1−	0.6+
1992 02 02	809	2.1+	0.1−	1996 04 13	385	0.1−	0.2−	1997 12 05	385	0.1+	0.3−
1992 02 02	809	0.5+	0.7+	1996 04 13	385	0.1+	0.3−	1997 12 05	385	0.4+	1.0+
1992 02 02	385	0.3−	0.2+	1996 05 09	385	0.3−	1.2+				
1992 02 02	385	1.9−	0.5+	1996 05 09	385	0.4−	0.7+				

(8092)∗ 1992 DC$_{10}$ = 1976 WY = 1994 YB$_2$

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

Id. S. Nakano (*MPC* 24566)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	29.05215		(2000.0)		**P**	**Q**	
n	0.27929827	ω	95.57162		+0.99707445	+0.04272953	
a	2.3178779	Ω	261.99072		−0.06410012	+0.91909814	
e	0.0717538	i	3.66955		+0.04163791	+0.39170499	
P	3.53	H	13.5	G	0.15	U	2

Residuals in seconds of arc

1976 11 18	381	0.6+	0.0	1996 03 31	608	0.8+	0.1+	1997 09 22	127	0.5+	0.3+
1976 11 18	381	0.2−	0.4−	1996 03 31	608	0.3+	0.1−	1997 10 30	704	0.3+	1.6+
1992 02 29	809	0.7−	1.4−	1996 04 06	608	0.6+	0.5+	1997 10 30	704	0.0	0.5+
1992 03 03	809	0.7−	0.7−	1996 04 06	608	0.9+	0.3+	1997 10 30	704	1.5−	0.6+
1992 03 05	809	1.1−	0.7−	1996 04 07	608	0.1−	0.3+	1997 10 30	704	0.9+	0.5−
1992 03 08	809	1.2−	0.5−	1996 04 07	608	0.1−	0.3+	1997 10 30	704	1.0−	0.7−
1992 04 07	809	1.0−	0.1−	1996 04 09	608	0.1−	0.2+	1997 11 29	566	0.2+	0.3−
1994 12 22	399	1.3+	0.2+	1996 04 09	608	0.3+	0.4+	1997 11 29	566	0.1−	0.2+
1994 12 22	399	0.7−	1.4+	1997 09 21	127	0.3−	1.8−	1997 11 29	566	0.3−	0.2−
1994 12 25	399	1.4+	0.9+	1997 09 21	127	0.1+	2.0−				
1994 12 25	399	0.3+	0.4+	1997 09 22	127	0.5+	0.5+				

(8093)∗ 1992 UZ$_2$ = 1994 BG$_1$

Discovered 1992 Oct. 25 by N. Kawasato at Uenohara.

Id. S. Nakano (*MPC* 23125)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	9.30688		(2000.0)		**P**	**Q**	
n	0.19965986	ω	338.28322		+0.66246598	−0.74733356	
a	2.8991825	Ω	70.18895		+0.69505427	+0.58769703	
e	0.0694873	i	3.12554		+0.27935352	+0.31000765	
P	4.94	H	13.0	G	0.15	U	1

Residuals in seconds of arc

1955 04 21	675	1.4+	0.3+	1992 10 31	376	1.0−	0.2−	1995 05 27	691	0.3−	0.4−
1955 04 21	675	0.9−	0.9+	1992 11 18	376	1.2+	2.0+	1996 08 15	376	0.3+	0.7+
1989 02 02	675	0.0	0.3+	1992 11 18	376	0.2+	1.2+	1996 08 15	376	0.1−	0.9+
1989 02 02	675	0.2+	0.4−	1992 11 22	376	0.3−	0.6−	1996 08 15	376	0.0	0.7+
1992 10 21	675	0.9+	0.4+	1992 11 22	376	0.3−	0.3−	1997 11 04	426	0.3−	0.3−
1992 10 21	675	0.7+	0.6+	1992 11 27	675	0.1+	0.6−	1997 11 04	426	0.0	0.1−
1992 10 22	675	0.8+	1.2−	1992 11 27	675	0.7+	0.3−	1997 11 04	426	0.0	0.1−
1992 10 22	675	1.2+	0.1+	1992 11 29	376	1.6+	1.8−	1997 11 05	426	0.2+	0.6−
1992 10 25	376	(3.9−	0.0)	1994 01 23	411	(0.5+	2.4−)	1997 11 05	426	0.4−	0.2−
1992 10 25	376	(2.3−	0.0)	1994 01 23	411	0.6+	0.1−	1997 11 05	426	0.3−	0.2−
1992 10 27	376	1.8−	1.3−	1994 01 24	411	0.3+	0.2−	1997 12 04	704	0.6−	0.9+
1992 10 27	376	2.0−	1.0−	1994 01 24	411	0.7−	0.5+	1997 12 04	704	(2.9+	3.2+)
1992 10 31	376	(2.8−	1.0+)	1994 01 24	411	0.5+	0.5+	1997 12 04	704	0.0	0.7+
1992 10 31	376	1.6−	1.5+	1995 05 27	691	0.5−	0.0	1997 12 04	704	0.7+	2.1+
1992 10 31	376	0.3+	1.1−	1995 05 27	691	0.1−	0.1+	1997 12 04	704	0.8−	1.0+

(8094)∗ 1992 UG$_3$ = 1987 UV$_7$ = 1989 AX$_9$ = 1991 NN$_4$

Discovered 1992 Oct. 24 by A. Sugie at the Dynic Astronomical Observatory.

Id. G. V. Williams (*MPC* 27914, *MPC* 30872, unpublished)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	9.99254		(2000.0)		**P**	**Q**	
n	0.19984625	ω	248.48453		+0.76162614	−0.64767367	
a	2.8973795	Ω	151.86891		+0.60986407	+0.70540708	
e	0.0664775	i	2.56274		+0.21906950	+0.28795777	
P	4.93	H	12.9	G	0.15	U	1

Residuals in seconds of arc

1987 10 23	095	(4.5−	2.4+)	1992 10 28	402	0.0	0.4+	1997 10 10	327	0.2−	0.2−
1989 01 05	888	0.4+	2.3+	1992 11 02	010	0.3−	1.0−	1997 10 10	327	0.0	0.1−
1989 01 05	888	(11.7−	1.8+)	1992 11 02	010	1.5−	1.3−	1997 10 10	327	0.1+	0.2−
1991 07 08	809	1.0+	0.3+	1992 11 02	010	1.1−	1.1−	1997 10 27	688	0.4+	0.3+
1991 07 08	809	0.5+	0.4+	1994 01 12	691	0.1−	0.1+	1997 10 27	688	0.5+	0.3+
1991 07 08	809	0.4+	0.6+	1994 01 12	691	0.1−	0.0	1997 10 28	688	0.0	0.3+
1992 10 22	675	0.7−	0.5+	1994 01 12	691	0.8−	0.4−	1997 10 28	688	0.5+	0.3+
1992 10 22	675	0.8−	0.1−	1994 02 15	675	0.2−	0.1+	1997 10 29	704	0.1−	0.8+
1992 10 22	399	1.9+	0.9+	1994 02 15	675	1.1+	0.1+	1997 10 29	704	1.0+	0.3+
1992 10 22	399	0.1−	0.0	1996 07 15	566	0.6−	0.2+	1997 10 29	704	1.0+	0.4+
1992 10 24	402	0.5−	1.7+	1996 07 15	566	0.8−	0.4+	1997 10 29	704	0.4+	0.1−
1992 10 24	402	0.5+	1.1+	1996 07 15	566	0.8−	0.1+	1997 10 29	704	0.1−	0.6−
1992 10 25	675	0.7−	0.2−	1997 10 09	327	0.3−	0.4−	1997 10 30	704	(2.4+	1.4−)
1992 10 25	675	0.0	0.8+	1997 10 09	327	0.1−	0.3−	1997 10 30	704	(2.3+	1.3−)
1992 10 26	400	0.9−	1.1+	1997 10 09	327	0.3−	0.5−	1997 10 30	704	(2.6+	0.7−)
1992 10 26	400	1.3+	0.8−	1997 10 09	327	0.3+	0.4−	1997 10 30	704	(2.3+	1.8−)
1992 10 27	402	1.3+	0.0	1997 10 09	327	0.2+	0.4−	1997 10 30	704	1.5−	0.1+
1992 10 27	402	0.1−	0.8−	1997 10 09	327	0.3+	0.1−				
1992 10 28	402	0.1−	0.1−	1997 10 09	327	0.4−	0.2−				

(8095)∗ 1992 WS$_2$ = 1975 TT$_4$ = 1975 VD$_7$ = 1980 RO$_1$ = 1986 TV$_{12}$ = 1991 PJ$_{29}$ = 1991 RO$_{34}$

Discovered 1992 Nov. 18 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 25641)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	69.16956		(2000.0)		**P**	**Q**	
n	0.17708762	ω	279.27823		+0.53959077	+0.84189170	
a	3.1405853	Ω	23.38265		−0.76457743	+0.49385403	
e	0.1719002	i	1.11996		−0.35250979	+0.21754669	
P	5.57	H	12.0	G	0.15	U	1

Residuals in seconds of arc

1975 10 14	095	(3.3+	0.7−)	1992 11 21	399	1.8−	1.3+	1995 03 06	399	(2.6−	0.2−)
1975 11 06	095	0.5−	0.2+	1992 11 25	691	0.4+	0.2−	1997 10 11	399	0.9+	0.1−
1980 09 14	688	(1.5+	3.4−)	1992 11 25	691	0.4+	0.2−	1997 10 11	399	0.8+	0.4−
1980 09 14	688	1.0+	1.3−	1992 11 25	691	0.7+	0.1+	1997 10 24	758	0.2−	0.0
1986 10 05	095	0.1−	1.7−	1992 11 28	675	(1.8+	2.7−)	1997 10 24	758	0.5−	1.1+

1991 08 07	809	1.1+	1.5−	1992 11 28	675	0.1−	1.8−	1997 10 25	399	2.1+	0.5−
1991 08 07	809	(0.0	2.6−)	1992 11 28	675	(1.0+	2.3−)	1997 10 25	399	0.3−	0.0
1991 08 07	809	(0.6−	3.8−)	1992 11 28	675	0.9+	1.6−	1997 10 30	704	0.4+	0.6+
1991 09 12	675	0.2−	0.2+	1992 11 29	399	0.7+	1.5+	1997 10 30	704	1.0−	0.6+
1991 09 12	675	0.2−	0.4+	1992 11 29	399	0.0	0.4+	1997 10 30	704	1.5−	0.6+
1992 11 18	399	0.3+	1.3−	1995 03 05	399	0.1−	1.1−	1997 10 30	704	1.4−	0.4−
1992 11 18	399	0.5+	0.7+	1995 03 05	399	0.7−	0.7+	1997 10 30	704	1.2−	1.2+
1992 11 21	399	0.4−	0.6−	1995 03 06	399	0.3−	1.2−				

(8096)∗ 1993 OW$_3$ = 1977 ER$_2$ = 1986 VY$_5$ = 1986 XE$_1$ = 1997 RW$_8$

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

Id. G. V. Williams (*MPC* 30660), B. G. Marsden (d, *ibid.*)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	49.41504		(2000.0)		**P**	**Q**	
n	0.26628415	ω	201.11064		+0.85301935	+0.51998035	
a	2.3927969	Ω	127.48033		−0.47042633	+0.80302266	
e	0.2176432	i	3.21313		−0.22595808	+0.29116154	
P	3.70	H	14.0	G	0.15	U	1

Residuals in seconds of arc

1977 03 12	381	0.2+	0.2−	1993 07 13	809	(3.4+	2.5+)	1993 07 24	809	0.8−	0.1+
1977 03 12	381	1.4+	0.2+	1993 07 13	809	(2.6+	2.3+)	1997 09 12	327	0.4+	0.3−
1986 11 06	688	1.3−	0.3+	1993 07 15	894	0.7−	0.0	1997 09 12	327	0.3+	0.3−
1986 11 06	688	0.5+	1.3+	1993 07 15	894	1.0+	0.5−	1997 09 12	327	0.3+	0.5−
1986 12 04	688	(4.4+	16.3+)	1993 07 20	809	0.1+	0.2+	1997 09 13	327	0.2+	0.2−
1986 12 04	688	0.6−	0.4−	1993 07 20	809	0.3−	0.5+	1997 09 13	327	0.3+	0.3−
1992 03 07	809	1.0−	1.0+	1993 07 20	809	0.6−	0.6+	1997 09 13	327	0.2+	0.4−
1993 07 13	809	1.4+	0.9−	1993 07 20	809	0.5−	1.0+	1997 09 13	327	0.2+	0.2−
1993 07 13	809	1.9+	0.4−	1993 07 20	809	0.7−	1.3+	1997 10 11	327	0.1−	0.5+
1993 07 13	809	1.4+	0.6−	1993 07 20	809	1.7−	0.5+	1997 10 11	327	0.3−	0.4+
1993 07 13	809	(5.0+	2.1+)	1993 07 24	809	0.6−	0.4−	1997 10 11	327	0.1−	0.3+

(8097)∗ 1993 RE = 1982 YY$_2$ = 1991 EV$_1$

Discovered 1993 Sept. 12 by K. Endate and K. Watanabe at Kitami.

Id. S. Nakano (*MPC* 22691)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	10.48665		(2000.0)		**P**	**Q**	
n	0.25965440	ω	146.67929		+0.72820699	−0.68473070	
a	2.4333556	Ω	256.56415		+0.62203741	+0.67827113	
e	0.1672940	i	1.72622		+0.28772214	+0.26663108	
P	3.80	H	14.0	G	0.15	U	1

Residuals in seconds of arc

1982 12 22	095	0.9−	1.0+	1993 09 22	809	0.5−	0.2+	1997 10 22	704	1.9+	0.2−
1991 03 07	809	0.4+	0.4−	1993 09 22	809	0.0	0.1+	1997 10 22	704	1.1+	1.1−
1991 03 07	809	1.1+	0.5−	1993 09 22	809	0.3−	0.0	1997 10 29	704	(2.4+	0.9−)
1991 03 07	809	1.7+	0.7−	1993 09 23	675	0.1−	0.2−	1997 10 29	704	1.3+	0.5−
1991 03 09	809	1.4−	0.9−	1993 09 23	675	0.5+	0.8−	1997 10 29	704	1.1+	0.0
1991 03 09	809	1.3−	0.9−	1993 09 23	095	1.0+	0.1+	1997 10 29	704	0.7+	0.2+
1991 03 09	809	1.0−	1.0−	1993 10 06	400	1.6+	0.8−	1997 10 29	704	1.7+	0.3−
1993 09 12	400	(3.2−	3.9−)	1993 10 06	400	0.8−	1.3−	1997 10 30	704	0.7+	0.4−
1993 09 12	400	(4.8−	0.9+)	1995 03 05	400	1.0+	0.4−	1997 10 30	704	0.8+	0.1+
1993 09 13	400	(1.0+	2.5−)	1995 03 05	400	0.3−	0.5−	1997 10 30	704	0.1+	0.3+
1993 09 13	400	1.8+	0.3+	1996 06 06	104	0.2−	0.0	1997 10 30	704	0.8+	0.2−
1993 09 14	894	0.2+	0.4−	1996 06 06	104	0.4−	0.6+	1997 10 30	704	0.1−	0.4−
1993 09 14	894	0.8+	0.8+	1996 06 06	104	0.7−	1.0+	1997 10 31	704	1.0−	0.4+
1993 09 15	809	(3.7+	3.0+)	1996 06 07	104	(0.1−	3.8+)	1997 10 31	704	0.3−	0.1−
1993 09 15	809	(2.8+	3.4+)	1996 06 07	104	(0.6−	3.9+)	1997 10 31	704	1.0−	0.0
1993 09 15	809	(2.6+	2.4+)	1996 06 07	104	(1.0−	4.0+)	1997 10 31	704	1.3−	0.5−
1993 09 15	095	1.2+	1.0+	1996 06 07	104	(0.1+	3.4+)	1997 10 31	704	1.7−	0.2+
1993 09 18	033	1.6−	0.1−	1996 06 08	104	0.6+	0.4−	1997 11 06	704	1.8−	0.6+
1993 09 18	033	0.6+	0.6−	1996 06 08	104	0.1−	0.4−	1997 11 06	704	1.8−	1.4+
1993 09 19	675	0.5+	0.1−	1996 06 08	104	0.5−	0.4−	1997 11 06	704	1.4−	0.4+
1993 09 19	675	0.8+	0.1+	1996 06 08	104	0.6−	0.3−	1997 11 06	704	1.8−	0.4+
1993 09 19	400	1.1−	0.1+	1997 10 22	704	1.8+	0.7+	1997 11 06	704	1.7−	0.3−
1993 09 19	400	1.3−	0.2−	1997 10 22	704	0.5−	1.1+	1997 12 05	691	1.0−	0.3−
1993 09 20	033	0.7+	0.6−	1997 10 22	704	1.7+	0.3−	1997 12 05	691	0.9−	0.1−
1993 09 22	033	0.3−	0.7−	1997 10 22	704	1.2+	0.4−	1997 12 05	691	0.6−	0.2−

(8098)∗ 1993 SH$_2$ = 1974 SV = 1991 EW$_7$

Discovered 1993 Sept. 19 by K. Endate and K. Watanabe at Kitami.

Id. T. Kobayashi (*MPC* 24111)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	10.36022		(2000.0)		**P**	**Q**	
n	0.25934516	ω	48.47938		+0.71146443	−0.70271167	
a	2.4352896	Ω	356.15973		+0.62649810	+0.63675245	
e	0.1982460	i	3.27961		+0.31830568	+0.31739979	
P	3.80	H	14.6	G	0.15	U	2

Residuals in seconds of arc

1974 09 19	095	1.0−	0.6+	1993 09 23	675	0.1+	1.0+	1997 10 29	704	(2.1−	0.1+)
1974 09 21	095	0.8+	0.4+	1993 10 06	400	1.4+	1.4−	1997 10 29	704	0.0	0.2+
1974 09 23	095	0.6−	0.6+	1993 10 06	400	1.8−	1.8−	1997 10 29	704	1.3−	0.0
1991 03 15	809	(0.4−	3.2−)	1993 10 10	675	0.0	0.8+	1997 11 01	399	0.3−	0.8−
1991 03 15	809	(0.9−	2.7−)	1993 10 10	675	0.1+	0.8−	1997 11 01	399	1.6+	0.8−
1991 03 15	809	(1.1−	2.3−)	1995 03 05	033	0.3−	0.3−	1997 11 02	399	0.6−	1.1−
1993 09 15	809	1.5+	1.6−	1995 03 05	033	0.5−	1.1−	1997 11 02	399	0.8+	0.5−
1993 09 15	809	(0.7+	2.2−)	1997 10 22	704	0.3−	1.5+	1997 11 06	704	1.8+	0.4+
1993 09 15	809	0.3−	1.3−	1997 10 22	704	0.4+	1.2+	1997 11 06	704	1.7+	0.6+
1993 09 19	675	0.3−	0.1−	1997 10 22	704	(2.1+	0.8+)	1997 11 06	704	1.6+	0.7+
1993 09 19	675	0.7−	0.1+	1997 10 22	704	1.1+	0.4+	1997 11 06	704	1.8+	0.3+
1993 09 19	400	(0.4−	2.7−)	1997 10 22	704	0.4+	0.2−	1997 11 06	704	0.9+	0.2−
1993 09 19	400	1.1−	0.0	1997 10 29	704	1.1−	0.4+	1997 11 23	691	0.4−	0.2−
1993 09 21	400	0.7−	1.1+	1997 10 29	704	1.4−	0.4+	1997 11 23	691	0.4−	0.3−
1993 09 21	400	1.5+	1.7+	1997 10 29	704	0.7−	0.0	1997 11 23	691	0.3−	0.2−
1993 09 22	809	0.8+	0.2−	1997 10 29	704	(2.2−	0.5+)	1997 11 30	691	1.4−	0.2−
1993 09 22	809	0.8+	0.3−	1997 10 29	704	0.2−	0.5+	1997 11 30	691	1.4−	0.2−
1993 09 22	809	0.2+	1.1−	1997 10 29	704	1.2−	0.1+	1997 11 30	691	1.2−	0.2−
1993 09 23	675	0.1−	0.6+	1997 10 29	704	0.1+	1.2−				

(8099)∗ 1993 TE = 1985 VB$_5$ = 1989 UA$_5$

Discovered 1993 Oct. 8 by H. Abe and S. Miyasaka at Yatsuka.

Id. T. Kobayashi (*MPC* 22693)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	26.82462		(2000.0)		**P**	**Q**	
n	0.24314729	ω	161.46461		+0.99354520	+0.10867709	
a	2.5422783	Ω	192.43127		−0.11339254	+0.95949916	
e	0.2738063	i	8.68741		+0.00317209	+0.25990509	
P	4.05	H	14.3	G	0.15	U	2

Residuals in seconds of arc

1985 11 11	095	(0.8−	2.6−)	1996 03 24	809	0.5+	1.2+	1997 09 29	402	0.2+	0.1−
1989 10 29	807	1.3+	0.2−	1996 03 26	809	0.8+	1.0+	1997 10 03	886	1.0−	0.3−
1989 11 01	807	1.4+	0.7−	1996 03 26	809	0.6+	1.0+	1997 10 03	886	0.7−	0.8−
1989 11 02	046	(8.0+	1.9+)	1996 03 26	809	0.9+	0.3+	1997 10 07	367	0.3+	0.3−
1989 11 02	046	(6.9+	2.3+)	1997 08 01	367	0.1+	0.9+	1997 10 07	367	0.4+	0.3−
1989 11 22	675	0.9−	0.1+	1997 08 01	367	0.0	0.4+	1997 10 08	367	0.5−	0.1+
1989 11 22	675	1.6−	2.1−	1997 08 01	367	0.0	0.1−	1997 10 08	367	0.3−	0.0
1992 04 28	691	1.3−	0.3+	1997 08 08	402	0.1+	0.5−	1997 10 08	886	0.2−	0.4−
1992 04 28	691	1.1−	0.1+	1997 08 08	402	0.1−	0.7−	1997 10 08	886	0.2+	0.2−
1992 04 28	691	0.4−	0.1−	1997 08 08	402	0.1+	0.5−	1997 10 18	367	0.2+	0.0
1993 10 08	367	0.7+	1.3+	1997 08 11	402	0.2+	0.4−	1997 10 18	367	0.1−	0.2−
1993 10 08	367	1.2−	0.4+	1997 08 11	402	0.1+	0.4−	1997 10 20	367	0.3+	0.4−
1993 10 09	809	0.8+	1.1+	1997 08 11	402	0.1+	0.3−	1997 10 20	367	0.4+	0.5−
1993 10 09	809	0.1+	1.0+	1997 08 16	367	0.4+	0.2−	1997 10 29	402	0.4+	0.3−
1993 10 09	809	0.1+	1.2+	1997 08 16	367	0.4+	0.0	1997 10 29	402	0.5+	0.3−
1993 10 09	367	(3.1−	0.8+)	1997 08 16	367	0.2+	0.1+	1997 10 29	402	0.5+	0.4−
1993 10 09	367	0.2+	1.6+	1997 08 24	402	0.2+	0.2+	1997 11 14	327	0.1−	0.8+
1993 10 10	675	0.2−	0.3−	1997 08 24	402	0.1+	0.2+	1997 11 14	327	0.1+	0.6+

1993 10 10	675	0.0	0.5−	1997 08 24	402	0.1+	0.2+	1997 11 14	327	0.1−	0.5+
1993 10 11	809	(2.5−	0.7+)	1997 08 25	367	0.1−	0.2−	1997 11 16	327	0.6−	0.3+
1993 10 11	809	(2.4−	0.8+)	1997 08 25	367	0.1−	0.1−	1997 11 16	327	0.3−	0.3+
1993 10 11	809	(2.6−	0.4+)	1997 08 25	402	0.0	0.3+	1997 11 16	327	0.6−	0.8+
1993 10 13	675	0.1+	0.5−	1997 08 25	402	0.0	0.2+	1997 11 19	402	0.2−	0.1−
1993 10 13	675	0.1−	0.5−	1997 08 25	402	0.1+	0.2+	1997 11 19	402	0.1−	0.1+
1993 10 14	367	0.7+	0.4+	1997 08 27	367	0.0	0.7+	1997 11 19	402	0.0	0.1+
1993 10 14	367	0.0	0.8+	1997 08 27	367	0.5−	0.8+	1997 11 24	367	0.5−	0.4+
1993 10 20	809	(2.0+	4.1+)	1997 08 27	402	0.0	0.2+	1997 11 24	367	0.6−	0.7+
1993 10 20	809	(2.0+	3.9+)	1997 08 27	402	0.0	0.3+	1997 12 05	402	0.1−	0.1−
1993 10 20	809	(1.6+	4.0+)	1997 08 27	402	0.0	0.4+	1997 12 05	402	0.3+	0.1−
1993 10 22	367	(2.2−	1.2+)	1997 09 08	367	0.5−	0.9−	1997 12 05	402	0.1+	0.1−
1993 10 22	367	1.7−	0.2−	1997 09 08	367	0.6−	0.7−	1997 12 05	367	0.1−	0.4+
1996 03 24	809	(3.1+	0.1+)	1997 09 29	402	0.3+	0.1−	1997 12 05	367	0.2+	0.6+
1996 03 24	809	1.1+	0.6+	1997 09 29	402	0.3+	0.1−				

(8100)∗ 1993 XF = 1979 WO_6 = 1982 JC_1

Discovered 1993 Dec. 4 by M. Hirasawa and S. Suzuki at Nyukasa.

Id. S. Nakano (*MPC* 22963)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	357.92790		(2000.0)		**P**	**Q**	
n	0.21525412	ω	268.48343		+0.91348901	−0.40351285	
a	2.7574125	Ω	115.31205		+0.39244786	+0.84007787	
e	0.0832847	*i*	3.30446		+0.10734296	+0.36255558	
P	4.58	*H*	13.2	*G*	0.15	*U*	1

Residuals in seconds of arc

1979 11 17	095	1.1+	0.6−	1995 02 05	691	0.2−	0.3−	1997 09 11	557	0.4+	0.5−
1982 05 15	675	0.2+	1.4−	1995 02 05	691	0.6−	0.4−	1997 09 11	557	0.2+	0.4−
1982 05 16	675	1.2−	1.5−	1995 03 13	409	0.7+	0.3−	1997 09 11	557	0.3+	0.3−
1982 05 16	675	(2.7−	0.7+)	1995 03 13	409	1.0+	0.7−	1997 09 12	557	0.5+	0.2−
1982 05 17	675	1.7−	0.2+	1995 03 23	691	0.2−	0.1−	1997 09 12	557	0.3+	0.3−
1982 05 18	675	0.6−	1.8+	1995 03 23	691	0.3−	0.4−	1997 09 12	557	0.3+	0.3−
1992 08 27	675	1.4+	0.9+	1995 03 23	691	0.3−	0.3−	1997 09 21	557	0.1+	0.3−
1992 08 27	675	1.4+	0.2+	1995 03 27	675	0.0	0.2+	1997 09 21	557	0.1+	0.0
1993 12 04	408	1.0−	0.3+	1995 03 29	691	0.0	0.4−	1997 09 21	557	0.0	0.0
1993 12 05	408	1.1+	0.6+	1995 03 29	691	0.3+	0.3−	1997 09 27	611	0.0	0.4−
1993 12 09	408	0.8−	0.6+	1995 03 29	691	0.3−	0.6−	1997 09 27	611	0.2+	0.1+
1993 12 09	408	0.5−	0.7+	1995 04 04	691	0.4−	0.4−	1997 11 25	734	0.7−	0.6−
1993 12 11	408	0.9+	0.5−	1995 04 04	691	0.5−	0.5−	1997 11 25	734	1.2−	0.2−
1993 12 11	408	0.3−	0.2−	1995 04 04	691	0.2−	0.3−	1997 11 25	734	1.9−	0.1+
1993 12 18	408	0.7+	1.2−	1996 06 15	816	0.2+	0.3−	1997 11 26	566	0.2+	1.2−
1993 12 18	408	(2.3+	0.0)	1996 06 15	816	0.1+	0.1+	1997 11 26	566	0.3−	1.0−
1995 02 05	691	0.4+	0.3+	1996 06 15	816	0.3+	0.2−	1997 11 26	566	0.5−	1.1−

(8101)∗ 1993 XK_1 = 1978 WR_8

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

Id. T. Kobayashi (*MPC* 22964)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	357.95435		(2000.0)		**P**	**Q**	
n	0.20200556	ω	316.28836		+0.85201892	−0.52035653	
a	2.8766951	Ω	75.15052		+0.49515324	+0.76542400	
e	0.0549973	*i*	3.40343		+0.16996185	+0.37862275	
P	4.88	*H*	13.3	*G*	0.15	*U*	1

Residuals in seconds of arc

1954 12 22	675	1.7+	0.2−	1994 01 07	411	0.6−	0.1+	1997 10 03	327	0.2−	0.0
1954 12 22	675	1.6−	1.2+	1994 01 07	411	0.1−	0.1−	1997 10 10	327	0.2+	0.3−
1978 11 29	675	0.1−	0.4−	1994 01 09	675	0.3−	0.7−	1997 10 10	327	0.1−	0.3−
1978 11 30	675	0.2+	0.2−	1994 01 09	675	0.1+	1.7−	1997 10 10	327	0.2−	0.6−
1993 12 14	411	0.1−	0.3−	1995 04 02	691	0.5−	0.3−	1997 10 18	327	0.4+	0.5−
1993 12 14	411	0.4+	1.2−	1995 04 02	691	1.0−	0.2−	1997 10 18	327	0.3−	0.3+
1993 12 15	411	1.6−	0.3+	1995 04 02	691	1.5−	0.0	1997 10 18	327	0.5+	0.9−
1993 12 15	411	0.2−	0.3+	1995 04 03	411	0.8+	0.5−	1997 10 19	327	0.2−	0.9−
1993 12 15	411	0.0	0.0	1995 04 03	411	0.5−	0.6−	1997 10 19	327	0.5+	0.5−
1993 12 23	411	0.1−	0.9+	1995 04 04	411	1.4+	0.9−	1997 10 19	327	0.2+	0.6−
1993 12 23	411	0.2+	0.4+	1995 04 04	411	1.0+	0.2+	1997 11 20	426	0.0	0.5+
1993 12 23	411	0.9+	0.3−	1995 04 22	691	0.3−	0.3−	1997 11 20	426	0.1−	0.5+
1994 01 04	411	0.4+	0.5+	1995 04 22	691	0.1+	0.3−	1997 11 20	426	0.4−	0.3+
1994 01 04	411	0.3+	1.0+	1995 04 22	691	1.0−	0.5−	1997 11 22	426	0.6−	0.0
1994 01 04	411	0.9+	0.1−	1997 10 03	327	0.1+	0.1−	1997 11 22	426	1.1+	0.5+
1994 01 07	411	0.4−	0.3+	1997 10 03	327	0.1−	0.1−	1997 11 22	426	0.6+	0.1+

(8102)∗ 1994 AQ_2 = 1978 XN

Discovered 1994 Jan. 14 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 23242)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	329.90130		(2000.0)		**P**	**Q**	
n	0.20656037	ω	335.12837		+0.09940583	−0.99359224	
a	2.8342493	Ω	109.12957		+0.92219774	+0.07169168	
e	0.0289126	*i*	3.26360		+0.37372425	+0.08737716	
P	4.77	*H*	13.9	*G*	0.15	*U*	1

Residuals in seconds of arc

1978 12 03	675	0.2+	0.3−	1994 01 19	411	0.1−	0.6−	1996 08 13	566	0.1−	0.4−
1978 12 03	675	1.3+	0.2−	1994 01 19	411	0.2−	0.7−	1997 10 29	704	(2.5+	0.3−)
1978 12 05	675	1.4−	0.7−	1994 02 07	411	1.1−	0.2−	1997 10 29	704	0.4+	0.2−
1978 12 06	675	0.3−	0.2−	1994 02 07	411	0.0	0.7+	1997 10 29	704	0.4+	0.1+
1978 12 06	675	0.1+	0.3−	1994 02 07	411	1.0−	1.2+	1997 10 29	704	0.4+	0.2−
1990 04 01	675	0.5+	0.7+	1994 02 14	675	0.3+	0.4+	1997 10 29	704	0.2+	0.1−
1990 04 01	675	1.9+	0.8−	1995 04 26	691	0.4−	0.4+	1997 10 29	566	0.1−	0.0
1994 01 14	411	0.5+	1.2−	1995 04 26	691	0.7−	0.1+	1997 10 29	566	0.5−	0.1−
1994 01 14	411	0.6−	0.6−	1995 04 26	691	0.1−	0.1+	1997 10 29	566	0.3−	0.0
1994 01 14	411	0.0	0.8+	1995 05 08	691	0.4−	0.3+	1997 11 02	367	0.1+	0.3+
1994 01 15	411	0.3−	0.6−	1995 05 08	691	0.2−	0.2+	1997 11 02	367	0.2−	0.3+
1994 01 15	411	0.6+	0.2+	1995 05 08	691	1.0−	0.5−	1997 11 03	367	0.5+	0.2+
1994 01 15	411	0.5−	0.1−	1995 05 09	691	0.1−	0.2+	1997 11 03	367	0.2+	0.6+
1994 01 18	411	0.2+	2.0−	1995 05 09	691	0.4+	0.0	1997 11 04	900	0.9−	0.4+
1994 01 18	411	0.1+	0.5+	1995 05 09	691	0.3+	0.1−	1997 11 04	900	0.1−	0.8+
1994 01 18	411	(0.2−	2.7−)	1996 08 13	566	0.8+	1.2−	1997 11 24	367	0.3−	0.0
1994 01 19	411	1.4+	0.0	1996 08 13	566	0.1+	0.4−	1997 11 24	367	0.2−	0.4+

(8103)∗ 1994 BE

Discovered 1994 Jan. 19 at Farra d'Isonzo.

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	149.51501		(2000.0)		**P**	**Q**	
n	0.19260382	ω	62.99656		−0.36293624	+0.93173678	
a	2.9695647	Ω	185.76219		−0.89166543	−0.35100740	
e	0.0452264	*i*	6.86103		−0.27057354	−0.09306113	
P	5.12	*H*	13.5	*G*	0.15	*U*	1

Residuals in seconds of arc

1994 01 19	595	0.2+	0.3−	1994 03 07	595	0.0	0.2−	1996 08 16	595	0.4+	1.2−
1994 01 19	595	0.1−	0.3−	1994 03 28	595	0.1−	0.2−	1996 08 16	595	0.0	0.5−
1994 01 19	595	0.3+	0.3−	1994 03 28	595	0.2+	0.5+	1996 08 16	595	0.3−	0.1+
1994 01 21	595	0.6−	0.1+	1995 05 03	595	0.5−	0.7−	1996 08 18	595	1.2+	0.2−
1994 01 21	595	0.5−	0.4+	1995 05 03	595	0.1−	0.6−	1996 08 18	595	0.4+	0.2−
1994 01 22	595	0.4+	0.1+	1995 05 04	595	0.4−	1.4−	1997 11 04	595	0.2+	1.4−
1994 01 23	595	0.3−	0.4+	1995 05 04	595	0.1+	0.5−	1997 11 05	595	0.5+	0.3−
1994 01 31	595	0.5+	0.2+	1996 07 09	595	0.3−	0.0	1997 12 05	595	0.1+	1.1−
1994 01 31	595	0.3−	0.1+	1996 07 09	595	0.7−	0.4+	1997 12 06	595	0.1−	0.5−
1994 02 07	595	0.6+	1.0−	1996 07 12	595	0.0	0.3+				
1994 02 07	595	0.4−	0.1−	1996 07 12	595	0.4−	0.2+				

(8104)∗ 1994 BW_4 = 1987 YN_6 = 1988 AF_2 = 1991 PZ

Discovered 1994 Jan. 19 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 23243)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	103.38865		(2000.0)		**P**		**Q**
n	0.18759846	ω	343.80666		+0.31503779		+0.93916823
a	3.0221536	Ω	304.36437		−0.85134583		+0.21593770
e	0.0887388	i	9.53934		−0.41947761		+0.26708416
P	5.25	H	12.4	G	0.15	U	1

Residuals in seconds of arc

1987 12 20	010	(4.4−	0.3−)	1994 01 19	411	0.8−	0.1+	1994 02 13	411	0.4−	0.4−
1987 12 20	010	0.1−	0.2+	1994 01 19	411	0.3+	0.2−	1997 10 10	411	0.4+	0.7−
1987 12 20	010	0.3−	0.3+	1994 01 21	411	0.5−	1.1−	1997 10 10	411	0.1+	0.6+
1988 01 11	033	0.3+	1.1−	1994 01 21	411	0.4+	0.1−	1997 10 12	411	0.6+	0.0
1988 01 11	033	0.4+	0.8−	1994 01 21	411	0.6+	0.4−	1997 10 26	411	0.4+	0.1+
1991 08 05	675	0.4−	0.7−	1994 02 02	411	1.0−	2.1−	1997 10 26	411	0.2+	0.5+
1991 08 05	675	0.2−	0.2−	1994 02 02	411	1.0−	1.6+	1997 10 27	411	0.6−	0.4+
1991 08 08	675	0.5+	2.0−	1994 02 02	411	0.4−	0.0	1997 10 27	411	0.2−	0.7+
1991 08 08	675	1.9+	0.6−	1994 02 13	411	0.5+	1.0−	1997 11 30	411	0.8−	0.5+
1994 01 19	411	0.9+	1.0+	1994 02 13	411	0.1+	0.4−	1997 11 30	411	1.1−	0.2−

(8105)∗ 1994 WH$_2$ = 1987 UR$_2$ = 1990 RC$_{10}$

Discovered 1994 Nov. 28 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 24574)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	301.64116		(2000.0)		**P**		**Q**
n	0.28843205	ω	293.07971		+0.00261090		−0.99937591
a	2.2686824	Ω	156.68788		+0.94697205		−0.00884793
e	0.0841655	i	5.10705		+0.32130534		+0.03419807
P	3.42	H	14.0	G	0.15	U	2

Residuals in seconds of arc

1987 10 30	054	2.0−	0.6+	1994 10 28	033	0.2−	0.1+	1994 12 10	399	0.1+	0.4+
1990 09 14	675	0.3−	0.6+	1994 10 28	033	0.5+	0.0	1997 09 02	557	0.4−	0.9−
1990 09 14	675	0.8+	0.8+	1994 11 01	033	0.5+	0.2−	1997 09 02	557	0.4−	1.1−
1990 09 15	675	1.1+	0.3−	1994 11 02	033	0.2−	0.1−	1997 09 03	557	0.5−	1.0−
1990 09 15	675	1.0+	0.9−	1994 11 28	399	0.3−	1.1+	1997 09 03	557	0.4−	1.0−
1992 02 28	691	0.5−	1.0−	1994 11 28	399	0.2−	0.3−	1997 09 06	557	0.8−	1.1−
1992 02 28	691	0.4−	1.1−	1994 11 29	399	0.8+	0.2−	1997 09 06	557	0.8−	1.0−
1992 02 28	691	0.5−	0.7−	1994 11 29	399	0.3−	0.5−	1997 09 28	566	0.4+	1.3+
1994 10 05	033	0.9+	0.2−	1994 12 09	399	0.4+	0.2+	1997 09 28	566	1.2+	1.5+
1994 10 05	033	1.0+	1.0−	1994 12 09	399	0.8−	0.6+	1997 09 28	566	(2.1+	2.3+)
1994 10 06	033	0.5+	0.3−	1994 12 10	399	0.4+	0.2+				

(8106)∗ 1994 YB = 1989 OX

Discovered 1994 Dec. 23 by M. Cavagna and P. Sicoli at Sormano.

Id. G. V. Williams (*MPC* 24903)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	137.95694		(2000.0)		**P**		**Q**
n	0.26350931	ω	296.43788		−0.59425201		+0.78996491
a	2.4095656	Ω	296.28083		−0.66480681		−0.58816807
e	0.2204067	i	9.69931		−0.45265490		−0.17324480
P	3.74	H	13.5	G	0.15	U	1

Residuals in seconds of arc

1989 07 29	675	1.0−	1.4−	1995 02 05	587	0.5+	0.6+	1996 01 17	587	0.4−	0.1−
1989 07 29	675	0.1+	1.1−	1995 02 05	587	0.9−	1.6−	1996 02 14	587	0.3−	0.9−
1989 08 01	675	0.7+	0.3−	1995 02 05	587	0.5+	1.6−	1996 02 14	587	0.6−	0.3−
1989 08 01	675	1.7+	0.7−	1995 02 06	587	0.5−	0.1−	1997 09 26	587	0.1−	0.2−
1994 12 23	587	0.3−	0.0	1995 02 06	587	0.7+	0.2−	1997 09 26	587	0.0	0.3−
1994 12 23	587	1.6−	1.8−	1995 02 06	587	0.2−	1.0−	1997 09 27	587	0.4+	0.9+
1994 12 23	587	1.0+	0.6+	1995 02 19	587	0.5−	0.4−	1997 09 27	587	0.1+	0.3−
1994 12 26	587	0.4−	0.5−	1995 02 19	587	0.3−	0.6−	1997 09 29	587	0.8−	0.1−
1994 12 26	587	0.2+	0.3−	1995 02 20	587	1.2+	0.2−	1997 09 29	587	0.1−	0.5+
1995 01 01	587	0.3+	0.1−	1995 02 20	587	0.5−	0.3+	1997 10 26	587	0.5−	0.1+
1995 01 01	587	0.2−	0.2+	1995 02 20	587	0.4+	0.7+	1997 10 26	587	0.6−	0.4−
1995 01 03	587	0.0	0.5+	1995 02 27	587	0.5−	0.9+	1997 11 23	587	0.2−	0.7+
1995 01 03	587	0.6+	0.1−	1995 02 27	587	0.1+	0.3+	1997 11 23	587	0.9+	0.2+
1995 01 04	587	0.2−	0.0	1995 02 27	587	0.9+	0.5+	1997 11 30	587	0.4+	0.4+
1995 01 06	587	0.4+	0.1+	1996 01 17	587	0.1+	0.7−				
1995 01 06	587	0.0	0.4−	1996 01 17	587	0.2+	0.3−				

(8107)∗ 1995 BR$_4$ = 1972 JT = 1986 NQ = 1990 SL$_3$

Discovered 1995 Jan. 31 by Y. Shimizu and T. Urata at the Nachi-Katsuura Observatory.

Id. S. Nakano (*MPC* 24906)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	309.49958		(2000.0)		**P**		**Q**
n	0.29412852	ω	341.05211		−0.61791633		−0.78332632
a	2.2392949	Ω	147.01219		+0.73646705		−0.60678598
e	0.0943019	i	7.13970		+0.27531017		−0.13494686
P	3.35	H	13.4	G	0.15	U	1

Residuals in seconds of arc

1972 05 12	095	(0.2+	4.4−)	1995 01 31	905	0.1−	0.5−	1996 07 19	801	0.5+	0.3−
1986 07 07	010	(23.3−	5.6−)	1995 01 31	905	0.7−	0.6−	1996 07 20	801	0.9+	1.0−
1986 07 08	010	(16.8−	3.5−)	1995 02 02	905	0.4−	0.0	1996 07 20	801	0.2+	1.0−
1990 09 18	675	0.3+	0.4−	1995 02 02	905	0.5−	0.4−	1997 10 31	385	0.5+	0.3−
1990 09 18	675	0.2+	0.2+	1995 02 03	691	0.5−	0.1−	1997 10 31	385	0.4+	0.2−
1990 09 20	675	0.6+	0.3−	1995 02 03	691	0.5−	0.1−	1997 10 31	385	0.3+	0.3−
1990 09 20	675	0.8+	0.5−	1995 02 03	691	0.5−	0.0	1997 11 07	886	0.6−	0.7−
1992 04 03	675	0.8+	0.5+	1995 02 06	905	0.6+	0.4+	1997 11 07	886	1.4−	0.2−
1992 04 03	675	0.0	0.8+	1995 02 06	905	0.2+	0.4+	1997 11 18	886	0.2+	1.0+
1993 08 14	691	1.1−	0.7+	1995 03 06	905	0.9+	0.9+	1997 11 18	886	0.3+	0.6+
1993 08 14	691	1.3−	0.8+	1995 03 06	905	0.2+	0.1+	1997 12 02	886	0.6+	0.7+
1993 08 14	691	1.3−	0.7+	1995 03 06	905	0.3+	1.0−	1997 12 02	886	0.1+	0.7+

(8108)∗ 1995 BC$_{16}$ = 1984 BJ$_4$ = 1989 NL

Discovered 1995 Jan. 30 by F. Börngen at Tautenburg.

Id. K. Kinoshita (*MPC* 25963)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	92.54550		(2000.0)		**P**		**Q**
n	0.27031202	ω	6.46976		+0.77849941		+0.62208259
a	2.3689677	Ω	314.70414		−0.58098359		+0.66397250
e	0.1229448	i	6.73690		−0.23747997		+0.41491418
P	3.65	H	14.0	G	0.15	U	2

Residuals in seconds of arc

1984 01 25	675	0.7−	0.6−	1993 09 22	675	0.3−	0.2+	1997 10 22	113	0.4−	0.1−
1984 01 26	675	0.0	0.6−	1993 09 22	675	0.2−	0.4+	1997 10 28	113	1.4−	0.7−
1988 02 16	675	0.5−	1.8−	1995 01 30	033	0.4+	0.0	1997 10 28	113	1.4−	0.1+
1988 02 16	675	0.4+	0.5+	1995 01 31	033	0.0	0.2−	1997 10 31	113	0.7+	0.5−
1989 07 02	675	0.5−	0.6−	1995 02 03	033	0.2−	0.0	1997 10 31	113	0.5−	1.5−
1989 07 02	675	0.8+	0.4−	1995 02 22	033	0.1+	0.4+	1997 10 31	113	0.8−	1.1−
1989 07 04	675	0.6+	2.2−	1995 02 22	033	0.5−	0.3+	1997 11 19	134	0.3+	0.1+
1989 07 04	675	(1.3+	3.0−)	1997 10 22	113	0.2+	0.4−	1997 11 19	134	1.5+	1.1+
1993 09 18	675	0.1−	0.8+	1997 10 22	113	0.1−	0.2−	1997 11 19	134	1.8+	0.4+

(8109)∗ 1995 DU$_1$

Discovered 1995 Feb. 25 by C. W. Hergenrother at the University of Arizona's Catalina Station.

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	300.79442		(2000.0)		**P**		**Q**
n	0.27882644	ω	21.63169		−0.68590914		−0.61982594
a	2.3204920	Ω	114.14897		+0.59124881		−0.78011241
e	0.1908626	i	24.69608		+0.42420926		+0.08509068
P	3.53	H	14.1	G	0.15	U	1

Residuals in seconds of arc

1955 12 12	675	0.0	1.3+	1995 04 02	693	0.2−	0.4+	1996 07 22	608	0.6+	0.9+
1955 12 12	675	0.6−	0.4+	1995 04 02	693	0.2−	0.4+	1996 07 23	608	0.5+	0.4+
1988 02 19	675	0.6+	0.2+	1995 04 02	693	0.2−	0.5+	1996 07 23	608	0.8+	0.1−
1988 02 19	675	1.2+	0.2−	1995 05 04	104	0.2−	1.0+	1997 10 15	608	0.2+	0.4−
1995 02 25	693	0.2+	0.7−	1995 05 04	104	0.0	1.9+	1997 10 15	608	0.2+	0.1−
1995 02 25	693	0.3−	0.3−	1995 05 04	104	0.1−	1.8+	1997 10 16	608	1.0−	0.2−
1995 02 26	693	0.2−	0.2+	1995 05 30	658	0.3−	0.6+	1997 10 16	608	0.3−	0.3−
1995 03 01	657	0.3+	0.3−	1995 05 30	658	0.5−	0.6+	1997 10 17	608	0.1+	0.7−
1995 03 01	657	0.4−	0.1−	1996 06 26	696	0.5−	0.4+	1997 10 27	608	1.1+	0.8+
1995 03 01	657	0.6+	0.4−	1996 06 26	696	0.3−	0.7+	1997 10 27	608	0.4+	0.4+
1995 03 01	657	0.0	0.6−	1996 06 26	696	0.1−	0.8+	1997 10 30	608	0.0	0.9+
1995 03 02	657	0.0	0.1−	1996 07 15	566	0.5−	0.1−	1997 10 30	608	0.1−	0.8+
1995 03 02	657	0.2+	0.0	1996 07 15	566	0.8−	0.1−	1997 11 13	608	1.2−	1.7+
1995 03 02	657	0.4+	0.0	1996 07 15	566	1.0−	0.0	1997 11 13	608	0.9−	1.6+
1995 03 22	608	0.4−	0.5+	1996 07 18	608	0.3+	0.6+				
1995 03 22	608	0.5−	0.5+	1996 07 22	608	0.7+	1.0+				

(8110)∗ 1995 DE$_2$ = 1991 GU$_{11}$ = 1993 TC$_{12}$

Discovered 1995 Feb. 27 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 25072)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	343.50594		(2000.0)		**P**	**Q**	
n	0.23112535	ω	68.82771		+0.83389175	−0.55066486	
a	2.6296886	Ω	324.55513		+0.47951173	+0.75630417	
e	0.0770300	i	3.68972		+0.27330028	+0.35323111	
P	4.26	H	13.3	G	0.15	U	1

Residuals in seconds of arc

1989 11 02	675	0.7+	1.0+	1995 03 04	033	0.0	0.1+	1997 09 06	910	0.9+	0.2+
1989 11 02	675	0.0	0.1+	1995 03 04	033	0.3−	0.4+	1997 09 06	910	1.0+	0.1+
1989 11 22	675	0.9−	0.0	1995 03 05	411	0.1−	1.0−	1997 09 06	910	1.0+	0.1−
1989 11 22	675	0.0	0.2+	1995 03 05	411	0.6+	0.1+	1997 09 06	910	1.0+	0.1+
1991 03 09	675	0.3+	0.1−	1995 03 05	411	0.0	0.6−	1997 09 22	563	0.4+	0.2+
1991 03 09	675	0.1+	0.1+	1995 03 07	411	1.0−	0.4−	1997 09 22	563	0.4−	0.0
1991 04 11	033	0.2−	0.0	1995 03 07	411	0.3+	0.7−	1997 09 22	563	1.1−	0.2+
1991 04 11	033	0.8−	0.7+	1995 03 07	411	0.2+	0.1+	1997 09 22	563	0.0	0.2+
1991 04 15	675	0.6+	0.1−	1995 03 08	691	1.2−	0.1+	1997 09 23	563	1.0−	0.4−
1991 04 15	675	0.1−	0.3−	1995 03 08	691	1.1−	0.3−	1997 09 23	563	0.3+	0.1−
1993 10 14	675	0.1−	0.8−	1995 03 08	691	1.0−	0.3−	1997 09 23	563	0.1−	0.1+
1993 10 14	675	0.0	0.4+	1997 09 01	367	0.8−	1.1−	1997 09 23	563	0.4−	0.2−
1993 10 15	675	0.4+	0.2−	1997 09 01	367	(2.4−	0.0)	1997 09 23	563	0.6−	0.2−
1995 02 27	411	0.9+	0.7−	1997 09 02	367	0.3−	0.2+	1997 11 20	118	0.5−	0.4−
1995 02 27	411	0.6+	0.3+	1997 09 02	367	0.4−	0.3−	1997 11 20	118	0.2−	0.7−
1995 03 01	411	1.5+	0.8−	1997 09 06	910	0.8+	0.1+				
1995 03 01	411	0.4−	1.0+	1997 09 06	910	0.9+	0.0				

(8111)∗ 1995 GE = 1984 SQ$_8$

Discovered 1995 Apr. 2 by L. Tesi and V. Giuliani at Sormano.

Id. G. V. Williams (*MPC* 30875)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	357.60646		(2000.0)		**P**	**Q**	
n	0.22884789	ω	225.22823		+0.76240475	−0.64675932	
a	2.6471067	Ω	174.93542		+0.64031511	+0.74932331	
e	0.1831090	i	13.76774		+0.09346425	+0.14218632	
P	4.31	H	13.8	G	0.15	U	1

Residuals in seconds of arc

1954 11 20	675	0.5−	0.4−	1995 04 17	587	0.3+	0.2+	1997 09 27	886	0.1+	0.4+
1954 11 20	675	0.4+	0.3−	1995 04 17	587	0.3+	0.1+	1997 09 27	587	0.1+	0.3+
1984 09 23	071	(6.1+	7.0+)	1995 04 28	587	0.4+	0.4+	1997 09 27	587	0.7−	0.1−
1984 09 23	071	(5.2+	3.3+)	1995 04 28	587	0.1−	0.6+	1997 10 03	758	1.5+	0.9+
1984 09 24	071	0.7+	0.5−	1995 05 20	587	0.4−	1.0+	1997 10 03	758	0.0	1.2+
1988 08 13	675	0.8+	0.1+	1995 05 20	587	0.1+	1.5+	1997 10 04	758	0.2−	0.2−
1988 08 13	675	0.9−	0.1−	1996 06 08	587	0.3+	0.5+	1997 10 04	758	0.2+	0.3−
1995 04 02	587	0.8−	0.5−	1996 06 09	587	0.9−	0.1−	1997 10 06	758	(3.7+	1.0+)
1995 04 02	587	0.7+	1.1−	1996 06 09	587	0.1−	0.7−	1997 10 06	758	0.2−	0.8+
1995 04 03	587	0.3+	0.6+	1996 06 09	587	0.0	0.0	1997 10 26	587	0.2+	0.7−
1995 04 03	587	0.0	0.9−	1996 06 10	587	0.0	0.2+	1997 10 26	587	0.2+	0.4−
1995 04 03	587	0.3−	0.2+	1996 06 10	587	0.1+	0.3−	1997 11 08	587	0.2−	0.2−
1995 04 07	587	0.0	0.0	1997 09 26	587	0.5+	0.1+	1997 11 08	587	0.3−	0.1−
1995 04 07	587	0.0	0.7+	1997 09 26	587	0.5+	0.2+	1997 11 30	587	1.8−	0.1−
1995 04 07	587	0.3+	0.1−	1997 09 27	886	0.0	0.7+	1997 11 30	587	1.8−	0.3+

(8112)∗ 1995 JJ = 1994 CN$_{12}$

Discovered 1995 May 3 by A. Vagnozzi at Stroncone.

Id. G. V. Williams (*MPC* 25335)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	287.30531		(2000.0)		**P**	**Q**	
n	0.19116416	ω	10.29402		−0.69315090	−0.71645016	
a	2.9844552	Ω	123.63941		+0.65438612	−0.67145062	
e	0.0667062	i	5.44501		+0.30219306	−0.18934951	
P	5.16	H	14.1	G	0.15	U	1

Residuals in seconds of arc

1994 02 07	809	0.3+	0.2+	1995 05 23	589	0.1−	0.8+	1996 09 12	566	0.2+	1.0−
1994 02 07	809	0.3−	0.4+	1995 05 23	589	0.5+	0.5+	1996 09 14	589	0.1+	0.2−
1994 02 07	809	1.1−	0.2−	1995 05 23	589	1.9+	0.2+	1996 09 14	589	0.2−	0.2−
1994 02 09	809	0.5+	0.4−	1995 05 23	589	0.1−	1.5+	1997 10 26	589	0.4−	1.4+
1994 02 09	809	0.8+	0.7−	1995 05 29	589	0.0	1.1+	1997 10 26	589	0.1−	1.5+
1994 02 09	809	0.5+	1.6−	1995 05 30	589	1.0−	0.9+	1997 11 03	589	0.3−	0.0
1994 02 12	809	0.2−	0.6+	1995 06 19	589	0.6−	1.2+	1997 11 03	589	0.5−	0.0
1994 02 12	809	0.0	1.4+	1995 06 19	589	0.1+	0.3+	1997 11 03	589	0.4−	0.3+
1994 02 12	809	0.2−	1.1+	1995 07 20	589	0.7−	0.7−	1997 11 03	589	0.8−	0.0
1995 05 03	589	0.7+	0.1−	1995 07 20	589	0.0	0.1−	1997 11 15	589	0.4−	0.6+
1995 05 03	589	(0.3−	2.0−)	1995 07 20	589	0.7−	0.3−	1997 11 15	589	0.7−	0.7+
1995 05 03	589	0.1+	0.6+	1996 08 19	589	0.4+	0.2−	1997 11 15	589	0.6−	1.1+
1995 05 03	589	0.2+	0.6−	1996 08 19	589	0.7−	0.4+	1997 11 18	589	0.5−	0.6+
1995 05 06	589	1.0+	0.1+	1996 08 19	589	0.4−	0.8+	1997 11 18	589	0.9+	0.1−
1995 05 06	589	0.8+	1.0+	1996 09 06	589	0.1+	0.3−	1997 11 18	589	0.8+	0.4+
1995 05 22	589	0.5−	0.3+	1996 09 06	589	0.6+	0.4−	1997 11 18	589	0.6+	0.8+
1995 05 22	589	0.9−	0.2−	1996 09 06	589	0.1−	0.1−	1997 11 18	589	0.2+	0.3+
1995 05 22	589	1.3+	0.6+	1996 09 12	566	0.3+	0.2+				
1995 05 22	589	0.6−	0.3+	1996 09 12	566	0.2−	1.2−				

(8113)∗ 1996 HD$_1$ = 1989 GK$_5$

Discovered 1996 Apr. 21 by R. H. McNaught and H. Abe at Yatsuka.

Id. S. Nakano (*MPC* 27116)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	119.12442		(2000.0)		**P**	**Q**	
n	0.28668075	ω	210.29093		+0.35815939	+0.92637994	
a	2.2779125	Ω	80.90942		−0.83123389	+0.37313967	
e	0.1948314	i	6.76807		−0.42517299	+0.05086244	
P	3.44	H	14.4	G	0.15	U	1

Residuals in seconds of arc

1989 04 05	675	0.3+	0.1−	1996 04 22	367	0.1+	0.1−	1996 06 06	367	0.4−	0.4−
1989 04 05	675	1.2−	0.5−	1996 04 22	897	0.6+	0.3+	1997 11 01	367	0.2+	0.0
1989 04 06	675	0.6−	1.6−	1996 04 22	897	0.5+	0.1+	1997 11 01	367	0.7+	0.4−
1989 04 06	675	0.4−	1.6−	1996 04 22	900	0.0	0.1+	1997 11 03	367	0.2+	0.2−
1993 07 21	675	1.4−	1.2−	1996 04 22	900	0.0	0.5+	1997 11 03	367	0.6+	0.2+
1993 07 21	675	0.7+	0.5−	1996 04 26	367	0.2+	0.1+	1997 11 24	367	1.3−	0.2−
1993 08 17	675	0.0	0.5+	1996 04 26	367	0.1−	0.9+	1997 11 24	367	1.1−	0.0
1993 08 17	675	0.2+	0.7+	1996 05 12	367	0.1−	0.3+	1997 11 28	566	0.2+	0.1−
1993 10 10	675	0.8+	0.9+	1996 05 12	367	0.3−	0.1−	1997 11 28	566	0.5+	0.1+
1993 10 10	675	0.2+	1.2−	1996 05 16	367	0.2+	0.3+	1997 11 28	566	0.3−	0.5+
1996 04 21	367	0.8+	0.4+	1996 05 16	367	0.4−	0.2+	1997 12 05	367	0.2−	0.7+
1996 04 21	367	1.2+	0.3+	1996 06 05	367	0.8−	0.6+	1997 12 05	367	0.1−	0.7+
1996 04 21	367	0.8+	0.7+	1996 06 05	367	0.3−	0.3+				
1996 04 22	367	0.2+	0.2+	1996 06 06	367	0.6−	0.3−				

(8114)∗ 1996 HZ$_1$ = 1986 VC$_2$

Discovered 1996 Apr. 24 by H. Abe at Yatsuka.

Id. S. Nakano (*MPC* 29114)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

				P	Q
M	88.60186		(2000.0)		
n	0.27076005	ω	210.36374	+0.68172795	+0.72210802
a	2.3663537	Ω	102.89712	−0.64466498	+0.66885393
e	0.1208836	i	6.92352	−0.34591049	+0.17661942
P	3.64	H	15.1	G 0.15	U 1

Residuals in seconds of arc

1986 11 03	010	0.5+	2.2−	1996 05 12	367	0.2+	0.7−	1997 10 30	566	0.1−	0.1+
1986 11 03	010	1.1+	2.1−	1996 05 12	367	0.6+	0.0	1997 10 30	566	0.4+	0.2+
1986 11 03	010	0.8+	1.4−	1996 05 16	367	0.3−	0.2−	1997 11 01	367	0.4−	1.2+
1993 08 17	675	0.6−	0.5+	1996 05 16	367	0.2−	0.0	1997 11 01	367	0.3+	0.9+
1993 08 17	675	0.3+	0.3−	1996 06 05	367	0.6+	1.4+	1997 11 03	367	0.4−	0.3+
1996 04 24	367	0.4+	0.2+	1996 06 05	367	0.4+	1.5+	1997 11 03	367	0.1−	0.0
1996 04 24	367	0.2−	0.8−	1997 10 29	704	0.4−	1.5+	1997 11 24	367	0.8−	0.9+
1996 04 26	367	0.5+	0.1−	1997 10 29	704	0.1+	0.9+	1997 11 24	367	1.5−	0.9−
1996 04 26	367	0.2+	0.1+	1997 10 29	704	0.7+	1.2+	1997 12 05	367	0.8−	1.1+
1996 05 12	691	0.3−	0.2+	1997 10 29	704	0.4+	0.4+	1997 12 05	367	0.5−	0.8+
1996 05 12	691	0.4−	0.4+	1997 10 29	704	0.3−	0.0				
1996 05 12	691	0.4−	0.6+	1997 10 30	566	0.1−	0.3+				

(8115)∗ 1996 HB$_2$ = 1980 VQ$_4$ = 1983 RN$_4$ = 1989 EF$_{12}$

Discovered 1996 Apr. 24 by R. H. McNaught and Y. Ikari at Moriyama.

Id. S. Nakano (*MPC* 27318)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

				P	Q
M	118.61067		(2000.0)		
n	0.28884849	ω	256.96076	+0.12282284	+0.99206555
a	2.2665013	Ω	20.15319	−0.87767755	+0.12120637
e	0.1497520	i	4.46835	−0.46324579	+0.03339091
P	3.41	H	13.9	G 0.15	U 1

Residuals in seconds of arc

1980 11 01	675	0.0	0.4−	1996 04 26	900	0.3+	0.6−	1997 10 22	557	0.1−	0.1+
1980 11 02	675	0.7+	0.2+	1996 04 26	900	0.6+	0.3−	1997 10 22	704	0.4+	0.3−
1983 09 06	688	(3.0−	0.7+)	1996 04 27	900	0.6+	0.7+	1997 10 22	704	0.4+	1.0−
1983 09 06	688	0.8+	0.1−	1996 04 27	900	0.8+	0.3+	1997 10 22	704	0.9+	0.6−
1983 10 01	413	0.3−	0.4−	1996 05 06	900	0.0	0.9−	1997 10 22	704	1.3+	0.7−
1983 10 01	413	0.2−	0.4−	1996 05 06	900	1.4−	0.7−	1997 10 22	704	0.6+	0.6−
1989 03 10	402	(5.5−	0.6−)	1996 05 09	900	0.7+	0.6+	1997 10 22	557	0.0	0.2+
1989 03 10	402	(6.3−	0.2+)	1996 05 09	900	0.1+	0.2−	1997 10 22	557	0.1−	0.2+
1989 03 10	402	(6.5−	0.5+)	1996 05 14	566	0.4−	1.3+	1997 11 03	704	0.4−	1.8+
1989 03 11	402	0.3+	1.3−	1996 05 14	566	0.5−	1.3+	1997 11 03	704	1.9−	1.3+
1989 03 11	402	2.0−	1.3−	1996 05 14	566	0.3−	1.3+	1997 11 03	704	(0.1−	2.6+)
1989 03 11	402	1.0−	0.5−	1997 10 20	557	0.1−	0.1−	1997 11 03	704	0.4−	0.8+
1996 03 20	566	0.9+	0.8+	1997 10 20	557	0.2−	0.1−	1997 11 30	566	0.7−	0.6+
1996 03 20	566	0.4+	0.7+	1997 10 20	557	0.4−	0.0	1997 11 30	566	0.8−	0.8+
1996 03 20	566	0.8+	0.7+	1997 10 21	367	0.1−	0.0	1997 11 30	566	1.1−	0.6+
1996 04 24	900	0.3+	0.2+	1997 10 21	367	0.1+	0.6+				
1996 04 24	900	0.4+	0.1+	1997 10 22	557	0.1−	0.0				

(8116)∗ 1996 HA$_{15}$ = 1987 WU$_3$ = 1990 RS$_{11}$

Discovered 1996 Apr. 17 by E. W. Elst at the European Southern Observatory.

Id. T. B. Spahr (*MPC* 30459)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

				P	Q
M	36.11294		(2000.0)		
n	0.29211668	ω	320.24665	+0.98445652	−0.16036199
a	2.2495646	Ω	49.13298	+0.17534295	+0.87417866
e	0.1585663	i	5.43441	+0.01001031	+0.45836198
P	3.37	H	13.8	G 0.15	U 2

Residuals in seconds of arc

1987 11 24	688	0.8+	0.5+	1996 05 19	809	1.0−	0.5+	1997 10 29	704	0.2+	0.4−
1987 11 24	688	0.9−	0.6−	1996 05 22	809	(1.5+	4.2+)	1997 10 29	704	0.6+	0.6−
1990 09 14	675	0.1+	0.3−	1996 05 22	809	(0.5+	3.4+)	1997 10 29	704	0.0	0.7−
1990 09 14	675	0.3+	0.6−	1996 05 22	809	(0.2+	3.7+)	1997 10 29	704	0.1+	0.5−
1992 03 02	809	0.4+	1.0+	1997 10 09	327	0.6−	0.7+	1997 10 29	704	0.3−	0.6−
1992 04 04	809	0.2−	1.4−	1997 10 09	327	0.6−	0.7+	1997 10 30	704	1.3+	1.0−
1996 04 17	809	1.7+	0.1−	1997 10 09	327	0.7−	0.7+	1997 10 30	704	(2.2+	2.1−)
1996 04 17	809	0.8+	0.6+	1997 10 09	327	0.7−	0.6+	1997 10 30	704	1.7+	1.1−
1996 04 17	809	0.1+	0.1−	1997 10 09	327	0.7−	0.7+	1997 10 30	704	1.7+	0.5−
1996 04 18	809	(3.0+	0.5+)	1997 10 09	327	0.7−	0.8+	1997 10 30	704	1.4+	0.2+
1996 04 18	809	(3.5+	0.2−)	1997 10 09	327	0.8−	0.6+	1997 12 04	691	0.8−	0.2+
1996 04 18	809	(4.0+	0.3−)	1997 10 10	327	0.6−	0.7+	1997 12 04	691	0.6−	0.7+
1996 05 19	809	0.1−	1.0+	1997 10 10	327	0.6−	0.7+	1997 12 04	691	0.5−	0.4+
1996 05 19	809	0.5−	0.9+	1997 10 10	327	0.6−	0.7+				

(8117)∗ 1996 SD$_1$ = 1974 OT$_1$ = 1980 TC$_4$ = 1989 GJ$_6$

Discovered 1996 Sept. 18 by the Beijing Schmidt CCD Asteroid Program at Xinglong.

Id. G. V. Williams (*MPC* 27925)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

				P	Q
M	142.65517		(2000.0)		
n	0.18677366	ω	289.39317	+0.65143566	+0.75573565
a	3.0310444	Ω	21.69493	−0.61011775	+0.57433596
e	0.1155091	i	10.44961	−0.45098549	+0.31464557
P	5.28	H	12.7	G 0.15	U 1

Residuals in seconds of arc

1974 07 26	808	0.4−	0.5−	1996 09 21	327	0.7+	0.4−	1996 10 29	327	0.9+	0.6−
1974 07 26	808	0.8+	0.5−	1996 09 21	327	0.1+	0.3−	1996 10 31	689	0.2+	0.1−
1980 10 09	675	0.5−	0.4−	1996 09 21	327	0.0	0.3−	1996 11 11	689	0.0	0.2+
1980 10 10	675	1.4+	0.8−	1996 09 22	411	0.2+	0.2−	1996 11 12	689	0.0	0.1+
1989 04 08	809	1.8−	1.2−	1996 09 22	411	1.1+	0.3+	1996 11 26	327	0.5+	1.4−
1989 04 08	809	1.5−	1.1−	1996 09 22	327	0.3+	0.2−	1996 11 26	327	0.2−	0.2−
1989 04 08	809	1.6−	1.3−	1996 09 22	327	0.1−	0.4−	1996 11 26	327	0.1−	0.0
1989 04 10	809	(0.1+	3.9−)	1996 09 22	327	0.2+	0.1−	1997 02 17	327	0.3−	0.1+
1989 04 10	809	(0.0	2.9−)	1996 09 24	411	0.4−	0.4−	1997 02 17	327	0.8+	0.2−
1989 04 10	809	(0.4+	3.2−)	1996 09 24	411	0.1+	0.4−	1997 02 17	327	0.7+	0.5+
1994 04 02	691	0.8+	1.0−	1996 09 24	411	0.1+	0.3−	1997 10 11	327	0.0	0.4−
1994 04 02	691	0.1+	1.0−	1996 10 10	358	1.1−	1.4−	1997 10 11	327	0.2−	0.3−
1994 04 02	691	0.2+	1.0−	1996 10 10	358	0.0	0.2+	1997 10 11	327	0.2−	0.1−
1996 09 18	327	0.1−	0.2−	1996 10 11	358	1.2−	1.1+	1997 10 11	327	0.3−	0.2−
1996 09 18	327	0.6+	0.3−	1996 10 11	358	1.6−	1.3+	1997 11 23	327	0.4−	0.1−
1996 09 18	327	0.4+	0.3−	1996 10 12	689	0.0	0.2−	1997 11 23	327	0.1−	0.3−
1996 09 20	327	0.2+	0.1−	1996 10 13	689	0.0	0.1−	1997 11 23	327	0.3−	0.2+
1996 09 20	327	0.4+	0.6−	1996 10 29	327	0.3+	0.2+	1997 11 30	327	0.4+	0.4−
1996 09 20	327	0.2+	0.7−	1996 10 29	327	0.1+	0.4+	1997 11 30	327	0.2−	0.4−
1996 09 20	327	0.0	0.2−	1996 10 29	327	0.5+	0.2+	1997 11 30	327	0.0	0.6+

(8118)∗ 1996 WG$_3$ = 1982 HR$_1$ = 1983 RM$_6$

Discovered 1996 Nov. 26 by the Beijing Schmidt CCD Asteroid Program at Xinglong.

Id. G. V. Williams (*MPC* 28605)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	200.64837		(2000.0)		**P**	**Q**	
n	0.23119221	ω	61.31582		−0.02125030	+0.99393531	
a	2.6291816	Ω	208.09620		−0.97849513	−0.04282332	
e	0.1395726	i	13.24385		−0.20517237	+0.10128550	
P	4.26	H	13.0	G	0.15	U	1

Residuals in seconds of arc

1982 04 28	688	1.0−	0.0	1996 11 15	327	0.1+	0.5+	1996 12 12	327	0.0	0.3−
1982 04 28	688	0.6+	2.1−	1996 11 26	327	1.3−	0.0	1997 10 27	327	0.0	0.0
1983 09 05	095	1.0−	1.1−	1996 11 26	327	0.2−	0.4+	1997 10 27	327	0.1+	0.1−
1983 09 07	095	1.6+	0.9+	1996 11 26	327	0.4+	0.2+	1997 10 27	327	0.0	0.3−
1992 10 21	675	(2.3−	2.3−)	1996 11 26	327	0.3+	0.9−	1997 11 25	327	0.2−	0.1−
1992 10 21	675	0.9−	0.8−	1996 11 29	327	0.1+	0.3−	1997 11 25	327	0.2−	0.6−
1992 11 28	675	0.3−	0.2+	1996 11 29	327	0.5+	0.0	1997 11 25	327	0.0	0.1−
1992 11 28	675	(2.3−	0.3+)	1996 11 29	327	0.4+	0.2−	1997 11 26	327	0.5−	0.5+
1996 11 09	327	0.4−	0.2−	1996 11 30	327	0.2−	0.4−	1997 11 26	327	0.1−	0.6−
1996 11 09	327	0.2+	0.2−	1996 12 02	327	0.1+	0.1−	1997 11 26	327	0.6+	0.2+
1996 11 09	327	0.4−	0.2+	1996 12 02	327	0.2−	0.7−	1997 12 01	327	0.3+	0.1−
1996 11 15	327	0.6+	0.2+	1996 12 02	327	0.1−	0.2−	1997 12 01	327	0.0	0.3+
1996 11 15	327	1.1+	0.6+	1996 12 12	327	0.5−	0.7−	1997 12 01	327	0.5+	0.4+
1996 11 15	327	0.1−	0.5+	1996 12 12	327	0.3−	0.5−				

(8119)∗ 1997 TP$_{25}$ = 1991 PZ$_{26}$ = 1992 WP$_8$ = 1996 NF$_1$

Discovered 1997 Oct. 12 by the Beijing Schmidt CCD Asteroid Program at Xinglong.

Id. G. V. Williams (*MPC* 30884)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	9.78594		(2000.0)		**P**	**Q**	
n	0.19328881	ω	260.35657		+0.70046789	−0.71365817	
a	2.9625446	Ω	145.17633		+0.65888474	+0.64339608	
e	0.1659169	i	0.60824		+0.27425467	+0.27700812	
P	5.10	H	12.7	G	0.15	U	1

Residuals in seconds of arc

1991 08 05	809	0.3+	0.4+	1996 07 14	566	0.6−	0.4−	1997 10 22	327	0.5+	0.1−
1991 08 05	809	0.2−	0.1−	1996 07 22	566	0.6+	0.4−	1997 10 22	327	0.5−	0.1−
1991 08 05	809	0.3−	0.1+	1996 07 22	566	0.2+	0.0	1997 10 22	327	0.0	0.1−
1992 11 25	675	0.2+	1.3−	1996 07 22	566	0.1+	0.8−	1997 10 22	327	0.0	0.2+
1992 11 25	675	0.2+	0.2−	1997 10 12	327	0.3+	0.0	1997 10 22	327	1.8−	1.4+
1992 11 28	675	(0.3+	2.2−)	1997 10 12	327	0.3−	0.1+	1997 10 25	327	0.0	0.1−
1992 11 28	675	0.1+	0.9−	1997 10 12	327	0.0	0.0	1997 10 25	327	0.3−	0.7−
1994 03 04	691	0.2−	0.4−	1997 10 12	327	0.0	0.1−	1997 10 25	327	0.0	0.1−
1994 03 04	691	0.0	0.1−	1997 10 13	327	0.2+	0.0	1997 11 20	327	0.3+	0.3+
1994 03 04	691	0.1−	0.3−	1997 10 13	327	0.3+	0.1−	1997 11 20	327	0.3−	0.3+
1996 07 14	566	0.1−	0.0	1997 10 13	327	0.2+	0.0	1997 11 20	327	0.1−	0.2+
1996 07 14	566	0.1+	0.3−	1997 10 19	327	0.4+	0.0	1997 11 20	327	0.1−	0.5+
1996 07 14	566	0.2+	0.2−	1997 10 19	327	0.0	0.1+	1997 11 28	327	0.1+	0.1−
1996 07 14	566	0.1−	0.3−	1997 10 19	327	0.1−	0.3−	1997 11 28	327	0.3+	0.1+
1996 07 14	566	0.1+	0.3+	1997 10 22	327	0.2+	0.1−	1997 11 28	327	0.3+	0.1+

(8120)∗ 1997 VT = 1982 VO$_{10}$ = 1982 XA$_3$ = 1989 PZ = 1996 KS$_7$

Discovered 1997 Nov. 2 by H. Abe at Yatsuka.

Id. S. Nakano (*MPC* 30887)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	51.07223		(2000.0)		**P**	**Q**	
n	0.26153902	ω	231.19303		+0.97322346	+0.22624350	
a	2.4216519	Ω	115.69719		−0.19444319	+0.90455390	
e	0.1852526	i	2.58366		−0.12258850	+0.36138086	
P	3.77	H	14.7	G	0.15	U	1

Residuals in seconds of arc

1982 11 12	095	0.6−	0.4−	1996 05 19	809	(0.1−	3.1+)	1997 10 29	566	0.6−	0.2+
1982 12 13	381	1.0+	0.8−	1996 05 19	809	(1.4−	4.1+)	1997 10 29	566	0.4−	0.3+
1982 12 14	381	0.2+	0.7−	1996 05 19	809	(0.4+	4.1+)	1997 11 02	367	0.0	0.6+
1982 12 14	381	0.9+	0.2+	1996 05 22	809	1.7+	1.0+	1997 11 02	367	0.0	0.4+
1989 08 01	675	1.0−	1.2−	1996 05 22	809	0.1−	1.5+	1997 11 03	367	0.1+	0.6+
1989 08 01	675	(2.3−	7.1−)	1996 05 22	809	1.0+	1.0+	1997 11 03	367	0.1+	0.8+
1995 02 07	691	0.1−	0.4+	1996 05 23	809	0.3+	0.4−	1997 11 04	900	0.2+	0.6+
1995 02 07	691	0.4−	0.1+	1996 05 23	809	0.4+	0.5−	1997 11 04	900	0.8−	0.4+
1995 02 07	691	0.2−	0.1−	1996 05 23	809	0.2−	0.1−	1997 11 08	367	0.4−	0.6+
1995 02 07	691	0.2−	0.2−	1997 10 29	704	1.5+	0.4−	1997 11 08	367	0.6−	0.7+
1995 02 07	691	0.5−	0.2−	1997 10 29	704	0.7+	0.1−	1997 11 19	367	0.0	0.3+
1995 02 07	691	0.5−	0.1−	1997 10 29	704	0.6−	0.4+	1997 11 19	367	0.1−	0.6+
1996 04 18	809	(0.4+	2.6+)	1997 10 29	704	0.2−	0.0	1997 11 24	367	0.3−	0.5+
1996 04 18	809	0.3+	1.6+	1997 10 29	704	0.1−	0.3−	1997 11 24	367	0.1−	0.5+
1996 04 18	809	0.2+	1.5+	1997 10 29	566	0.4−	0.3+				

(8121)∗ 2572 P-L = 1972 GR$_1$ = 1990 SU$_{29}$

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. H. Oishi (*MPC* 14626), G. V. Williams (unpublished)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	299.72031		(2000.0)		**P**	**Q**	
n	0.29448968	ω	113.69413		−0.54968533	−0.83533469	
a	2.2374637	Ω	9.66290		+0.74833824	−0.49658320	
e	0.1010299	i	2.68869		+0.37126260	−0.23584123	
P	3.35	H	14.8	G	0.15	U	2

Residuals in seconds of arc

1960 09 24	675	0.9−	0.5+	1990 09 21	809	(2.7+	1.1−)	1997 10 22	704	1.9+	1.4−
1960 09 26	675	0.1−	0.6+	1992 04 03	033	1.0−	0.8+	1997 10 22	557	0.4+	0.0
1960 09 28	675	0.1+	0.2+	1992 04 03	033	0.5−	1.0+	1997 11 25	734	0.4−	0.3−
1960 09 29	675	0.7−	0.4+	1993 08 13	675	0.7+	0.5+	1997 11 25	734	0.6−	0.6−
1960 10 17	675	0.5−	0.3+	1993 08 13	675	0.2−	0.6+	1997 11 25	734	1.7+	0.3−
1960 10 22	675	1.1+	0.5+	1995 01 02	010	1.2+	1.0+	1997 11 26	734	0.1−	0.3+
1960 10 25	675	0.1+	0.2−	1995 01 02	010	0.5−	0.7−	1997 11 26	734	(2.4−	0.7−)
1960 10 26	675	0.8−	0.3−	1995 01 03	010	0.1−	1.2+	1997 11 30	566	0.7−	0.6+
1972 04 09	805	0.9−	0.3−	1995 01 04	010	1.4+	0.9+	1997 11 30	566	0.6−	0.4+
1972 04 09	805	1.2+	1.1−	1997 10 22	557	0.5+	0.0	1997 11 30	566	0.8−	0.4+
1972 04 10	805	(3.9−	0.3+)	1997 10 22	557	0.4+	0.1−	1997 12 04	734	1.6−	0.8−
1972 04 10	805	0.5−	1.0−	1997 10 22	704	1.5+	1.2−	1997 12 04	734	1.6−	0.6−
1990 09 21	809	(2.9−	2.6+)	1997 10 22	704	1.6+	1.4−	1997 12 04	734	1.7−	0.7−
1990 09 21	809	0.0	0.8+	1997 10 22	704	(3.0+	2.1−)				

(8122)∗ 4038 P-L = 1975 XH$_1$ = 1991 BL$_2$ = 1993 RS$_4$

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* 22966, *MPC* 27564)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	314.16585		(2000.0)		**P**	**Q**	
n	0.26870239	ω	179.17306		−0.52786087	−0.84903192	
a	2.3784190	Ω	302.68768		+0.77909205	−0.47347297	
e	0.1632074	i	1.53413		+0.33819888	−0.23445286	
P	3.67	H	14.1	G	0.15	U	1

Residuals in seconds of arc

1960 09 24	675	1.0−	0.1−	1993 09 16	809	0.5−	0.2+	1997 10 26	411	1.0+	0.3−
1960 09 25	675	1.0+	0.8+	1993 09 16	809	0.9−	0.5+	1997 10 26	411	0.4+	0.3+
1960 09 26	675	0.4+	1.1+	1993 09 17	809	(2.4+	1.7+)	1997 11 03	327	1.2+	0.6+
1960 09 28	675	0.4+	1.1+	1993 09 17	809	1.0+	1.1+	1997 11 03	327	1.1+	0.5+
1960 10 17	675	0.5−	0.1+	1993 09 17	809	0.9−	1.5+	1997 11 03	327	1.2+	0.0
1960 10 22	675	0.3−	0.4−	1993 09 18	809	(0.3+	2.4+)	1997 11 03	327	0.4+	0.1+
1960 10 24	675	1.0−	0.6−	1993 09 18	809	0.3−	1.9+	1997 11 03	327	0.4+	0.0
1960 10 26	675	0.4+	0.3−	1993 09 18	809	(0.3−	2.4+)	1997 11 03	327	0.4+	0.2+
1975 12 01	095	0.4+	1.5−	1993 09 18	675	0.1+	0.2−	1997 11 07	327	0.2−	0.2+
1988 05 14	675	0.1+	1.0+	1993 09 18	675	1.4−	1.8−	1997 11 07	327	0.2−	0.3+
1988 05 14	675	0.9+	0.0	1993 09 22	675	0.5+	0.2+	1997 11 07	327	0.1−	0.4+
1991 01 17	046	(7.5+	39.0+)	1993 09 22	675	0.2+	0.5+	1997 11 10	758	0.8−	0.3−

1991 01 17	046	(9.7+	43.7+)	1993 09 23	809	0.8+	1.2+	1997 11 10	758	0.0	0.1−
1991 01 18	046	1.6+	0.8+	1993 09 23	809	0.8−	0.2+	1997 11 12	758	1.2−	0.4+
1991 01 18	046	(0.9+	2.1+)	1993 09 23	809	1.0−	0.1−	1997 11 12	758	1.6−	1.5+
1991 02 07	675	0.9−	1.1+	1996 07 14	566	0.7+	0.7−	1997 11 26	566	1.6+	1.8−
1991 02 07	675	1.0−	1.9+	1996 07 14	566	0.3+	0.7−	1997 11 26	566	0.5−	1.7−
1993 09 15	809	0.5+	0.5+	1996 07 14	566	0.1+	1.0−	1997 11 26	566	1.4+	1.7−
1993 09 15	809	(2.1−	0.5+)	1996 07 23	566	0.1+	0.7−	1997 11 26	566	0.2−	1.7−
1993 09 15	809	(2.2−	0.4+)	1996 07 23	566	0.1+	0.6−	1997 11 26	566	(1.8+	2.4−)
1993 09 16	809	1.9−	0.1+	1996 07 23	566	0.7−	0.1−	1997 11 26	566	0.6−	1.5−

(8123)∗ 3138 T-1 = 1990 SB$_{18}$ = 1990 VV$_6$ = 1990 VH$_{10}$ = 1990 WX$_{15}$ = 1992 HL$_5$

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* 21951)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	329.33565		(2000.0)		**P**	**Q**	
n	0.28485384	ω	285.54087		−0.22675367	−0.97394815	
a	2.2876417	Ω	177.55997		+0.91680036	−0.21441285	
e	0.1295252	*i*	3.75425		+0.32872461	−0.07383852	
P	3.46	*H*	15.0	*G*	0.15	*U*	2

Residuals in seconds of arc

1971 03 24	675	1.2+	0.2+	1990 09 27	413	0.4−	0.1+	1995 02 28	596	0.2+	0.1+
1971 03 25	675	1.0−	0.9−	1990 11 11	809	0.0	2.1−	1995 02 28	596	0.3+	0.1−
1971 03 26	675	2.2−	0.6+	1990 11 11	809	1.0+	1.9−	1997 10 31	426	0.2−	0.2+
1971 03 26	675	1.0−	1.4−	1990 11 11	809	0.7+	1.1−	1997 10 31	426	0.1+	0.4+
1971 03 26	675	0.2−	0.6+	1990 11 14	809	(0.1+	2.6−)	1997 10 31	426	0.7−	0.2+
1971 03 26	675	0.8−	1.1−	1990 11 14	809	1.3+	2.4−	1997 11 01	426	0.2−	0.3+
1971 03 27	675	1.7+	1.1−	1990 11 14	809	(0.1−	3.2−)	1997 11 01	426	0.5−	0.1+
1971 04 02	675	1.1+	0.3−	1990 11 20	809	0.9+	0.4−	1997 11 01	426	0.7−	0.2+
1971 04 02	675	0.4+	0.6−	1990 11 20	809	(3.0+	0.0)	1997 12 04	704	0.1−	1.5+
1971 04 16	675	(3.2+	3.4−)	1990 11 20	809	(5.1+	0.2−)	1997 12 04	704	0.9+	1.7+
1971 04 16	675	(4.2+	2.6−)	1992 04 30	691	0.4−	0.6+	1997 12 04	704	0.2−	1.0+
1971 05 13	675	0.5−	0.8+	1992 04 30	691	0.7−	0.0	1997 12 04	704	1.2−	1.3+
1971 05 14	675	1.0−	0.4+	1992 04 30	691	1.7+	1.2+	1997 12 04	704	0.5−	0.5+
1971 05 16	675	0.4+	0.1−	1995 02 28	596	0.0	0.1+				

(8124)∗ 4370 T-1 = 1996 GS$_8$

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* 27322)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	30.61059		(2000.0)		**P**	**Q**	
n	0.31600597	ω	258.67138		+0.99789683	−0.04477718	
a	2.1347115	Ω	103.88226		+0.05945760	+0.92029313	
e	0.0694220	*i*	2.76740		−0.02582064	+0.38865867	
P	3.12	*H*	16.3	*G*	0.15	*U*	2

Residuals in seconds of arc

1971 03 24	675	0.0	0.3+	1991 11 29	691	0.0	0.1+	1996 04 18	691	0.1−	0.5−
1971 03 26	675	0.1+	1.0−	1991 11 29	691	0.1−	0.2+	1996 04 18	691	0.1−	0.6−
1971 03 26	675	1.6−	0.8−	1996 04 13	691	0.1−	0.7−	1996 04 18	691	0.2−	0.3−
1971 03 27	675	0.0	0.1+	1996 04 13	691	0.3−	1.0−	1997 10 08	385	0.7+	0.9−
1971 04 02	675	1.4−	0.7−	1996 04 13	691	0.1+	0.6−	1997 10 08	385	0.4−	0.4−
1971 04 16	675	0.5+	0.7−	1996 04 14	691	0.3−	0.2−	1997 10 10	385	0.3−	1.0−
1971 04 16	675	1.3+	0.6+	1996 04 14	691	0.4−	0.1−	1997 10 10	385	0.4+	0.2+
1971 05 13	675	0.2−	0.0	1996 04 14	691	0.3−	0.2−	1997 10 30	704	(2.7−	0.6−)
1971 05 14	675	1.1+	0.6+	1996 04 15	691	0.1−	0.1+	1997 10 30	704	1.2+	0.2+
1971 05 16	675	0.5+	1.8+	1996 04 15	691	0.1−	0.0	1997 10 30	704	0.6+	1.6−
1991 11 29	691	0.4−	0.4+	1996 04 15	691	0.0	0.2−	1997 10 30	704	0.1+	1.2−

(8125)∗ 5493 T-2 = 1989 CT$_6$ = 1989 ED$_{12}$ = 1990 EE$_1$

Discovered 1973 Sept. 30 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 16884; d, *MPC* 21953)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	30.22358		(2000.0)		**P**	**Q**	
n	0.08492384	ω	56.52110		+0.92858326	−0.34508504	
a	5.1260516	Ω	323.13640		+0.21703739	+0.80343092	
e	0.0487481	*i*	13.15807		+0.30104467	+0.48519591	
P	11.61	*H*	11.0	*G*	0.15	*U*	1

Residuals in seconds of arc

1955 03 24	675	0.6−	0.9−	1989 03 10	033	0.3+	0.2−	1997 10 05	557	0.3−	0.6+
1955 03 24	675	0.1−	0.4+	1990 03 02	809	1.0+	0.5−	1997 10 05	557	0.5−	0.9+
1973 09 30	675	1.6+	0.3−	1990 03 02	809	0.5+	0.2−	1997 10 20	557	0.4−	0.1+
1973 09 30	675	1.1+	0.3−	1990 03 02	809	0.1−	1.6−	1997 10 20	557	0.4−	0.0
1973 10 04	675	0.6−	0.4+	1990 03 04	809	1.7−	0.8+	1997 11 27	426	1.1+	0.5+
1973 10 04	675	0.7−	1.1−	1990 03 04	809	1.5−	1.3+	1997 11 27	426	0.8+	0.3+
1973 10 05	675	0.0	0.3−	1990 03 04	809	1.9−	1.2+	1997 12 02	426	0.4+	0.4−
1973 10 05	675	0.3+	0.8−	1991 04 17	675	0.9+	1.2−	1997 12 02	426	0.7−	0.1+
1989 02 10	033	0.0	0.3−	1991 04 17	675	0.5+	0.5−	1997 12 02	426	0.1+	0.5−
1989 02 10	033	0.6+	0.3+	1996 10 15	801	0.3−	0.7−				
1989 03 10	033	0.8+	0.7−	1996 10 15	801	0.1−	0.3−				

1951 SX = 1997 XJ$_9$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	346.64692		(2000.0)		**P**	**Q**	
n	0.38394130	ω	212.09760		+0.71651730	−0.67935570	
a	1.8748196	Ω	194.53877		+0.69460843	+0.67395227	
e	0.2533219	*i*	39.11210		−0.06420350	−0.29028292	
P	2.57	*H*	17.0	*G*	0.15	*U*	3

Residuals in seconds of arc

1951 09 29	675	0.6−	1.0+	1951 10 27	672	0.4−	0.0	1997 12 05	910	0.5+	0.2−
1951 10 02	675	0.3+	0.2−	1951 10 27	672	0.3+	0.3+	1997 12 05	910	0.6+	0.5+
1951 10 04	675	0.4−	0.1−	1997 12 03	910	1.1−	0.1−	1997 12 07	910	0.3−	0.1−
1951 10 05	675	0.6+	0.2−	1997 12 03	910	0.1−	0.3+	1997 12 07	910	0.1−	0.0
1951 10 07	675	0.1−	0.8−	1997 12 03	910	0.5+	0.1−	1997 12 07	910	0.2−	0.0
1951 10 27	672	0.3+	0.1+	1997 12 05	910	0.6+	0.1+				

1978 SQ$_7$ = 1996 HL$_{23}$

Id. T. Kobayashi (*MPC* 27552)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	39.05589		(2000.0)		**P**	**Q**	
n	0.26083838	ω	158.61415		+0.99957799	+0.01157360	
a	2.4259865	Ω	200.77618		−0.01977386	+0.94299469	
e	0.1916260	*i*	4.30772		+0.02128017	+0.33260647	
P	3.78	*H*	14.5	*G*	0.15	*U*	2

Residuals in seconds of arc

1978 09 26	095	(4.3−	0.9+)	1996 05 14	566	0.6+	0.7−	1997 11 03	704	1.3−	0.7+
1978 10 02	095	0.7+	0.9+	1996 05 14	566	0.6+	0.5−	1997 11 03	704	0.6−	0.0
1978 10 08	095	1.3−	1.0+	1996 05 22	809	(4.4+	0.5−)	1997 11 03	704	0.4−	1.1+
1993 09 20	675	0.5+	0.0	1996 05 22	809	(4.5+	0.9−)	1997 11 06	704	0.3+	0.6−
1993 09 20	675	0.2−	0.7−	1996 05 22	809	(4.3+	0.5+)	1997 11 06	704	0.1−	0.5−
1996 04 20	809	0.2+	0.4+	1997 10 29	704	0.9+	1.3−	1997 11 06	704	0.2−	0.5−
1996 04 20	809	0.2−	0.2+	1997 10 29	704	0.7+	1.1−	1997 11 06	704	0.3+	0.3−
1996 04 20	809	0.1−	0.2+	1997 10 29	704	0.6+	1.0−	1997 11 06	704	0.5+	0.4+
1996 04 21	809	1.1−	0.4−	1997 10 29	704	0.1−	0.6−	1997 11 26	566	0.1−	0.7−
1996 04 21	809	(2.5−	0.1+)	1997 10 29	704	0.1+	0.8−	1997 11 26	566	0.9+	0.0
1996 04 21	809	1.7−	1.3−	1997 11 03	704	1.0−	1.2+	1997 11 26	566	0.6+	0.0
1996 05 14	566	1.0+	0.1−	1997 11 03	704	0.1−	0.8+				

1979 ML_2

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

M	178.21174		(2000.0)	**P**		**Q**	
n	0.18486413	ω	146.90191	+0.14184211		+0.97535116	
a	3.0518812	Ω	130.65028	−0.94971356		+0.18224010	
e	0.2004475	i	12.87285	−0.27915044		−0.12441330	
P	5.33	H	13.5	G 0.15		U 4	

Residuals in seconds of arc

1979 06 23	413	0.4−	0.5−	1979 07 24	413	0.5−	0.7−	1995 07 21	033	0.5−	0.7+
1979 06 24	413	0.0	0.1+	1979 07 25	675	0.4+	0.4+	1995 07 23	033	0.5−	0.4+
1979 06 25	413	0.2+	0.8+	1979 07 26	675	0.5+	2.0−	1995 07 23	033	1.0+	0.5−
1979 06 29	413	0.2−	0.0	1979 07 27	675	0.1+	0.3+				
1979 07 24	675	0.2+	0.7+	1979 08 23	675	0.6−	0.4+				

1981 DY = 1954 NC_1

Id. E. Bowell, B. A. Skiff (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	163.86378		(2000.0)	**P**		**Q**	
n	0.21259428	ω	326.11005	−0.31285447		+0.94398085	
a	2.7803641	Ω	285.46559	−0.84548076		−0.32714990	
e	0.1427132	i	6.25370	−0.43276363		−0.04327924	
P	4.64	H	14.0	G 0.15		U 3	

Residuals in seconds of arc

1954 07 03	675	0.7+	1.0+	1981 03 08	413	1.1−	0.5−	1981 05 03	413	(3.7−	0.8+)
1954 07 03	675	1.0−	0.1+	1981 03 08	413	0.3+	1.2−	1997 10 30	688	0.3+	0.4+
1981 02 09	413	0.0	0.3+	1981 03 12	413	0.3−	0.1−	1997 10 30	688	0.5+	0.1+
1981 02 12	413	1.3+	1.3+	1981 03 12	413	0.7+	0.5−	1997 10 31	688	1.0+	0.3−
1981 02 14	413	0.4+	0.0	1981 04 07	413	0.7−	0.0	1997 10 31	688	0.8+	0.5+
1981 02 28	413	1.8−	0.3+	1981 04 07	413	1.0+	0.2−	1997 11 29	691	0.9−	0.4−
1981 02 28	413	0.5−	0.7+	1981 04 08	413	0.6+	0.2−	1997 11 29	691	0.9−	0.5+
1981 03 01	413	0.7+	0.8+	1981 04 09	413	1.3−	0.4+	1997 11 29	691	0.9−	0.1−
1981 03 06	413	0.8−	1.6+	1981 04 09	413	0.6+	0.5−				
1981 03 06	413	0.7+	0.1+	1981 05 01	413	0.6+	1.2−				

1981 EG_{40} = 1978 RO_9 = 1997 XU_4

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	53.74824		(2000.0)	**P**		**Q**	
n	0.17070948	ω	276.95147	+0.43512299		−0.90020175	
a	3.2183329	Ω	147.23761	+0.83829004		+0.39796955	
e	0.2003781	i	1.84875	+0.32853888		+0.17679662	
P	5.77	H	15.0	G 0.15		U 5	

Residuals in seconds of arc

1978 09 02	809	0.3+	0.7−	1981 02 13	413	1.0−	1.3−	1997 12 06	910	0.2−	0.6−
1978 09 02	809	0.5+	0.7−	1981 03 02	413	2.3−	0.0	1997 12 06	910	0.5−	0.3+
1978 09 02	809	1.1−	1.1−	1981 03 03	413	2.3+	0.2−	1997 12 06	910	0.2−	0.1−
1978 09 02	809	1.0+	0.3−	1981 03 07	413	0.4+	0.2+	1997 12 07	910	0.0	0.6−
1978 09 02	809	0.7+	0.7−	1981 03 11	413	1.6−	1.2+	1997 12 07	910	0.3+	0.4−
1981 02 09	413	1.1−	1.7−	1981 04 26	413	2.4+	1.0−	1997 12 07	910	0.1−	0.3−

1981 EO_{41}

Id. F. B. Zoltowski (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	47.23556		(2000.0)	**P**		**Q**	
n	0.21447271	ω	356.64662	+0.99860648		−0.04942922	
a	2.7641060	Ω	6.27680	+0.05149575		+0.83602311	
e	0.1387022	i	9.73601	+0.01154460		+0.54646327	
P	4.60	H	14.0	G 0.15		U 4	

Residuals in seconds of arc

1981 02 12	413	0.4−	0.4+	1981 04 26	413	2.0+	0.6−	1997 12 02	426	0.3+	0.2−
1981 02 13	413	0.3−	0.8+	1981 05 01	413	1.0+	0.4−	1997 12 02	426	0.0	0.3+
1981 03 02	413	(2.8+	0.6−)	1997 11 27	426	0.3+	0.4+	1997 12 02	426	0.2+	1.0−
1981 03 06	413	0.5−	0.4−	1997 11 27	426	0.1−	0.5+	1997 12 02	426	0.5−	0.5−
1981 03 11	413	0.0	0.5−	1997 11 27	426	0.0	0.3+				
1981 03 15	413	1.6−	0.8+	1997 11 27	426	0.2−	0.3+				

1982 JB_2 = 1997 WS_7

Id. T. Kobayashi, S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	350.49155		(2000.0)	**P**		**Q**	
n	0.28852965	ω	335.05539	+0.14750450		−0.98803451	
a	2.2681707	Ω	106.43640	+0.91514497		+0.11905883	
e	0.0827508	i	2.69262	+0.37516945		+0.09804490	
P	3.42	H	14.5	G 0.15		U 5	

Residuals in seconds of arc

1982 05 15	675	0.1+	0.0	1997 11 06	411	0.4−	1.0+	1997 11 26	367	0.8+	0.1+
1982 05 16	675	0.7−	0.2+	1997 11 07	411	0.5+	0.8−	1997 11 26	367	1.4+	0.2+
1982 05 17	675	0.6+	0.8−	1997 11 07	411	0.3+	0.6−	1997 11 28	566	0.0	0.1+
1982 05 18	675	0.0	0.7+	1997 11 24	367	1.1−	0.4−	1997 11 28	566	0.4+	0.0
1997 11 06	411	0.5−	0.5+	1997 11 24	367	1.1−	0.5−	1997 11 28	566	0.3−	0.4+

1982 VN = 1993 QW_{10} = 1995 FK_{21} = 1997 TE_{27}

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	340.11028		(2000.0)	**P**		**Q**	
n	0.25977423	ω	21.15522	+0.27333087		−0.96101398	
a	2.4326073	Ω	53.00567	+0.87487216		+0.23032339	
e	0.1990994	i	2.99578	+0.39986114		+0.15298127	
P	3.79	H	14.0	G 0.15		U 2	

Residuals in seconds of arc

1982 10 21	095	1.8+	1.0−	1982 11 16	046	(3.4−	1.0+)	1995 03 23	033	0.3+	0.7−
1982 10 23	095	0.1+	0.4−	1982 11 16	046	1.1−	0.0	1995 03 24	033	0.5−	0.2+
1982 11 11	046	0.8+	0.7+	1982 11 20	046	(3.7+	1.6+)	1997 10 08	894	(1.7+	3.2+)
1982 11 11	046	(3.0+	0.3+)	1982 11 20	046	(4.3+	1.7+)	1997 10 08	894	1.0−	0.1−
1982 11 12	095	0.1−	0.4−	1993 08 24	809	0.1+	0.2−	1997 10 12	894	0.0	0.3+
1982 11 15	046	0.7−	1.0+	1993 08 24	809	0.0	0.3−	1997 10 12	894	0.7+	0.7+
1982 11 15	046	0.3−	0.8−	1993 08 24	809	0.3+	0.2−				

1984 HR = 1980 DL_3 = 1997 XA_1

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	237.38275		(2000.0)	**P**		**Q**	
n	0.26750276	ω	217.54304	−0.58760226		+0.80905783	
a	2.3855244	Ω	16.48125	−0.73156101		−0.52475049	
e	0.1582311	i	2.46612	−0.34574857		−0.26469295	
P	3.68	H	14.0	G 0.15		U 5	

Residuals in seconds of arc

1980 02 20	095	0.4−	1.0−	1984 05 02	095	0.2+	0.5+	1984 05 07	809	0.1+	0.1−
1984 04 25	046	0.9+	1.2−	1984 05 05	809	2.9−	1.3−	1984 05 07	809	0.1+	0.6−
1984 04 25	046	1.0+	0.5+	1984 05 05	809	0.5−	0.8−	1997 12 03	411	0.1+	1.0+
1984 04 28	809	0.8+	1.5+	1984 05 05	095	1.6−	0.6−	1997 12 03	411	0.9+	0.6−
1984 04 28	809	0.3+	2.0+	1984 05 06	809	0.3+	0.8−	1997 12 04	411	0.4−	0.3+
1984 04 30	809	0.5+	1.2+	1984 05 06	809	0.2+	0.3−	1997 12 04	411	0.5−	0.1+
1984 04 30	809	0.3+	1.1+	1984 05 07	809	0.3+	0.4−				

1985 TS_1 = 1990 SR_{10}

Id. H. E. Holt (*MPC* 17631)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	240.55913		(2000.0)	**P**		**Q**	
n	0.19251997	ω	349.52411	−0.02074753		+0.98961191	
a	2.9704268	Ω	279.17969	−0.90654717		−0.07862295	
e	0.0089181	i	8.28547	−0.42159431		+0.12036075	
P	5.12	H	12.0	G 0.15		U 2	

Residuals in seconds of arc

1985 09 19	095	2.2−	0.5+	1990 09 18	675	0.6−	0.5−	1993 04 14	675	0.4+	0.7+
1985 10 15	688	1.0+	0.0	1990 09 18	675	0.6+	0.2+	1993 04 14	675	0.3+	0.3+
1985 10 15	688	0.3+	0.2+	1990 09 20	675	0.4−	0.6−	1997 11 29	688	0.6−	0.6−
1985 10 18	095	0.3−	1.7+	1990 09 20	675	1.0−	0.3+	1997 11 29	688	0.2−	0.7−
1990 09 17	675	0.8−	1.0−	1990 10 12	413	0.2+	0.3+				
1990 09 17	675	1.6+	1.3−	1990 10 12	413	1.5+	0.7+				

1986 TB

Id. E. Colombini (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

M	52.85947			(2000.0)		**P**		**Q**			
n	0.27502258		ω	353.71719		+0.99604649		+0.08866571			
a	2.3418396		Ω	1.23607		−0.06643425		+0.78426544			
e	0.2216731		i	14.65172		−0.05897348		+0.61405709			
P	3.58		H	14.0	G	0.15	U	3			

Residuals in seconds of arc

1986 09 03	026	0.1+	0.4−	1986 10 01	026	0.6−	0.3+	1986 10 11	026	2.4+	0.7−
1986 09 08	026	1.8−	1.4−	1986 10 02	552	0.8+	1.0+	1986 10 11	552	0.6+	0.9−
1986 09 10	095	1.5+	1.4+	1986 10 02	552	0.4+	1.2+	1986 10 11	552	0.5+	0.2−
1986 09 14	095	(3.1−	3.9+)	1986 10 03	552	0.1−	0.0	1986 10 23	026	1.3+	1.2+
1986 09 29	046	2.3−	1.2+	1986 10 03	552	1.0+	0.6−	1986 10 24	552	0.7+	0.0
1986 09 29	046	2.0−	1.5−	1986 10 04	026	0.8+	0.5+	1986 10 24	552	0.8−	0.3+
1986 09 29	026	0.4+	0.1+	1986 10 04	552	0.7+	0.4+	1986 10 30	552	0.2+	0.6+
1986 09 30	046	1.6−	1.1−	1986 10 04	552	(0.9+	3.4−)	1986 10 30	552	0.8−	0.1+
1986 09 30	046	0.9−	0.2−	1986 10 05	095	(9.5+	12.9−)	1986 11 03	026	0.1+	0.5+
1986 09 30	552	0.6+	0.7+	1986 10 06	026	(2.8+	0.6−)	1986 11 07	026	0.2+	2.0−
1986 10 01	552	1.5+	1.0+	1986 10 08	026	0.6+	1.0−	1997 11 20	552	0.3+	0.7+
1986 10 01	046	0.4−	1.1−	1986 10 10	095	1.6−	0.3−	1997 11 21	552	0.2−	0.4+
1986 10 01	552	0.3+	1.0+	1986 10 10	552	0.7−	0.1+	1997 12 06	552	0.2+	0.4−
1986 10 01	046	0.2+	1.0−	1986 10 10	552	0.9−	0.1+	1997 12 06	552	0.4−	0.3−

1986 VM_6 = 1997 XM_9

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

M	47.92547			(2000.0)		**P**		**Q**			
n	0.27262450		ω	324.47267		+0.99014471		−0.13117410			
a	2.3555526		Ω	43.14766		+0.13924919		+0.88475280			
e	0.2231638		i	4.11374		+0.01493724		+0.44722012			
P	3.62		H	14.5	G	0.15	U	5			

Residuals in seconds of arc

1986 10 04	095	0.7−	0.7−	1997 12 02	610	0.1+	0.8−	1997 12 06	610	0.2+	0.3+
1986 10 07	095	1.3+	2.4+	1997 12 02	610	0.2−	0.5−	1997 12 07	610	0.0	0.1+
1986 10 12	095	0.3−	2.1−	1997 12 02	610	0.5−	0.0	1997 12 07	610	0.3+	0.1+
1986 11 06	688	0.7−	0.5+	1997 12 06	610	0.3−	0.3+	1997 12 07	610	0.6+	0.1−
1986 11 06	688	0.4+	0.1+	1997 12 06	610	0.0	0.4+				

1987 BU_1 = 1993 TB_8 = 1997 VG_3

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	346.56404			(2000.0)		**P**		**Q**			
n	0.26158872		ω	211.93978		−0.05760522		−0.99696376			
a	2.4213452		Ω	241.41009		+0.92805663		−0.03413393			
e	0.1734022		i	3.42071		+0.36795724		−0.06998665			
P	3.77		H	14.2	G	0.15	U	4			

Residuals in seconds of arc

1987 01 25	809	(0.5−	3.7−)	1987 01 31	809	1.3+	0.1−	1993 10 10	691	0.0	0.2+
1987 01 25	809	(0.4−	3.5−)	1987 02 02	809	1.2+	1.0+	1993 10 10	691	0.2−	0.3+
1987 01 25	809	1.5−	0.2+	1987 02 02	809	1.9+	0.1+	1997 11 06	411	0.0	0.3−
1987 01 26	809	0.6−	0.3+	1987 02 05	809	1.0−	0.9−	1997 11 06	411	0.1−	0.0
1987 01 26	809	1.5−	0.1+	1987 02 05	809	0.5+	1.4−	1997 11 07	411	0.0	0.2−
1987 01 28	809	0.3+	0.3+	1987 02 06	809	0.9−	0.4−	1997 11 07	411	0.9−	0.1−
1987 01 28	809	(3.5+	0.2−)	1987 02 06	809	0.5+	0.3−	1997 11 19	411	0.6+	0.2−
1987 01 31	809	0.1+	1.5+	1993 10 10	691	0.1−	0.2+	1997 11 19	411	0.3+	0.0

1987 DF_6 = 1980 RR_7

Id. E. Bowell (*MPC* 18286)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	123.14676			(2000.0)		**P**		**Q**			
n	0.22608710		ω	248.93521		−0.76349315		+0.63676660			
a	2.6686125		Ω	330.30003		−0.48180483		−0.67269946			
e	0.1197297		i	12.55884		−0.43004921		−0.37683384			
P	4.36		H	13.5	G	0.15	U	3			

Residuals in seconds of arc

1980 09 13	675	0.3+	0.0	1987 02 27	809	0.1+	0.7+	1987 03 05	809	0.7−	0.1+
1980 09 14	675	0.2−	0.2−	1987 02 28	809	0.1+	0.4−	1987 03 05	809	0.5−	0.1+
1987 02 23	809	0.3+	0.5−	1987 02 28	809	0.5+	0.4−	1987 03 05	809	0.7−	0.5+
1987 02 23	809	0.2+	0.1−	1987 02 28	809	0.6+	0.4−	1987 03 06	809	0.6−	0.1−
1987 02 23	809	0.1+	0.1+	1987 03 02	809	0.1+	0.2+	1987 03 06	809	0.5−	0.1−
1987 02 24	809	0.6+	0.9−	1987 03 02	809	0.2+	0.2+	1987 03 06	809	0.6−	0.2−
1987 02 24	809	0.3+	0.8−	1987 03 02	809	0.3+	0.3+	1987 03 07	809	0.5−	0.0
1987 02 24	809	0.4+	0.5−	1987 03 03	809	0.7−	0.1+	1987 03 07	809	0.5−	0.0
1987 02 25	809	0.5+	0.2−	1987 03 03	809	0.2−	0.2+	1987 03 07	809	0.5−	0.1−
1987 02 25	809	0.7+	0.3+	1987 03 03	809	0.1−	0.3+	1997 10 25	688	0.1+	0.6+
1987 02 25	809	1.0+	0.6+	1987 03 04	809	0.1+	0.1−	1997 10 25	688	0.4−	0.1−
1987 02 27	809	0.3−	0.4+	1987 03 04	809	0.3+	0.0	1997 10 26	688	0.2−	0.0
1987 02 27	809	0.2−	0.7+	1987 03 04	809	0.2+	0.0	1997 10 26	688	0.3+	0.1−

1988 CQ_7 = 1992 HK_4 = 1993 SU_8

Id. T. Kobayashi (*MPC* 23972), G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	217.71411			(2000.0)		**P**		**Q**			
n	0.28139660		ω	169.61778		−0.79612136		+0.60479783			
a	2.3063408		Ω	47.61617		−0.55714978		−0.71951372			
e	0.1402366		i	1.57154		−0.23616710		−0.34134966			
P	3.50		H	14.5	G	0.15	U	2			

Residuals in seconds of arc

1988 02 15	809	2.3+	0.1−	1992 04 25	809	0.1−	0.1−	1996 08 12	566	0.6−	0.6+
1988 02 16	809	1.1+	1.5−	1992 04 25	809	0.2−	0.4−	1996 08 12	566	0.9−	1.0+
1988 02 16	809	1.1+	1.6−	1992 05 04	809	1.2+	0.2+	1996 08 12	566	0.6−	0.6+
1988 02 16	809	0.6+	0.0	1992 05 04	809	1.0+	0.2−	1997 11 02	327	0.2+	0.2−
1988 02 17	809	0.1−	1.0+	1992 05 04	809	0.8+	0.7−	1997 11 02	327	0.4+	0.1+
1988 02 17	809	1.2+	1.0+	1992 05 07	691	1.2−	0.5+	1997 11 02	327	0.1+	0.2−
1988 02 17	809	0.1+	0.8+	1992 05 07	691	1.0−	1.5+	1997 11 06	327	0.3+	0.2−
1988 02 21	809	1.7−	1.3+	1992 05 07	691	0.9+	0.9+	1997 11 06	327	0.1+	0.1−
1988 02 21	809	0.9−	0.5+	1993 09 17	809	0.9−	0.5+	1997 11 06	327	0.6+	0.1+
1988 02 21	809	1.7−	1.1+	1993 09 17	809	1.2−	1.9+	1997 11 28	327	0.5−	0.5−
1988 02 23	809	0.6−	1.1+	1993 09 17	809	0.9+	1.4+	1997 11 28	327	0.4+	0.4−
1988 02 23	809	0.9−	1.3+	1993 09 18	809	0.8+	1.2+	1997 11 28	327	0.9−	0.6−
1988 02 23	809	0.7−	1.6+	1993 09 18	809	0.1−	0.3+				
1992 04 25	809	0.4+	0.0	1993 09 18	809	0.5−	0.5+				

1988 RV_4 = 1997 UY_{24}

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	65.35384			(2000.0)		**P**		**Q**			
n	0.22736379		ω	22.04423		+0.82361280		+0.56664821			
a	2.6586134		Ω	303.41686		−0.52453566		+0.74501342			
e	0.1793876		i	1.64161		−0.21569492		+0.35194434			
P	4.33		H	14.0	G	0.15	U	4			

Residuals in seconds of arc

1988 09 01	809	1.7−	0.0	1988 09 11	809	0.1−	0.5+	1988 10 09	675	0.7+	1.1−
1988 09 01	809	1.6−	0.3−	1988 09 11	809	0.2−	0.6+	1988 11 03	807	0.9+	0.7−
1988 09 01	809	1.7−	0.2−	1988 09 11	809	0.7+	0.2−	1988 11 05	807	0.0	0.2−
1988 09 03	809	0.3−	0.3−	1988 09 14	809	0.1+	0.2−	1997 10 29	704	0.8−	1.1−
1988 09 03	809	0.0	0.5−	1988 09 14	809	0.1−	0.2−	1997 10 29	704	0.8−	0.1−
1988 09 03	809	0.2+	0.6−	1988 09 14	809	0.3+	0.2−	1997 10 29	704	0.4+	0.3−
1988 09 05	809	0.3+	0.3+	1988 09 16	675	0.6+	0.8+	1997 10 29	704	0.4−	1.5−

1988 09 05	809	0.6+	0.4+	1988 09 16	675	0.2+	0.1+	1997 10 29	704	0.3−	1.1−
1988 09 05	809	0.6+	0.4+	1988 09 18	809	0.4−	0.0	1997 11 03	704	0.1−	1.3+
1988 09 07	809	0.6−	0.2+	1988 09 18	809	0.3−	0.0	1997 11 03	704	1.0−	1.1+
1988 09 07	809	0.5−	0.2+	1988 09 18	809	0.6−	0.2−	1997 11 03	704	1.2+	0.8+
1988 09 07	809	0.4−	0.0	1988 09 19	809	0.4−	0.3+	1997 11 03	704	0.9+	0.6+
1988 09 08	809	0.6+	1.4+	1988 09 19	809	0.4−	0.2+	1997 11 03	704	0.5+	0.6+
1988 09 08	809	0.7+	1.4+	1988 09 19	809	0.2−	0.2+	1997 11 26	566	0.8+	0.3−
1988 09 08	809	0.9+	1.4+	1988 09 20	809	0.9−	0.6+	1997 11 26	566	0.9+	0.3+
1988 09 09	809	0.4+	0.2−	1988 09 20	809	0.9−	0.3+	1997 11 26	566	0.4+	0.1+
1988 09 09	809	0.5+	0.2−	1988 09 20	809	0.9−	0.1−	1997 12 05	691	0.8−	0.4+
1988 09 09	809	0.9+	0.1−	1988 10 05	807	1.8+	0.1+	1997 12 05	691	0.7−	0.3+
1988 09 11	675	0.3+	0.2−	1988 10 07	675	0.4−	1.2−	1997 12 05	691	0.7−	0.1+
1988 09 11	675	1.3+	0.1+	1988 10 07	675	0.4+	2.3−				
1988 09 11	675	0.3+	0.3−	1988 10 09	675	0.4−	1.0−				

1988 VQ_3 = 1997 XW_1

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Urata

M	309.87606		(2000.0)		**P**	**Q**	
n	0.22229554	ω	269.79044		−0.75171542	−0.64069102	
a	2.6988716	Ω	230.36182		+0.65643863	−0.70414596	
e	0.1175082	i	11.71257		+0.06334235	−0.30609391	
P	4.43	H	13.0	G	0.15	U	5

Residuals in seconds of arc

1988 11 12	888	0.5+	0.2−	1988 12 01	888	1.2−	0.5+	1997 12 02	905	0.1+	0.3−
1988 11 12	888	1.4+	0.2−	1988 12 01	888	1.3−	0.4+	1997 12 02	905	0.1+	0.1−
1988 11 14	888	0.8−	0.4+	1988 12 11	888	0.5+	1.0−	1997 12 03	905	0.3−	0.5+
1988 11 14	888	0.2+	0.3−	1988 12 11	888	0.8+	0.3+	1997 12 03	905	0.1+	0.0

1988 VM_5 = 1974 SQ_1 = 1997 SO_3

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	0.84518		(2000.0)		**P**	**Q**	
n	0.21407339	ω	268.33490		+0.87910412	−0.47546195	
a	2.7675422	Ω	120.05331		+0.45118723	+0.80758688	
e	0.2731820	i	2.20781		+0.15364255	+0.34891168	
P	4.60	H	14.6	G	0.15	U	3

Residuals in seconds of arc

1974 09 19	095	1.4+	3.5−	1997 09 24	132	0.8+	0.7+	1997 09 30	949	(3.1−	0.5−)
1988 11 04	046	0.3−	0.1−	1997 09 25	132	0.0	0.5+	1997 09 30	949	1.7−	0.7+
1988 11 04	046	0.3−	0.0	1997 09 26	132	0.1+	0.2−	1997 10 25	688	0.1+	0.8+
1988 11 05	046	(3.4+	0.9+)	1997 09 26	132	0.1−	0.2−	1997 10 25	688	0.3−	0.3+
1988 11 05	046	1.1+	0.9+	1997 09 26	132	0.1−	0.3+	1997 11 16	958	(4.6−	3.9+)
1988 11 10	046	1.0−	1.7−	1997 09 28	949	(4.2−	1.4−)	1997 11 16	958	(7.8−	3.2+)
1988 11 10	046	0.5+	0.7+	1997 09 28	949	(3.4−	0.9−)				
1997 09 24	132	0.4−	0.8+	1997 09 28	949	(4.5−	1.5−)				

1989 CE_6 = 1997 WJ_{22}

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	231.79666		(2000.0)		**P**	**Q**	
n	0.22219275	ω	313.95755		+0.18386552	+0.97599010	
a	2.6997038	Ω	326.11891		−0.83118358	+0.09095694	
e	0.1576182	i	12.09164		−0.52471642	+0.19791455	
P	4.44	H	13.0	G	0.15	U	4

Residuals in seconds of arc

1989 02 02	675	0.5−	0.0	1989 03 10	033	0.6+	0.1+	1997 12 01	327	0.4−	0.1+
1989 02 02	675	0.0	0.3+	1989 03 10	033	0.2−	0.1−	1997 12 01	327	0.7+	0.1−
1989 02 10	033	0.2−	0.4−	1997 11 28	327	0.1−	0.0	1997 12 01	327	0.4−	0.5+
1989 02 10	033	0.7+	0.4−	1997 11 28	327	0.0	0.0				
1989 03 07	033	0.6−	0.4+	1997 11 28	327	0.4+	0.3−				

1990 OD_2 = 1997 WD_1

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	49.12530		(2000.0)		**P**	**Q**	
n	0.28799611	ω	283.46385		+0.87078451	+0.48402081	
a	2.2709712	Ω	47.66496		−0.39369019	+0.79164069	
e	0.1842722	i	6.70902		−0.29452059	+0.37286576	
P	3.42	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1990 07 29	675	0.7+	0.5−	1990 09 15	675	0.7−	1.0+	1997 11 22	426	0.1−	0.6+
1990 07 29	675	0.5+	0.6+	1997 11 20	426	0.2+	0.1−	1997 11 22	426	0.2+	0.4−
1990 07 30	675	1.2−	0.1−	1997 11 20	426	0.1−	0.1+	1997 11 22	426	0.3+	0.3−
1990 09 15	675	0.7+	1.0−	1997 11 20	426	0.5−	0.1+				

1990 RS_2 = 1993 NH_1

Id. B. G. Marsden (*MPC* 22813)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	34.78113		(2000.0)		**P**	**Q**	
n	0.29311960	ω	94.89399		+0.87755526	−0.47840083	
a	2.2444304	Ω	293.69015		+0.42485664	+0.80686347	
e	0.1449988	i	2.00787		+0.22224671	+0.34656022	
P	3.36	H	14.0	G	0.15	U	2

Residuals in seconds of arc

1990 09 15	675	0.6+	1.1−	1993 07 12	809	1.8+	1.4+	1995 01 08	033	0.9+	0.1−
1990 09 15	095	(2.3−	0.1+)	1993 07 12	809	0.5+	1.6+	1995 01 08	033	0.8−	0.6+
1990 09 15	095	(1.2−	3.7+)	1993 07 12	809	0.9+	1.8+	1997 11 24	905	0.9−	0.1+
1990 09 16	675	0.1+	1.1+	1993 07 19	809	1.5−	1.7−	1997 11 24	905	0.4−	0.5−
1990 09 16	675	0.0	1.0+	1993 07 19	809	1.2−	1.0−	1997 11 27	905	0.7−	1.1−
1990 09 17	675	0.5+	1.6−	1993 07 19	809	0.5−	1.5−	1997 11 27	905	0.2+	0.8−
1990 09 17	675	0.5−	1.9−	1993 07 23	809	0.2−	0.1−	1997 12 04	704	0.6+	0.4+
1990 09 19	675	0.6−	1.5+	1993 07 23	809	0.8−	1.2−	1997 12 04	704	0.3−	0.8+
1990 09 19	675	0.3−	1.5+	1993 07 23	809	0.4−	0.2−	1997 12 04	704	0.6+	0.1+
1990 09 23	095	(2.7−	3.3+)	1993 07 26	809	(3.5+	1.0+)	1997 12 04	704	0.3+	0.9+
1990 10 11	095	(5.4−	5.0+)	1993 07 26	809	(2.3+	0.6+)	1997 12 04	704	0.5+	0.2−
1990 10 15	095	(2.9−	3.2+)	1993 07 26	809	1.3+	0.9+				

1990 SM_7 = 1992 FZ_2 = 1997 WS_{23}

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	300.21399		(2000.0)		**P**	**Q**	
n	0.29641101	ω	85.47971		−0.64630093	−0.75937997	
a	2.2277844	Ω	45.08301		+0.65132190	−0.60023201	
e	0.0980510	i	6.08635		+0.39758633	−0.25112464	
P	3.33	H	15.2	G	0.15	U	4

Residuals in seconds of arc

1990 09 14	809	1.3+	2.2+	1990 09 25	809	0.1+	1.2−	1997 11 19	358	0.4+	1.6+
1990 09 14	809	1.6+	2.2+	1990 09 25	809	0.7−	1.7−	1997 11 19	358	0.2+	1.9−
1990 09 14	809	1.7−	1.7+	1990 09 25	809	0.1−	1.4−	1997 11 23	358	0.1+	1.0−
1990 09 22	809	0.1+	0.5−	1992 03 24	399	0.3−	0.8+	1997 11 23	358	0.3−	0.6+
1990 09 22	809	0.9−	1.9−	1992 03 24	399	0.0	1.4−	1997 12 04	900	0.9−	0.4−
1990 09 22	809	0.9+	0.2−	1997 11 19	358	1.5+	1.3+	1997 12 04	900	1.3−	0.1−

1990 SN_{28} = 1983 TQ = 1997 TR_{17}

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	66.57833		(2000.0)		**P**	**Q**	
n	0.28250282	ω	321.47199		+0.78498495	+0.61951481	
a	2.3003161	Ω	0.24748		−0.55849175	+0.70777827	
e	0.1643208	i	2.19297		−0.26811488	+0.33948685	
P	3.49	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1983 10 07	046	1.8+	0.1−	1997 10 03	691	1.1−	0.3+	1997 11 03	704	1.2−	0.9+
1983 10 07	046	2.0−	0.0	1997 10 06	400	0.2+	1.0+	1997 11 03	704	0.7+	1.9+
1990 09 24	095	1.7+	0.1−	1997 10 06	400	0.3+	0.6+	1997 11 03	704	0.0	0.5+
1990 09 30	095	1.1−	0.7+	1997 10 09	400	0.3+	0.8−	1997 11 03	704	1.3+	0.9+
1990 10 15	095	0.6−	2.0−	1997 10 09	400	0.7+	0.3+	1997 11 09	400	0.2−	1.1−
1990 10 15	095	1.2+	0.2+	1997 10 25	400	0.3+	0.2−	1997 11 09	400	0.2+	1.1−
1997 10 03	691	1.1−	0.4−	1997 10 25	400	0.6+	0.5−				
1997 10 03	691	0.9−	0.5−	1997 11 03	704	1.2−	0.5−				

1990 TR$_5$ = 1997 WZ

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	52.40746		(2000.0)		**P**	**Q**	
n	0.28825954	ω	98.31589		+0.88965551	+0.44895358	
a	2.2695875	Ω	235.04698		−0.44868838	+0.82556283	
e	0.2545372	i	5.83944		−0.08480457	+0.34188697	
P	3.42	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1990 09 18	675	0.4−	0.4+	1990 10 11	413	0.7+	0.4+	1997 11 03	704	0.3−	0.4+
1990 09 18	675	0.4+	0.4−	1997 11 03	704	0.3−	0.2−	1997 11 19	557	0.0	0.3−
1990 09 20	675	0.8+	0.7−	1997 11 03	704	0.0	0.1+	1997 11 19	557	0.0	0.2−
1990 09 20	675	0.7−	0.2−	1997 11 03	704	0.3−	0.2+	1997 11 20	557	0.3−	0.1−
1990 10 09	413	0.8−	0.7+	1997 11 03	704	1.2+	0.2−	1997 11 20	557	0.1+	0.1+

1990 TE$_9$ = 1997 UP$_9$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	75.33619		(2000.0)		**P**	**Q**	
n	0.28207783	ω	344.36048		+0.64889476	+0.75969122	
a	2.3026261	Ω	326.06499		−0.68967763	+0.56367274	
e	0.1480282	i	4.36448		−0.32137261	+0.32425653	
P	3.49	H	13.5	G	0.15	U	6

Residuals in seconds of arc

1990 10 10	033	0.1−	0.4+	1997 10 29	959	(3.9−	0.7−)	1997 10 31	959	0.6−	1.0−
1990 10 11	033	0.0	0.0	1997 10 29	959	0.9−	0.4+	1997 10 31	959	0.4−	0.2−
1990 10 11	033	0.1+	0.2−	1997 10 30	141	1.5+	1.0+	1997 10 31	959	1.0−	0.0
1990 10 12	033	0.1−	0.3−	1997 10 30	141	1.1+	0.7+	1997 11 01	959	0.0	0.0
1990 10 13	033	0.8+	0.4−	1997 10 30	141	0.6+	1.1+	1997 11 01	959	0.7−	0.4−
1990 10 14	033	0.0	0.8−	1997 10 30	958	(2.7−	0.7−)	1997 11 20	132	1.4−	0.1+
1997 10 29	959	0.9+	1.8+	1997 10 31	958	(3.9−	0.1−)	1997 11 20	132	1.4+	1.8−
1997 10 29	959	0.2+	0.3−	1997 10 31	959	1.8−	0.4−	1997 11 20	132	0.6+	0.3+

1990 UQ$_3$ = 1992 EX$_{13}$

Id. G. V. Williams (*MPC* 23860)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	34.29281		(2000.0)		**P**	**Q**	
n	0.27479602	ω	169.76600		+0.97573673	+0.21890513	
a	2.3431266	Ω	177.57667		−0.20736520	+0.93022947	
e	0.1775842	i	5.81993		−0.07026744	+0.29453978	
P	3.59	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1990 10 16	809	0.7−	0.6+	1990 10 24	809	1.1−	0.4−	1997 09 13	327	0.2+	0.4−
1990 10 16	809	1.1+	0.0	1990 10 24	809	0.8−	0.9−	1997 09 13	327	0.2−	0.7−
1990 10 16	809	0.9+	0.4−	1992 03 02	809	0.4+	0.6+	1997 09 28	566	0.2−	0.3+
1990 10 20	809	0.7+	0.3+	1992 03 05	809	0.3−	0.4−	1997 09 28	566	0.1+	0.2+
1990 10 20	809	0.5+	0.9+	1992 03 09	809	(0.2−	2.5−)	1997 09 28	566	0.4+	0.5+
1990 10 20	809	0.4−	1.2−	1997 09 13	327	0.5−	0.7+				
1990 10 24	809	0.0	0.9+	1997 09 13	327	0.2+	0.3−				

1990 VG$_6$ = 1982 YC$_2$ = 1994 WO$_2$

Id. S. Nakano (*MPC* 24389, *MPC* 24564)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	196.40520		(2000.0)		**P**	**Q**	
n	0.24499460	ω	348.47520		−0.89703512	−0.44050714	
a	2.5294826	Ω	165.23049		+0.41583149	−0.86866758	
e	0.1155104	i	8.07216		+0.14970695	−0.22664974	
P	4.02	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1982 12 21	095	(2.9+	4.0+)	1990 11 23	809	0.8+	0.9−	1994 11 29	399	1.4+	1.0+
1990 11 15	809	0.4+	1.6−	1990 11 23	809	0.4−	0.5−	1994 11 29	399	0.8−	1.4+
1990 11 15	809	0.1−	1.4−	1994 11 26	905	0.3−	0.3+	1997 10 05	910	0.0	0.0
1990 11 15	809	(2.2−	2.0−)	1994 11 26	905	1.1−	1.3+	1997 10 05	910	0.1+	0.0
1990 11 17	809	0.0	0.3−	1994 11 27	905	0.9+	1.0+	1997 10 05	910	0.1+	0.0
1990 11 17	809	0.2−	1.0−	1994 11 27	905	1.0−	1.2+	1997 11 29	688	0.3−	0.0
1990 11 17	809	0.3−	0.2+	1994 11 28	399	(3.4−	2.4+)	1997 11 29	688	0.1+	0.2+
1990 11 23	809	0.7+	0.5−	1994 11 28	399	(3.3−	3.3+)				

1990 VR$_{14}$ = 1990 UL$_{13}$

Id. S. Nakano (d, *MPC* 20913), N. S. Chernykh (d, *ibid.*), T. Kobayashi (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	21.37388		(2000.0)		**P**	**Q**	
n	0.28483723	ω	353.58721		+0.69800002	−0.71455439	
a	2.2877306	Ω	52.13351		+0.65962296	+0.61602533	
e	0.1531469	i	3.41238		+0.27873558	+0.33154910	
P	3.46	H	13.4	G	0.15	U	5

Residuals in seconds of arc

1990 10 28	095	1.6−	2.7−	1990 11 21	095	0.2+	1.5+	1997 11 18	411	0.4−	0.5−
1990 10 29	095	2.4+	1.6+	1990 11 21	095	0.7−	0.1−	1997 11 18	411	0.4−	0.1+
1990 11 15	095	(10.3+	3.8+)	1990 11 23	095	2.7−	1.6+	1997 11 19	411	0.5+	0.6−
1990 11 15	095	1.0+	0.7+	1990 11 23	095	1.1+	1.6−	1997 11 19	411	0.6+	0.2−

1990 WS = 1986 TV$_5$ = 1997 XD

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	354.73982		(2000.0)		**P**	**Q**	
n	0.26746565	ω	208.77971		+0.89368302	−0.44867922	
a	2.3857451	Ω	177.86592		+0.43023957	+0.85422383	
e	0.1074521	i	6.47288		+0.12737576	+0.26265682	
P	3.68	H	16.0	G	0.15	U	2

Residuals in seconds of arc

1986 10 08	801	0.1−	0.5+	1990 11 20	809	0.5−	0.2+	1997 12 01	910	0.1−	0.3−
1990 11 11	809	0.9+	0.3−	1990 11 20	809	1.5−	0.1+	1997 12 01	910	0.1+	0.3−
1990 11 11	809	0.8+	0.9−	1997 09 06	910	0.9+	0.3+	1997 12 01	910	0.2+	0.2−
1990 11 11	809	0.3+	0.4−	1997 09 06	910	0.8+	0.2+	1997 12 03	910	0.1+	0.2−
1990 11 18	809	0.5+	0.1+	1997 09 06	910	0.7+	0.4+	1997 12 03	910	0.2+	0.2−
1990 11 18	809	0.3+	0.9+	1997 10 05	691	0.9−	0.5−	1997 12 03	910	0.4+	0.4−
1990 11 18	809	0.8−	0.2+	1997 10 05	691	1.0−	0.2−				
1990 11 20	809	0.1−	0.4+	1997 10 05	691	1.1−	0.0				

1991 EJ = 1997 WT$_{29}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	2.64020		(2000.0)		**P**	**Q**	
n	0.08271511	ω	95.14875		+0.88550038	−0.26511578	
a	5.2169038	Ω	280.63663		+0.08254187	+0.89793311	
e	0.1240133	i	22.84567		+0.45724820	+0.35132570	
P	11.92	H	10.5	G	0.15	U	4

Residuals in seconds of arc

1991 01 26	413	0.2+	0.0	1991 03 12	413	0.6+	0.9+	1997 11 17	327	0.0	0.4−
1991 02 12	413	0.0	0.1+	1997 11 17	327	0.1−	0.1−	1997 11 19	327	0.3−	0.1−
1991 03 06	413	1.1−	2.0−	1997 11 17	327	0.3+	0.3−	1997 11 19	327	0.0	0.4+
1991 03 10	413	0.4+	1.0+	1997 11 17	327	0.3+	0.2−	1997 11 19	327	0.2−	0.6+

1991 NZ_6 = 1992 VG

Id. S. Nakano (*MPC* 21264)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

					P	Q
M	20.37019		(2000.0)			
n	0.20044440	ω	285.05797		+0.72912088	−0.68102569
a	2.8916125	Ω	117.91873		+0.65366939	+0.66366583
e	0.1528179	i	4.39582		+0.20272906	+0.30943767
P	4.92	H	13.0	G	0.15	U 1

Residuals in seconds of arc

1991 07 12	809	(3.3−	1.4−)	1992 11 02	408	(2.6+	0.8−)	1994 02 16	010	(0.6−	2.4+)
1991 07 12	809	(3.0−	1.3−)	1992 11 16	400	(2.1+	0.8−)	1994 02 16	010	(0.3−	2.7+)
1991 07 12	809	(2.7−	1.4−)	1992 11 16	400	1.6+	0.7−	1997 11 26	704	0.1−	1.1+
1991 07 12	809	0.5−	0.7−	1992 11 17	400	0.0	0.2−	1997 11 26	704	0.7−	1.3+
1991 07 12	809	0.3−	0.6−	1992 11 17	400	0.3−	0.1−	1997 11 26	704	0.8−	0.9+
1991 07 12	809	0.0	0.5−	1992 11 18	691	0.4−	0.3−	1997 11 28	910	0.2−	0.0
1991 07 13	809	0.9+	0.6−	1992 11 18	691	0.5−	0.6−	1997 11 28	910	0.1−	0.2+
1991 07 13	809	1.3+	0.7−	1992 11 18	691	(2.2−	0.5−)	1997 11 28	910	0.3−	0.2+
1991 07 13	809	1.6+	1.0−	1994 02 08	809	0.7+	0.9−	1997 12 02	910	1.2+	1.3−
1991 07 15	809	1.0−	0.3−	1994 02 08	809	0.1−	1.2−	1997 12 02	910	1.1+	1.2−
1991 07 15	809	0.6−	0.0	1994 02 08	809	0.6−	1.3−	1997 12 02	910	1.1+	1.2−
1991 07 15	809	0.5−	0.2−	1994 02 10	809	(2.3+	3.0−)	1997 12 04	704	(0.4+	2.4−)
1991 07 16	809	0.2−	0.4−	1994 02 10	809	(0.3+	2.1−)	1997 12 04	704	0.2+	0.2−
1991 07 16	809	0.1−	0.5−	1994 02 10	809	(0.6−	2.8−)	1997 12 04	704	0.5+	1.2−
1991 07 16	809	0.2+	0.6−	1994 02 13	809	0.7−	0.8−	1997 12 04	704	0.2+	0.6−
1992 11 02	408	(0.8−	2.2−)	1994 02 13	809	1.1−	0.6−	1997 12 04	704	1.6−	0.0

1991 PO_5 = 1997 XF_4

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

					P	Q
M	4.86908		(2000.0)			
n	0.17263580	ω	118.62072		+0.99022363	−0.13916292
a	3.1943474	Ω	249.38004		+0.12415981	+0.91048378
e	0.1712860	i	0.58347		+0.06357278	+0.38942645
P	5.71	H	14.5	G	0.15	U 5

Residuals in seconds of arc

1991 08 03	809	0.3+	0.6−	1991 09 04	809	0.1−	1.2+	1991 09 07	809	0.1+	0.4−
1991 08 03	809	0.2−	0.6−	1991 09 04	809	0.2+	1.2+	1991 09 07	809	0.1+	0.4−
1991 08 03	809	0.4−	0.0	1991 09 05	809	0.5+	0.5+	1997 12 05	910	0.2+	0.1+
1991 08 04	809	2.7+	0.1−	1991 09 05	809	0.8−	0.6−	1997 12 05	910	0.4+	0.0
1991 08 05	809	0.1−	0.5−	1991 09 05	809	0.8−	0.7−	1997 12 05	910	0.3+	0.1−
1991 08 05	809	0.3−	0.9−	1991 09 06	809	1.3+	0.5+	1997 12 06	910	0.1−	0.1−
1991 08 05	809	1.2−	0.3−	1991 09 06	809	1.0−	1.0+	1997 12 06	910	0.5−	0.1−
1991 09 04	809	0.1+	0.5+	1991 09 06	809	0.5−	0.7+	1997 12 06	910	0.1−	0.3−

1991 PT_{11} = 1975 VJ_3

Id. G. V. Williams (*MPC* 20024)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

					P	Q
M	25.53356		(2000.0)			
n	0.17975151	ω	203.76216		+0.91000837	−0.41458907
a	3.1094794	Ω	180.73279		+0.38990448	+0.85649463
e	0.2234741	i	3.67124		+0.14092290	+0.30746194
P	5.48	H	13.0	G	0.15	U 3

Residuals in seconds of arc

1975 11 02	095	(4.8−	6.0−)	1991 09 10	675	0.2−	0.6+	1997 10 26	688	0.5−	0.4+
1975 11 07	095	0.7+	2.4−	1991 09 10	675	0.6−	0.5+	1997 12 04	704	0.3+	0.2+
1991 08 07	675	1.4+	0.8−	1991 09 16	675	0.5+	0.4−	1997 12 04	704	0.8+	0.3+
1991 08 07	675	0.5+	0.7−	1991 09 16	675	0.5+	0.6+	1997 12 04	704	0.8+	0.2−
1991 08 08	675	0.8−	0.2+	1997 10 25	688	0.1−	0.2+	1997 12 04	704	0.5−	0.1+
1991 08 08	675	1.6−	0.7+	1997 10 25	688	0.1−	0.3+	1997 12 04	704	0.9−	0.7+
1991 08 10	675	(0.3+	2.9−)	1997 10 26	688	0.2−	0.2+				

1991 PG_{16} = 1980 TL_{11} = 1982 BF_{13}

Id. S. J. Bus (*MPC* 20025), G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

					P	Q
M	36.50938		(2000.0)			
n	0.17532141	ω	252.91299		+0.99652092	−0.07180808
a	3.1616424	Ω	111.18865		+0.08254850	+0.92033468
e	0.2913485	i	2.60049		−0.01148032	+0.38448366
P	5.62	H	13.5	G	0.15	U 2

Residuals in seconds of arc

1980 10 08	095	0.7−	1.9+	1991 09 14	675	0.7+	0.2−	1997 12 04	704	0.4+	1.1−
1982 01 30	675	0.4−	0.8−	1991 09 14	675	0.1−	0.1−	1997 12 04	704	0.9+	0.5−
1982 01 31	675	0.1+	0.7−	1991 09 16	675	0.2−	0.2−	1997 12 04	704	1.2−	0.6+
1991 08 07	675	0.8+	0.3−	1991 09 16	675	0.2−	0.4−	1997 12 04	704	0.6+	0.0
1991 08 08	675	0.0	1.4−	1997 12 04	704	0.5−	0.4+				

1991 RS_7 = 1997 XR_3

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

					P	Q
M	189.89440		(2000.0)			
n	0.21540540	ω	180.22424		+0.31997043	+0.93695621
a	2.7561213	Ω	108.43937		−0.86901708	+0.34930519
e	0.1131489	i	8.51526		−0.37739666	−0.00994679
P	4.58	H	14.0	G	0.15	U 6

Residuals in seconds of arc

1991 09 07	675	0.2+	0.6+	1991 10 12	675	1.8−	0.3−	1997 12 06	910	0.0	0.0
1991 09 07	675	1.7−	0.9−	1991 10 12	675	1.0+	0.9+	1997 12 06	910	0.1−	0.0
1991 09 09	675	1.6+	0.2+	1997 12 03	910	0.3+	0.1−	1997 12 06	910	0.0	0.0
1991 10 10	675	0.1+	0.4−	1997 12 04	910	0.1+	0.1−				
1991 10 10	675	0.6+	0.1−	1997 12 04	910	0.3−	0.1+				

1991 RZ_{11} = 1997 XH_4

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

					P	Q
M	30.91126		(2000.0)			
n	0.17251439	ω	322.34441		+0.87399100	+0.48593093
a	3.1958460	Ω	8.58400		−0.44030761	+0.79476531
e	0.1816588	i	1.26478		−0.20559409	+0.36361961
P	5.71	H	14.5	G	0.15	U 6

Residuals in seconds of arc

1991 08 03	809	0.6−	1.0+	1991 09 05	809	0.4+	1.6−	1991 09 07	809	0.8−	2.3−
1991 08 03	809	1.2−	0.3+	1991 09 05	809	0.8−	0.2−	1997 12 05	910	0.0	0.2+
1991 08 03	809	0.9−	2.1+	1991 09 05	809	2.1−	0.3−	1997 12 05	910	0.0	0.3+
1991 08 04	809	0.1−	1.0+	1991 09 06	809	1.9+	0.4−	1997 12 05	910	0.2+	0.0
1991 09 04	809	2.2+	0.7+	1991 09 06	809	0.6+	0.0	1997 12 06	910	0.3−	0.2+
1991 09 04	809	1.7+	0.0	1991 09 06	809	0.6−	0.5+	1997 12 06	910	0.1−	0.3+
1991 09 04	809	1.2+	0.2−	1991 09 07	809	0.5−	1.7−	1997 12 06	910	0.4−	0.4+

1991 RT_{17} = 1953 QN = 1981 XP = 1997 WR_1

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

					P	Q
M	85.43871		(2000.0)			
n	0.18296395	ω	54.46814		+0.69397363	+0.71952035
a	3.0729750	Ω	259.50012		−0.66894041	+0.63082497
e	0.1438902	i	1.53204		−0.26630682	+0.29043128
P	5.39	H	12.5	G	0.15	U 2

Residuals in seconds of arc

1953 08 16	024	0.7−	1.8+	1991 09 15	675	0.7+	0.3−	1997 11 22	327	0.2−	0.3+
1981 12 04	511	0.4+	0.9+	1991 09 17	675	0.6+	1.1−	1997 11 26	566	0.5+	0.1−
1981 12 04	511	0.5−	0.1−	1991 09 17	675	0.7+	0.2−	1997 11 26	566	0.5+	0.3−
1991 08 08	675	0.3+	0.7−	1991 09 17	675	0.1+	0.6−	1997 11 26	566	0.9+	0.3−
1991 08 08	675	0.7+	0.3+	1991 09 17	675	0.4+	0.2−	1997 11 28	327	0.2−	0.2−
1991 09 12	691	1.1−	0.8+	1997 11 21	327	0.4−	0.1+	1997 11 28	327	0.3+	0.2+
1991 09 12	691	0.9−	0.3+	1997 11 21	327	0.5−	0.1+	1997 11 28	327	0.1+	0.0

1991 09 12	691	0.9−	0.3+	1997 11 21	327	0.4−	0.2−	1997 12 01	327	0.4+	0.1+
1991 09 13	675	0.4+	1.1−	1997 11 22	327	0.2−	0.2+	1997 12 01	327	0.2+	0.2+
1991 09 13	675	0.1−	0.2+	1997 11 22	327	0.4−	0.2+	1997 12 01	327	0.1+	0.3−
1991 09 15	675	0.0	0.4+	1997 11 22	327	0.5−	0.2+				

1991 VE = 1997 WP$_{23}$
Id. G. V. Williams
Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	185.31974		(2000.0)	**P**	**Q**
n	1.17233824	ω	193.42532	−0.25147525	+0.96146040
a	0.8907738	Ω	62.10628	−0.87597884	−0.17725710
e	0.6644899	i	7.22466	−0.41160815	−0.21017570
P	0.84	H	18.1	G 0.15	U 6

Residuals in seconds of arc

1991 11 03	675	0.5+	0.2+	1991 11 10	801	1.0−	0.4−	1997 12 02	426	0.4+	2.0+
1991 11 03	675	1.0−	0.2−	1991 11 10	801	0.0	1.7−	1997 12 02	426	(2.4+	1.1+)
1991 11 06	675	(5.0−	2.1−)	1991 11 10	801	0.2+	1.7−	1997 12 02	426	(2.8−	0.8−)
1991 11 06	675	(7.2+	2.7−)	1991 11 10	675	(4.2+	0.9−)	1997 12 03	658	0.0	0.4−
1991 11 06	675	(7.1−	0.9+)	1991 11 10	675	(6.0+	2.5−)	1997 12 03	658	0.9−	0.1−
1991 11 06	675	(6.6+	0.2−)	1991 11 27	413	0.7−	0.8+	1997 12 03	658	0.3−	0.1−
1991 11 06	675	1.4−	1.0+	1991 11 27	413	0.2−	0.3+	1997 12 04	402	0.6+	0.2−
1991 11 06	675	1.8+	1.2+	1991 11 27	413	0.5−	0.4+	1997 12 04	402	0.1+	0.4−
1991 11 08	691	1.5−	0.1+	1991 11 27	413	0.6−	0.3+	1997 12 04	402	0.6+	0.5−
1991 11 08	691	(2.5−	0.0)	1997 11 29	704	1.4+	0.6+	1997 12 04	360	0.8+	0.2+
1991 11 08	691	1.1−	0.1−	1997 11 29	704	0.8+	1.4−	1997 12 04	360	0.3+	0.0
1991 11 09	675	1.2+	1.6+	1997 11 29	704	(3.7+	0.3+)	1997 12 04	360	0.2+	0.1−
1991 11 09	657	1.8+	0.6−	1997 11 29	704	(2.5−	1.3−)	1997 12 04	900	1.2−	0.0
1991 11 09	675	2.2−	0.7+	1997 11 30	360	0.2−	0.5−	1997 12 04	900	0.2+	0.4+
1991 11 10	801	0.0	0.8+	1997 11 30	360	0.3−	0.3−	1997 12 05	118	0.0	0.7+
1991 11 10	801	0.4+	0.4−	1997 11 30	360	0.6−	0.7−	1997 12 05	118	0.0	0.2+
1991 11 10	801	1.6+	0.4−	1997 12 02	658	0.6−	0.3−	1997 12 05	046	0.5−	0.3−
1991 11 10	801	1.4+	0.5−	1997 12 02	658	0.2+	0.0	1997 12 05	046	0.2+	0.6+
1991 11 10	801	0.5+	0.7−	1997 12 02	658	0.3−	0.1−	1997 12 05	046	0.7−	0.0

1991 VX$_5$ = 1997 UB$_{22}$
Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	315.49111		(2000.0)	**P**	**Q**
n	0.19114179	ω	83.54598	−0.96899378	−0.16004265
a	2.9846880	Ω	87.12783	+0.07336377	−0.91387481
e	0.0503341	i	10.86439	+0.23594239	−0.37312086
P	5.16	H	12.5	G 0.15	U 5

Residuals in seconds of arc

1991 11 02	809	0.4+	0.4+	1991 11 09	809	1.7−	0.6−	1997 11 06	327	0.6+	0.1+
1991 11 02	809	0.5+	0.3+	1991 11 09	809	0.8−	0.9−	1997 11 06	327	0.9+	0.0
1991 11 02	809	1.0−	0.6+	1991 11 09	809	1.6−	0.4−	1997 11 06	327	0.7+	0.1−
1991 11 06	809	1.5+	0.5+	1997 10 25	327	0.8−	0.1−	1997 11 25	327	0.3−	0.0
1991 11 06	809	1.0+	0.0	1997 10 25	327	0.4−	0.0	1997 11 25	327	0.2−	0.1+
1991 11 06	809	1.7+	0.2+	1997 10 25	327	0.2−	0.2−	1997 11 25	327	0.3−	0.2+

1991 VB$_9$ = 1979 UF$_1$ = 1997 WF$_{14}$
Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	8.36823		(2000.0)	**P**	**Q**
n	0.16765793	ω	313.98207	+0.65095689	−0.75746125
a	3.2572667	Ω	95.33567	+0.71007748	+0.58425548
e	0.1175585	i	2.88284	+0.26841218	+0.29137261
P	5.88	H	14.0	G 0.15	U 5

Residuals in seconds of arc

1979 10 26	033	1.5−	1.2+	1991 11 05	691	0.2+	0.3−	1991 11 08	691	0.1−	0.0
1979 10 26	033	1.4+	1.1−	1991 11 06	691	0.2−	0.3+	1997 11 22	691	0.7+	0.1+
1979 10 26	033	(10.2−	6.1−)	1991 11 06	691	0.1−	0.6+	1997 11 22	691	0.3+	0.3−
1991 10 17	675	1.3+	1.2−	1991 11 06	691	0.0	0.4+	1997 11 22	691	0.1+	0.4−
1991 11 04	691	0.1−	0.0	1991 11 08	691	0.2−	0.1+	1997 11 29	691	0.5−	0.1−
1991 11 04	691	0.0	0.2−	1991 11 08	691	0.1−	0.1+	1997 11 29	691	0.3−	0.0
1991 11 04	691	0.2−	0.2−	1991 11 08	691	0.1−	0.1+	1997 11 29	691	0.2−	0.2+
1991 11 05	691	0.1−	0.1+	1991 11 08	691	0.3−	0.3+				
1991 11 05	691	0.1−	0.0	1991 11 08	691	0.2+	0.1+				

1992 DJ$_4$ = 1992 FS$_2$ = 1997 XB$_4$
Id. G. V. Williams (d, *MPC* 26884; unpublished)
Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	132.11384		(2000.0)	**P**	**Q**
n	0.27038014	ω	229.35652	−0.55156202	+0.83400911
a	2.3685698	Ω	7.21258	−0.72642709	−0.47176909
e	0.0892219	i	6.59855	−0.40997930	−0.28611663
P	3.65	H	15.0	G 0.15	U 4

Residuals in seconds of arc

1992 01 31	691	0.7−	0.2−	1992 02 28	033	0.7−	0.5+	1997 10 23	691	0.3−	0.4+
1992 01 31	691	0.7−	0.4−	1992 02 29	033	0.6+	0.5+	1997 10 23	691	0.5−	0.3+
1992 01 31	691	0.4−	0.1−	1992 03 30	033	0.1+	0.1−	1997 12 05	910	0.6+	0.7−
1992 02 08	033	1.1+	0.1−	1992 03 30	033	0.7+	0.0	1997 12 05	910	0.4+	0.3−
1992 02 08	033	0.1+	0.2−	1997 10 06	691	0.4−	0.9+	1997 12 05	910	0.3+	0.6−
1992 02 09	033	0.5−	0.1+	1997 10 06	691	0.3−	0.6+	1997 12 06	910	0.4+	0.3−
1992 02 27	033	0.5+	0.8+	1997 10 06	691	0.4−	0.4+	1997 12 06	910	0.4+	0.4−
1992 02 27	033	0.5+	0.5+	1997 10 23	691	0.3−	0.5+	1997 12 06	910	0.3+	0.3−

1992 EY$_9$ = 1997 SJ$_3$
Id. K. Ichikawa
Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	144.58982		(2000.0)	**P**	**Q**
n	0.27668367	ω	290.08717	−0.37295508	+0.92734702
a	2.3324572	Ω	317.97446	−0.83334180	−0.34925319
e	0.0772837	i	2.61371	−0.40797788	−0.13434919
P	3.56	H	15.5	G 0.15	U 5

Residuals in seconds of arc

1992 02 25	675	(2.1+	0.4−)	1997 09 26	046	1.0+	0.6+	1997 10 07	046	0.3+	0.5−
1992 02 25	675	0.4+	1.1−	1997 09 26	046	1.0+	0.8+	1997 10 07	046	0.0	0.4−
1992 03 02	809	0.8−	0.6+	1997 09 27	046	0.1−	0.8+	1997 10 07	046	0.3+	0.5−
1992 03 04	809	0.1−	0.5+	1997 09 27	046	0.3+	0.7+	1997 10 22	046	0.2−	0.7−
1992 03 07	809	0.5+	0.3+	1997 09 27	046	0.4+	0.3+	1997 10 22	046	0.5−	0.8−
1997 09 26	046	0.8−	0.6+	1997 09 29	046	0.2+	0.1+	1997 10 22	046	0.3−	0.4−
1997 09 26	046	0.6−	0.1+	1997 09 29	046	0.6+	0.3−	1997 10 23	046	0.9−	0.6−
1997 09 26	046	0.8−	0.1+	1997 09 29	046	0.4+	0.1−	1997 10 23	046	0.3−	0.3+
1997 09 26	046	0.3+	0.0	1997 10 05	046	0.4+	0.5+	1997 10 23	046	0.6−	0.3−

1992 GB$_2$ = 1997 WX$_6$
Id. S. Nakano
Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	271.27903		(2000.0)	**P**	**Q**
n	0.28631320	ω	312.33269	−0.95058198	−0.30883066
a	2.2798615	Ω	209.72020	+0.30041156	−0.88896261
e	0.0848672	i	3.68909	+0.07840152	−0.33818501
P	3.44	H	15.0	G 0.15	U 5

Residuals in seconds of arc

1992 04 04	809	0.5+	0.4+	1992 04 25	809	0.1+	0.4+	1997 11 29	691	0.2−	0.4−
1992 04 04	809	0.5−	0.7+	1992 04 25	809	0.0	0.7−	1997 11 29	691	0.1−	0.4−
1992 04 04	809	0.4−	0.3−	1997 11 23	691	0.1+	0.8+	1997 11 29	691	0.2+	0.3−
1992 04 06	809	0.2−	0.1−	1997 11 23	691	0.2+	0.7+	1997 12 05	691	0.3+	0.4−
1992 04 06	809	0.4−	0.0	1997 11 25	691	0.3−	0.4+	1997 12 05	691	0.2+	0.6−
1992 04 06	809	0.5+	0.6−	1997 11 25	691	0.4−	0.3+	1997 12 05	691	0.5+	0.5−
1992 04 25	809	0.4+	0.3+	1997 11 25	691	0.5−	0.5+				

1992 HN
Id. T. Kobayashi (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	289.82372			(2000.0)		**P**		**Q**				
n	0.30044382		ω	111.87309		−0.99642179		−0.02379780				
a	2.2078041		Ω	66.83979		−0.01325806		−0.90365455				
e	0.1256404		i	5.06060		+0.08347363		−0.42760042				
P	3.28		H	14.6	G	0.15	U	5				

Residuals in seconds of arc

1992 04 29	691	1.1−	0.3−	1992 05 03	691	0.2+	0.0	1997 11 30	411	0.3−	0.4+
1992 04 29	691	0.5+	0.0	1992 05 04	691	0.1−	0.3−	1997 11 30	411	0.1−	0.0
1992 05 03	691	0.3+	0.2+	1992 05 04	691	0.0	0.3+	1997 12 02	411	0.3−	0.6−
1992 05 03	691	0.0	0.1+	1992 05 04	691	0.2+	0.0	1997 12 02	411	0.7+	0.3+

1992 OE

Id. B. A. Skiff (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	65.23756			(2000.0)		**P**		**Q**				
n	0.21710575		ω	6.71080		+0.91581962		+0.33293577				
a	2.7417120		Ω	330.53296		−0.38640594		+0.57823903				
e	0.2039622		i	27.16142		−0.10938406		+0.74484455				
P	4.54		H	14.0	G	0.15	U	2				

Residuals in seconds of arc

1992 07 27	413	0.4−	1.9+	1992 08 21	413	0.7+	0.2+	1992 10 28	801	0.0	0.1+
1992 07 27	413	0.3+	0.5−	1992 09 05	413	0.3−	0.3−	1992 10 28	801	0.1+	0.1+
1992 07 28	413	0.8−	0.4+	1992 09 05	413	0.4−	0.3−	1992 11 27	801	0.4+	0.2+
1992 07 28	413	0.1+	0.3−	1992 09 24	801	0.2+	0.1−	1992 11 27	801	0.3+	0.3−
1992 07 30	413	0.1+	1.8−	1992 09 24	801	0.2−	0.1+	1992 12 10	413	0.1−	0.7−
1992 08 02	413	0.5−	0.3−	1992 09 30	801	0.4+	0.7+	1992 12 10	413	0.6−	0.4−
1992 08 09	413	0.1−	0.1+	1992 09 30	801	0.1+	0.6+	1997 10 25	688	0.3+	0.3−
1992 08 09	413	0.2−	0.0	1992 10 06	413	0.3−	0.1+	1997 10 25	688	0.0	0.2−
1992 08 20	413	0.2+	0.2−	1992 10 06	413	0.3−	0.0	1997 10 25	688	0.3−	0.3+
1992 08 20	413	0.2+	0.1−	1992 10 24	801	0.2+	0.3+	1997 10 26	688	0.0	0.2+
1992 08 21	413	0.6+	0.2+	1992 10 24	801	0.1+	0.1+	1997 10 26	688	0.0	0.1+

1992 UO$_5$

Id. T. Kobayashi (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	23.55298			(2000.0)		**P**		**Q**				
n	0.21858788		ω	353.50690		+0.33085769		−0.92916449				
a	2.7293045		Ω	77.07578		+0.87324173		+0.23521491				
e	0.0735888		i	9.73951		+0.35774582		+0.28517941				
P	4.51		H	12.8	G	0.15	U	5				

Residuals in seconds of arc

1992 10 26	400	(3.7−	1.0+)	1992 11 15	400	1.3+	1.8+	1997 12 03	411	0.0	0.6+
1992 10 26	400	2.0−	0.4−	1992 11 15	400	(4.1−	1.6+)	1997 12 03	411	0.2−	0.1+
1992 10 28	400	0.7+	0.4−	1992 11 30	675	0.0	0.5−	1997 12 04	411	0.0	0.2−
1992 10 28	400	0.0	0.2−	1992 11 30	675	0.0	0.4−	1997 12 04	411	0.3+	0.5−

1992 WG$_5$

Id. E. Bowell (1989 observations), C. P. de Saint-Aignan (1990 observations), B. A. Skiff (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	13.38888			(2000.0)		**P**		**Q**				
n	0.22104941		ω	22.52616		−0.33997368		−0.90811309				
a	2.7090050		Ω	88.05916		+0.82126803		−0.41332402				
e	0.1140276		i	14.15674		+0.45818852		+0.06703628				
P	4.46		H	13.0	G	0.15	U	2				

Residuals in seconds of arc

1989 02 01	675	0.5−	0.3+	1992 11 18	400	0.6+	2.0+	1992 12 19	400	2.0+	0.5−
1989 02 01	675	0.4+	0.6−	1992 11 18	400	1.1−	2.0−	1992 12 19	400	0.2−	0.0
1990 05 25	675	0.2+	0.4+	1992 11 27	400	1.0−	1.9+	1997 11 29	688	0.1+	0.2+
1990 05 25	675	0.2−	0.5−	1992 11 27	400	0.2−	1.6−	1997 11 29	688	0.1+	0.4+

1993 FM$_7$ = 1990 SG$_9$ = 1997 XF$_9$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	103.80696			(2000.0)		**P**		**Q**				
n	0.19883612		ω	312.77204		+0.46868356		−0.88156277				
a	2.9071841		Ω	109.19875		+0.82691662		+0.41537375				
e	0.0160134		i	3.42482		+0.31071632		+0.22430275				
P	4.96		H	14.0	G	0.15	U	3				

Residuals in seconds of arc

1990 09 22	809	0.0	1.1+	1993 03 17	809	0.9+	0.2+	1997 12 07	910	0.1+	0.0
1990 09 22	809	1.0−	0.0	1993 03 18	809	0.1−	0.0	1997 12 08	910	0.3−	0.0
1990 09 22	809	1.2−	0.3−	1993 03 23	809	0.4−	0.3+	1997 12 08	910	0.1−	0.1+
1990 09 25	809	0.8+	0.4−	1993 04 16	413	0.4−	0.5−	1997 12 08	910	0.1+	0.1+
1990 09 25	809	1.1+	0.3+	1997 12 07	910	0.0	0.4−				
1990 09 25	809	0.3+	0.8−	1997 12 07	910	0.0	0.0				

1993 HH

Id. E. Bowell (1990 observations), B. A. Skiff (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	305.28929			(2000.0)		**P**		**Q**				
n	0.17160567		ω	150.25283		−0.97716598		+0.11742813				
a	3.2071181		Ω	37.80201		−0.20091657		−0.78181536				
e	0.0738350		i	16.79241		+0.06913158		−0.61235234				
P	5.74		H	12.0	G	0.15	U	4				

Residuals in seconds of arc

1990 11 13	675	0.0	0.2−	1993 04 16	400	0.9+	1.0−	1993 05 08	400	0.5−	0.8+	
1990 11 13	675	0.6+	0.6−	1993 04 16	400	(2.4−	0.4+)	1993 05 21	400	(0.7+	3.3−)	
1993 04 15	691	(2.7−	1.6−)	1993 04 20	400	(0.9+	2.2−)	1993 05 21	400	1.6+	1.0−	
1993 04 15	691	0.4−	0.2+	1993 04 20	400	1.5−	0.3+	1997 11 29	688	0.1+	0.2+	
1993 04 15	691	0.5−	0.1−	1993 05 08	400	(0.1+	2.2+)	1997 11 29	688	0.1+	0.3+	

1993 NX = 1997 TY$_{19}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Ichikawa

M	73.93380			(2000.0)		**P**		**Q**				
n	0.27457386		ω	80.58714		+0.62605512		+0.77949552				
a	2.3443903		Ω	228.19401		−0.72604235		+0.57286807				
e	0.2236726		i	1.61571		−0.28446000		+0.25339479				
P	3.59		H	15.6	G	0.15	U	5				

Residuals in seconds of arc

1993 07 12	809	1.8−	2.2+	1993 07 23	809	2.8+	0.6+	1997 10 02	691	0.8−	0.2+
1993 07 12	809	1.2−	2.0+	1993 07 26	809	0.3−	2.5−	1997 10 02	691	0.8−	0.4+
1993 07 12	809	0.7−	2.5+	1993 07 26	809	1.7−	2.8−	1997 10 11	691	0.3−	0.2−
1993 07 19	809	0.1+	0.3−	1993 07 26	809	2.4−	2.2−	1997 10 11	691	0.3−	0.0
1993 07 19	809	0.1−	0.3−	1997 09 29	327	0.4+	1.6−	1997 10 11	691	0.2−	0.1−
1993 07 19	809	0.2−	0.6−	1997 09 29	327	0.3+	0.2+	1997 10 23	691	0.3+	0.2+
1993 07 23	809	2.7+	0.5+	1997 09 29	327	1.2+	1.0+	1997 10 23	691	0.4+	0.1+
1993 07 23	809	2.6+	0.8+	1997 10 02	691	0.9−	0.4+	1997 10 23	691	0.3+	0.1+

1993 OF$_3$ = 1997 SV$_1$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Ichikawa

M	75.19469			(2000.0)		**P**		**Q**				
n	0.26435826		ω	318.65490		+0.25978547		+0.96559559				
a	2.4044041		Ω	326.39759		−0.88033845		+0.23183757				
e	0.1273503		i	1.21038		−0.39688249		+0.11779855				
P	3.73		H	15.7	G	0.15	U	5				

Residuals in seconds of arc

1993 07 13	809	0.5+	1.0−	1997 09 22	046	0.7−	0.3−	1997 09 28	046	0.4−	0.2+
1993 07 13	809	0.3+	1.0−	1997 09 22	046	0.5−	0.5+	1997 09 28	046	0.2−	0.3+

1993 07 13	809	0.9−	1.1−	1997 09 22	046	0.3+	0.5+	1997 09 28	046	0.6+	0.0
1993 07 13	809	0.8+	1.7+	1997 09 24	046	0.4−	0.7+	1997 10 05	046	0.3+	0.5−
1993 07 13	809	1.3+	1.5+	1997 09 24	046	0.7−	0.6+	1997 10 05	046	0.2+	0.6−
1993 07 13	809	0.8+	1.3+	1997 09 24	046	0.5−	0.1+	1997 10 05	046	0.0	0.6−
1993 07 20	809	0.4+	1.2−	1997 09 25	046	0.2+	0.7+	1997 10 06	046	0.1+	0.2−
1993 07 20	809	0.9−	2.3−	1997 09 25	046	0.7+	0.1−	1997 10 06	046	0.3+	0.4−
1993 07 20	809	2.0−	1.9−	1997 09 25	046	0.8+	0.1+	1997 10 06	046	0.2+	0.0
1993 07 20	809	0.1+	0.6+	1997 09 26	046	0.2−	0.5+	1997 10 29	046	0.1+	0.6−
1993 07 20	809	0.9−	1.2+	1997 09 26	046	0.0	0.2+	1997 10 29	046	0.6+	0.2−
1993 07 20	809	0.4−	0.7+	1997 09 26	046	0.5−	0.0	1997 10 29	046	0.7+	0.4−
1993 07 24	809	1.0+	0.5+	1997 09 27	046	0.4−	0.0	1997 11 02	046	0.6+	0.4−
1993 07 24	809	0.1+	0.4+	1997 09 27	046	0.0	0.2+	1997 11 02	046	0.6−	0.3−
1997 09 22	046	0.9−	0.2+	1997 09 27	046	0.3+	0.1+	1997 11 02	046	0.2−	0.6−

1993 OW$_6$ = 1997 WG$_{21}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	38.45734		(2000.0)		**P**		**Q**
n	0.28996026	ω	258.39313		+0.88585609		−0.46111534
a	2.2607041	Ω	129.04394		+0.44725210		+0.81931356
e	0.1679915	i	3.78721		+0.12338784		+0.34073148
P	3.40	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1993 07 13	809	0.6+	0.2+	1993 07 20	809	1.3−	0.2−	1997 12 02	411	0.5−	0.4+
1993 07 13	809	0.9+	0.2+	1993 07 24	809	1.3+	0.2+	1997 12 05	411	0.3+	0.1−
1993 07 13	809	0.9−	0.0	1997 11 30	411	1.3−	0.1−	1997 12 05	411	0.0	0.1−
1993 07 20	809	0.1+	0.0	1997 11 30	411	0.8+	0.2−				
1993 07 20	809	0.5−	0.3−	1997 12 02	411	0.6+	0.0				

1993 QU$_4$

Id. B. A. Skiff (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	47.61675		(2000.0)		**P**		**Q**
n	0.24225768	ω	152.44633		+0.67208676		+0.73739725
a	2.5484983	Ω	159.54746		−0.70991693		+0.66756059
e	0.1128356	i	11.12356		−0.21051684		+0.10299589
P	4.07	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1993 08 15	809	(2.9+	0.9+)	1993 08 20	809	0.8+	1.0−	1993 09 21	675	0.7+	0.1+
1993 08 15	809	(2.4+	0.4+)	1993 08 20	809	0.4+	0.7−	1993 09 21	675	0.7+	0.3+
1993 08 15	809	(2.7+	1.2+)	1993 08 24	809	0.5−	0.2+	1997 08 01	688	0.1−	0.4+
1993 08 18	010	0.2−	0.8+	1993 08 24	809	0.9−	0.5+	1997 08 01	688	0.1−	0.2+
1993 08 19	010	0.5−	0.4+	1993 08 24	809	0.4−	0.1−	1997 10 29	688	0.1+	0.2−
1993 08 19	010	0.5+	0.4−	1993 09 10	691	0.1−	0.2+	1997 10 29	688	0.0	0.2−
1993 08 19	010	0.1−	0.2−	1993 09 10	691	0.5−	0.7+				
1993 08 20	809	0.8+	1.4−	1993 09 10	691	0.6−	0.4+				

1993 QO$_8$ = 1997 XL$_1$

Id. G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	8.28874		(2000.0)		**P**		**Q**
n	0.27338577	ω	29.69980		+0.37472896		−0.92655003
a	2.3511776	Ω	38.31940		+0.83982563		+0.32418756
e	0.2080378	i	3.04275		+0.39277362		+0.19080740
P	3.61	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1993 08 15	809	1.4−	0.9+	1993 08 24	809	1.4+	0.1+	1997 12 05	900	0.5−	0.2−
1993 08 15	809	0.7−	0.6+	1993 09 21	675	2.0−	1.7+	1997 12 05	900	0.3−	0.1−
1993 08 15	809	1.0−	0.0	1993 09 21	675	0.7−	0.2+	1997 12 05	355	0.1+	0.0
1993 08 20	809	1.4+	0.9−	1997 12 04	402	0.1−	0.1+	1997 12 05	355	0.1−	0.4−
1993 08 20	809	0.6+	0.4−	1997 12 04	402	0.2+	0.0	1997 12 05	355	0.4−	0.1−
1993 08 20	809	0.3+	1.3−	1997 12 04	402	0.1+	0.1+	1997 12 05	402	0.1−	0.1−
1993 08 24	809	1.0+	0.1−	1997 12 04	900	0.7+	0.2+	1997 12 05	402	0.2−	0.2−
1993 08 24	809	1.2+	0.8−	1997 12 04	900	0.6+	0.4+	1997 12 05	402	0.0	0.0

1993 RX$_5$ = 1992 EX$_{15}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Ichikawa

M	141.62318		(2000.0)		**P**		**Q**
n	0.29330049	ω	107.41972		+0.48878338		+0.87237095
a	2.2435075	Ω	191.85005		−0.81402292		+0.45286902
e	0.1665723	i	2.15707		−0.31377938		+0.18406136
P	3.36	H	15.8	G	0.15	U	6

Residuals in seconds of arc

1992 03 01	809	0.8+	0.1+	1993 09 16	809	1.9−	0.8−	1993 09 18	675	0.4+	0.2−
1992 03 03	809	0.9−	0.0	1993 09 17	809	1.9+	0.4−	1993 09 22	675	0.6−	0.1−
1992 03 06	809	0.1+	0.1−	1993 09 17	809	1.2−	0.8−	1993 09 22	675	0.4−	1.0−
1993 09 15	809	1.7+	1.7+	1993 09 17	809	0.5−	1.0−	1993 09 23	809	(3.7+	0.9+)
1993 09 15	809	0.9+	1.3+	1993 09 18	809	0.3+	0.7+	1993 09 23	809	0.8+	0.7+
1993 09 15	809	0.1−	0.4+	1993 09 18	809	0.7−	0.4+	1993 09 23	809	0.8+	0.5+
1993 09 16	809	0.4+	1.3−	1993 09 18	809	1.4−	0.1−				
1993 09 16	809	0.9−	1.1−	1993 09 18	675	0.5+	1.0+				

1993 SO = 1997 WE$_1$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	56.39282		(2000.0)		**P**		**Q**
n	0.26975324	ω	175.90945		+0.96191023		+0.27177494
a	2.3722381	Ω	168.19410		−0.25471482		+0.93017359
e	0.0948963	i	8.27498		−0.09924250		+0.24681062
P	3.65	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1993 08 15	010	0.4+	1.0+	1993 09 18	691	0.4−	0.6−	1997 11 16	327	0.5+	0.0
1993 08 15	010	0.5−	1.2+	1993 09 19	691	0.3−	0.4−	1997 11 16	327	0.4+	0.0
1993 08 16	010	1.1+	0.5+	1993 09 19	691	0.1−	0.4−	1997 11 16	327	0.2+	0.4+
1993 08 16	010	0.3+	0.1−	1993 09 19	691	0.4−	0.4−	1997 11 19	327	0.2+	0.4+
1993 08 16	010	1.0+	0.2+	1997 10 29	566	0.4−	0.7−	1997 11 19	327	0.3+	0.4+
1993 09 18	691	0.5−	0.7−	1997 10 29	566	0.6−	0.6−	1997 11 19	327	0.4+	0.4+
1993 09 18	691	0.8−	0.4−	1997 10 29	566	0.9−	0.4+				

1993 SG$_3$ = 1997 XN$_5$

Id. E. Pettarin

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	298.88191		(2000.0)		**P**		**Q**
n	0.27853963	ω	332.27699		−0.77565588		−0.63102249
a	2.3220847	Ω	168.56957		+0.59052200		−0.73282713
e	0.1255541	i	3.75641		+0.22280421		−0.25450938
P	3.54	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1993 09 15	809	0.2−	2.2−	1993 09 22	809	1.1−	0.2+	1993 10 19	595	0.8−	0.0
1993 09 15	809	2.6−	2.6−	1993 09 22	809	0.3−	0.6−	1993 10 19	595	0.2−	0.7+
1993 09 15	809	0.9−	0.6−	1993 09 22	809	2.7−	1.0−	1993 10 19	595	1.5+	1.0−
1993 09 19	675	0.7+	0.0	1993 09 23	675	1.0+	0.2+	1997 12 05	595	0.2−	0.2+
1993 09 19	595	0.8+	0.1+	1993 09 23	675	1.5+	1.3+	1997 12 05	595	0.3−	0.4+
1993 09 19	595	1.2+	0.3+	1993 10 04	595	1.4−	2.0+	1997 12 06	595	0.6−	0.5−
1993 09 20	691	0.5−	1.0+	1993 10 04	595	0.4+	1.6+	1997 12 06	595	0.0	0.6−
1993 09 20	691	0.7−	0.8+	1993 10 04	595	0.1+	0.6+	1997 12 07	595	0.8+	0.1+
1993 09 20	691	0.5−	0.8+	1993 10 15	595	1.3+	0.1+	1997 12 07	595	0.4+	0.2+
1993 09 20	595	2.6+	0.8−	1993 10 15	595	0.9−	0.3+				
1993 09 20	595	1.6+	0.2−	1993 10 15	595	0.1+	0.9−				

1993 SU$_6$ = 1976 UL$_{10}$ = 1996 FU$_{23}$ = 1997 RK$_{13}$

Id. G. V. Williams, K. Ichikawa

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	92.75482		(2000.0)		**P**		**Q**
n	0.22913848	ω	268.63501		−0.19585898		+0.98063118
a	2.6448682	Ω	350.06979		−0.89663254		−0.17962839
e	0.0908513	i	0.43978		−0.39710119		−0.07807772
P	4.30	H	14.0	G	0.15	U	2

Residuals in seconds of arc

1976 10 22	381	0.1−	0.0	1993 09 18	809	1.1−	0.4+	1996 03 20	566	0.1−	0.8−
1976 10 22	381	0.1+	0.6+	1993 09 22	809	1.4+	1.3−	1996 03 20	566	0.2−	0.6−
1976 10 24	381	0.3−	0.4+	1993 09 22	809	1.3+	0.5−	1996 03 20	566	0.3−	0.2−
1993 09 17	809	1.2−	0.5+	1993 09 22	809	0.3+	1.1−	1997 09 02	566	0.0	0.5+
1993 09 17	809	0.9−	1.5+	1993 09 22	675	1.1−	1.7−	1997 09 02	566	0.3−	0.2+
1993 09 17	809	1.2−	0.4+	1993 09 24	809	2.9+	0.8−	1997 09 02	566	0.1−	0.3+
1993 09 18	809	0.2+	0.7+	1993 09 24	809	1.8+	1.0−				
1993 09 18	809	1.4−	0.2+	1993 09 24	809	0.2+	0.6−				

1993 TM_{26} = 1997 SR_{28}

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	233.24771		(2000.0)		**P**		**Q**
n	0.22681162	ω	321.01803		−0.75326837		−0.65768870
a	2.6629265	Ω	177.83271		+0.63479025		−0.72925022
e	0.0361328	i	8.64712		+0.17212813		−0.18878475
P	4.35	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1993 10 09	809	0.9+	0.7−	1993 10 20	809	0.0	0.5−	1997 09 06	910	0.5+	0.0
1993 10 09	809	1.0−	1.2−	1993 10 20	809	0.7−	0.2+	1997 09 28	691	1.0−	0.1−
1993 10 09	809	1.7−	1.9−	1997 09 06	910	0.1+	0.2+	1997 09 28	691	0.6−	0.1−
1993 10 11	809	1.2+	1.6+	1997 09 06	910	0.1−	0.1+	1997 09 28	691	0.8−	0.1−
1993 10 11	809	0.4+	0.9+	1997 09 06	910	0.0	0.0	1997 10 06	691	0.4+	0.3−
1993 10 11	809	1.1+	1.0+	1997 09 06	910	0.4+	0.0	1997 10 06	691	0.4+	0.2+
1993 10 20	809	0.1−	0.4+	1997 09 06	910	0.4+	0.0	1997 10 06	691	0.1+	0.1+

1993 UE

Id. E. Bowell (1989 observations), B. A. Skiff (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	56.30280		(2000.0)		**P**		**Q**
n	0.26029307	ω	225.26112		+0.93681545		+0.28367136
a	2.4293736	Ω	117.25199		−0.21864815		+0.93160756
e	0.2100174	i	13.31314		−0.27307471		+0.22723979
P	3.79	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1989 07 05	675	0.5+	0.5+	1993 10 20	413	1.3−	0.2+	1993 10 26	413	0.0	0.1+
1989 07 05	675	0.4−	0.4+	1993 10 20	413	0.0	0.1+	1993 10 27	413	0.3+	0.4−
1993 09 22	675	0.9+	0.4+	1993 10 21	413	1.4−	0.2+	1993 10 27	413	0.1+	0.4−
1993 09 22	675	0.4+	0.2+	1993 10 21	413	1.3+	0.2−	1997 10 28	688	0.3−	0.4+
1993 10 09	675	0.3+	0.3−	1993 10 22	413	1.0−	0.9+	1997 10 28	688	0.2−	0.3+
1993 10 09	675	0.2−	1.3−	1993 10 22	413	0.6−	1.0+	1997 10 29	688	0.0	0.2+
1993 10 14	675	0.2+	1.3−	1993 10 23	413	1.1+	0.0	1997 10 29	688	0.2+	0.3+
1993 10 14	675	0.5+	0.3−	1993 10 26	413	0.6−	0.1−				

1993 UD_3 = 1997 VT_8

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	77.96918		(2000.0)		**P**		**Q**
n	0.26516760	ω	98.62732		+0.99203005		+0.08801661
a	2.3995092	Ω	256.35933		−0.11574240		+0.91936826
e	0.1501289	i	5.32359		+0.04980046		+0.38342546
P	3.72	H	13.0	G	0.15	U	5

Residuals in seconds of arc

1993 10 22	408	0.4+	0.6+	1993 11 15	408	1.0−	0.0	1997 11 14	327	0.0	0.3−
1993 10 22	408	1.6+	0.3−	1993 11 22	408	0.6+	1.3−	1997 11 14	327	0.0	0.0
1993 10 23	408	0.1−	0.2−	1993 11 22	408	0.6+	1.6−	1997 11 14	327	0.3−	0.3+
1993 10 23	408	0.4+	0.2+	1997 10 29	327	0.5−	0.9+	1997 11 19	327	0.5+	0.1−
1993 11 14	408	0.2+	0.7+	1997 10 29	327	0.1−	0.0	1997 11 19	327	0.6+	0.0
1993 11 14	408	1.8−	0.3+	1997 10 29	327	0.0	0.1+	1997 11 19	327	0.2+	0.1−
1993 11 15	408	0.8−	1.2+	1997 11 14	327	0.4−	0.3−				

1993 VS = 1997 XU_7

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	17.96858		(2000.0)		**P**		**Q**
n	0.24405902	ω	271.53858		+0.79207854		−0.61004312
a	2.5359429	Ω	126.05459		+0.57005823		+0.72670031
e	0.1739470	i	1.51850		+0.21827782		+0.31583866
P	4.04	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1993 11 14	411	0.3+	0.2−	1993 11 18	411	0.2−	0.1+	1993 12 11	411	0.1−	0.1−
1993 11 14	411	0.3+	0.3−	1993 11 23	411	0.3+	0.5−	1997 12 06	910	0.4+	0.2−
1993 11 14	411	0.1+	0.2−	1993 11 23	411	0.8−	0.6+	1997 12 06	910	0.5+	0.2−
1993 11 15	411	0.1−	0.2+	1993 12 04	411	0.4−	1.1+	1997 12 07	910	0.5+	0.1−
1993 11 15	411	0.2−	0.0	1993 12 04	411	0.5+	0.6+	1997 12 07	910	0.3−	0.3−
1993 11 15	411	0.3−	0.0	1993 12 04	411	0.0	0.7−	1997 12 07	910	0.3−	0.3−
1993 11 18	411	0.3−	0.6+	1993 12 11	411	0.4+	0.6−	1997 12 07	910	0.3−	0.2−
1993 11 18	411	0.3+	0.3+	1993 12 11	411	0.0	0.2+				

1994 AW

Id. F. B. Zoltowski (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	22.64877		(2000.0)		**P**		**Q**
n	0.23395993	ω	244.50027		+0.57679011		−0.81688406
a	2.6084052	Ω	170.27209		+0.75710148		+0.53287238
e	0.1371171	i	1.25050		+0.30677437		+0.22078825
P	4.21	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1994 01 04	411	0.2−	1.1+	1994 01 15	411	0.1−	0.4+	1997 11 21	426	0.5−	1.0+
1994 01 04	411	0.2+	0.2−	1994 01 15	411	0.2−	0.3+	1997 11 27	426	0.2+	0.5+
1994 01 07	411	0.4+	0.1−	1994 01 15	411	0.3−	0.4+	1997 11 27	426	0.4+	0.2+
1994 01 07	411	0.2−	0.3−	1994 02 01	411	0.7+	0.9−	1997 11 27	426	0.2−	0.7+
1994 01 07	411	0.2+	0.6+	1994 02 01	411	0.1−	1.0−	1997 12 04	704	0.7+	0.8−
1994 01 09	411	0.3+	0.1+	1994 02 01	411	0.3−	1.0−	1997 12 04	704	0.5+	1.1−
1994 01 09	411	0.1−	0.7+	1997 11 21	426	0.2+	1.2+	1997 12 04	704	0.9−	1.7−
1994 01 09	411	0.1+	0.6+	1997 11 21	426	0.2−	0.2+	1997 12 04	704	0.2−	0.9−

1994 AP_7 = 1997 UM_7

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	25.09430		(2000.0)		**P**		**Q**
n	0.20440815	ω	266.39204		+0.95629906		−0.28621242
a	2.8541092	Ω	110.23212		+0.28713695		+0.88068760
e	0.0686745	i	3.65331		+0.05517678		+0.37745438
P	4.82	H	14.5	G	0.15	U	6

Residuals in seconds of arc

1994 01 07	691	0.1−	1.6−	1994 01 17	691	0.5+	0.2+	1997 11 01	369	0.8−	0.1+
1994 01 07	691	0.2+	0.4+	1997 10 25	369	0.3−	0.9+	1997 11 01	369	0.3−	0.4+
1994 01 07	691	0.2+	0.5+	1997 10 25	369	0.8+	0.5−	1997 11 01	369	0.6−	0.9+
1994 01 11	691	0.3+	0.3+	1997 10 25	369	0.0	0.4+	1997 11 03	704	0.0	1.1−
1994 01 11	691	0.5−	0.9+	1997 10 26	369	0.2−	1.0−	1997 11 03	704	0.9+	0.3+
1994 01 11	691	1.5−	1.9−	1997 10 26	369	0.9+	1.0−	1997 11 03	704	1.9−	0.1−
1994 01 17	691	0.3−	0.3+	1997 11 01	369	0.1+	0.0	1997 11 07	369	0.5+	0.6+
1994 01 17	691	1.0+	0.8+	1997 11 01	369	0.5−	0.0	1997 11 07	369	1.4+	0.2+

1994 CV_1 = 1997 TO_{18}

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	262.10039		(2000.0)	**P**		**Q**	
n	0.18256300	ω	74.71754	−0.77743582		−0.62586778	
a	3.0774726	Ω	66.49550	+0.54784513		−0.72250679	
e	0.1793361	i	3.89638	+0.30896481		−0.29372343	
P	5.40	H	13.0	G	0.15	U	4

Residuals in seconds of arc

1994 02 08	400	0.0	0.1+	1994 03 04	400	0.3+	0.0	1997 10 10	327	0.3+	0.3+
1994 02 08	400	(2.9+	3.5−)	1997 10 03	327	0.0	0.1+	1997 10 10	327	0.5+	0.1−
1994 02 11	400	(2.3−	1.6+)	1997 10 03	327	0.6−	0.3+	1997 10 10	327	0.1+	0.2−
1994 02 11	400	(2.9−	0.2+)	1997 10 03	327	0.1−	0.1+	1997 10 19	327	(0.2+	2.5−)
1994 03 03	400	0.5−	0.3−	1997 10 09	327	0.0	0.1−	1997 10 19	327	0.6−	0.1+
1994 03 03	400	0.2+	0.1+	1997 10 09	327	0.0	0.3−	1997 10 19	327	0.2+	0.0
1994 03 04	400	(3.2+	1.9−)	1997 10 09	327	0.2+	0.2−				

1994 CK_2

Id. B. A. Skiff (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	248.32556		(2000.0)	**P**		**Q**	
n	0.17320256	ω	79.35235	−0.73361204		−0.67860072	
a	3.1873751	Ω	57.90207	+0.60556604		−0.67700371	
e	0.1176762	i	2.45284	+0.30838799		−0.28489828	
P	5.69	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1994 02 13	411	0.1+	0.5+	1994 03 04	411	0.2+	1.1+	1997 10 28	688	0.1−	0.1+
1994 02 13	411	0.1+	0.1+	1994 03 04	411	0.5−	0.2+	1997 12 05	910	0.0	0.0
1994 02 13	411	0.2−	0.0	1994 03 04	411	1.2−	0.6+	1997 12 05	910	0.2−	0.1−
1994 02 14	411	0.3−	0.8−	1994 03 06	411	0.3+	0.1+	1997 12 05	910	0.1+	0.2−
1994 02 14	411	0.0	0.0	1994 03 06	411	1.1+	0.9−	1997 12 06	910	0.2+	0.0
1994 02 14	411	0.3+	0.3−	1994 03 06	411	0.6+	1.1+	1997 12 06	910	0.1+	0.2−
1994 02 17	411	0.0	0.0	1997 10 27	688	0.2−	0.3+	1997 12 06	910	0.1+	0.1+
1994 02 17	411	0.7−	0.1+	1997 10 27	688	0.3−	0.0				
1994 02 17	411	0.3+	1.5−	1997 10 28	688	0.2+	0.2+				

1994 WQ

Id. B. A. Skiff (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	228.36604		(2000.0)	**P**		**Q**	
n	0.25209846	ω	228.79591	−0.63258280		−0.75738112	
a	2.4817380	Ω	261.19224	+0.75055768		−0.54792086	
e	0.0925879	i	9.42961	+0.19105538		−0.35518527	
P	3.91	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1994 11 25	411	0.6+	0.5−	1994 12 04	411	0.1+	0.0	1997 10 25	688	0.2+	0.5+
1994 11 25	411	0.2+	0.1+	1994 12 04	411	0.6+	0.4−	1997 10 25	688	0.4−	1.0−
1994 11 26	411	0.3−	0.8+	1994 12 21	411	0.6+	0.8+	1997 10 26	688	0.6+	0.2+
1994 11 26	411	1.2−	0.1−	1994 12 21	411	0.7−	0.7−	1997 10 26	688	0.4−	0.3+

1994 YH_1 = 1997 UN_{22}

Id. G. V. Williams, G. Forti

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	320.38986		(2000.0)	**P**		**Q**	
n	0.30196479	ω	180.89723	+0.01574147		−0.99846690	
a	2.2003842	Ω	268.20208	+0.91769877		+0.03549812	
e	0.0250246	i	3.04342	+0.39696496		−0.04247037	
P	3.26	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1994 11 27	010	(1.5+	4.6+)	1995 01 05	411	0.3+	0.3+	1997 10 30	704	0.1−	0.3−
1994 11 27	010	(1.1+	3.5+)	1995 01 05	411	0.2+	0.3+	1997 10 30	704	0.4−	0.0
1994 11 28	010	(1.1+	4.0+)	1995 01 07	411	0.3+	0.0	1997 10 30	704	1.4+	0.9+
1994 12 31	411	0.1−	0.6+	1995 01 07	411	1.0−	0.0	1997 10 30	704	0.1+	0.7−
1994 12 31	411	0.8−	0.4+	1995 01 07	411	0.2−	0.1+	1997 10 30	704	0.1+	0.6+
1995 01 01	411	1.0+	0.6−	1997 10 26	098	0.2−	0.2+	1997 11 18	108	1.0+	1.4−
1995 01 01	411	0.0	0.1+	1997 10 26	098	0.1+	1.4−	1997 11 18	108	0.7−	0.8−
1995 01 01	411	0.4+	0.7−	1997 10 29	098	1.4−	1.9+				
1995 01 05	411	0.0	0.0	1997 10 29	098	0.2+	0.6+				

1994 YT_1

Id. E. Bowell (1993 observations), B. A. Skiff (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	318.14446		(2000.0)	**P**		**Q**	
n	0.26037184	ω	8.76605	+0.47791066		−0.87759863	
a	2.4288836	Ω	52.69381	+0.80302270		+0.41909326	
e	0.1107413	i	2.71739	+0.35602802		+0.23276915	
P	3.79	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1993 07 25	675	0.7−	0.8−	1995 01 01	411	0.3+	0.0	1995 01 19	411	(1.1+	3.2−)
1993 07 25	675	0.7+	0.7+	1995 01 06	411	0.1−	0.3+	1995 01 19	411	0.9+	1.4−
1994 12 31	411	1.2−	0.2−	1995 01 06	411	0.2+	0.1+	1997 11 29	688	0.5−	0.2−
1994 12 31	411	0.2+	0.9+	1995 01 10	411	0.2+	0.0	1997 11 29	688	0.5+	0.0
1995 01 01	411	0.6−	0.3+	1995 01 10	411	0.1+	0.1−				

1995 BP_2 = 1997 XE

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	288.57019		(2000.0)	**P**		**Q**	
n	0.27957544	ω	293.42872	−0.50643061		−0.86098036	
a	2.3163457	Ω	187.53803	+0.86218386		−0.50478726	
e	0.2789676	i	21.15238	+0.01292395		−0.06247118	
P	3.53	H	15.5	G	0.15	U	2

Residuals in seconds of arc

1995 01 29	413	1.7−	0.8+	1995 02 20	413	0.1−	0.4+	1997 10 30	704	1.0+	0.6+
1995 01 29	413	0.3+	0.9−	1995 02 20	413	0.3−	0.3+	1997 12 01	910	0.1+	0.2+
1995 02 01	413	0.4+	0.2+	1995 03 21	413	0.2+	0.9−	1997 12 01	910	0.2+	0.1+
1995 02 01	413	0.2+	0.0	1995 03 21	413	0.0	0.9−	1997 12 01	910	0.2+	0.0
1995 02 02	413	0.2+	0.1−	1995 06 05	413	0.1+	0.3−	1997 12 03	910	0.4−	0.2+
1995 02 02	413	0.1+	0.0	1995 06 05	413	0.1+	0.2−	1997 12 03	910	0.2−	0.4−
1995 02 09	413	0.4+	0.4+	1997 10 30	704	0.9+	0.8−	1997 12 03	910	0.9−	0.5−
1995 02 09	413	0.4+	0.3+	1997 10 30	704	1.1−	0.4−				

1995 BP_3

Id. E. Bowell (1988 observations), B. A. Skiff (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	187.53352		(2000.0)	**P**		**Q**	
n	0.24096071	ω	71.58405	−0.73844306		+0.66671046	
a	2.5576350	Ω	149.98000	−0.66937687		−0.70667337	
e	0.1225037	i	11.64564	−0.08146442		−0.23687531	
P	4.09	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1988 08 16	675	0.2+	0.1−	1995 02 06	411	1.3−	1.0+	1995 03 05	411	0.7+	0.6−
1988 08 16	675	0.3−	0.3+	1995 02 07	411	1.5−	0.9−	1995 03 05	411	1.0+	0.4+
1995 01 31	411	1.0−	0.3−	1995 02 07	411	0.2−	0.9+	1997 10 27	688	0.5+	0.1+
1995 01 31	411	0.4+	0.3−	1995 02 10	411	0.1−	0.2+	1997 10 27	688	0.2−	0.2+
1995 02 01	411	0.8+	1.0+	1995 02 10	411	0.8+	1.2−	1997 10 28	688	0.3−	0.2−
1995 02 01	411	0.1−	0.6−	1995 02 19	411	0.8+	0.5−	1997 10 28	688	0.1−	0.1−
1995 02 06	411	0.3+	0.7+	1995 02 19	411	0.6−	0.6+				

1995 CK

Id. E. Bowell (1993 observations), B. A. Skiff (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	359.34242		(2000.0)	**P**	**Q**		
n	0.27601858	ω	313.11624	+0.37628071	−0.91895492		
a	2.3362026	Ω	114.43292	+0.88325318	+0.31731710		
e	0.0883061	i	7.44974	+0.27977964	+0.23416171		
P	3.57	H	14.0	G 0.15	U 3		

Residuals in seconds of arc

1993 08 17	675	0.7−	0.3−	1995 02 07	411	0.9−	0.2−	1995 03 05	411	0.9+	0.4−
1993 08 17	675	0.8+	0.1+	1995 02 07	411	1.0−	0.3−	1995 03 05	411	0.6+	0.5−
1995 02 01	411	0.0	0.3+	1995 02 10	411	0.2+	0.4+	1997 11 29	688	0.1+	0.0
1995 02 01	411	0.5−	0.1+	1995 02 10	411	0.2−	0.5−	1997 11 29	688	0.1−	0.1+
1995 02 03	411	0.6+	0.3−	1995 02 19	411	(0.7−	2.6+)				
1995 02 03	411	0.6+	0.4−	1995 02 19	411	0.4−	1.5+				

1995 CH_2 = 1997 XP_6

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	258.55432		(2000.0)	**P**	**Q**		
n	0.27570804	ω	326.55560	−0.99808243	−0.06054887		
a	2.3379565	Ω	209.98100	+0.06092112	−0.92412632		
e	0.1562605	i	1.47427	+0.01095787	−0.37725903		
P	3.57	H	16.5	G 0.15	U 5		

Residuals in seconds of arc

1995 02 01	691	0.3+	0.1−	1995 02 04	691	0.1−	0.0	1997 10 24	327	0.7+	0.7+
1995 02 01	691	0.5+	0.1−	1995 02 04	691	0.1−	0.0	1997 12 05	910	0.2+	0.2+
1995 02 01	691	0.4+	0.1−	1995 02 07	691	0.1+	0.0	1997 12 05	910	0.4−	0.2+
1995 02 02	691	0.4−	0.4+	1995 02 07	691	0.0	0.0	1997 12 05	910	0.0	0.0
1995 02 02	691	0.4−	0.3+	1995 02 07	691	0.1+	0.8−	1997 12 07	910	0.1−	0.1−
1995 02 02	691	0.3−	0.6+	1997 10 24	327	0.8−	0.3−	1997 12 07	910	0.2+	0.2−
1995 02 04	691	0.2−	0.1−	1997 10 24	327	0.2+	0.5−	1997 12 07	910	0.1+	0.2−

1995 DD

Id. E. Bowell (1988 observations), B. A. Skiff (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	84.15097		(2000.0)	**P**	**Q**		
n	0.22649428	ω	321.22730	+0.75568419	+0.65487875		
a	2.6654133	Ω	357.80345	−0.53028724	+0.60403503		
e	0.1770280	i	13.07895	−0.38436552	+0.45417563		
P	4.35	H	12.5	G 0.15	U 4		

Residuals in seconds of arc

1988 10 07	675	0.2−	0.9+	1995 02 26	411	0.3−	0.3+	1995 03 20	411	0.1−	0.8+
1988 10 07	675	0.2−	0.3−	1995 02 27	411	0.2−	0.1+	1995 03 20	411	0.3−	0.6−
1995 02 20	411	0.5+	0.6−	1995 02 27	411	0.0	0.1+	1997 10 30	688	0.0	0.7−
1995 02 20	411	0.4+	0.5−	1995 03 06	411	0.3+	0.5+	1997 10 30	688	0.1−	0.0
1995 02 21	411	0.2−	0.3−	1995 03 06	411	0.6+	0.1+	1997 10 31	688	0.1+	0.3+
1995 02 21	411	0.0	0.3−	1995 03 11	411	0.3+	0.1+	1997 10 31	688	0.1+	0.1+
1995 02 26	411	0.5−	0.8+	1995 03 11	411	0.2−	0.0				

1995 DR

Id. H. E. Holt (1991 observations), B. A. Skiff (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	201.65994		(2000.0)	**P**	**Q**		
n	0.25890391	ω	84.85717	−0.48151850	+0.87507209		
a	2.4380558	Ω	156.16487	−0.84439897	−0.44825560		
e	0.1426869	i	6.94671	−0.23479844	−0.18252604		
P	3.81	H	14.0	G 0.15	U 4		

Residuals in seconds of arc

1991 02 07	675	0.1−	0.2−	1995 02 26	411	0.5+	1.1−	1995 03 28	411	(2.5+	1.0−)
1991 02 07	675	0.1+	0.4+	1995 02 26	411	0.4−	0.4−	1995 03 28	411	0.1+	0.4+
1995 02 21	411	0.3+	1.2+	1995 03 07	411	1.2−	0.4−	1997 11 29	688	0.2+	0.2−
1995 02 21	411	1.7−	0.6+	1995 03 07	411	0.3+	0.7+	1997 11 29	688	0.2−	0.1+
1995 02 22	411	0.2−	0.4+	1995 03 11	411	2.0+	0.6−				
1995 02 22	411	1.4−	0.3−	1995 03 11	411	1.6+	0.5−				

1995 DE_8

Id. E. Bowell (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	263.70115		(2000.0)	**P**	**Q**		
n	0.23434325	ω	341.17422	−0.74187627	−0.67002033		
a	2.6055600	Ω	156.69313	+0.62342675	−0.70367185		
e	0.0666733	i	3.81322	+0.24689813	−0.23647132		
P	4.21	H	15.5	G 0.15	U 5		

Residuals in seconds of arc

1995 02 24	691	0.1−	0.1−	1995 03 02	691	0.3+	0.2+	1997 10 25	688	0.3+	0.4+
1995 02 24	691	0.1−	0.0	1995 03 07	691	0.1+	0.7−	1997 10 26	688	0.1+	0.0
1995 02 24	691	0.0	0.1+	1995 03 07	691	0.3−	0.2+	1997 10 26	688	0.3−	0.1+
1995 03 02	691	0.1+	0.2−	1995 03 07	691	0.1+	0.5+				
1995 03 02	691	0.0	0.0	1997 10 25	688	0.1−	0.4−				

1995 EG_8 = 1991 SJ_4

Id. E. Bowell, B. A. Skiff (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	59.38206		(2000.0)	**P**	**Q**		
n	0.17526942	ω	310.78949	+0.58289423	+0.81139924		
a	3.1622675	Ω	354.33532	−0.54893025	+0.35403455		
e	0.2434456	i	25.94999	−0.59909090	+0.46507075		
P	5.62	H	13.0	G 0.15	U 3		

Residuals in seconds of arc

1991 09 16	675	0.2+	0.2+	1995 03 07	033	0.0	0.0	1997 10 28	688	0.2+	0.2−
1991 09 16	675	0.1−	0.3−	1995 03 23	033	0.1−	0.1+	1997 10 29	688	0.2+	0.0
1995 03 04	033	0.2+	0.1−	1995 03 23	033	0.0	0.1−	1997 10 29	688	0.0	0.0
1995 03 05	033	0.2−	0.1−	1997 10 28	688	0.4−	0.1+				

1995 FL_{21} = 1997 TN_{20}

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	68.29178		(2000.0)	**P**	**Q**		
n	0.19260458	ω	293.94574	+0.79805737	+0.59490603		
a	2.9695568	Ω	29.81778	−0.45859885	+0.70283683		
e	0.1096471	i	11.11653	−0.39088557	+0.39000922		
P	5.12	H	15.0	G 0.15	U 3		

Residuals in seconds of arc

1995 03 27	691	0.1−	0.4+	1997 10 03	691	0.4−	0.4−	1997 10 28	557	1.2+	0.3+
1995 03 27	691	0.1+	0.4+	1997 10 03	691	0.4−	0.2−	1997 11 28	691	0.1−	0.1−
1995 04 08	691	0.1−	0.1−	1997 10 03	691	0.2−	0.4−	1997 11 28	691	0.2−	0.3+
1995 04 08	691	0.1+	0.1+	1997 10 10	691	0.1−	0.1−	1997 11 28	691	0.4−	0.1+
1995 04 08	691	0.1+	0.3−	1997 10 10	691	0.4−	0.2−	1997 12 04	691	0.4+	0.1+
1995 04 23	691	0.1+	0.3−	1997 10 10	691	0.2−	0.1−	1997 12 04	691	0.2−	0.3−
1995 04 23	691	0.3−	0.5−	1997 10 28	557	1.1+	0.9+	1997 12 04	691	0.1−	0.0

1995 OO

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

M	327.48064		(2000.0)	**P**	**Q**		
n	0.31235860	ω	211.16781	−0.92682052	+0.36827271		
a	2.1512971	Ω	349.62081	−0.20137530	−0.65231477		
e	0.7792402	i	24.02185	−0.31694118	−0.66246558		
P	3.16	H	17.0	G 0.15	U 4		

Residuals in seconds of arc

1995 07 25	691	0.3−	0.2−	1995 08 22	691	0.0	0.4+	1995 10 19	413	0.6−	0.7−
1995 07 25	691	0.1+	0.3−	1995 09 02	691	0.1+	0.5+	1995 10 19	413	0.8+	0.3+
1995 07 25	691	(4.4+	3.5−)	1995 09 02	691	0.2−	1.0+	1997 11 06	381	0.1−	0.2+
1995 07 26	691	0.1+	0.2−	1995 09 02	691	0.1+	0.9+	1997 11 06	381	0.6−	0.2+
1995 07 26	691	0.0	0.2−	1995 09 17	691	0.2−	0.3−	1997 11 08	696	0.1+	0.1−
1995 07 26	691	0.2+	0.0	1995 09 17	691	0.2−	0.1−	1997 11 08	696	0.2+	0.2+
1995 07 27	691	0.1−	0.3−	1995 09 17	691	0.1−	0.1+	1997 11 09	696	0.0	0.3−
1995 07 27	691	0.5−	0.0	1995 09 17	691	0.3−	0.8−	1997 11 09	696	0.1+	0.0
1995 07 27	691	0.5+	0.1−	1995 09 17	691	0.5−	1.3−	1997 11 09	696	0.3+	0.2−
1995 08 22	691	0.5+	0.7+	1995 09 17	691	0.1+	0.0				
1995 08 22	691	0.3−	0.3+	1995 09 27	691	0.9+	0.3+				

1996 DH$_2$

Id. E. Bowell (1993 observations), B. A. Skiff (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	74.09690			(2000.0)		**P**		**Q**	
n	0.22952724	ω	255.91236		−0.15912565		+0.98713433		
a	2.6418808	Ω	5.01101		−0.82253819		−0.12379413		
e	0.1616475	i	10.31973		−0.54599446		−0.10119698		
P	4.29	H	14.0	G	0.15		U	4	

Residuals in seconds of arc

1993 09 21	675	0.3+	0.7+	1996 02 27	411	0.0	0.6+	1996 03 22	411	0.6+	0.1+
1993 09 21	675	0.5−	0.4−	1996 02 28	411	1.5−	0.5+	1997 10 29	688	0.3−	0.3−
1996 02 23	411	0.3−	0.5+	1996 02 28	411	1.2−	1.5−	1997 10 29	688	0.4−	0.1+
1996 02 23	411	0.7+	1.7+	1996 03 09	411	0.7+	1.6−	1997 10 30	688	0.1+	0.0
1996 02 27	411	0.3+	0.6−	1996 03 09	411	0.2+	0.7−	1997 10 30	688	0.5+	0.2+
1996 02 27	411	0.4−	0.2+	1996 03 22	411	0.9+	1.1+				

1996 HQ$_9$ = 1997 VO$_8$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	1.95296			(2000.0)		**P**		**Q**	
n	0.25339558	ω	160.43126		+0.94013933		−0.31505656		
a	2.4732614	Ω	218.71076		+0.27840700		+0.92989618		
e	0.2349760	i	11.98945		+0.19653901		+0.18982219		
P	3.89	H	13.5	G	0.15		U	4	

Residuals in seconds of arc

1996 04 17	809	0.7+	0.7+	1996 06 08	809	0.1−	1.3−	1997 11 02	327	0.2+	0.2−
1996 04 17	809	0.8+	1.0+	1996 06 08	809	1.2−	1.4−	1997 11 02	327	0.3−	0.1−
1996 04 17	809	0.1+	0.5+	1996 06 10	809	0.0	1.5+	1997 11 02	327	0.3+	0.3−
1996 04 18	809	0.1−	0.8−	1996 06 10	809	0.9+	0.5+	1997 11 02	327	0.1−	0.1−
1996 04 18	809	0.4−	0.9−	1996 06 10	809	0.6+	1.4+	1997 11 03	327	0.1−	0.1−
1996 04 18	809	1.1−	0.4−	1997 11 02	327	0.0	0.3−	1997 11 03	327	0.1+	0.4+
1996 06 08	809	0.3−	0.7−	1997 11 02	327	0.1−	0.2+	1997 11 03	327	0.0	0.4+

1996 HN$_{23}$ = 1997 WH$_{28}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	119.43548			(2000.0)		**P**		**Q**	
n	0.28802476	ω	202.01757		+0.34905850		+0.93475124		
a	2.2708206	Ω	88.46266		−0.84957708		+0.34552798		
e	0.1389445	i	3.80400		−0.39544525		+0.08276800		
P	3.42	H	15.5	G	0.15		U	5	

Residuals in seconds of arc

1996 04 20	809	0.2−	0.7+	1996 05 19	809	0.4+	0.3+	1996 05 23	809	1.6+	1.7+
1996 04 20	809	0.4+	0.6+	1996 05 19	809	0.1−	1.4+	1997 11 29	691	1.0−	0.6+
1996 04 20	809	0.3−	0.3−	1996 05 22	809	2.0−	1.6−	1997 11 29	691	0.6−	0.5+
1996 04 21	809	0.9+	0.7−	1996 05 22	809	2.0−	1.7−	1997 11 29	691	0.3−	0.4+
1996 04 21	809	0.1−	1.1−	1996 05 22	809	1.6−	1.7−	1997 12 05	691	0.7+	0.2−
1996 04 21	809	0.1+	0.0	1996 05 23	809	1.3+	1.0+	1997 12 05	691	0.4+	0.3−
1996 05 19	809	1.0+	0.8+	1996 05 23	809	1.1+	1.5+	1997 12 05	691	0.6+	0.0

1996 JL = 1974 SW$_3$ = 1974 TW$_1$ = 1979 YU$_3$ = 1983 RP$_6$ = 1988 SV$_4$ = 1993 UG$_3$

Id. G. V. Williams (*MPC* 27319, unpublished)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	344.69769			(2000.0)		**P**		**Q**	
n	0.21243617	ω	175.80777		+0.90965163		−0.40861118		
a	2.7817435	Ω	208.67602		+0.37643059		+0.88691568		
e	0.1633287	i	8.94824		+0.17559589		+0.21544713		
P	4.64	H	13.0	G	0.15		U	1	

Residuals in seconds of arc

1974 09 22	095	0.9+	0.2−	1996 05 14	900	0.2−	0.5−	1997 08 24	560	0.4+	0.2+
1974 10 10	095	(4.2+	5.9−)	1996 05 14	867	0.2−	0.6−	1997 08 24	560	0.5+	0.3+
1979 12 18	095	0.8−	0.6−	1996 05 14	867	0.2−	0.5−	1997 08 24	560	0.3+	0.4+
1983 09 05	095	0.1+	1.2−	1996 05 14	867	0.1−	0.4−	1997 08 24	560	0.5+	0.2+
1988 09 17	095	0.5−	0.1+	1996 05 22	566	0.3+	0.3−	1997 08 30	566	0.2−	0.2−
1993 10 19	675	0.6+	1.6−	1996 05 22	566	0.2−	0.0	1997 08 30	566	0.0	0.2−
1993 10 19	675	0.4+	1.6−	1996 05 22	566	0.4−	0.7−	1997 08 30	566	0.2−	0.1−
1993 10 20	675	0.2−	2.4−	1997 08 23	560	0.5−	0.1−	1997 11 30	566	0.0	0.3+
1996 05 10	897	0.6−	0.4−	1997 08 23	560	0.1−	0.1+	1997 11 30	566	0.3+	0.3+
1996 05 10	897	0.4−	2.1−	1997 08 23	560	0.5−	0.2−	1997 11 30	566	0.1−	0.5+
1996 05 10	897	1.5+	0.3−	1997 08 23	560	0.5−	0.2+				
1996 05 14	900	0.2−	0.0	1997 08 23	560	0.1−	0.1+				

1996 NS

Id. B. A. Skiff (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

M	104.76216			(2000.0)		**P**		**Q**	
n	0.18574195	ω	158.33261		+0.41165044		+0.90351219		
a	3.0422580	Ω	135.73812		−0.85921966		+0.42837358		
e	0.0941163	i	9.83402		−0.30378529		+0.01272013		
P	5.31	H	13.5	G	0.15		U	3	

Residuals in seconds of arc

1996 07 10	610	0.8+	0.4−	1996 07 21	552	0.2+	0.5+	1996 09 14	589	0.6−	0.2+
1996 07 10	610	0.6+	0.1−	1996 07 21	552	0.4+	0.1−	1996 09 14	589	0.2−	0.4+
1996 07 10	610	0.4+	0.3+	1996 08 09	552	0.1+	0.1−	1996 09 14	589	0.2+	0.5+
1996 07 11	552	0.2+	0.3−	1996 08 09	552	0.2+	0.6+	1997 10 27	688	0.0	0.1+
1996 07 11	552	0.4−	0.7−	1996 08 09	552	0.4+	0.0	1997 10 27	688	0.1−	0.2−
1996 07 11	552	0.4−	0.0	1996 08 12	552	0.3+	0.7+	1997 10 28	688	0.2+	0.2+
1996 07 13	552	0.4−	1.1−	1996 08 12	552	0.6+	0.3+	1997 10 28	688	0.5+	0.1−
1996 07 13	552	0.6−	0.7−	1996 08 17	552	0.1+	0.7+	1997 11 20	552	0.5−	0.1+
1996 07 13	552	0.3−	0.3−	1996 08 17	552	0.2−	0.3+	1997 11 20	552	0.7−	0.3−
1996 07 18	552	0.8−	0.4+	1996 08 17	552	0.3−	0.4+	1997 11 20	552	0.2+	0.5−
1996 07 18	552	0.2+	0.8+	1996 09 13	552	0.4+	1.4−	1997 12 06	552	0.3−	0.6+
1996 07 18	552	1.0−	0.6+	1996 09 13	552	0.2+	1.7−	1997 12 06	552	0.6+	0.4+
1996 07 21	552	0.1+	0.6+	1996 09 13	552	0.5−	0.9−				

1996 NE$_5$ = 1996 PD$_6$ = 1986 PK$_2$ = 1997 VN$_7$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	112.56572			(2000.0)		**P**		**Q**	
n	0.19818713	ω	43.06283		+0.65618426		+0.75432482		
a	2.9135273	Ω	267.95747		−0.69775950		+0.59623949		
e	0.0242522	i	1.16983		−0.28732193		+0.27475906		
P	4.97	H	14.0	G	0.15		U	5	

Residuals in seconds of arc

1986 08 01	675	2.1−	3.1+	1996 07 15	809	0.9−	0.5−	1996 09 11	566	0.6+	0.3−
1986 08 01	675	(0.7+	5.1+)	1996 07 15	809	0.3+	1.1−	1996 09 11	566	0.4+	0.6−
1986 08 02	675	(6.3+	0.2+)	1996 07 15	809	0.8−	0.0	1996 09 11	566	1.6+	0.2+
1986 08 02	675	(9.7+	1.0+)	1996 07 21	809	0.7−	1.1+	1997 11 02	327	0.5+	0.2+
1986 08 04	675	0.8+	0.3+	1996 07 21	809	0.0	0.7+	1997 11 02	327	0.4+	0.1+
1986 08 04	675	(5.7−	0.2−)	1996 07 21	809	0.1+	1.3+	1997 11 02	327	0.4+	0.0
1996 07 14	809	0.8+	0.5−	1996 08 10	566	0.8−	1.4−	1997 11 06	327	0.6−	0.2+

1996 07 14	809	1.2+	0.5+	1996 08 10	566	0.6−	1.2−	1997 11 06	327	0.5−	0.1+
1996 07 14	809	0.8+	0.5−	1996 08 10	566	0.5−	0.9−	1997 11 06	327	0.3−	0.0

1996 PW

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

M	0.08273		(2000.0)	**P**	**Q**	
n	0.00016655	ω	181.90456	+0.83012695	+0.47686926	
a	327.1634069	Ω	144.47083	−0.50476671	+0.86286035	
e	0.9922477	i	29.81562	−0.23685399	−0.16753425	
P	5920	H	14.0	G 0.15		

Residuals in seconds of arc

1996 08 09	566	0.2−	0.7−	1996 08 18	867	0.0	0.1−	1996 08 30	608	0.4+	0.6+
1996 08 09	566	0.3−	0.8−	1996 08 18	867	0.2−	0.2−	1996 08 30	608	0.3+	0.6+
1996 08 09	566	0.0	0.2−	1996 08 18	867	0.2−	0.4−	1996 08 30	046	0.3+	0.0
1996 08 12	566	0.4−	1.1−	1996 08 18	046	0.2+	0.0	1996 08 30	046	0.6−	0.2+
1996 08 12	566	0.2−	1.2−	1996 08 18	046	0.3+	0.0	1996 08 30	046	0.3+	1.1+
1996 08 12	566	0.5−	1.0−	1996 08 18	046	0.3−	0.1+	1996 08 30	046	0.2−	0.6+
1996 08 12	587	0.1−	0.3−	1996 08 18	046	0.1+	0.1+	1996 09 02	897	0.1+	0.2−
1996 08 12	587	0.1+	0.1−	1996 08 18	104	0.3−	0.2−	1996 09 02	897	0.5−	0.1−
1996 08 12	587	0.3+	0.0	1996 08 18	104	0.3−	0.2−	1996 09 04	596	0.8−	0.7+
1996 08 13	608	0.7+	0.6−	1996 08 18	104	0.2−	0.5−	1996 09 04	596	0.5−	0.1+
1996 08 13	608	0.7+	0.6−	1996 08 18	104	0.2−	0.1+	1996 09 06	587	0.5−	0.5+
1996 08 13	673	0.5−	0.0	1996 08 18	046	0.2+	0.1+	1996 09 06	587	0.4−	0.4+
1996 08 13	673	0.7−	0.3−	1996 08 18	046	0.1+	0.1+	1996 09 06	587	0.0	0.0
1996 08 14	673	0.6−	0.9+	1996 08 18	046	0.1+	0.2+	1996 09 08	587	0.1−	0.6+
1996 08 14	673	0.7−	0.9+	1996 08 18	046	0.1+	0.0	1996 09 08	587	0.4−	0.8+
1996 08 14	673	0.6−	0.7+	1996 08 19	817	0.3+	0.2+	1996 09 10	566	0.7−	0.1−
1996 08 14	608	0.2−	0.2−	1996 08 19	817	0.4+	0.1+	1996 09 10	566	0.7−	0.2−
1996 08 14	673	0.1−	0.2+	1996 08 19	817	0.3+	0.1−	1996 09 10	566	0.8−	0.0
1996 08 14	608	0.1−	0.2−	1996 08 19	566	0.5+	0.2−	1996 09 10	372	0.5−	0.7+
1996 08 15	673	0.3−	1.5+	1996 08 19	566	0.2−	0.4−	1996 09 10	360	0.8−	0.2+
1996 08 15	673	1.8−	0.2+	1996 08 19	566	0.2+	0.7−	1996 09 10	360	1.1−	0.7+
1996 08 15	608	0.2+	0.4+	1996 08 19	867	0.3+	0.3+	1996 09 10	360	1.1−	0.7+
1996 08 15	608	0.3+	0.5+	1996 08 19	867	0.3+	0.1+	1996 09 11	897	0.6−	1.2+
1996 08 15	566	0.1+	0.8−	1996 08 19	867	0.2+	0.3+	1996 09 11	897	1.2−	0.7+
1996 08 15	566	0.2−	0.7−	1996 08 19	108	1.5−	1.5+	1996 09 11	897	(2.2−	0.1+)
1996 08 15	608	0.4+	0.2+	1996 08 19	540	1.4−	0.5+	1996 09 12	566	1.0−	0.1+
1996 08 15	566	0.2−	0.6−	1996 08 19	540	0.4+	0.5−	1996 09 12	566	1.0−	0.1−
1996 08 15	608	0.5+	0.5+	1996 08 19	046	0.0	0.1+	1996 09 12	566	1.1−	0.1−
1996 08 15	608	0.7+	0.2+	1996 08 19	540	0.6−	0.4+	1996 09 14	566	0.8−	0.1+
1996 08 15	608	0.3+	0.0	1996 08 19	046	0.1−	0.0	1996 09 14	566	0.5−	0.1−
1996 08 15	046	0.2−	0.3+	1996 08 19	046	0.1−	0.2+	1996 09 14	566	0.7−	0.3−
1996 08 15	046	0.2+	0.1−	1996 08 19	046	0.0	0.2+	1996 09 17	424	0.2+	0.7−
1996 08 15	046	0.1+	0.1−	1996 08 19	108	0.2+	0.1−	1996 09 17	424	0.4+	0.9−
1996 08 15	046	0.0	0.1+	1996 08 19	108	(0.2+	2.2−)	1996 09 17	424	0.7+	0.0
1996 08 16	557	0.1−	0.0	1996 08 20	566	0.2+	0.4−	1996 09 17	385	0.4+	0.3−
1996 08 16	557	0.3+	0.0	1996 08 20	566	0.2+	0.3−	1996 09 17	385	0.1−	0.2+
1996 08 16	557	0.1+	0.2−	1996 08 20	566	0.4+	0.5−	1996 09 17	385	1.0−	0.4−
1996 08 16	557	0.1−	0.1+	1996 08 20	360	0.2+	0.1+	1996 09 18	118	0.0	0.7+
1996 08 16	568	0.1+	0.1+	1996 08 20	360	0.0	0.0	1996 09 18	118	0.5−	0.8+
1996 08 16	568	0.1+	0.0	1996 08 20	360	0.2+	0.2−	1996 09 19	046	0.9+	0.0
1996 08 16	568	0.0	0.2−	1996 08 21	046	0.2+	0.3+	1996 09 19	046	0.4+	0.1+
1996 08 16	608	0.4−	0.8−	1996 08 21	046	0.2+	0.2+	1996 09 19	046	0.5+	0.6+
1996 08 16	608	0.3−	1.3−	1996 08 21	046	0.2+	0.1+	1996 09 20	711	0.0	0.3+
1996 08 16	608	0.4−	0.3−	1996 08 21	711	0.3+	0.3+	1996 09 20	711	0.1+	0.2+
1996 08 16	900	0.4+	0.6−	1996 08 21	711	0.1+	0.2+	1996 09 21	711	0.2+	0.0
1996 08 16	587	0.0	0.3+	1996 08 21	367	0.3+	0.4+	1996 09 21	711	0.2+	0.1−
1996 08 16	587	0.1+	0.1+	1996 08 21	367	0.5+	0.6+	1996 10 01	608	0.6+	0.2+
1996 08 16	587	0.6+	0.2+	1996 08 21	118	0.6+	0.4+	1996 10 01	608	1.5−	0.6−
1996 08 17	566	0.4+	0.7−	1996 08 21	118	0.7+	0.6+	1996 10 02	608	0.3+	0.1+
1996 08 17	566	0.2+	0.6−	1996 08 21	118	0.7+	0.4+	1996 10 02	608	0.2+	0.2+
1996 08 17	566	0.1+	0.8−	1996 08 22	711	0.2+	0.3+	1996 10 02	587	0.3+	0.3−
1996 08 17	566	0.2−	0.1+	1996 08 22	711	0.4+	0.4+	1996 10 02	587	1.0+	1.3−
1996 08 17	566	0.4−	0.1+	1996 08 22	608	0.3+	0.1+	1996 10 02	587	1.1−	0.3−
1996 08 17	566	0.1−	0.2+	1996 08 22	608	0.3+	0.1+	1996 10 03	608	0.7+	0.5−
1996 08 17	353	0.2+	0.1−	1996 08 22	900	0.8+	0.4−	1996 10 03	608	0.7+	0.4−
1996 08 17	353	0.9+	0.2−	1996 08 22	587	0.7+	0.7+	1996 10 09	360	0.1+	0.3−
1996 08 17	367	0.6+	0.3+	1996 08 22	118	0.4+	0.2−	1996 10 09	360	0.1−	0.3−
1996 08 17	367	0.1+	0.0	1996 08 22	587	0.6+	0.1+	1996 10 09	360	0.1+	0.4−
1996 08 17	353	0.1+	0.5−	1996 08 22	118	0.2+	0.0	1996 10 11	566	0.2−	0.1−
1996 08 17	422	0.2+	0.2+	1996 08 22	118	0.2+	0.2+	1996 10 11	566	0.2+	0.3−
1996 08 17	422	0.2−	0.0	1996 08 23	817	0.9+	1.0+	1996 10 11	566	0.4−	0.3−
1996 08 17	422	0.1+	0.0	1996 08 23	817	0.2+	0.2+	1996 10 13	900	(4.0+	0.2−)
1996 08 17	900	0.6−	0.3−	1996 08 23	658	0.2−	0.6+	1996 10 13	867	0.5+	0.4−
1996 08 17	587	0.0	0.4+	1996 08 23	658	0.5−	0.5+	1996 10 13	867	0.4+	0.6−
1996 08 17	587	0.2+	0.0	1996 08 23	658	0.3−	0.6+	1996 10 13	867	0.7+	0.6−
1996 08 17	587	0.2+	0.2+	1996 08 24	118	0.6+	0.3−	1996 12 14	360	0.1−	0.3−
1996 08 18	122	0.6+	0.9+	1996 08 24	118	0.3+	0.1+	1996 12 14	360	0.3−	0.7+
1996 08 18	122	0.4+	1.2+	1996 08 24	658	0.2−	0.4−	1996 12 14	360	0.1+	0.2−
1996 08 18	122	0.5+	1.0+	1996 08 24	658	0.2−	0.4−	1996 12 29	867	1.0+	0.4+
1996 08 18	817	0.8−	0.6+	1996 08 24	658	0.2−	0.5−	1996 12 29	867	0.2+	0.9−
1996 08 18	817	0.9−	0.7+	1996 08 24	422	0.1+	0.1+	1996 12 29	867	0.3+	0.3−
1996 08 18	817	0.4−	1.0+	1996 08 24	422	0.1+	0.2−	1997 11 10	696	0.1−	0.1+
1996 08 18	388	0.8+	1.3−	1996 08 24	422	0.2−	0.8−	1997 11 10	696	0.5−	0.5+
1996 08 18	388	0.5+	0.1−	1996 08 24	118	0.3+	0.7−	1997 11 10	696	0.0	0.6+
1996 08 18	388	0.6+	1.7−	1996 08 25	118	0.3+	1.7−	1997 11 21	709	0.4−	0.1+
1996 08 18	360	0.1+	0.0	1996 08 25	118	1.0+	1.0−	1997 11 21	709	0.5−	0.0
1996 08 18	360	0.0	0.0	1996 08 28	608	0.1−	0.0	1997 11 21	709	1.3+	0.4+
1996 08 18	360	0.2−	0.0	1996 08 28	608	0.1−	0.2+	1997 11 21	709	0.3−	0.6−
1996 08 18	900	0.2−	0.3−	1996 08 29	608	0.8+	0.5−	1997 11 21	709	0.1−	0.5−
1996 08 18	900	0.2−	0.2+	1996 08 29	608	0.4+	0.4−				

1996 PA$_1$

Id. P. G. Comba (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

M	108.45776		(2000.0)	**P**	**Q**		
n	0.26881583	ω	213.35006	+0.97120872	+0.21921875		
a	2.3777498	Ω	133.69038	−0.18046408	+0.93254478		
e	0.1343746	i	7.41011	−0.15551956	+0.28688563		
P	3.67	H	15.0	G 0.15	U 4		

Residuals in seconds of arc

1996 08 11	684	0.3−	0.3−	1996 09 02	684	0.1−	0.0	1996 09 19	327	0.6+	0.1+
1996 08 11	684	0.2−	0.1−	1996 09 02	684	0.1−	0.1+	1996 10 02	684	0.0	0.0
1996 08 12	684	0.1+	0.0	1996 09 02	684	0.2−	0.1−	1996 10 02	684	0.1−	0.2−
1996 08 12	684	0.1+	0.0	1996 09 04	684	0.1−	0.1+	1996 10 02	684	0.0	0.2−
1996 08 12	684	0.1+	0.1−	1996 09 04	684	0.1−	0.0	1997 11 28	684	0.1−	0.4+
1996 08 13	684	0.0	0.0	1996 09 04	684	0.3−	0.2+	1997 11 28	684	0.1+	0.1+
1996 08 13	684	0.1−	0.0	1996 09 15	684	0.1−	0.0	1997 11 28	684	0.1+	0.1+
1996 08 13	684	0.1+	0.0	1996 09 15	684	0.6−	0.3−	1997 11 28	684	0.1+	0.0
1996 08 15	816	0.3+	0.3+	1996 09 15	684	0.4−	0.0	1997 11 29	684	0.0	0.1−
1996 08 15	816	0.3+	0.3+	1996 09 19	327	1.0+	0.2+	1997 11 29	684	0.0	0.1−
1996 08 15	816	0.2+	0.1+	1996 09 19	327	0.2−	0.1−	1997 11 29	684	0.1−	0.1−

1996 PF$_5$

Id. E. Colombini (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

M	212.44543		(2000.0)	**P**	**Q**		
n	0.23174216	ω	273.97794	−0.88031758	+0.44295128		
a	2.6250204	Ω	292.38413	−0.32859837	−0.82754922		
e	0.1408901	i	10.58223	−0.34214627	−0.34490065		
P	4.25	H	15.0	G 0.15	U 4		

Residuals in seconds of arc

1996 08 09	552	0.2+	0.1+	1996 08 17	552	1.1+	0.2+	1996 09 13	552	0.4−	0.4−
1996 08 09	552	0.2+	0.1+	1996 08 20	552	0.3−	0.3+	1996 09 13	552	0.7+	1.2−
1996 08 09	552	0.2+	0.8+	1996 08 20	552	0.7−	0.6+	1997 11 20	552	0.3−	0.8−
1996 08 12	552	0.3+	0.1+	1996 08 20	552	1.2+	0.5−	1997 11 20	552	(3.0+	0.7+)
1996 08 12	552	0.1+	0.8−	1996 09 07	552	0.2+	0.0	1997 12 06	552	0.2+	0.7+
1996 08 17	552	1.7−	0.0	1996 09 07	552	0.5−	0.4+	1997 12 06	552	0.1+	0.3+
1996 08 17	552	0.8−	0.3−	1996 09 07	552	0.1+	0.6+				

1996 PN_5 = 1992 UR_{10}

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	78.78040		(2000.0)		**P**	**Q**	
n	0.21645177	ω	272.60289		+0.99232248	+0.11523238	
a	2.7472317	Ω	80.78276		−0.08744674	+0.91054632	
e	0.1019598	i	2.60815		−0.08745946	+0.39702255	
P	4.55	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1992 10 23	010	1.8+	0.4+	1996 07 21	566	0.3−	0.2+	1996 08 10	566	0.0	0.5+
1992 10 23	010	0.1−	0.1−	1996 07 21	566	0.2+	0.4−	1996 08 10	566	0.1+	0.7+
1992 11 03	010	0.5+	0.7−	1996 07 21	566	0.4−	0.2−	1996 08 19	566	0.3+	0.2−
1992 11 03	010	0.8−	0.2+	1996 07 21	566	0.5+	0.8−	1996 08 19	566	0.2−	0.0
1992 11 03	010	1.3−	0.1+	1996 07 21	566	0.1−	0.2−	1996 08 19	566	0.2−	0.2−
1996 07 21	566	0.2+	0.1−	1996 08 10	566	0.0	0.5+				

1996 QD_1

Id. T. Kobayashi (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	248.82291		(2000.0)		**P**	**Q**	
n	0.28393904	ω	321.71005		−0.93747706	+0.34497864	
a	2.2925526	Ω	238.53023		−0.30451796	−0.87715775	
e	0.0856971	i	3.09928		−0.16853954	−0.33404194	
P	3.47	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1996 08 17	552	0.5−	0.7+	1996 09 07	552	0.1−	0.0	1997 11 23	411	0.2−	0.1+
1996 08 17	552	0.3−	0.0	1996 09 07	552	0.8−	0.3+	1997 11 24	411	0.1−	0.1+
1996 08 20	552	0.5−	0.0	1996 09 10	552	0.5+	0.1+	1997 11 24	411	0.8−	0.1−
1996 08 20	552	0.0	0.9+	1996 09 10	552	0.1−	0.0	1997 12 04	704	0.1+	1.0−
1996 08 23	552	0.4+	0.5−	1996 09 10	552	0.3+	0.2−	1997 12 04	704	0.2+	0.8−
1996 08 23	552	1.0+	0.3−	1996 09 13	552	0.1−	0.4−	1997 12 04	704	1.2−	0.2−
1996 08 23	552	0.0	0.3−	1996 09 13	552	0.0	0.7−	1997 12 04	704	1.1+	1.6+
1996 09 07	552	0.2+	0.4+	1997 11 23	411	0.9+	0.4+				

1996 SO_8 = 1997 UM_{22}

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	22.72460		(2000.0)		**P**	**Q**	
n	0.08176552	ω	64.56766		+0.98795818	−0.13591838	
a	5.2572169	Ω	303.16286		+0.08992041	+0.89321657	
e	0.1125478	i	5.06629		+0.12590852	+0.42859112	
P	12.05	H	11.0	G	0.15	U	5

Residuals in seconds of arc

1996 09 13	809	0.3+	0.8+	1996 09 15	809	0.4−	0.2−	1997 10 26	098	0.3+	1.8+
1996 09 14	809	0.5−	0.0	1996 09 16	809	0.6+	0.4−	1997 10 26	098	1.1−	0.6−
1996 09 14	809	0.4−	0.1+	1996 09 17	809	0.9+	0.2+	1997 10 29	098	0.9+	0.6+
1996 09 14	809	0.3+	0.1+	1996 09 22	809	0.2−	0.1−	1997 10 29	098	0.1−	1.9−
1996 09 15	809	0.4−	0.3−	1996 09 22	809	0.2−	0.1−				

1996 UB = 1991 UX_3

Id. E. Bowell (1991 observations), B. A. Skiff (1997 observations), G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	146.52349		(2000.0)		**P**	**Q**	
n	0.20281724	ω	90.43866		+0.92865450	+0.37058917	
a	2.8690149	Ω	247.80945		−0.34694079	+0.85220797	
e	0.0125626	i	1.00639		−0.13127417	+0.36933081	
P	4.86	H	13.0	G	0.15	U	5

Residuals in seconds of arc

1991 10 07	675	1.1+	0.2−	1996 10 17	411	0.9−	0.1+	1996 11 13	411	1.1+	0.7+
1991 10 07	675	0.1+	1.3+	1996 10 17	411	0.6−	1.2+	1996 11 13	411	0.3+	0.1+
1991 10 19	399	(3.3−	0.9−)	1996 10 17	411	0.7−	0.6+	1996 11 30	411	0.0	0.6−
1991 10 19	399	0.9−	1.9−	1996 10 20	411	0.1+	0.4−	1996 11 30	411	0.6+	1.0−
1996 10 10	691	0.6−	0.1−	1996 10 20	411	0.2+	0.4+	1997 11 29	688	0.1−	0.3+
1996 10 10	691	0.6−	0.2−	1996 10 20	411	0.1+	0.6−	1997 11 29	688	0.2+	0.1−
1996 10 16	411	0.3−	0.5−	1996 10 29	411	0.7+	0.1−				
1996 10 16	411	0.8−	0.2−	1996 10 29	411	1.0+	1.3+				

1996 UU_1

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

M	6.26453		(2000.0)		**P**	**Q**	
n	0.17467798	ω	90.78017		−0.19677420	−0.98031960	
a	3.1694017	Ω	10.60851		+0.86164823	−0.18065503	
e	0.1394534	i	4.96041		+0.46780577	−0.07960678	
P	5.64	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1996 10 30	684	0.2−	0.3+	1996 11 07	684	0.2−	0.2−	1996 12 29	684	0.1+	0.1−
1996 10 30	684	0.3−	0.2+	1996 11 07	684	0.1−	0.1−	1996 12 29	684	0.5−	0.3−
1996 10 30	684	0.2−	0.4+	1996 11 07	684	0.0	0.2−	1997 11 28	684	0.1+	0.0
1996 10 31	684	0.0	0.1−	1996 12 01	684	0.1−	0.1+	1997 11 28	684	0.0	0.0
1996 10 31	684	0.2+	0.1−	1996 12 01	684	0.3−	0.2−	1997 11 28	684	0.0	0.0
1996 10 31	684	0.1+	0.1−	1996 12 16	684	0.3+	0.4−	1997 11 28	684	0.1−	0.2−
1996 11 02	684	0.1+	0.1−	1996 12 16	684	0.3+	0.2−	1997 11 29	684	0.0	0.2+
1996 11 02	684	0.2+	0.4+	1996 12 16	684	0.6+	0.4−	1997 11 29	684	0.0	0.1+
1996 11 02	684	0.2−	0.5+	1996 12 29	684	0.3+	0.2+	1997 11 29	684	0.0	0.1+

1996 UG_3 = 1961 UR = 1987 RM_3

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	153.11793		(2000.0)		**P**	**Q**	
n	0.22579713	ω	286.45978		+0.68653645	+0.71907270	
a	2.6708968	Ω	27.85547		−0.54756996	+0.60878527	
e	0.1997516	i	13.32825		−0.47836685	+0.33513421	
P	4.37	H	12.8	G	0.15	U	3

Residuals in seconds of arc

1961 10 18	760	1.7−	0.9−	1996 10 18	566	0.1+	0.2−	1997 01 25	327	0.8+	0.2−
1961 10 18	760	1.1+	1.6+	1996 10 20	894	0.7−	0.4+	1997 01 25	327	0.7+	0.3−
1987 09 03	095	0.9+	0.7−	1996 10 20	894	0.3+	1.5+	1997 01 25	327	0.5+	0.3−
1996 10 16	894	0.9+	0.1−	1996 11 07	894	0.4−	0.9+	1997 01 27	327	0.4+	0.1−
1996 10 16	894	0.0	0.4−	1996 11 07	894	2.0−	0.5−	1997 01 27	327	0.4+	0.4−
1996 10 18	566	0.1−	0.5−	1996 11 13	894	(3.1−	0.5−)	1997 01 27	327	0.5+	0.3−
1996 10 18	566	0.2−	0.4−	1996 11 13	894	(3.7−	1.0+)				

1997 ET_1 = 1981 VJ_2 = 1986 WN_9 = 1997 XE_9

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	130.83438		(2000.0)		**P**	**Q**	
n	0.20544161	ω	305.13168		+0.86465996	−0.49928569	
a	2.8445295	Ω	84.87992		+0.47712333	+0.78164857	
e	0.0853427	i	3.19259		+0.15721475	+0.37381721	
P	4.80	H	13.5	G	0.15	U	3

Residuals in seconds of arc

1981 11 03	033	0.0	0.5−	1997 03 04	046	0.3−	0.0	1997 04 02	046	0.1−	0.4+
1981 11 03	033	0.3+	0.4−	1997 03 04	046	0.1−	0.1+	1997 04 02	046	0.5−	0.3−
1986 11 30	381	(7.5−	2.6+)	1997 03 05	046	0.5−	0.0	1997 04 07	046	0.7+	0.7+
1986 11 30	381	1.0−	0.3−	1997 03 05	046	0.8−	0.3−	1997 04 07	046	0.4+	0.7+
1986 12 01	381	1.2+	0.2+	1997 03 05	046	0.3−	0.1+	1997 04 07	046	0.1+	1.0+
1986 12 01	381	0.2+	0.9−	1997 03 05	046	0.3−	0.1−	1997 04 09	046	0.4+	0.2−
1996 12 18	327	0.2+	0.5+	1997 03 09	046	0.0	0.3+	1997 04 09	046	0.2+	0.4−
1996 12 18	327	0.2+	0.3−	1997 03 09	046	0.5−	0.1+	1997 12 07	910	0.1−	0.8−
1996 12 18	327	2.2+	0.6−	1997 03 09	046	0.3−	0.0	1997 12 07	910	0.3−	0.6−
1996 12 26	327	1.4−	0.3+	1997 03 10	046	0.3−	0.1+	1997 12 07	910	0.1−	0.9−
1996 12 26	327	1.0−	0.3+	1997 03 10	046	0.0	0.3+	1997 12 08	910	0.4−	0.4−
1996 12 26	327	1.1+	0.2−	1997 03 12	046	0.4+	0.3−	1997 12 08	910	0.2−	0.4−
1997 03 04	046	0.3−	0.1+	1997 03 12	046	0.4−	0.1+	1997 12 08	910	0.5−	0.6−
1997 03 04	046	0.0	0.3+	1997 03 12	046	0.4+	0.2+				
1997 03 04	046	0.5+	0.2+	1997 04 02	046	0.4−	0.1−				

1997 QM$_4$ = 1979 OY

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Ichikawa

M	39.07410		(2000.0)		**P**	**Q**	
n	0.27805743	ω	168.91494		+0.91520414	+0.40259302	
a	2.3247685	Ω	167.29986		−0.37568305	+0.86841475	
e	0.1271097	i	4.66902		−0.14582057	+0.28943855	
P	3.54	H	15.6	G	0.15	U	6

Residuals in seconds of arc

1979 07 24	675	0.3+	0.3+	1997 08 30	620	0.6−	0.7−	1997 09 04	620	1.5+	0.9−
1979 07 25	675	0.0	0.5+	1997 08 30	620	0.9−	1.0−	1997 09 22	620	0.0	1.3+
1979 07 26	675	0.4−	0.4−	1997 09 03	620	0.1−	0.6+	1997 09 22	620	0.4+	1.2+
1997 08 29	620	0.5−	0.4−	1997 09 03	620	0.6+	0.2−	1997 09 22	620	0.3−	0.2−

1997 RL$_7$ = 1993 SL$_5$

Id. K. Ichikawa, A. Gnädig

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Ichikawa

M	51.12925		(2000.0)		**P**	**Q**	
n	0.24367097	ω	304.29891		+0.54275508	+0.83987133	
a	2.5386346	Ω	358.53555		−0.67753280	+0.43377920	
e	0.1924687	i	13.00383		−0.49635293	+0.32626945	
P	4.04	H	14.9	G	0.15	U	4

Residuals in seconds of arc

1993 09 19	010	0.2−	1.4+	1997 09 12	046	0.1−	0.1+	1997 10 06	046	0.4+	0.1−
1993 09 19	010	1.6+	0.7+	1997 09 12	046	0.2+	0.2−	1997 10 06	046	0.0	0.1+
1993 09 20	010	0.8−	0.6−	1997 09 12	046	0.1−	0.4+	1997 10 09	046	0.3+	1.1−
1993 09 20	010	0.0	0.2−	1997 09 20	046	0.1−	0.4+	1997 10 09	046	0.1−	0.5−
1993 09 20	010	0.9−	0.9−	1997 09 20	046	0.3−	0.1+	1997 10 09	046	0.1−	0.6−
1997 09 10	046	0.4+	0.4−	1997 09 20	046	0.2−	0.2+	1997 10 22	046	0.1+	0.1+
1997 09 10	046	0.4+	0.0	1997 09 23	046	0.2−	0.2+	1997 10 22	046	0.1−	0.6+
1997 09 10	046	0.4+	0.4−	1997 09 23	046	0.4−	0.0	1997 10 22	046	0.1+	0.5+
1997 09 10	046	0.1+	0.2−	1997 09 23	046	0.3−	0.3+	1997 10 23	046	0.0	0.3+
1997 09 11	046	0.2−	0.1+	1997 10 05	046	0.6+	0.6−	1997 10 23	046	0.2−	0.4+
1997 09 11	046	0.3−	0.1+	1997 10 05	046	0.2+	0.5−	1997 10 23	046	0.1−	0.3+
1997 09 11	046	0.1−	0.3+	1997 10 05	046	0.3+	0.1−				
1997 09 11	046	0.3−	0.2+	1997 10 06	046	0.0	0.2−				

1997 SU$_1$ = 1993 RM$_{19}$ = 1995 EL$_3$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Ichikawa

M	3.73161		(2000.0)		**P**	**Q**	
n	0.24226163	ω	191.96335		+0.96842635	−0.24929381	
a	2.5484706	Ω	182.47439		+0.23190974	+0.90340148	
e	0.1636669	i	2.29998		+0.09147829	+0.34888158	
P	4.07	H	15.6	G	0.15	U	3

Residuals in seconds of arc

1993 09 15	809	1.2+	2.4+	1997 09 22	046	0.5−	0.0	1997 09 28	046	0.2+	0.4−
1993 09 15	809	0.4−	1.0+	1997 09 22	046	0.1−	0.3+	1997 10 05	046	0.5+	0.1−
1993 09 15	809	0.1−	1.7+	1997 09 24	046	0.4−	0.1+	1997 10 05	046	0.1−	0.4−
1993 09 22	809	0.6−	1.7−	1997 09 24	046	0.2+	0.2+	1997 10 05	046	0.1+	0.2+
1993 09 22	809	0.2−	1.5−	1997 09 24	046	0.1+	0.6+	1997 10 06	046	0.1+	0.0
1993 09 22	809	0.0	1.7−	1997 09 24	046	0.3+	0.3+	1997 10 06	046	0.2+	0.2−
1995 03 02	691	0.1+	0.1+	1997 09 25	046	0.1−	0.2−	1997 10 06	046	0.0	0.5−
1995 03 02	691	0.5+	0.3+	1997 09 25	046	0.1+	0.0	1997 10 22	046	0.3−	0.5−
1995 03 02	691	0.0	0.1+	1997 09 25	046	0.1−	0.4+	1997 10 22	046	0.0	0.0
1995 03 08	691	0.3−	0.2+	1997 09 26	046	0.4+	0.2−	1997 10 22	046	0.2−	0.0
1995 03 08	691	0.1+	0.2+	1997 09 26	046	0.3+	0.1+	1997 10 23	046	0.2+	0.3+
1995 03 08	691	0.1−	0.1−	1997 09 26	046	0.3−	0.5+	1997 10 23	046	0.2−	0.2+
1997 09 22	046	0.5−	0.2+	1997 09 28	046	0.1−	0.7−	1997 10 23	046	0.1+	0.5−
1997 09 22	046	0.6−	0.2+	1997 09 28	046	0.4+	0.2+				

1997 SL$_3$ = 1977 RK$_{19}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Ichikawa

M	36.05726		(2000.0)		**P**	**Q**	
n	0.29772797	ω	12.36059		+0.99750760	−0.06915106	
a	2.2212100	Ω	351.56692		+0.05380840	+0.87410321	
e	0.1245154	i	5.48801		+0.04564256	+0.48079279	
P	3.31	H	16.8	G	0.15	U	5

Residuals in seconds of arc

1977 09 09	675	0.7−	0.2+	1997 09 26	557	0.1−	0.2−	1997 09 26	557	0.3+	0.1−
1977 09 10	675	0.7+	0.2−	1997 09 26	557	0.1−	0.1−	1997 10 05	557	0.1−	0.3+
1997 09 25	557	0.4+	0.5+	1997 09 26	557	0.8−	0.4−	1997 10 05	557	0.1+	0.3−
1997 09 26	557	0.2+	0.1−	1997 09 26	557	0.1+	0.4+				

1997 SV$_{14}$ = 1996 RV$_{30}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Ichikawa

M	324.48195		(2000.0)		**P**	**Q**	
n	0.08515639	ω	140.81987		+0.28851824	−0.95533648	
a	5.1167148	Ω	292.32718		+0.86017847	+0.28795565	
e	0.0964011	i	3.96411		+0.42053565	+0.06643611	
P	11.57	H	13.0	G	0.15	U	6

Residuals in seconds of arc

1996 09 13	809	0.0	0.1−	1997 09 28	691	0.4+	0.1+	1997 10 05	691	0.3−	0.2+
1996 09 14	809	0.0	0.1+	1997 09 30	691	0.7−	0.2−	1997 10 05	691	0.4+	0.0
1997 09 28	691	0.2+	0.1−	1997 09 30	691	0.1+	0.1−	1997 10 05	691	0.1−	0.1+
1997 09 28	691	0.0	0.1−	1997 09 30	691	0.0	0.0				

1997 SX$_{15}$ = 1993 TS$_{45}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	211.18448		(2000.0)		**P**	**Q**	
n	0.26084690	ω	181.45487		−0.90319781	+0.42286842	
a	2.4259337	Ω	23.98624		−0.39195491	−0.74267709	
e	0.1803795	i	10.43001		−0.17494303	−0.51924275	
P	3.78	H	13.5	G	0.15	U	5

Residuals in seconds of arc

1993 10 09	809	1.4−	0.0	1997 09 27	910	0.1−	0.1−	1997 10 29	704	1.1−	0.1+
1993 10 09	809	1.2−	0.1−	1997 09 29	910	0.0	0.1+	1997 10 29	704	1.2−	0.6−
1993 10 09	809	1.7−	0.9+	1997 09 30	910	0.2+	0.1−	1997 10 29	704	1.6−	0.3+
1993 10 12	809	1.7+	0.3−	1997 09 30	910	0.3+	0.1+	1997 10 29	704	0.6−	0.2−
1993 10 12	809	1.4+	0.8−	1997 09 30	910	0.4+	0.1+	1997 11 03	704	0.4+	0.6−
1993 10 12	809	1.2+	0.3+	1997 09 30	910	0.3+	0.0	1997 11 03	704	0.8+	0.4+
1997 09 27	910	0.3−	0.1−	1997 10 01	910	0.4+	0.1−	1997 11 03	704	1.6+	1.2+
1997 09 27	910	0.5−	0.2−	1997 10 29	704	0.5−	0.8−	1997 11 03	704	1.7+	0.4+

1997 SO$_{17}$ = 1978 TC$_5$ = 1995 ES$_8$

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	58.00761		(2000.0)		**P**	**Q**	
n	0.20723214	ω	160.32284		+0.85663605	+0.51587099	
a	2.8281209	Ω	168.61320		−0.47809712	+0.79899867	
e	0.0863359	i	2.08914		−0.19390158	+0.30899553	
P	4.76	H	13.5	G	0.15	U	3

Residuals in seconds of arc

1978 10 07	095	0.0	0.0	1997 08 02	910	0.2−	0.7−	1997 10 23	358	(0.9−	3.2+)
1995 02 24	033	0.0	1.0+	1997 09 30	358	0.5+	0.3−	1997 10 30	704	0.6+	0.0
1995 03 04	372	1.5+	0.7−	1997 09 30	358	0.2−	0.6+	1997 10 30	704	0.7+	0.7−
1995 03 04	372	1.4−	1.4+	1997 10 01	358	(0.1+	2.5+)	1997 10 30	704	0.2+	0.3+
1995 03 05	033	0.1−	0.4−	1997 10 01	358	0.3+	1.3+	1997 10 30	704	0.3+	0.5−
1995 03 05	033	0.2+	0.5−	1997 10 03	358	(1.5−	2.7+)	1997 12 05	910	0.9−	0.1+
1995 03 05	372	0.9−	0.2−	1997 10 03	358	0.0	1.2−	1997 12 05	910	0.8−	0.3+
1995 03 07	033	0.3+	1.7−	1997 10 22	358	0.9+	0.8+	1997 12 05	910	0.9−	0.0

1997 08 02	910	0.3−	0.6−	1997 10 22	358	0.2−	0.1−	
1997 08 02	910	0.2−	0.5−	1997 10 23	358	(2.1+	2.2+)	

1997 SX$_{21}$ = 1996 HA$_{13}$

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	19.12245		(2000.0)		**P**		**Q**
n	0.29288844	ω	191.72081		+0.93550773		−0.35326937
a	2.2456112	Ω	188.97161		+0.32673870		+0.87056470
e	0.1209220	i	1.87504		+0.13441394		+0.34251693
P	3.37	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1996 04 17	809	0.3+	0.4+	1997 10 02	358	0.2−	1.5+	1997 10 21	358	(1.6+	4.3−)
1996 04 17	809	0.2−	0.7−	1997 10 02	358	2.0+	0.5−	1997 10 30	704	0.6+	0.1+
1996 04 17	809	1.8+	0.8+	1997 10 05	358	0.5+	1.2+	1997 10 30	704	0.3+	0.9−
1996 04 18	809	0.8−	1.0+	1997 10 05	358	0.4−	0.1−	1997 10 30	704	1.3−	0.1−
1996 04 18	809	0.7−	0.6−	1997 10 06	358	(2.4+	0.8−)	1997 10 30	704	0.4+	0.6+
1996 04 18	809	0.3−	0.6−	1997 10 06	358	1.0+	0.3−	1997 10 30	704	0.5−	0.5+
1997 09 30	358	1.7−	1.5−	1997 10 21	358	(0.8−	3.4−)				
1997 09 30	358	0.8−	0.5−	1997 10 21	358	(2.3+	0.5+)				

1997 TQ$_{12}$ = 1996 RZ$_{28}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Ichikawa

M	345.50772		(2000.0)		**P**		**Q**
n	0.08204422	ω	178.40835		+0.57248645		−0.81799702
a	5.2453049	Ω	236.66420		+0.75151355		+0.55082876
e	0.0617575	i	3.84588		+0.32785157		+0.16573637
P	12.01	H	13.0	G	0.15	U	4

Residuals in seconds of arc

1996 09 11	809	0.0	0.1+	1997 10 02	691	0.4+	0.2+	1997 11 02	691	0.1+	0.2−
1996 09 12	809	0.0	0.1−	1997 10 09	691	0.5−	0.3+	1997 11 02	691	0.1+	0.1−
1997 10 02	691	0.2+	0.2+	1997 10 09	691	0.4−	0.2−	1997 11 02	691	0.2+	0.2−
1997 10 02	691	0.2+	0.2+	1997 10 09	691	0.3−	0.2−				

1997 TL$_{17}$ = 1981 UG$_{6}$ = 1993 TC$_{10}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Ichikawa

M	357.20058		(2000.0)		**P**		**Q**
n	0.24509428	ω	183.22007		+0.54018704		−0.82562437
a	2.5287968	Ω	234.14680		+0.77652411		+0.56363775
e	0.1560797	i	11.59571		+0.32435825		+0.02562994
P	4.02	H	14.9	G	0.15	U	4

Residuals in seconds of arc

1981 10 30	381	0.6−	0.2−	1993 10 21	691	0.1+	0.7+	1997 10 10	411	0.3+	0.3+
1981 10 30	381	0.6+	0.1+	1993 10 21	691	0.3+	0.5+	1997 10 12	411	0.5+	0.8−
1993 10 12	691	0.0	0.3−	1997 10 08	411	0.4+	0.5+	1997 10 12	411	0.1−	0.0
1993 10 12	691	0.0	0.1+	1997 10 08	411	0.4−	0.3−	1997 10 25	411	0.2−	0.4−
1993 10 12	691	0.2−	0.1−	1997 10 10	411	1.4+	1.4+	1997 10 25	411	0.8−	1.5−
1993 10 21	691	0.6−	0.8+	1997 10 10	411	0.7−	0.8−				

1997 TS$_{17}$ = 1992 UM$_{5}$

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	53.24449		(2000.0)		**P**		**Q**
n	0.19185375	ω	127.41792		+0.91673340		+0.39140601
a	2.9772995	Ω	209.78520		−0.39811918		+0.87842401
e	0.1083351	i	9.26855		−0.03318128		+0.27417621
P	5.14	H	13.0	G	0.15	U	5

Residuals in seconds of arc

1992 10 26	400	1.3−	1.5−	1997 10 09	400	0.2+	0.5−	1997 10 30	400	0.1−	0.3−
1992 10 26	400	0.1+	1.3+	1997 10 09	400	0.2+	0.2+	1997 10 30	400	0.1+	0.4−
1992 10 28	400	0.8+	0.1+	1997 10 25	400	0.4−	0.4−	1997 11 03	704	0.7−	1.0+
1992 10 28	400	0.4+	0.1+	1997 10 25	400	0.6+	1.4+	1997 11 03	704	0.2−	0.9+
1997 09 28	691	0.4+	0.5−	1997 10 30	704	1.2+	1.9−	1997 11 03	704	0.7−	1.0+
1997 09 28	691	0.4−	0.2+	1997 10 30	704	1.2+	1.4−	1997 11 03	704	0.7−	1.2+
1997 09 28	691	0.4−	0.2+	1997 10 30	704	0.9+	1.7−	1997 11 03	704	1.3−	1.1+
1997 10 06	400	0.0	1.0+	1997 10 30	704	0.2+	1.3−				
1997 10 06	400	0.0	0.1+	1997 10 30	704	(1.9−	2.7−)				

1997 TX$_{17}$ = 1975 BQ = 1978 WZ$_{16}$ = 1982 QA$_{4}$ = 1990 FT$_{5}$

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	78.98107		(2000.0)		**P**		**Q**
n	0.20450755	ω	255.70143		+0.75853901		+0.64995789
a	2.8531843	Ω	63.73757		−0.57602969		+0.70226659
e	0.0090394	i	2.97986		−0.30464465		+0.29047612
P	4.82	H	13.0	G	0.15	U	1

Residuals in seconds of arc

1975 01 17	095	0.4−	0.9+	1997 10 25	400	0.5−	0.7−	1997 11 03	704	(2.1−	0.3−)
1978 11 30	675	0.4+	0.8−	1997 10 25	400	0.1+	0.2−	1997 11 09	400	1.0+	0.5−
1978 12 01	675	0.7+	0.2−	1997 10 30	704	0.1−	0.6+	1997 11 09	400	1.2−	0.8−
1982 08 21	413	0.7−	0.4+	1997 10 30	704	0.6+	0.1+	1997 11 18	557	0.2−	0.2−
1982 08 21	413	0.1+	0.5+	1997 10 30	704	0.7+	0.7+	1997 11 18	557	0.2−	0.3+
1990 03 19	046	(1.8+	2.2+)	1997 10 30	704	0.1+	0.0	1997 11 18	557	0.1+	0.1−
1990 03 19	046	0.9+	0.9+	1997 10 30	704	0.4+	0.1+	1997 11 19	557	0.2+	0.3+
1997 10 06	400	0.5+	0.2+	1997 11 03	704	0.4−	1.3+	1997 12 06	910	0.1−	0.1−
1997 10 06	400	0.7+	1.2−	1997 11 03	704	0.2−	1.5+	1997 12 06	910	0.1−	0.1−
1997 10 09	400	0.1−	0.5−	1997 11 03	704	0.5−	0.8+	1997 12 06	910	0.2−	0.2−
1997 10 09	400	0.4−	0.5−	1997 11 03	704	1.4−	0.5+				

1997 TY$_{17}$ = 1980 FZ$_{10}$ = 1987 SX$_{28}$

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	359.58181		(2000.0)		**P**		**Q**
n	0.20166311	ω	328.75938		+0.75063122		−0.65904360
a	2.8799509	Ω	72.54328		+0.61592186		+0.67218039
e	0.0653342	i	2.82744		+0.23915064		+0.33739450
P	4.89	H	13.0	G	0.15	U	4

Residuals in seconds of arc

1980 03 16	095	0.2−	0.4−	1997 10 25	400	0.4+	1.1+	1997 11 03	704	0.6−	0.2+
1987 09 24	095	0.5−	0.2−	1997 10 30	704	0.3−	0.9+	1997 11 03	704	1.0−	0.6+
1987 09 27	095	0.7+	0.1−	1997 10 30	704	0.4−	0.6+	1997 11 03	704	0.5−	0.1−
1997 10 06	400	1.9+	0.0	1997 10 30	704	0.3+	0.4+	1997 11 03	704	1.0−	0.4−
1997 10 06	400	0.8+	0.9−	1997 10 30	704	0.1−	0.6+	1997 11 03	704	1.7−	1.6−
1997 10 09	400	0.9+	0.0	1997 10 30	704	0.2−	0.9+	1997 11 09	400	0.6+	1.9−
1997 10 09	400	0.2+	0.4+	1997 10 30	400	0.0	0.1+	1997 11 09	400	0.1−	0.9−
1997 10 25	400	0.5+	0.4−	1997 10 30	400	0.3+	0.1+				

1997 TC$_{18}$ = 1973 SV$_{6}$ = 1980 UW = 1980 VQ$_{1}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	307.82095		(2000.0)		**P**		**Q**
n	0.28935846	ω	61.89513		−0.45589045		−0.88696636
a	2.2638376	Ω	55.41576		+0.78188246		−0.43875675
e	0.0733819	i	5.14675		+0.42523372		−0.14416374
P	3.41	H	12.8	G	0.15	U	5

Residuals in seconds of arc

1973 09 27	095	0.3−	0.8+	1997 10 12	816	0.2+	0.0	1997 10 28	905	1.9+	0.5+
1980 10 18	095	1.5+	1.3−	1997 10 12	816	0.3+	0.2+	1997 10 28	905	1.2+	0.6+
1980 11 13	330	0.3−	1.6−	1997 10 20	658	1.2−	0.4−	1997 10 31	704	0.9−	0.6−
1980 11 13	561	(4.5−	0.1+)	1997 10 20	658	0.7−	0.2−	1997 10 31	704	0.7+	0.1−
1980 11 13	561	0.5−	1.1+	1997 10 20	658	1.0−	0.3−	1997 10 31	704	0.8−	0.3+
1997 10 11	816	0.3+	0.3−	1997 10 26	816	0.1+	0.3+	1997 10 31	704	1.1−	1.0−
1997 10 11	816	0.3+	0.3−	1997 10 26	816	0.2+	0.0	1997 11 05	905	0.5−	0.1+

1997 10 11	816	0.4+	0.4−	1997 10 26	816	0.2+	0.2+	1997 11 05	905	0.7−	1.1+
1997 10 11	816	0.1+	0.4−	1997 10 26	816	0.3+	0.2+	1997 11 08	816	0.3−	0.9+
1997 10 11	816	0.2+	0.4−	1997 10 26	905	0.4+	0.2−	1997 11 08	816	0.3−	0.9+
1997 10 12	816	0.2+	0.0	1997 10 26	905	0.8+	0.6−	1997 11 08	816	0.4−	0.9+

1997 TF$_{19}$ = 1991 PE$_{15}$

Id. T. Urata

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	31.53371		(2000.0)		**P**	**Q**	
n	0.17928558	ω	317.58361		+0.99894222	+0.04108619	
a	3.1148644	Ω	40.07568		−0.02862255	+0.90703127	
e	0.2134458	i	1.83795		−0.03598865	+0.41905393	
P	5.50	H	14.0	G	0.15	U	6

Residuals in seconds of arc

1991 08 07	675	0.1−	0.9+	1997 10 08	888	0.2−	0.7−	1997 11 03	704	0.4+	0.2+
1991 08 07	675	0.7−	0.4+	1997 10 08	888	0.3−	0.9−	1997 11 03	704	0.4+	0.3+
1991 08 10	675	0.2+	1.0−	1997 10 11	888	0.2+	1.1+	1997 11 03	704	0.8+	0.6−
1991 08 10	675	0.6+	0.3−	1997 10 11	888	0.2+	0.9+	1997 11 03	704	1.6−	0.3−

1997 TY$_{24}$ = 1996 HV$_{15}$

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	48.89525		(2000.0)		**P**	**Q**	
n	0.23659534	ω	171.40702		+0.91190356	+0.41026496	
a	2.5889993	Ω	164.35830		−0.37885877	+0.85155045	
e	0.2004006	i	2.27502		−0.15779076	+0.32641154	
P	4.17	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1996 04 18	809	0.7−	0.6+	1997 10 08	376	0.3+	0.4+	1997 10 30	704	0.9+	0.7+
1996 04 18	809	0.3−	0.1+	1997 10 10	376	1.5−	1.1−	1997 10 30	704	0.3+	0.8+
1996 04 18	809	0.7+	0.9−	1997 10 10	376	0.4+	0.3+	1997 10 30	566	1.1−	0.4+
1996 04 20	809	0.2−	0.0	1997 10 27	376	0.7−	0.3+	1997 10 30	566	0.4−	0.3−
1996 04 20	809	0.0	1.6+	1997 10 27	376	0.4+	0.7−	1997 10 30	566	0.4−	0.1+
1996 04 20	809	0.4+	1.4−	1997 10 30	704	1.1+	1.2−				
1997 10 08	376	0.8+	0.4+	1997 10 30	704	0.0	0.0				

1997 TG$_{26}$ = 1993 VU$_{2}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	33.63121		(2000.0)		**P**	**Q**	
n	0.23877335	ω	51.76444		+0.99562363	+0.08396123	
a	2.5732312	Ω	303.38336		−0.09344054	+0.90171742	
e	0.2238868	i	2.81702		+0.00156375	+0.42409456	
P	4.13	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1993 11 11	399	0.4+	0.6+	1997 10 11	327	0.1−	0.3−	1997 11 02	327	0.4−	0.2−
1993 11 11	399	0.0	1.3−	1997 10 11	327	0.1+	0.3+	1997 11 02	327	1.0+	0.4+
1993 11 15	408	0.5−	1.7+	1997 10 21	327	0.1−	0.4−	1997 11 06	327	0.2−	0.1−
1993 11 15	408	0.0	0.9−	1997 10 21	327	0.1+	0.5−	1997 11 06	327	0.0	0.3−
1997 10 11	327	0.0	0.1+	1997 10 21	327	0.0	1.4+	1997 11 06	327	0.1+	0.3−
1997 10 11	327	0.3−	0.2−	1997 11 02	327	0.2−	0.2−				

1997 TR$_{26}$ = 1978 UR$_{3}$

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	55.25363		(2000.0)		**P**	**Q**	
n	0.26004490	ω	298.77287		+0.96389327	+0.26232003	
a	2.4309190	Ω	46.06104		−0.21672160	+0.87272801	
e	0.1901774	i	3.64699		−0.15473044	+0.41174509	
P	3.79	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1978 10 28	675	0.2+	0.4−	1997 10 19	327	0.2+	0.2−	1997 11 23	358	0.9−	0.5−
1978 10 29	675	0.2−	0.1+	1997 10 19	327	0.3+	0.2+	1997 11 26	566	0.3+	0.3−
1997 10 13	327	0.3−	0.2+	1997 11 19	358	0.6−	1.0+	1997 11 26	566	0.2+	0.4−
1997 10 13	327	0.2−	0.1−	1997 11 19	358	0.3+	0.7−	1997 11 26	566	0.4+	0.8−
1997 10 13	327	0.1+	0.0	1997 11 23	358	0.4+	0.9+				
1997 10 19	327	0.1−	0.0	1997 11 23	358	0.3−	0.9+				

1997 UK = 1993 RL$_{15}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

M	184.72205		(2000.0)		**P**	**Q**	
n	0.25442860	ω	348.11528		−0.89098028	+0.45402308	
a	2.4665623	Ω	218.88768		−0.41603267	−0.82001567	
e	0.0168766	i	0.37828		−0.18185419	−0.34847862	
P	3.87	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1993 09 15	809	0.6+	0.6+	1997 10 19	046	0.5−	0.3+	1997 10 24	046	0.0	0.3−
1993 09 15	809	0.5−	0.1+	1997 10 19	046	0.2+	0.5+	1997 10 24	046	0.0	0.1−
1993 09 15	809	1.0−	0.0	1997 10 22	046	0.0	0.0	1997 10 29	046	0.9+	0.4−
1993 09 22	809	0.6+	0.2+	1997 10 22	046	0.6+	0.3+	1997 10 29	046	0.3+	0.0
1993 09 22	809	0.6−	1.2−	1997 10 22	046	0.2−	0.1+	1997 10 29	046	0.7+	0.0
1993 09 22	809	0.9+	0.1+	1997 10 23	046	0.1+	0.2+	1997 11 04	046	0.6−	0.6+
1997 10 19	046	0.5−	0.1+	1997 10 23	046	0.0	0.7−	1997 11 04	046	0.5−	0.5−
1997 10 19	046	0.6−	0.3+	1997 10 23	046	0.0	0.1+	1997 11 04	046	0.0	0.1−

1997 UH$_{1}$ = 1986 TB$_{1}$ = 1988 FK$_{2}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	349.87620		(2000.0)		**P**	**Q**	
n	0.27198060	ω	24.27548		+0.40611469	−0.90972530	
a	2.3592688	Ω	41.90820		+0.81583131	+0.31832896	
e	0.0832939	i	7.43510		+0.41169179	+0.26658311	
P	3.62	H	14.0	G	0.15	U	3

Residuals in seconds of arc

1986 10 04	688	0.1−	1.4−	1997 10 22	704	0.1−	0.9−	1997 11 03	704	1.6−	0.4+
1986 10 04	688	1.4+	0.5−	1997 10 22	905	(3.2+	1.4−)	1997 11 03	704	0.9−	0.1+
1986 10 04	046	0.9+	0.1+	1997 10 22	905	0.3+	0.3+	1997 11 03	704	0.7−	0.7−
1986 10 05	046	(5.1+	2.1+)	1997 10 29	704	0.0	0.9−	1997 11 05	886	0.1−	0.3−
1986 10 05	046	0.2−	0.7+	1997 10 29	704	0.4+	0.7−	1997 11 05	886	0.3+	0.5−
1986 10 05	046	0.8−	2.0+	1997 10 29	704	0.4−	0.9−	1997 11 06	704	0.6+	1.2+
1986 10 09	046	(3.4+	0.1+)	1997 10 29	704	0.0	1.0−	1997 11 06	704	0.3−	1.3+
1986 10 09	046	0.4+	0.1−	1997 10 29	704	0.4+	0.3+	1997 11 06	704	0.2+	0.7+
1986 10 10	046	(4.9−	0.5−)	1997 10 30	704	(2.9+	1.3−)	1997 11 06	704	0.2+	0.8+
1986 10 10	046	1.5−	0.8−	1997 10 30	704	(4.3+	0.1+)	1997 11 06	704	0.3+	0.0
1988 03 16	399	1.9−	0.2−	1997 10 30	704	(2.7+	0.7−)	1997 11 21	691	0.2−	0.1−
1988 03 16	399	0.7−	0.3+	1997 10 30	704	(2.6+	1.5−)	1997 11 21	691	0.3−	0.1−
1988 03 16	399	2.1+	0.9−	1997 10 30	704	(2.8+	0.7−)	1997 11 21	691	0.2−	0.1+
1997 10 21	905	0.0	0.7+	1997 10 31	886	0.9+	0.1+	1997 11 28	691	0.2−	0.5−
1997 10 21	905	1.2+	0.7−	1997 10 31	886	0.4+	0.3−	1997 11 28	691	0.1−	0.2−
1997 10 22	704	0.2+	0.1+	1997 10 31	385	0.7+	0.1+	1997 11 28	691	0.9−	0.4+
1997 10 22	704	0.0	0.0	1997 10 31	385	0.7+	0.1+	1997 12 05	691	1.4−	0.7+
1997 10 22	704	1.1+	0.3−	1997 11 03	704	0.2−	0.4−	1997 12 05	691	1.8−	0.1−
1997 10 22	704	1.4+	0.5+	1997 11 03	704	0.1−	0.0				

1997 UU$_{3}$ = 1982 JD

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Ichikawa

M	55.96774		(2000.0)		**P**	**Q**	
n	0.27478315	ω	109.23100		+0.84398642	+0.44303211	
a	2.3431998	Ω	225.86907		−0.48837287	+0.86780744	
e	0.2822451	i	24.91244		+0.22176307	+0.22501732	
P	3.59	H	14.8	G	0.15	U	6

Residuals in seconds of arc

1982 05 15	675	(0.4−	4.8−)	1982 05 18	675	0.2+	0.1−	1997 10 29	411	0.5+	0.6−
1982 05 15	675	1.8+	2.0−	1997 10 26	411	1.1−	0.3+	1997 10 29	566	0.3−	0.1+
1982 05 16	675	1.8−	0.4+	1997 10 26	411	0.1+	0.0	1997 10 29	566	0.2−	0.4+
1982 05 16	675	0.7−	0.6+	1997 10 27	411	1.0−	0.6−	1997 10 29	566	0.3−	0.4+
1982 05 16	675	(4.9−	4.5+)	1997 10 27	411	0.3+	0.4+	1997 11 06	411	0.4+	0.1−
1982 05 17	675	1.7−	1.1+	1997 10 29	411	1.3+	0.7−	1997 11 06	411	0.2−	0.1+
1982 05 17	675	2.3+	0.1−	1997 10 29	411	0.5+	0.2+				

1997 UX$_4$ = 1993 RT$_{13}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Ichikawa

M	324.71466		(2000.0)		**P**		**Q**
n	0.27364057	ω	110.16842		−0.42846715		−0.90354641
a	2.3497179	Ω	5.20840		+0.80962680		−0.38610622
e	0.1895359	i	2.80864		+0.40114879		−0.18581137
P	3.60	H	14.9	G	0.15	U	6

Residuals in seconds of arc

1993 09 14	809	1.9+	0.2+	1997 10 20	327	0.2+	0.3+	1997 10 30	566	0.3−	0.5−
1993 09 14	809	1.3−	0.7+	1997 10 20	327	0.1−	0.2−	1997 10 30	566	0.3−	0.6−
1993 09 14	809	(4.1−	0.5−)	1997 10 20	327	0.2+	0.3+	1997 10 30	566	0.1+	0.5−
1993 09 19	809	0.3−	0.4−	1997 10 21	327	0.7−	0.7+	1997 11 02	327	0.5+	0.0
1993 09 19	809	0.5−	0.2−	1997 10 21	327	0.1−	0.6+	1997 11 02	327	0.2+	0.0
1993 09 19	809	0.2+	0.5−	1997 10 21	327	0.2−	0.1+	1997 11 02	327	0.2+	0.0

1997 UJ$_5$ = 1992 GL$_8$ = 1995 AH$_3$

Id. K. Ichikawa, G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Ichikawa

M	57.78160		(2000.0)		**P**		**Q**
n	0.28122881	ω	339.29725		+0.90426475		+0.42692841
a	2.3072581	Ω	355.41607		−0.38019128		+0.79858821
e	0.0983816	i	4.38879		−0.19431896		+0.42425112
P	3.50	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1992 04 06	809	0.6+	0.9+	1997 10 26	104	0.6+	0.5−	1997 11 02	104	0.1−	0.3+
1995 01 04	010	0.1−	1.6+	1997 10 26	104	0.3+	0.4−	1997 11 02	104	0.2−	0.2+
1995 01 04	010	1.2−	0.3+	1997 10 26	104	0.2−	0.2+	1997 11 02	104	1.0−	0.1+
1995 01 04	010	0.4+	0.8+	1997 10 30	704	0.1−	0.5−	1997 11 03	104	0.3+	0.3+
1995 01 04	010	0.5+	1.3−	1997 10 30	704	0.8−	0.4−	1997 11 03	104	0.6+	0.3+
1995 01 05	010	0.7+	0.9−	1997 10 30	704	0.2−	0.1−	1997 11 03	104	0.5+	0.5+
1995 01 05	010	0.6−	1.5−	1997 10 30	704	0.7−	0.8−	1997 11 16	104	0.2−	1.1+
1997 10 25	104	0.1+	0.9−	1997 10 30	704	0.6−	0.6−	1997 11 16	104	0.1+	1.1+
1997 10 25	104	0.1−	0.8−	1997 11 02	104	0.0	0.3+	1997 11 16	104	0.4+	1.2+
1997 10 25	104	0.0	0.5−	1997 11 02	104	0.0	0.2+	1997 11 16	104	0.9+	1.1+

1997 UL$_7$ = 1988 GV

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	220.36804		(2000.0)		**P**		**Q**
n	0.26509831	ω	85.13755		−0.98523926		+0.15890354
a	2.3999273	Ω	103.99543		−0.17115754		−0.90802255
e	0.0523263	i	3.76205		−0.00294907		−0.38761413
P	3.72	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1988 04 09	054	1.8−	0.9+	1997 10 26	369	0.1−	0.7+	1997 11 03	704	0.6−	0.0
1988 04 15	054	1.8+	1.0−	1997 10 26	369	1.2−	0.5+	1997 11 03	704	0.2−	0.1+
1997 10 25	369	0.5+	0.3−	1997 10 26	369	0.2−	0.8−	1997 11 03	704	0.3+	1.1+
1997 10 25	369	0.4−	0.3−	1997 11 01	369	0.4+	0.0	1997 11 07	369	0.5+	0.2+
1997 10 25	369	0.2+	1.0−	1997 11 01	369	0.7+	0.2−	1997 11 07	369	0.0	0.1−

1997 UX$_7$ = 1969 UP$_2$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	334.98703		(2000.0)		**P**		**Q**
n	0.21126815	ω	222.42486		+0.02663191		−0.99565481
a	2.7919868	Ω	226.26293		+0.94710679		+0.05368897
e	0.1955748	i	7.09415		+0.31981161		−0.07608542
P	4.67	H	13.5	G	0.15	U	5

Residuals in seconds of arc

1969 10 18	095	1.9−	1.1+	1997 10 28	557	0.4+	0.8+	1997 11 03	557	0.7−	0.7−
1969 11 05	095	2.1+	2.1−	1997 10 29	557	0.1+	0.6+	1997 11 06	385	0.5−	0.4−
1997 10 22	704	0.7+	0.9+	1997 10 29	557	0.1+	0.6+	1997 11 06	385	0.6−	0.5−
1997 10 22	704	1.2+	0.2+	1997 10 30	557	0.9−	0.3+	1997 11 10	385	0.6−	0.1+
1997 10 22	704	0.7+	0.0	1997 10 30	557	0.8−	0.4+	1997 11 10	385	0.3+	0.0
1997 10 22	704	0.7+	0.3−	1997 10 31	557	0.9−	0.4+	1997 11 10	557	0.4−	0.3−
1997 10 22	704	0.3−	0.1−	1997 11 03	704	0.1−	0.0	1997 11 10	557	0.5−	0.1−
1997 10 24	704	0.1+	1.2−	1997 11 03	704	0.5+	0.5+	1997 11 20	557	0.1−	0.1−
1997 10 24	704	0.7+	0.8−	1997 11 03	704	0.4+	0.3+	1997 11 20	557	0.3−	0.2−
1997 10 24	704	0.9+	0.3+	1997 11 03	704	0.1+	0.2−	1997 11 30	566	0.3+	0.5+
1997 10 24	704	0.2−	1.1−	1997 11 03	704	0.5−	0.0	1997 11 30	566	0.4+	0.4+
1997 10 28	557	0.3+	0.8+	1997 11 03	557	0.7−	0.8−	1997 11 30	566	0.0	0.6+

1997 UW$_8$ = 1996 KD$_3$

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	85.24761		(2000.0)		**P**		**Q**
n	0.23181452	ω	148.97906		+0.59243800		+0.80538523
a	2.6244741	Ω	157.33346		−0.74901715		+0.55947156
e	0.1926539	i	2.86819		−0.29663195		+0.19582186
P	4.25	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1996 05 20	566	0.5−	0.6+	1997 10 29	704	0.8−	0.7+	1997 10 31	704	1.2+	1.7+
1996 05 20	566	0.4−	0.2+	1997 10 29	704	0.6−	0.2+	1997 11 06	704	0.6−	0.6+
1996 05 20	566	0.3+	0.3+	1997 10 29	704	0.1+	0.0	1997 11 06	704	0.0	0.2+
1996 05 22	566	0.3+	0.5−	1997 10 30	704	0.3+	1.3−	1997 11 06	704	0.5+	0.7+
1996 05 22	566	0.2+	0.5−	1997 10 30	704	0.8+	1.3−	1997 11 06	704	0.2+	0.2+
1996 05 22	566	0.1+	0.2−	1997 10 30	704	0.3−	1.9−	1997 11 06	704	0.2+	0.3+
1997 10 25	400	0.9−	0.3−	1997 10 30	704	0.6+	0.8−	1997 11 06	704	0.6+	0.2+
1997 10 25	400	0.3−	1.3−	1997 10 30	704	(0.6−	2.1−)	1997 11 06	704	1.5+	1.0−
1997 10 28	400	0.0	0.1+	1997 10 31	704	0.2+	0.7+	1997 11 06	704	(2.3−	2.2+)
1997 10 28	400	0.3−	0.6+	1997 10 31	704	0.4+	1.2+	1997 11 09	400	0.6−	0.7−
1997 10 29	704	0.3−	1.9+	1997 10 31	704	0.8+	0.1+	1997 11 09	400	2.0−	1.0−
1997 10 29	704	0.7−	0.1+	1997 10 31	704	(0.0	2.3+)				

1997 UE$_9$ = 3522 P-L

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	33.54241		(2000.0)		**P**		**Q**
n	0.29330689	ω	60.35834		+0.99455923		−0.03317949
a	2.2434749	Ω	301.38060		−0.01493392		+0.89271857
e	0.1623464	i	6.64206		+0.10309664		+0.44939145
P	3.36	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1960 10 17	675	0.1−	1.8−	1997 10 28	127	0.2+	0.8+	1997 10 31	127	0.5−	0.2+
1960 10 22	675	0.4+	0.1+	1997 10 28	127	0.3−	0.3+	1997 10 31	127	0.6−	2.3+
1960 10 22	675	1.2−	0.5+	1997 10 30	127	0.6−	0.6−	1997 10 31	127	1.2−	0.7+
1960 10 24	675	0.2−	0.7−	1997 10 30	127	0.3−	0.4−	1997 11 03	127	0.6+	0.1−
1960 10 24	675	1.1+	0.5+	1997 10 30	127	0.6+	1.2+	1997 11 03	127	0.6+	0.8−
1960 10 25	675	0.0	0.8−	1997 10 30	127	0.3−	1.1−	1997 11 03	127	0.6+	0.3−
1960 10 25	675	0.1−	1.4+	1997 10 30	127	0.0	1.0−	1997 11 03	127	0.1+	0.6−
1960 10 26	675	0.4+	0.1−	1997 10 30	127	1.5−	0.0	1997 11 03	127	2.2+	1.3−
1960 10 26	675	0.1+	0.5+	1997 10 30	127	1.1+	0.9−	1997 11 03	127	1.4+	0.5+
1997 10 27	127	0.0	0.3+	1997 10 30	127	0.5+	0.4−	1997 11 17	127	0.6−	0.2−
1997 10 27	127	0.1+	0.0	1997 10 30	127	0.7+	0.1+	1997 11 17	127	0.6−	0.5−

1997 10 27	127	1.1−	0.1−	1997 10 31	127	0.4−	1.3+	
1997 10 28	127	0.2−	0.2+	1997 10 31	127	0.6−	0.8+	

1997 UM$_9$ = 1982 VP$_8$ = 1982 VE$_{11}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	271.68154		(2000.0)		**P**		**Q**
n	0.26002443	ω	88.27501		−0.69085913		−0.71684139
a	2.4310466	Ω	45.91537		+0.60028569		−0.64125991
e	0.0378009	i	7.52629		+0.40295255		−0.27372275
P	3.79	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1982 11 09	095	0.0	0.3−	1997 10 30	566	0.2−	0.4+	1997 11 03	704	(1.3−	3.1+)
1982 11 14	095	0.0	0.4+	1997 10 30	566	0.1−	0.4+	1997 11 03	557	0.1−	0.2+
1997 10 28	557	0.4−	0.2+	1997 10 30	557	0.0	0.2+	1997 11 03	557	0.0	0.3+
1997 10 29	557	0.2−	0.3+	1997 10 30	557	0.3−	0.1+	1997 11 18	557	0.2−	0.1−
1997 10 30	704	0.5+	0.7−	1997 11 01	557	0.1+	0.3+	1997 11 18	557	0.4−	0.3−
1997 10 30	704	0.5−	0.6−	1997 11 01	557	0.3−	0.2+	1997 12 06	910	0.1+	0.0
1997 10 30	704	0.8+	0.3−	1997 11 03	704	0.3−	0.5−	1997 12 06	910	0.1+	0.0
1997 10 30	704	0.4−	0.1−	1997 11 03	704	0.0	0.2+	1997 12 06	910	0.1+	0.0
1997 10 30	704	0.5+	0.7−	1997 11 03	704	1.0+	0.2+				
1997 10 30	566	0.2−	0.3+	1997 11 03	704	0.5+	0.1−				

1997 UV$_{10}$ = 1979 YG$_2$ = 1986 LO$_1$ = 1988 VX$_9$ = 1995 GF$_7$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	255.65968		(2000.0)		**P**		**Q**
n	0.21373236	ω	270.69742		−0.86950308		−0.47894387
a	2.7704854	Ω	240.69280		+0.49007447		−0.80607641
e	0.1050712	i	7.95859		+0.06157432		−0.34764002
P	4.61	H	12.0	G	0.15	U	1

Residuals in seconds of arc

1979 12 23	095	0.7−	0.7+	1997 10 29	566	0.0	0.1−	1997 11 01	959	1.1+	0.2+
1986 06 01	805	0.1−	0.7+	1997 10 29	566	0.0	0.2+	1997 11 01	959	1.2−	0.0
1986 06 01	805	0.0	1.2+	1997 10 29	566	0.3+	0.3+	1997 11 16	958	0.1+	0.1−
1986 06 01	805	0.4+	1.4−	1997 10 29	959	0.0	0.4+	1997 11 16	958	0.1+	0.9+
1986 06 01	805	(1.8+	3.5−)	1997 10 29	959	0.2−	1.2+	1997 11 20	132	0.2−	0.5−
1988 11 14	399	0.7−	0.3−	1997 10 29	959	0.5−	0.9+	1997 11 20	132	0.6+	0.6+
1988 11 14	399	0.1−	0.6−	1997 10 29	959	0.1−	0.8+	1997 11 20	132	0.3−	0.4−
1988 11 14	399	2.2+	0.6−	1997 10 31	959	0.1−	0.6+	1997 11 30	133	0.4+	0.3+
1995 04 01	408	1.1−	1.8+	1997 10 31	959	0.5−	0.4−	1997 11 30	133	0.1+	0.6+
1995 04 01	408	0.7+	1.0+	1997 10 31	959	0.7−	0.1+	1997 12 01	133	1.6−	0.5−
1995 04 03	408	1.2+	0.8+	1997 10 31	959	0.6−	1.4−	1997 12 01	133	0.0	1.0+
1995 04 03	408	0.3+	0.0	1997 10 31	959	0.1−	0.2+				
1995 04 03	408	0.3−	0.5+	1997 11 01	959	1.0+	0.6+				

1997 UY$_{10}$ = 1996 NK$_2$

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

M	338.15576		(2000.0)		**P**		**Q**
n	0.19196334	ω	255.07329		+0.09680558		−0.99529393
a	2.9761662	Ω	189.37465		+0.92306573		+0.09140246
e	0.0720589	i	1.52005		+0.37226111		+0.03218044
P	5.13	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1996 07 14	809	0.8+	0.6+	1997 11 01	684	0.2−	0.0	1997 11 21	684	0.1+	0.3+
1996 07 14	809	0.1+	0.7+	1997 11 01	400	0.3−	0.6−	1997 11 21	684	0.3+	0.3+
1996 07 14	809	1.0−	0.0	1997 11 01	400	0.2+	1.3−	1997 11 22	684	0.4+	0.5+
1996 07 16	809	0.7+	0.6−	1997 11 02	684	0.1−	0.2+	1997 11 22	684	0.3−	0.2+
1996 07 16	809	0.2−	0.2−	1997 11 02	684	0.0	0.2+	1997 11 22	684	0.0	0.5+
1996 07 16	809	0.5−	0.5−	1997 11 02	400	1.0+	1.7−	1997 12 03	684	0.4−	0.0
1997 10 29	566	0.2+	0.3+	1997 11 02	400	0.6+	0.4−	1997 12 03	684	0.4−	0.1−
1997 10 29	566	0.0	0.2+	1997 11 05	684	0.4−	0.3+	1997 12 03	684	0.4−	0.1−
1997 10 29	566	0.8+	0.2+	1997 11 05	684	0.5−	0.5+	1997 12 04	684	0.2−	0.3−
1997 10 31	684	0.4−	1.0+	1997 11 05	684	0.9−	0.6+	1997 12 04	684	0.5+	0.1+
1997 10 31	684	0.4−	1.0+	1997 11 09	400	(0.3+	2.4−)	1997 12 04	684	0.4+	0.7−
1997 11 01	684	0.4−	0.0	1997 11 09	400	0.7+	1.6−				
1997 11 01	684	0.2−	0.1+	1997 11 21	684	0.4+	0.4+				

1997 UD$_{11}$ = 1939 EE = 1978 GR$_1$ = 1983 EZ$_3$ = 1989 GM$_3$ = 1994 EW$_2$

Id. K. Ichikawa, G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Ichikawa

M	193.56371		(2000.0)		**P**		**Q**
n	0.17895713	ω	161.52909		−0.82477678		+0.56488393
a	3.1186745	Ω	52.89197		−0.52274190		−0.74451221
e	0.1410078	i	1.83117		−0.21560189		−0.35581978
P	5.51	H	12.1	G	0.15	U	2

Residuals in seconds of arc

1939 03 10	053(12.6−	39.6−)X	1989 04 03	809	(4.5−	1.4−)	1997 10 30	704	0.1+	0.3−
1939 03 12	053(68.0+	23.6−)X	1989 04 05	809	0.4+	1.0+	1997 10 30	704	0.1−	0.1−
1939 03 13	053 (0.1−	5.6+)X	1989 04 05	809	1.0+	1.3+	1997 10 30	704	0.2−	0.4−
1939 03 17	053(73.6+	14.1−)X	1989 04 05	809	1.4+	0.5+	1997 10 30	704	0.1−	0.5−
1939 03 19	053(24.5−	15.5−)X	1989 04 12	809	0.3−	1.5−	1997 10 31	385	0.0	0.1−
1939 03 21	053(59.1+	13.7+)X	1989 04 12	809	0.5−	2.0−	1997 10 31	385	0.0	0.1−
1939 03 23	053(42.7+	32.4−)X	1994 03 11	098	2.0−	0.7−	1997 11 01	385	0.6+	0.1+
1939 04 08	053(93.9+	5.8+)X	1994 03 12	098	1.1−	0.2+	1997 11 01	385	0.1+	0.4+
1939 04 11	053(17.9−	26.7−)X	1997 10 29	704	0.3+	0.3+	1997 11 06	385	0.4+	0.8+
1939 04 14	053(11.6+	6.3+)X	1997 10 29	704	1.0+	0.3+	1997 11 06	385	0.0	1.1+
1978 04 07	095	1.9−	0.5+	1997 10 29	704	0.3+	0.5−	1997 11 08	385	0.7+	0.6+
1983 03 15	095	2.7+	0.4+	1997 10 29	704	0.3−	1.2−	1997 11 08	385	0.4−	1.0+
1989 04 03	809	(5.0−	1.8−)	1997 10 29	704	1.4−	1.0−				
1989 04 03	809	(5.2−	1.5−)	1997 10 30	704	0.9−	0.4−				

1997 UY$_{14}$ = 1977 XN$_1$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Ichikawa

M	25.12790		(2000.0)		**P**		**Q**
n	0.19453834	ω	318.21977		+0.93244739		−0.35840986
a	2.9498454	Ω	62.83645		+0.34360360		+0.84058806
e	0.1181626	i	2.94131		+0.11170692		+0.40614540
P	5.07	H	13.5	G	0.15	U	6

Residuals in seconds of arc

1977 12 07	675	0.0	0.1−	1997 10 29	704	1.4−	1.4+	1997 10 30	704	0.3+	2.0−
1977 12 08	675	0.0	0.1+	1997 10 29	704	1.1−	1.3+	1997 11 01	399	0.2+	0.7+
1997 10 26	905	1.4+	1.5−	1997 10 29	566	0.1−	0.3+	1997 11 01	399	1.4−	0.7−
1997 10 26	905	0.0	1.5+	1997 10 29	566	0.1−	0.2+	1997 11 02	399	0.3−	0.2−
1997 10 28	905	1.8+	2.0−	1997 10 29	566	0.1+	0.3+	1997 11 02	399	0.3−	0.5+
1997 10 28	905	0.7−	0.3+	1997 10 30	704	1.1+	1.0−	1997 11 04	905	0.0	0.7+
1997 10 29	704	0.9−	1.3+	1997 10 30	704	0.9+	1.0−	1997 11 04	905	1.9+	0.1+
1997 10 29	704	1.2−	1.2+	1997 10 30	704	0.1+	1.0−				
1997 10 29	704	0.3−	0.9+	1997 10 30	704	0.2+	1.2−				

1997 UC$_{15}$ = 1975 VS$_9$ = 1986 VP$_6$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	28.67311		(2000.0)		**P**		**Q**
n	0.17975355	ω	249.77201		+0.97034403		−0.24122384
a	3.1094559	Ω	124.18377		+0.22822674		+0.89296273
e	0.2050018	i	1.08091		+0.07965563		+0.38003766
P	5.48	H	13.9	G	0.15	U	4

Residuals in seconds of arc

1975 11 09	381	0.6−	0.3+	1997 10 29	704	0.8−	1.0+	1997 11 04	905	0.8+	0.2+
1975 11 09	381	0.1+	0.6+	1997 10 29	704	0.4−	0.7+	1997 11 05	905	0.9−	0.2+
1986 11 06	688	0.6−	1.8+	1997 10 29	704	0.4−	0.6+	1997 11 05	905	0.1+	0.3−
1986 11 06	688	0.2+	0.1−	1997 10 30	704	(0.6−	2.7−)	1997 11 07	886	1.3−	0.8−
1997 09 07	910	0.1+	0.4−	1997 10 30	704	1.6+	1.9−	1997 11 07	886	1.1−	0.4−
1997 09 07	910	0.1+	0.3−	1997 10 30	704	1.0+	0.5−	1997 11 08	905	0.1−	1.0−
1997 09 07	910	0.2+	0.4−	1997 10 30	704	1.6+	1.7−	1997 11 08	905	2.0+	0.6−

1997 10 26	905	0.1+	0.7+	1997 10 31	704	0.0	0.1−	1997 11 18	886	0.3+	0.6−
1997 10 26	905	1.1+	0.1+	1997 10 31	704	0.5+	0.1−	1997 11 18	886	1.7−	1.2−
1997 10 28	905	0.3+	0.1+	1997 10 31	704	0.3−	0.5+	1997 11 30	566	0.3−	0.7+
1997 10 28	905	0.7−	0.3+	1997 10 31	704	0.2+	0.2+	1997 11 30	566	0.2−	0.4+
1997 10 29	704	0.6−	1.0+	1997 10 31	704	0.1+	0.1−	1997 11 30	566	0.4−	0.8+

1997 UX$_{20}$ = 1991 TA$_{12}$ = 4052 T-1

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Ichikawa

M	28.47398		(2000.0)		**P**	**Q**	
n	0.17053390	ω	312.34701		+0.93543089	−0.35241135	
a	3.2205415	Ω	68.30507		+0.33251142	+0.85039185	
e	0.1417784	i	1.71722		+0.12002168	+0.39069163	
P	5.78	H	13.3	G	0.15	U	4

Residuals in seconds of arc

1971 03 24	675	2.2+	0.5−	1991 10 11	691	0.6−	0.0	1997 10 12	327	0.0	0.1−
1971 03 26	675	1.3−	0.5−	1991 10 13	691	0.5+	0.1+	1997 10 24	327	0.1+	0.1−
1971 03 26	675	1.3−	0.0	1991 10 13	691	0.5+	0.2+	1997 10 24	327	0.1−	0.1+
1971 03 27	675	0.8−	0.9+	1991 10 13	691	0.0	0.1+	1997 10 24	327	0.2+	0.2+
1971 04 02	675	1.3+	0.3+	1997 10 12	327	0.4−	0.3−	1997 11 02	327	0.1−	0.3+
1991 10 11	691	0.3−	0.1+	1997 10 12	327	0.4+	0.1−	1997 11 02	327	0.0	0.2+
1991 10 11	691	0.3−	0.0	1997 10 12	327	0.0	0.7−	1997 11 02	327	0.2−	0.2+

1997 UY$_{20}$ = 1991 NK$_2$ = 1996 JH$_{13}$

Id. K. Ichikawa

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	61.01269		(2000.0)		**P**	**Q**	
n	0.18205990	ω	84.54631		+0.34930733	+0.93269002	
a	3.0831396	Ω	206.45693		−0.91958339	+0.32282428	
e	0.2376899	i	11.63527		−0.17986324	+0.16085339	
P	5.41	H	13.4	G	0.15	U	2

Residuals in seconds of arc

1991 07 14	675	0.1−	0.4−	1996 05 15	691	0.3−	0.4−	1997 10 30	327	0.2+	0.2−
1991 07 14	675	0.1+	0.2+	1996 06 08	809	1.2+	0.2+	1997 10 31	327	0.3+	0.3−
1991 07 18	675	0.1+	0.8+	1996 06 08	809	0.9+	0.2+	1997 10 31	327	0.1+	0.2−
1991 07 18	675	0.3−	0.8+	1996 06 08	809	1.4+	0.2−	1997 10 31	327	0.3+	0.2−
1996 05 11	691	0.8−	0.8−	1997 10 27	327	0.3−	0.1+	1997 11 01	327	0.2+	0.5−
1996 05 11	691	0.9−	0.4−	1997 10 27	327	0.3−	0.1−	1997 11 01	327	0.1−	0.5−
1996 05 11	691	0.4−	0.5−	1997 10 27	327	0.4−	0.1−	1997 11 01	327	0.1+	0.0
1996 05 15	691	0.6−	0.5−	1997 10 30	327	0.2+	0.4−				
1996 05 15	691	0.4−	0.2−	1997 10 30	327	0.1+	0.3−				

1997 UA$_{21}$ = 1996 HS$_{13}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Ichikawa

M	70.74674		(2000.0)		**P**	**Q**	
n	0.23876025	ω	92.14562		+0.52538869	+0.84678849	
a	2.5733254	Ω	210.01837		−0.83170598	+0.49047821	
e	0.0893510	i	9.56884		−0.17953241	+0.20586495	
P	4.13	H	14.2	G	0.15	U	3

Residuals in seconds of arc

1996 04 17	809	0.3+	0.3+	1996 06 08	809	0.3−	0.0	1997 10 30	327	0.2−	0.0
1996 04 17	809	0.2+	0.0	1996 06 08	809	0.5−	0.0	1997 10 31	327	0.1−	0.2+
1996 04 17	809	0.7−	0.8+	1997 10 27	327	0.0	0.1−	1997 10 31	327	0.1−	0.3+
1996 04 18	809	0.2−	0.3−	1997 10 27	327	0.0	0.0	1997 10 31	327	0.1+	0.1−
1996 04 18	809	0.7+	0.5−	1997 10 27	327	0.3+	0.7+	1997 11 01	327	0.2−	0.3+
1996 04 18	809	0.3−	0.2−	1997 10 30	327	0.1+	0.6−	1997 11 01	327	0.2+	0.6−
1996 06 08	809	0.8+	0.1+	1997 10 30	327	0.3+	0.2−	1997 11 01	327	0.4−	0.1+

1997 UK$_{21}$ = 1976 UM$_{10}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	337.99957		(2000.0)		**P**	**Q**	
n	0.23682096	ω	71.75117		−0.09595198	−0.99497597	
a	2.5873547	Ω	23.81026		+0.88443426	−0.09838874	
e	0.1674666	i	4.05761		+0.45669384	−0.01850594	
P	4.16	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1976 10 22	381	0.1+	0.1−	1997 10 20	327	0.0	0.4+	1997 11 16	327	0.3+	0.1+
1976 10 22	381	0.9+	0.1−	1997 10 21	327	0.5−	0.1−	1997 11 16	327	0.4+	0.1+
1976 10 24	381	0.7−	0.3−	1997 10 21	327	0.6−	0.4+	1997 11 22	327	0.1+	0.4−
1997 10 20	327	0.1+	0.4+	1997 10 21	327	0.4−	0.1+	1997 11 22	327	0.1+	0.3−
1997 10 20	327	0.2+	0.3+	1997 11 16	327	0.1+	0.2−	1997 11 22	327	0.1+	0.0

1997 UV$_{21}$ = 1993 VH

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	319.48996		(2000.0)		**P**	**Q**	
n	0.24367801	ω	67.30475		−0.49069475	−0.85196803	
a	2.5385857	Ω	53.36782		+0.69232749	−0.50851733	
e	0.2123026	i	13.15781		+0.52905700	−0.12474215	
P	4.04	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1993 11 07	399	0.3+	1.1+	1997 11 06	704	(4.5−	0.9+)	1997 11 26	566	0.8−	0.8+
1993 11 07	399	1.3+	1.5−	1997 11 06	704	(4.3−	0.3+)	1997 11 26	566	0.6−	0.7+
1993 11 09	399	0.7−	0.3+	1997 11 06	704	(4.0−	0.1+)	1997 11 28	327	0.1−	0.1+
1993 11 09	399	0.8−	0.0	1997 11 06	358	1.7+	0.5+	1997 11 28	327	0.4+	0.4−
1997 10 29	358	(2.1+	0.5+)	1997 11 06	358	0.7+	0.3+	1997 11 28	327	0.3+	0.3−
1997 10 29	358	0.3+	0.5−	1997 11 07	358	0.9−	1.0+	1997 12 01	327	0.1+	0.9−
1997 11 01	358	0.2+	0.7−	1997 11 07	358	0.1−	0.5−	1997 12 01	327	0.5+	0.6−
1997 11 01	358	1.9−	1.8−	1997 11 09	358	1.0+	1.5+	1997 12 01	327	0.2+	0.8−
1997 11 06	704	(4.3−	1.0+)	1997 11 09	358	0.5−	0.6+				
1997 11 06	704	(4.4−	0.8+)	1997 11 26	566	0.8−	0.8+				

1997 UK$_{22}$ = 1982 XQ$_3$ = 1993 SJ$_{16}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	77.38677		(2000.0)		**P**	**Q**	
n	0.26011959	ω	186.92773		+0.68800088	+0.72412226	
a	2.4304537	Ω	126.55800		−0.66292730	+0.65400347	
e	0.1659274	i	3.42418		−0.29526628	+0.21892101	
P	3.79	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1982 12 13	381	1.6+	0.6−	1997 10 26	369	0.2+	0.3+	1997 11 19	369	0.8+	0.3+
1982 12 14	381	0.1−	1.1−	1997 11 01	369	0.6−	0.9+	1997 11 19	369	0.9+	0.2−
1982 12 14	381	1.2−	0.6+	1997 11 01	369	0.5−	0.1+	1997 11 23	369	0.2−	0.4+
1993 09 19	400	1.9+	0.7−	1997 11 01	369	0.1−	0.0	1997 11 23	369	0.1−	0.1+
1993 09 19	400	1.6−	0.1−	1997 11 01	369	0.1+	0.3−	1997 11 24	369	0.1+	0.5−
1997 10 26	369	1.1−	0.5+	1997 11 06	369	0.4−	0.0	1997 11 24	369	0.1+	0.4−
1997 10 26	369	0.1+	0.3+	1997 11 06	369	0.1+	0.1+				

1997 UN$_{24}$ = 1964 WX = 1986 WC$_2$

Id. G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	1.99219		(2000.0)		**P**	**Q**	
n	0.26860132	ω	181.67078		+0.31295135	−0.94569247	
a	2.3790156	Ω	250.09928		+0.87247682	+0.32282121	
e	0.2795968	i	5.36426		+0.37529409	+0.03810802	
P	3.67	H	15.0	G	0.15	U	3

Residuals in seconds of arc

1964 11 27	330	0.0	0.1+	1997 10 23	327	0.7−	1.4+	1997 11 26	704	0.4+	0.1+
1986 11 30	046	1.8+	1.6+	1997 10 28	327	0.4+	0.2+	1997 11 30	358	0.1−	1.5−

1986 11 30	046	0.6+	2.2+	1997 10 28	327	0.3+	0.1+	1997 11 30	358	0.6−	1.2−
1986 12 01	046	0.2+	0.7−	1997 10 28	327	0.4+	0.1+	1997 12 01	327	0.3−	0.5−
1986 12 01	046	1.1−	0.2−	1997 11 06	327	0.2+	0.4−	1997 12 01	327	0.2+	0.3−
1986 12 03	046	(3.9−	0.6+)	1997 11 06	327	0.1−	0.5−	1997 12 01	327	0.3−	1.1−
1986 12 03	046	1.7−	0.8+	1997 11 06	327	0.1−	0.6−	1997 12 04	358	1.0−	0.1+
1997 10 23	327	0.2+	0.4−	1997 11 26	704	0.8+	0.9−	1997 12 04	358	0.6+	1.8+
1997 10 23	327	0.7−	0.4+	1997 11 26	704	0.7+	0.6−				

1997 UT_{24} = 1993 OB_9

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	21.15179		(2000.0)		**P**		**Q**
n	0.27180050	ω	100.13850		+0.93856033		−0.34303830
a	2.3603109	Ω	279.93139		+0.29970551		+0.86447565
e	0.2439054	i	2.19957		+0.17111726		+0.36743241
P	3.63	H	16.0	G	0.15	U	4

Residuals in seconds of arc

1993 07 20	809	0.6−	0.5−	1997 10 29	098	(0.0	2.6−)	1997 11 21	691	0.3−	0.3−
1993 07 20	809	0.2+	0.2+	1997 10 30	704	0.2+	0.4+	1997 11 21	691	0.4−	0.4−
1993 07 20	809	0.0	0.1−	1997 10 30	704	0.1−	0.6+	1997 12 04	691	0.2+	0.5+
1993 07 24	809	0.5+	0.5+	1997 10 30	704	0.1+	0.0	1997 12 04	691	0.1−	0.0
1997 10 26	098	0.2+	1.5−	1997 10 30	704	0.1+	0.1+	1997 12 04	691	0.3+	0.2+
1997 10 26	098	(0.1+	3.1−)	1997 10 30	704	0.2+	0.8+	1997 12 06	691	0.0	0.3−
1997 10 29	098	0.3−	0.3−	1997 11 21	691	0.3−	0.0	1997 12 06	691	0.1+	0.3+

1997 VA = 1993 TB_2

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	353.34736		(2000.0)		**P**		**Q**
n	0.23765492	ω	167.82291		+0.66181005		−0.74775236
a	2.5812982	Ω	240.71243		+0.68255012		+0.63058785
e	0.2888065	i	3.52393		+0.31005289		+0.20790712
P	4.15	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1993 10 15	400	1.5+	0.6+	1997 11 01	426	0.3−	0.5+	1997 11 15	426	0.5−	0.3−
1993 10 15	400	0.3+	0.1+	1997 11 01	426	0.0	0.6+	1997 11 15	426	0.1+	0.6+
1993 10 16	400	0.6−	0.2−	1997 11 01	426	0.2−	0.3+	1997 11 18	426	0.5−	0.0
1993 10 16	400	1.4−	0.3+	1997 11 02	426	0.5−	0.2+	1997 11 18	426	0.2−	0.2+
1993 11 11	400	1.1+	0.4−	1997 11 02	426	0.2+	0.2+	1997 11 18	426	0.0	0.3+
1993 11 11	400	0.8−	0.4−	1997 11 02	426	0.2+	0.1−	1997 11 27	426	0.6−	0.8−
1997 10 28	704	1.0+	0.1+	1997 11 04	426	0.2−	0.4+	1997 11 27	426	0.4+	0.1+
1997 10 28	704	0.3−	0.4−	1997 11 04	426	0.2+	0.6+	1997 11 27	426	0.9+	0.6+
1997 10 28	704	0.3+	1.4−	1997 11 04	426	0.0	0.3+				
1997 10 28	704	0.2+	1.8−	1997 11 15	426	0.3−	0.3+				

1997 VN = 1992 SF_5

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	28.78961		(2000.0)		**P**		**Q**
n	0.21716938	ω	235.63338		+0.86501819		−0.50087746
a	2.7411764	Ω	154.38726		+0.47978714		+0.80859444
e	0.2012256	i	3.90186		+0.14679181		+0.30870181
P	4.54	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1992 09 25	691	0.4−	0.5−	1997 11 01	611	0.5+	0.6+	1997 11 04	611	0.7+	0.2−
1992 09 25	691	0.4+	0.7−	1997 11 01	611	0.1−	0.4+	1997 11 08	611	0.7+	0.3−
1992 09 25	691	0.1+	0.4−	1997 11 01	611	0.2−	0.4+	1997 11 08	611	0.1+	0.1+
1992 10 01	691	0.2−	0.8+	1997 11 01	611	0.9−	0.3−	1997 11 19	611	0.2+	0.2−
1992 10 01	691	0.1−	0.4+	1997 11 01	611	0.2−	0.3−	1997 11 19	611	0.5−	0.3+
1992 10 01	691	0.3+	0.3+	1997 11 01	611	0.4+	0.3−	1997 11 19	611	0.2−	0.6−
1997 11 01	611	0.5−	0.4+	1997 11 04	611	0.1+	0.1−				

1997 VS = 1986 WO_8

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	34.78344		(2000.0)		**P**		**Q**
n	0.26913855	ω	290.93879		+0.97490869		−0.21468456
a	2.3758487	Ω	81.49497		+0.21987568		+0.88741801
e	0.2225691	i	3.41149		+0.03475231		+0.40792133
P	3.66	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1986 11 30	381	0.8−	0.2−	1997 11 01	400	0.5−	0.2−	1997 11 22	691	0.5−	0.0
1986 11 30	381	0.4−	0.0	1997 11 02	400	1.2+	1.1−	1997 11 22	691	0.4−	0.1−
1986 12 01	381	0.7+	0.5+	1997 11 02	400	0.7−	0.7+	1997 11 29	691	0.6−	0.3−
1986 12 01	381	0.2+	0.6+	1997 11 09	400	0.7+	0.4−	1997 11 29	691	0.4+	0.3−
1997 11 01	400	0.8−	0.8+	1997 11 09	400	1.0+	0.0	1997 11 29	691	0.4+	0.1−

1997 VX = 1965 UA_2 = 1972 TF_7 = 1983 XK_1

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	44.42838		(2000.0)		**P**		**Q**
n	0.27770689	ω	339.43534		+0.98053980		−0.18000764
a	2.3267244	Ω	31.25948		+0.19452001		+0.83689274
e	0.1403908	i	8.68436		+0.02652680		+0.51692145
P	3.55	H	12.9	G	0.15	U	3

Residuals in seconds of arc

1965 10 20	330	1.3−	2.7+	1997 11 01	411	0.3−	0.2−	1997 11 19	411	0.1+	0.2+
1972 10 06	095	0.9+	1.4−	1997 11 03	411	0.4−	0.0	1997 11 19	411	0.3+	0.0
1983 12 04	561	0.6+	0.8−	1997 11 03	411	0.0	0.1+	1997 12 02	411	0.2−	0.1−
1983 12 04	561	0.5−	0.4+	1997 11 08	411	0.6+	0.4−	1997 12 02	411	0.2−	0.2−
1997 11 01	411	0.1−	0.0	1997 11 08	411	0.6+	0.4−				

1997 VY = 1978 WN_{19}

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	36.00201		(2000.0)		**P**		**Q**
n	0.25953660	ω	110.18782		+0.99838562		−0.02825520
a	2.4340919	Ω	251.45664		+0.00729661		+0.92410227
e	0.3397915	i	2.97905		+0.05632856		+0.38109925
P	3.80	H	15.2	G	0.15	U	5

Residuals in seconds of arc

1978 11 30	675	0.1+	0.3+	1997 11 08	411	0.3+	0.0	1997 11 19	411	0.7−	1.1+
1978 12 01	675	0.1−	0.2+	1997 11 08	411	0.2+	0.3+	1997 12 03	888	0.3−	0.0
1997 11 01	411	0.2+	1.1+	1997 11 09	411	0.2+	0.1+	1997 12 03	888	0.4−	0.3−
1997 11 01	411	0.2+	0.5−	1997 11 09	411	0.3+	0.3+	1997 12 05	888	0.9+	0.2+
1997 11 03	411	0.3−	0.8−	1997 11 09	411	0.4+	0.3+	1997 12 05	888	0.2+	1.2−
1997 11 03	411	0.7−	1.4−	1997 11 19	411	0.4−	0.4+				

1997 VY_1 = 1991 RR_8

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	50.94491		(2000.0)		**P**		**Q**
n	0.18315500	ω	148.26114		+0.97239372		−0.22992249
a	3.0708377	Ω	225.08749		+0.20059599		+0.91084723
e	0.0874491	i	3.22382		+0.11921286		+0.34277247
P	5.38	H	12.3	G	0.15	U	5

Residuals in seconds of arc

1991 09 11	675	1.7+	1.7−	1997 11 05	684	0.1−	0.4+	1997 11 21	684	0.0	0.2−
1991 09 11	675	0.2−	0.1+	1997 11 06	684	0.2−	0.1+	1997 11 21	684	0.0	0.2−
1991 09 14	675	0.2−	0.8+	1997 11 06	684	0.0	0.2+	1997 11 22	684	0.3+	0.1−
1991 09 14	675	1.2−	0.8+	1997 11 06	684	0.3−	0.2+	1997 11 22	684	0.3+	0.1−
1997 11 04	888	0.4+	0.4−	1997 11 07	684	0.0	0.1+	1997 11 22	684	0.3+	0.1−
1997 11 04	888	0.7+	0.4−	1997 11 07	684	0.0	0.1+	1997 11 24	888	0.7−	0.3−
1997 11 05	684	0.3−	0.2+	1997 11 07	684	0.1+	0.3+	1997 11 24	888	0.4−	0.2+

1997 VU$_2$ = 1989 AA$_2$ = 1991 NE$_6$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	134.86898		(2000.0)	P		Q	
n	0.19081935	ω	311.71147	−0.41378415		+0.89918857	
a	2.9880494	Ω	293.32369	−0.78247674		−0.43116089	
e	0.0636023	i	8.91317	−0.46530938		−0.07456676	
P	5.17	H	12.0	G	0.15	U	4

Residuals in seconds of arc

1989 01 03	046	(3.2+	2.1−)	1991 07 10	809	0.4+	0.4+	1997 11 04	557	0.1−	0.3−
1989 01 03	046	(7.6−	1.9−)	1991 07 10	809	0.7+	0.6+	1997 11 05	557	0.1−	0.1+
1989 01 04	046	0.3−	0.3+	1991 07 11	809	0.8−	0.6−	1997 11 05	557	0.1−	0.2−
1989 01 04	046	0.3+	0.8−	1991 07 11	809	0.6−	0.4−	1997 11 05	557	0.4+	0.2−
1989 01 09	046	(4.2+	1.4−)	1991 07 11	809	0.3−	0.4−	1997 11 13	658	0.1+	0.2+
1989 01 09	046	(5.0+	0.8−)	1991 07 12	809	0.2+	0.0	1997 11 13	658	0.4+	0.1+
1989 01 12	046	1.3−	0.4−	1991 07 12	809	0.2+	0.0	1997 11 29	557	0.1−	0.1+
1989 01 12	046	1.3+	0.7+	1991 07 12	809	0.1+	0.3−	1997 11 29	557	0.3−	0.1+
1991 07 10	809	0.1+	0.5+	1997 11 04	557	0.2+	0.2−	1997 11 29	557	0.3−	0.2+

1997 VZ$_2$ = 1975 XO$_3$ = 1980 BK$_1$ = 1980 DJ$_2$ = 1984 JR$_1$ = 1986 WK$_1$ = 1993 TS$_{21}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	311.93999		(2000.0)	P		Q	
n	0.26879608	ω	106.31551	−0.76866134		−0.63723738	
a	2.3778663	Ω	34.15592	+0.54257862		−0.69555263	
e	0.1818389	i	5.68045	+0.33877454		−0.33186601	
P	3.67	H	13.8	G	0.15	U	2

Residuals in seconds of arc

1975 12 02	095	0.8+	1.0−	1986 11 29	046	0.2−	0.3−	1997 11 05	411	0.6+	0.1+
1980 01 23	095	1.1−	0.9+	1993 10 10	675	0.4+	0.4−	1997 11 06	411	0.2+	0.0
1980 02 20	095	1.0+	1.0−	1993 10 10	675	0.4+	0.5−	1997 11 06	411	0.2+	0.0
1984 05 02	095	0.0	0.1−	1993 10 13	675	0.3−	0.1+	1997 11 23	411	0.1+	0.1+
1986 11 25	046	(3.0−	1.6−)	1993 10 13	675	0.1−	0.1−	1997 11 23	411	0.1−	0.5−
1986 11 25	046	(4.7−	0.8−)	1997 11 05	411	0.5−	1.8+				
1986 11 29	046	0.8−	0.1−	1997 11 05	411	0.3−	0.7+				

1997 VA$_3$ = 1993 PA$_9$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	125.32773		(2000.0)	P		Q	
n	0.28857663	ω	16.56810	+0.30294296		+0.95170246	
a	2.2679246	Ω	271.08770	−0.87992973		+0.25922900	
e	0.0890294	i	2.85960	−0.36599075		+0.16450760	
P	3.42	H	14.0	G	0.15	U	5

Residuals in seconds of arc

1993 08 14	691	0.8−	1.0−	1997 10 29	566	0.4−	0.0	1997 11 17	727	0.4+	0.7−
1993 08 14	691	0.8−	0.1−	1997 11 06	727	0.7+	0.3+	1997 11 17	727	0.9+	0.6−
1993 08 14	691	0.9−	0.8−	1997 11 06	727	0.4+	0.0	1997 11 19	727	0.3+	1.4−
1993 08 14	010	(0.1+	3.1−)	1997 11 07	727	0.5+	0.2+	1997 11 19	727	0.4+	0.6−
1993 08 14	010	(1.8−	3.0−)	1997 11 07	727	0.8+	1.1+	1997 11 20	727	0.2+	0.1−
1993 08 14	010	(0.9−	2.9−)	1997 11 07	727	0.0	0.0	1997 11 20	727	0.1−	0.8−
1993 08 18	010	1.7+	0.3+	1997 11 08	727	0.2−	0.4+	1997 11 25	727	0.1+	0.1+
1993 08 18	010	0.6+	0.9+	1997 11 08	727	0.2+	1.1+	1997 12 05	727	1.0−	0.1+
1993 08 18	010	0.2+	0.6+	1997 11 08	727	0.6−	0.7+	1997 12 05	727	1.0−	0.1+
1997 10 29	566	0.8−	0.0	1997 11 11	727	0.1+	0.6−				
1997 10 29	566	1.3−	0.0	1997 11 11	727	0.2+	0.6+				

1997 VD$_3$ = 1994 AF$_{17}$ = 1988 WM

Id. G. V. Williams, S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	9.43693		(2000.0)	P		Q	
n	0.22007474	ω	262.50803	+0.55328101		−0.83298080	
a	2.7169976	Ω	153.89778	+0.76850101		+0.50820941	
e	0.0773347	i	0.62587	+0.32138187		+0.21878339	
P	4.48	H	13.5	G	0.15	U	3

Residuals in seconds of arc

1988 11 17	399	0.6+	1.0−	1997 09 07	910	0.1−	0.4−	1997 11 19	411	1.0+	0.2+
1988 11 17	399	1.2−	0.1+	1997 09 07	910	0.1+	0.2−	1997 11 30	411	0.7−	0.2+
1988 11 17	399	0.2+	0.2−	1997 09 07	910	0.2+	0.2−	1997 11 30	411	0.9−	0.1+
1988 11 17	399	0.5+	1.0+	1997 11 06	411	0.4−	0.4−	1997 12 04	704	0.4+	0.5−
1994 01 13	691	2.1+	0.9+	1997 11 06	411	1.0−	0.2+	1997 12 04	704	0.3+	0.7−
1994 01 13	691	0.7−	0.3+	1997 11 07	411	0.2−	0.2+	1997 12 04	704	0.7+	0.2−
1994 01 13	691	0.8−	0.3−	1997 11 07	411	0.3+	0.0	1997 12 04	704	0.5+	0.9+
1994 01 18	691	0.5−	0.3−	1997 11 09	411	0.1−	1.2+	1997 12 04	704	0.7+	0.6−
1994 01 18	691	0.4−	0.5−	1997 11 09	411	0.3+	0.3−				
1994 01 18	691	0.3+	0.3−	1997 11 19	411	0.9−	0.5+				

1997 VF$_3$ = 1990 WH$_5$ = 1996 JX$_6$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	63.33519		(2000.0)	P		Q	
n	0.28575839	ω	274.46249	+0.97049562		+0.22261542	
a	2.2828115	Ω	72.69541	−0.16416384		+0.89142943	
e	0.1957581	i	5.56778	−0.17660262		+0.39470995	
P	3.45	H	15.4	G	0.15	U	4

Residuals in seconds of arc

1990 11 21	372	(0.3−	2.7+)	1996 05 17	691	1.2−	0.2+	1997 11 09	411	0.0	0.0
1990 11 21	372	1.6+	1.4+	1996 05 17	691	0.2−	0.0	1997 11 19	411	1.4+	0.0
1990 11 23	372	0.2−	0.2−	1997 11 06	411	1.4−	0.5+	1997 11 24	411	1.3+	0.2−
1990 11 23	372	2.0−	0.2+	1997 11 06	411	0.1−	0.1−	1997 11 24	411	0.5+	0.1+
1996 05 11	691	0.7+	0.0	1997 11 07	411	0.1−	0.6−	1997 11 30	411	0.5+	0.4+
1996 05 11	691	0.5+	0.3+	1997 11 07	411	1.3−	0.9+	1997 11 30	411	0.5+	0.1+
1996 05 11	691	0.6+	0.3+	1997 11 09	411	0.7−	1.0−				
1996 05 17	691	0.1−	0.2+	1997 11 09	411	0.5−	0.7−				

1997 VN$_3$ = 1991 CR = 1995 CF$_2$

Id. G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	147.10397		(2000.0)	P		Q	
n	0.23742326	ω	36.17193	+0.03412926		+0.96452903	
a	2.5829770	Ω	237.19892	−0.97441918		−0.02609927	
e	0.1927143	i	18.14448	−0.22213163		+0.26268343	
P	4.15	H	13.3	G	0.15	U	3

Residuals in seconds of arc

1991 02 12	413	0.2−	0.2+	1997 11 06	411	0.4−	0.2−	1997 11 19	411	0.0	0.1+
1991 02 13	413	0.2+	0.1−	1997 11 06	411	0.2−	0.1+	1997 11 19	411	0.0	0.3−
1995 02 08	413	0.9+	0.2−	1997 11 07	411	0.2+	0.1+	1997 11 30	566	0.0	0.0
1995 02 08	413	0.4+	0.9+	1997 11 07	411	0.5−	0.3+	1997 11 30	566	0.3+	0.2−
1995 02 09	413	0.7−	0.4−	1997 11 09	411	0.4+	0.4−	1997 11 30	566	0.0	0.2+
1995 02 09	413	0.7−	0.4−	1997 11 09	411	0.3+	0.2+				

1997 VU$_3$ = 1973 AG$_3$ = 1986 RD$_8$ = 1993 RK$_3$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	22.33818		(2000.0)	P		Q	
n	0.27429136	ω	207.68289	+0.77429354		−0.63275367	
a	2.3459998	Ω	191.58575	+0.58908912		+0.72624159	
e	0.1898113	i	2.74191	+0.23117853		+0.26869303	
P	3.59	H	13.5	G	0.15	U	2

Residuals in seconds of arc

1973 01 02	095	0.1−	2.6−	1997 11 06	411	0.7+	0.1+	1997 11 19	411	0.3−	0.6+
1986 09 07	095	1.0+	2.7−	1997 11 06	411	0.6+	1.0−	1997 11 19	411	0.3−	0.6+
1993 09 12	675	0.1+	0.3+	1997 11 07	411	0.3−	0.2+	1997 11 30	411	0.1−	0.8+
1993 09 12	675	0.4+	0.2−	1997 11 07	411	0.4−	0.3+	1997 11 30	411	0.3−	0.6+
1993 09 14	675	0.7−	1.0+	1997 11 09	411	0.1+	0.4+				
1993 09 14	675	0.2−	0.0	1997 11 09	411	0.0	0.4+				

1997 VD$_4$ = 1985 DV$_2$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	138.13724		(2000.0)		**P**	**Q**	
n	0.20653259	ω	60.82376		−0.00472391	+0.99992249	
a	2.8345034	Ω	208.91245		−0.92554841	−0.00873332	
e	0.0301141	i	1.36529		−0.37859982	+0.00887367	
P	4.77	H	13.0	G	0.15	U	5

Residuals in seconds of arc

1985 02 20	675	1.9+	0.3+	1997 09 07	910	0.1−	0.9+	1997 11 21	691	0.7−	0.0
1985 02 22	675	0.8−	0.8+	1997 09 07	910	0.1+	0.8+	1997 11 21	691	0.7−	0.1−
1985 02 24	675	(3.4−	1.0+)	1997 11 01	399	1.0+	0.8−	1997 11 25	691	0.1+	0.2+
1985 02 24	675	0.0	1.4−	1997 11 01	399	1.0+	1.1−	1997 11 25	691	0.1+	0.1+
1985 02 27	675	2.0−	1.1+	1997 11 02	399	0.4−	0.3+	1997 11 25	691	0.1+	0.1+
1985 02 27	675	1.0+	0.5−	1997 11 02	399	0.4+	0.4−				
1997 09 07	910	0.1−	0.8+	1997 11 21	691	0.8−	0.1−				

1997 VG$_4$ = 1991 VD$_8$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	302.91571		(2000.0)		**P**	**Q**	
n	0.17300319	ω	11.06536		−0.83998312	−0.54205583	
a	3.1898235	Ω	136.08180		+0.49509353	−0.78416891	
e	0.1774394	i	2.03022		+0.22206024	−0.30208378	
P	5.70	H	13.5	G	0.15	U	7

Residuals in seconds of arc

1991 11 04	691	0.2+	0.4+	1991 11 05	691	0.3−	0.2−	1997 11 08	411	0.0	0.4−
1991 11 04	691	0.1−	0.4−	1991 11 05	691	0.8+	0.2−	1997 11 08	411	0.4−	0.0
1991 11 04	691	0.3+	0.3+	1997 11 07	411	0.4−	0.2−	1997 11 19	411	0.6−	0.4+
1991 11 05	691	0.9−	0.3+	1997 11 07	411	1.0+	0.8−	1997 11 19	411	0.5+	0.7+

1997 VA$_5$ = 1976 UL$_{13}$ = 1983 UC$_1$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	15.20523		(2000.0)		**P**	**Q**	
n	0.28352945	ω	351.44763		+0.66540970	−0.74006397	
a	2.2947599	Ω	56.77329		+0.69160061	+0.56196535	
e	0.1698299	i	6.70362		+0.28092441	+0.36945942	
P	3.48	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1976 10 22	381	0.1−	0.4+	1997 11 17	104	0.1−	0.0	1997 11 19	886	0.0	0.4−
1976 10 22	381	0.0	0.2−	1997 11 17	104	0.3−	0.3+	1997 11 19	886	0.3−	0.3−
1983 10 30	675	0.2−	0.2−	1997 11 17	104	0.3+	0.4+	1997 11 20	104	0.0	0.0
1983 11 04	675	0.2+	0.1−	1997 11 17	104	0.9−	0.4+	1997 11 20	104	0.8+	0.1−
1997 11 05	905	0.6−	0.7−	1997 11 18	886	0.2−	0.1−	1997 11 20	104	0.4+	0.0
1997 11 05	905	0.2−	0.3+	1997 11 18	886	0.3−	0.9−	1997 11 20	104	0.5+	0.0
1997 11 06	905	1.3+	0.5−	1997 11 18	104	0.4−	0.8+	1997 11 20	104	0.3+	0.2+
1997 11 06	905	0.3+	0.5+	1997 11 18	104	0.1+	0.4+	1997 12 04	886	0.2+	0.2+
1997 11 17	104	0.3−	0.3−	1997 11 18	104	0.1+	0.4+	1997 12 04	886	0.1−	0.5−
1997 11 17	104	0.3−	0.2−	1997 11 18	104	0.3−	0.2+				

1997 VD$_5$ = 1993 PO

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	20.55773		(2000.0)		**P**	**Q**	
n	0.26099478	ω	192.64498		+0.97172473	−0.23611304	
a	2.4250173	Ω	181.01501		+0.22251462	+0.91757218	
e	0.2471207	i	4.20350		+0.07898288	+0.31986235	
P	3.78	H	15.0	G	0.15	U	3

Residuals in seconds of arc

1993 08 13	691	0.3+	0.5−	1997 11 03	592	0.2+	0.3−	1997 11 08	592	0.3−	0.3+
1993 08 13	691	0.2−	0.1−	1997 11 03	592	0.1+	0.3−	1997 11 08	592	0.1+	0.2−
1993 08 13	691	0.1−	0.1−	1997 11 03	592	0.1+	0.1−	1997 11 08	592	0.0	0.1+
1993 08 14	691	0.2−	0.1+	1997 11 05	372	1.3+	0.6+	1997 11 19	592	0.8+	0.2+
1993 08 14	691	0.1+	0.3+	1997 11 08	592	0.4−	0.3+	1997 11 19	592	0.1−	0.0
1993 08 14	691	0.0	0.1+	1997 11 08	592	0.5−	0.0	1997 12 01	592	0.3−	0.9+
1997 11 03	592	0.3−	0.0	1997 11 08	592	0.4−	0.1−	1997 12 01	592	0.2+	1.1−
1997 11 03	592	0.0	0.1−	1997 11 08	592	0.4−	0.1−				

1997 VE$_5$ = 1996 HN$_{14}$

Id. G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Marsden

M	25.39791		(2000.0)		**P**	**Q**	
n	0.26461363	ω	292.07191		+0.99059993	−0.12667471	
a	2.4028569	Ω	75.23551		+0.13668698	+0.90192469	
e	0.2015837	i	3.06044		+0.00533447	+0.41289873	
P	3.72	H	14.0	G	0.15	U	4

Residuals in seconds of arc

1996 04 17	809	0.4−	0.2+	1997 11 05	372	1.0+	0.6+	1997 11 18	552	0.2−	0.2+
1996 04 17	809	1.4−	0.5−	1997 11 07	592	0.2+	0.5−	1997 11 18	552	0.5−	0.6−
1996 04 17	809	1.8−	1.3−	1997 11 07	592	0.7−	0.8−	1997 11 19	592	0.1+	0.0
1996 04 18	809	0.9+	0.9+	1997 11 08	592	0.7+	0.3−	1997 11 19	592	0.1−	1.1+
1996 04 18	809	1.4+	1.0+	1997 11 08	592	0.1+	0.3+	1997 11 19	592	0.0	0.4+
1996 04 18	809	1.6+	0.4+	1997 11 08	592	0.6+	0.1+	1997 11 19	592	0.1−	0.4+
1997 10 30	704	0.3−	0.3−	1997 11 08	592	0.2+	0.4−	1997 11 19	592	0.1+	0.1−
1997 10 30	704	0.5+	0.5−	1997 11 08	592	0.1−	0.3+	1997 11 19	592	0.1+	0.1−
1997 10 30	704	0.2−	0.1−	1997 11 08	592	0.5−	0.2+	1997 12 01	592	0.1−	0.2−
1997 10 30	704	0.5−	0.4+	1997 11 08	592	0.4−	0.2+	1997 12 01	592	0.0	0.3+
1997 10 30	704	0.2+	0.4−	1997 11 08	592	0.3−	0.1+	1997 12 01	592	0.2+	0.1−
1997 11 03	372	0.2−	0.5+	1997 11 08	592	0.3−	0.1+				

1997 VK$_5$ = 1950 XA$_1$ = 1981 SV$_7$ = 1981 WN$_5$ = 1983 BL = 1988 ND$_1$ = 1991 BS$_4$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	175.24408		(2000.0)		**P**	**Q**	
n	0.25163173	ω	348.15923		−0.21058543	+0.97174588	
a	2.4848058	Ω	269.61557		−0.88798234	−0.23574877	
e	0.1292584	i	6.11954		−0.40882898	+0.01150901	
P	3.92	H	12.5	G	0.15	U	2

Residuals in seconds of arc

1950 12 11	675	0.2−	0.4−	1991 01 17	675	0.4−	0.6+	1997 11 30	905	0.3+	0.5+
1950 12 11	675	0.3−	0.7+	1997 11 08	411	0.1+	0.6−	1997 11 30	905	0.2−	0.5+
1981 09 29	095	0.6+	0.3+	1997 11 08	411	0.3−	0.8−	1997 12 03	411	0.1−	0.2+
1981 11 24	095	0.5−	1.6+	1997 11 09	411	0.7+	0.5−	1997 12 03	411	0.3−	0.2+
1983 01 22	688	0.6−	0.4−	1997 11 09	411	0.4−	1.0−	1997 12 04	704	0.8−	1.2−
1983 01 22	688	1.8+	0.3−	1997 11 19	411	0.7+	0.3−	1997 12 04	704	0.1+	0.2+
1988 07 14	046	(4.5+	2.3−)	1997 11 19	411	0.6+	0.1+	1997 12 04	704	0.5−	0.5+
1988 07 14	046	(5.0+	2.7−)	1997 11 27	905	0.0	0.0	1997 12 04	704	0.2−	0.1+
1991 01 17	675	0.1−	0.6+	1997 11 27	905	0.5−	0.2−	1997 12 04	704	0.2+	0.1−

1997 VM$_5$ = 1996 NC$_5$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	82.74244		(2000.0)	**P**	**Q**	
n	0.17435485	ω	224.57613	+0.87284171	+0.48789329	
a	3.1733163	Ω	106.21905	−0.44466616	+0.80390120	
e	0.1822123	i	0.61862	−0.20104564	+0.34015144	
P	5.65	H	13.1	G 0.15	U 5	

Residuals in seconds of arc

1996 07 14	809	0.4+	0.4−	1996 07 15	809	(1.9+	3.8+)	1997 11 08	411	0.3−	0.4+
1996 07 14	809	0.3−	0.5−	1996 07 21	809	0.5+	0.6+	1997 11 09	411	0.4+	0.3+
1996 07 14	809	0.4+	0.5−	1996 07 21	809	0.2−	0.4+	1997 11 09	411	0.5−	0.4−
1996 07 15	809	(1.7+	4.2+)	1996 07 21	809	0.7−	0.3+	1997 12 03	411	0.0	0.8−
1996 07 15	809	(0.8+	3.7+)	1997 11 08	411	0.3+	0.4+	1997 12 03	411	0.1+	0.2+

1997 VQ$_5$ = 5566 P-L

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	20.02542		(2000.0)	**P**	**Q**	
n	0.26842529	ω	349.89125	+0.65277199	−0.75564546	
a	2.3800556	Ω	59.33550	+0.69933216	+0.57380845	
e	0.1632802	i	3.58237	+0.29124433	+0.31582242	
P	3.67	H	15.0	G 0.15	U 5	

Residuals in seconds of arc

1960 10 17	675	1.3−	1.2+	1997 11 08	411	0.4−	0.7+	1997 11 19	411	0.8+	0.4−
1960 10 22	675	1.2+	0.7−	1997 11 09	411	0.1−	0.3−	1997 12 03	411	0.3−	0.5+
1960 10 25	675	0.1+	0.5−	1997 11 09	411	0.2−	0.3−	1997 12 03	411	0.2−	0.1+
1997 11 08	411	0.5+	0.1+	1997 11 19	411	0.0	0.3−				

1997 VS$_5$ = 1980 TH$_9$ = 1991 RL$_{10}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	44.89945		(2000.0)	**P**	**Q**	
n	0.17772093	ω	4.32194	+0.98223254	−0.18761850	
a	3.1331198	Ω	6.49667	+0.17102088	+0.88541950	
e	0.2070474	i	2.18128	+0.07727293	+0.42524300	
P	5.55	H	13.9	G 0.15	U 4	

Residuals in seconds of arc

1980 10 13	095	0.4+	0.9−	1997 11 08	411	0.5−	0.6−	1997 11 19	411	0.4+	0.4+
1991 09 10	675	(3.8+	2.8+)	1997 11 08	411	0.4−	0.4−	1997 12 03	411	0.7−	0.3−
1991 09 10	675	0.2+	1.1+	1997 11 09	411	0.9+	0.8+	1997 12 03	411	0.2+	0.1−
1991 09 16	675	0.2+	0.1−	1997 11 09	411	0.8+	0.3−				
1991 09 16	675	0.7−	0.2−	1997 11 19	411	0.7−	0.8+				

1997 VY$_5$ = 1996 FZ$_{19}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	86.15623		(2000.0)	**P**	**Q**	
n	0.26195439	ω	210.13274	+0.56578855	+0.82360138	
a	2.4190913	Ω	94.35170	−0.74836946	+0.53305979	
e	0.1893010	i	2.27311	−0.34615959	+0.19372153	
P	3.76	H	14.7	G 0.15	U 5	

Residuals in seconds of arc

1996 03 24	809	0.2+	0.5+	1997 10 30	566	0.2−	0.5−	1997 11 17	900	0.1−	0.2−
1996 03 24	809	0.0	0.3+	1997 11 09	900	0.4+	0.3+	1997 11 17	900	0.0	0.1+
1996 03 24	809	0.5+	0.6−	1997 11 09	900	0.6−	0.6−	1997 11 19	900	1.0+	0.8+
1996 03 26	809	0.8+	0.8−	1997 11 09	900	0.9+	0.4+	1997 11 19	900	1.6+	0.8+
1996 03 26	809	1.2−	0.1+	1997 11 09	900	0.4+	0.5+	1997 11 23	900	1.0−	0.2−
1996 03 26	809	0.3−	0.4+	1997 11 10	900	0.4−	0.7+	1997 11 23	900	0.5+	1.4−
1997 10 30	566	0.1+	0.6−	1997 11 10	900	0.5−	0.5+	1997 11 24	900	1.2−	0.0
1997 10 30	566	0.3+	0.6−	1997 11 10	900	1.3−	0.4+	1997 11 24	900	0.1+	0.5−

1997 VO$_6$ = 1975 WP$_1$ = 1980 VU = 1991 RQ$_{29}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	19.59825		(2000.0)	**P**	**Q**	
n	0.17805686	ω	157.44822	+0.73611048	−0.64752510	
a	3.1291778	Ω	244.43817	+0.58289787	+0.75447127	
e	0.0652670	i	12.62078	+0.34405151	+0.10716510	
P	5.54	H	11.7	G 0.15	U 2	

Residuals in seconds of arc

1975 11 28	330	0.1+	1.8+	1997 11 08	888	0.6+	0.8+	1997 11 24	399	0.1−	0.4−
1980 11 11	688	0.7+	0.9−	1997 11 08	888	0.2−	0.4+	1997 12 02	886	0.3−	1.6−
1980 11 11	688	0.5−	0.9+	1997 11 18	886	0.7−	0.6+	1997 12 02	886	0.2−	1.8−
1991 09 12	675	0.3+	0.2+	1997 11 18	886	0.9−	0.5+	1997 12 03	399	0.1−	0.9−
1991 09 12	675	0.3−	0.5+	1997 11 19	886	0.5−	0.1+	1997 12 03	399	0.2−	0.5−
1991 09 16	675	0.2+	0.9−	1997 11 19	886	0.2−	0.3+	1997 12 05	399	0.1−	0.1−
1991 09 16	675	0.2−	0.3+	1997 11 24	888	0.0	0.5−	1997 12 05	399	0.9+	0.6−
1997 11 04	888	0.8+	0.6+	1997 11 24	888	0.3+	0.5−				
1997 11 04	888	0.6+	1.5+	1997 11 24	399	0.6+	0.0				

1997 VP$_6$ = 1977 VU = 1981 UM$_{14}$ = 1989 UR$_9$

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	40.05203		(2000.0)	**P**	**Q**	
n	0.24706865	ω	138.35712	+0.99709093	−0.07508962	
a	2.5153068	Ω	225.95436	+0.06423337	+0.92021831	
e	0.1705457	i	1.04313	+0.04103362	+0.38413515	
P	3.99	H	14.5	G 0.15	U 4	

Residuals in seconds of arc

1977 11 11	805	0.3−	0.7−	1997 11 05	905	0.2+	1.1+	1997 11 23	905	1.6+	0.9+
1977 11 12	805	0.6+	0.2+	1997 11 05	905	0.1+	0.9+	1997 12 05	910	0.0	0.9−
1981 10 23	095	0.7+	1.6−	1997 11 08	905	0.2−	0.2+	1997 12 05	910	0.1−	0.8−
1989 10 29	399	0.7−	0.6+	1997 11 08	905	0.1−	0.5−	1997 12 05	910	0.0	0.8−
1989 10 29	399	1.7−	0.6−	1997 11 18	905	0.4−	1.4+	1997 12 07	910	0.1−	0.6−
1989 10 29	399	1.6+	0.3−	1997 11 18	905	0.6−	0.8+	1997 12 07	910	0.1−	0.6−
1997 11 04	905	0.2−	0.5+	1997 11 23	905	0.0	1.0+	1997 12 07	910	0.2−	0.6−

1997 VU$_6$ = 1978 WF$_{11}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	79.62921		(2000.0)	**P**	**Q**	
n	0.20556236	ω	172.95712	+0.87546163	+0.48304514	
a	2.8434155	Ω	158.13797	−0.44538859	+0.81869929	
e	0.0680304	i	2.35602	−0.18760582	+0.31048167	
P	4.79	H	14.5	G 0.15	U 6	

Residuals in seconds of arc

1978 11 29	675	1.0−	0.5−	1997 11 02	400	0.6+	0.8−	1997 12 07	910	0.2−	0.7+
1978 11 30	675	1.1+	0.2−	1997 11 02	400	1.0+	1.0+	1997 12 07	910	0.2−	0.7+
1997 11 01	400	1.1+	0.9−	1997 11 09	400	0.5−	1.0−	1997 12 07	910	0.2−	0.6+
1997 11 01	400	2.3−	0.7+	1997 11 09	400	0.5+	0.3−				

1997 VM$_7$ = 4871 T-1

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	133.18825		(2000.0)	**P**	**Q**	
n	0.27994433	ω	232.52966	+0.23573285	+0.96944321	
a	2.3143104	Ω	51.24378	−0.86188132	+0.24083305	
e	0.1262821	i	4.99488	−0.44898844	+0.04668294	
P	3.52	H	14.5	G 0.15	U 4	

Residuals in seconds of arc

1971 05 13	675	0.2−	1.2+	1997 09 07	910	0.2+	0.7−	1997 11 06	327	0.3−	0.3+
1971 05 14	675	0.9−	1.0−	1997 11 02	327	0.4−	0.4+	1997 11 06	327	0.5−	0.1−
1971 05 16	675	0.8+	0.6−	1997 11 02	327	0.1−	0.5+	1997 11 28	327	0.9+	0.1+

1997 09 07	910	0.2−	0.7−	1997 11 02	327	0.2−	0.0	1997 11 28	327	0.3+	0.1−
1997 09 07	910	0.7+	0.5−	1997 11 06	327	0.6−	0.2+	1997 11 28	327	0.5+	0.4−

1997 VX$_7$ = 1993 SX$_{10}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	164.63588		(2000.0)		**P**	**Q**	
n	0.25940352	ω	228.11373		−0.55475068	+0.83178516	
a	2.4349243	Ω	8.26172		−0.71719548	−0.46610356	
e	0.0852945	i	7.84954		−0.42176098	−0.30146461	
P	3.80	H	14.5	G	0.15	U	6

Residuals in seconds of arc

1993 09 22	809	1.9+	0.7+	1993 09 24	809	1.5−	0.1−	1997 11 05	327	0.4+	0.1+
1993 09 22	809	0.7−	1.2+	1997 11 03	327	0.8−	0.8−	1997 11 05	327	0.1+	0.4−
1993 09 22	809	0.0	0.2+	1997 11 03	327	0.2−	0.0	1997 11 19	327	0.7−	0.5−
1993 09 24	809	1.0+	0.4−	1997 11 03	327	0.1+	0.2+	1997 11 19	327	0.3+	1.0+
1993 09 24	809	0.8−	1.6−	1997 11 05	327	0.5+	0.4+	1997 11 19	327	0.3+	0.0

1997 VK$_8$ = 1977 RA$_{17}$ = 1990 HO$_4$ = 1995 KU$_4$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	226.91830		(2000.0)		**P**	**Q**	
n	0.20304102	ω	5.13046		−0.98547330	+0.16981329	
a	2.8669065	Ω	184.64858		−0.15685622	−0.91554237	
e	0.0106049	i	1.70603		−0.06510377	−0.36461707	
P	4.85	H	13.0	G	0.15	U	2

Residuals in seconds of arc

1977 09 09	675	0.3−	0.3+	1995 05 27	691	1.0−	0.3+	1997 11 05	372	0.5+	2.4+
1977 09 10	675	0.2+	0.2−	1995 05 30	691	1.2+	0.2+	1997 11 07	372	0.2−	1.1+
1990 04 22	675	0.8+	0.0	1995 05 30	691	1.1+	0.8+	1997 11 26	566	0.3+	0.5−
1990 04 22	675	0.5−	0.7+	1995 05 30	691	1.3+	0.3+	1997 11 26	566	0.0	0.6−
1995 05 27	691	1.1−	0.1−	1997 11 03	372	(3.8−	0.4−)	1997 11 26	566	0.2+	0.2−
1995 05 27	691	1.0−	0.3+	1997 11 03	372	1.4−	0.1+				

1997 VY$_8$ = 1986 TO$_9$ = 1991 PK$_{18}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	46.59099		(2000.0)		**P**	**Q**	
n	0.18441644	ω	58.73384		+0.99004145	−0.06937244	
a	3.0568184	Ω	304.96969		+0.00338727	+0.88163793	
e	0.1029291	i	8.59710		+0.14073539	+0.46679977	
P	5.34	H	12.3	G	0.15	U	4

Residuals in seconds of arc

1986 10 02	095	1.2−	0.4+	1991 09 12	675	1.0+	0.0	1997 11 02	399	0.6−	1.0−
1986 10 08	095	0.7+	0.7+	1991 09 12	675	0.3+	0.2−	1997 11 02	399	1.5−	1.1−
1991 08 08	675	1.4−	0.3+	1997 11 01	399	1.1+	2.1+	1997 11 24	399	0.9−	0.7−
1991 08 08	675	0.4+	0.8−	1997 11 01	399	0.3+	1.1+	1997 11 24	399	1.7+	1.1−

1997 WH = 1996 TF$_{14}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	328.13268		(2000.0)		**P**	**Q**	
n	0.16901685	ω	221.86101		−0.29374346	−0.94253796	
a	3.2397839	Ω	245.78198		+0.91680213	−0.23067081	
e	0.0651447	i	10.05170		+0.27053400	−0.24168818	
P	5.83	H	13.5	G	0.15	U	5

Residuals in seconds of arc

1996 10 14	327	0.1+	0.2−	1996 10 18	327	0.3−	0.2−	1997 11 24	411	0.5+	0.6+
1996 10 14	327	0.3−	0.4+	1997 11 18	411	0.8+	0.2+	1997 11 24	411	0.4+	0.2−
1996 10 14	327	0.0	0.2+	1997 11 18	411	0.6−	0.0	1997 12 04	411	0.2+	0.4−
1996 10 18	327	0.2+	0.0	1997 11 19	411	0.1+	0.2−	1997 12 04	411	0.4−	0.2+
1996 10 18	327	0.3+	0.4−	1997 11 19	411	1.0−	0.2−				

1997 WB$_2$ = 1993 QY$_7$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	344.87326		(2000.0)		**P**	**Q**	
n	0.26460702	ω	277.74244		+0.23307286	−0.97235215	
a	2.4028969	Ω	158.76271		+0.90718392	+0.21205787	
e	0.1846186	i	2.28366		+0.35027757	+0.09778934	
P	3.72	H	15.3	G	0.15	U	6

Residuals in seconds of arc

1993 08 20	809	0.1+	0.3−	1993 08 24	809	0.3+	0.1+	1997 11 23	369	0.2−	0.5−
1993 08 20	809	0.8−	0.0	1993 08 24	809	0.1−	1.2−	1997 11 23	369	0.6−	0.1+
1993 08 20	809	0.9+	1.5+	1997 11 19	369	0.8−	0.1+	1997 11 24	369	0.1+	0.1+
1993 08 24	809	0.4−	0.2−	1997 11 19	369	0.8+	0.1−	1997 11 24	369	0.7+	0.4+

1997 WD$_2$ = 1993 NC = 1995 BS$_{16}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	57.29510		(2000.0)		**P**	**Q**	
n	0.27546400	ω	259.76891		+0.96791248	+0.22662680	
a	2.3393371	Ω	87.07069		−0.16606455	+0.90111535	
e	0.2746436	i	6.24062		−0.18859480	+0.36963688	
P	3.58	H	13.9	G	0.15	U	3

Residuals in seconds of arc

1993 07 15	675	0.3−	0.1+	1997 11 23	411	0.1+	0.3−	1997 11 28	400	0.3+	0.1+
1993 07 15	675	0.9−	0.3−	1997 11 23	411	0.4−	0.3−	1997 12 04	400	0.2+	0.1−
1993 07 20	675	0.1−	0.5+	1997 11 24	411	0.2−	0.3+	1997 12 04	400	0.2−	0.1+
1993 07 20	675	1.2+	0.2−	1997 11 24	411	0.2−	0.2+	1997 12 05	411	0.1+	0.0
1995 01 31	033	0.6+	0.1+	1997 11 27	411	0.2+	0.1−	1997 12 05	411	0.1+	0.0
1995 01 31	033	0.0	0.5−	1997 11 27	411	0.0	0.2+				
1995 02 03	033	0.6−	0.6+	1997 11 28	400	(2.4−	1.5+)				

1997 WJ$_2$ = 4678 T-1

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	263.74511		(2000.0)		**P**	**Q**	
n	0.28498013	ω	109.24823		−0.99689364	+0.04404365	
a	2.2869658	Ω	73.31822		−0.06725902	−0.90742165	
e	0.0502880	i	3.90843		+0.04097913	−0.41790681	
P	3.46	H	14.4	G	0.15	U	5

Residuals in seconds of arc

1971 05 13	675	0.3+	0.4+	1997 11 23	411	0.5−	0.0	1997 11 30	411	0.1+	0.3−
1971 05 14	675	0.0	0.4−	1997 11 24	411	0.1+	0.5+	1997 12 05	411	0.2+	0.1−
1971 05 16	675	0.3−	0.0	1997 11 24	411	0.2−	0.4+	1997 12 05	411	0.5+	0.3−
1997 11 23	411	0.7−	0.1−	1997 11 30	411	0.4+	0.1+				

1997 WN$_2$ = 1993 TP$_{42}$ = 6234 P-L

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	345.50071		(2000.0)		**P**	**Q**	
n	0.26964124	ω	134.25063		−0.21149723	−0.97724864	
a	2.3728949	Ω	327.94942		+0.88795255	−0.18530623	
e	0.1706186	i	1.72109		+0.40842280	−0.10318287	
P	3.66	H	15.1	G	0.15	U	5

Residuals in seconds of arc

1960 09 24	675	0.6−	0.2+	1993 10 10	809	1.3+	1.9+	1997 11 24	411	0.1+	0.7−
1960 09 24	675	0.7+	0.5−	1993 10 10	809	0.5+	1.0+	1997 11 24	411	0.3+	0.3+
1960 09 25	675	1.0−	1.6−	1993 10 10	809	1.3−	0.1−	1997 11 30	411	0.1−	0.1+
1960 09 25	675	1.4+	0.3+	1993 10 22	809	2.3−	0.6−	1997 11 30	411	0.2−	0.4+
1960 09 26	675	0.2+	0.3−	1993 10 22	809	1.1−	0.9+	1997 12 05	411	0.5−	0.0
1960 09 26	675	1.3+	0.1−	1993 10 22	809	1.2+	0.5+	1997 12 05	411	0.0	0.3−
1960 09 28	675	0.6−	1.1−	1997 11 23	411	0.4+	0.4−				
1960 09 28	675	0.1+	0.1−	1997 11 23	411	0.2+	0.4−				

1997 WQ$_2$ = 1991 AY$_4$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	34.86220		(2000.0)	**P**	**Q**	
n	0.27150083	ω	309.52798	+0.81183948	−0.57218348	
a	2.3620474	Ω	85.67774	+0.56508498	+0.71983865	
e	0.0879800	i	6.69701	+0.14695448	+0.39298649	
P	3.63	H	14.7	G 0.15	U 5	

Residuals in seconds of arc

1991 01 11	675	0.7+	0.5−	1997 11 24	411	0.3−	0.2+	1997 11 27	411	1.6+	0.1+
1991 01 11	675	0.2−	0.1+	1997 11 24	411	0.2+	0.1−	1997 11 27	411	0.7+	0.3−
1991 01 14	675	0.5−	0.4+	1997 11 25	721	0.4+	0.3−	1997 12 05	411	0.6−	0.4+
1991 01 14	675	(4.8−	1.1−)	1997 11 25	721	0.2+	0.3+	1997 12 05	411	0.2−	0.3−
1997 11 23	411	1.0−	0.0	1997 11 26	721	0.8−	0.2+				
1997 11 23	411	0.1+	0.3+	1997 11 26	721	0.3−	0.3−				

1997 WV$_2$ = 1993 UJ

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	23.63233		(2000.0)	**P**	**Q**	
n	0.26581340	ω	144.63718	+0.59666606	−0.79738478	
a	2.3956211	Ω	268.56200	+0.71389186	+0.57885197	
e	0.0840431	i	5.18666	+0.36653517	+0.17061044	
P	3.71	H	12.5	G 0.15	U 5	

Residuals in seconds of arc

1993 10 19	675	(2.3−	1.0+)	1997 11 23	411	0.0	0.3−	1997 11 30	411	0.1−	0.1+
1993 10 19	675	0.3−	0.1−	1997 11 23	411	0.0	0.2−	1997 11 30	411	0.2−	0.3+
1993 10 21	675	(3.3+	2.0−)	1997 11 24	411	0.2+	0.0	1997 12 05	411	0.2+	0.0
1993 10 21	675	0.3+	0.1+	1997 11 24	411	0.2−	0.1+	1997 12 05	411	0.2+	0.0

1997 WR$_3$ = 1975 TV$_5$ = 1986 WL$_8$ = 1993 SU$_1$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	114.81929		(2000.0)	**P**	**Q**	
n	0.26997098	ω	247.10265	+0.45288664	+0.88686566	
a	2.3709624	Ω	50.15045	−0.76813032	+0.44019919	
e	0.1136701	i	6.84113	−0.45262513	+0.14033526	
P	3.65	H	13.7	G 0.15	U 5	

Residuals in seconds of arc

1975 10 14	095	0.2+	0.9−	1993 09 18	400	1.5+	0.7+	1997 11 24	886	0.5−	0.1+
1986 11 30	381	1.5−	0.8+	1997 11 05	905	0.3+	1.3+	1997 11 24	886	1.2+	0.3+
1986 12 01	381	1.9+	0.6+	1997 11 05	905	1.1−	0.2+	1997 11 24	888	0.5−	0.2−
1986 12 01	381	0.1−	1.1−	1997 11 06	905	0.9−	0.1−	1997 11 24	888	0.3−	0.3−
1993 09 16	400	0.9−	0.9−	1997 11 06	905	0.1+	0.0	1997 12 03	886	0.6−	1.3−
1993 09 16	400	1.3−	1.9+	1997 11 19	905	1.1+	0.1−	1997 12 03	886	1.2+	0.2−
1993 09 18	400	0.6+	1.7−	1997 11 19	905	0.5−	0.9+				

1997 WJ$_7$ = 1988 VZ$_{10}$ = 1992 PM$_4$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	49.11509		(2000.0)	**P**	**Q**	
n	0.21854100	ω	89.18893	+0.99419883	+0.10164761	
a	2.7296948	Ω	264.97651	−0.10725746	+0.91253106	
e	0.2044256	i	2.02288	−0.00803224	+0.39617524	
P	4.51	H	14.3	G 0.15	U 5	

Residuals in seconds of arc

1988 11 11	888	0.2+	0.9−	1992 08 06	675	0.8−	1.3−	1997 11 24	886	0.8+	1.5+
1988 11 11	888	0.1+	1.0−	1992 08 06	675	0.5−	0.2−	1997 11 24	888	1.7−	0.8−
1992 08 02	675	1.3+	1.1+	1992 08 06	675	0.4+	1.0+	1997 11 24	886	0.6−	0.3+
1992 08 02	675	0.8−	0.4+	1997 11 19	905	0.0	0.5+	1997 11 24	888	1.3−	1.2−
1992 08 03	675	0.2+	0.1−	1997 11 19	905	0.2+	0.6+	1997 12 02	886	0.4+	1.7+
1992 08 03	675	0.6−	0.0	1997 11 23	905	0.6+	0.1+	1997 12 02	886	0.1+	0.8−
1992 08 06	675	0.8+	0.6−	1997 11 23	905	1.1+	0.1−				

1997 WL$_7$ = 1991 KV$_2$ = 1991 LJ$_1$

Id. S. Nakano (d, *MPC* 20607; unpublished)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	326.48364		(2000.0)	**P**	**Q**	
n	0.22913998	ω	213.48835	−0.24249671	−0.96845553	
a	2.6448566	Ω	250.60248	+0.90291002	−0.20366886	
e	0.0907670	i	3.48592	+0.35489273	−0.14357190	
P	4.30	H	13.5	G 0.15	U 5	

Residuals in seconds of arc

1991 05 18	809	0.4−	0.6+	1991 06 06	809	1.3−	0.3+	1997 11 19	905	0.1−	1.0−
1991 05 18	809	1.2+	0.2+	1991 06 08	809	0.7+	1.2−	1997 11 23	905	0.2−	0.6+
1991 05 18	809	0.6+	0.5+	1991 06 08	809	0.2−	0.3+	1997 11 23	905	0.9−	0.3+
1991 06 06	809	0.2−	0.7+	1991 06 08	809	0.3−	0.9−	1997 12 03	886	0.0	0.7+
1991 06 06	809	0.0	0.7+	1997 11 19	905	0.4+	1.0−	1997 12 03	886	0.7+	1.4+

1997 WQ$_7$ = 1996 HO$_9$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	74.05952		(2000.0)	**P**	**Q**	
n	0.30439560	ω	80.24403	+0.93739971	+0.34717346	
a	2.1886541	Ω	259.43748	−0.32945880	+0.85852386	
e	0.1241424	i	1.59889	−0.11286582	+0.37736900	
P	3.24	H	14.5	G 0.15	U 5	

Residuals in seconds of arc

1996 04 17	809	0.3−	1.3+	1996 04 18	809	0.5+	0.3+	1997 11 23	905	0.4+	0.0
1996 04 17	809	0.8−	0.5−	1996 04 18	809	0.7+	0.4−	1997 11 23	905	0.7−	0.8−
1996 04 17	809	0.9−	1.0−	1997 11 19	905	0.2+	1.2+	1997 12 02	886	0.1−	0.1−
1996 04 18	809	0.9+	0.4+	1997 11 19	905	0.1+	0.3−	1997 12 02	886	0.1+	0.1+

1997 WD$_8$ = 1993 SC$_{14}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	330.06319		(2000.0)	**P**	**Q**	
n	0.27673211	ω	319.02834	−0.49756813	−0.86734021	
a	2.3321851	Ω	160.80122	+0.80515110	−0.46700072	
e	0.1777782	i	2.11230	+0.32273467	−0.17213739	
P	3.56	H	14.4	G 0.15	U 6	

Residuals in seconds of arc

1993 09 16	809	0.4+	0.3+	1993 09 23	809	0.4+	0.8−	1997 11 27	411	0.1−	0.0
1993 09 16	809	0.2+	0.3−	1993 09 23	809	1.6−	0.5−	1997 11 27	411	0.1−	0.4−
1993 09 16	809	0.2−	1.0+	1997 11 24	411	0.2+	0.3−	1997 12 03	411	0.1−	0.4+
1993 09 23	809	0.9+	0.4+	1997 11 24	411	0.1−	0.0	1997 12 03	411	0.1+	0.3+

1997 WB$_{13}$ = 1995 GP$_5$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	235.34061		(2000.0)	**P**	**Q**	
n	0.23426696	ω	148.01471	−0.99138557	+0.12934292	
a	2.6061257	Ω	39.43332	−0.12596712	−0.89847336	
e	0.1368678	i	1.86005	−0.03587383	−0.41954264	
P	4.21	H	15.0	G 0.15	U 5	

Residuals in seconds of arc

1995 04 05	691	0.2−	0.2+	1997 10 29	704	1.6−	0.3−	1997 11 23	691	0.4−	0.1−
1995 04 05	691	0.0	0.3−	1997 11 01	691	0.1+	0.1−	1997 11 23	691	0.6−	0.1−
1995 04 05	691	0.2+	0.0	1997 11 01	691	0.1+	0.0	1997 11 28	691	0.4+	0.2+
1995 04 07	691	0.2+	0.2+	1997 11 01	691	0.0	0.0	1997 11 28	691	0.4+	0.2+
1995 04 07	691	0.1−	0.1−	1997 11 06	704	0.6−	0.7−	1997 11 28	691	0.3+	0.0
1995 04 07	691	0.0	0.1+	1997 11 06	704	0.6−	0.5−	1997 12 05	691	0.5+	0.8+
1997 10 29	704	0.8+	0.2−	1997 11 06	704	0.7+	0.3−	1997 12 05	691	0.2−	1.3−
1997 10 29	704	0.6−	1.2+	1997 11 06	704	0.7+	0.0	1997 12 05	691	0.2−	0.3+
1997 10 29	704	1.2+	1.0+	1997 11 23	691	0.5−	0.1−				

1997 WO$_{13}$ = 1977 DG$_{11}$ = 1981 JN$_{6}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	238.98904		(2000.0)	P		Q	
n	0.27209065	ω	113.63297	−0.93280255		+0.33353154	
a	2.3586326	Ω	86.07909	−0.35986596		−0.84166113	
e	0.0623336	i	7.86471	−0.01938789		−0.42469195	
P	3.62	H	14.1	G 0.15		U 3	

Residuals in seconds of arc

1977 02 19	033	0.1−	0.3+	1997 11 24	888	0.1+	0.4−	1997 12 04	886	0.1+	0.4−
1977 02 19	033	0.1+	0.3−	1997 11 24	888	0.4−	0.8+	1997 12 04	886	0.6+	0.2−
1981 05 08	675	1.4−	0.1+	1997 11 27	888	0.9−	0.4−				
1981 05 09	675	1.4+	0.2−	1997 11 27	888	0.5+	0.6+				

1997 WP$_{14}$ = 1991 RD$_{41}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	354.97188		(2000.0)	P		Q	
n	0.18113313	ω	297.41180	+0.36686539		−0.92965370	
a	3.0936473	Ω	131.02393	+0.86862017		+0.32925150	
e	0.0819089	i	2.58054	+0.33302970		+0.16534042	
P	5.44	H	14.5	G 0.15		U 6	

Residuals in seconds of arc

1991 09 10	033	0.3−	0.2−	1997 11 22	691	0.2+	0.1+	1997 11 29	691	0.6−	0.2+
1991 09 10	033	0.9+	0.2+	1997 11 22	691	0.4+	0.2−	1997 12 05	691	0.2+	0.2−
1991 09 13	033	0.6−	0.1+	1997 11 29	691	0.7−	0.1+	1997 12 05	691	0.4+	0.1−
1997 11 22	691	0.3+	0.1+	1997 11 29	691	0.5−	0.1−	1997 12 05	691	0.4+	0.1+

1997 WM$_{16}$ = 1973 QY

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	38.67743		(2000.0)	P		Q	
n	0.28848240	ω	222.98564	+0.93402901		+0.34155169	
a	2.2684184	Ω	116.76872	−0.28766854		+0.89279434	
e	0.1884849	i	6.72520	−0.21174661		+0.29370174	
P	3.42	H	14.5	G 0.15		U 4	

Residuals in seconds of arc

1973 08 28	095	0.8+	0.8−	1997 11 24	900	0.5+	0.9+	1997 12 04	900	0.0	0.0
1973 09 01	095	0.0	2.4+	1997 11 24	900	0.9+	0.7+	1997 12 04	402	0.1+	0.1−
1973 09 06	095	1.3−	0.0	1997 11 30	900	0.2−	0.8+	1997 12 04	402	0.2−	0.6−
1997 09 30	566	0.4+	1.1−	1997 11 30	900	0.2−	0.6+	1997 12 04	402	0.1+	0.3−
1997 09 30	566	0.3+	1.0−	1997 12 02	900	1.1−	0.3−	1997 12 05	900	0.9−	0.0
1997 09 30	566	0.1+	0.9−	1997 12 02	900	0.2−	0.0	1997 12 05	900	0.4−	0.0
1997 11 24	900	1.1+	0.5+	1997 12 04	900	0.1−	0.1+				

1997 WZ$_{16}$ = 1991 LR$_{2}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	174.33459		(2000.0)	P		Q	
n	0.21441640	ω	336.65888	−0.71380254		+0.68773234	
a	2.7645899	Ω	247.48633	−0.61786733		−0.70735336	
e	0.1073563	i	8.23554	−0.32973610		−0.16332623	
P	4.60	H	14.0	G 0.15		U 5	

Residuals in seconds of arc

1991 06 06	809	0.2+	0.2−	1991 06 08	809	0.3+	0.5−	1997 11 23	691	0.1−	0.1−
1991 06 06	809	0.7+	0.0	1997 11 19	327	0.5+	0.1−	1997 11 23	691	0.2−	0.4−
1991 06 06	809	0.6−	0.6+	1997 11 19	327	0.0	0.3−	1997 11 30	691	0.2−	0.4−
1991 06 08	809	1.4−	0.3+	1997 11 19	327	0.2−	0.4+	1997 11 30	691	0.1−	1.1+
1991 06 08	809	0.7+	0.2−	1997 11 23	691	0.0	0.1+	1997 11 30	691	0.4+	0.3−

1997 WF$_{21}$ = 1978 UT = 1991 FL$_{3}$ = 1993 TU$_{11}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	6.30821		(2000.0)	P		Q	
n	0.26200594	ω	242.53475	+0.32562296		−0.94546068	
a	2.4187740	Ω	188.47541	+0.88675220		+0.30853087	
e	0.1722679	i	3.34146	+0.32808571		+0.10446439	
P	3.76	H	13.9	G 0.15		U 2	

Residuals in seconds of arc

1978 10 28	688	0.5+	1.9− Y	1991 03 22	809	0.6−	1.6−	1997 12 02	411	0.1+	0.4+
1991 03 21	809	0.2+	0.5+	1993 10 13	675	0.6+	0.6−	1997 12 02	411	0.3−	0.1+
1991 03 21	809	0.4+	0.6+	1993 10 13	675	0.0	0.2−	1997 12 05	411	0.0	0.4+
1991 03 21	809	0.8+	0.5+	1993 10 15	675	0.1−	1.0−	1997 12 05	411	0.3−	0.2+
1991 03 22	809	1.0−	1.5−	1997 11 30	411	0.0	0.5+				
1991 03 22	809	0.9−	1.5−	1997 11 30	411	0.3+	0.7+				

1997 WM$_{21}$ = 1990 VP$_{1}$ = 1992 JU$_{1}$

Id. S. Nakano

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	316.75002		(2000.0)	P		Q	
n	0.29328066	ω	264.42222	−0.72905577		−0.67997156	
a	2.2436086	Ω	232.70709	+0.66044421		−0.66887526	
e	0.1475512	i	5.64163	+0.17969733		−0.30040734	
P	3.36	H	13.5	G 0.15		U 4	

Residuals in seconds of arc

1990 11 10	877	1.2+	0.2−	1992 05 02	809	0.9−	0.5+	1997 12 02	411	0.4−	1.0+
1990 11 10	877	1.7−	0.2−	1992 05 02	809	0.7−	0.5+	1997 12 04	704	0.1+	0.8−
1990 11 12	877	0.2+	0.1+	1992 05 03	809	1.0−	0.9+	1997 12 04	704	0.8+	0.0
1990 11 12	877	0.4+	0.0	1992 05 03	809	0.4−	0.8+	1997 12 04	704	0.0	1.4−
1992 05 01	809	1.1+	1.4−	1992 05 03	809	0.1+	0.2+	1997 12 04	704	0.6+	1.4−
1992 05 01	809	1.4+	1.2−	1997 11 30	411	0.5−	0.9+	1997 12 04	704	0.2+	1.1−
1992 05 01	809	1.7+	1.1−	1997 11 30	411	0.0	0.7+	1997 12 05	411	0.3−	1.0+
1992 05 02	809	1.3−	0.5+	1997 12 02	411	0.0	0.6+	1997 12 05	411	0.6−	0.5+

1997 WO$_{21}$ = 1991 RG$_{29}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	359.74674		(2000.0)	P		Q	
n	0.17846758	ω	194.09728	+0.15903168		−0.95170651	
a	3.1243750	Ω	247.29116	+0.93115031		+0.23299311	
e	0.1795272	i	16.53960	+0.32812805		−0.19992233	
P	5.52	H	12.4	G 0.15		U 5	

Residuals in seconds of arc

1991 09 13	675	0.7−	0.0	1991 09 16	675	0.4−	0.0	1997 12 02	411	0.4+	0.2−
1991 09 13	675	0.7+	0.5−	1997 11 30	411	0.8−	0.3+	1997 12 05	411	0.4+	0.0
1991 09 14	675	0.2+	0.2+	1997 11 30	411	0.1−	0.7−	1997 12 05	411	0.3+	0.1−
1991 09 15	675	0.3+	0.2+	1997 12 02	411	0.3−	0.6+				

1997 WV$_{21}$ = 1996 SW$_{3}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	33.99350		(2000.0)	P		Q	
n	0.19607525	ω	41.61809	+0.51555744		−0.85680016	
a	2.9344105	Ω	17.35418	+0.77731208		+0.46290656	
e	0.0499034	i	1.86273	+0.36053635		+0.22718054	
P	5.03	H	13.5	G 0.15		U 5	

Residuals in seconds of arc

1996 09 21	691	0.1+	0.2−	1996 09 22	691	0.1−	0.1+	1997 12 02	411	0.2+	0.2+
1996 09 21	691	0.1−	0.0	1996 09 22	691	0.1−	0.4−	1997 12 02	411	0.4+	0.3−
1996 09 21	691	0.1+	0.2+	1997 11 30	411	0.6−	0.1+	1997 12 05	411	0.1−	0.0
1996 09 22	691	0.1+	0.3+	1997 11 30	411	0.3+	0.2+	1997 12 05	411	0.2−	0.2−

1997 WT$_{23}$ = 1978 RS$_3$ = 1982 UE$_{10}$ = 1982 VA$_{11}$ = 1995 CO$_4$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	51.63565		(2000.0)		P		Q
n	0.26353363	ω	94.35161		+0.98141965		+0.19020696
a	2.4094172	Ω	254.68499		−0.18478308		+0.90152036
e	0.1919555	i	1.49924		−0.05167865		+0.38869314
P	3.74	H	14.5	G	0.15	U	3

Residuals in seconds of arc

1978 09 03	095	0.9−	2.3+	1995 02 07	691	0.1+	0.5+	1997 11 23	358	0.0	0.5+
1982 10 22	095	3.8−	1.5−	1995 02 07	691	0.2+	0.6+	1997 11 30	900	0.2−	1.2−
1982 11 14	095	3.7+	1.6+	1995 02 07	691	0.2+	0.5+	1997 12 04	900	0.4−	0.3+
1995 02 01	691	0.2+	0.6+	1997 11 19	358	1.0+	2.2−	1997 12 04	900	0.4−	0.4+
1995 02 01	691	0.0	0.4+	1997 11 19	358	1.3+	0.3+	1997 12 04	900	0.0	0.1+
1995 02 01	691	0.1+	0.1+	1997 11 23	358	1.0−	0.7+				

1997 XL = 1983 VC$_4$ = 1990 WG$_{13}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	330.55554		(2000.0)		P		Q
n	0.28399718	ω	74.29599		−0.47533030		−0.87693565
a	2.2922397	Ω	44.31208		+0.76326139		−0.45117262
e	0.1098217	i	5.83574		+0.43759932		−0.16561142
P	3.47	H	13.5	G	0.15	U	5

Residuals in seconds of arc

1983 11 08	381	0.4−	1.0+	1990 11 20	095	0.5+	0.7−	1997 12 03	411	0.2+	0.4+
1990 11 18	675	0.3−	0.5+	1997 11 20	327	0.1+	0.0	1997 12 03	411	0.7−	0.0
1990 11 18	675	1.1−	1.3−	1997 11 20	327	0.1−	0.4+	1997 12 04	411	0.0	0.2−
1990 11 20	095	1.5+	0.6−	1997 11 20	327	0.2+	0.2+	1997 12 04	411	0.2+	0.4+

2211 P-L = 1997 WT$_{17}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	131.11053		(2000.0)		P		Q
n	0.26840822	ω	304.31902		−0.09807982		+0.99412621
a	2.3801565	Ω	319.97488		−0.88809291		−0.10818017
e	0.2113647	i	4.07967		−0.44907832		−0.00318357
P	3.67	H	16.5	G	0.15	U	5

Residuals in seconds of arc

1960 09 24	675	0.1+	0.8−	1960 09 29	675	0.6+	1.6+	1997 11 30	691	0.2−	0.2−
1960 09 24	675	0.1+	0.7−	1960 10 26	675	0.3−	0.3+	1997 11 30	691	0.3−	0.5−
1960 09 26	675	0.3−	0.7−	1997 11 23	691	0.3+	0.4−	1997 11 30	691	0.4−	1.6+
1960 09 26	675	0.3−	0.7+	1997 11 23	691	0.2+	0.2−				
1960 09 29	675	0.2−	0.2−	1997 11 23	691	0.5+	0.3−				

2537 P-L = 1982 SK$_3$ = 1997 VU$_7$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	63.33036		(2000.0)		P		Q
n	0.26838902	ω	317.64381		+0.96298532		+0.26635153
a	2.3802700	Ω	26.99212		−0.21632792		+0.85534147
e	0.2037902	i	5.23690		−0.16081515		+0.44435103
P	3.67	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1960 09 24	675	0.1−	0.8+	1960 10 25	675	0.0	0.8+	1997 11 02	327	0.2−	0.0
1960 09 26	675	0.0	0.1+	1960 10 26	675	0.4−	0.1+	1997 11 07	327	0.3−	0.0
1960 09 28	675	0.3+	0.3+	1982 09 24	033	0.5+	0.5−	1997 11 07	327	0.1+	0.2−
1960 09 29	675	0.0	0.3+	1982 09 24	033	0.2+	0.9−	1997 11 07	327	0.2+	0.0
1960 10 17	675	0.1−	0.4−	1997 11 02	327	0.1+	0.0				
1960 10 22	675	0.5−	0.3−	1997 11 02	327	0.2+	0.1−				

2629 P-L = 1997 WK$_{26}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	24.37113		(2000.0)		P		Q
n	0.18802880	ω	8.10999		+0.92928003		−0.36929736
a	3.0175407	Ω	13.56985		+0.33704690		+0.83932359
e	0.0701759	i	1.86152		+0.15112252		+0.39894281
P	5.24	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1960 09 24	675	0.1+	0.5−	1997 10 29	704	1.1−	0.8−	1997 11 06	704	0.1−	0.7+
1960 09 26	675	0.1−	0.3−	1997 10 29	704	0.9+	0.9−	1997 11 28	691	0.8+	0.2+
1960 09 28	675	0.7−	0.5−	1997 10 29	704	0.1−	0.3−	1997 11 28	691	0.5+	0.1−
1960 09 29	675	0.8+	0.2−	1997 10 29	704	0.0	0.3+	1997 11 28	691	0.8+	0.2+
1960 10 17	675	0.3+	1.1+	1997 10 29	704	1.8+	0.5+	1997 12 05	691	1.0−	0.3+
1960 10 22	675	1.1−	1.2+	1997 10 30	704	1.0+	1.6−	1997 12 05	691	0.6−	0.0
1960 10 25	675	0.2+	0.1−	1997 11 06	704	1.0−	0.9+	1997 12 05	691	0.7−	0.2+
1960 10 26	675	0.3+	0.3−	1997 11 06	704	1.1−	0.0				

2660 P-L = 1997 WJ$_{28}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	95.57313		(2000.0)		P		Q
n	0.18936552	ω	130.52156		+0.63743712		+0.77050202
a	3.0033235	Ω	179.07842		−0.72029575		+0.59624708
e	0.1376341	i	2.67741		−0.27358356		+0.22542418
P	5.20	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1960 09 24	675	0.5+	0.9−	1960 10 25	675	0.6+	0.6−	1997 12 05	691	0.3+	0.1+
1960 09 26	675	0.2−	0.0	1960 10 26	675	0.1+	0.6−	1997 12 05	691	0.5+	0.1−
1960 09 28	675	0.0	0.8+	1997 11 29	691	0.5−	0.0	1997 12 05	691	0.6+	0.1+
1960 10 17	675	0.9−	0.8+	1997 11 29	691	0.4−	0.1−				
1960 10 22	675	0.1−	0.5+	1997 11 29	691	0.5−	0.0				

4042 P-L = 1997 XK$_5$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Urata

M	10.41658		(2000.0)		P		Q
n	0.21553774	ω	229.50413		+0.41578486		−0.90916046
a	2.7549930	Ω	195.97509		+0.85807549		+0.40070815
e	0.2040000	i	4.88921		+0.30137918		+0.11340301
P	4.57	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1960 09 24	675	0.1+	0.3−	1960 10 17	675	0.8−	0.2+	1997 12 02	905	0.4+	0.5−
1960 09 25	675	0.3−	0.9−	1960 10 22	675	0.3−	0.2−	1997 12 03	905	0.5+	0.4+
1960 09 26	675	0.0	0.1+	1960 10 24	675	0.7+	0.3+	1997 12 03	905	0.5−	0.4−
1960 09 28	675	0.8+	0.8+	1960 10 26	675	0.5+	0.3−				
1960 10 17	675	0.7−	0.2+	1997 12 02	905	0.4−	0.4+				

4572 P-L = 1996 RP$_{31}$ = 1997 TQ$_{19}$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	340.41446		(2000.0)		P		Q
n	0.08017212	ω	42.96189		+0.50525435		−0.86175998
a	5.3266455	Ω	16.85368		+0.74288052		+0.40739003
e	0.0818126	i	9.06751		+0.43914300		+0.30232945
P	12.29	H	12.0	G	0.15	U	4

Residuals in seconds of arc

1960 09 24	675	0.0	0.1−	1996 09 13	809	0.8−	0.4+	1997 11 21	691	0.2+	0.0
1960 09 26	675	0.3−	1.1−	1996 09 16	809	0.2−	1.1+	1997 11 21	691	0.4+	0.2+
1960 09 27	675	0.2+	0.5−	1997 10 02	691	0.6−	0.3−	1997 11 21	691	0.2+	0.2+
1960 09 28	675	0.8−	0.0	1997 10 02	691	0.5−	0.0	1997 11 29	691	0.2−	0.7+
1960 10 17	675	1.1+	0.8+	1997 10 02	691	0.7−	0.2−	1997 11 29	691	0.1−	0.1−
1960 10 22	675	0.7+	0.1+	1997 10 11	691	0.4+	0.0	1997 11 29	691	0.2−	0.1+

1960 10 25	675	0.2−	0.5−	1997 10 11	691	0.2+	0.2+	
1960 10 26	675	0.8+	1.0−	1997 10 11	691	0.4+	0.2+	

6120 P-L = 1997 WT$_3$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	54.29211		(2000.0)		**P**		**Q**
n	0.24200619	ω	164.54201		+0.99416730		+0.10682561
a	2.5502635	Ω	189.36321		−0.10606740		+0.94359427
e	0.2407638	i	5.22683		−0.01952130		+0.31339772
P	4.07	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1960 09 24	675	0.1−	0.2−	1960 10 22	675	0.6+	0.6−	1997 11 23	360	0.1−	0.1−
1960 09 25	675	0.8+	0.4+	1960 10 25	675	0.7−	0.1+	1997 11 24	360	0.0	0.3−
1960 09 26	675	0.3−	0.2−	1960 10 26	675	0.1+	0.3−	1997 11 24	360	0.2−	0.0
1960 09 28	675	0.6−	0.3+	1997 11 23	360	0.2+	0.2+	1997 11 24	360	0.0	0.2−
1960 10 17	675	0.1+	0.4+	1997 11 23	360	0.1+	0.5+				

6133 P-L = 1997 WH$_2$

Id. G. V. Williams

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Nakano

M	46.25917		(2000.0)		**P**		**Q**
n	0.26869677	ω	127.13293		+0.97265372		−0.22799600
a	2.3784522	Ω	246.08434		+0.19475724		+0.90455100
e	0.2172502	i	2.77773		+0.12654785		+0.36028505
P	3.67	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1960 09 24	675	0.8−	0.7+	1960 10 22	675	0.2+	0.2−	1997 11 30	411	0.0	0.3+
1960 09 24	675	0.2−	0.0	1960 10 24	675	0.3−	0.6+	1997 12 04	704	0.2−	0.1+
1960 09 25	675	0.7+	0.3+	1960 10 26	675	0.2+	0.5−	1997 12 04	704	0.4−	0.4+
1960 09 25	675	0.1+	0.4+	1997 11 23	411	0.1−	0.5+	1997 12 04	704	0.1+	0.9−
1960 09 26	675	0.3+	0.2+	1997 11 23	411	0.9+	0.5−	1997 12 05	411	0.5+	0.3−
1960 09 26	675	0.0	0.5+	1997 11 24	411	0.1−	0.1+	1997 12 05	411	0.2−	0.2+
1960 09 28	675	0.0	0.7−	1997 11 24	411	0.7−	0.5+				
1960 09 28	675	0.0	1.3−	1997 11 30	411	0.1+	0.3−				

4348 T-1

Id. E. Bowell (1993 observations), B. A. Skiff (1997 observations)

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	287.83013		(2000.0)		**P**		**Q**
n	0.17563633	ω	125.16191		−0.96592256		−0.24681097
a	3.1578620	Ω	40.70838		+0.18102540		−0.85947010
e	0.1425376	i	6.86522		+0.18499572		−0.44765555
P	5.61	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1971 03 24	675	(6.9+	6.3−)	1971 04 16	675	0.2−	1.0+	1993 01 28	675	0.3+	0.2−
1971 03 26	675	1.1−	0.0	1971 04 16	675	0.5+	0.2−	1993 01 28	675	0.0	1.2+
1971 03 26	675	0.3−	1.1−	1971 05 13	675	0.3+	0.2−	1997 11 29	688	0.1+	0.4−
1971 03 27	675	(0.5+	3.6−)	1971 05 14	675	1.5+	1.1−	1997 11 29	688	0.1+	0.4−
1971 04 02	675	0.1+	0.5−	1971 05 16	675	1.2−	1.3+				

2259 T-2 = 1997 XY$_2$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	55.10146		(2000.0)		**P**		**Q**
n	0.24680550	ω	79.48458		+0.83311775		+0.55308051
a	2.5170943	Ω	246.93670		−0.50917979		+0.76405643
e	0.1345199	i	0.25496		−0.21598786		+0.33214414
P	3.99	H	15.5	G	0.15	U	5

Residuals in seconds of arc

1973 09 19	675	(0.4−	3.5+)	1973 09 30	675	0.2−	0.4+	1997 10 30	704	0.1−	0.3+
1973 09 19	675	0.8−	1.5+	1973 09 30	675	0.6−	0.9−	1997 12 03	910	0.3−	0.3+
1973 09 20	675	0.5+	0.7+	1973 10 04	675	1.2+	1.5−	1997 12 03	910	0.1+	0.3+
1973 09 24	675	0.9−	0.7+	1973 10 04	675	1.2+	2.0−	1997 12 03	910	0.2+	0.1+
1973 09 24	675	1.7−	1.1+	1973 10 05	675	0.5+	1.9−	1997 12 05	910	0.2+	0.4−
1973 09 25	675	(1.0−	2.8−)	1973 10 05	675	0.5+	2.0−	1997 12 05	910	0.3−	0.2−
1973 09 25	675	1.2+	1.2−	1997 10 30	704	0.7−	0.5−	1997 12 05	910	0.1+	0.0
1973 09 29	675	0.1+	1.8+	1997 10 30	704	0.3−	1.3+				
1973 09 29	675	0.3−	1.7+	1997 10 30	704	0.3+	0.7+				

1188 T-3 = 1996 QB$_3$

Epoch 1997 Dec. 18.0 TT = JDT 2450800.5 Williams

M	125.65043		(2000.0)		**P**		**Q**
n	0.25557248	ω	20.70022		+0.86664682		+0.49199497
a	2.4591970	Ω	309.55279		−0.47153223		+0.75343324
e	0.1119705	i	6.16853		−0.16303568		+0.43621016
P	3.86	H	15.5	G	0.15	U	6

Residuals in seconds of arc

1977 10 12	675	1.1+	1.2+	1977 10 22	675	0.4+	0.6−	1996 08 18	010	1.1+	0.8+
1977 10 12	675	0.6+	1.7+	1977 10 22	675	0.1+	0.2+	1996 08 18	010	1.4+	0.5+
1977 10 16	675	1.3−	0.6−	1996 08 14	566	1.2−	0.2+	1996 08 20	010	0.3+	1.3−
1977 10 16	675	2.3−	0.1+	1996 08 14	566	1.2−	0.1+	1996 08 20	010	0.0	1.0−
1977 10 17	675	0.2−	0.8−	1996 08 14	566	1.4−	0.0	1996 08 20	010	(0.9−	3.1−)
1977 10 17	675	1.5+	1.0−	1996 08 18	010	1.0+	0.4+				

Object	H	G	Epoch	M	ω	Ω	i	e	a	Obs.	Opp.	& Arc	rms	Perts	U	Computer	*MPC*	Object
(37)	7.29	0.24	19971218	351.59388	62.82389	7.48412	3.07311	0.1751898	2.6415643	1399	97	1855–1996	0.55	M-v	0	Goffin	26417	(37)
(40)	7.0	0.15	19971218	16.98524	268.44740	94.33141	4.25629	0.0464256	2.2670729	3339	81	1856–1996	0.52	M-v	0	Goffin	30647	(40)
(51)	7.35	0.08	19971218	142.92539	2.72266	176.21810	9.96223	0.0655280	2.3672120	3595	87	1858–1997	0.52	M-v	0	Goffin	30892	(51)
(88)	7.04	0.14	19971218	181.36127	34.95513	276.92519	5.22210	0.1618539	2.7694978	998	68	1866–1997	0.54	M-v	0	Goffin	30892	(88)
(192)	7.13	0.03	19971218	94.94859	29.80554	343.53293	6.82445	0.2467870	2.4032735	864	67	1847–1996	0.53	M-v	0	Goffin	28610	(192)
(216)	7.30	0.29	19971218	225.80396	179.35013	215.69918	13.13783	0.2531192	2.7911217	1272	69	1880–1997	0.52	M-v	0	Goffin	30778	(216)
(230)	7.35	0.27	19971218	93.12821	139.55226	240.02251	9.43515	0.0606741	2.3826969	797	64	1882–1996	0.53	M-v	0	Goffin	21099	(230)
(231)	9.2	0.15	19971218	109.51738	268.13922	350.94510	5.10307	0.1581191	2.9173019	72	27	1916–1997	0.73	M-v	1	Forti	30090	(231)
(324)	6.82	0.09	19971218	141.49906	44.15440	328.12586	11.10061	0.3373814	2.6855226	1129	62	1892–1997	0.53	M-v	0	Goffin	27930	(324)
(349)	5.93	0.37	19971218	49.04586	344.42163	32.65867	8.24514	0.0861519	2.9247559	1414	72	1892–1996	0.53	M-v	0	Goffin	30778	(349)
(354)	6.44	0.37	19971218	132.95258	5.03459	140.70392	18.42810	0.1153209	2.7970040	1700	75	1893–1997	0.55	M-v	0	Goffin	28293	(354)
(471)	6.73	0.37	19971218	119.43930	314.82959	84.14966	14.98305	0.2317451	2.8888618	899	60	1901–1997	0.52	M-v	0	Goffin	21965	(471)

(511)	6.22	0.16	19971218	48.08836	338.92568	107.79424	15.93874	0.1823522	3.1716725	1127	73	1903–1997	0.54	M-v	0	Goffin	28882	(511)
(532)	5.81	0.26	19971218	119.27656	75.47537	108.02044	16.33156	0.1749850	2.7765485	2223	69	1904–1997	0.53	M-v	0	Goffin	30271	(532)
(620)	11.28	0.15	19971218	46.44358	335.21195	0.32637	7.72880	0.1338686	2.4352366	47	19	1931–1997	0.83	M-v	1	Forti	26165	(620)
(659)	8.99	0.15	19971218	53.04217	340.67580	351.00125	4.51921	0.1140603	5.2177274	108	27	1908–1997	0.77	M-v	1	Forti	19857	(659)
(704)	5.94	−0.02	19971218	106.07909	94.26259	280.69742	17.32268	0.1459502	3.0644469	2007	62	1910–1997	0.53	M-v	0	Goffin	23990	(704)
(842)	10.8	0.15	19971218	41.76580	350.43555	6.02234	14.60166	0.1302635	3.2256081	47	14	1916–1997	0.82	M-v	1	Forti	26917	(842)
(1396)	12.0	0.15	19971218	108.67334	266.02292	359.78028	4.49951	0.1654162	2.2473232	49	19	1930–1996	0.96	M-v	1	Forti	29940	(1396)
(1411)	10.9	0.15	19971218	11.70555	85.83343	285.12335	8.04657	0.0556260	3.0022737	31	13	1937–1997	0.80	M-v	1	Forti	26923	(1411)
(1468)	13.6	0.15	19971218	74.86838	22.68763	309.13545	9.94502	0.2705967	2.1957390	62	8	1938–1997	0.93	M-v	2	Williams	30685	(1468)
(1787)	11.7	0.15	19971218	180.20917	275.48840	307.44841	8.92779	0.0550855	2.9996593	33	13	1930–1997	0.82	M-v	1	Forti	30893	(1787)
(1900)	12.2	0.15	19971218	353.40294	142.32447	282.13177	6.54261	0.1340357	2.2093489	30	13	1953–1997	0.89	M-v	1	Forti	25537	(1900)
(1955)	11.9	0.15	19971218	359.56477	155.22262	258.81654	1.00093	0.0611241	2.8542453	56	17	1949–1997	0.86	M-v	1	Forti	30894	(1955)
(1980)	13.92	0.15	19971218	34.16210	115.28005	246.73615	26.85083	0.3651376	1.7096928	301	10	1950–1997	0.55	M-v	1	Williams	30894	(1980)
(2274)	12.3	0.15	19971218	286.96592	187.10495	348.63135	2.25600	0.2325107	2.4071203	74	11	1976–1997	0.84	M-v	1	Bowell	30780	(2274)
(2303)	11.0	0.15	19971218	221.69500	332.00627	195.51468	18.93748	0.1141541	2.9943203	44	11	1974–1997	0.77	M-v	1	Forti	29657	(2303)
(2370)	12.6	0.15	19971218	60.81400	314.77001	10.55688	8.27134	0.1856104	2.7120590	26	9	1955–1997	0.83	M-v	1	Forti	28884	(2370)
(2637)	13.2	0.15	19971218	48.59001	343.07351	356.34042	4.93686	0.2349668	2.2546665	25	6	1919–1997	0.84	M-v	1	Forti	28885	(2637)
(2698)	11.9	0.15	19971218	305.55507	241.44949	206.74899	6.87483	0.0531148	2.6616586	27	9	1958–1997	0.89	M-v	1	Forti	30756	(2698)
(3137)	13.4	0.15	19971218	344.82799	134.60883	286.92422	2.46952	0.1895104	2.4012926	29	11	1949–1997	0.82	M-v	1	Forti	26901	(3137)
(3576)	13.1	0.15	19971218	345.95787	47.18202	20.66501	10.11793	0.1311006	2.3950698	33	11	1954–1997	0.67	M-v	1	Forti	22407	(3576)
(3688)	14.9	0.15	19971218	328.14143	138.12938	20.04010	2.55704	0.4772111	3.2273071	55	4	1981–1997	0.79	M-v	1	Bowell	28887	(3688)
(3749)	13.4	0.15	19971218	292.47321	173.94013	295.95240	5.38210	0.1092514	2.2365112	36	11	1954–1997	0.84	M-v	1	Forti	29943	(3749)
(3931)	13.5	0.15	19971218	295.28309	151.70910	328.50677	3.79936	0.0811758	2.3941273	62	6	1958–1997	0.75	M-v	1	Forti	26173	(3931)
(4172)	14.0	0.15	19971218	209.80571	210.71387	332.64473	2.18639	0.0943756	2.2727866	65	9	1951–1997	0.78	M-v	1	Forti	29944	(4172)
(4183)	14.4	0.15	19971218	315.57581	235.15145	295.90875	6.76500	0.6375205	1.9802862	57	7	1959–1997	0.91	M-v	2	Forti	29944	(4183)
(4187)	12.6	0.15	19971218	260.25606	22.03960	175.12292	1.27056	0.1178817	3.0447743	59	5	1978–1997	0.65	M-v	2	Williams	30782	(4187)
(4311)	13.6	0.15	19971218	30.95077	124.69552	223.18423	5.48530	0.1462652	2.4414489	28	7	1963–1997	0.86	M-v	2	Williams	29662	(4311)
(4460)	11.0	0.15	19971218	357.27875	29.32625	326.65656	27.06618	0.1826783	2.9229474	17	6	1955–1997	0.69	M-v	1	Bowell	23539	(4460)
(4789)	13.9	0.15	19971218	28.48034	152.12401	209.98661	1.27067	0.1240925	2.2382998	38	10	1976–1997	0.71	M-v	1	Forti	24585	(4789)
(4931)	12.0	0.15	19971218	272.70196	281.60219	155.11217	23.18446	0.2820749	2.5803266	18	6	1981–1997	0.47	M-v	1	Bowell	27937	(4931)
(4961)	12.2	0.15	19971218	28.90209	49.64157	315.55108	7.88217	0.2314636	3.1423419	29	8	1930–1997	0.80	M-v	1	Forti	27937	(4961)
(5184)	13.7	0.15	19971218	280.25803	194.53446	332.23565	4.00278	0.0331268	2.1564909	46	7	1981–1997	0.68	M-v	1	Williams	25966	(5184)
(5227)	13.1	0.15	19971218	84.86446	86.97631	254.12856	8.61712	0.0858676	2.2908591	24	4	1989–1997	0.68	M-v	1	Bowell	30901	(5227)
(5345)	14.1	0.15	19971218	22.42491	73.21463	304.76554	6.46072	0.2355860	2.7624367	34	4	1981–1997	0.77	M-v	1	Forti	29319	(5345)
(5436)	10.3	0.15	19971218	280.32603	218.57865	254.00187	7.43007	0.0792089	5.2009847	36	7	1986–1997	0.70	M-v	1	Bowell	30784	(5436)
(5452)	13.1	0.15	19971218	112.94914	312.37139	300.06160	6.15542	0.2226819	2.2215719	22	7	1983–1997	0.69	M-v	1	Forti	30456	(5452)
(5454)	12.6	0.15	19971218	346.49658	82.27711	337.08761	5.47106	0.1201980	3.1670492	38	7	1974–1997	0.83	M-v	1	Forti	26572	(5454)
(5603)	10.5	0.15	19971218	209.06233	19.63285	196.93839	4.32908	0.0657198	3.9604755	40	9	1973–1997	0.67	M-v	1	Forti	30901	(5603)
(5839)	11.8	0.15	19971218	245.59671	142.92112	4.90884	16.98067	0.0849534	2.7583839	28	7	1951–1997	0.54	M-v	1	Forti	28088	(5839)
(6019)	11.3	0.15	19971218	283.96853	194.44865	290.29037	8.58651	0.0394541	3.0065935	25	7	1954–1997	0.69	M-v	1	Forti	29140	(6019)
(6553)	12.2	0.15	19971218	176.86491	140.35400	135.21493	13.34774	0.0833248	3.0506415	27	5	1975–1997	0.78	M-v	1	Bowell	30766	(6553)
(7000)	12.8	0.15	19971218	24.83499	305.61565	60.62096	9.88436	0.2610727	2.4644546	38	5	1939–1997	0.80	M-v	1	Bowell	30797	(7000)
(7249)	13.4	0.15	19971218	68.93518	77.80369	307.81123	5.54071	0.1749755	2.6558233	35	5	1985–1997	0.89	M-v	1	Bowell	29321	(7249)
1966 BL	13.0	0.15	19971218	306.77179	195.72104	300.71407	7.00414	0.1652737	2.7777331	21	4	1966–1997	0.50	M-v	1	Williams	30892	1966 BL
1967 JP	12.0	0.15	19971218	201.89131	263.92742	327.17907	4.13905	0.1135192	3.1245201	33	11	1955–1997	0.70	M-v	1	Williams	30892	1967 JP
1969 TQ_1	13.0	0.15	19971218	11.98793	330.58213	68.69957	2.97909	0.1624934	3.1478600	29	5	1969–1997	0.74	M-v	1	Williams	30892	1969 TQ_1
1972 TC	13.0	0.15	19971218	2.64037	159.13914	247.42219	12.60652	0.1700437	2.5788770	27	3	1972–1997	0.51	M-v	2	Williams	30892	1972 TC
1973 SE_1	11.5	0.15	19971218	110.33664	264.35555	22.64751	4.35334	0.0424175	5.1127477	33	4	1973–1997	1.11	M-v	1	Williams	29607	1973 SE_1
1975 LY	13.5	0.15	19971218	183.17027	243.70610	304.71125	14.41103	0.0522223	2.6071800	17	3	1975–1997	0.75	M-v	4	Williams	30647	1975 LY
1975 ST	14.0	0.15	19971218	92.56809	98.06222	187.30986	11.19165	0.2408973	2.6718696	19	3	1975–1997	0.58	M-v	3	Williams	27301	1975 ST
1975 SK_1	14.0	0.15	19971218	256.75637	161.29809	2.39354	2.49713	0.0551694	2.3633396	42	4	1975–1997	0.75	M-v	2	Williams	30892	1975 SK_1
1975 UA	15.5	0.15	19971218	352.63635	205.38127	224.29150	20.27805	0.0873599	1.9640487	36	3	1975–1997	0.62	M-v	3	Williams	30892	1975 UA
1975 VV_2	12.5	0.15	19971218	52.36976	292.91854	40.97195	16.78216	0.1871728	3.1024301	17	3	1975–1997	0.83	M-v	4	Williams	21963	1975 VV_2

1976 UY	13.0	0.15	19971218	21.53237	153.24257	238.17374	11.15400	0.2103311	2.6424073	25	3	1976–1997	0.83	M-v	4	Williams	30892	1976 UY
1976 UR_{15}	14.0	0.15	19971218	338.22103	338.97914	49.57488	9.89977	0.0563701	2.6355308	33	5	1976–1997	0.70	M-v	2	Williams	30892	1976 UR_{15}
1976 YA_6	12.0	0.15	19971218	199.08515	160.11374	73.71330	14.19986	0.1051417	2.6256578	29	4	1976–1997	0.67	M-v	2	Williams	25438	1976 YA_6
1977 DX_3	12.5	0.15	19971218	163.22022	178.71037	89.93098	2.31579	0.1572363	3.1470030	26	9	1977–1997	0.86	M-v	1	Williams	28083	1977 DX_3
1977 RC_9	14.5	0.15	19971218	263.56314	254.84274	319.66369	1.45925	0.1465369	2.4099554	21	4	1977–1997	0.85	M-v	2	Williams	23131	1977 RC_9
1978 PE	15.0	0.15	19971218	176.82384	213.97901	133.41745	5.23425	0.2304825	2.2995323	21	4	1978–1997	0.61	M-v	2	Williams	29652	1978 PE
1978 PS_2	13.5	0.15	19971218	133.39115	82.83173	211.98706	2.04610	0.0423509	2.3790199	21	3	1978–1997	0.69	M-v	5	Williams	22947	1978 PS_2
1978 SA_7	13.0	0.15	19971218	34.46991	36.75221	347.71511	7.30239	0.2338086	2.7946286	27	4	1964–1997	0.61	M-v	2	Williams	25077	1978 SA_7
1978 SA_8	14.5	0.15	19971218	32.61977	163.52533	211.98752	2.61460	0.1895324	2.4234084	39	3	1978–1997	0.55	M-v	2	Williams	30892	1978 SA_8
1978 US_5	14.0	0.15	19971218	81.10074	287.67493	18.15598	16.67604	0.2910257	2.7927832	21	5	1950–1997	0.94	M-v	2	Williams	27725	1978 US_5
1978 UX_5	15.5	0.15	19971218	17.61984	145.21816	223.98958	4.46274	0.0738306	2.1643115	15	3	1978–1997	0.31	M-v	3	Williams	30867	1978 UX_5
1978 VP_{10}	14.5	0.15	19971218	96.67251	248.19598	80.70778	3.90479	0.0686876	2.4369791	37	4	1978–1997	0.77	M-v	2	Williams	25224	1978 VP_{10}
1979 HW_6	14.0	0.15	19971218	166.02395	344.65298	267.89132	0.36147	0.1292997	2.2507195	20	5	1979–1997	0.85	M-v	2	Williams	24758	1979 HW_6
1979 KD	13.0	0.15	19971218	168.36179	101.55708	150.18762	7.84345	0.1538334	2.5916779	29	6	1979–1997	0.67	M-v	2	Williams	29653	1979 KD
1979 MD_2	14.0	0.15	19971218	340.10538	248.34240	186.20680	3.38220	0.1802463	2.2984570	31	6	1954–1997	0.87	M-v	2	Marsden	30892	1979 MD_2
1979 MK_3	13.0	0.15	19971218	320.59531	333.12785	133.95304	6.15000	0.1261333	3.1090864	32	6	1955–1997	0.91	M-v	1	Williams	28083	1979 MK_3
1979 MN_3	14.5	0.15	19971218	284.96901	266.30188	235.57443	1.97527	0.0687417	2.2738456	15	3	1954–1997	0.79	M-v	4	Williams	30892	1979 MN_3
1979 MP_4	16.0	0.15	19971218	92.34753	80.90280	214.35251	3.87487	0.0786106	2.6576743	14	3	1979–1997	0.70	M-v	4	Williams	30753	1979 MP_4
1979 MK_5	14.5	0.15	19971218	259.86460	321.33088	221.44396	2.63896	0.0871533	2.5869659	18	3	1979–1997	0.50	M-v	4	Williams	30892	1979 MK_5
1979 MY_5	13.5	0.15	19971218	79.00406	347.43860	278.07435	11.77882	0.1100867	2.7043243	30	4	1979–1997	0.76	M-v	3	Williams	30778	1979 MY_5
1979 MM_6	14.5	0.15	19971218	194.79932	340.73628	233.52120	4.25432	0.1066752	3.1219676	24	4	1979–1997	0.84	M-v	2	Williams	30892	1979 MM_6
1979 MK_7	13.0	0.15	19971218	285.12354	280.20697	226.63440	2.83435	0.1076711	3.0858208	17	5	1978–1997	0.95	M-v	2	Williams	27930	1979 MK_7
1979 SC	13.5	0.15	19971218	174.89461	226.25277	33.75596	4.65691	0.1261261	2.2935494	16	4	1979–1997	0.62	M-v	2	Williams	30867	1979 SC
1979 SJ	15.0	0.15	19971218	61.99071	339.27277	0.20964	5.47856	0.2151945	2.3273292	62	4	1979–1997	0.71	M-v	1	Marsden	30892	1979 SJ
1979 SU_2	14.0	0.15	19971218	341.30992	154.16414	238.08212	5.39609	0.1320448	2.3690494	43	3	1979–1997	0.52	M-v	3	Williams	30779	1979 SU_2
1979 SP_{14}	12.5	0.15	19971218	37.09353	272.58776	109.84448	2.70256	0.1035974	3.2181615	41	9	1954–1997	0.78	M-v	1	Williams	30287	1979 SP_{14}
1979 TH_2	13.0	0.15	19971218	49.25337	49.36392	25.41423	1.14650	0.1634174	3.1536362	24	3	1979–1997	0.55	M-v	3	Williams	28882	1979 TH_2
1979 UH	14.0	0.15	19971218	14.13737	307.81841	132.20049	9.80135	0.2987381	2.6980968	10	4	1952–1997	0.63	M-v	2	Williams	27725	1979 UH
1980 RP	12.5	0.15	19971218	61.48967	344.00152	335.97274	17.07350	0.2140794	3.1186934	33	6	1950–1997	0.97	M-v	2	Williams	30892	1980 RP
1980 TV_2	15.0	0.15	19971218	344.30328	32.35891	6.87523	6.22163	0.2473632	2.2796182	23	6	1980–1997	0.78	M-v	2	Williams	24406	1980 TV_2
1980 UM_1	14.0	0.15	19971218	344.97999	174.83912	269.57492	4.83857	0.0982211	2.2508162	21	7	1953–1997	0.73	M-v	2	Williams	29132	1980 UM_1
1980 UN_1	13.5	0.15	19971218	47.66449	75.39237	275.77906	2.50947	0.2371429	2.6118729	18	2	1980–1997	0.45	M-v	5	Williams	30867	1980 UN_1
1980 VA	15.0	0.15	19971218	22.16477	232.72317	169.39538	3.20916	0.2635152	2.2536174	35	4	1980–1997	0.91	M-v	2	Williams	30685	1980 VA
1981 DM	14.5	0.15	19971218	172.31892	338.53016	262.73249	6.62244	0.0841081	2.3585348	23	4	1979–1997	1.10	M-v	2	Williams	30892	1981 DM
1981 DS	13.0	0.15	19971218	256.28261	216.46123	239.37975	9.84866	0.0676272	3.5690492	24	4	1954–1997	0.89	M-v	2	Williams	24733	1981 DS
1981 EW_2	14.5	0.15	19971218	252.47652	299.31556	320.14420	13.16359	0.1115988	2.6465126	31	3	1981–1997	0.76	M-v	2	Williams	25972	1981 EW_2
1981 EX_3	14.5	0.15	19971218	301.63619	237.58994	234.04353	7.90803	0.0964484	2.7460291	26	3	1977–1997	0.96	M-v	4	Williams	22696	1981 EX_3
1981 EV_7	13.5	0.15	19971218	102.52135	66.95980	255.14116	4.27590	0.0514124	2.7453589	20	4	1978–1997	0.88	M-v	2	Williams	27725	1981 EV_7
1981 EF_{13}	14.5	0.15	19971218	359.65178	76.15579	337.43121	11.92394	0.1081582	2.7509495	19	3	1981–1997	1.00	M-v	3	Williams	21100	1981 EF_{13}
1981 EO_{15}	14.0	0.15	19971218	16.76182	193.79508	220.99912	6.78417	0.0685687	2.7330008	28	7	1974–1997	0.84	M-v	2	Williams	25438	1981 EO_{15}
1981 ET_{15}	13.5	0.15	19971218	23.69681	50.39818	350.43170	15.77203	0.0690589	2.7443616	23	3	1981–1997	0.95	M-v	3	Williams	22948	1981 ET_{15}
1981 ES_{21}	14.0	0.15	19971218	357.90364	99.91396	354.79334	13.01318	0.1627278	2.6803100	26	3	1981–1997	0.91	M-v	3	Williams	22949	1981 ES_{21}
1981 EZ_{21}	15.0	0.15	19971218	103.65793	55.07067	204.48387	1.53469	0.0426886	2.8377659	23	2	1981–1997	0.88	M-v	5	Williams	30754	1981 EZ_{21}
1981 EK_{23}	15.0	0.15	19971218	100.88621	129.23418	185.46456	3.06291	0.1841021	2.3595436	41	8	1964–1997	0.91	M-v	1	Williams	27453	1981 EK_{23}
1981 EG_{26}	14.5	0.15	19971218	267.86833	145.54539	354.42787	9.24063	0.1331066	2.7558906	24	3	1981–1997	0.68	M-v	4	Williams	30755	1981 EG_{26}
1981 EU_{33}	14.5	0.15	19971218	73.65784	105.42941	234.20842	5.69341	0.1355844	2.3544411	18	4	1977–1997	0.99	M-v	2	Williams	30893	1981 EU_{33}
1981 EW_{38}	14.5	0.15	19971218	204.11744	304.21030	281.82406	4.11743	0.0620209	2.7498299	27	4	1969–1997	0.64	M-v	3	Williams	30893	1981 EW_{38}
1981 EV_{41}	14.5	0.15	19971218	334.80052	140.95341	327.30717	2.61362	0.0402462	2.7166252	16	3	1979–1997	0.81	M-v	4	Williams	22430	1981 EV_{41}
1981 FL	14.5	0.15	19971218	217.60666	357.43306	184.11473	7.90336	0.1879894	2.3686624	32	8	1953–1997	0.97	M-v	2	Williams	28882	1981 FL
1981 JE_2	14.5	0.15	19971218	117.20114	244.06631	62.58892	3.01688	0.2079986	2.3912504	18	3	1981–1997	0.73	M-v	4	Williams	28882	1981 JE_2
1981 SC_7	13.5	0.15	19971218	4.06023	344.47713	40.50141	8.64814	0.2421757	2.5307230	27	6	1969–1997	0.77	M-v	3	Williams	30893	1981 SC_7
1981 TH_3	14.0	0.15	19971218	26.94442	163.53178	171.49734	4.46736	0.2353855	2.1940363	12	3	1981–1997	0.51	M-v	4	Williams	30780	1981 TH_3
1982 BE_1	13.5	0.15	19971218	5.17784	302.97294	131.16566	6.49655	0.1883977	2.5545027	26	5	1982–1997	0.76	M-v	4	Williams	29132	1982 BE_1

1982 FA	14.5	0.15	19971218	205.99229	93.08972	78.81589	1.61821	0.1467316	2.2672627	28	5	1982–1997	0.89	M-v	2	Williams	28883	1982 FA
1982 HJ	13.5	0.15	19971218	182.55496	202.67065	58.67290	7.72819	0.1803052	2.2582272	23	7	1949–1997	0.88	M-v	2	Williams	28084	1982 HJ
1982 HO_1	14.0	0.15	19971218	246.85010	192.58788	61.84453	6.76912	0.1753540	2.2103945	19	5	1982–1997	0.72	M-v	2	Williams	30893	1982 HO_1
1982 OF	13.5	0.15	19971218	358.78261	46.29564	303.53672	3.82181	0.2289184	2.4349180	22	5	1982–1997	0.85	M-v	2	Williams	23788	1982 OF
1982 TS_1	12.5	0.15	19971218	313.67482	155.03613	246.64455	8.75680	0.0842353	3.0256601	15	3	1982–1997	0.46	M-v	4	Williams	27442	1982 TS_1
1982 UE_6	14.5	0.15	19971218	358.43145	62.36577	23.03152	2.18219	0.1690103	2.3942133	21	4	1982–1997	0.86	M-v	2	Williams	27726	1982 UE_6
1982 UR_6	14.0	0.15	19971218	48.72926	313.42213	46.82191	3.05632	0.2215310	2.4048313	28	8	1978–1997	0.80	M-v	2	Williams	30685	1982 UR_6
1982 VY_2	13.0	0.15	19971218	302.69983	353.93303	123.22426	3.01665	0.0519460	2.9295630	37	6	1982–1997	0.79	M-v	1	Williams	30893	1982 VY_2
1982 VP_3	12.5	0.15	19971218	143.01048	200.07726	61.79216	13.58062	0.0586040	2.9418606	15	2	1982–1997	0.69	M-v	5	Williams	30868	1982 VP_3
1982 YR_1	14.0	0.15	19971218	346.07185	46.80766	7.09041	5.93688	0.2174939	2.4574520	10	3	1982–1997	0.83	M-v	5	Williams	24894	1982 YR_1
1983 RG_2	14.5	0.15	19971218	31.01480	296.52551	70.21202	6.33803	0.2017923	2.2935578	26	5	1979–1997	0.62	M-v	2	Williams	30893	1983 RG_2
1983 RP_2	14.0	0.15	19971218	37.70128	222.85028	150.66389	4.16238	0.1706945	2.2715392	40	4	1983–1997	0.76	M-v	3	Williams	30893	1983 RP_2
1983 RY_4	12.5	0.15	19971218	38.51959	103.31641	261.87927	8.79405	0.2348496	2.7587855	59	6	1954–1997	0.91	M-v	1	Williams	27726	1983 RY_4
1983 WG	12.5	0.15	19971218	330.03125	29.24728	77.06123	11.29242	0.2181376	2.8032833	34	6	1958–1997	0.90	M-v	1	Williams	30893	1983 WG
1983 WM	14.0	0.15	19971218	337.75424	190.40108	253.44545	5.72366	0.0779345	2.3202609	35	3	1954–1997	0.96	M-v	4	Williams	30893	1983 WM
1984 BQ	13.0	0.15	19971218	225.94995	133.32871	52.75022	7.79234	0.0653178	2.3877187	20	4	1984–1997	0.93	M-v	3	Marsden	30868	1984 BQ
1984 QB	13.0	0.15	19971218	74.17620	354.13813	310.57055	10.20381	0.2197760	2.6164623	19	5	1950–1997	0.84	M-v	2	Williams	30893	1984 QB
1984 SH	14.0	0.15	19971218	117.41592	176.30977	114.69892	2.82479	0.1723638	2.1554099	45	8	1978–1997	0.86	M-v	2	Williams	27119	1984 SH
1984 SU_3	13.5	0.15	19971218	37.43384	314.90271	43.39700	5.77137	0.3110004	2.6419163	20	5	1954–1997	0.75	M-v	2	Williams	30893	1984 SU_3
1984 SN_6	13.5	0.15	19971218	250.05002	129.34845	61.95061	3.29892	0.0880015	2.5613552	38	4	1984–1997	0.48	M-v	3	Williams	30287	1984 SN_6
1985 CX_1	15.0	0.15	19971218	265.31947	330.58638	220.24740	2.56689	0.0792393	2.2300146	45	6	1972–1997	0.67	M-v	1	Williams	27932	1985 CX_1
1985 CR_2	14.0	0.15	19971218	317.61510	190.26052	281.23146	0.56679	0.0573661	2.2631549	64	8	1963–1997	0.69	M-v	1	Williams	30893	1985 CR_2
1985 CS_2	14.0	0.15	19971218	192.90166	294.59287	295.43863	3.99156	0.0929243	2.2918996	40	4	1978–1997	0.73	M-v	2	Williams	24759	1985 CS_2
1985 PN	12.0	0.15	19971218	8.56404	264.68595	152.11105	17.35618	0.1180737	3.1287627	27	4	1985–1997	0.51	M-v	2	Williams	30893	1985 PN
1985 PO	14.0	0.15	19971218	1.69140	201.21094	145.55420	3.41653	0.1437522	2.5430970	39	7	1949–1997	0.92	M-v	3	Williams	30685	1985 PO
1985 RJ_3	12.5	0.15	19971218	156.51644	92.88370	174.09286	1.84143	0.1373033	3.1080962	39	4	1969–1997	0.65	M-v	3	Williams	28612	1985 RJ_3
1985 TJ_1	12.5	0.15	19971218	165.41392	290.42174	26.62159	10.91338	0.0834145	3.0074600	35	4	1975–1997	0.88	M-v	3	Williams	17016	1985 TJ_1
1985 UF	14.0	0.15	19971218	115.04382	305.09626	25.69051	8.93825	0.1651927	2.4286826	15	3	1985–1997	0.61	M-v	3	Williams	28582	1985 UF
1985 UQ_4	13.0	0.15	19971218	39.95598	258.89750	125.00815	2.70446	0.1271499	3.2529473	24	4	1985–1997	0.82	M-v	2	Williams	28612	1985 UQ_4
1986 EJ_1	13.0	0.15	19971218	242.24821	230.01398	11.77555	15.59303	0.1541466	2.6084011	19	4	1969–1997	0.78	M-v	3	Williams	25439	1986 EJ_1
1986 PK_6	13.5	0.15	19971218	197.68886	345.57942	258.20572	4.24325	0.1607218	2.2465651	22	6	1955–1997	0.76	M-v	2	Williams	27727	1986 PK_6
1986 QO_3	15.0	0.15	19971218	350.82491	332.54523	53.88647	3.43014	0.2256681	2.3904075	35	4	1986–1997	0.61	M-v	2	Williams	28840	1986 QO_3
1986 RB_5	14.0	0.15	19971218	130.66075	209.90855	122.83098	5.66940	0.1788023	2.2429536	47	7	1986–1997	0.47	M-v	1	Williams	28612	1986 RB_5
1986 TQ	12.5	0.15	19971218	58.83015	351.27949	349.78617	16.56168	0.0742162	3.0850795	20	3	1986–1997	0.86	M-v	4	Williams	21970	1986 TQ
1986 VR_5	14.5	0.15	19971218	357.76853	177.22023	267.44177	5.77054	0.0927588	2.3525307	19	5	1986–1997	0.75	M-v	2	Williams	28296	1986 VR_5
1986 WO_1	14.5	0.15	19971218	19.53478	15.91780	14.01826	2.35237	0.2204443	2.3945010	31	4	1982–1997	0.78	M-v	2	Williams	30868	1986 WO_1
1987 SU_1	14.5	0.15	19971218	31.76947	122.12343	254.74659	6.02157	0.1331986	2.2092189	27	4	1954–1997	0.74	M-v	2	Williams	30894	1987 SU_1
1987 SB_3	15.5	0.15	19971218	28.49714	309.82149	32.89424	6.06858	0.1906126	2.2448654	10	4	1977–1997	0.79	M-v	4	Williams	28883	1987 SB_3
1987 SF_5	15.0	0.15	19971218	14.87908	74.46519	325.57630	3.23633	0.1477337	2.2151388	27	3	1987–1997	0.62	M-v	4	Williams	30894	1987 SF_5
1987 YC_1	13.5	0.15	19971218	62.60834	242.59091	124.67285	0.46100	0.0536743	2.9595950	18	3	1987–1997	0.76	M-v	5	Williams	29095	1987 YC_1
1988 BX	13.5	0.15	19971218	23.12509	119.24508	290.96875	19.00075	0.0673892	1.8695299	56	4	1988–1997	0.49	M-v	2	Williams	24117	1988 BX
1988 DZ_4	15.0	0.15	19971218	149.88935	104.62075	176.33953	19.17130	0.1303860	1.9044508	24	3	1988–1997	0.38	M-v	3	Williams	27119	1988 DZ_4
1988 QA	13.5	0.15	19971218	27.29597	207.23877	154.41253	2.51297	0.2164854	2.6684136	41	2	1988–1997	0.78	M-v	4	Marsden	30869	1988 QA
1988 RX_2	13.5	0.15	19971218	47.78393	235.37976	135.51325	0.40502	0.1095430	2.6657406	19	2	1988–1997	0.68	M-v	5	Williams	30869	1988 RX_2
1988 RN_4	13.5	0.15	19971218	140.29435	279.76524	336.81344	11.19368	0.2590580	2.5844811	35	3	1983–1997	0.67	M-v	3	Williams	22079	1988 RN_4
1988 RR_{10}	12.5	0.15	19971218	335.12658	122.41226	164.51337	17.28296	0.0611177	5.1308086	30	4	1988–1997	0.40	M-v	1	Williams	30469	1988 RR_{10}
1988 SU_2	14.0	0.15	19971218	225.88761	88.99172	120.27026	2.68904	0.0193108	2.5925360	25	4	1988–1997	0.70	M-v	1	Williams	30272	1988 SU_2
1988 TR	12.5	0.15	19971218	34.31258	244.21286	131.06958	3.40931	0.0998914	2.6970260	21	5	1977–1997	0.76	M-v	2	Williams	30894	1988 TR
1988 UO	12.0	0.15	19971218	55.31934	309.37926	31.37690	9.72048	0.1870623	2.7281691	40	3	1988–1997	0.64	M-v	4	Williams	30894	1988 UO
1988 VY	14.0	0.15	19971218	297.73814	200.32214	200.36922	1.74441	0.1075659	2.9268061	28	3	1988–1997	0.74	M-v	3	Williams	30469	1988 VY
1988 VC_1	14.0	0.15	19971218	16.85172	173.27907	267.86185	11.69655	0.1306458	2.6336173	14	3	1988–1997	0.66	M-v	4	Williams	28071	1988 VC_1
1988 VE_1	13.0	0.15	19971218	71.03310	267.22512	45.60235	8.31366	0.1448963	2.7730164	17	2	1988–1997	0.83	M-v	6	Williams	30869	1988 VE_1
1988 XG_2	13.5	0.15	19971218	344.34401	180.60983	264.87514	7.09156	0.1955478	2.7985056	31	7	1954–1997	0.90	M-v	1	Williams	30894	1988 XG_2

1989 GE	13.0	0.15	19971218	153.75951	205.49268	52.98764	7.89630	0.1881000	2.2681168	28	4	1989–1997	1.03	M-v	2	Williams	30894	1989 GE
1989 NH_1	14.5	0.15	19971218	206.90996	184.21069	120.48229	5.87925	0.2026518	2.1916428	22	4	1986–1997	0.98	M-v	3	Williams	22081	1989 NH_1
1989 SY	13.5	0.15	19971218	333.39699	45.87751	25.96393	12.73388	0.2835855	2.5659149	36	4	1989–1997	1.00	M-v	3	Williams	30869	1989 SY
1989 TC	14.0	0.15	19971218	59.33950	11.51502	2.31866	23.85464	0.0448554	1.8829051	19	3	1989–1997	0.84	M-v	4	Williams	27103	1989 TC
1989 TY	14.0	0.15	19971218	335.51558	265.79721	334.23430	9.20729	0.1321604	2.9772662	15	3	1989–1997	0.71	M-v	3	Williams	30756	1989 TY
1989 TX_2	13.5	0.15	19971218	271.33501	273.59067	185.26901	15.12518	0.0771758	2.6025924	27	3	1989–1997	0.98	M-v	5	Williams	28884	1989 TX_2
1989 TA_3	13.5	0.15	19971218	302.38749	90.04241	147.67674	5.82033	0.1237105	3.1381451	38	5	1976–1997	0.90	M-v	1	Williams	29941	1989 TA_3
1989 UB_3	14.0	0.15	19971218	328.65289	19.61465	61.46611	5.42434	0.2585788	2.5708292	51	4	1989–1997	0.90	M-v	3	Williams	30895	1989 UB_3
1989 UJ_3	13.5	0.15	19971218	68.97749	291.25770	359.67518	13.10380	0.1837454	2.5572003	22	4	1989–1997	0.77	M-v	3	Williams	30781	1989 UJ_3
1989 UH_7	13.5	0.15	19971218	43.24415	117.51177	195.61728	3.09011	0.0616293	2.6472565	49	4	1989–1997	0.68	M-v	3	Williams	30870	1989 UH_7
1989 VA	17.5	0.15	19971218	187.24660	2.78738	225.65404	28.78557	0.5947055	0.7286728	123	5	1989–1997	0.66	M-v	3	Williams	30895	1989 VA
1989 VN_5	14.5	0.15	19971218	38.71837	128.61522	309.51970	1.61088	0.1805244	2.3948943	26	4	1989–1997	0.79	M-v	2	Williams	28085	1989 VN_5
1989 YF_1	14.0	0.15	19971218	346.81191	197.78915	284.92248	8.95850	0.0838435	2.5321256	14	4	1988–1997	0.78	M-v	4	Williams	29941	1989 YF_1
1989 YA_2	14.0	0.15	19971218	349.23834	201.06841	280.05018	5.32360	0.1787657	2.5294036	33	5	1980–1997	0.87	M-v	3	Williams	28885	1989 YA_2
1990 BH_1	13.0	0.15	19971218	281.41233	87.20109	71.14334	5.62959	0.1535724	2.6377997	22	5	1950–1997	0.76	M-v	3	Williams	23349	1990 BH_1
1990 MG	14.0	0.15	19971218	105.98368	218.27877	88.80305	3.61215	0.1865241	2.1893580	23	5	1957–1997	0.79	M-v	2	Williams	25440	1990 MG
1990 OH_1	12.5	0.15	19971218	119.45421	39.87519	239.38132	27.46336	0.2966379	3.1316915	20	3	1990–1997	0.68	M-v	3	Williams	30781	1990 OH_1
1990 ON_2	14.0	0.15	19971218	90.65666	281.14585	2.40883	3.18519	0.0767668	2.2589913	21	6	1950–1997	0.81	M-v	2	Williams	26925	1990 ON_2
1990 QV_1	14.0	0.15	19971218	137.69757	264.04313	119.26315	3.02456	0.0852017	2.9051131	27	3	1990–1997	0.84	M-v	5	Williams	29657	1990 QV_1
1990 QJ_2	15.5	0.15	19971218	52.38359	0.84272	34.23817	1.55012	0.1592765	2.1919979	22	3	1990–1997	0.42	M-v	4	Williams	24895	1990 QJ_2
1990 QG_3	16.5	0.15	19971218	56.81011	325.70072	32.48480	1.65476	0.3019304	2.2366956	21	3	1990–1997	0.72	M-v	3	Williams	24895	1990 QG_3
1990 QK_3	14.5	0.15	19971218	353.78564	239.33391	151.24899	6.25200	0.1240280	2.3071298	25	3	1990–1997	0.67	M-v	4	Williams	30686	1990 QK_3
1990 QP_3	13.0	0.15	19971218	106.66963	246.53975	97.74482	2.54497	0.1742871	3.1627224	48	5	1950–1997	0.67	M-v	2	Williams	24582	1990 QP_3
1990 QM_4	14.0	0.15	19971218	103.61804	123.61518	138.23005	5.22990	0.1414831	2.2856497	15	4	1979–1997	0.97	M-v	2	Williams	22600	1990 QM_4
1990 QC_5	14.0	0.15	19971218	130.01294	252.67889	12.92816	3.51800	0.1617945	2.2236471	30	5	1980–1997	0.58	M-v	1	Williams	28614	1990 QC_5
1990 QB_{19}	14.0	0.15	19971218	301.53623	10.94708	314.11762	2.96509	0.2651242	2.5490123	6	2	1990–1993	0.94	M-v	5	Williams	30653	1990 QB_{19}
1990 RR_5	14.0	0.15	19971218	28.38967	175.23391	210.07455	1.67564	0.1437547	2.2645388	30	4	1973–1997	0.63	M-v	2	Williams	30895	1990 RR_5
1990 SA_2	14.0	0.15	19971218	46.84015	7.44856	359.36446	1.43171	0.1322943	2.2740338	30	6	1983–1997	1.05	M-v	2	Williams	29658	1990 SA_2
1990 SC_3	14.5	0.15	19971218	9.75308	187.85134	124.47861	4.64028	0.1833674	2.4260257	9	3	1975–1997	0.59	M-v	3	Williams	27912	1990 SC_3
1990 SG_3	14.0	0.15	19971218	59.99023	197.48549	131.18727	4.04475	0.1906307	2.2874393	16	4	1983–1997	0.55	M-v	2	Williams	30895	1990 SG_3
1990 SX_5	15.5	0.15	19971218	0.20822	342.59119	51.10401	2.38517	0.1601064	2.3099363	25	3	1990–1997	0.49	M-v	3	Williams	30895	1990 SX_5
1990 ST_6	14.5	0.15	19971218	148.62686	216.68413	105.13016	4.57528	0.1412224	3.1066948	17	3	1979–1997	0.46	M-v	5	Williams	18297	1990 ST_6
1990 SZ_7	14.0	0.15	19971218	283.11991	99.74911	40.62729	6.54474	0.1063146	2.2415929	25	3	1990–1997	0.64	M-v	3	Williams	30895	1990 SZ_7
1990 SU_9	14.5	0.15	19971218	292.22695	60.62399	52.83852	4.51763	0.1071597	2.2825317	28	2	1990–1997	0.45	M-v	5	Williams	30756	1990 SU_9
1990 SX_{10}	13.5	0.15	19971218	34.79852	33.62133	310.99815	5.81080	0.0798724	2.3156746	15	3	1990–1997	0.61	M-v	4	Williams	30470	1990 SX_{10}
1990 SK_{11}	14.0	0.15	19971218	33.33250	106.93661	271.31568	2.41588	0.1087678	2.2584113	45	6	1987–1997	0.89	M-v	2	Williams	30895	1990 SK_{11}
1990 SA_{15}	13.5	0.15	19971218	352.02681	158.60315	252.45902	4.49170	0.1343181	2.2810209	19	3	1990–1997	0.61	M-v	5	Williams	30654	1990 SA_{15}
1990 TS_1	13.5	0.15	19971218	113.77582	52.26753	346.33340	5.64246	0.1912502	3.0382480	14	2	1990–1995	0.39	M-v	5	Williams	25956	1990 TS_1
1990 TB_4	14.0	0.15	19971218	192.12009	190.02766	281.41512	1.29729	0.1290926	2.5929550	11	3	1986–1994	0.55	M-v	5	Marsden	17642	1990 TB_4
1990 TK_4	15.5	0.15	19971218	305.76301	237.95348	228.77559	2.95274	0.1248611	2.3229691	20	3	1990–1997	0.59	M-v	4	Williams	30895	1990 TK_4
1990 TG_5	14.5	0.15	19971218	33.39596	83.79202	295.79090	3.75899	0.1849993	2.2505231	22	2	1990–1997	0.87	M-v	4	Williams	30870	1990 TG_5
1990 TO_9	15.0	0.15	19971218	12.77395	126.29136	277.23389	3.23162	0.1364564	2.2829794	28	2	1990–1997	0.44	M-v	5	Williams	30870	1990 TO_9
1990 TK_{15}	13.0	0.15	19971218	352.33001	38.70355	342.49425	6.30338	0.1279899	2.3693515	28	4	1950–1997	0.47	M-v	2	Williams	30895	1990 TK_{15}
1990 UN_1	14.5	0.15	19971218	327.17465	264.65699	168.08791	5.09102	0.2082972	2.3649428	15	3	1990–1997	0.53	M-v	3	Williams	24739	1990 UN_1
1990 UB_3	15.0	0.15	19971218	352.36989	99.69539	353.79476	2.39813	0.1651845	2.2711671	26	3	1990–1997	0.66	M-v	4	Williams	30895	1990 UB_3
1990 UO_3	14.5	0.15	19971218	291.47947	50.39987	98.74551	4.59888	0.0888805	2.2720608	26	5	1990–1997	0.60	M-v	1	Williams	29658	1990 UO_3
1990 VT_1	14.5	0.15	19971218	357.66732	190.55439	200.51856	1.92369	0.2114551	2.3643352	15	5	1979–1997	1.05	M-v	2	Williams	28614	1990 VT_1
1990 VW_6	14.0	0.15	19971218	81.57683	235.48084	88.91700	3.99886	0.1775906	2.2766819	27	4	1990–1997	0.74	M-v	3	Williams	24761	1990 VW_6
1990 WV_1	15.0	0.15	19971218	274.48896	4.21574	131.80465	5.27876	0.0436270	2.3459763	16	3	1990–1997	0.67	M-v	5	Williams	24739	1990 WV_1
1990 WZ_1	15.0	0.15	19971218	61.20554	146.01048	160.29712	5.31510	0.1949721	2.3832127	22	4	1949–1997	0.76	M-v	2	Williams	30781	1990 WZ_1
1991 AL	13.0	0.15	19971218	318.28723	339.11622	106.04607	5.51946	0.1875424	2.4365187	19	4	1982–1997	0.75	M-v	2	Williams	24896	1991 AL
1991 AH_1	14.0	0.15	19971218	282.29845	256.33601	267.28891	1.16762	0.1404909	2.3956451	36	5	1989–1997	0.61	M-v	2	Williams	29134	1991 AH_1
1991 AU_1	13.5	0.15	19971218	292.94872	138.66649	334.83099	22.32321	0.0544217	1.8556775	23	3	1954–1997	0.73	M-v	3	Williams	30756	1991 AU_1

1991 BV_1	13.0	0.15	19971218	134.89504	63.93676	154.34684	8.16143	0.2521160	2.7198220	20	4	1991–1997	0.76	M-v	3	Williams	30687	1991	BV_1
1991 CP_1	14.5	0.15	19971218	307.50052	7.80482	112.54036	5.09162	0.1292721	2.4315224	25	3	1991–1997	0.81	M-v	4	Williams	30871	1991	CP_1
1991 EA	13.5	0.15	19971218	292.71078	152.47246	350.46058	6.28526	0.0764442	2.4617259	43	5	1955–1997	0.77	M-v	2	Williams	25226	1991	EA
1991 FX_2	12.5	0.15	19971218	31.87039	1.77036	18.28763	13.26354	0.1703786	2.5877541	20	2	1991–1997	0.61	M-v	4	Williams	30871	1991	FX_2
1991 JJ	12.5	0.15	19971218	211.44775	165.60424	62.73926	14.13230	0.1266835	2.5936741	24	5	1976–1997	0.74	M-v	2	Williams	29659	1991	JJ
1991 PB	13.5	0.15	19971218	269.98626	182.21237	150.21714	2.58238	0.2462875	2.3386562	38	4	1984–1995	0.80	M-v	2	Williams	30781	1991	PB
1991 PO_4	12.5	0.15	19971218	357.25543	228.31158	155.26767	2.07077	0.1962467	3.1754894	22	5	1969–1997	0.95	M-v	2	Williams	30655	1991	PO_4
1991 PT_4	14.0	0.15	19971218	354.00342	130.47215	227.63032	0.93466	0.2611009	3.3251267	33	3	1971–1997	0.79	M-v	3	Williams	30757	1991	PT_4
1991 PE_5	12.5	0.15	19971218	263.55487	276.59870	245.38718	1.21814	0.0093693	2.8754942	47	6	1980–1997	0.84	M-v	1	Williams	30470	1991	PE_5
1991 PL_8	14.0	0.15	19971218	80.97255	258.09481	31.07804	1.40693	0.1641602	3.0892699	19	3	1991–1997	0.43	M-v	4	Williams	25065	1991	PL_8
1991 PW_9	13.0	0.15	19971218	52.35727	157.56599	152.87972	9.97311	0.0808846	3.1597274	28	4	1991–1997	0.89	M-v	2	Williams	29659	1991	PW_9
1991 PC_{11}	13.0	0.15	19971218	118.22227	248.38279	146.31106	7.18105	0.1622666	2.6654465	19	4	1989–1997	0.87	M-v	2	Williams	29659	1991	PC_{11}
1991 PV_{17}	14.5	0.15	19971218	214.56783	317.73024	74.75935	3.02548	0.1932796	2.3976864	12	3	1971–1995	0.80	M-v	3	Williams	20025	1991	PV_{17}
1991 RR_1	12.0	0.15	19971218	87.58830	94.84738	230.16877	9.45262	0.1402396	3.0528943	15	2	1991–1997	0.50	M-v	4	Williams	30871	1991	RR_1
1991 RB_{11}	13.0	0.15	19971218	29.57891	240.30835	158.17790	1.53711	0.1448193	3.1191164	38	6	1975–1997	0.60	M-v	1	Williams	29135	1991	RB_{11}
1991 RQ_{14}	13.5	0.15	19971218	48.99771	285.27520	58.75764	1.94971	0.1785636	3.1644092	35	6	1986–1997	0.92	M-v	1	Williams	27935	1991	RQ_{14}
1991 RX_{23}	13.5	0.15	19971218	22.11998	40.96677	355.62228	9.53796	0.0331808	3.0166425	31	5	1981–1997	0.71	M-v	1	Williams	23790	1991	RX_{23}
1991 RT_{40}	13.5	0.15	19971218	165.31315	259.72371	32.64482	2.35626	0.0387600	2.8784860	25	5	1981–1997	0.48	M-v	1	Williams	28316	1991	RT_{40}
1991 SC_1	12.0	0.15	19971218	80.61724	289.95540	42.68457	10.42384	0.0923426	3.0246867	24	4	1981–1997	0.70	M-v	2	Williams	29615	1991	SC_1
1991 SL_2	12.0	0.15	19971218	13.93369	327.11143	68.25628	10.26772	0.1409583	3.1766151	19	5	1980–1997	1.00	M-v	1	Williams	30896	1991	SL_2
1991 SR_3	12.5	0.15	19971218	334.60942	62.56795	19.82038	21.76901	0.1156922	3.1480953	23	4	1983–1997	0.88	M-v	2	Williams	25639	1991	SR_3
1991 VA_1	12.5	0.15	19971218	97.20721	67.37446	245.00115	10.23199	0.1145647	3.2215955	28	5	1988–1997	0.72	M-v	1	Williams	27935	1991	VA_1
1991 VV_5	12.0	0.15	19971218	155.80826	223.38125	90.30257	11.04029	0.0437363	3.0085035	29	6	1990–1997	0.72	M-v	1	Williams	29943	1991	VV_5
1991 WA	17.0	0.15	19971218	53.83124	241.76497	66.74975	39.65331	0.6426633	1.5751670	157	6	1991–1997	0.66	M-v	2	Williams	30896	1991	WA
1992 AB	14.0	0.15	19971218	344.11723	55.60994	88.90041	40.75551	0.5526005	3.2875593	66	6	1992–1997	0.61	M-v	1	Marsden	30896	1992	AB
1992 BJ_1	14.0	0.15	19971218	154.30590	1.37757	78.27925	3.95101	0.2467635	2.6815718	26	4	1982–1996	0.80	M-v	2	Williams	29943	1992	BJ_1
1992 CN_3	14.5	0.15	19971218	229.74785	332.36054	213.98112	3.29480	0.0854188	2.2193743	28	5	1969–1997	0.84	M-v	2	Williams	30896	1992	CN_3
1992 DG_1	13.5	0.15	19971218	178.72093	231.38124	348.24310	5.57544	0.1526851	2.3687030	22	6	1952–1997	0.90	M-v	2	Williams	24119	1992	DG_1
1992 DL_4	15.0	0.15	19971218	4.83274	6.52242	9.12813	6.65768	0.1757137	2.2686260	13	3	1980–1997	0.58	M-v	4	Williams	20342	1992	DL_4
1992 DN_6	13.0	0.15	19971218	67.77675	185.05987	136.95862	3.12521	0.2407700	2.3653640	24	4	1986–1997	0.65	M-v	2	Williams	30896	1992	DN_6
1992 DQ_{10}	14.0	0.15	19971218	84.19976	38.95698	274.33145	3.54943	0.1897902	2.3214270	19	6	1986–1997	0.82	M-v	2	Williams	29660	1992	DQ_{10}
1992 EE	14.0	0.15	19971218	191.17290	216.57625	352.48497	6.48886	0.1667694	2.3438485	28	3	1992–1997	0.87	M-v	4	Williams	30871	1992	EE
1992 ET_4	16.0	0.15	19920228	333.35257	203.89796	351.15744	13.16883	0.1979416	2.6584197	5	1	9 days	0.12			Nakano		1992	ET_4
1992 EB_8	15.0	0.15	19971218	25.51606	240.98056	165.28195	1.21354	0.1207539	2.1830409	17	4	1987–1997	0.78	M-v	3	Williams	25650	1992	EB_8
1992 EB_{13}	14.0	0.15	19971218	62.63188	6.71512	306.81262	4.10194	0.1237821	2.3803129	14	4	1986–1997	0.75	M-v	2	Williams	29660	1992	EB_{13}
1992 ES_{13}	14.5	0.15	19971218	285.92277	217.42081	210.79183	2.06176	0.1471660	2.3781155	21	3	1992–1997	0.79	M-v	4	Williams	30471	1992	ES_{13}
1992 EG_{14}	14.5	0.15	19971218	269.34340	144.10961	320.43812	3.89270	0.1022972	2.3458592	19	2	1992–1997	0.47	M-v	4	Williams	30757	1992	EG_{14}
1992 GM_4	14.0	0.15	19971218	80.26384	127.10155	213.04315	5.70716	0.1352941	2.3868888	25	3	1992–1997	0.59	M-v	4	Williams	25340	1992	GM_4
1992 GX_4	14.0	0.15	19971218	234.00884	173.66917	38.89469	4.15419	0.0975590	2.2782427	17	3	1992–1997	0.75	M-v	4	Williams	25215	1992	GX_4
1992 HG_4	14.0	0.15	19971218	129.22060	79.07582	216.22970	1.14666	0.2218781	2.3959673	32	6	1959–1997	0.73	M-v	1	Williams	24913	1992	HG_4
1992 LF	12.0	0.15	19971218	244.50961	224.72685	152.51932	20.18024	0.1568844	3.1943843	19	4	1970–1997	0.79	M-v	2	Williams	30471	1992	LF
1992 OB_9	13.0	0.15	19971218	75.88784	171.21013	116.09184	12.00458	0.1819640	2.7612595	30	5	1950–1997	0.79	M-v	2	Williams	29660	1992	OB_9
1992 OZ_9	11.5	0.15	19971218	240.22678	259.57066	50.59195	3.53038	0.2054076	3.9758559	33	7	1978–1997	0.90	M-v	1	Williams	30290	1992	OZ_9
1992 PJ_2	14.5	0.15	19971218	166.83008	82.83605	212.04181	5.60828	0.3178623	2.4147546	22	4	1988–1997	0.54	M-v	2	Williams	28615	1992	PJ_2
1992 PY_2	12.0	0.15	19971218	11.52153	132.89360	287.63835	14.37817	0.1051881	2.6268678	31	5	1988–1997	0.81	M-v	1	Williams	29943	1992	PY_2
1992 RM_2	14.0	0.15	19971218	114.65461	347.52331	340.75621	13.66927	0.1686731	2.5600083	20	3	1988–1997	0.84	M-v	4	Williams	22432	1992	RM_2
1992 RK_7	14.0	0.15	19971218	210.77574	111.16108	112.34080	4.62922	0.0343399	2.6282415	16	3	1989–1997	0.83	M-v	4	Williams	21586	1992	RK_7
1992 SE_1	13.0	0.15	19971218	144.47557	233.65802	46.43658	13.66314	0.1556516	2.6805678	32	3	1992–1997	0.67	M-v	3	Williams	28317	1992	SE_1
1992 SV_{12}	14.0	0.15	19971218	252.75363	285.36937	6.49377	7.42408	0.1825589	2.2600593	20	7	1955–1997	0.94	M-v	2	Williams	29136	1992	SV_{12}
1992 ST_{26}	12.0	0.15	19971218	28.79593	126.61792	279.15261	5.12200	0.1026922	2.7463718	22	6	1979–1997	0.82	M-v	1	Williams	28317	1992	ST_{26}
1992 TA	17.0	0.15	19971218	340.54672	80.54374	355.39343	26.00709	0.2888692	1.8501616	53	3	1992–1997	0.74	M-v	2	Williams	30896	1992	TA
1992 TW	14.0	0.15	19971218	359.70774	189.42288	188.51948	10.67810	0.1116616	2.9752067	36	4	1992–1997	0.50	M-v	1	Williams	30896	1992	TW
1992 UK_1	12.5	0.15	19971218	90.40950	50.77513	265.97457	8.05048	0.1613374	2.8043058	25	5	1977–1997	0.63	M-v	2	Williams	27729	1992	UK_1

1992 UE_3	13.0	0.15	19971218	5.99794	326.36364	87.93657	3.09141	0.0680485	2.8525165	38	5	1983–1997	0.62	M-v	1	Williams	30896	1992 UE_3
1992 UH_4	13.0	0.15	19971218	100.16002	269.80400	73.92412	13.68749	0.1906521	2.6736659	14	3	1991–1997	0.69	M-v	3	Williams	21590	1992 UH_4
1992 WR_2	13.0	0.15	19971218	186.39178	185.37867	67.26667	3.08023	0.0179293	2.8556067	38	6	1980–1997	0.85	M-v	1	Williams	28074	1992 WR_2
1992 XL	13.0	0.15	19971218	62.48921	273.86422	83.56579	11.61519	0.1184723	2.9876271	34	4	1971–1997	0.94	M-v	2	Williams	25340	1992 XL
1992 YC_1	13.0	0.15	19971218	254.90749	93.91842	83.20525	2.51883	0.1341703	3.1287655	31	3	1992–1997	0.77	M-v	4	Williams	30896	1992 YC_1
1992 YL_2	13.0	0.15	19971218	336.07289	13.65475	93.29838	11.38630	0.0598379	2.9931641	13	4	1931–1997	0.73	M-v	2	Williams	23341	1992 YL_2
1992 YS_2	12.5	0.15	19971218	352.68582	13.73758	78.07028	3.20966	0.0377240	2.9277658	27	3	1991–1997	0.76	M-v	4	Williams	30896	1992 YS_2
1992 YG_3	12.0	0.15	19971218	300.38075	16.81222	124.26838	1.77981	0.1513113	3.1422178	45	4	1988–1997	0.74	M-v	2	Williams	29943	1992 YG_3
1993 AN	13.0	0.15	19971218	325.56831	8.51133	104.23933	2.62479	0.1583199	3.1218395	23	5	1982–1997	0.64	M-v	1	Williams	22086	1993 AN
1993 BC_5	13.0	0.15	19971218	345.36706	282.94685	155.25078	0.49573	0.1627423	3.2233424	44	3	1993–1997	0.82	M-v	4	Williams	30897	1993 BC_5
1993 DJ	14.0	0.15	19971218	223.73544	74.74683	141.62304	23.56986	0.0469785	1.9289856	33	3	1993–1997	0.73	M-v	3	Williams	30897	1993 DJ
1993 FO_6	13.0	0.15	19971218	128.46877	326.41492	68.13328	3.06816	0.0575145	2.9215227	20	5	1988–1997	0.74	M-v	2	Williams	29917	1993 FO_6
1993 FB_{24}	14.5	0.15	19971218	46.40238	336.05266	353.95678	4.82057	0.1811676	2.1871077	32	4	1981–1997	0.76	M-v	2	Williams	30897	1993 FB_{24}
1993 FT_{32}	13.0	0.15	19971218	144.02545	292.53822	89.74638	3.14308	0.0867025	2.9401831	17	6	1975–1997	0.75	M-v	2	Williams	29662	1993 FT_{32}
1993 HS	14.0	0.15	19971218	116.51906	245.49554	20.74042	2.75205	0.1222451	2.1808519	34	5	1991–1997	0.70	M-v	2	Williams	30897	1993 HS
1993 HL_6	14.0	0.15	19971218	151.10314	345.73170	215.79004	7.51529	0.1439789	2.1966738	27	5	1967–1997	0.89	M-v	2	Williams	30688	1993 HL_6
1993 NH	15.0	0.15	19971218	71.31263	80.91406	246.02449	22.26644	0.3116160	2.3045307	28	3	1986–1997	0.68	M-v	2	Williams	22827	1993 NH
1993 NU_1	15.0	0.15	19971218	11.31475	225.81635	152.02292	2.87635	0.2108570	2.3869045	16	3	1993–1997	0.52	M-v	4	Williams	27556	1993 NU_1
1993 OB	13.0	0.15	19971218	24.95968	84.06553	281.27422	21.43624	0.2972807	2.4105857	25	2	1993–1997	0.68	M-v	3	Williams	30872	1993 OB
1993 OD_8	15.5	0.15	19971218	80.86617	64.06886	282.82465	2.85139	0.2202254	2.2389604	18	3	1990–1993	0.84	M-v	5	Williams	30897	1993 OD_8
1993 OX_9	14.5	0.15	19971218	1.67278	109.60117	302.88966	2.82792	0.1090462	2.2633479	32	5	1980–1997	0.59	M-v	1	Williams	25082	1993 OX_9
1993 PB	16.5	0.15	19971218	299.53151	212.22418	316.02858	40.87473	0.6070733	1.4236347	83	3	1993–1997	0.57	M-v	4	Marsden	30897	1993 PB
1993 PV_6	14.5	0.15	19971218	17.79619	50.78642	317.28959	3.76305	0.1973978	2.4761796	22	3	1991–1997	0.72	M-v	3	Williams	30782	1993 PV_6
1993 PU_7	13.5	0.15	19971218	266.88163	96.43155	330.64575	1.81189	0.0532335	2.7093557	18	6	1926–1996	0.73	M-v	1	Williams	30897	1993 PU_7
1993 QN_4	14.5	0.15	19971218	1.99359	283.41119	143.06336	6.29433	0.1989192	2.3782091	21	3	1980–1997	0.95	M-v	4	Williams	30897	1993 QN_4
1993 QH_{10}	13.0	0.15	19971218	118.37233	24.76293	276.93317	20.63615	0.1429778	2.3166142	11	3	1990–1997	0.79	M-v	5	Williams	25531	1993 QH_{10}
1993 RK	13.5	0.15	19971218	10.28335	11.28477	343.98496	12.32180	0.2667435	2.5825767	31	2	1993–1997	0.84	M-v	3	Williams	30782	1993 RK
1993 RC_2	14.0	0.15	19971218	352.41966	37.36345	4.02233	13.31086	0.2829865	2.5499415	22	3	1989–1997	0.80	M-v	4	Williams	30897	1993 RC_2
1993 RK_4	15.0	0.15	19971218	222.69122	235.58015	306.41628	1.79756	0.1198376	2.4352379	29	3	1993–1997	0.76	M-v	6	Williams	24914	1993 RK_4
1993 RL_5	14.5	0.15	19971218	51.95959	70.63033	307.53675	2.59214	0.0609485	2.3456886	21	4	1984–1997	0.73	M-v	2	Williams	30898	1993 RL_5
1993 RH_9	16.5	0.15	19971218	341.60968	167.18242	274.60109	1.25052	0.1806192	2.4093859	17	2	1993–1997	0.65	M-v	6	Williams	30873	1993 RH_9
1993 SB_1	13.0	0.15	19971218	158.00616	282.42297	352.19952	6.12620	0.0288821	2.3413588	13	5	1950–1997	0.58	M-v	2	Williams	30452	1993 SB_1
1993 SS_1	14.0	0.15	19971218	318.18915	285.36521	146.87582	4.02003	0.1477812	2.5795110	23	3	1993–1997	0.83	M-v	3	Williams	30899	1993 SS_1
1993 ST_4	14.5	0.15	19971218	160.24148	193.10362	57.60461	1.00445	0.0278510	2.3496266	29	5	1974–1997	0.70	M-v	1	Williams	30899	1993 ST_4
1993 TN	13.5	0.15	19971218	85.86275	253.10450	88.75603	3.58644	0.1270234	2.3535227	27	6	1975–1997	0.88	M-v	2	Williams	24914	1993 TN
1993 TL_{13}	14.0	0.15	19971218	102.49247	247.01090	48.29817	9.16555	0.1937401	2.4283070	42	3	1993–1997	0.61	M-v	3	Williams	30900	1993 TL_{13}
1993 TL_{25}	14.5	0.15	19971218	118.56604	150.57157	111.96885	3.20637	0.1083314	2.5435895	36	3	1993–1997	0.64	M-v	4	Williams	30900	1993 TL_{25}
1993 TT_{26}	15.5	0.15	19971218	91.35429	139.70352	167.35541	2.32069	0.2068916	2.4272671	28	3	1993–1997	0.88	M-v	3	Williams	27567	1993 TT_{26}
1993 TN_{29}	16.0	0.15	19971218	79.62015	195.45663	125.33210	3.24794	0.2175079	2.4275943	20	4	1989–1997	0.83	M-v	2	Williams	27730	1993 TN_{29}
1993 TG_{31}	14.0	0.15	19971218	171.05074	170.92038	69.50031	3.79438	0.1442517	2.4298404	23	2	1993–1997	0.60	M-v	5	Williams	30900	1993 TG_{31}
1993 TH_{32}	14.0	0.15	19971218	152.15492	120.74811	142.15191	2.70043	0.1846576	2.3838176	21	3	1988–1997	0.65	M-v	4	Williams	28616	1993 TH_{32}
1993 TS_{33}	15.0	0.15	19971218	10.64058	312.65872	116.95274	4.32100	0.1166904	2.3919327	20	4	1993–1997	0.83	M-v	2	Williams	27567	1993 TS_{33}
1993 TU_{36}	13.0	0.15	19971218	65.18308	242.06049	94.56103	10.47958	0.1743828	2.4228486	15	4	1988–1997	0.38	M-v	3	Williams	30873	1993 TU_{36}
1993 UL	14.0	0.15	19971218	29.55991	131.15029	196.47519	12.70412	0.1922756	2.6700797	25	4	1992–1997	0.57	M-v	1	Williams	29318	1993 UL
1993 UV	12.5	0.15	19971218	340.54685	191.89760	217.85683	13.55997	0.2375189	2.6764711	33	2	1993–1997	0.50	M-v	3	Williams	30900	1993 UV
1993 UC_1	12.5	0.15	19971218	64.14803	79.65461	261.50873	12.40738	0.1755805	2.4589494	21	7	1955–1997	0.88	M-v	2	Williams	30900	1993 UC_1
1993 UH_1	14.5	0.15	19971218	122.31576	105.09939	195.40662	22.91172	0.2345170	2.3260682	34	3	1993–1997	0.88	M-v	3	Williams	30900	1993 UH_1
1993 VT	13.0	0.15	19971218	44.53338	268.44636	64.06333	12.11144	0.2149015	2.6387336	28	3	1993–1997	0.72	M-v	3	Williams	30900	1993 VT
1993 VE_2	13.5	0.15	19971218	45.30099	117.17277	225.97038	13.36594	0.1894069	2.5736638	28	4	1992–1997	0.86	M-v	2	Williams	28087	1993 VE_2
1993 VM_2	15.0	0.15	19971218	306.32748	114.03256	11.87208	1.39420	0.2293185	2.5953484	58	3	1976–1997	0.69	M-v	4	Williams	30900	1993 VM_2
1993 WD	17.0	0.15	19971218	265.90446	132.26906	56.58932	63.46100	0.2666091	1.0067146	299	6	1991–1997	0.62	M-v	3	Williams	30900	1993 WD
1993 WQ	14.0	0.15	19971218	12.06450	359.63310	47.58631	5.06076	0.2231206	2.5533300	31	4	1985–1997	0.59	M-v	3	Williams	30900	1993 WQ
1993 XR	13.5	0.15	19971218	128.62044	208.69368	78.79596	12.70447	0.1797478	2.5843191	50	4	1993–1997	0.80	M-v	1	Williams	27730	1993 XR

1994 AJ_1	13.0	0.15	19971218	330.11743	127.97083	287.49804	9.35811	0.0945826	2.9909974	21	3	1989–1997	0.57	M-v	2	Williams	23791	1994	AJ_1
1994 AM_1	15.0	0.15	19971218	87.77093	119.63722	273.57564	5.84091	0.1245920	2.3535345	36	4	1994–1997	0.60	M-v	2	Williams	28087	1994	AM_1
1994 AP_1	12.5	0.15	19971218	254.88487	192.87065	316.82129	19.49649	0.2161682	2.9850200	24	3	1994–1997	0.65	M-v	3	Williams	27716	1994	AP_1
1994 AY_1	13.5	0.15	19971218	352.55721	295.67971	157.15264	1.59675	0.1258347	2.6223675	26	4	1992–1997	0.74	M-v	2	Williams	27730	1994	AY_1
1994 AH_2	16.5	0.15	19971218	326.29557	24.83651	164.35844	9.62218	0.7109874	2.5268378	175	4	1981–1997	0.65	M-v	1	Williams	30900	1994	AH_2
1994 AZ_2	13.0	0.15	19971218	308.49846	211.26324	290.26623	11.04405	0.2075693	2.6898873	28	3	1991–1997	0.77	M-v	4	Williams	23686	1994	AZ_2
1994 CM	13.0	0.15	19971218	348.33241	45.95854	33.17840	8.60458	0.0851337	2.8473807	35	4	1989–1997	0.73	M-v	2	Williams	30900	1994	CM
1994 CV	14.5	0.15	19971218	4.18224	224.44014	183.85308	3.75156	0.1892447	2.5900455	21	3	1976–1997	0.68	M-v	3	Williams	30900	1994	CV
1994 GC_1	12.0	0.15	19971218	268.74684	89.01036	85.15703	2.41940	0.1135163	3.0973814	20	4	1977–1997	0.69	M-v	1	Williams	28318	1994	GC_1
1994 TF_{15}	14.0	0.15	19971218	22.13275	3.23981	316.77204	2.54665	0.2231406	2.2308716	23	3	1994–1997	0.80	M-v	4	Williams	26905	1994	TF_{15}
1994 UY_1	15.5	0.15	19971218	315.84072	234.14398	206.54251	3.47681	0.1457285	2.1968899	21	3	1994–1997	0.81	M-v	4	Williams	27731	1994	UY_1
1994 VO_1	15.0	0.15	19971218	347.25508	169.94938	240.15910	1.34549	0.1500713	2.2021508	15	3	1994–1997	0.79	M-v	5	Williams	27313	1994	VO_1
1994 VW_1	15.5	0.15	19971218	36.53538	320.00876	109.38320	15.53899	0.2598886	1.9626796	33	3	1994–1997	0.50	M-v	2	Williams	28617	1994	VW_1
1994 VB_3	14.5	0.15	19971218	359.80892	160.97202	191.09374	3.98298	0.2280907	2.3099390	10	3	1980–1997	0.53	M-v	4	Williams	24764	1994	VB_3
1994 WY_2	15.0	0.15	19971218	33.54656	104.99576	274.61391	4.50099	0.1065338	2.1562918	18	3	1992–1997	0.45	M-v	4	Williams	24575	1994	WY_2
1994 YO	15.5	0.15	19971218	22.12577	272.45419	107.50042	3.88475	0.1650496	2.2491442	28	4	1992–1997	0.52	M-v	2	Williams	30901	1994	YO
1994 YL_1	14.5	0.15	19971218	341.14623	352.66224	54.82275	2.66286	0.1490155	2.3461721	22	3	1994–1997	0.62	M-v	3	Williams	30663	1994	YL_1
1994 YS_1	14.5	0.15	19971218	45.33525	294.18718	74.32306	6.68697	0.1759411	2.1940924	31	5	1987–1997	0.61	M-v	1	Williams	30901	1994	YS_1
1995 AG	14.0	0.15	19971218	347.38646	165.11564	278.49842	3.38145	0.0587026	2.2186404	25	3	1984–1997	0.58	M-v	3	Williams	30874	1995	AG
1995 AJ	13.5	0.15	19971218	92.99541	39.00669	286.29802	6.42311	0.2069111	2.2373881	21	4	1989–1997	0.56	M-v	2	Williams	28889	1995	AJ
1995 AM	16.5	0.15	19971218	37.16121	257.39161	108.95401	4.78379	0.3597977	2.1571142	70	3	1994–1997	0.60	M-v	2	Williams	30901	1995	AM
1995 AT_2	14.5	0.15	19971218	309.05904	90.98422	34.50025	2.78892	0.0362613	2.1972581	15	3	1992–1997	0.72	M-v	5	Williams	24756	1995	AT_2
1995 AW_2	13.5	0.15	19971218	243.18009	305.52753	248.16554	5.38999	0.1154730	2.2716548	21	4	1986–1997	0.62	M-v	2	Williams	30901	1995	AW_2
1995 BW	13.5	0.15	19971218	315.16632	6.91466	29.02613	2.95295	0.0860297	2.7372149	20	3	1995–1997	0.62	M-v	4	Williams	27568	1995	BW
1995 BF_1	14.5	0.15	19971218	238.89211	274.43865	296.63272	4.01457	0.0773213	2.2015251	15	3	1982–1997	0.68	M-v	6	Williams	30664	1995	BF_1
1995 BO_1	13.5	0.15	19971218	268.98924	277.55627	256.43451	3.61356	0.0782546	2.2467635	27	5	1980–1997	0.65	M-v	2	Williams	30901	1995	BO_1
1995 BG_2	14.5	0.15	19971218	298.46488	7.82477	127.54840	3.71368	0.0986241	2.3259170	32	4	1990–1997	0.57	M-v	2	Williams	30901	1995	BG_2
1995 BT_2	13.5	0.15	19971218	356.28259	358.29372	74.12605	3.91877	0.1267138	2.2531067	27	5	1988–1997	0.73	M-v	2	Williams	30874	1995	BT_2
1995 BU_4	15.5	0.15	19971218	40.71001	11.50331	17.46650	8.38904	0.1899351	2.2118230	26	3	1995–1997	0.30	M-v	3	Williams	27449	1995	BU_4
1995 BQ_{15}	13.0	0.15	19971218	157.39921	239.39992	25.92619	3.27549	0.1554598	2.4480714	22	4	1980–1997	0.82	M-v	2	Williams	28617	1995	BQ_{15}
1995 CD	13.0	0.15	19971218	112.73148	244.78547	33.76365	3.90465	0.0563368	2.6625640	28	6	1982–1997	0.56	M-v	1	Williams	27937	1995	CD
1995 CJ	13.0	0.15	19971218	125.08179	115.31917	126.76651	14.50840	0.2138226	3.0534189	15	3	1991–1997	0.53	M-v	3	Williams	24906	1995	CJ
1995 CQ	14.0	0.15	19971218	298.53501	152.67430	331.40600	4.29941	0.1804562	2.3173165	50	2	1995–1997	0.73	M-v	4	Williams	30874	1995	CQ
1995 CB_1	14.0	0.15	19971218	8.59268	279.45462	103.51146	7.15052	0.1600022	2.4184185	22	4	1991–1997	0.66	M-v	2	Williams	26928	1995	CB_1
1995 CM_1	13.5	0.15	19971218	106.59203	331.68308	351.22890	9.96720	0.1196392	2.3914108	18	3	1989–1997	0.71	M-v	4	Williams	27731	1995	CM_1
1995 CO_1	14.0	0.15	19971218	340.32579	64.81656	53.50509	3.17954	0.0707223	2.2141452	17	5	1980–1997	0.60	M-v	2	Williams	29664	1995	CO_1
1995 DH	13.5	0.15	19971218	321.34264	250.47972	155.48597	28.17229	0.2442272	2.6692854	13	3	1993–1997	0.68	M-v	3	Williams	30901	1995	DH
1995 DJ_1	13.5	0.15	19971218	187.01821	302.70065	311.40748	1.95432	0.1430537	2.4575204	27	5	1991–1997	0.82	M-v	1	Williams	29138	1995	DJ_1
1995 DL_2	13.0	0.15	19971218	87.80633	215.62457	97.25001	13.87787	0.2476141	2.5400722	47	4	1988–1997	0.52	M-v	1	Williams	30901	1995	DL_2
1995 DM_2	13.0	0.15	19971218	140.28080	189.45393	72.90449	10.02815	0.1674059	2.6065406	37	4	1993–1997	0.47	M-v	1	Williams	27568	1995	DM_2
1995 DF_8	16.0	0.15	19971218	350.80599	257.76835	154.61610	3.23580	0.1328010	2.5190460	24	3	1993–1997	0.90	M-v	5	Williams	30901	1995	DF_8
1995 EH	13.0	0.15	19971218	201.56649	212.66938	13.98474	7.14232	0.0964769	2.4631137	27	7	1972–1997	0.68	M-v	2	Williams	30901	1995	EH
1995 EO	15.0	0.15	19971218	317.09275	261.73839	236.01817	3.21360	0.1004959	2.2890360	51	3	1995–1997	0.67	M-v	3	Marsden	29664	1995	EO
1995 FQ	13.5	0.15	19971218	119.09222	44.77607	267.33094	13.24305	0.1154354	2.7323443	25	3	1995–1997	0.56	M-v	3	Williams	30875	1995	FQ
1995 FX_{14}	15.0	0.15	19971218	98.10173	269.16890	76.58279	4.26933	0.2164626	2.5602075	32	5	1992–1997	0.58	M-v	1	Williams	29664	1995	FX_{14}
1995 GF	13.5	0.15	19971218	323.33263	45.54521	67.15092	6.68073	0.0794442	2.5494604	35	4	1985–1997	0.66	M-v	3	Williams	30901	1995	GF
1995 GV_2	14.0	0.15	19971218	358.90440	266.66353	140.18846	4.86003	0.0360847	2.7539834	25	4	1991–1997	0.40	M-v	2	Williams	25341	1995	GV_2
1995 GJ_7	13.0	0.15	19971218	205.50985	200.91347	15.80302	9.20889	0.1565166	2.6584514	20	4	1982–1997	0.85	M-v	2	Williams	27937	1995	GJ_7
1995 HE	14.5	0.15	19971218	311.01342	58.54502	28.12624	4.36656	0.1777553	2.7988057	41	3	1960–1997	0.56	M-v	3	Williams	30901	1995	HE
1995 KZ_1	12.0	0.15	19971218	164.54879	19.32159	224.52680	16.10504	0.0909256	3.2003635	23	3	1985–1997	1.08	M-v	4	Williams	30875	1995	KZ_1
1995 QY_9	7.5	0.15	19971218	348.42803	24.51471	342.06121	4.82330	0.2712032	40.1146840	55	3	1995–1997	0.65	M-v	4	Marsden	30783	1995	QY_9
1995 UP_7	13.0	0.15	19971218	172.11268	250.67585	175.85415	5.49114	0.1149821	2.5593978	15	3	1993–1997	0.62	M-v	4	Williams	30666	1995	UP_7
1995 WB_{43}	13.0	0.15	19971218	135.50641	93.29213	264.05253	4.34787	0.1451668	3.2118843	36	7	1961–1997	0.70	M-v	1	Williams	28890	1995	WB_{43}

1996 BE_2	13.5	0.15	19971218	158.13638	86.57940	84.98757	6.37627	0.0975314	2.2595999	8	4	1981–1996	0.99	M-v	2	Williams	30667	1996	BE_2
1996 DZ	13.5	0.15	19971218	114.60088	140.99125	93.66582	2.12990	0.1634561	2.4386021	34	4	1985–1997	0.69	M-v	2	Williams	29666	1996	DZ
1996 DW_2	12.5	0.15	19971218	270.61191	235.00360	143.28069	17.59926	0.1845602	2.7070191	20	3	1989–1997	0.56	M-v	3	Williams	30458	1996	DW_2
1996 EL	13.5	0.15	19971218	135.57938	262.67550	328.09659	7.86424	0.2070818	2.3700713	15	4	1952–1997	0.55	M-v	2	Williams	27114	1996	EL
1996 EK_{15}	15.5	0.15	19971218	66.74292	178.57067	127.95908	2.03198	0.1538985	2.1753724	14	3	1993–1997	0.53	M-v	5	Williams	27115	1996	EK_{15}
1996 FG_3	18.5	0.15	19971218	108.32224	23.38241	300.47870	1.98148	0.3497328	1.0543528	180	3	1996–1997	0.62	M-v	4	Williams	30902	1996	FG_3
1996 GJ_2	15.0	0.15	19971218	115.55725	86.46123	185.08166	4.28337	0.2109917	2.3890069	30	4	1992–1997	0.79	M-v	2	Williams	30902	1996	GJ_2
1996 GB_{18}	14.5	0.15	19971218	359.36032	359.51433	38.30294	5.29827	0.0534924	2.1865213	26	3	1981–1997	0.57	M-v	4	Williams	30902	1996	GB_{18}
1996 GV_{18}	15.0	0.15	19971218	7.88352	332.20211	44.03915	7.52235	0.1203948	2.3457157	26	3	1990–1997	0.67	M-v	4	Williams	29140	1996	GV_{18}
1996 HT	13.5	0.15	19971218	149.83895	294.31835	288.21533	3.82404	0.0441727	2.4895135	35	6	1982–1997	0.65	M-v	2	Williams	30902	1996	HT
1996 HK_1	15.5	0.15	19971218	20.23268	342.74775	40.22480	6.87613	0.0937455	2.2235782	48	2	1996–1997	0.74	M-v	4	Williams	30902	1996	HK_1
1996 HT_2	14.5	0.15	19971218	97.38740	84.97685	199.08829	13.12561	0.0956070	2.4265535	22	2	1996–1997	0.93	M-v	4	Williams	30902	1996	HT_2
1996 HD_{13}	14.5	0.15	19971218	95.45364	127.36084	184.33712	2.66717	0.1660462	2.3043522	32	5	1989–1997	0.88	M-v	2	Williams	29630	1996	HD_{13}
1996 HC_{19}	14.5	0.15	19971218	14.06313	174.20497	199.64732	2.34702	0.1061021	2.3985552	23	3	1992–1997	0.80	M-v	5	Williams	30763	1996	HC_{19}
1996 HC_{24}	14.5	0.15	19971218	35.26354	291.80905	66.91698	6.88038	0.1037341	2.3824329	16	2	1996–1997	0.79	M-v	4	Williams	30763	1996	HC_{24}
1996 HD_{24}	14.0	0.15	19971218	104.62533	89.38176	206.07191	6.19961	0.2049985	2.4426048	27	3	1993–1997	0.72	M-v	3	Williams	30902	1996	HD_{24}
1996 HU_{24}	14.5	0.15	19971218	323.12230	14.33368	56.16181	7.39118	0.0776764	2.2691815	20	3	1994–1997	0.77	M-v	4	Williams	27721	1996	HU_{24}
1996 JH	14.5	0.15	19971218	93.08811	108.21148	215.40516	3.26953	0.1592907	2.3166044	19	6	1971–1997	0.84	M-v	1	Williams	28890	1996	JH
1996 JD_1	15.0	0.15	19971218	122.88554	121.65944	165.24080	3.72474	0.1335453	2.2639821	29	4	1989–1997	0.71	M-v	1	Williams	30902	1996	JD_1
1996 NC	14.0	0.15	19971218	18.24048	286.49502	102.63608	3.18941	0.0354221	2.8508824	23	3	1978–1997	0.55	M-v	5	Williams	30902	1996	NC
1996 NG	13.0	0.15	19971218	52.82486	242.54549	108.28931	6.29075	0.1620721	3.1331724	21	3	1991–1997	0.26	M-v	2	Williams	30902	1996	NG
1996 NW	15.0	0.15	19971218	46.06312	111.91138	265.09210	2.73680	0.1029483	2.7346581	38	2	1996–1997	0.43	M-v	3	Williams	30877	1996	NW
1996 NS_3	14.5	0.15	19971218	135.72184	166.06267	136.67396	2.53858	0.0899670	2.5378525	17	2	1996–1997	0.49	M-v	4	Williams	30877	1996	NS_3
1996 NA_4	13.5	0.15	19971218	90.18517	149.49821	182.81839	1.73977	0.0700367	2.8939332	26	4	1991–1997	0.87	M-v	1	Williams	28319	1996	NA_4
1996 OJ	14.5	0.15	19971218	108.88384	159.56151	126.64522	2.15282	0.1753875	3.1058042	49	3	1991–1997	0.52	M-v	3	Williams	30902	1996	OJ
1996 PD	14.0	0.15	19971218	89.83563	225.02416	117.50696	9.52835	0.2272466	2.7353480	37	4	1992–1997	0.51	M-v	1	Marsden	29666	1996	PD
1996 PR_1	13.5	0.15	19971218	106.58115	139.90298	163.63566	0.55691	0.3004434	3.0492177	22	4	1980–1997	0.48	M-v	1	Williams	30902	1996	PR_1
1996 PS_1	10.5	0.15	19971218	349.03500	184.82249	201.61948	21.27969	0.0861738	5.1757825	40	3	1993–1997	0.41	M-v	2	Williams	30902	1996	PS_1
1996 PD_3	14.0	0.15	19971218	57.07224	307.76747	83.85757	3.95326	0.0138666	2.6245343	35	2	1996–1997	0.76	M-v	3	Williams	30877	1996	PD_3
1996 PJ_5	13.5	0.15	19971218	54.07412	26.03835	334.76281	11.62424	0.1241902	3.1939690	48	2	1996–1997	0.71	M-v	3	Williams	30877	1996	PJ_5
1996 QC	13.5	0.15	19971218	72.10840	199.71327	136.91588	1.53941	0.2396965	2.9763233	47	6	1981–1997	0.62	M-v	1	Williams	28619	1996	QC
1996 QL	14.0	0.15	19971218	247.85623	231.09456	314.75471	4.82908	0.1670594	2.6325502	23	4	1969–1997	0.60	M-v	2	Williams	28304	1996	QL
1996 RQ_2	14.5	0.15	19971218	290.92592	240.08354	314.23268	1.55939	0.1502767	2.4083032	23	4	1991–1997	0.51	M-v	2	Williams	28079	1996	RQ_2
1996 RJ_3	14.5	0.15	19971218	133.12523	297.51246	9.91530	5.48176	0.1931252	2.4135623	40	3	1985–1997	0.50	M-v	3	Marsden	28079	1996	RJ_3
1996 RE_4	13.0	0.15	19971218	146.44863	306.21087	26.69321	12.75312	0.1697182	2.6067049	22	4	1975–1997	0.49	M-v	2	Williams	28305	1996	RE_4
1996 RD_{12}	12.5	0.15	19971218	313.09232	76.56628	3.72902	9.55806	0.0819794	5.2406850	26	2	1996–1997	0.39	M-v	5	Williams	30764	1996	RD_{12}
1996 SJ_4	15.0	0.15	19971218	148.58233	337.47296	343.84726	5.07031	0.2007611	2.2324055	17	4	1976–1997	0.49	M-v	3	Williams	29115	1996	SJ_4
1996 SS_4	15.0	0.15	19971218	291.13249	8.32519	202.19997	3.74178	0.0612604	2.3533896	42	3	1995–1997	0.42	M-v	3	Williams	29140	1996	SS_4
1996 SS_6	13.0	0.15	19971218	158.03599	249.75128	67.54486	3.05740	0.0537786	2.9146525	34	4	1981–1997	0.53	M-v	3	Williams	29140	1996	SS_6
1996 TV_1	14.5	0.15	19971218	263.19830	66.15689	160.37405	3.97577	0.0803511	2.3035022	27	5	1989–1997	0.53	M-v	1	Williams	28890	1996	TV_1
1996 TB_6	13.5	0.15	19971218	101.77294	345.70473	31.80019	12.21686	0.3079620	2.7310193	38	4	1978–1997	0.62	M-v	3	Williams	28306	1996	TB_6
1996 TO_{13}	14.5	0.15	19971218	94.78070	166.94617	203.93693	10.70944	0.0924078	2.9690370	28	4	1991–1997	0.42	M-v	1	Williams	29320	1996	TO_{13}
1996 TU_{13}	13.0	0.15	19971218	242.38155	206.33857	16.16410	12.99463	0.1370433	2.6212937	34	4	1969–1997	0.49	M-v	1	Williams	30902	1996	TU_{13}
1996 TZ_{20}	15.0	0.15	19971218	67.91602	84.75793	323.67753	1.15390	0.0808947	2.9220773	20	3	1976–1997	0.39	M-v	4	Williams	28309	1996	TZ_{20}
1996 TN_{49}	12.0	0.15	19971218	323.97305	242.54100	206.86652	10.74669	0.0977171	5.1545932	46	2	1996–1997	0.76	M-v	4	Williams	30902	1996	TN_{49}
1996 TL_{66}	5.0	0.15	19971218	358.61464	183.51119	217.76206	23.95052	0.5848146	84.4570408	111	2	1996–1997	0.51	M-v	5	Williams	30902	1996	TL_{66}
1996 TO_{66}	4.5	0.15	19971218	105.10445	246.52385	355.19943	27.33140	0.1282178	43.6997436	78	2	1996–1997	0.59	M-v	6	Marsden	30902	1996	TO_{66}
1996 TP_{66}	6.5	0.15	19971218	357.62200	73.14465	316.66016	5.68576	0.3349954	39.7032480	43	2	1996–1997	0.58	M-v	5	Williams	30903	1996	TP_{66}
1996 TQ_{66}	6.5	0.15	19971218	0.34808	17.25900	10.68109	14.62804	0.1274069	39.6666539	21	2	1996–1997	0.33	M-v	6	Marsden	30690	1996	TQ_{66}
1996 TS_{66}	6.0	0.15	19971218	342.02513	134.83931	285.77963	7.35068	0.1263396	44.0997882	23	2	1996–1997	0.30	M-v	6	Marsden	30690	1996	TS_{66}
1996 UC	13.5	0.15	19971218	80.58863	273.31017	92.98957	2.99413	0.2477917	3.1492617	32	5	1974–1997	0.50	M-v	2	Williams	28619	1996	UC
1996 UX_3	11.5	0.15	19971218	322.78126	234.14836	211.17945	19.99145	0.1627454	5.1738807	27	2	1996–1997	0.69	M-v	4	Williams	30878	1996	UX_3
1996 UC_4	14.5	0.15	19971218	105.93511	334.85227	39.17477	3.71215	0.0803908	2.6761800	26	4	1983–1997	0.52	M-v	2	Williams	28311	1996	UC_4

1996 VP	14.5	0.15	19971218	236.33071	196.52043	51.80357	2.99078	0.1676297	2.4162790	48	4	1988–1997	0.50	M-v	3	Williams	28891	1996 VP
1996 VD_4	13.0	0.15	19971218	185.43175	224.03046	80.73026	1.93199	0.1406555	3.1994933	32	7	1977–1997	0.77	M-v	1	Williams	29666	1996 VD_4
1996 VA_5	13.0	0.15	19971218	231.10788	48.00593	207.20402	11.82780	0.1535561	2.5726027	20	3	1992–1997	0.72	M-v	3	Williams	29632	1996 VA_5
1996 VA_7	14.5	0.15	19971218	330.61711	325.05643	209.82788	3.89736	0.0909184	2.5798568	25	3	1994–1997	0.50	M-v	4	Marsden	30280	1996 VA_7
1996 VN_8	15.0	0.15	19971218	117.70083	345.64139	43.39319	3.04116	0.2069460	2.3798943	25	4	1974–1997	0.95	M-v	2	Williams	29117	1996 VN_8
1996 VV_8	12.5	0.15	19971218	117.30513	293.82510	57.51063	18.04712	0.0990568	3.1820368	13	3	1990–1997	0.88	M-v	5	Williams	29118	1996 VV_8
1996 XX_5	14.5	0.15	19971218	85.77259	131.04686	281.00225	2.13950	0.3124988	3.1799118	17	3	1990–1996	0.50	M-v	4	Williams	30903	1996 XX_5
1996 YH_3	11.5	0.15	19971218	132.53968	261.28551	64.69124	16.93981	0.0929505	3.2138758	27	4	1979–1997	0.51	M-v	2	Williams	30903	1996 YH_3
1997 AA_1	12.5	0.15	19971218	119.49964	341.32933	51.38733	1.94235	0.1981230	3.2131982	28	5	1972–1997	0.71	M-v	2	Williams	29320	1997 AA_1
1997 BA_2	12.5	0.15	19971218	225.30554	227.22843	103.29925	3.11562	0.0358227	2.9316068	18	3	1990–1997	0.70	M-v	5	Williams	29636	1997 BA_2
1997 CU_{26}	6.0	0.15	19971218	324.89222	242.23342	300.47797	23.42605	0.1685533	15.7116535	224	2	1997–1997	0.50	M-v	3	Williams	30903	1997 CU_{26}
1997 GD_{20}	13.0	0.15	19971218	253.93114	264.85932	96.48940	1.00319	0.2794737	3.0223783	32	7	1967–1997	0.91	M-v	1	Williams	30767	1997 GD_{20}
1997 HE_{14}	13.0	0.15	19971218	232.57100	56.75818	313.84356	1.23498	0.0892302	2.9111585	17	6	1974–1997	0.68	M-v	4	Marsden	30788	1997 HE_{14}
1997 LY_4	17.0	0.15	19971218	57.96434	51.10740	252.91554	8.35990	0.2717099	1.8032707	200	1	154 days	0.47	M-v	3	Williams	30903	1997 LY_4
1997 ME_3	15.5	0.15	19971218	4.34117	312.07691	32.81755	1.40314	0.1757054	2.1804031	31	3	1991–1997	0.59	M-v	5	Williams	30768	1997 ME_3
1997 MD_{10}	16.0	0.15	19971218	0.26422	68.92316	281.66326	59.12806	0.9430901	26.9904906	115	1	137 days	0.71	M-v	1	Williams	30903	1997 MD_{10}
1997 NZ	12.5	0.15	19971218	34.28831	8.19363	284.77709	12.06471	0.1631970	2.6073781	46	4	1972–1997	0.53	M-v	2	Williams	30903	1997 NZ
1997 NR_6	12.5	0.15	19971218	335.24514	228.61671	126.02537	11.42855	0.1160182	2.9852569	30	4	1992–1997	0.55	M-v	1	Williams	30692	1997 NR_6
1997 OC_1	14.0	0.15	19971218	304.41898	265.01194	154.32979	8.47482	0.1869501	2.7353559	24	3	1993–1997	0.67	M-v	3	Williams	30903	1997 OC_1
1997 OF_1	16.0	0.15	19971218	6.68692	67.57937	295.17029	1.59057	0.2107039	2.4016707	30	3	1992–1997	0.24	M-v	2	Williams	30788	1997 OF_1
1997 PJ	14.5	0.15	19971218	24.87432	116.58779	188.48470	7.25214	0.1221236	2.7420036	33	3	1992–1997	0.81	M-v	3	Williams	30903	1997 PJ
1997 PO	16.5	0.15	19971218	28.30278	161.79205	136.63615	23.61097	0.4326033	3.0562995	125	1	100 days	0.55	M-v	3	Marsden	30788	1997 PO
1997 PM_2	14.0	0.15	19971218	310.76894	118.69780	305.19792	4.60095	0.1513527	2.8352602	29	2	1993–1997	0.48	M-v	4	Williams	30677	1997 PM_2
1997 PC_4	15.5	0.15	19971218	38.70006	142.78590	162.49044	5.33636	0.2345971	2.6051791	24	3	1992–1997	0.43	M-v	3	Williams	30903	1997 PC_4
1997 PQ_4	15.5	0.15	19971218	21.63733	200.11219	153.79138	7.71657	0.1863641	2.2707127	43	2	1996–1997	0.47	M-v	3	Williams	30903	1997 PQ_4
1997 QA	14.0	0.15	19971218	55.02172	25.60794	317.86690	6.80830	0.0834508	2.4116071	43	1	96 days	0.47	M-v	4	Marsden	30904	1997 QA
1997 QK	13.3	0.15	19970909	357.03895	38.31781	296.67803	9.15023	0.1426584	3.0304177	69	1	59 days	0.36			Asher		1997 QK
1997 QN	15.0	0.15	19971218	17.81980	132.34870	256.98035	5.01927	0.1011703	2.2885240	45	1	103 days	0.45	M-v	4	Williams	30904	1997 QN
1997 QR	16.5	0.15	19971218	359.06744	111.42967	281.41037	4.39342	0.2694524	2.6202058	33	1	87 days	0.30	M-v	4	Williams		1997 QR
1997 QY	14.0	0.15	19971218	20.72820	146.38295	183.51983	9.24975	0.1867375	2.5713699	19	1	143 days	0.70	M-v	4	Williams	30790	1997 QY
1997 QC_1	15.0	0.15	19971218	70.23594	119.92919	169.81722	3.41122	0.1414638	2.2864795	16	1	112 days	0.30	M-v	4	Williams		1997 QC_1
1997 QG_1	14.5	0.15	19971218	159.86465	342.18920	223.27626	5.41015	0.1037395	2.4611934	38	3	1993–1997	0.73	M-v	4	Williams	30904	1997 QG_1
1997 QH_1	14.0	0.15	19971218	95.03487	349.80052	277.29649	5.11895	0.1413439	2.2050592	21	1	81 days	0.42	M-v	5	Williams		1997 QH_1
1997 QY_1	14.5	0.15	19971218	0.24189	338.98383	44.62842	3.35046	0.2008197	2.4287196	21	5	1929–1997	0.78	M-v	2	Williams	30904	1997 QY_1
1997 QB_2	15.5	0.15	19971218	14.59841	9.59984	357.44434	7.98225	0.2695741	2.4198614	28	1	83 days	0.64	M-v	4	Williams	30904	1997 QB_2
1997 QC_2	14.5	0.15	19971218	42.90374	176.00059	133.25438	6.59936	0.2873588	2.6827099	17	1	66 days	0.47	M-v	5	Williams	30904	1997 QC_2
1997 QE_2	14.0	0.15	19971218	334.02353	15.74973	30.89017	4.89450	0.1284251	2.8076225	21	2	1988–1997	0.99	M-v	5	Williams	30904	1997 QE_2
1997 QF_2	13.5	0.15	19971218	1.34684	5.11916	5.45304	12.92621	0.1449762	3.0609497	17	1	83 days	0.51	M-v	4	Williams	30904	1997 QF_2
1997 QV_2	15.5	0.15	19971218	15.07316	78.40433	292.21750	4.65074	0.1828642	2.2611034	27	1	82 days	0.24	M-v	4	Williams		1997 QV_2
1997 QZ_2	14.5	0.15	19971218	205.08424	208.78665	321.07614	4.02153	0.0663583	2.3214423	18	3	1985–1997	0.84	M-v	5	Williams	30679	1997 QZ_2
1997 QR_3	16.5	0.15	19971218	344.90459	245.45587	190.13643	5.08593	0.1243836	2.2899268	45	4	1976–1997	0.81	M-v	2	Williams	30878	1997 QR_3
1997 QV_3	15.0	0.15	19971218	136.01853	74.45624	192.20132	5.89034	0.0933370	2.4767648	33	3	1989–1997	0.70	M-v	3	Williams	30904	1997 QV_3
1997 QW_3	16.0	0.15	19971218	25.20871	263.16025	109.25539	1.25730	0.2675261	3.0686305	17	1	61 days	0.72	M-v	7	Williams	30904	1997 QW_3
1997 QV_4	17.5	0.15	19970909	136.03254	305.95781	262.91135	1.62544	0.0877607	2.3030643	31	1	52 days	0.58			Williams		1997 QV_4
1997 RC	13.5	0.15	19971218	308.64403	51.56185	63.33939	3.01368	0.0272070	2.8546405	44	1	94 days	0.37	M-v	4	Williams	30904	1997 RC
1997 RO	15.0	0.15	19970820	27.86133	130.20329	161.61341	5.21487	0.1017126	2.6949515	15	1	57 days	0.23			Williams		1997 RO
1997 RT	20.0	0.15	19971218	34.14934	5.98363	326.11412	6.18723	0.5240331	2.2461884	299	1	68 days	0.52	M-v	4	Marsden	30904	1997 RT
1997 RA_1	13.5	0.15	19971218	14.27724	9.94111	355.31945	8.85985	0.0308049	3.0612126	35	1	79 days	0.35	M-v	4	Williams	30904	1997 RA_1
1997 RD_1	16.0	0.15	19971218	24.92400	161.69587	170.24307	13.49465	0.4040737	2.6629806	217	1	79 days	0.49	M-v	3	Marsden	30904	1997 RD_1
1997 RP_1	15.6	0.15	19971218	19.97970	13.99226	346.09299	3.23600	0.2275855	2.3872755	17	1	77 days	0.60	M-v	5	Nakano		1997 RP_1
1997 RW_2	15.0	0.15	19971218	348.16566	50.66269	343.22550	3.83651	0.1141885	2.7010473	17	2	1995–1997	0.46	M-v	5	Williams	30770	1997 RW_2
1997 RF_4	15.0	0.15	19971218	66.33353	293.74673	26.99463	8.07495	0.1775159	2.8339299	17	1	79 days	0.36	M-v	5	Williams		1997 RF_4
1997 RQ_5	13.5	0.15	19971218	157.57771	39.75315	190.34072	0.57525	0.0951832	3.1251397	31	1	77 days	0.27	M-v	4	Marsden		1997 RQ_5

1997 RX_6	13.5	0.15	19971218	279.21166	101.15153	15.79357	1.86472	0.0166452	2.8981812	34	3	1977–1997	0.74	M-v	3	Williams	30904	1997 RX_6
1997 RA_7	14.5	0.15	19971218	102.96205	20.88875	243.38147	2.40115	0.0923684	2.1677203	20	3	1977–1997	0.55	M-v	3	Williams	30681	1997 RA_7
1997 RP_7	14.0	0.15	19971218	66.88801	79.32924	264.73356	4.48223	0.1343754	2.4021154	22	4	1974–1997	0.66	M-v	2	Williams	30878	1997 RP_7
1997 RF_8	13.8	0.15	19971218	62.96648	286.14126	0.81180	13.05611	0.2487706	2.6317591	14	1	76 days	0.72	M-v	5	Nakano		1997 RF_8
1997 RR_8	12.5	0.15	19970909	88.51309	70.83826	193.50357	10.05554	0.0690782	2.9808903	19	1	45 days	0.21			Williams		1997 RR_8
1997 RV_8	14.0	0.15	19971218	47.19499	296.06713	36.72749	5.40489	0.1878661	2.4812444	22	1	95 days	0.34	M-v	4	Williams	30905	1997 RV_8
1997 RB_9	14.5	0.15	19970929	20.94969	356.22094	332.29804	4.57746	0.1566837	2.6157391	28	1	48 days	0.36			Williams		1997 RB_9
1997 RC_9	17.5	0.15	19970929	6.85619	88.78314	259.58584	1.69814	0.0647217	2.8639866	26	1	42 days	0.66			Williams		1997 RC_9
1997 RD_9	16.5	0.15	19970929	295.46135	125.74577	318.43210	3.33593	0.2109792	3.1908783	20	1	48 days	0.58			Williams		1997 RD_9
1997 RM_9	14.5	0.15	19971218	62.96942	323.94457	356.59688	12.57612	0.1654423	2.7484618	30	1	66 days	0.40	M-v	4	Williams		1997 RM_9
1997 RS_9	15.0	0.15	19971218	19.77395	0.59989	44.39040	7.75265	0.1673402	2.6821461	10	1	78 days	0.16	M-v	5	Williams		1997 RS_9
1997 RM_{10}	18.0	0.15	19970929	146.41464	328.58972	236.46743	1.78291	0.0852186	2.1971653	17	1	51 days	0.48			Williams		1997 RM_{10}
1997 SC	15.5	0.15	19971218	41.81836	65.24350	271.24524	6.55059	0.2356245	2.7897150	45	1	64 days	0.35	M-v	4	Marsden		1997 SC
1997 SH	14.0	0.15	19971218	80.54425	357.70363	274.70670	9.07355	0.0733923	2.9693099	31	2	1977–1997	0.55	M-v	5	Williams	30905	1997 SH
1997 SL	15.5	0.15	19971218	353.43078	163.23322	219.49805	1.81074	0.2430836	2.8560418	30	1	78 days	0.42	M-v	5	Williams		1997 SL
1997 ST	13.5	0.15	19971218	1.70628	208.14820	210.64262	3.39765	0.0709272	2.2686417	34	4	1980–1997	0.48	M-v	1	Williams	30879	1997 ST
1997 SU	13.5	0.15	19971218	24.49799	178.59575	211.67215	5.48054	0.1272828	2.4023841	27	2	1993–1997	0.58	M-v	4	Williams	30879	1997 SU
1997 SV	14.0	0.15	19971218	40.18781	343.37427	32.85484	7.15248	0.1198963	2.3666426	24	2	1986–1997	0.86	M-v	4	Williams	30879	1997 SV
1997 SD_1	14.0	0.15	19971218	131.39442	3.69618	224.05040	11.57653	0.1365870	2.6489911	20	2	1996–1997	0.64	M-v	5	Williams	30772	1997 SD_1
1997 SG_1	13.5	0.15	19971218	276.49374	339.76233	161.02491	13.52524	0.1077366	2.6724252	50	2	1977–1997	0.77	M-v	4	Marsden	30905	1997 SG_1
1997 SL_1	15.5	0.15	19971218	287.39086	282.34079	176.33101	3.58903	0.0265944	2.2918875	47	2	1996–1997	0.47	M-v	4	Williams	30879	1997 SL_1
1997 SP_1	15.5	0.15	19971218	358.48703	267.23172	137.31322	0.44326	0.1833616	2.2860813	24	1	75 days	0.53	M-v	5	Williams		1997 SP_1
1997 SR_1	16.0	0.15	19970929	20.45024	162.67019	178.45337	3.71025	0.1744507	2.5226108	8	1	32 days	0.39			Williams		1997 SR_1
1997 SY_1	15.5	0.15	19970929	357.03996	3.42485	26.10184	1.67001	0.1815181	2.7472709	47	1	49 days	0.60			Williams		1997 SY_1
1997 SZ_1	14.5	0.15	19971218	343.52597	230.70722	200.65905	2.71248	0.1185324	2.4446073	51	3	1991–1997	0.58	M-v	2	Williams	30905	1997 SZ_1
1997 SA_2	14.0	0.15	19971218	24.60592	351.55277	23.68378	2.75068	0.1094839	2.9848867	36	1	76 days	0.49	M-v	4	Williams	30905	1997 SA_2
1997 SC_2	15.0	0.15	19971218	8.09516	194.84070	205.30957	3.17709	0.1057683	2.4329190	32	2	1993–1997	0.57	M-v	4	Williams	30905	1997 SC_2
1997 SE_2	15.0	0.15	19970929	347.97101	138.49173	262.42573	0.96005	0.0674667	2.8665298	27	1	49 days	0.54			Williams		1997 SE_2
1997 SG_2	14.6	0.15	19971218	36.76382	13.41757	338.29390	7.56856	0.0747421	2.2215912	25	1	61 days	0.27	M-v	4	Nakano		1997 SG_2
1997 SN_2	16.0	0.15	19971218	326.33669	186.39535	230.35431	1.58792	0.1577313	2.3861318	23	3	1990–1997	0.53	M-v	4	Williams	30905	1997 SN_2
1997 SW_2	16.0	0.15	19970929	322.03843	304.28854	106.57125	7.15793	0.1214274	2.2060936	19	1	39 days	0.45			Marsden		1997 SW_2
1997 SB_3	15.5	0.15	19971218	356.09324	205.08537	199.44436	4.80864	0.1398332	2.2704029	19	2	1996–1997	0.54	M-v	4	Williams	30879	1997 SB_3
1997 SE_3	15.5	0.15	19971218	311.05499	252.08413	175.56778	13.80371	0.1705330	2.6116421	15	1	73 days	0.55	M-v	5	Williams		1997 SE_3
1997 SM_3	13.5	0.15	19971218	128.16343	265.90709	325.65177	14.70193	0.0909079	2.6357451	17	1	61 days	0.66	M-v	6	Williams		1997 SM_3
1997 SN_3	14.0	0.15	19971218	317.12530	290.09753	149.00827	5.69939	0.1383623	2.7579262	18	3	1992–1997	0.58	M-v	3	Williams	30879	1997 SN_3
1997 SP_3	16.0	0.15	19971218	55.12881	309.17014	1.33017	7.31173	0.2188739	2.3421041	29	1	70 days	0.45	M-v	5	Williams		1997 SP_3
1997 SS_3	15.0	0.15	19971218	12.98759	330.98423	47.86630	5.98302	0.1993652	2.4580650	22	1	62 days	0.25	M-v	4	Williams		1997 SS_3
1997 SC_4	15.0	0.15	19971019	344.38449	201.40206	212.70252	1.40718	0.0738450	2.9368334	38	1	45 days	0.94			Williams		1997 SC_4
1997 SE_4	14.5	0.15	19971218	324.00574	54.71804	4.80728	1.72997	0.0851336	2.9197162	30	1	91 days	0.37	M-v	5	Williams		1997 SE_4
1997 SJ_4	10.5	0.15	19971218	326.21041	195.20316	232.62168	4.97160	0.1557266	5.2050081	28	3	1988–1997	0.65	M-v	3	Williams	30880	1997 SJ_4
1997 SP_4	14.5	0.15	19970929	288.98668	314.58255	129.90958	11.51380	0.0943672	2.9790073	11	1	8 days	0.44			Marsden		1997 SP_4
1997 SS_4	14.5	0.15	19970929	46.45226	75.75667	242.23632	3.35393	0.0692996	2.7776111	26	1	41 days	0.79			Williams		1997 SS_4
1997 ST_4	16.0	0.15	19971218	50.12071	128.74920	196.67057	6.03392	0.1334101	2.3696936	28	3	1992–1997	0.57	M-v	3	Williams	30880	1997 ST_4
1997 SE_5	15.0	0.15	19971218	11.64734	56.38849	288.05817	2.61441	0.6675154	3.7227668	379	1	161 days	0.54	M-v	4	Williams	30906	1997 SE_5
1997 SM_5	18.0	0.15	19970909	344.81068	354.42392	22.73131	1.88720	0.1779484	2.4478765	12	1	30 days	0.52			Williams		1997 SM_5
1997 SZ_9	14.5	0.15	19971218	23.09496	80.28331	287.10503	6.19320	0.1448987	2.2937708	22	2	1992–1997	0.39	M-v	3	Williams	30906	1997 SZ_9
1997 SB_{10}	13.5	0.15	19971218	320.01818	250.20443	233.08772	4.36792	0.1634628	2.5634783	21	3	1978–1997	0.57	M-v	3	Williams	30880	1997 SB_{10}
1997 SD_{10}	15.0	0.15	19971218	28.97060	259.75315	100.66412	2.53276	0.1992553	2.3955593	53	3	1986–1997	0.47	M-v	3	Williams	30906	1997 SD_{10}
1997 SR_{10}	14.0	0.15	19970929	70.73363	272.58054	4.76389	12.10132	0.1457442	2.5538439	18	1	22 days	0.44			Williams		1997 SR_{10}
1997 SU_{10}	14.5	0.15	19970929	7.12065	159.82179	230.31260	3.35962	0.1599570	2.2492912	13	1	19 days	0.39			Williams		1997 SU_{10}
1997 SF_{11}	14.1	0.15	19971218	278.73211	264.68497	215.69883	12.68107	0.0557173	3.0991424	34	1	68 days	0.64	M-v	5	Nakano		1997 SF_{11}
1997 SH_{11}	16.5	0.15	19971218	20.67732	350.42186	26.55088	4.77450	0.2575491	2.5895321	25	1	62 days	0.25	M-v	4	Marsden		1997 SH_{11}
1997 SJ_{11}	16.0	0.15	19971218	29.07526	336.96429	30.11964	2.73753	0.2199878	2.4167072	28	1	62 days	0.31	M-v	4	Marsden		1997 SJ_{11}

1997 SP_{12}	18.0	0.15	19970909	325.84111	209.39365	183.27521	4.62595	0.1522527	2.3065259	12	1	24 days	0.17			Williams		1997 SP_{12}
1997 SW_{12}	16.5	0.15	19970909	230.79744	314.67194	173.32422	13.47490	0.1263058	2.6668233	12	1	24 days	0.13			Williams		1997 SW_{12}
1997 SL_{15}	16.5	0.15	19971019	323.59287	165.80922	276.89150	1.87989	0.1756565	2.2574234	18	1	57 days	0.40			Williams		1997 SL_{15}
1997 SU_{15}	15.0	0.15	19971218	22.78384	68.09122	313.82214	1.49697	0.2064391	2.4420444	15	1	105 days	0.23	M-v	4	Williams		1997 SU_{15}
1997 SW_{15}	15.0	0.15	19970929	311.40477	132.21079	310.79511	1.38837	0.0494028	2.4824556	9	1	4 days	0.09		E	Williams		1997 SW_{15}
1997 SZ_{15}	15.5	0.15	19971218	110.47716	53.37374	235.55634	3.13634	0.1052182	2.4761112	15	1	68 days	0.31	M-v	4	Williams		1997 SZ_{15}
1997 SA_{16}	16.0	0.15	19971218	339.25591	110.46300	330.18085	1.21781	0.1256159	2.5655726	15	1	69 days	0.39	M-v	5	Williams		1997 SA_{16}
1997 SB_{16}	15.5	0.15	19970929	332.79191	41.00077	21.13545	6.67703	0.0845555	2.4363317	9	1	4 days	0.05			Williams		1997 SB_{16}
1997 SC_{16}	13.0	0.15	19970929	179.76131	348.50746	223.77714	9.52532	0.0791708	2.9381605	7	1	4 days	0.07		E	Williams		1997 SC_{16}
1997 SE_{16}	14.0	0.15	19971218	161.83244	216.91014	14.34690	4.12754	0.0848480	2.3326054	10	2	1992–1997	0.60	M-v	5	Williams	30880	1997 SE_{16}
1997 SG_{16}	13.0	0.15	19971218	252.32390	315.04304	187.68507	1.81475	0.0108297	2.8534691	28	4	1985–1997	0.70	M-v	2	Williams	30880	1997 SG_{16}
1997 SL_{16}	14.1	0.15	19971218	118.26326	109.37476	147.65883	12.32135	0.1041634	2.5677788	44	1	66 days	0.57	M-v	6	Nakano		1997 SL_{16}
1997 SL_{17}	15.0	0.15	19971019	314.48432	79.18805	351.17468	10.17855	0.2324014	2.4211306	31	1	47 days	0.77			Williams		1997 SL_{17}
1997 SP_{17}	15.0	0.15	19970929	356.39771	183.61924	198.29469	7.09746	0.3008620	2.6442525	21	1	30 days	0.91			Williams		1997 SP_{17}
1997 ST_{17}	15.0	0.15	19971218	45.23373	177.61886	160.66366	2.67901	0.2054634	2.3866026	18	1	70 days	0.43	M-v	5	Marsden		1997 ST_{17}
1997 ST_{20}	16.5	0.15	19971218	311.68095	81.68257	22.55944	12.78454	0.1203214	2.6510562	12	1	63 days	0.41	M-v	5	Williams		1997 ST_{20}
1997 SW_{20}	16.0	0.15	19971019	107.22383	245.31446	24.56313	12.40219	0.1237156	2.6611225	12	1	54 days	0.30			Williams		1997 SW_{20}
1997 SZ_{23}	13.0	0.15	19971218	286.36646	94.24581	22.13904	15.03434	0.0639478	5.1457955	10	1	68 days	0.35	M-v	6	Williams		1997 SZ_{23}
1997 SF_{25}	14.5	0.15	19971019	348.00101	11.02250	19.87079	6.67204	0.1318619	2.3990575	19	1	51 days	1.12			Williams		1997 SF_{25}
1997 SJ_{25}	13.0	0.15	19971218	71.46673	213.92853	79.85749	2.99869	0.1686671	3.1554985	21	4	1991–1997	0.72	M-v	1	Williams	30881	1997 SJ_{25}
1997 SN_{25}	13.0	0.15	19970929	36.34096	17.68127	316.48392	0.98987	0.1030381	2.9242025	26	1	30 days	0.86			Williams		1997 SN_{25}
1997 SO_{25}	16.0	0.15	19971019	273.28283	208.35004	276.26371	2.78697	0.0960030	2.2339323	21	1	53 days	0.46			Williams		1997 SO_{25}
1997 SF_{28}	13.0	0.15	19970929	327.12474	77.11051	344.99549	6.76454	0.0944980	5.1190321	8	1	25 days	0.20			Williams		1997 SF_{28}
1997 SL_{30}	17.0	0.15	19971019	341.07965	36.87632	17.08465	6.40180	0.1214515	2.3757256	12	1	53 days	0.14			Williams		1997 SL_{30}
1997 SN_{31}	14.5	0.15	19971218	149.79648	222.14018	358.79779	5.37885	0.0897856	2.2746530	23	2	1996–1997	0.47	M-v	4	Williams	30907	1997 SN_{31}
1997 SD_{32}	16.0	0.15	19970929	254.41297	130.08234	337.95216	4.14454	0.0123212	3.1079943	24	1	34 days	0.52			Williams		1997 SD_{32}
1997 SE_{32}	16.5	0.15	19970929	248.73804	161.14687	319.98147	2.28024	0.0825325	2.6478416	15	1	32 days	0.57			Williams		1997 SE_{32}
1997 SF_{32}	15.5	0.15	19970929	27.95727	126.78359	197.31495	5.64640	0.0558339	3.2326898	18	1	33 days	0.71			Williams		1997 SF_{32}
1997 SQ_{32}	14.5	0.15	19971218	15.02123	18.93104	356.67510	2.21308	0.2361611	2.3807189	27	3	1975–1997	0.44	M-v	3	Williams	30881	1997 SQ_{32}
1997 SW_{33}	13.0	0.15	19971218	346.26012	47.76230	37.82284	4.98717	0.1462783	3.1307685	25	4	1977–1997	0.65	M-v	2	Williams	30881	1997 SW_{33}
1997 SA_{34}	13.0	0.15	19971218	346.00753	51.15688	37.35867	9.75708	0.2108859	2.9145841	19	1	71 days	0.44	M-v	4	Williams		1997 SA_{34}
1997 SB_{34}	14.0	0.15	19970929	20.09305	339.75014	32.08391	5.51958	0.1653378	2.1708342	18	1	56 days	0.48			Williams		1997 SB_{34}
1997 SC_{34}	13.5	0.15	19971218	5.47544	15.86147	45.76758	15.27986	0.1328263	3.0575829	19	1	64 days	0.28	M-v	4	Williams		1997 SC_{34}
1997 TC	13.5	0.15	19971218	77.14925	263.75187	21.42523	2.13272	0.0760526	2.9377308	28	1	105 days	0.61	M-v	5	Williams	30908	1997 TC
1997 TD	16.5	0.15	19971218	28.35315	170.57241	159.16846	12.89257	0.4683817	2.2499421	132	1	60 days	0.55	M-v	5	Williams	30908	1997 TD
1997 TE	13.5	0.15	19971218	345.80496	35.47608	27.06560	9.44918	0.1892797	2.6254092	15	1	66 days	0.32	M-v	5	Marsden		1997 TE
1997 TR	14.0	0.15	19971019	21.07245	327.73126	5.68943	8.86494	0.1170640	3.0701485	33	1	48 days	0.52			Marsden		1997 TR
1997 TS	16.0	0.15	19971019	72.92449	26.90952	283.65816	8.29742	0.0477248	2.3842087	18	1	47 days	0.40			Marsden		1997 TS
1997 TV	13.5	0.15	19971218	115.87241	267.13241	359.22593	9.04862	0.0599090	3.1597461	17	1	60 days	0.58	M-v	6	Williams		1997 TV
1997 TW	15.0	0.15	19971019	14.27783	157.87917	196.53493	16.94242	0.2489026	3.1083922	16	1	47 days	0.45			Williams		1997 TW
1997 TT_3	14.0	0.15	19971019	287.97008	271.22896	204.49796	12.76888	0.1791940	2.7621735	17	1	30 days	0.94			Williams		1997 TT_3
1997 TX_3	17.0	0.15	19970929	27.82296	328.93939	14.19251	8.59911	0.1216902	2.7535801	8	1	22 days	0.19			Williams		1997 TX_3
1997 TR_6	15.5	0.15	19971218	23.27345	216.94595	140.60871	3.02628	0.4041587	2.6936468	21	1	61 days	0.28	M-v	5	Williams		1997 TR_6
1997 TZ_7	13.0	0.15	19971218	26.72136	286.31097	50.31378	16.91417	0.2501711	3.1112277	78	3	1981–1997	0.71	M-v	2	Williams	30908	1997 TZ_7
1997 TT_9	11.5	0.15	19971218	315.50826	38.48243	44.50823	10.11165	0.0647604	5.1035163	23	1	63 days	0.40	M-v	5	Williams		1997 TT_9
1997 TW_9	14.5	0.15	19971019	6.20332	288.60247	89.89314	2.92672	0.1285516	3.0611268	34	1	46 days	0.55			Williams		1997 TW_9
1997 TZ_9	15.0	0.15	19971218	18.97977	356.11310	28.80726	6.48352	0.1193123	2.6409517	37	1	62 days	0.40	M-v	4	Williams		1997 TZ_9
1997 TA_{10}	13.0	0.15	19971218	21.82765	349.34734	34.58820	3.72381	0.0554147	3.1816262	46	3	1985–1997	0.81	M-v	3	Williams	30882	1997 TA_{10}
1997 TB_{10}	14.5	0.15	19971218	352.76633	213.34947	219.76897	0.87457	0.2816143	3.0269204	31	2	1994–1997	0.63	M-v	4	Williams	30882	1997 TB_{10}
1997 TG_{10}	15.5	0.15	19971218	104.94138	90.61077	205.69653	5.33456	0.1305843	2.2950056	29	2	1996–1997	0.53	M-v	4	Williams	30882	1997 TG_{10}
1997 TH_{10}	15.5	0.15	19971019	317.96890	231.20919	221.58413	3.41992	0.1342840	2.5800002	24	1	36 days	0.71			Williams		1997 TH_{10}
1997 TJ_{10}	15.0	0.15	19971019	58.02302	173.54626	159.86120	0.49883	0.0758793	2.5735701	33	1	59 days	1.05			Williams		1997 TJ_{10}
1997 TZ_{10}	17.0	0.15	19970909	117.62244	39.96998	178.47976	6.09403	0.1415472	2.6285718	12	1	31 days	0.37			Williams		1997 TZ_{10}

1997 TE_{11}	15.5	0.15	19971218	316.93570	249.17124	179.33126	9.12965	0.1444127	2.7921035	15	1	60 days	0.29	M-v	5	Williams		1997 TE_{11}
1997 TF_{12}	14.0	0.15	19971019	354.80658	19.59514	17.95633	8.91852	0.0287778	5.2113592	9	1	58 days	0.27			Williams		1997 TF_{12}
1997 TE_{16}	17.0	0.15	19971019	17.09346	340.55067	358.96564	11.79526	0.1363006	2.5999227	20	1	27 days	0.41			Williams		1997 TE_{16}
1997 TS_{16}	15.0	0.15	19971218	11.66920	172.14436	203.02311	5.18654	0.1565682	2.4290980	43	4	1993–1997	0.63	M-v	2	Williams	30908	1997 TS_{16}
1997 TW_{16}	15.0	0.15	19971218	113.22456	338.77191	268.12425	2.51005	0.2330993	2.2351134	33	5	1980–1997	0.65	M-v	2	Williams	30883	1997 TW_{16}
1997 TA_{17}	15.5	0.15	19971019	4.64966	73.58595	306.38712	5.43501	0.1549997	2.5397514	19	1	41 days	0.23			Williams		1997 TA_{17}
1997 TC_{17}	15.5	0.15	19970929	25.51182	149.68377	188.52953	1.80006	0.1802111	2.2211750	15	1	25 days	1.14			Williams		1997 TC_{17}
1997 TM_{17}	14.0	0.15	19971218	112.29467	24.73515	257.79448	6.78528	0.1447535	2.2860795	18	3	1993–1997	0.52	M-v	4	Williams	30883	1997 TM_{17}
1997 TN_{17}	13.6	0.15	19971108	149.35530	12.65533	230.07803	15.15029	0.1264589	2.5757635	24	1	53 days	0.57			Nakano		1997 TN_{17}
1997 TT_{17}	15.5	0.15	19970929	47.03584	115.47980	205.82178	5.60722	0.1276290	2.1960251	19	1	36 days	0.93			Williams		1997 TT_{17}
1997 TU_{17}	14.5	0.15	19971019	106.24408	63.43156	207.16669	5.51907	0.1004111	2.2669734	17	1	28 days	0.62			Williams		1997 TU_{17}
1997 TV_{17}	14.0	0.15	19971218	78.98814	107.48983	205.80982	9.93220	0.0592715	3.1655132	21	1	61 days	0.75	M-v	6	Williams		1997 TV_{17}
1997 TW_{17}	16.0	0.15	19971019	8.71363	191.60952	182.37736	3.25182	0.1817061	2.2869977	19	1	34 days	1.30			Williams		1997 TW_{17}
1997 TA_{18}	14.3	0.15	19971108	26.27045	225.95170	187.65141	11.44687	0.1788729	2.6388451	21	1	58 days	0.29			Nakano		1997 TA_{18}
1997 TS_{18}	13.5	0.15	19970929	52.70804	299.85262	334.37188	8.38321	0.1383178	2.7558760	17	1	13 days	0.26			Williams		1997 TS_{18}
1997 TG_{19}	14.5	0.15	19971218	96.28576	234.20803	43.27784	2.60197	0.2934354	2.1699434	30	4	1974–1997	0.75	M-v	2	Williams	30883	1997 TG_{19}
1997 TH_{19}	14.5	0.15	19971218	52.51237	324.42900	1.39980	3.31537	0.3196358	2.3305876	36	2	1990–1997	0.57	M-v	4	Williams	30883	1997 TH_{19}
1997 TJ_{19}	13.5	0.15	19971019	351.57128	356.19052	46.36778	5.94621	0.0878258	2.7640979	20	1	26 days	0.43			Williams		1997 TJ_{19}
1997 TM_{19}	15.5	0.15	19971019	330.91289	89.00167	337.06466	12.31896	0.1545804	2.6487339	14	1	41 days	0.22			Williams		1997 TM_{19}
1997 TO_{19}	15.0	0.15	19971218	64.27630	116.92583	210.71152	4.99896	0.1640643	2.2728096	24	2	1990–1997	0.43	M-v	5	Williams	30884	1997 TO_{19}
1997 TM_{20}	15.5	0.15	19971218	241.18344	135.58887	29.71593	15.64308	0.0388718	3.1049810	18	1	64 days	0.35	M-v	4	Williams		1997 TM_{20}
1997 TV_{22}	16.0	0.15	19971019	311.38457	76.99079	13.19188	6.58596	0.1327428	2.3673894	14	1	54 days	0.33			Williams		1997 TV_{22}
1997 TW_{23}	16.5	0.15	19971019	69.14959	279.56895	27.44887	8.34998	0.1373646	2.3195881	15	1	49 days	0.28			Williams		1997 TW_{23}
1997 TK_{24}	14.0	0.15	19971019	338.11327	87.78796	322.15601	3.75849	0.0521717	2.7342108	22	1	45 days	0.36			Williams		1997 TK_{24}
1997 TN_{24}	13.5	0.15	19970929	258.46921	117.91407	40.36159	7.55652	0.0828351	2.4205030	14	1	19 days	0.15			Williams		1997 TN_{24}
1997 TO_{24}	13.5	0.15	19971218	53.42897	297.61910	37.30781	6.89617	0.3443944	2.9040153	28	3	1977–1997	0.48	M-v	3	Williams	30884	1997 TO_{24}
1997 TS_{24}	15.0	0.15	19971019	0.32058	2.96288	8.60375	7.27811	0.1408806	2.3433075	18	1	24 days	0.51			Williams		1997 TS_{24}
1997 TW_{24}	16.0	0.15	19971019	4.12077	104.18084	276.39142	7.13176	0.2885535	2.6801308	17	1	34 days	0.30			Marsden		1997 TW_{24}
1997 TE_{25}	15.0	0.15	19971218	40.13273	157.16750	194.30830	3.89469	0.2921745	2.5796912	39	2	1996–1997	0.71	M-v	5	Williams	30884	1997 TE_{25}
1997 TF_{25}	16.0	0.15	19971019	344.32609	339.59903	53.80145	5.73932	0.1887504	2.3675669	11	1	41 days	0.23			Williams		1997 TF_{25}
1997 TG_{25}	16.5	0.15	19971019	4.20554	57.05523	326.90453	0.66796	0.1925596	2.3770404	27	1	40 days	0.59			Williams		1997 TG_{25}
1997 TL_{25}	14.5	0.15	19971108	210.05613	330.92220	188.68921	22.28615	0.0964011	3.0870620	12	1	58 days	0.36			Williams		1997 TL_{25}
1997 TM_{25}	14.5	0.15	19971019	14.09199	320.94398	35.94820	7.13286	0.2408375	2.2640621	17	1	22 days	0.28			Williams		1997 TM_{25}
1997 TR_{25}	12.5	0.15	19971019	359.79918	13.40889	34.28376	7.05228	0.2825009	2.5627149	16	1	47 days	0.24			Williams		1997 TR_{25}
1997 TT_{25}	19.0	0.15	19971218	13.35921	17.82789	30.39958	7.61979	0.4161881	2.1237110	126	1	55 days	0.48	M-v	5	Marsden		1997 TT_{25}
1997 TW_{25}	15.5	0.15	19971218	299.35489	339.42169	128.60830	4.31034	0.1046482	2.2789209	22	2	1990–1997	0.52	M-v	5	Williams	30884	1997 TW_{25}
1997 TC_{26}	14.5	0.15	19971019	18.39604	306.19778	44.02878	5.57452	0.2071956	2.4562658	17	1	22 days	0.56			Williams		1997 TC_{26}
1997 TD_{26}	14.0	0.15	19971019	338.85666	21.19941	27.16856	9.70171	0.2051092	2.7248238	12	1	36 days	0.29			Williams		1997 TD_{26}
1997 TE_{26}	15.0	0.15	19971019	51.61581	46.40980	265.30521	3.10779	0.2125915	2.4096685	19	1	44 days	0.35			Williams		1997 TE_{26}
1997 TF_{26}	14.0	0.15	19971019	13.08724	29.59422	341.15805	4.60300	0.0712608	2.7316783	16	1	29 days	0.33			Williams		1997 TF_{26}
1997 TH_{26}	15.0	0.15	19971019	32.39925	12.04217	330.07593	3.26636	0.1556653	2.2095588	16	1	26 days	0.21			Williams		1997 TH_{26}
1997 TK_{26}	16.0	0.15	19971019	359.42765	168.93852	217.36328	11.41219	0.2968234	2.5570612	13	1	48 days	0.23			Williams		1997 TK_{26}
1997 TN_{26}	13.5	0.15	19971019	39.19690	307.99906	28.36038	13.05186	0.1912641	2.6045407	18	1	23 days	0.79			Williams		1997 TN_{26}
1997 TS_{26}	13.5	0.15	19971019	18.25960	348.93273	38.45836	9.79052	0.1620376	2.7943825	12	1	36 days	0.21			Williams		1997 TS_{26}
1997 TU_{26}	15.0	0.15	19971019	41.01674	343.42690	343.72260	0.90508	0.1717107	2.1716830	13	1	23 days	0.83			Williams		1997 TU_{26}
1997 TV_{26}	14.5	0.15	19971019	248.62164	80.01228	73.05132	1.94328	0.1482649	2.4577860	14	1	59 days	0.52			Williams		1997 TV_{26}
1997 UA	16.5	0.15	19971019	4.53206	353.72835	17.93323	15.45794	0.1784613	2.4486458	27	1	15 days	0.47			Marsden		1997 UA
1997 UE	16.0	0.15	19971019	309.75842	256.60662	185.45504	0.51032	0.0914235	2.3792677	15	1	33 days	0.31			Marsden		1997 UE
1997 UJ	12.5	0.15	19971108	341.61260	203.30101	224.15290	11.14352	0.0606437	5.1026514	21	1	48 days	0.59			Williams		1997 UJ
1997 UL	15.5	0.15	19971019	79.63080	218.04566	65.91477	6.47145	0.0902341	2.2542577	19	1	14 days	0.37			Marsden		1997 UL
1997 UN	15.0	0.15	19971019	31.39031	311.86364	31.13020	11.08337	0.1238125	3.0222527	14	1	14 days	0.35			Marsden		1997 UN
1997 UO	16.0	0.15	19971019	23.77873	146.39086	199.50469	16.92188	0.2273090	2.6277918	18	1	14 days	0.41			Marsden		1997 UO
1997 UP	16.5	0.15	19971019	357.06490	194.54086	193.18309	6.62330	0.1422171	2.2437671	16	1	14 days	0.25			Marsden		1997 UP

1997 UQ	14.0	0.15	19971019	241.15354	65.16181	81.83700	2.57557	0.0659723	3.2195018	16	1	8 days	0.34			Marsden		1997 UQ
1997 UR	23.0	0.15	19971218	19.15105	200.13988	214.13870	2.26875	0.3129939	1.4611913	141	1	21 days	0.73	M-v	6	Williams	30910	1997 UR
1997 US	14.5	0.15	19971019	115.01529	41.99481	212.23083	8.57668	0.0564308	2.6468822	24	1	17 days	0.73			Williams		1997 US
1997 UT	15.5	0.15	19971019	338.25911	199.08089	216.98076	6.28035	0.0755480	2.2493733	24	1	29 days	0.60			Williams		1997 UT
1997 UU	16.0	0.15	19971019	314.28587	231.09271	219.62654	5.62719	0.0687477	2.2917864	21	1	29 days	0.64			Williams		1997 UU
1997 UV	14.5	0.15	19971019	275.95404	353.89756	145.23430	0.85532	0.1125771	3.1466397	20	1	29 days	1.31			Williams		1997 UV
1997 UX	15.5	0.15	19971218	54.43481	294.84697	31.91074	10.29978	0.2561343	2.5288950	23	1	60 days	0.43	M-v	5	Williams		1997 UX
1997 UY	14.5	0.15	19971019	89.41660	315.81287	315.92109	6.06794	0.1574121	2.8087933	18	1	13 days	0.38			Marsden		1997 UY
1997 UZ	15.0	0.15	19971019	13.51713	97.19577	268.42633	2.65000	0.1090959	2.7812885	20	1	13 days	0.32			Marsden		1997 UZ
1997 UB_1	15.0	0.15	19971019	80.88688	260.80284	32.36344	4.77381	0.1566098	2.3196008	33	1	31 days	0.68			Williams		1997 UB_1
1997 UC_1	15.0	0.15	19971108	344.16389	201.85115	196.81006	7.78498	0.2231797	2.7967712	17	1	43 days	0.29			Williams		1997 UC_1
1997 UE_1	15.0	0.15	19971019	4.48907	349.11155	32.57958	5.99910	0.3182538	2.5816686	30	1	25 days	0.92			Williams		1997 UE_1
1997 UG_1	13.5	0.15	19971019	2.68157	358.24406	33.55271	10.02732	0.0801623	2.9950866	25	1	30 days	0.66			Williams		1997 UG_1
1997 UJ_1	15.5	0.15	19971019	349.26446	17.13236	25.40214	4.13309	0.1153526	2.7332059	23	1	30 days	0.39			Marsden		1997 UJ_1
1997 UK_1	15.0	0.15	19971019	323.51705	47.60982	29.85444	6.04107	0.1159835	2.6137087	24	1	54 days	0.30			Williams		1997 UK_1
1997 UL_1	14.5	0.15	19971019	73.24822	276.66769	31.20840	9.41912	0.1020992	2.7508538	27	1	54 days	0.39			Williams		1997 UL_1
1997 UN_1	16.5	0.15	19971019	14.86296	72.53532	287.06021	4.10035	0.1660373	2.2656523	12	1	6 days	0.41			Marsden		1997 UN_1
1997 UO_1	14.9	0.15	19971108	11.89362	140.14490	249.27505	3.78342	0.1942425	2.1823475	60	1	40 days	0.54			Nakano		1997 UO_1
1997 UZ_1	15.5	0.15	19971218	102.71768	265.89818	25.53840	7.33957	0.1196939	2.3350719	20	1	63 days	0.22	M-v	5	Williams		1997 UZ_1
1997 UE_2	15.0	0.15	19971108	334.57631	51.48615	33.74109	6.39657	0.2672053	2.5989386	38	1	36 days	1.13			Williams		1997 UE_2
1997 UF_2	15.0	0.15	19971218	52.13644	130.71427	207.77353	4.92820	0.2386372	2.2850975	23	3	1990–1997	0.67	M-v	3	Williams	30884	1997 UF_2
1997 UG_2	14.5	0.15	19971108	5.98967	168.06180	217.67528	1.79620	0.2394011	2.6841379	41	1	38 days	0.61			Marsden		1997 UG_2
1997 UJ_2	17.0	0.15	19971108	31.02516	308.40117	58.11303	8.06668	0.1342879	2.3949281	12	1	45 days	0.23			Williams		1997 UJ_2
1997 US_2	19.5	0.15	19971218	337.60195	99.76908	66.37871	3.16987	0.6615694	1.6729948	76	1	43 days	0.67	M-v	6	Williams		1997 US_2
1997 UT_2	13.0	0.15	19971019	58.96974	266.12638	23.28618	16.96285	0.2211272	3.1572071	17	1	25 days	0.83			Williams		1997 UT_2
1997 UX_2	16.0	0.15	19971019	56.12181	90.35384	215.16633	10.21964	0.2685317	2.2760849	41	1	52 days	0.40			Marsden		1997 UX_2
1997 UY_2	15.0	0.15	19971108	3.27710	180.97628	222.66126	10.43386	0.2388081	2.3076056	29	1	28 days	0.30			Marsden		1997 UY_2
1997 UG_3	15.0	0.15	19971019	24.70913	17.52400	325.75575	3.16760	0.2575442	2.2928810	17	1	50 days	0.89			Williams		1997 UG_3
1997 UJ_3	13.6	0.15	19971108	94.75134	359.42820	304.89824	2.84199	0.0839525	2.7290116	17	1	35 days	0.49			Nakano		1997 UJ_3
1997 UK_3	15.0	0.15	19971218	10.42530	179.91687	228.88340	4.19679	0.2537784	2.3812671	29	5	1964–1997	0.66	M-v	3	Williams	30885	1997 UK_3
1997 UL_3	14.7	0.15	19971108	34.08226	319.03064	39.42777	14.31317	0.2010236	2.5418409	29	1	35 days	0.80			Nakano		1997 UL_3
1997 UM_3	13.5	0.15	19971218	8.56375	62.72920	349.09695	2.02660	0.1997091	2.3799949	17	4	1975–1997	0.79	M-v	2	Williams	30885	1997 UM_3
1997 UN_3	16.0	0.15	19971218	354.10127	204.48559	227.73528	4.11630	0.2037252	2.5765079	18	2	1989–1997	0.44	M-v	5	Williams	30885	1997 UN_3
1997 UO_3	14.1	0.15	19971108	336.60271	205.72441	238.61880	7.07610	0.2059437	2.3566979	13	1	35 days	0.42			Nakano		1997 UO_3
1997 UP_3	13.5	0.15	19971218	314.63034	187.64540	281.33814	2.51672	0.0375827	2.3984854	16	2	1991–1997	0.55	M-v	6	Williams	30885	1997 UP_3
1997 UQ_3	14.0	0.15	19971218	325.65886	61.59249	44.66791	1.54947	0.1370843	2.4219889	18	2	1993–1997	0.60	M-v	5	Williams	30885	1997 UQ_3
1997 UR_3	14.5	0.15	19971218	84.01701	291.57185	37.43102	3.33394	0.0510609	2.6662474	20	1	91 days	0.56	M-v	5	Williams		1997 UR_3
1997 US_3	12.7	0.15	19971108	7.58569	169.96640	228.98408	12.92802	0.1615617	2.7116080	12	1	35 days	0.56			Nakano		1997 US_3
1997 UT_3	13.5	0.15	19971218	1.65382	203.72265	213.68154	0.65739	0.1349353	3.2022193	23	1	95 days	0.57	M-v	4	Williams	30911	1997 UT_3
1997 UV_3	14.0	0.15	19971218	24.93154	0.39381	27.46104	2.55485	0.1893931	2.4486991	21	2	1974–1997	0.26	M-v	4	Williams	30885	1997 UV_3
1997 UW_3	14.5	0.15	19971218	1.58236	52.90868	9.18159	2.87577	0.1488015	2.4139283	33	3	1980–1997	0.55	M-v	4	Williams	30885	1997 UW_3
1997 UX_3	16.0	0.15	19971108	15.88808	145.75730	228.44056	7.85900	0.3620561	2.6756003	26	1	39 days	0.81			Williams		1997 UX_3
1997 UY_3	13.5	0.15	19971218	350.66831	200.23411	235.91542	2.72867	0.1520315	2.5838726	23	2	1989–1997	0.66	M-v	5	Williams	30886	1997 UY_3
1997 UA_4	15.0	0.15	19971019	190.07355	316.54783	254.20508	3.57212	0.0548297	2.3102041	46	1	17 days	1.00			Williams		1997 UA_4
1997 UU_4	15.0	0.15	19971218	42.87823	306.79072	45.26347	6.32693	0.2840314	2.3643852	21	2	1996–1997	0.35	M-v	4	Williams	30886	1997 UU_4
1997 UZ_4	12.5	0.15	19971019	31.59726	13.69142	47.28434	5.18988	0.2021939	3.1783715	12	1	17 days	0.49			Williams		1997 UZ_4
1997 UA_5	15.5	0.15	19971019	23.98467	303.78771	37.09794	6.92459	0.2271384	2.3365570	20	1	19 days	0.44			Williams		1997 UA_5
1997 UF_5	14.5	0.15	19971019	106.41342	264.12883	356.51753	6.39538	0.1181540	2.3012574	15	1	25 days	0.63			Williams		1997 UF_5
1997 UG_5	14.0	0.15	19971108	348.98842	19.57908	30.56409	18.61914	0.1854811	3.2329686	20	1	40 days	0.56			Williams		1997 UG_5
1997 UK_5	14.5	0.15	19971019	26.09407	30.33543	320.45651	13.49881	0.2192374	2.5505352	16	1	22 days	0.27			Williams		1997 UK_5
1997 UW_5	14.5	0.15	19971019	334.44271	30.72272	37.26412	7.96647	0.1590382	2.7592324	17	1	18 days	0.53			Williams		1997 UW_5
1997 UA_7	13.6	0.15	19971108	17.68167	316.43870	53.19604	8.35029	0.3435650	3.0064808	27	1	40 days	0.64			Nakano		1997 UA_7
1997 UB_7	13.0	0.15	19971108	29.28651	306.57176	48.55673	16.49342	0.2852369	2.7767931	18	1	36 days	0.52			Williams		1997 UB_7

1997 UD_7	15.5	0.15	19971019	26.70448	124.73306	244.48115	6.37566	0.0361662	2.4689084	21	1	19 days	0.25			Marsden		1997 UD_7
1997 UK_7	14.5	0.15	19971019	352.12243	58.26367	325.92684	2.77447	0.0455402	2.6239669	11	1	11 days	0.63		E	Williams		1997 UK_7
1997 UO_7	15.0	0.15	19971218	13.10150	222.67471	171.14079	4.18049	0.1476304	2.4565548	24	2	1993–1997	0.58	M-v	5	Williams	30886	1997 UO_7
1997 UP_7	15.0	0.15	19971218	342.06430	104.59596	338.40368	2.49451	0.2316776	2.5704905	29	1	119 days	0.53	M-v	4	Williams	30911	1997 UP_7
1997 UQ_7	16.5	0.15	19971108	12.70513	349.05704	35.89912	6.92374	0.1215675	2.2677350	30	1	31 days	0.76			Williams		1997 UQ_7
1997 UR_7	17.0	0.15	19971019	25.16904	315.44130	40.07108	9.73663	0.2514532	2.3985423	19	1	19 days	0.94			Williams		1997 UR_7
1997 US_7	16.5	0.15	19971019	321.74266	1.51533	82.48687	1.63686	0.1011678	2.2476965	24	1	19 days	0.94			Williams		1997 US_7
1997 UT_7	14.5	0.15	19971108	124.18034	251.61755	327.19011	3.22000	0.1315744	2.3087695	13	1	24 days	0.36			Williams		1997 UT_7
1997 UU_7	14.5	0.15	19971108	67.46648	125.09991	162.47023	6.58120	0.1398014	2.3184379	10	1	24 days	0.18			Williams		1997 UU_7
1997 UW_7	16.5	0.15	19971108	44.99288	312.85436	20.47727	0.74396	0.2300992	2.3990946	26	1	28 days	0.68			Williams		1997 UW_7
1997 UY_7	16.0	0.15	19971218	24.01331	91.62600	288.84266	1.03389	0.2173711	2.3511910	29	2	1995–1997	0.53	M-v	4	Williams	30886	1997 UY_7
1997 UZ_7	15.5	0.15	19971108	32.04798	107.25651	239.64691	14.73717	0.2093161	2.4438089	23	1	25 days	0.32			Marsden		1997 UZ_7
1997 UA_8	15.0	0.15	19971019	151.35052	187.64029	63.78848	2.76333	0.1090440	2.4612673	21	1	13 days	0.43			Marsden		1997 UA_8
1997 UB_8	15.0	0.15	19971218	356.12733	221.42236	202.86841	22.75437	0.3115287	2.3325084	24	2	1990–1997	0.50	M-v	4	Williams	30886	1997 UB_8
1997 UD_8	14.0	0.15	19971108	139.08135	231.79877	4.67380	7.17358	0.1743141	2.4014347	20	1	24 days	0.35			Marsden		1997 UD_8
1997 UE_8	15.5	0.15	19971108	56.16099	291.25087	48.37243	1.54338	0.0973706	2.7391640	10	1	47 days	0.23			Williams		1997 UE_8
1997 UK_8	13.5	0.15	19971108	339.50668	354.02457	71.50665	2.29850	0.1794084	3.2391184	14	1	41 days	0.60			Williams		1997 UK_8
1997 UL_8	16.2	0.15	19971019	335.31522	31.38329	46.87883	1.40552	0.3807554	2.5197793	6	1	11 days	0.74			Nakano		1997 UL_8
1997 UN_8	13.0	0.15	19971019	70.52526	259.67281	25.77801	7.10048	0.2206727	2.7514792	16	1	23 days	0.93			Williams		1997 UN_8
1997 UO_8	12.5	0.15	19971019	310.29396	45.40265	39.47509	16.25696	0.0665357	2.5748416	13	1	11 days	1.21			Williams		1997 UO_8
1997 UP_8	14.0	0.15	19971019	42.56042	258.43183	71.52397	2.52277	0.1874813	2.2058465	12	1	11 days	0.88			Williams		1997 UP_8
1997 UQ_8	15.0	0.15	19971019	39.83861	278.00109	44.81307	5.14456	0.2582663	2.3641252	18	1	15 days	0.59			Williams		1997 UQ_8
1997 US_8	13.5	0.15	19971218	205.48645	45.17939	165.47591	1.47887	0.1242686	3.1799933	17	2	1988–1997	0.86	M-v	6	Williams	30886	1997 US_8
1997 UT_8	14.5	0.15	19971019	75.18501	98.69179	211.98917	6.50255	0.1243762	2.5421799	14	1	5 days	0.81			Williams		1997 UT_8
1997 UU_8	14.5	0.15	19971019	299.64527	23.35252	95.87645	2.71937	0.1639741	3.1929256	23	1	12 days	1.08			Williams		1997 UU_8
1997 UV_8	14.5	0.15	19971019	19.76602	164.47566	209.25019	12.03554	0.1335823	2.8530211	30	1	12 days	1.04			Williams		1997 UV_8
1997 UY_8	14.5	0.15	19971108	58.86760	273.76600	57.65192	5.13207	0.2040413	2.2046455	16	1	36 days	0.78			Williams		1997 UY_8
1997 UZ_8	13.5	0.15	19971218	95.54714	102.60757	217.86689	3.83667	0.0768818	2.3902133	24	3	1978–1997	0.67	M-v	3	Williams	30886	1997 UZ_8
1997 UA_9	12.0	0.15	19971218	236.00007	132.10610	59.01965	11.07033	0.0226121	2.5584729	24	3	1970–1997	0.61	M-v	3	Williams	30887	1997 UA_9
1997 UF_9	16.5	0.15	19971218	280.07455	157.76920	37.28468	25.89500	0.6043637	1.4423672	104	1	39 days	0.61	M-v	7	Williams		1997 UF_9
1997 UG_9	16.0	0.15	19971108	358.60704	13.83577	34.34136	8.03761	0.3771036	2.6447846	33	1	32 days	0.85			Williams		1997 UG_9
1997 UH_9	19.0	0.15	19971218	235.43579	180.83567	42.47498	25.49591	0.4747603	0.8299959	165	1	37 days	0.59	M-v	7	Williams		1997 UH_9
1997 UK_9	15.5	0.15	19971108	10.47608	169.55979	224.22955	25.09634	0.2245501	2.2746379	12	1	24 days	0.45			Williams		1997 UK_9
1997 UL_9	15.0	0.15	19971108	312.84895	72.92439	37.21690	14.24759	0.2185478	2.6054001	31	1	22 days	0.77			Williams		1997 UL_9
1997 UN_9	14.5	0.15	19971019	57.44209	348.83556	333.79566	1.46165	0.1391029	2.6285801	28	1	50 days	0.90			Williams		1997 UN_9
1997 UO_9	16.0	0.15	19971019	313.64595	153.90093	294.24950	1.10624	0.0905696	2.1813288	18	1	52 days	0.49			Williams		1997 UO_9
1997 UQ_9	16.0	0.15	19971108	15.92340	335.16018	31.25952	18.97562	0.2732559	3.1447225	26	1	35 days	0.56			Marsden		1997 UQ_9
1997 UR_9	13.5	0.15	19971108	46.80887	12.99778	333.37535	1.58859	0.1441272	2.7466461	21	1	22 days	1.44			Williams		1997 UR_9
1997 US_9	17.5	0.15	19971218	232.64358	357.20358	212.31459	20.02364	0.2819055	1.0523871	113	1	38 days	0.60	M-v	6	Williams		1997 US_9
1997 UT_9	19.1	0.15	19971108	7.65494	351.68458	29.57851	7.71300	0.3852732	2.1929776	36	1	21 days	0.60			Nakano		1997 UT_9
1997 UK_{10}	14.5	0.15	19971108	68.01041	265.89027	48.54298	11.71865	0.1818354	2.7229630	25	1	36 days	1.02			Williams		1997 UK_{10}
1997 UN_{10}	14.0	0.15	19971108	299.98934	238.51152	229.62382	8.81178	0.0465029	3.0331807	31	1	44 days	0.92			Williams		1997 UN_{10}
1997 UP_{10}	15.5	0.15	19971108	91.65329	208.69810	83.07288	6.75192	0.0651130	2.6988284	16	1	34 days	0.88			Williams		1997 UP_{10}
1997 UQ_{10}	15.5	0.15	19971108	9.48720	233.01621	145.24031	4.79345	0.2526321	2.6060710	27	1	25 days	0.31			Williams		1997 UQ_{10}
1997 US_{10}	14.0	0.15	19971108	292.80647	198.94870	227.73334	10.64701	0.0525158	2.8443679	11	1	21 days	0.43			Williams		1997 US_{10}
1997 UU_{10}	15.0	0.15	19971108	282.84238	112.08395	22.02402	4.00569	0.1490618	2.4325077	15	1	20 days	0.44			Williams		1997 UU_{10}
1997 UW_{10}	14.5	0.15	19971108	15.18177	4.02511	5.92615	6.66780	0.2009733	2.3632556	19	1	23 days	0.75			Williams		1997 UW_{10}
1997 UZ_{10}	23.0	0.15	19971019	357.64549	358.78941	38.82724	12.74797	0.6165764	2.8578542	41	1	14 days	1.25			Williams		1997 UZ_{10}
1997 UA_{11}	25.0	0.15	19971019	6.20383	138.06830	212.88695	3.29729	0.6217285	2.3833092	20	1	10 days	0.99			Marsden		1997 UA_{11}
1997 UB_{11}	12.2	0.15	19971108	332.13568	28.64970	0.59843	21.36749	0.0439852	3.2204439	8	1	23 days	0.46			Nakano		1997 UB_{11}
1997 UC_{11}	13.9	0.15	19971108	68.86569	264.53859	7.53697	23.21137	0.2101535	2.3636699	11	1	23 days	0.31			Nakano		1997 UC_{11}
1997 UH_{11}	15.5	0.15	19971108	33.97969	281.69085	51.31492	9.72065	0.3000733	2.3456108	23	1	38 days	0.36			Williams		1997 UH_{11}
1997 UJ_{11}	13.0	0.15	19971218	315.74559	76.33094	49.38259	23.00199	0.1961696	2.3280363	24	2	1990–1997	0.43	M-v	5	Williams	30887	1997 UJ_{11}

1997 UX_{13}	15.5	0.15	19971108	358.83788	349.33279	60.55829	10.79098	0.1288752	3.1628809	12	1	45 days	0.09			Williams		1997 UX_{13}
1997 UV_{14}	13.5	0.15	19971218	77.46950	137.30395	201.61597	8.10361	0.0281558	2.8798449	21	2	1992–1997	0.43	M-v	5	Williams	30887	1997 UV_{14}
1997 UW_{14}	14.0	0.15	19971108	3.75068	337.27967	50.14256	6.59943	0.1090974	3.1597815	14	1	18 days	0.80			Williams		1997 UW_{14}
1997 UX_{14}	15.0	0.15	19971108	2.69955	345.88218	43.13622	10.25468	0.1033348	2.7376524	20	1	20 days	0.59			Williams		1997 UX_{14}
1997 UZ_{14}	15.0	0.15	19971108	283.75714	87.14768	48.36392	4.33901	0.1316918	2.3504334	34	1	33 days	0.70			Williams		1997 UZ_{14}
1997 UA_{15}	16.0	0.15	19971108	8.61808	338.92200	53.08129	2.96430	0.1845043	2.2472822	39	1	40 days	1.11			Williams		1997 UA_{15}
1997 UB_{15}	15.0	0.15	19971218	350.03050	13.64313	54.76419	1.57666	0.0627301	2.3758968	19	1	73 days	0.87	M-v	5	Williams		1997 UB_{15}
1997 UE_{15}	15.0	0.15	19971019	225.83399	310.56433	227.02503	10.61998	0.0866182	2.5209390	22	1	10 days	0.25			Marsden		1997 UE_{15}
1997 UF_{15}	16.0	0.15	19971128	25.57001	337.70786	35.46797	12.26508	0.2518791	2.4554705	46	1	34 days	0.73			Nakano		1997 UF_{15}
1997 UG_{15}	14.6	0.15	19971108	350.42689	287.12829	134.55548	2.74403	0.1592050	2.4485069	6	1	5 days	0.45			Nakano		1997 UG_{15}
1997 UH_{15}	12.8	0.15	19971108	237.13777	335.44573	209.77487	10.17890	0.1460612	2.9618981	8	1	5 days	0.73		E	Nakano		1997 UH_{15}
1997 UL_{16}	13.0	0.15	19971019	273.10658	219.33323	264.40196	0.45048	0.0117234	5.2390135	12	1	40 days	0.19			Williams		1997 UL_{16}
1997 UQ_{17}	15.0	0.15	19971108	14.47738	333.11312	57.71923	11.77866	0.0838799	3.0804738	20	1	43 days	0.41			Williams		1997 UQ_{17}
1997 UR_{17}	16.0	0.15	19971108	90.40990	248.40702	60.95139	10.97984	0.0780132	3.0709794	12	1	43 days	0.32			Williams		1997 UR_{17}
1997 UW_{17}	14.0	0.15	19971108	162.92596	188.08726	55.37557	8.62013	0.0248243	2.5549533	12	1	40 days	0.21			Williams		1997 UW_{17}
1997 UW_{18}	13.0	0.15	19971108	261.63217	86.69520	62.75844	9.22582	0.0126199	3.3995090	18	1	40 days	0.78			Williams		1997 UW_{18}
1997 UL_{19}	14.5	0.15	19971108	268.35439	47.40773	106.50718	3.48203	0.0995159	3.9170325	9	1	23 days	0.20			Williams		1997 UL_{19}
1997 UR_{20}	14.5	0.15	19971019	350.27420	136.17597	262.43931	3.75419	0.1487478	3.1050361	12	1	42 days	0.34			Williams		1997 UR_{20}
1997 US_{20}	16.0	0.15	19971019	327.42884	83.48682	351.41476	4.65356	0.2090775	2.5434267	12	1	16 days	0.28			Williams		1997 US_{20}
1997 UC_{21}	14.5	0.15	19971019	19.32739	352.40581	11.32830	7.04671	0.1303606	2.3802743	20	1	48 days	0.64			Williams		1997 UC_{21}
1997 UD_{21}	14.0	0.15	19971108	38.35155	356.54102	345.52292	4.70101	0.1594930	3.1816112	16	1	19 days	0.33			Williams		1997 UD_{21}
1997 UE_{21}	14.3	0.15	19971108	282.95914	110.64160	9.94035	12.49613	0.1530521	3.1485773	12	1	44 days	0.79			Nakano		1997 UE_{21}
1997 UF_{21}	16.6	0.15	19971128	351.29378	209.17957	198.99444	3.52440	0.1525538	2.2654102	15	1	37 days	0.38			Nakano		1997 UF_{21}
1997 UJ_{21}	13.5	0.15	19971019	44.32401	39.75206	259.32168	4.39017	0.3809813	3.6392786	9	1	32 days	0.57			Williams		1997 UJ_{21}
1997 UM_{21}	15.6	0.15	19971108	219.24116	143.57580	27.26435	5.27110	0.0735759	2.2164940	14	1	37 days	0.29			Nakano		1997 UM_{21}
1997 UT_{21}	14.0	0.15	19971019	22.48358	328.47233	25.44347	11.68821	0.1309517	2.9596461	11	1	11 days	0.96			Williams		1997 UT_{21}
1997 UU_{21}	13.5	0.15	19971019	284.59357	92.95956	56.79331	7.01108	0.2582689	2.6157176	10	1	8 days	1.07		E	Williams		1997 UU_{21}
1997 UY_{21}	13.0	0.15	19971108	43.37803	81.75392	258.24328	11.64658	0.2699757	2.9380888	12	1	35 days	0.56			Williams		1997 UY_{21}
1997 UZ_{21}	14.0	0.15	19971108	45.48740	176.42366	165.85542	3.96913	0.2079541	2.2224400	11	1	32 days	0.43			Williams		1997 UZ_{21}
1997 UA_{22}	15.0	0.15	19971108	35.20468	252.16018	106.67103	5.78660	0.2020224	2.2911182	15	1	34 days	0.76			Williams		1997 UA_{22}
1997 UF_{22}	15.5	0.15	19971108	350.63774	251.31327	158.70999	3.60304	0.0820929	2.4237639	10	1	28 days	0.61			Williams		1997 UF_{22}
1997 UG_{22}	15.0	0.15	19971108	328.71568	15.26990	60.11335	7.57344	0.0808222	2.3643539	9	1	24 days	0.53			Williams		1997 UG_{22}
1997 UH_{22}	13.8	0.15	19971108	37.06972	180.26203	171.67010	5.40821	0.1261744	2.8471577	7	1	24 days	0.71			Nakano		1997 UH_{22}
1997 UJ_{22}	15.5	0.15	19971108	20.47972	193.24060	172.74690	4.73946	0.2462146	2.6079081	7	1	24 days	0.46			Nakano		1997 UJ_{22}
1997 UL_{22}	15.5	0.15	19971108	79.64585	192.16377	114.91363	3.59374	0.1134200	2.2125719	14	1	28 days	1.14			Williams		1997 UL_{22}
1997 UP_{22}	14.5	0.15	19971108	73.48197	294.80510	6.98230	6.05060	0.1768667	2.2882380	21	1	34 days	0.60			Williams		1997 UP_{22}
1997 UD_{24}	16.0	0.15	19971108	55.44525	14.42118	321.24704	4.04099	0.1123981	2.3785527	19	1	32 days	0.78			Williams		1997 UD_{24}
1997 UE_{24}	17.5	0.15	19971108	56.51949	3.75639	324.41779	2.72094	0.1898643	2.1458973	9	1	31 days	0.20			Williams		1997 UE_{24}
1997 UO_{24}	15.0	0.15	19971019	89.35126	338.31350	278.09945	1.57559	0.1219545	2.6587489	15	1	6 days	0.34			Williams		1997 UO_{24}
1997 UP_{24}	17.0	0.15	19971019	7.03493	139.98513	212.02985	3.20645	0.2153888	2.6511863	17	1	3 days	0.57		E	Williams		1997 UP_{24}
1997 UQ_{24}	16.5	0.15	19971019	346.25691	64.12122	316.32986	1.83450	0.1315843	2.5311503	19	1	3 days	0.41		E	Williams		1997 UQ_{24}
1997 UR_{24}	16.0	0.15	19971019	34.54355	318.22582	353.86287	10.96063	0.1607272	3.1692079	10	1	2 days	0.40		E	Williams		1997 UR_{24}
1997 US_{24}	18.0	0.15	19971019	3.43922	144.03878	214.89074	3.16869	0.1941826	2.4481974	9	1	2 days	0.27		E	Williams		1997 US_{24}
1997 UB_{25}	13.5	0.15	19971108	46.89099	74.50233	262.66532	4.04903	0.2181554	2.2028350	21	1	27 days	1.14			Williams		1997 UB_{25}
1997 VC	16.5	0.15	19971108	358.50334	202.09267	211.06982	1.58629	0.2026640	2.4165848	19	1	22 days	0.31			Marsden		1997 VC
1997 VD	16.5	0.15	19971019	300.37191	32.79255	81.26805	2.87579	0.1557797	2.3194608	12	1	9 days	0.23			Marsden		1997 VD
1997 VE	14.0	0.15	19971108	140.12284	264.65884	346.32774	1.71893	0.1569287	2.6167468	21	1	21 days	0.32			Marsden		1997 VE
1997 VF	17.0	0.15	19971019	15.25153	310.05193	60.82110	5.54930	0.2447811	2.3141549	19	1	9 days	0.20			Marsden		1997 VF
1997 VG	22.0	0.15	19971019	4.39783	154.47751	219.56034	30.98854	0.4030624	1.7541491	78	1	8 days	0.81			Marsden		1997 VG
1997 VH	14.6	0.15	19971128	16.22955	6.77534	23.01781	5.87729	0.2094863	2.6019378	29	1	31 days	0.45			Nakano		1997 VH
1997 VJ	12.6	0.15	19971108	57.30518	283.14071	47.74214	23.61299	0.2297923	2.3166330	12	1	31 days	0.20			Nakano		1997 VJ
1997 VK	16.0	0.15	19971108	15.77392	171.68767	218.64739	5.36111	0.1053180	2.3554759	28	1	39 days	0.35			Williams		1997 VK
1997 VP	15.9	0.15	19971128	98.78708	63.34677	231.55191	6.39519	0.1186903	2.3144272	26	1	33 days	0.49			Nakano		1997 VP

1997 VQ	13.0	0.15	19971019	30.63905	161.34333	207.80238	9.20495	0.0946253	3.0652666	12	1	15 days	0.52			Williams		1997 VQ
1997 VR	15.5	0.15	19971019	22.91791	194.36271	172.98107	2.98793	0.1871355	2.2605353	12	1	15 days	0.39			Williams		1997 VR
1997 VU	15.5	0.15	19971019	314.44221	241.65785	211.02635	13.91458	0.0904539	2.6402127	9	1	11 days	0.24			Williams		1997 VU
1997 VV	12.0	0.15	19971108	353.61081	161.43512	241.62357	12.62005	0.0666037	3.1705303	17	1	35 days	0.58			Williams		1997 VV
1997 VW	13.0	0.15	19971108	239.45396	289.68630	255.85787	10.90531	0.1092490	2.6778792	18	1	36 days	0.71			Williams		1997 VW
1997 VZ	12.5	0.15	19971108	355.06922	18.47774	45.55921	7.02537	0.1803941	3.0239066	15	1	33 days	0.47			Williams		1997 VZ
1997 VA_1	15.5	0.15	19971019	26.26766	22.10382	317.68713	1.58996	0.1943680	2.2471853	16	1	2 days	0.53		E	Marsden		1997 VA_1
1997 VB_1	11.5	0.15	19971108	264.94624	163.95322	342.96172	3.84896	0.0780828	5.2023149	22	1	38 days	0.59			Marsden		1997 VB_1
1997 VF_1	13.5	0.15	19971019	348.59498	22.58452	4.00831	15.59094	0.2971956	2.8979102	12	1	48 days	0.17			Williams		1997 VF_1
1997 VH_1	14.1	0.15	19971108	3.39653	93.76073	301.06475	13.11459	0.0842979	2.6064805	8	1	18 days	0.74			Nakano		1997 VH_1
1997 VJ_1	12.9	0.15	19971108	194.50943	253.45472	312.33559	14.38667	0.0659233	2.6199199	8	1	18 days	0.32			Nakano		1997 VJ_1
1997 VK_1	15.1	0.15	19971108	341.68886	53.79277	15.42826	2.52830	0.2927041	2.1601567	5	1	4 days	0.69		E	Asher		1997 VK_1
1997 VL_1	15.5	0.15	19971108	321.74568	50.11441	41.19415	6.62658	0.1496206	2.3504985	25	1	34 days	0.83			Williams		1997 VL_1
1997 VM_1	14.0	0.15	19971019	50.28077	272.16816	67.45130	9.12931	0.1508684	3.1202370	14	1	5 days	1.17		E	Williams		1997 VM_1
1997 VO_1	13.5	0.15	19971108	34.62230	307.28251	46.50775	14.29683	0.1780578	2.6775494	45	1	34 days	1.01			Williams		1997 VO_1
1997 VR_1	16.0	0.15	19971108	34.58715	304.35556	50.82841	23.38952	0.2208417	2.3220399	19	1	27 days	1.23			Williams		1997 VR_1
1997 VS_1	14.5	0.15	19971108	19.18556	317.84027	20.40305	14.04201	0.1063329	2.3258842	10	1	29 days	0.68			Williams		1997 VS_1
1997 VT_1	16.0	0.15	19971108	41.82870	133.29198	221.53188	3.78036	0.1616651	2.2673864	13	1	19 days	0.36			Marsden		1997 VT_1
1997 VV_1	11.5	0.15	19971108	343.42474	16.05989	20.32511	4.66211	0.1500520	5.2537731	15	1	21 days	0.43		E	Williams		1997 VV_1
1997 VX_1	15.5	0.15	19971108	20.20999	328.65862	53.20227	15.29300	0.1650241	2.7795909	14	1	17 days	0.15			Marsden		1997 VX_1
1997 VZ_1	15.0	0.15	19971108	18.67667	141.04061	247.98750	6.18492	0.1382143	2.4714394	16	1	33 days	0.63			Williams		1997 VZ_1
1997 VC_2	13.5	0.15	19971108	342.95333	195.22009	235.78015	9.59565	0.0886492	3.0174826	18	1	36 days	0.59			Williams		1997 VC_2
1997 VD_2	14.0	0.15	19971108	21.20196	45.20701	340.13328	2.99039	0.1631213	2.5166567	8	1	18 days	0.52			Nakano		1997 VD_2
1997 VE_2	14.5	0.15	19971108	308.62133	289.29524	195.17851	4.69045	0.2125750	2.4940507	6	1	8 days	0.19			Nakano		1997 VE_2
1997 VG_2	15.0	0.15	19971218	2.05797	148.90621	278.70916	2.29832	0.2057050	2.3783124	15	2	1986–1997	0.69	M-v	5	Williams	30887	1997 VG_2
1997 VH_2	15.0	0.15	19971108	33.86180	340.19587	24.83132	4.53976	0.1931615	2.2692423	11	1	19 days	0.41			Nakano		1997 VH_2
1997 VM_2	13.0	0.15	19971218	125.32979	77.64773	186.83890	10.20616	0.0165544	3.0821042	21	2	1981–1997	0.48	M-v	6	Williams	30887	1997 VM_2
1997 VP_2	15.5	0.15	19971108	302.45439	264.72479	205.78251	14.85601	0.1581434	2.5761087	17	1	15 days	0.59			Williams		1997 VP_2
1997 VQ_2	14.0	0.15	19971108	13.05069	17.57004	326.00294	11.82391	0.2134795	2.6262378	15	1	20 days	0.40			Williams		1997 VQ_2
1997 VR_2	14.0	0.15	19971108	53.04710	17.41738	283.11518	8.24247	0.0574496	2.5666034	12	1	20 days	0.41			Williams		1997 VR_2
1997 VS_2	14.0	0.15	19971019	350.80327	87.61055	279.86020	7.74511	0.1637831	2.8660720	12	1	2 days	0.37		E	Williams		1997 VS_2
1997 VV_2	15.0	0.15	19971108	351.15933	195.78655	199.68092	9.38494	0.1621512	2.5574199	8	1	15 days	0.40			Williams		1997 VV_2
1997 VY_2	13.9	0.15	19971108	17.58682	254.83826	108.92415	2.36876	0.1480637	2.6204849	12	1	6 days	0.25			Asher		1997 VY_2
1997 VB_3	15.0	0.15	19971108	351.61777	4.84739	62.36424	4.51865	0.1982731	2.3506474	19	1	29 days	0.52			Williams		1997 VB_3
1997 VC_3	14.3	0.15	19971128	13.21171	163.14648	237.25600	3.46511	0.3155190	2.6519622	10	1	24 days	0.39			Nakano		1997 VC_3
1997 VE_3	13.5	0.15	19971108	74.11352	103.73395	232.05109	9.56204	0.1145321	2.9739059	18	1	28 days	0.65			Williams		1997 VE_3
1997 VH_3	13.5	0.15	19971128	35.87012	333.27450	54.78068	3.75690	0.0413418	2.6171341	12	1	24 days	0.51			Nakano		1997 VH_3
1997 VJ_3	14.0	0.15	19971108	12.96800	173.82731	228.51862	3.42013	0.0804537	2.6821486	18	1	28 days	0.58			Williams		1997 VJ_3
1997 VK_3	14.0	0.15	19971108	324.22166	292.86530	180.92134	2.47609	0.1952914	3.0033494	19	1	29 days	0.68			Williams		1997 VK_3
1997 VL_3	16.0	0.15	19971108	353.28447	337.41482	88.19454	3.35436	0.2294205	2.3411366	18	1	28 days	0.47			Williams		1997 VL_3
1997 VM_3	14.0	0.15	19971108	251.77497	93.48241	79.13242	7.25709	0.0568861	2.7416232	18	1	28 days	0.93			Williams		1997 VM_3
1997 VO_3	16.0	0.15	19971108	342.16566	2.79488	82.14307	2.67038	0.1902653	2.3078616	14	1	28 days	0.57			Williams		1997 VO_3
1997 VP_3	11.8	0.15	19971128	205.03326	346.41721	241.34383	18.05073	0.1155601	3.1883017	11	1	24 days	0.51			Nakano		1997 VP_3
1997 VQ_3	14.5	0.15	19971019	24.45377	144.73961	231.32699	8.69573	0.1809537	2.7124384	25	1	56 days	0.53			Williams		1997 VQ_3
1997 VR_3	13.5	0.15	19971108	34.91038	133.53501	234.82301	0.86364	0.2096931	2.6019155	14	1	28 days	0.48			Williams		1997 VR_3
1997 VS_3	14.0	0.15	19971108	9.35262	329.39772	72.20677	3.45572	0.2018212	2.3699956	15	1	28 days	0.46			Williams		1997 VS_3
1997 VV_3	14.3	0.15	19971128	20.67490	333.96728	61.94412	15.09545	0.1504926	2.5758101	10	1	24 days	0.42			Nakano		1997 VV_3
1997 VW_3	13.0	0.15	19971108	38.57423	219.19269	154.72119	2.51731	0.0862929	2.8431180	15	1	28 days	0.46			Williams		1997 VW_3
1997 VY_3	15.0	0.15	19971108	44.76926	96.92397	242.24396	7.97966	0.2567414	2.4124227	18	1	37 days	0.66			Williams		1997 VY_3
1997 VA_4	14.5	0.15	19971108	357.93677	279.46666	176.47971	7.47889	0.2206710	3.1016607	10	1	22 days	0.32			Marsden		1997 VA_4
1997 VB_4	15.0	0.15	19971108	296.60321	108.35588	60.29714	7.85786	0.0774424	2.3213806	10	1	22 days	0.10			Marsden		1997 VB_4
1997 VE_4	14.0	0.15	19971108	46.09596	108.57532	235.15846	10.65964	0.3034823	2.5880389	19	1	30 days	0.79			Williams		1997 VE_4
1997 VF_4	15.0	0.15	19971108	315.72992	36.51857	80.45654	3.12528	0.1388971	2.4207572	18	1	28 days	0.63			Williams		1997 VF_4

1997 VM_4	18.0	0.15	19971218	347.06054	124.33457	46.01453	14.12872	0.8129248	2.6188259	106	1	31 days	0.67	M-v	6	Williams		1997 VM_4
1997 VN_4	23.5	0.15	19971108	1.67734	350.47863	48.59916	7.58740	0.5595512	2.4418403	106	1	6 days	0.96			Williams		1997 VN_4
1997 VO_4	14.5	0.15	19971108	22.54609	331.59424	35.45723	29.92331	0.1599953	2.6083363	9	1	15 days	0.48			Williams		1997 VO_4
1997 VV_4	16.0	0.15	19971108	14.31195	176.46538	205.71274	2.07219	0.2228347	2.5843154	23	1	25 days	0.76			Williams		1997 VV_4
1997 VW_4	13.5	0.15	19971108	237.26248	128.29521	49.73032	14.08960	0.1150764	2.5733511	11	1	31 days	0.60			Williams		1997 VW_4
1997 VX_4	14.5	0.15	19971218	355.58184	345.64239	80.25285	1.25544	0.2527230	3.0455374	18	1	63 days	0.66	M-v	5	Williams		1997 VX_4
1997 VY_4	16.0	0.15	19971019	351.05259	4.64281	48.18019	13.80750	0.2487299	2.4143332	26	1	16 days	0.81			Williams		1997 VY_4
1997 VZ_4	14.4	0.15	19971108	75.19560	260.91916	54.97255	5.90488	0.1921689	2.2676226	6	1	14 days	0.50			Nakano		1997 VZ_4
1997 VC_5	14.0	0.15	19971108	85.61666	266.43012	63.57304	10.60590	0.0891182	3.0799804	13	1	15 days	0.28			Williams		1997 VC_5
1997 VG_5	15.0	0.15	19971108	21.48636	311.85636	60.67155	7.38950	0.1754482	2.3135588	30	1	36 days	0.59			Williams		1997 VG_5
1997 VH_5	15.0	0.15	19971108	16.22888	333.90945	65.31519	7.18402	0.1575109	2.3304386	19	1	26 days	0.61			Williams		1997 VH_5
1997 VJ_5	14.2	0.15	19971128	108.76840	57.02902	246.06408	3.90791	0.1769120	2.3050854	13	1	25 days	0.83			Nakano		1997 VJ_5
1997 VL_5	12.8	0.15	19971128	140.17781	230.69155	49.03028	8.27240	0.1615177	2.3157804	8	1	25 days	0.35			Nakano		1997 VL_5
1997 VN_5	14.4	0.15	19971128	12.03018	345.37709	66.93627	8.82751	0.1875060	2.6052863	8	1	25 days	0.36			Nakano		1997 VN_5
1997 VO_5	13.6	0.15	19971128	61.45905	270.52202	65.33747	13.21938	0.2872699	2.6877941	8	1	25 days	0.36			Nakano		1997 VO_5
1997 VP_5	14.3	0.15	19971128	291.45003	261.88490	243.78193	5.49638	0.0670430	2.1843112	8	1	25 days	0.52			Nakano		1997 VP_5
1997 VR_5	15.5	0.15	19971108	356.38861	182.80695	245.85400	4.80754	0.1472124	2.5792889	13	1	26 days	0.62			Williams		1997 VR_5
1997 VT_5	12.9	0.15	19971128	102.73470	255.19739	53.80946	9.95153	0.1857249	2.6504661	8	1	25 days	0.35			Nakano		1997 VT_5
1997 VX_5	13.0	0.15	19971218	100.28677	156.81495	166.67570	10.67417	0.0532314	2.5365383	21	4	1980–1997	0.31	M-v	1	Williams	30887	1997 VX_5
1997 VZ_5	14.4	0.15	19971128	348.99553	18.66372	72.35838	6.51276	0.2241725	2.6333060	8	1	24 days	0.40			Nakano		1997 VZ_5
1997 VA_6	13.3	0.15	19971128	337.04370	214.53515	246.36404	7.86618	0.0989394	2.2997777	9	1	24 days	0.42			Nakano		1997 VA_6
1997 VB_6	14.1	0.15	19971128	33.25632	141.70410	250.08977	1.84481	0.1064689	2.1857976	8	1	24 days	0.41			Nakano		1997 VB_6
1997 VD_6	11.9	0.15	19971128	265.21868	96.40962	80.44404	10.76587	0.0606725	3.0441428	8	1	24 days	0.32			Nakano		1997 VD_6
1997 VF_6	11.8	0.15	19971128	285.03868	272.30725	251.57528	11.55945	0.1272539	2.5796220	8	1	24 days	0.09			Nakano		1997 VF_6
1997 VG_6	19.5	0.15	19971108	39.22389	250.53234	51.99317	18.51167	0.5637518	1.6083857	49	1	15 days	0.57			Williams		1997 VG_6
1997 VH_6	14.5	0.15	19971108	82.96092	266.49095	49.51822	4.77881	0.0435316	2.6384741	23	1	37 days	1.13			Williams		1997 VH_6
1997 VJ_6	14.5	0.15	19971108	341.31160	78.63757	6.22033	4.35183	0.1122349	2.5584846	14	1	10 days	0.14			Williams		1997 VJ_6
1997 VL_6	15.0	0.15	19971108	359.47736	159.10654	257.42596	16.90372	0.1202601	2.7989970	14	1	6 days	0.28		E	Williams		1997 VL_6
1997 VM_6	13.0	0.15	19971108	21.88744	161.46859	284.66947	12.39665	0.1340725	2.6301924	10	1	9 days	0.49			Williams		1997 VM_6
1997 VQ_6	14.5	0.15	19971108	5.25150	341.87155	55.22100	2.13483	0.2803508	3.0889258	21	1	33 days	0.83			Williams		1997 VQ_6
1997 VR_6	16.5	0.15	19971108	0.88774	336.86865	65.27210	4.85058	0.1654289	2.2051571	11	1	12 days	0.27			Marsden		1997 VR_6
1997 VS_6	15.5	0.15	19971108	172.60505	340.95670	244.31085	5.20913	0.0101435	2.3450699	18	1	37 days	0.51			Williams		1997 VS_6
1997 VV_6	15.0	0.15	19971108	346.52793	213.12609	217.06073	7.05402	0.1716044	2.5961585	9	1	19 days	1.62			Williams		1997 VV_6
1997 VW_6	15.0	0.15	19971108	19.32124	116.49641	269.13326	0.80987	0.1212441	2.9337376	11	1	21 days	0.36			Williams		1997 VW_6
1997 VX_6	15.8	0.15	19971108	317.88379	69.84250	42.93393	3.11108	0.2212751	2.4674963	8	1	13 days	0.30			Nakano		1997 VX_6
1997 VY_6	13.7	0.15	19971108	332.40138	199.24196	246.55633	1.75741	0.1222977	2.9876052	8	1	13 days	0.55		E	Nakano		1997 VY_6
1997 VZ_6	15.0	0.15	19971019	29.36795	152.06456	204.14307	2.47309	0.1836532	2.5722040	21	1	11 days	0.91			Williams		1997 VZ_6
1997 VA_7	13.5	0.15	19971108	80.91701	62.00743	222.51739	18.38623	0.1293206	2.6735338	11	1	4 days	0.71		E	Williams		1997 VA_7
1997 VB_7	14.5	0.15	19971019	325.17864	234.36648	211.67769	8.74390	0.1018519	2.7167427	9	1	6 days	1.01			Williams		1997 VB_7
1997 VE_7	14.0	0.15	19971108	254.95386	255.43697	256.08235	4.90929	0.1539446	2.4370261	9	1	17 days	0.30			Williams		1997 VE_7
1997 VF_7	14.5	0.15	19971108	334.62816	210.38755	236.13257	8.32376	0.2041301	3.0300199	24	1	33 days	0.58			Williams		1997 VF_7
1997 VG_7	15.0	0.15	19971108	27.25949	88.64896	279.23891	1.25562	0.1933712	2.5252041	18	1	28 days	0.63			Williams		1997 VG_7
1997 VP_7	14.0	0.15	19971019	303.40093	231.82898	260.10311	6.73509	0.1897907	2.8213834	13	1	6 days	0.26		E	Williams		1997 VP_7
1997 VQ_7	15.5	0.15	19971019	5.46814	96.19871	307.42087	1.91209	0.1300225	2.3724307	10	1	5 days	0.35		E	Williams		1997 VQ_7
1997 VR_7	12.0	0.15	19971108	111.20725	255.98563	46.34795	10.23391	0.0841790	3.0515088	12	1	18 days	0.16			Williams		1997 VR_7
1997 VV_7	15.0	0.15	19971108	66.12569	289.79444	46.65475	12.84226	0.1638155	2.7133899	12	1	29 days	0.30			Williams		1997 VV_7
1997 VY_7	14.0	0.15	19971019	173.54094	212.28197	15.83195	3.21346	0.0679919	2.2406701	10	1	9 days	0.79			Williams		1997 VY_7
1997 VZ_7	12.0	0.15	19971108	23.19151	339.59332	47.47862	13.79715	0.1656852	2.6846193	15	1	25 days	0.15			Williams		1997 VZ_7
1997 VA_8	13.5	0.15	19971108	102.34212	265.07451	39.88615	7.65591	0.1025354	2.3568617	10	1	13 days	0.36			Williams		1997 VA_8
1997 VE_8	13.5	0.15	19971108	82.94942	333.35970	342.36890	3.11304	0.1962656	2.6747657	9	1	14 days	0.46			Williams		1997 VE_8
1997 VJ_8	14.0	0.15	19971108	335.72551	238.80605	203.02209	1.61327	0.1767747	2.3943225	14	1	32 days	0.43			Williams		1997 VJ_8
1997 VL_8	15.0	0.15	19971019	358.86466	28.89260	21.82814	4.40445	0.2598386	2.6292122	15	1	47 days	0.42			Williams		1997 VL_8
1997 VQ_8	15.5	0.15	19971108	30.94216	327.21646	36.14794	7.60754	0.1884788	2.4296802	9	1	25 days	0.22			Williams		1997 VQ_8

1997 VR_8	14.5	0.15	19971108	179.45803	351.53565	237.45602	8.08472	0.0256958	2.7141962	11	1	28 days	0.39		Williams	1997 VR_8
1997 VU_8	12.5	0.15	19971108	12.85609	163.73635	256.53651	12.37875	0.1568873	2.5805812	13	1	18 days	0.48		Williams	1997 VU_8
1997 VV_8	16.5	0.15	19971108	37.92754	88.16685	272.10739	1.07869	0.1346139	2.2661045	6	1	18 days	0.37		Williams	1997 VV_8
1997 VW_8	15.5	0.15	19971108	27.24744	137.58774	232.38627	9.72473	0.1864933	2.7019460	11	1	35 days	0.19		Williams	1997 VW_8
1997 VX_8	12.5	0.15	19971108	26.02901	302.97401	66.89200	14.09803	0.1865282	2.6458021	16	1	17 days	0.92		Williams	1997 VX_8
1997 WC	15.0	0.15	19971108	48.67592	107.68808	249.30198	5.96340	0.1480163	2.2785163	13	1	16 days	1.18		Williams	1997 WC
1997 WD	12.9	0.15	19971128	348.83853	20.24645	59.64558	15.32764	0.0569831	2.6106136	8	1	16 days	0.32		Nakano	1997 WD
1997 WE	14.5	0.15	19971108	217.99016	172.47310	31.10167	2.98691	0.0106492	2.1485153	14	1	16 days	0.83		Williams	1997 WE
1997 WF	16.2	0.15	19971128	335.69869	222.21983	257.69942	5.04688	0.3730699	2.3715337	12	1	15 days	0.41		Nakano	1997 WF
1997 WG	13.5	0.15	19971108	45.57551	315.52688	42.87562	5.08681	0.1842225	2.5807151	13	1	16 days	0.62		Williams	1997 WG
1997 WJ	14.0	0.15	19971108	353.79688	7.96767	60.09538	7.41982	0.1749353	2.3294795	18	1	16 days	0.31		Williams	1997 WJ
1997 WK	12.2	0.15	19971128	205.17747	331.10760	255.31408	2.17722	0.0929122	2.6100976	8	1	16 days	0.54	E	Nakano	1997 WK
1997 WL	12.0	0.15	19971128	200.67466	166.26404	62.42453	7.82521	0.0426664	2.8011393	8	1	16 days	0.46		Nakano	1997 WL
1997 WM	12.5	0.15	19971108	293.20304	245.24761	253.94423	11.68164	0.0867295	2.7717551	13	1	16 days	0.71		Williams	1997 WM
1997 WN	13.0	0.15	19971128	30.44891	136.43877	248.01526	17.11462	0.1802970	3.0967724	8	1	16 days	0.20		Nakano	1997 WN
1997 WO	13.5	0.15	19971108	310.92919	65.95256	56.68291	3.58347	0.1262151	2.4222204	12	1	16 days	0.54		Williams	1997 WO
1997 WP	15.1	0.15	19971128	26.03265	95.70975	294.23977	1.80799	0.1823965	2.4019381	8	1	16 days	0.38		Nakano	1997 WP
1997 WQ	12.0	0.15	19971108	89.73179	257.57159	54.65155	12.68640	0.1994508	2.6411204	13	1	16 days	0.52		Williams	1997 WQ
1997 WR	13.6	0.15	19971128	2.60263	13.06880	50.48511	3.75400	0.1535182	2.6104397	8	1	16 days	0.30		Nakano	1997 WR
1997 WS	15.0	0.15	19971108	31.45803	320.06710	36.58268	14.73317	0.1435851	2.5677982	11	1	6 days	0.15		Marsden	1997 WS
1997 WW	16.5	0.15	19971128	20.30385	318.04533	48.92829	13.52093	0.3420642	3.3124798	12	1	15 days	0.51		Williams	1997 WW
1997 WX	14.5	0.15	19971108	344.34272	28.34914	9.28733	8.01006	0.0680007	2.3385940	14	1	33 days	0.98		Williams	1997 WX
1997 WL_1	13.5	0.15	19971108	280.14099	248.94566	269.81248	9.27292	0.1642295	2.6466813	16	1	12 days	0.34		Williams	1997 WL_1
1997 WM_1	12.0	0.15	19971108	342.10549	167.50084	273.52870	8.46618	0.0658067	3.0622704	13	1	12 days	0.20		Williams	1997 WM_1
1997 WO_1	15.0	0.15	19971108	289.35547	237.75964	253.32780	1.30033	0.1079699	2.4177931	17	1	26 days	0.38		Williams	1997 WO_1
1997 WP_1	14.0	0.15	19971108	59.83599	73.67216	261.33158	0.98234	0.1267672	2.8741797	16	1	10 days	0.44		Williams	1997 WP_1
1997 WQ_1	16.0	0.15	19971108	338.98017	197.30060	235.52755	18.26817	0.0847553	1.9250845	11	1	10 days	0.23		Williams	1997 WQ_1
1997 WS_1	16.5	0.15	19971218	26.96308	333.59383	47.37275	2.58868	0.2115940	2.5827714	20	1	86 days	0.54	M-v 5	Williams	1997 WS_1
1997 WT_1	13.7	0.15	19971128	92.44734	284.07602	38.70874	3.70468	0.1107326	2.8072291	8	1	13 days	0.47		Nakano	1997 WT_1
1997 WU_1	13.5	0.15	19971108	88.67321	231.90769	73.52524	13.79550	0.2510514	2.3614713	13	1	15 days	0.87		Williams	1997 WU_1
1997 WV_1	13.6	0.15	19971128	266.42772	247.04656	288.68619	3.58343	0.1071068	2.2918658	6	1	8 days	0.31		Nakano	1997 WV_1
1997 WW_1	14.3	0.15	19971128	340.34680	122.07935	334.83314	2.15941	0.1566798	2.4106899	6	1	14 days	0.24		Nakano	1997 WW_1
1997 WX_1	15.5	0.15	19971108	82.90387	319.98587	331.80672	2.06028	0.2019772	2.6621621	9	1	3 days	0.48	E	Williams	1997 WX_1
1997 WY_1	16.5	0.15	19971108	20.30932	136.85818	238.26793	5.26509	0.0738848	2.4796896	7	1	3 days	0.57	E	Williams	1997 WY_1
1997 WZ_1	14.9	0.15	19971128	77.15038	125.31628	177.58454	4.64965	0.2235309	2.2207627	6	1	5 days	0.48	E	Nakano	1997 WZ_1
1997 WA_2	14.2	0.15	19971128	135.12826	137.12227	122.64500	3.58070	0.1224259	2.2858937	10	1	23 days	0.60		Nakano	1997 WA_2
1997 WC_2	14.0	0.15	19971108	357.08123	10.74450	40.52423	4.20595	0.1162717	3.0387228	24	1	32 days	0.53		Williams	1997 WC_2
1997 WE_2	13.4	0.15	19971128	42.60431	294.74813	75.04703	9.62471	0.2148866	2.3514354	12	1	12 days	0.44		Nakano	1997 WE_2
1997 WF_2	12.1	0.15	19971128	342.91290	225.18536	230.06333	4.82236	0.1820725	2.9075858	8	1	12 days	0.25		Nakano	1997 WF_2
1997 WG_2	14.1	0.15	19971128	318.97319	260.77850	223.84302	1.02308	0.1115610	2.2818722	8	1	12 days	0.45		Nakano	1997 WG_2
1997 WK_2	12.2	0.15	19971128	109.82279	237.84666	75.20750	7.29373	0.1419132	3.1464938	8	1	12 days	0.49		Nakano	1997 WK_2
1997 WL_2	13.5	0.15	19971128	100.53991	235.89625	71.25493	3.34441	0.2676978	2.1340267	8	1	12 days	0.49		Nakano	1997 WL_2
1997 WO_2	15.0	0.15	19971128	32.33360	293.04364	93.13703	6.94694	0.1555281	2.3474852	11	1	11 days	0.46		Williams	1997 WO_2
1997 WP_2	12.1	0.15	19971128	331.72731	22.26875	82.47968	10.88804	0.0970504	2.6179645	10	1	12 days	0.35		Nakano	1997 WP_2
1997 WR_2	13.5	0.15	19971128	10.08062	183.86723	239.50818	1.40371	0.0570069	2.2753936	8	1	12 days	0.30		Nakano	1997 WR_2
1997 WS_2	16.1	0.15	19971128	44.48602	298.29203	73.65735	2.75331	0.1847269	2.2096572	8	1	12 days	0.50		Nakano	1997 WS_2
1997 WT_2	13.5	0.15	19971128	346.46451	16.62603	73.49417	7.72401	0.0659155	2.2899157	8	1	12 days	0.41		Nakano	1997 WT_2
1997 WU_2	13.5	0.15	19971128	330.26050	24.80838	79.42900	21.11832	0.0557402	3.1547842	12	1	12 days	0.48		Williams	1997 WU_2
1997 WW_2	14.5	0.15	19971128	36.79612	47.91835	328.78018	1.29194	0.2354225	2.3547530	8	1	12 days	0.34		Nakano	1997 WW_2
1997 WX_2	13.5	0.15	19971128	347.39722	31.34361	56.96841	5.22861	0.0339536	2.2273324	8	1	12 days	0.35		Nakano	1997 WX_2
1997 WY_2	13.5	0.15	19971128	22.80628	12.44739	37.48951	2.79950	0.0703441	2.7675750	8	1	12 days	0.49		Nakano	1997 WY_2
1997 WZ_2	15.0	0.15	19971128	358.36838	3.41696	73.09237	4.66156	0.1523783	2.3178215	8	1	12 days	0.64		Nakano	1997 WZ_2
1997 WA_3	13.4	0.15	19971128	313.75897	68.21859	65.06697	2.46506	0.1104463	3.1264376	8	1	12 days	0.54		Nakano	1997 WA_3

1997 WB_3	16.0	0.15	19971128	14.27386	325.61219	81.38685	9.50700	0.2346838	2.3640500	13	1	12 days	0.36		Williams	1997 WB_3
1997 WC_3	14.5	0.15	19971128	62.51699	260.87900	92.50856	7.15724	0.1435971	2.4109860	12	1	12 days	0.98		Williams	1997 WC_3
1997 WD_3	12.3	0.15	19971128	46.27573	296.00827	82.90809	2.69325	0.1260822	2.9272101	8	1	12 days	0.48	E	Nakano	1997 WD_3
1997 WE_3	13.8	0.15	19971128	43.08385	85.14490	298.74627	0.87656	0.1143718	2.9201056	8	1	12 days	0.50		Nakano	1997 WE_3
1997 WF_3	14.1	0.15	19971128	71.70294	2.45257	339.41284	0.88102	0.1922999	2.3647701	8	1	12 days	0.50		Nakano	1997 WF_3
1997 WJ_3	13.0	0.15	19971128	32.16558	129.08380	223.93129	21.74911	0.0715972	5.2239885	12	1	14 days	0.35		Williams	1997 WJ_3
1997 WM_3	16.0	0.15	19971128	277.10127	107.50413	88.42651	8.50782	0.0774100	2.7017340	12	1	11 days	0.50		Williams	1997 WM_3
1997 WS_3	12.6	0.15	19971128	29.44753	326.12522	73.04294	12.39134	0.0907812	2.7914556	8	1	12 days	0.34		Nakano	1997 WS_3
1997 WU_3	14.5	0.15	19971108	232.92862	291.44568	241.52937	4.93020	0.0787920	2.2187588	12	1	7 days	0.27		Williams	1997 WU_3
1997 WY_3	18.5	0.15	19971108	1.89357	354.49790	43.15096	5.08737	0.2439410	2.5643590	11	1	33 days	0.24		Williams	1997 WY_3
1997 WJ_4	16.0	0.15	19971108	218.86677	144.38860	45.37884	12.66728	0.1146947	2.6066832	9	1	14 days	0.29		Williams	1997 WJ_4
1997 WP_4	17.0	0.15	19971108	14.54150	332.45423	51.29667	6.27631	0.1278601	2.5547730	9	1	14 days	0.33		Williams	1997 WP_4
1997 WE_5	17.0	0.15	19971128	243.22570	328.90164	213.35617	2.99457	0.0940633	2.1883282	9	1	15 days	0.25		Williams	1997 WE_5
1997 WG_5	15.5	0.15	19971108	113.14860	48.42792	228.11507	15.29927	0.2425294	3.0693732	9	1	6 days	0.22	E	Williams	1997 WG_5
1997 WJ_5	14.5	0.15	19971108	141.86839	103.52305	152.68897	1.71578	0.2492416	3.1252296	9	1	7 days	0.24		Williams	1997 WJ_5
1997 WK_5	16.0	0.15	19971108	136.06845	175.26655	83.57558	3.38301	0.2736205	2.2807546	9	1	6 days	0.22		Williams	1997 WK_5
1997 WL_5	16.5	0.15	19971108	62.11157	123.90592	218.17341	4.96635	0.0716206	2.7896468	9	1	6 days	0.27	E	Williams	1997 WL_5
1997 WM_5	15.5	0.15	19971108	150.14343	189.69749	63.29805	10.71043	0.1918457	2.7068213	9	1	7 days	0.08		Williams	1997 WM_5
1997 WO_5	17.5	0.15	19971108	21.76651	310.33255	70.77701	5.95929	0.1640673	2.7738551	9	1	7 days	0.15		Williams	1997 WO_5
1997 WQ_5	17.5	0.15	19971108	44.06557	223.46237	126.58936	1.47456	0.1854573	2.5621606	9	1	7 days	0.14		Williams	1997 WQ_5
1997 WR_5	14.5	0.15	19971108	201.91369	121.62561	89.00419	2.88991	0.0103183	2.6733093	15	1	37 days	0.38		Williams	1997 WR_5
1997 WS_5	17.0	0.15	19971108	36.43794	290.62146	70.32903	6.01968	0.1752313	2.7802746	9	1	7 days	0.11		Williams	1997 WS_5
1997 WT_5	14.5	0.15	19971108	124.45618	206.94723	76.08312	5.27178	0.0567644	3.0041528	9	1	7 days	0.14		Williams	1997 WT_5
1997 WX_5	16.5	0.15	19971108	40.46052	288.56733	62.34445	16.51143	0.2243025	3.1362376	9	1	7 days	0.14		Williams	1997 WX_5
1997 WZ_5	15.5	0.15	19971108	125.09243	83.84082	197.88538	3.21780	0.0682123	2.9521416	9	1	6 days	0.15		Williams	1997 WZ_5
1997 WB_6	14.5	0.15	19971108	266.58994	72.74045	79.83877	4.36053	0.0600919	2.3175576	9	1	7 days	0.05		Williams	1997 WB_6
1997 WF_6	17.0	0.15	19971128	227.96135	122.07319	76.08634	5.85822	0.1026789	2.2198833	12	1	13 days	0.24		Williams	1997 WF_6
1997 WH_6	18.0	0.15	19971108	308.80451	292.83371	186.75377	2.10583	0.1596701	2.2234084	9	1	6 days	0.12		Williams	1997 WH_6
1997 WK_6	18.0	0.15	19971108	4.28814	304.76651	100.89472	2.22107	0.1802474	2.4032498	9	1	7 days	0.56		Williams	1997 WK_6
1997 WL_6	16.0	0.15	19971128	92.21407	135.61060	169.53187	2.26014	0.1868719	2.5574913	12	1	13 days	0.26		Williams	1997 WL_6
1997 WM_6	18.5	0.15	19971108	37.76107	254.77223	101.99361	2.30179	0.2062320	2.3570715	9	1	7 days	0.11		Williams	1997 WM_6
1997 WN_6	16.5	0.15	19971108	18.71807	303.03697	78.56898	4.70018	0.2296774	2.4204933	9	1	7 days	0.08		Williams	1997 WN_6
1997 WP_6	15.5	0.15	19971128	76.64198	260.70558	79.92823	5.62178	0.0071167	2.8106717	12	1	13 days	0.14		Williams	1997 WP_6
1997 WQ_6	16.0	0.15	19971128	264.53735	87.37056	76.36418	6.55846	0.0883926	2.5608214	12	1	13 days	0.14		Williams	1997 WQ_6
1997 WR_6	17.5	0.15	19971128	301.13998	57.90492	76.84277	5.44007	0.1548778	2.3233205	12	1	13 days	0.18		Williams	1997 WR_6
1997 WS_6	18.0	0.15	19971128	97.93443	90.54840	217.00409	5.28318	0.1246332	2.3225451	12	1	12 days	0.33		Williams	1997 WS_6
1997 WT_6	17.0	0.15	19971108	1.95245	342.49153	68.99187	11.17263	0.1030602	3.0088240	9	1	7 days	0.14		Williams	1997 WT_6
1997 WY_6	16.0	0.15	19971128	84.91686	233.25940	79.63052	5.64554	0.1702645	3.1976122	11	1	13 days	0.33		Williams	1997 WY_6
1997 WZ_6	19.0	0.15	19971108	18.33908	183.32893	198.17203	2.26831	0.2390917	2.3311814	8	1	7 days	0.19		Williams	1997 WZ_6
1997 WF_7	15.5	0.15	19971108	48.60667	314.08124	96.60507	17.11141	0.0575775	3.2196576	8	1	6 days	0.11		Williams	1997 WF_7
1997 WK_7	13.5	0.15	19971108	258.44257	120.24697	43.55019	4.59360	0.0802670	2.2671253	11	1	15 days	0.84		Williams	1997 WK_7
1997 WN_7	14.4	0.15	19971128	43.90448	318.17072	39.21052	1.92321	0.2025314	2.2008432	6	1	5 days	0.28		Nakano	1997 WN_7
1997 WO_7	13.0	0.15	19971108	328.00549	32.45537	59.11744	10.53352	0.0761326	3.0670657	14	1	15 days	0.85		Williams	1997 WO_7
1997 WR_7	15.0	0.15	19971128	4.66219	166.74154	245.74922	5.92088	0.1910682	2.6772596	8	1	5 days	0.71		Nakano	1997 WR_7
1997 WU_7	12.5	0.15	19971128	358.22587	29.35138	33.61714	14.19693	0.2421572	2.5978526	10	1	5 days	0.18		Williams	1997 WU_7
1997 WV_7	16.3	0.15	19971128	357.42950	36.08097	35.64587	0.54281	0.1602380	2.1462968	6	1	10 days	0.22		Nakano	1997 WV_7
1997 WW_7	10.3	0.15	19971128	90.11891	85.73956	249.96050	6.23341	0.0410046	4.9864997	8	1	10 days	0.21	E	Nakano	1997 WW_7
1997 WX_7	16.0	0.15	19971128	45.74974	110.59778	245.71022	5.70228	0.2601655	2.3396757	8	1	12 days	0.37		Nakano	1997 WX_7
1997 WY_7	14.8	0.15	19971128	54.76993	296.35252	67.45707	4.51135	0.1071197	2.6643178	7	1	10 days	0.62		Nakano	1997 WY_7
1997 WZ_7	13.8	0.15	19971128	49.98956	290.34816	69.81518	8.91102	0.1946889	3.0833573	7	1	10 days	0.32		Nakano	1997 WZ_7
1997 WA_8	15.9	0.15	19971128	355.48661	11.40524	64.98011	2.11852	0.2218277	2.5191614	8	1	10 days	0.31		Nakano	1997 WA_8
1997 WB_8	14.2	0.15	19971128	38.71764	125.38309	249.77576	7.18050	0.1899455	3.2153820	7	1	10 days	0.44		Nakano	1997 WB_8
1997 WC_8	15.0	0.15	19971128	29.61512	181.14498	211.42655	4.58535	0.1210546	2.2446081	16	1	13 days	0.76		Williams	1997 WC_8

1997 WF_{8}	15.5	0.15	19971108	355.69414	337.95772	67.84685	8.34030	0.1803962	2.5885779	21	1	41 days	0.62			Williams	1997 WF_{8}
1997 WV_{8}	16.0	0.15	19971128	28.33536	312.84435	67.48980	14.91125	0.1335989	3.0857425	9	1	15 days	0.16			Williams	1997 WV_{8}
1997 WH_{9}	17.0	0.15	19971128	57.09479	278.96654	46.96826	4.71931	0.2264907	2.5812564	9	1	13 days	0.21			Williams	1997 WH_{9}
1997 WK_{9}	18.0	0.15	19971128	18.06298	331.94069	50.38911	6.62405	0.2329692	2.4155952	9	1	14 days	0.16			Williams	1997 WK_{9}
1997 WJ_{10}	16.0	0.15	19971128	94.19573	128.36677	186.58734	3.76263	0.0823104	2.6614177	9	1	13 days	0.50			Williams	1997 WJ_{10}
1997 WN_{10}	16.5	0.15	19971128	357.31153	177.93948	235.94685	6.27105	0.2519591	2.5498190	9	1	12 days	0.17			Williams	1997 WN_{10}
1997 WS_{10}	19.0	0.15	19971108	4.55601	354.47772	39.92372	3.65717	0.2326555	2.2031617	12	1	33 days	0.43			Williams	1997 WS_{10}
1997 WV_{10}	16.5	0.15	19971108	67.86385	271.38997	38.63701	6.85889	0.2057156	2.3466736	11	1	37 days	0.20			Williams	1997 WV_{10}
1997 WZ_{10}	16.0	0.15	19971128	38.52836	124.62893	229.53328	6.50795	0.1545406	3.1144510	9	1	12 days	0.26			Williams	1997 WZ_{10}
1997 WC_{11}	15.5	0.15	19971128	14.27851	346.51783	42.41875	9.49357	0.0912848	3.0300702	9	1	13 days	0.18			Williams	1997 WC_{11}
1997 WE_{11}	17.5	0.15	19971218	27.49277	333.55552	44.65612	2.29001	0.1851498	2.3807664	12	1	86 days	0.23	M-v	5	Williams	1997 WE_{11}
1997 WG_{11}	16.0	0.15	19971128	11.22954	160.79926	231.24085	2.39516	0.1505203	3.0761534	9	1	12 days	0.16			Williams	1997 WG_{11}
1997 WP_{11}	17.0	0.15	19971128	20.27213	149.14859	230.35515	5.83753	0.2341575	2.3430202	9	1	12 days	0.19			Williams	1997 WP_{11}
1997 WR_{11}	15.5	0.15	19971108	239.06429	310.93793	224.26960	4.56901	0.1196040	2.5794889	12	1	33 days	0.23			Williams	1997 WR_{11}
1997 WT_{11}	17.0	0.15	19971128	28.53081	141.47913	229.86984	5.23998	0.1136081	2.7498090	8	1	12 days	0.19			Williams	1997 WT_{11}
1997 WV_{11}	15.0	0.15	19971128	337.51596	351.66666	94.19461	2.85414	0.1513875	3.2008304	8	1	16 days	0.11			Williams	1997 WV_{11}
1997 WA_{12}	12.5	0.15	19971128	123.55674	60.27499	225.64586	17.19278	0.0554603	5.1838858	9	1	13 days	0.16		E	Williams	1997 WA_{12}
1997 WB_{12}	17.5	0.15	19971128	51.92094	162.07155	181.17980	2.05315	0.2162605	2.3642920	9	1	13 days	0.17			Williams	1997 WB_{12}
1997 WC_{12}	17.5	0.15	19971128	31.14553	172.21913	209.25771	4.10214	0.0801574	2.3328650	9	1	12 days	0.24			Williams	1997 WC_{12}
1997 WD_{12}	16.5	0.15	19971128	7.97352	198.97023	207.57249	3.76325	0.1809813	2.5977322	9	1	12 days	0.27			Williams	1997 WD_{12}
1997 WF_{12}	16.5	0.15	19971128	329.21462	67.10067	71.31838	3.09190	0.1533017	2.3617591	9	1	13 days	0.33			Williams	1997 WF_{12}
1997 WJ_{12}	15.0	0.15	19971128	237.94222	145.54967	90.45753	9.08366	0.0686315	2.7567562	11	1	13 days	0.40			Williams	1997 WJ_{12}
1997 WK_{12}	17.0	0.15	19971128	339.73403	196.67707	238.05599	5.75493	0.1200965	2.2124651	9	1	11 days	0.29			Williams	1997 WK_{12}
1997 WL_{12}	17.5	0.15	19971128	334.31530	131.64962	310.02642	1.01755	0.1306521	2.3503184	8	1	12 days	0.23			Williams	1997 WL_{12}
1997 WN_{12}	15.5	0.15	19971128	114.28413	359.73390	270.67265	1.33603	0.2316421	2.2984866	9	1	11 days	0.20			Williams	1997 WN_{12}
1997 WO_{12}	15.0	0.15	19971128	179.40628	352.84515	233.37116	6.80122	0.1894548	2.2995779	9	1	11 days	0.12			Williams	1997 WO_{12}
1997 WT_{12}	18.0	0.15	19971128	359.62358	17.55437	33.39980	1.72056	0.1975190	2.4965056	9	1	12 days	0.40			Williams	1997 WT_{12}
1997 WW_{12}	16.0	0.15	19971128	69.89553	91.38095	231.87578	5.94828	0.1392641	2.3669527	9	1	11 days	0.12			Williams	1997 WW_{12}
1997 WF_{13}	17.0	0.15	19971128	332.00204	242.12471	222.62674	8.62109	0.2416804	3.1279144	9	1	11 days	0.26			Williams	1997 WF_{13}
1997 WJ_{13}	13.2	0.15	19971128	143.41026	21.46872	261.71158	9.02225	0.0298967	2.9669024	6	1	10 days	0.58			Nakano	1997 WJ_{13}
1997 WK_{13}	15.0	0.15	19971128	12.40610	357.77190	52.54914	4.53767	0.1692352	2.2524031	11	1	10 days	0.53			Williams	1997 WK_{13}
1997 WL_{13}	14.5	0.15	19971128	359.23511	174.11366	255.84430	7.15352	0.1999776	2.7868455	10	1	11 days	0.49			Williams	1997 WL_{13}
1997 WM_{13}	15.0	0.15	19971128	2.67239	194.35293	229.83345	2.95510	0.0766364	2.1521879	11	1	10 days	0.59			Williams	1997 WM_{13}
1997 WV_{13}	14.0	0.15	19971128	178.26882	223.81750	353.63602	4.69401	0.1014478	3.1809449	11	1	15 days	0.26			Williams	1997 WV_{13}
1997 WA_{14}	17.0	0.15	19971128	17.10281	126.93778	253.04588	6.04847	0.1524147	2.2355666	9	1	12 days	0.49			Williams	1997 WA_{14}
1997 WG_{14}	16.0	0.15	19971128	338.87842	338.80163	105.59448	2.52853	0.1422319	3.1174588	9	1	13 days	0.21			Williams	1997 WG_{14}
1997 WJ_{14}	16.0	0.15	19971128	359.78335	290.00094	126.58697	2.06625	0.0690702	3.0346083	8	1	13 days	0.21			Williams	1997 WJ_{14}
1997 WK_{14}	13.5	0.15	19971108	327.93544	21.16844	65.74660	12.99638	0.0398092	5.2670969	12	1	38 days	0.28			Williams	1997 WK_{14}
1997 WN_{14}	15.5	0.15	19971108	299.07516	61.62383	64.32503	19.45987	0.1072996	3.1688904	9	1	8 days	0.19			Williams	1997 WN_{14}
1997 WU_{14}	16.0	0.15	19971128	35.36165	345.35338	1.47425	1.31609	0.2929114	2.7096714	9	1	12 days	0.11			Williams	1997 WU_{14}
1997 WZ_{14}	15.0	0.15	19971128	351.41708	90.87649	334.54076	0.50430	0.2495810	2.6665469	9	1	12 days	0.18			Williams	1997 WZ_{14}
1997 WD_{15}	13.5	0.15	19971218	237.02125	142.01916	42.05560	5.98178	0.1180631	2.7522577	15	1	61 days	0.22	M-v	5	Williams	1997 WD_{15}
1997 WJ_{15}	17.0	0.15	19971128	55.81581	137.03407	212.98654	4.04705	0.1140719	2.3848946	9	1	12 days	0.23			Williams	1997 WJ_{15}
1997 WM_{15}	15.0	0.15	19971128	9.63087	283.29870	119.94765	2.03576	0.1708454	3.1402393	9	1	13 days	0.34			Williams	1997 WM_{15}
1997 WN_{15}	16.5	0.15	19971128	60.59173	244.80382	89.56654	3.05456	0.2067657	2.4019542	9	1	13 days	0.15			Williams	1997 WN_{15}
1997 WQ_{15}	15.5	0.15	19971128	18.94525	179.33868	212.19825	4.33493	0.1553065	3.1131932	9	1	13 days	0.14			Williams	1997 WQ_{15}
1997 WB_{16}	14.0	0.15	19971108	328.28751	227.34986	229.47603	13.86096	0.1735367	3.2263944	19	1	19 days	0.26			Marsden	1997 WB_{16}
1997 WD_{16}	16.5	0.15	19971128	24.06195	176.85953	212.15392	3.53891	0.1356668	2.1591164	9	1	10 days	0.22			Williams	1997 WD_{16}
1997 WE_{16}	16.5	0.15	19971128	327.35800	253.25297	221.05029	6.01166	0.2602623	2.6262734	9	1	10 days	0.16			Williams	1997 WE_{16}
1997 WA_{17}	15.0	0.15	19971108	306.33508	215.20193	236.46051	12.09970	0.0524667	2.9267695	9	1	11 days	0.41			Williams	1997 WA_{17}
1997 WD_{17}	15.5	0.15	19971128	287.48229	244.67539	249.63631	6.21174	0.1829266	2.5451852	9	1	13 days	0.20			Williams	1997 WD_{17}
1997 WR_{18}	15.5	0.15	19971128	61.24897	241.08510	99.85198	2.69499	0.1456672	2.6025160	11	1	13 days	0.15			Williams	1997 WR_{18}
1997 WK_{20}	16.5	0.15	19971128	84.60633	228.83926	87.10710	3.75072	0.1385654	3.0862773	9	1	11 days	0.21			Williams	1997 WK_{20}

1997 WN_{20}	17.5	0.15	19971128	25.94403	299.68054	88.50518	3.83025	0.0766865	2.6898412	11	1	13 days	0.23			Williams		1997 WN_{20}
1997 WX_{20}	14.5	0.15	19971128	25.30449	319.65633	64.65279	31.44114	0.1724751	2.5427940	16	1	6 days	0.41			Williams		1997 WX_{20}
1997 WB_{21}	20.6	0.15	19971128	30.04950	81.81490	281.03673	3.44608	0.3233413	1.4740501	29	1	9 days	0.45			Nakano		1997 WB_{21}
1997 WC_{21}	14.5	0.15	19971108	347.04005	102.67921	308.21637	5.10100	0.2991882	2.6621357	15	1	40 days	0.50			Williams		1997 WC_{21}
1997 WE_{21}	12.5	0.15	19971128	326.29556	57.22577	62.78720	8.76250	0.1256778	3.1293981	7	1	9 days	0.30			Nakano		1997 WE_{21}
1997 WH_{21}	14.8	0.15	19971128	23.71764	213.16832	182.49833	2.29604	0.2220580	2.4243470	6	1	5 days	0.31			Nakano		1997 WH_{21}
1997 WJ_{21}	14.3	0.15	19971128	283.02381	329.87292	211.44987	6.07055	0.2602297	2.3169546	6	1	5 days	0.45			Nakano		1997 WJ_{21}
1997 WK_{21}	12.5	0.15	19971128	155.00785	79.71958	197.56589	4.92062	0.0705466	2.7425552	6	1	5 days	0.51			Nakano		1997 WK_{21}
1997 WL_{21}	14.5	0.15	19971128	15.65683	247.57338	157.42043	2.30463	0.2694413	2.5255942	6	1	5 days	0.42			Nakano		1997 WL_{21}
1997 WN_{21}	15.7	0.15	19971128	25.54708	285.59893	94.55104	5.60785	0.3399916	2.1678336	6	1	5 days	0.71		E	Nakano		1997 WN_{21}
1997 WP_{21}	10.6	0.15	19971128	313.71133	57.54337	91.69538	18.03733	0.1133405	3.1516604	6	1	5 days	0.23			Nakano		1997 WP_{21}
1997 WQ_{21}	11.9	0.15	19971128	93.23392	61.18591	275.13873	10.46688	0.2036841	2.6264432	6	1	5 days	0.42			Nakano		1997 WQ_{21}
1997 WR_{21}	13.9	0.15	19971128	49.11905	113.19152	276.31662	4.88979	0.0919357	2.1788912	6	1	5 days	0.22			Nakano		1997 WR_{21}
1997 WS_{21}	15.5	0.15	19971128	19.27051	240.85811	168.23142	2.88610	0.1265808	2.2311765	11	1	5 days	0.68			Williams		1997 WS_{21}
1997 WT_{21}	13.3	0.15	19971128	58.20990	316.57899	58.35051	2.93371	0.1739011	2.9889806	6	1	5 days	0.48		E	Nakano		1997 WT_{21}
1997 WU_{21}	11.0	0.15	19971128	252.12450	141.34600	83.59170	10.56072	0.2354388	2.9666425	6	1	5 days	0.52		E	Nakano		1997 WU_{21}
1997 WQ_{22}	17.0	0.15	19971128	52.61390	84.82554	311.19496	1.77479	0.2496042	2.5180199	9	1	6 days	0.35		E	Williams		1997 WQ_{22}
1997 WR_{22}	15.5	0.15	19971128	43.23868	312.72214	115.63985	10.50534	0.0739885	2.5697485	9	1	6 days	0.21			Williams		1997 WR_{22}
1997 WS_{22}	17.5	0.15	19971128	163.34082	196.85451	59.29793	23.88104	0.1206047	1.2683790	26	1	12 days	0.35			Marsden		1997 WS_{22}
1997 WT_{22}	19.0	0.15	19971218	320.12720	74.97302	71.93909	8.36788	0.3114660	1.4972393	38	1	30 days	0.68	M-v	6	Williams		1997 WT_{22}
1997 WU_{22}	15.5	0.15	19971128	205.32776	333.43612	261.30220	15.48347	0.4307642	1.4662434	28	1	6 days	0.25			Marsden		1997 WU_{22}
1997 WQ_{23}	20.5	0.15	19971128	27.36198	296.14376	56.11612	2.46662	0.4975673	1.7455283	42	1	6 days	0.64			Marsden		1997 WQ_{23}
1997 WR_{23}	14.7	0.15	19971128	121.61232	41.90033	250.80872	7.30987	0.1672488	2.2834450	7	1	10 days	0.60			Nakano		1997 WR_{23}
1997 WC_{24}	16.0	0.15	19971128	356.56838	171.46569	238.28171	2.91886	0.0669309	2.7483223	9	1	12 days	0.16			Williams		1997 WC_{24}
1997 WE_{24}	15.0	0.15	19971128	274.62552	122.17301	26.65771	2.18307	0.1694702	3.1042574	9	1	12 days	0.53		E	Williams		1997 WE_{24}
1997 WM_{24}	14.5	0.15	19971128	15.56259	351.41862	32.16195	6.15931	0.1793099	2.3239017	9	1	8 days	0.11			Williams		1997 WM_{24}
1997 WN_{24}	16.0	0.15	19971108	349.03347	23.42893	31.91266	5.20027	0.2036507	2.3372254	11	1	35 days	0.15			Williams		1997 WN_{24}
1997 WQ_{25}	15.5	0.15	19971128	14.55426	166.79820	245.07925	2.34257	0.1487556	2.2900005	7	1	10 days	0.30			Williams		1997 WQ_{25}
1997 WU_{26}	16.5	0.15	19971128	75.99471	272.57008	66.54649	18.46392	0.0220209	2.9594616	9	1	8 days	0.26			Williams		1997 WU_{26}
1997 WQ_{28}	12.5	0.15	19971128	343.56466	57.10261	10.86913	11.86892	0.0662906	2.5153260	10	1	6 days	0.58			Williams		1997 WQ_{28}
1997 WR_{28}	14.0	0.15	19971128	3.96235	182.44914	237.34469	10.05536	0.1947273	2.5594777	13	1	11 days	1.27			Williams		1997 WR_{28}
1997 XA	15.3	0.15	19971128	350.22163	184.91519	248.55105	6.94469	0.1801238	2.5004869	6	1	2 days	0.89		E	Nakano		1997 XA
1997 XC	13.5	0.15	19971128	346.83370	246.40187	242.72875	13.60733	0.2497606	3.0562838	10	1	6 days	0.24			Williams		1997 XC
1997 XO_1	15.0	0.15	19971128	359.21755	244.11508	254.39927	4.21196	0.1559396	3.8347117	9	1	2 days	0.54		E	Williams		1997 XO_1
1997 XQ_2	13.5	0.15	19971128	335.02113	287.15249	175.15366	2.16569	0.1786596	2.7350645	12	1	2 days	0.28		E	Marsden		1997 XQ_2
1997 XR_2	21.0	0.15	19971128	67.73788	84.56592	250.92313	7.15659	0.2006653	1.0763452	55	1	4 days	0.88			Marsden		1997 XR_2
1997 XS_2	19.5	0.15	19971128	352.29870	23.28892	75.15549	20.84858	0.5713434	2.9966915	29	1	3 days	0.69			Williams		1997 XS_2
2017 P-L	14.5	0.15	19971218	89.81562	55.33560	262.64759	2.25119	0.2178181	2.2330144	23	4	1960–1997	0.76	M-v	5	Williams	18444	2017 P-L
2698 P-L	15.5	0.15	19971218	96.91051	277.88685	6.05678	7.63864	0.0694624	2.2461116	14	2	1960–1997	0.54	M-v	6	Williams	30774	2698 P-L
2723 P-L	16.5	0.15	19971218	179.91307	355.16908	178.39133	4.05899	0.0649633	2.2614282	24	4	1960–1997	0.54	M-v	2	Williams	30797	2723 P-L
2777 P-L	14.5	0.15	19971218	81.53876	100.01214	159.66859	2.91901	0.1686482	2.4060596	27	8	1949–1997	0.95	M-v	2	Williams	29668	2777 P-L
3039 P-L	14.5	0.15	19971218	324.98804	149.48007	247.42529	6.85991	0.2250684	2.7991992	27	3	1960–1997	0.60	M-v	4	Williams	30474	3039 P-L
3086 P-L	13.0	0.15	19971218	127.38087	58.60956	246.13150	9.16872	0.0844975	2.9892084	32	4	1960–1997	0.56	M-v	3	Williams	28619	3086 P-L
3520 P-L	13.5	0.15	19971218	31.66626	141.34614	243.40881	9.50740	0.1239537	3.0144243	22	3	1960–1997	0.73	M-v	4	Williams	30888	3520 P-L
4040 P-L	15.0	0.15	19971218	80.48415	97.73137	215.54274	6.86440	0.2236158	2.7551445	25	4	1960–1997	0.70	M-v	1	Williams	30914	4040 P-L
4070 P-L	14.5	0.15	19971218	280.98789	190.44880	300.67365	3.03606	0.1205280	2.5578385	18	3	1960–1997	0.70	M-v	5	Williams	30774	4070 P-L
4110 P-L	15.0	0.15	19971218	100.86851	119.11598	196.67598	3.01981	0.1164726	2.2308093	31	3	1960–1997	0.74	M-v	3	Williams	27457	4110 P-L
4269 P-L	14.5	0.15	19971218	21.20220	226.89396	205.45420	8.32450	0.0718645	2.9852132	16	3	1960–1997	0.38	M-v	4	Williams	23686	4269 P-L
4556 P-L	13.5	0.15	19971218	55.40060	329.75012	43.60647	3.14875	0.1328829	2.9998790	18	3	1960–1997	0.78	M-v	4	Williams	19875	4556 P-L
4595 P-L	15.5	0.15	19971218	36.85957	189.20471	176.64842	2.62966	0.1883819	2.3851339	33	4	1960–1997	0.72	M-v	2	Williams	30888	4595 P-L
4634 P-L	15.0	0.15	19971218	60.07435	306.09432	15.99410	4.79217	0.1975581	2.2416082	35	5	1956–1997	0.55	M-v	2	Williams	30914	4634 P-L
4637 P-L	16.0	0.15	19971218	30.26289	215.74092	162.81511	5.35793	0.1562716	2.2385396	21	3	1960–1997	0.61	M-v	4	Williams	30914	4637 P-L
6073 P-L	14.0	0.15	19971218	156.42443	292.40816	343.04559	3.88859	0.0517916	2.7382191	33	5	1960–1997	0.77	M-v	1	Williams	27938	6073 P-L

6128 P-L	16.0	0.15	19971218	55.23101	110.60704	224.67665	0.84682	0.1620896	2.5564902	18	3	1960–1997	0.33	M-v	4	Williams	30775	6128 P-L
6180 P-L	15.5	0.15	19971218	109.96382	113.94983	210.88084	2.41834	0.1808744	2.7329310	23	3	1960–1996	0.49	M-v	3	Williams	30914	6180 P-L
6523 P-L	13.5	0.15	19971218	293.98447	326.58658	13.75516	13.40558	0.1813875	2.6190322	21	3	1960–1997	0.81	M-v	4	Marsden	30681	6523 P-L
6570 P-L	15.0	0.15	19971218	5.86984	242.25326	180.59704	2.41094	0.2079046	2.3811853	24	3	1960–1997	0.70	M-v	3	Williams	30682	6570 P-L
6571 P-L	13.5	0.15	19971218	25.34346	337.55687	118.26007	3.12844	0.2475643	2.9741814	24	7	1960–1997	0.75	M-v	1	Williams	29668	6571 P-L
6579 P-L	14.0	0.15	19971218	349.47225	16.09023	66.60306	3.15296	0.0893119	2.3750667	19	3	1960–1997	0.75	M-v	4	Williams	30888	6579 P-L
6615 P-L	14.5	0.15	19971218	213.41165	180.29387	19.12366	4.70772	0.0941125	2.2320340	22	5	1954–1997	0.65	M-v	2	Williams	29141	6615 P-L
6676 P-L	13.5	0.15	19971218	318.55175	132.84088	345.27252	1.13137	0.1112890	2.9937721	17	3	1960–1997	0.72	M-v	4	Williams	14962	6676 P-L
9076 P-L	12.5	0.15	19971218	344.17912	194.22657	196.17429	13.58325	0.1871325	2.5750111	27	4	1960–1997	0.66	M-v	2	Williams	30914	9076 P-L
9519 P-L	15.0	0.15	19971218	65.04737	290.05189	30.10736	4.68810	0.0722584	2.7648445	10	3	1960–1997	0.59	M-v	4	Williams	14631	9519 P-L
2251 T-1	14.0	0.15	19971218	312.63104	109.58085	16.61785	3.61677	0.0428852	2.7948081	27	3	1971–1997	1.06	M-v	4	Williams	22087	2251 T-1
2259 T-1	13.5	0.15	19971218	53.77104	306.00035	129.89511	4.19638	0.1170833	3.1013395	26	5	1971–1997	0.84	M-v	1	Williams	23540	2259 T-1
3219 T-1	15.5	0.15	19971218	267.05634	272.15459	331.26154	3.63967	0.1280415	2.2611563	16	3	1971–1997	0.70	M-v	3	Williams	21601	3219 T-1
4062 T-1	13.0	0.15	19971218	328.64832	297.66012	172.72924	10.77720	0.0137428	3.1812681	21	4	1971–1997	1.01	M-v	2	Williams	29938	4062 T-1
4232 T-1	14.0	0.15	19971218	298.16821	124.11470	15.38438	7.92121	0.1688919	2.7901328	24	5	1952–1997	0.93	M-v	2	Williams	25085	4232 T-1
4393 T-1	14.5	0.15	19971218	295.74444	105.33672	100.29259	2.43888	0.1249284	3.1192009	38	5	1971–1997	0.98	M-v	1	Williams	26193	4393 T-1
4825 T-1	14.5	0.15	19971218	80.36908	275.58232	121.71407	3.15481	0.1583111	2.2679309	25	6	1971–1997	0.79	M-v	2	Williams	29949	4825 T-1
1306 T-2	13.5	0.15	19971218	49.90275	296.31303	111.91397	0.51354	0.1470904	3.1943754	54	5	1953–1997	0.80	M-v	1	Williams	23792	1306 T-2
2120 T-2	16.0	0.15	19971218	70.08107	322.25271	12.81403	5.25720	0.1655306	2.2590127	35	3	1973–1997	1.04	M-v	4	Williams	30914	2120 T-2
2244 T-2	15.5	0.15	19971218	15.32553	148.31357	173.93673	0.97116	0.1234804	2.5526630	22	3	1973–1997	0.67	M-v	6	Williams	30474	2244 T-2
3365 T-2	14.0	0.15	19971218	31.45139	10.31807	52.82258	2.35322	0.1660705	3.1963843	30	4	1973–1997	0.87	M-v	2	Williams	28893	3365 T-2
4172 T-2	14.0	0.15	19971218	280.12261	74.56282	107.06369	4.14037	0.1464668	2.4635049	30	5	1973–1997	0.83	M-v	2	Williams	27939	4172 T-2
4216 T-2	12.5	0.15	19971218	73.31628	143.82455	169.28576	9.29961	0.1525285	3.9591663	35	6	1973–1997	0.70	M-v	1	Marsden	29142	4216 T-2
4294 T-2	14.0	0.15	19971218	359.78895	325.93381	106.45260	2.85156	0.1192936	2.2560738	20	4	1951–1997	0.91	M-v	2	Williams	25229	4294 T-2
5058 T-2	13.0	0.15	19971218	229.50491	296.16358	270.67381	7.17056	0.1197399	2.7848927	22	4	1973–1997	0.81	M-v	2	Williams	23131	5058 T-2
5159 T-2	11.5	0.15	19971218	349.03212	86.62357	323.57580	10.54466	0.0079223	5.1478711	40	3	1973–1997	0.66	M-v	4	Williams	29669	5159 T-2
5187 T-2	11.0	0.15	19971218	297.18178	230.76281	240.13585	8.60221	0.0308322	5.1307909	29	5	1989–1997	0.79	M-v	1	Williams	30914	5187 T-2
1017 T-3	13.0	0.15	19971218	180.29752	26.87588	284.62537	7.74448	0.1387544	2.7810682	31	4	1977–1995	0.91	M-v	3	Marsden	25735	1017 T-3
2316 T-3	17.0	0.15	19971218	20.55202	6.31658	16.36700	7.70201	0.2037175	2.2294273	35	2	1977–1997	0.83	M-v	4	Williams	30914	2316 T-3
2496 T-3	14.0	0.15	19771004	109.35002	48.10401	219.07430	8.88725	0.0210006	2.9803116	13	1	15 days	0.97			Williams		2496 T-3
3357 T-3	13.0	0.15	19971218	26.49312	29.68709	14.82293	2.11404	0.0460814	2.8766230	38	4	1977–1997	0.90	M-v	4	Williams	29315	3357 T-3
4165 T-3	15.5	0.15	19971218	74.91160	235.39244	59.11792	8.08510	0.1811194	2.2370015	31	3	1977–1997	0.83	M-v	3	Williams	30915	4165 T-3

1990 VF_8 = 1990 UK_{11} (S. Nakano, *MPC* 20913)
1997 TB_{18} = 1997 TH_{24} (G. V. Williams)

NEW NAMES OF MINOR PLANETS

(4232) Aparicio = 1977 CD

Discovered 1977 Feb. 13 at the Carlos U. Cesco Observing Station of the Felix Aguilar Observatory.

Named in memory of Emiliano Pedro Aparicio (1921–1988), mineralogist and geologist at the National University of Cuyo and the National University of San Juan, also rector of the latter university.

(4397) Jalopez = 1981 JS_1

Discovered 1981 May 9 at the Carlos U. Cesco Observing Station of the Felix Aguilar Observatory.

Named in honor of Jose Augusto Lopez (b. 1922), known for his work in meridian astrometry and as director of the Felix Aguilar Observatory during 1966–1993. He also served on the Science and Technology Committee of the government of San Juan province, as well as an advisor to the Argentine government.

(4402) Tsunemori = 1987 DP

Discovered 1987 Feb. 25 by T. Niijima and T. Urata at Ojima.

Named for a Japanese military commander in the late Heian era, Taira-no Tsunemori (1125–1185), a son of Tadamori. As the elder of the Heike after the death of Kiyomori, he made an effort to restore his family. However, he was beaten at the battle of Dannoura, and he drowned in the sea. Name proposed by the second discoverer.

(4962) Vecherka = 1973 TP

Discovered 1973 Oct. 1 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Named for the popular St. Petersburg evening newspaper *Vechernij Peterburg*. The newspaper regularly publishes astronomical information and articles popularizing astronomical knowledge. Name proposed by the Institute of Theoretical Astronomy (ITA).

(5458) Aizman = 1980 TB_{12}

Discovered 1980 Oct. 10 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Named in honor of Mikhail Iosifovich Aizman (b. 1947), telecommunications specialist and president of MTU-INFORM. One of the largest systems for telephone

communication and data transfer in Russia, this company was developed under his supervision in Moscow. Support from MTU-INFORM enabled ITA to create a communication channel allowing the integration of the ITA computer system in the World Wide Web. Name proposed by the discoverer following a suggestion by ITA.

(5635) Cole = 1981 ER_5

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

Named for the fictional character Joshua Cole, amateur astronomer and star of Arthur Preston Hankins' 1923 novel *Cole of Spyglass Mountain*. A character reminiscent of Oliver Twist, Cole studied variable stars while incarcerated in a reformatory in which the boys do not use names but numbers; Cole's is 5635. He survived one crisis after another, including a near-fatal shooting in his observatory at the moment he discovered evidence of life on Mars. Name proposed by the discoverer following a suggestion by D. H. Levy, who prepared the citation.

(5649) Donnashirley = 1990 WZ_2

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

Named in honor of Donna Shirley, manager of the highly successful Mars Exploration program at NASA's Jet Propulsion Laboratory. She managed the robotics development program that produced Sojourner, the automated rover that explored the surface of Mars in mid-1997. She was also project engineer for the Cassini mission, the spacecraft now on its way to explore Saturn, as well as the project engineer for Mariner 10, which flew by Mercury in the 1970s. In her thirty years at JPL she has had many other successful assignments in space exploration and in the development of non-space systems using space technology. She has balanced a demanding career with parenthood, writing, acting and music.

(5735) Loripaul = 1989 LM

Discovered 1989 June 4 by E. F. Helin at Palomar.

Named in honor of Lori L. Paul, Friend of All Animals, assistant director of Telescopes in Education (TIE) at the Mount Wilson Institute and Jet Propulsion Laboratory, environmentalist, veterinary technician, part time educator and artist, former zookeeper and laser operator. Her role in acquiring important sponsorship and recognition for TIE is particularly acknowledged. Like her many eclectic pursuits, her accomplishments have resulted from her curiosity, an aesthetic sense of excellence and attention to detail. This minor planet is being named to celebrate her wedding engagement to Rob Staehle.

(5744) Yorimasa = 1990 XP

Discovered 1990 Dec. 14 by A. Natori and T. Urata at the JCPM Yakiimo Station.

Named for a Japanese military commander and well-known poet in the late Heian era, Minamoto-no Yorimasa (1104–1180). He advised Prince Mochihitoou to fight the Heike. However, word of the plan leaked out, and Yorimasa took his own life. Name proposed by the second discoverer.

(5855) Yukitsuna = 1992 UO_2

Discovered 1992 Oct. 26 by A. Natori and T. Urata at the JCPM Yakiimo Station.

Named for a Japanese military commander in the late Heian era, Minamoto-no Yukitsuna. When Yoshinaka invaded Kyoto in 1183, Yukitsuna also fought against the Heike, and in 1185 he obstructed Yoshitsune's departure from the city. Name proposed by the second discoverer.

(5933) Kemurdzhian = 1976 QN

Discovered 1976 Aug. 26 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Named in honor of Aleksandr Leonovich Kemurdzhian (b. 1921), an expert on the design of cosmic transportation and specialized robots for the investigation of the surfaces of planets and their satellites. He was responsible for designing the self-propulsion system of Lunokhod 1 and Lunokhod 2 as these vehicles explored the moon's surface in the early 1970s. Subsequently he headed the design of mobile apparatus for the investigation of Venus, Mars and Phobos. Name proposed by the discoverer following a suggestion by ITA.

(6216) San Jose = 1975 SJ

Discovered 1975 Sept. 30 by S. J. Bus at Palomar.

Named for the city in northern California, to acknowledge it as the Capital of Silicon Valley and to honor it as the world's leader in innovation and advanced technology research. The San Jose area, home to the Ohlone Indians, was settled by the Spanish in 1777. In 1849 San Jose became the first capital of the state of California. Since then it has grown into a major metropolitan area and is now the eleventh largest city in the United States. San Jose has made a major contribution to astronomy through its cooperative and friendly relationship with the Lick Observatory, which lies 20 miles to the east at the summit of Mount Hamilton. Named by the discoverer following a suggestion by S. M. Faber. Citation prepared by B. F. Jones.

(6456) Golombek = 1992 OM

Discovered 1992 July 27 by E. F. Helin and K. J. Lawrence at Palomar.

Named in honor of Matthew P. Golombek, research scientist in geology and planetary geology at the Jet Propulsion Laboratory. He has devoted the past five of his 14 years there to the Pathfinder project, distinguishing himself by his highly effective performance as the Mars Pathfinder project scientist, responsible for all aspects of the mission's science. The discoverers wish to salute this popular spokesman for his understandable science and Pathfinder mission status reports. His descriptions and explanations captured the attention of a public excited by the Mars landing and the rocky excursions of the small rover, Sojourner.

(6487) Tonyspear = 1991 GA_1

Discovered 1991 Apr. 8 by E. F. Helin at Palomar.

Named in honor of Anthony Spear, manager of the successful Pathfinder Project. In his 37 years at the Jet Propulsion Laboratory he has been associated with several successful space projects, usually in a management position. These include the Magellan and VOIR projects to orbit Venus, and Seasat, the first earth satellite to make images of the surface of the oceans using radar. His association with Mars exploration goes back to the beginning of the program, when he was Cognizant Engineer for the command system of Mariner 4, which in 1964 became the first spacecraft to reach Mars successfully. Citation prepared by A. Hibbs.

(6602) Gilclark = 1989 EC

Discovered 1989 Mar. 4 by E. F. Helin at Palomar.

Named in honor of Gilbert A. Clark, creator of Telescopes in Education, the first opportunity for students in classrooms to operate a research-grade telescope in real time. Since TIE saw first light in 1994, several thousand students and their teachers have observed using the 0.6-m reflector on Mount Wilson, thereby providing inspiration in astronomy, science and critical thinking. With untiring leadership, Clark reassembled and automated a telescope others thought unusable, and he created a team of volunteers, sponsors and staff to keep it operating for students everywhere.

Now ready to expand to other telescopes around the world, the educational inspiration of TIE has reached and connected students in inner cities, rural communities and eight different countries.

(6698) Malhotra = 1987 SL_1

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

Named in honor of Renu Malhotra (b. 1961), accomplished dynamicist and celestial mechanician at the Lunar and Planetary Institute in Houston. Born and raised in India, she has made major contributions to our understanding of how resonances affect satellite systems, the asteroid belt, and particularly Pluto. Malhotra was awarded the Harold C. Urey Prize by the Division for Planetary Sciences of the American Astronomical Society in 1997. Her talents and good spirits are much enjoyed by her colleagues. Name proposed by the discoverer following a suggestion by S. A. Stern, who also wrote the citation.

(6770) Fugate = 1985 QR

Discovered 1985 Aug. 22 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of Robert Q. Fugate (b. 1943), of the U.S. Air Force's Starfire Optical Range (SOR), near Albuquerque. Under Fugate's leadership, the SOR has developed and operates the most advanced adaptive optics system worldwide. Fugate performed the first experiment to demonstrate the feasibility of using laser beacons for adaptive optics. He has chaired many committees and received numerous awards, including the 1997 Distinguished Civilian Award, the highest given to a civilian by the U.S. Department of Defense. Named by the discoverer following a suggestion by J. D. Drummond, who prepared the citation.

(7144) Dossobuono = 1996 KQ

Discovered 1996 May 20 by L. Lai at Madonna di Dossobuono.

Named for the village of Madonna di Dossobuono, known for its sanctuary for "700 dedicated to the virgin Mary". Located 7 km from Verona, it is the site of the observatory at which this minor planet was discovered.

(7179) Gassendi = 1991 GQ_6

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

Named for the French philosopher and scientist Pierre Gassendi (1592–1655). Originally trained in theology, he came under the influence of the mathematician-theologian Mersenne. On 1631 Nov. 7 he made the first known observation of a transit of Mercury, thereby confirming the work of Kepler. As a philosopher, he revived Epicureanism as a substitute for Aristotelianism. At Mersenne's request, he refuted Descartes' *Meditations* in his *Disquisitio Metaphysica* (1644). In his great *Syntagma Philosophicum*, finally published as part of his *opera omnia* in 1658, he rejected the innate ideas of Descartes and favored the senses as the primary sources of knowledge.

(7324) Carret = 1981 BC

Discovered 1981 Jan. 31 at the Harvard College Observatory's Agassiz Station.

Named in honor of Philip L. Carret (b. 1896), on the occasion of his 101st birthday and the 80th anniversary of his graduation from Harvard University. Passionately interested in solar eclipses, Carret has traveled the globe for most of the century in search of them—from Borneo to Siberia, from Baja to Kenya and from Prince Edward Island to Indonesia. Dean of American investment management firms and legendary stock picker, he created one of the first mutual funds in the U.S., Pioneer Fund, in 1928 and helped to found the mutual fund industry. He has been generously concerned about education, and about the environment and wildlife.

(7416) Linnankoski = 1990 WV_4

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

Named in memory of the Finnish writer Johannes Linnankoski, pseudonym of Vihtori Peltonen (1869–1913). He promoted Finnish independence from Russia. He became well known for his novel *Laulu tulipunaisesta kukasta* (1905), or "Song of the blood-red flower". In 1960 the discoverer set much of this novel to music.

(7420) Buffon = 1991 RP_{11}

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

Named for the French naturalist Georges-Louis Leclerc de Buffon (1707–1788). In 1749 he started his project *Histoire naturelle*, an immense work of 36 volumes on nature, in which he treated in succession the history of the formation of the earth, the life of animals and plants and the world of minerals. In 1779 the work was completed with his famous *Epoques de la nature*. Buffon insisted on building his theories on facts, rather than on hypotheses, and he made experience the clue for scientific investigation. His elegant style raised writing on science to the ranks of great literature.

(7425) Lessing = 1992 RO_5

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

Named for Gotthold Ephraim Lessing (1729–1781), German dramatist and writer on philosophy and aesthetics. He abandoned an early interest in theology for literature, philosophy and art. In 1766, his great treatise on aesthetics, *Laokoon: oder über die Grenzen der Malerei und Poesie*, was published. As a philosopher he is remembered for *Nathan der Weise* (1779), and especially for *Die Erziehung des Menschengeschlechts* (1780), in which he expressed his belief on the perfectability of the human race. Lessing's last years were lonely and poor, and upon his death he was buried at public expense.

(7433) Pellegrini = 1993 KD

Discovered 1993 May 21 at Farra d'Isonzo.

Named in memory of Guglielmo Pellegrini (1937–1990), an amateur astronomer who built or modified many of the telescopes used by the Italian astrometric community. His ability, skill and kind temperament will long be remembered. His epigraph reads "In the stars you loved so much we'll find your light".

(7478) Hasse = 1993 OA_4

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

Named for Peter Hasse (1585–1640), the first well-known organist to be appointed at the famous Marienkirche in Lübeck. On his death, he was succeeded by Franz Tunder, who, according to the Lübeck custom, married Hasse's eldest daughter. Another of his daughters married the famous organist Nicolaus Bruhns.

(7500) Sassi = 1996 TN

Discovered 1996 Oct. 3 at Farra d'Isonzo.

Named in honor of Giorgio Sassi (b. 1918), Italian amateur astronomer, cofounder of the Osservatorio San Vittore, in operation since 1969. He conceived and realized the optical and electronic elements involved in constructing an automated telescope and is still very active today. He wrote the "bible" for Italian amateurs who want to make optical instruments.

(7506) Lub = 4837 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in honor of Jan Lub (b. 1946), Dutch astronomer in Leiden, on the occasion of his 51st birthday. After studying in Amsterdam he worked for the European Southern Observatory in Chile and Munich before moving to the Leiden Observatory. While in Leiden he was director of the Observatório Roque de los Muchachos for several years. Lub's fields of interest are photoelectric observations of RR Lyrae variables and other objects.

(7507) Israel = 7063 P-L

Discovered 1960 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in honor of Frank P. Israel (b. 1946), Dutch astronomer in Leiden, on the occasion of his 51st birthday. Before moving to the Leiden Observatory he worked at the California Institute of Technology and at the European Space Agency. His fields of interest are radio astronomical observations of dense interstellar clouds in galaxies, in particular the study of mass concentrations in the center of galaxies.

(7508) Icke = 2327 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 Vincent Icke (b. 1946), Dutch astronomer in Leiden, on the occasion of his 51st birthday. After studies in Utrecht and Leiden, he worked at the Universities of Sussex and Cambridge, at the California Institute of Technology and at the University of Minnesota in Minneapolis. His fields of interest are theoretical investigations of celestial bodies and cosmology. He is also an ardent popularizer of astronomy.

(7537) Solvay = 1996 HS_8

Discovered 1996 Apr. 17 by E. W. Elst at the European Southern Observatory.

Named for the Belgian chemist and philantropist Ernest Solvay (1838–1922), prodigious industrialist, scientist and engaged citizen with audacious ideas on politics and society. Today he is considered a symbol of industrial Belgium.

(7541) Nieuwenhuis = 4019 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 Henk Nieuwenhuis (b. 1938), curator of the Eise Eisinga Planetarium in Franeker, The Netherlands. Since the 1960s he has been an enthusiastic organizer of exhibitions, meetings and lectures for amateur astronomers and the general public. He also has a keen interest in space research and in observing planets at the observatory he constructed. Name proposed by the discoverers following a suggestion by T. Schoenmaker, who prepared the citation.

(7578) Georgböhm = 1990 SP_7

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

Named for the North German organist Georg Böhm (1661–1733), who studied under Buxtehude in Lübeck. In 1698 Böhm was appointed organist at the St. Johannis church in Lüneburg. There he wrote his imposing Prelude and Fugue in C major. This opens with a virtuoso pedal solo, highly characteristic of North German organ composers.

(7581) Yudovich = 1990 VY_{13}

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

Named in honor of Viktor Iosifovich Yudovich (b. 1934), a professor at Rostov University and notable specialist in the mathematical hydrodynamics of convective fluid and mathematical geophysics. Yudovich developed convective models for earthquakes and volcanic eruptions.

(7587) Weckmann = 1992 CF_3

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

Named for the North German organist Matthias Weckmann (1619–1674). Appointed organist at St. Jacobi's church in Hamburg in 1655, he had the mighty Arp Schnitger organ at his disposal until his death. A pupil of Heinrich Schütz, he worked under the direction of Praetorius and Scheidemann. In 1668 he founded the important *Collegium musicum*. Many of his organ and cembalo compositions (toccatas, canzones, suites and sonatas) survive. His Fantasia in D minor is a multisectional piece that is thoroughly contrapunctal in nature, and it reflects the great seriousness of Weckmann's style.

(7600) Vacchi = 1994 RB_1

Discovered 1994 Sept. 9 by V. S. Casulli at Colleverde di Guidonia.

Named in honor of Ciro Vacchi (b. 1916), amateur astronomer and co-founder of San Vittore Observatory, near Bologna. In 1974 he began the San Vittore search for asteroids, and he has many new discoveries to his credit. Today he is still a leader in the Italian community of amateur astrometrists.

(7632) Stanislav = 1982 UT_5

Discovered 1982 Oct. 20 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Named in memory of the Ukrainian writer, poet, literary scholar and public figure Stanislav Volodymyrovych Tel'nyuk (1935–1990). His daughters Lesya and Galyna are well known Ukrainian singers who have set his verses to music.

(7633) Volodymyr = 1982 UD_7

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

Named in honor of the vice president of the Ukrainian Astronomical Association and director of the Kiev University Observatory, Volodymyr Volodymyrovych Tel'nyuk-Adamchuk (b. 1936). He is an expert in astrometry and is the author of observational and summary catalogues of precise stellar positions.

(7661) Reincken = 1994 PK_{38}

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

Named for the North German organist Johann Adam Reincken (1623–1722), a central figure of Hamburg's musical life who lived to a legendary age of 99 years. A pupil of Scheidemann, he was appointed organist at the Katherinenkirche in Hamburg in 1663. In 1678 he was co-founder of Hamburg's famous opera. Reincken was one of the principal representatives of the art of playing the organ in North Germany, although his style was sometimes too virtuoistic. J. S. Bach went to Hamburg several times to hear the master play. In addition to his *Hortus musicus*, there survives his famous Prelude and Fugue in G minor, a piece that every organist likes to play, because of its extremely brilliant and fluent style.

(7666) Keyaki = 1994 VC_1

Discovered 1994 Nov. 4 by K. Cross at the Sendai Astronomical Observatory.

Named for the Sendai "city tree". The name, zelkova in English, was selected from many ideas submitted by Sendai citizens, among them K. and G. Miyashita.

(7670) Kabeláč = 1995 QJ

Discovered 1995 Aug. 20 by P. Pravec at Ondřejov,

Named in memory of Miloslav Kabeláč (1908–1979), outstanding Czech composer and teacher of contemporary music. He displayed high moral qualities during difficult periods in the history of the discoverer's country. Name proposed by the discoverer's father, Ladislav Pravec, who was Kabeláč's student of composition.

(7718) Desnoux = 1997 EP_{30}

Discovered 1997 Mar. 10 by C. Buil at Ramonville.

Named in honor of Valerie Desnoux, talented amateur astronomer. Together with J. P. Rozelot and J. Rosch, she assisted in the development of a scanning heliometer at the Pic du Midi Observatory. Her work on the evolution of the spectra of Be stars with the T60 amateur telescope has also been very much appreciated.

(7776) Takeishi = 1993 BF

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

Named for Masanori Takeishi (b. 1950), a Japanese amateur astronomer who discovered a number of minor planets and was chief editor of the *Japan Astronomical Circular* from 1975 to 1993.

(7779) Susanring = 1993 KL

Discovered 1993 May 19 by J. B. Child at Palomar.

Named in honor of Susan Ivanka Ring, inspired and dedicated member of the Canberra Astronomical Society. Susan's love of astronomy has expressed itself through committed support of school observing programs and leadership in the Society, as well as through her devoted managing editorship of the magazine *Southern Sky*. Citation enthusiastically endorsed by J. Mould and the Canberra Astronomical Society.

(7781) Townsend = 1993 QT

Discovered 1993 Aug. 19 by E. F. Helin at Palomar.

Named in honor of Charles Townsend, a retired laser physicist and community-college instructor of astronomy and mathematics, and a former president of the Ventura County Astronomical Society and the Western Amateur Astronomers. He has co-authored two books, *Patrolling Night Skies* (1984) and *Observational Astronomy* (1989), the latter being used to teach an advanced astronomy course at Moorpark College. One of his students, John E. Rogers, is extremely grateful for Townsend's encouragement and leadership. This led to the existence of the Camarillo Observatory, which has contributed to the astrometry of near-earth objects and comets generally since 1992.

(7818) Muirhead = 1990 QO

Discovered 1990 Aug. 19 by E. F. Helin at Palomar.

Named in honor of Brian K. Muirhead, flight system manager and deputy project manager of the Jet Propulsion Laboratory's Pathfinder mission. He was responsible for the design, development, test and launch of the Pathfinder spacecraft. He has been commended for his leading role in the successful Pathfinder project and became a highly recognized scientist in the media blitz reporting the status of this remarkable Mars landing.

(7840) Hendrika = 1994 TL_3

Discovered 1994 Oct. 5 by G. C. L. Aikman at the Dominion Astrophysical Observatory, Victoria.

Named in honor of Hendrika Cornelia Marshall Aikman (née Grootendorst), beloved wife of the discoverer.

(7849) Janjosefrič = 1996 HR

Discovered 1996 Apr. 18 by P. Pravec and L. Šarounová at Ondřejov.

Named in memory of Jan Frič (1863–1897) and Josef Frič (1861–1945), the two brothers who founded the Ondřejov Observatory. On 1898 Jan. 21, one year after Jan's sudden death, Josef started to bring to fruition their shared idea of establishing an astronomical institution. He purchased the land, and he adopted Jan's name as his own second name. The observatory grew extensively during the twentieth century and became internationally renowned. It was at Ondřejov that Josef Jan Frič, together with František Nušl, discovered an anomalous refraction effect and developed astrogeodetic instruments, such as the the well-known Nušl-Frič circumzenithal, for the determination of geographical coordinates. Name proposed by M. Kopecký, astronomer and archivist of the Ondřejov Observatory.

(7871) Tunder = 1990 SW_4

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

Named for the organist Franz Tunder (1614–1667), founder of the North German school of organ composition. In 1641 he became organist in Lübeck at the Marienkirche, with its beautiful organ that was destroyed in 1945. It was Tunder also who started the famous "Abendmusiken", which his successor, Dietrich Buxtehude, continued and raised to further glory.

(7881) Schieferdecker = 1992 RC_7

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

Named for the German organist Johann Christian Schieferdecker (1679–1732), who became Dietrich Buxtehude's successor at the Marienkirche in Lübeck, by marrying the rather undesirable eldest daughter of his predecessor, apparently one of the side conditions for getting the job. Schieferdecker was a fine harpsichordist and had come to Lübeck in order to learn from Buxtehude the art of sacred composition.

(7897) Bohuska = 1995 EL_1

Discovered 1995 Mar. 12 by L. Šarounová at Ondřejov.

Named in honor of the discoverer's mother, Bohumila Šarounová, in hearty thanks for her tolerance and support of the life and work of the discoverer. This minor planet was discovered on the discoverer's mother's birthday.

(7902) Hanff = 1996 HT_{17}

Discovered 1996 Apr. 18 by E. W. Elst at the European Southern Observatory.

Named in memory of the German organist Johann Nicolaus Hanff (1665–1711). In 1696 he became organist and conductor to the Bishop of Lübeck. Hanff's style, with the melody moving slowly but with rich ornamentation above a slow-moving and not very clearly individualized accompaniment, was favored by Buxtehude.

(7903) Albinoni = 1996 HV_{24}

Discovered 1996 Apr. 20 by E. W. Elst at the European Southern Observatory.

Named for the Italian composer Tomaso Albinoni (1671–1750). Although he considered himself an amateur composer, his 50 or so operas and instrumental works achieved wide popularity. Particularly notable are his concerti for solo violin and for one or two oboes, as well as his famous "Adagio" for strings.

(7904) Morrow = 1997 JL_4

Discovered 1997 May 1 by the Lincoln Near-Earth Asteroid Research Team at Socorro.

Named in honor of Walter W. Morrow, Jr. (b. 1928), for his exceptional leadership as director of the Massachusetts Institute of Technology's Lincoln Laboratory for over 20 years, on the occasion of his retirement.

(7947) Toland = 1992 BE_2

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

Named in memory of the controversial freethinker John Toland (1670–1722). In 1696 he published his celebrated *Christianity not Mysterious*, a classic exposition on deism. Later, in his *Letters to Serena* (1704), he severely attacked the deism of both Spinoza and Newton with the remark "That after admitting the Activity of Matter, there seems to be no need of a presiding Intelligence", thus anticipating Holbach's *Système de la Nature*.

(7960) Condorcet = 1994 PW_{16}

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

Named for the French philosopher of the Enlightenment, Marie-Jean-Antoine-Nicolas de Caritat, marquis de Condorcet (1743–1794), an advocate of educational reform and a believer in the indefinite perfectability of mankind. At an early age, Condorcet showed remarkable mathematical abilities, notably in probability theory, and as a friend of d'Alembert he took an active part in the preparation of the *Encyclopédie*. But he is mainly remembered for his *Esquisse d'un tableau historique des progrès de l'esprit humain* (1795), with its fundamental idea of the continuous progress of humankind to an ultimate perfection. Suspected as a *Girondin*, he had to flee, but eventually he was captured and imprisoned at Bourg-La-Reine, where he was poisoned.

EPHEMERIDES

C/1997 J2 (Meunier-Dupouy) Elements *MPC* 30738

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1997 12 08	18 22.84	+46 10.8	3.356	3.183	71.5	17.1	11.2	
1997 12 18	18 48.60	+43 52.7	3.374	3.157	68.9	16.9	11.1	
1997 12 28	19 12.86	+41 43.1	3.404	3.133	65.9	16.6	11.1	
1998 01 07	19 35.60	+39 44.9	3.443	3.112	62.4	16.3	11.1	
1998 01 17	19 56.85	+37 59.8	3.487	3.094	58.8	15.8	11.1	
1998 01 27	20 16.68	+36 28.7	3.533	3.080	55.2	15.2	11.1	
1998 02 06	20 35.13	+35 11.8	3.576	3.068	51.9	14.7	11.1	
1998 02 16	20 52.25	+34 08.4	3.613	3.059	49.1	14.1	11.1	
1998 02 26	21 08.08	+33 17.3	3.641	3.053	47.0	13.7	11.2	
1998 03 08	21 22.65	+32 37.4	3.658	3.051	45.9	13.5	11.2	
1998 03 18	21 35.96	+32 06.7	3.660	3.052	45.9	13.5	11.2	
1998 03 28	21 48.02	+31 43.8	3.647	3.056	47.1	13.8	11.2	
1998 04 07	21 58.77	+31 26.6	3.617	3.063	49.5	14.4	11.2	
1998 04 17	22 08.17	+31 13.1	3.570	3.073	53.0	15.1	11.1	
1998 04 27	22 16.13	+31 01.2	3.507	3.087	57.6	16.0	11.1	
1998 05 07	22 22.54	+30 48.7	3.427	3.103	63.1	16.8	11.1	
1998 05 17	22 27.26	+30 32.6	3.333	3.122	69.3	17.6	11.1	
1998 05 27	22 30.14	+30 09.9	3.226	3.145	76.3	18.2	11.0	
1998 06 06	22 31.00	+29 36.8	3.111	3.170	84.0	18.6	11.0	
1998 06 16	22 29.70	+28 48.9	2.990	3.198	92.4	18.5	10.9	
1998 06 26	22 26.11	+27 41.0	2.869	3.228	101.4	18.0	10.9	
1998 07 06	22 20.22	+26 07.4	2.753	3.261	111.2	16.9	10.8	
1998 07 16	22 12.20	+24 02.9	2.650	3.296	121.5	15.2	10.8	
1998 07 26	22 02.37	+21 23.9	2.567	3.334	132.1	13.1	10.8	
1998 08 05	21 51.32	+18 09.9	2.512	3.374	142.5	10.5	10.8	
1998 08 15	21 39.82	+14 25.6	2.492	3.416	151.4	8.2	10.8	
1998 08 25	21 28.68	+10 21.0	2.513	3.460	155.9	6.9	10.9	
1998 09 04	21 18.68	+06 09.5	2.576	3.506	153.3	7.4	11.0	
1998 09 14	21 10.39	+02 05.0	2.679	3.554	145.4	9.2	11.1	
1998 09 24	21 04.16	−01 41.6	2.820	3.603	135.3	11.3	11.3	
1998 10 04	21 00.12	−05 03.6	2.992	3.654	124.6	13.0	11.5	
1998 10 14	20 58.22	−07 58.3	3.188	3.707	113.9	14.2	11.7	
1998 10 24	20 58.30	−10 26.2	3.402	3.760	103.5	14.9	11.9	
1998 11 03	21 00.16	−12 29.3	3.625	3.816	93.5	15.0	12.1	
1998 11 13	21 03.55	−14 10.6	3.853	3.872	83.8	14.7	12.3	
1998 11 23	21 08.26	−15 33.2	4.079	3.930	74.4	14.0	12.5	
1998 12 03	21 14.05	−16 40.0	4.299	3.988	65.2	13.0	12.7	
1998 12 13	21 20.73	−17 33.7	4.509	4.048	56.4	11.7	12.8	
1998 12 23	21 28.11	−18 16.6	4.706	4.108	47.7	10.2	13.0	
1999 01 02	21 36.04	−18 51.0	4.885	4.170	39.2	8.6	13.1	
1999 01 12	21 44.38	−19 18.7	5.045	4.232	31.0	6.9	13.3	

P/1997 V1 (Larsen) Elements *MPC* 30957

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1997 12 08	00 18.05	+09 57.4	2.829	3.325	112.0	15.9	16.5	
1997 12 18	00 23.13	+09 43.1	2.972	3.333	103.0	16.7	16.6	
1997 12 28	00 29.72	+09 41.6	3.121	3.342	94.3	17.1	16.7	
1998 01 07	00 37.66	+09 51.9	3.273	3.352	86.0	17.0	16.8	
1998 01 17	00 46.75	+10 12.4	3.424	3.362	78.1	16.6	16.9	
1998 01 27	00 56.83	+10 41.5	3.574	3.373	70.4	16.0	17.0	
1998 02 06	01 07.76	+11 17.7	3.718	3.385	63.0	15.0	17.1	
1998 02 16	01 19.39	+11 59.4	3.854	3.398	55.8	13.9	17.2	
1998 02 26	01 31.63	+12 45.2	3.982	3.412	48.7	12.6	17.3	
1998 03 08	01 44.36	+13 33.7	4.100	3.426	41.9	11.2	17.4	
1998 03 18	01 57.51	+14 23.6	4.206	3.441	35.2	9.6	17.5	

1997 VM_4 $a, e, i = 2.62, 0.81, 14$ Elements *MPC* 31018

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1997 12 08	00 47.94	+12 51.9	0.498	1.306	119.8	40.9	18.7
1997 12 13	00 27.34	+12 23.0	0.486	1.237	109.9	48.4	18.7
1997 12 18	00 07.52	+11 56.0	0.477	1.167	100.2	56.1	18.8
1997 12 23	23 48.45	+11 31.0	0.470	1.096	90.8	63.9	18.8
1997 12 28	23 29.83	+11 06.8	0.463	1.023	81.5	71.9	18.9
1998 01 02	23 11.09	+10 40.2	0.456	0.949	72.2	80.6	19.0
1998 01 07	22 51.41	+10 05.2	0.448	0.875	62.9	90.0	19.1
1998 01 12	22 29.83	+09 12.1	0.440	0.801	53.2	100.7	19.4
1998 01 17	22 05.49	+07 47.2	0.435	0.729	43.0	113.0	19.9
1998 01 22	21 38.09	+05 34.5	0.435	0.659	32.4	126.9	20.7
1998 01 27	21 08.74	+02 22.7	0.447	0.596	22.3	141.1	22.1

1997 US_9 $a, e, i = 1.05, 0.28, 20$ Elements *MPC* 31015

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1997 12 08	01 05.91	−13 18.2	0.547	1.297	112.5	44.5	18.5
1997 12 18	01 11.46	−14 31.9	0.610	1.273	103.6	48.7	18.8

1997 12 28	01 20.94	−14 51.6	0.668	1.245	96.0	51.8	19.0
1998 01 07	01 33.53	−14 34.1	0.720	1.213	89.4	54.2	19.2
1998 01 17	01 48.57	−13 50.8	0.762	1.176	83.7	56.2	19.3
1998 01 27	02 05.60	−12 49.1	0.793	1.136	78.6	58.2	19.4
1998 02 06	02 24.37	−11 33.7	0.810	1.092	74.2	60.3	19.4
1998 02 16	02 44.62	−10 08.0	0.813	1.046	70.2	62.7	19.4
1998 02 26	03 06.17	−08 32.9	0.800	0.997	66.7	65.8	19.3
1998 03 08	03 28.86	−06 47.3	0.772	0.948	63.6	69.6	19.3
1998 03 18	03 52.35	−04 47.4	0.727	0.900	60.7	74.6	19.2
1998 03 28	04 16.22	−02 23.6	0.667	0.854	57.7	81.0	19.1
1998 04 07	04 39.66	+00 42.0	0.593	0.814	54.4	89.3	19.1
1998 04 17	05 01.22	+05 02.9	0.510	0.782	50.2	99.8	19.1
1998 04 27	05 18.49	+11 37.2	0.425	0.762	44.3	112.8	19.4
1998 05 07	05 27.31	+21 46.7	0.349	0.756	36.2	128.0	20.1

1997 UF$_9$ a, e, i = 1.44, 0.60, 26 Elements *MPC* 31015

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1997 12 08	01 08.38	+16 48.8	1.074	1.832	125.7	25.9	19.1
1997 12 18	00 57.39	+17 01.0	1.132	1.769	113.3	30.7	19.3
1997 12 28	00 51.88	+17 31.8	1.196	1.702	102.2	34.4	19.5
1998 01 07	00 51.22	+18 22.7	1.258	1.629	92.4	37.1	19.6
1998 01 17	00 54.65	+19 33.1	1.313	1.552	83.7	39.1	19.6
1998 01 27	01 01.59	+21 01.5	1.357	1.469	75.9	40.5	19.6
1998 02 06	01 11.63	+22 46.6	1.386	1.382	68.9	41.7	19.5
1998 02 16	01 24.51	+24 46.8	1.396	1.289	62.7	42.9	19.4
1998 02 26	01 40.18	+27 00.1	1.386	1.191	57.3	44.4	19.3
1998 03 08	01 58.81	+29 24.1	1.354	1.089	52.6	46.4	19.1
1998 03 18	02 20.69	+31 54.3	1.296	0.982	48.6	49.5	18.9
1998 03 28	02 46.30	+34 22.5	1.211	0.874	45.3	54.3	18.6
1998 04 07	03 16.05	+36 32.1	1.097	0.767	42.6	62.0	18.3
1998 04 17	03 49.47	+37 48.1	0.952	0.671	40.0	74.1	18.1
1998 04 27	04 23.32	+36 59.8	0.782	0.600	36.5	92.5	18.1

1995 OO a, e, i = 2.15, 0.78, 24 Elements *MPC* 30983

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1997 12 08	01 51.99	+59 50.1	1.048	1.847	130.6	23.9	19.6
1997 12 18	01 18.09	+56 50.6	1.003	1.740	122.3	28.5	19.5
1997 12 28	00 55.83	+53 03.8	0.974	1.628	112.6	33.9	19.4
1998 01 07	00 44.28	+49 08.1	0.954	1.511	102.5	39.5	19.4
1998 01 17	00 41.02	+45 27.4	0.935	1.387	92.6	45.1	19.3
1998 01 27	00 43.88	+42 09.4	0.910	1.258	83.1	51.0	19.2
1998 02 06	00 51.12	+39 09.6	0.873	1.123	74.1	57.6	19.0
1998 02 16	01 01.05	+36 09.8	0.818	0.982	65.1	65.8	18.8

1997 WB$_{21}$ a, e, i = 1.47, 0.32, 3 Elements *MPC* 31022

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1997 12 08	01 58.54	+22 11.1	0.228	1.166	138.5	34.1	19.1
1997 12 13	02 17.70	+21 45.0	0.258	1.188	137.8	33.8	19.4
1997 12 18	02 34.50	+21 23.1	0.290	1.211	136.5	34.0	19.7
1997 12 23	02 49.55	+21 06.0	0.325	1.235	134.9	34.4	20.0
1997 12 28	03 03.31	+20 53.6	0.362	1.258	132.9	34.9	20.3
1998 01 02	03 16.16	+20 45.7	0.402	1.282	130.7	35.5	20.6
1998 01 07	03 28.35	+20 41.8	0.444	1.307	128.4	36.2	20.9
1998 01 12	03 40.06	+20 41.2	0.489	1.331	125.9	36.7	21.2
1998 01 17	03 51.42	+20 43.1	0.536	1.355	123.5	37.3	21.4
1998 01 22	04 02.52	+20 46.9	0.585	1.379	120.9	37.8	21.7
1998 01 27	04 13.47	+20 52.0	0.635	1.403	118.4	38.1	21.9

1997 WS$_{22}$ a, e, i = 1.27, 0.12, 24 Elements *MPC* 31022

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1997 12 08	02 55.94	+28 21.7	0.473	1.420	151.7	19.2	17.6
1997 12 13	02 43.37	+30 11.2	0.500	1.421	144.3	23.9	17.9
1997 12 18	02 33.29	+31 44.7	0.531	1.421	137.4	27.9	18.1
1997 12 23	02 25.74	+33 05.5	0.565	1.421	131.2	31.4	18.4
1997 12 28	02 20.65	+34 16.9	0.602	1.421	125.6	34.2	18.6
1998 01 02	02 17.85	+35 21.6	0.641	1.420	120.5	36.6	18.8
1998 01 07	02 17.16	+36 21.8	0.681	1.419	115.9	38.6	19.0
1998 01 12	02 18.33	+37 19.1	0.721	1.418	111.6	40.2	19.1
1998 01 17	02 21.17	+38 14.3	0.762	1.415	107.7	41.5	19.3
1998 01 22	02 25.51	+39 08.2	0.802	1.413	104.1	42.5	19.4
1998 01 27	02 31.23	+40 00.9	0.842	1.410	100.7	43.3	19.5
1998 02 01	02 38.22	+40 52.6	0.882	1.407	97.6	44.0	19.7
1998 02 06	02 46.37	+41 43.5	0.920	1.403	94.7	44.5	19.8
1998 02 11	02 55.61	+42 33.1	0.958	1.399	92.0	44.8	19.9
1998 02 16	03 05.87	+43 21.2	0.994	1.394	89.4	45.1	19.9
1998 02 21	03 17.12	+44 07.2	1.029	1.389	87.0	45.3	20.0
1998 02 26	03 29.32	+44 50.7	1.062	1.384	84.8	45.4	20.1
1998 03 03	03 42.44	+45 31.2	1.093	1.378	82.6	45.5	20.1
1998 03 08	03 56.45	+46 08.0	1.123	1.372	80.6	45.5	20.2
1998 03 13	04 11.31	+46 40.5	1.151	1.366	78.7	45.5	20.2
1998 03 18	04 26.97	+47 07.9	1.178	1.359	76.9	45.5	20.3
1998 03 23	04 43.39	+47 29.4	1.202	1.352	75.2	45.5	20.3
1998 03 28	05 00.52	+47 44.1	1.225	1.345	73.6	45.4	20.3
1998 04 02	05 18.29	+47 51.5	1.247	1.337	72.1	45.4	20.3
1998 04 07	05 36.61	+47 50.8	1.266	1.329	70.7	45.3	20.4
1998 04 12	05 55.37	+47 41.2	1.284	1.321	69.3	45.2	20.4
1998 04 17	06 14.45	+47 22.2	1.300	1.312	68.1	45.2	20.4
1998 04 22	06 33.76	+46 53.2	1.315	1.304	66.8	45.1	20.4
1998 04 27	06 53.17	+46 13.8	1.328	1.295	65.7	45.1	20.4
1998 05 02	07 12.58	+45 23.8	1.340	1.286	64.6	45.1	20.4
1998 05 07	07 31.85	+44 23.1	1.351	1.277	63.6	45.1	20.4
1998 05 12	07 50.90	+43 11.8	1.360	1.268	62.6	45.0	20.4
1998 05 17	08 09.63	+41 49.8	1.369	1.258	61.7	45.0	20.4
1998 05 22	08 27.98	+40 17.5	1.377	1.249	60.8	45.0	20.4
1998 05 27	08 45.92	+38 35.3	1.384	1.240	60.0	45.0	20.4

1997 WT$_{22}$ a, e, i = 1.50, 0.31, 8 Elements *MPC* 31022

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1997 12 08	02 57.97	+15 02.1	0.317	1.270	150.4	22.5	18.1
1997 12 18	02 37.77	+18 00.9	0.308	1.226	136.5	33.5	18.3
1997 12 28	02 23.90	+21 28.6	0.307	1.183	124.1	43.5	18.5
1998 01 07	02 17.99	+25 21.1	0.311	1.144	113.7	51.9	18.7
1998 01 17	02 20.05	+29 36.5	0.314	1.109	105.3	58.8	18.8
1998 01 27	02 29.72	+34 12.3	0.315	1.079	98.8	64.4	18.9
1998 02 06	02 47.22	+39 05.8	0.313	1.055	94.1	68.7	19.0
1998 02 16	03 13.48	+44 09.6	0.307	1.039	91.0	71.8	19.0
1998 02 26	03 50.94	+49 07.0	0.299	1.032	89.5	73.7	19.0
1998 03 08	04 43.70	+53 25.5	0.290	1.032	89.7	74.0	19.0

1998 03 18	05 54.83	+56 02.8	0.281	1.042	91.6	72.7	18.9
1998 03 28	07 19.60	+55 32.6	0.276	1.059	95.1	69.8	18.8
1998 04 07	08 42.20	+51 06.1	0.278	1.084	99.9	65.5	18.7
1998 04 17	09 49.33	+43 26.9	0.290	1.115	105.1	60.4	18.7
1998 04 27	10 39.99	+34 12.8	0.314	1.151	109.6	55.5	18.8
1998 05 07	11 18.84	+24 53.6	0.352	1.191	112.9	51.3	19.0
1998 05 17	11 50.15	+16 23.7	0.403	1.233	114.4	48.3	19.3
1998 05 27	12 16.83	+09 02.4	0.467	1.278	114.3	46.3	19.6
1998 06 06	12 40.85	+02 49.0	0.542	1.324	113.0	44.9	20.0
1998 06 16	13 03.29	−02 25.3	0.627	1.370	110.8	43.9	20.4
1998 06 26	13 24.87	−06 51.0	0.721	1.416	107.9	43.1	20.7
1998 07 06	13 46.10	−10 37.7	0.823	1.461	104.7	42.3	21.0
1998 07 16	14 07.23	−13 52.5	0.932	1.505	101.1	41.5	21.4
1998 07 26	14 28.46	−16 40.9	1.046	1.548	97.3	40.6	21.6
1998 08 05	14 49.95	−19 07.1	1.166	1.589	93.3	39.6	21.9

1997 WU$_{22}$ a, e, i = 1.47, 0.43, 15 Elements *MPC* 31022

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1997 12 08	03 56.68	+26 57.6	1.085	2.053	165.2	7.0	17.8
1997 12 18	03 40.37	+24 39.2	1.113	2.035	152.0	13.1	18.0
1997 12 28	03 28.42	+22 28.1	1.167	2.015	138.9	18.7	18.3
1998 01 07	03 21.45	+20 37.1	1.240	1.991	126.8	23.3	18.6
1998 01 17	03 19.29	+19 11.6	1.326	1.965	115.8	26.8	18.8
1998 01 27	03 21.37	+18 11.3	1.419	1.935	105.8	29.3	19.0
1998 02 06	03 27.09	+17 32.9	1.514	1.902	96.8	31.0	19.1
1998 02 16	03 35.85	+17 11.7	1.607	1.867	88.6	31.9	19.2
1998 02 26	03 47.19	+17 03.2	1.696	1.828	81.2	32.4	19.3
1998 03 08	04 00.75	+17 03.0	1.777	1.786	74.3	32.3	19.4
1998 03 18	04 16.24	+17 07.1	1.848	1.741	68.1	32.0	19.4
1998 03 28	04 33.46	+17 12.0	1.909	1.694	62.3	31.4	19.4
1998 04 07	04 52.29	+17 14.6	1.958	1.643	56.9	30.7	19.4
1998 04 17	05 12.59	+17 12.0	1.995	1.589	52.0	29.9	19.3
1998 04 27	05 34.32	+17 01.5	2.019	1.532	47.6	29.0	19.2
1998 05 07	05 57.45	+16 40.6	2.029	1.472	43.5	28.2	19.1
1998 05 17	06 21.95	+16 06.9	2.027	1.410	39.9	27.4	19.0
1998 05 27	06 47.85	+15 18.0	2.013	1.346	36.8	26.8	18.9
1998 06 06	07 15.19	+14 11.7	1.986	1.279	34.1	26.4	18.7
1998 06 16	07 44.02	+12 46.0	1.948	1.212	31.9	26.3	18.6
1998 06 26	08 14.48	+10 59.4	1.901	1.144	30.3	26.6	18.4

1996 PW a, e, i = 327.16, 0.99, 30 Elements *MPC* 30985

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1997 12 08	04 10.22	−15 09.0	4.595	5.390	140.3	6.7	21.5
1997 12 18	04 05.61	−14 46.4	4.725	5.466	135.0	7.3	21.6
1997 12 28	04 01.84	−14 12.2	4.878	5.541	128.3	8.0	21.7
1998 01 07	03 59.11	−13 28.3	5.050	5.617	120.7	8.7	21.9
1998 01 17	03 57.52	−12 37.1	5.239	5.693	112.8	9.2	22.0
1998 01 27	03 57.09	−11 41.0	5.439	5.768	104.7	9.5	22.1
1998 02 06	03 57.82	−10 41.9	5.648	5.843	96.5	9.7	22.2
1998 02 16	03 59.63	−09 41.8	5.862	5.918	88.5	9.6	22.3
1998 02 26	04 02.42	−08 42.2	6.076	5.993	80.5	9.4	22.4
1998 03 08	04 06.09	−07 44.4	6.288	6.068	72.8	9.0	22.5
1998 03 18	04 10.51	−06 49.5	6.493	6.143	65.2	8.5	22.6
1998 03 28	04 15.59	−05 58.1	6.690	6.218	57.9	7.8	22.7
1998 04 07	04 21.20	−05 10.9	6.875	6.292	50.9	7.1	22.7
1998 04 17	04 27.23	−04 28.4	7.046	6.366	44.3	6.3	22.7
1998 04 27	04 33.60	−03 50.9	7.202	6.441	38.2	5.5	22.8
1998 05 07	04 40.20	−03 18.8	7.340	6.515	32.7	4.8	22.8

1997 XS$_2$ a, e, i = 3.00, 0.57, 21 Elements *MPC* 31022

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1997 12 08	04 17.15	+18 34.3	0.350	1.331	169.4	7.8	18.4
1997 12 13	04 11.51	+23 51.3	0.343	1.317	164.1	11.8	18.5
1997 12 18	04 06.16	+29 16.4	0.341	1.306	157.5	16.7	18.6
1997 12 23	04 01.57	+34 34.8	0.346	1.297	150.9	21.7	18.8
1997 12 28	03 58.27	+39 34.5	0.356	1.290	144.6	26.2	19.0
1998 01 02	03 56.79	+44 07.1	0.371	1.286	138.9	30.2	19.2
1998 01 07	03 57.60	+48 09.0	0.390	1.285	133.8	33.5	19.4
1998 01 12	04 01.09	+51 39.7	0.412	1.286	129.5	36.2	19.6
1998 01 17	04 07.50	+54 40.0	0.437	1.289	125.8	38.2	19.8
1998 01 22	04 17.02	+57 11.6	0.464	1.295	122.7	39.7	20.0
1998 01 27	04 29.74	+59 15.8	0.493	1.304	120.2	40.8	20.1
1998 02 01	04 45.60	+60 53.9	0.523	1.315	118.0	41.4	20.3
1998 02 06	05 04.34	+62 06.7	0.555	1.328	116.2	41.8	20.5
1998 02 11	05 25.47	+62 54.6	0.588	1.343	114.7	41.9	20.6
1998 02 16	05 48.32	+63 18.1	0.622	1.361	113.4	41.8	20.8
1998 02 21	06 12.12	+63 17.9	0.658	1.380	112.3	41.5	20.9
1998 02 26	06 36.12	+62 55.2	0.695	1.401	111.3	41.2	21.1

1997 XR$_2$ a, e, i = 1.08, 0.20, 7 Elements *MPC* 31022

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1997 12 08	04 18.46	+14 43.0	0.086	1.069	167.5	11.5	16.5
1997 12 13	04 15.68	+10 17.5	0.107	1.086	159.8	18.3	17.3
1997 12 18	04 14.79	+07 34.0	0.130	1.102	153.6	23.4	17.9
1997 12 23	04 15.27	+05 54.2	0.154	1.118	148.3	27.6	18.4
1997 12 28	04 16.90	+04 56.5	0.180	1.133	143.6	31.0	18.9
1998 01 02	04 19.58	+04 28.0	0.207	1.148	139.3	33.9	19.3
1998 01 07	04 23.22	+04 20.1	0.235	1.163	135.5	36.4	19.7
1998 01 12	04 27.73	+04 26.6	0.264	1.177	131.9	38.5	20.0
1998 01 17	04 32.97	+04 43.4	0.295	1.190	128.5	40.3	20.3
1998 01 22	04 38.90	+05 07.6	0.326	1.202	125.2	42.0	20.6
1998 01 27	04 45.47	+05 36.8	0.358	1.214	122.2	43.4	20.9
1998 02 01	04 52.65	+06 09.3	0.391	1.225	119.2	44.6	21.1
1998 02 06	05 00.41	+06 43.6	0.425	1.235	116.4	45.6	21.3
1998 02 11	05 08.66	+07 18.5	0.459	1.245	113.7	46.5	21.5
1998 02 16	05 17.38	+07 53.1	0.493	1.253	111.1	47.3	21.7
1998 02 21	05 26.51	+08 26.7	0.528	1.261	108.6	48.0	21.9
1998 02 26	05 36.04	+08 58.7	0.563	1.268	106.1	48.6	22.1

1991 VE a, e, i = 0.89, 0.66, 7 Elements *MPC* 30978

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1997 12 08	04 27.35	+26 07.3	0.500	1.481	172.0	5.3	17.9
1997 12 13	04 04.77	+25 40.2	0.514	1.483	162.5	11.5	18.2
1997 12 18	03 44.68	+25 03.0	0.536	1.482	153.0	17.5	18.5
1997 12 23	03 27.68	+24 21.6	0.565	1.479	144.1	23.0	18.8
1997 12 28	03 13.93	+23 41.2	0.599	1.473	135.8	27.7	19.1
1998 01 02	03 03.30	+23 05.3	0.637	1.466	128.3	31.8	19.3
1998 01 07	02 55.50	+22 36.0	0.677	1.456	121.4	35.2	19.5

1998 01 12	02 50.16	+22 14.2	0.720	1.443	115.0	38.1	19.7
1998 01 17	02 46.91	+21 59.7	0.763	1.429	109.2	40.6	19.9
1998 01 22	02 45.44	+21 52.1	0.805	1.412	103.7	42.6	20.0
1998 01 27	02 45.50	+21 50.8	0.847	1.393	98.7	44.3	20.2
1998 02 01	02 46.85	+21 54.9	0.888	1.371	93.9	45.8	20.3
1998 02 06	02 49.32	+22 03.8	0.926	1.347	89.5	47.1	20.4
1998 02 11	02 52.74	+22 16.7	0.961	1.320	85.3	48.2	20.4
1998 02 16	02 56.97	+22 33.0	0.994	1.290	81.3	49.2	20.5
1998 02 21	03 01.93	+22 51.9	1.022	1.258	77.4	50.1	20.5
1998 02 26	03 07.52	+23 13.0	1.047	1.223	73.7	51.0	20.5
1998 03 03	03 13.67	+23 35.6	1.067	1.185	70.2	51.9	20.5
1998 03 08	03 20.31	+23 59.4	1.081	1.144	66.8	52.9	20.5
1998 03 13	03 27.37	+24 23.8	1.091	1.100	63.5	54.0	20.5
1998 03 18	03 34.77	+24 48.1	1.094	1.052	60.2	55.2	20.4

1997 WQ$_{23}$ a, e, i = 1.75, 0.50, 2 Elements *MPC* 31022

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1997 12 08	05 00.40	+26 45.8	0.263	1.247	175.9	3.2	18.4
1997 12 13	04 53.00	+26 46.0	0.302	1.284	172.7	5.6	18.9
1997 12 18	04 47.71	+26 42.8	0.344	1.322	167.0	9.6	19.4
1997 12 23	04 44.25	+26 38.1	0.390	1.359	161.4	13.4	19.9
1997 12 28	04 42.41	+26 33.0	0.439	1.396	156.0	16.7	20.3
1998 01 02	04 42.01	+26 28.4	0.492	1.433	150.9	19.5	20.7
1998 01 07	04 42.88	+26 24.8	0.548	1.470	146.0	22.0	21.1
1998 01 12	04 44.85	+26 22.2	0.607	1.506	141.4	24.0	21.4
1998 01 17	04 47.78	+26 20.7	0.669	1.542	137.0	25.8	21.7
1998 01 22	04 51.53	+26 20.1	0.734	1.577	132.8	27.3	22.0
1998 01 27	04 56.00	+26 20.2	0.802	1.612	128.7	28.5	22.3

134P/Kowal-Vávrová Elements *MPC* 30957

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1997 12 08	10 27.30	+05 15.2	3.412	3.701	99.3	15.2	19.8	22.3
1997 12 18	10 31.05	+04 45.0	3.220	3.652	108.4	14.8	19.7	22.2
1997 12 28	10 33.28	+04 23.5	3.037	3.604	117.9	14.0	19.5	22.0
1998 01 07	10 33.85	+04 12.4	2.866	3.555	127.9	12.6	19.3	21.8
1998 01 17	10 32.68	+04 12.7	2.711	3.507	138.2	10.8	19.1	21.6
1998 01 27	10 29.81	+04 24.9	2.577	3.459	149.0	8.4	18.9	21.3
1998 02 06	10 25.40	+04 48.8	2.468	3.412	160.1	5.6	18.8	21.1
1998 02 16	10 19.84	+05 22.7	2.386	3.365	171.0	2.6	18.7	20.8
1998 02 26	10 13.66	+06 03.8	2.333	3.319	173.9	1.8	18.5	20.7
1998 03 08	10 07.53	+06 48.1	2.309	3.273	163.6	4.9	18.5	20.8
1998 03 18	10 02.16	+07 31.4	2.313	3.228	152.4	8.2	18.4	20.9
1998 03 28	09 58.13	+08 09.7	2.342	3.184	141.5	11.3	18.4	21.1
1998 04 07	09 55.90	+08 40.0	2.392	3.141	131.0	13.9	18.4	21.2
1998 04 17	09 55.72	+09 00.2	2.459	3.098	121.1	16.1	18.4	21.3
1998 04 27	09 57.65	+09 09.1	2.538	3.057	111.7	17.8	18.4	21.4
1998 05 07	10 01.65	+09 06.3	2.625	3.017	103.0	19.0	18.4	21.5
1998 05 17	10 07.57	+08 51.9	2.717	2.978	94.8	19.8	18.4	21.5
1998 05 27	10 15.22	+08 26.2	2.811	2.940	87.1	20.1	18.4	21.6
1998 06 06	10 24.42	+07 49.8	2.904	2.903	79.9	20.1	18.4	21.6
1998 06 16	10 34.95	+07 03.3	2.995	2.868	73.0	19.8	18.5	21.7
1998 06 26	10 46.66	+06 07.5	3.081	2.834	66.5	19.2	18.5	21.7
1998 07 06	10 59.38	+05 03.0	3.162	2.802	60.3	18.4	18.5	21.7
1998 07 16	11 12.99	+03 50.8	3.238	2.772	54.4	17.3	18.5	21.7
1998 07 26	11 27.37	+02 31.6	3.306	2.743	48.7	16.1	18.5	21.7
1998 08 05	11 42.45	+01 06.4	3.367	2.717	43.1	14.8	18.5	21.6
1998 08 15	11 58.13	−00 23.9	3.421	2.692	37.7	13.3	18.5	21.6
1998 08 25	12 14.38	−01 58.2	3.467	2.670	32.4	11.7	18.5	21.5

1995 GO a, e, i = 18.07, 0.62, 18 Elements *MPC* 30292

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1997 12 08	13 54.18	−18 55.2	11.294	10.597	43.2	3.6	19.7
1997 12 18	13 57.42	−19 22.1	11.137	10.565	52.4	4.2	19.7
1997 12 28	14 00.27	−19 47.8	10.964	10.533	61.7	4.7	19.7
1998 01 07	14 02.65	−20 11.6	10.778	10.501	71.1	5.1	19.7
1998 01 17	14 04.48	−20 33.5	10.583	10.469	80.7	5.3	19.7
1998 01 27	14 05.72	−20 52.8	10.384	10.437	90.4	5.4	19.6
1998 02 06	14 06.33	−21 09.4	10.185	10.406	100.2	5.4	19.6
1998 02 16	14 06.28	−21 22.9	9.991	10.374	110.2	5.1	19.5
1998 02 26	14 05.57	−21 33.0	9.808	10.342	120.2	4.7	19.4
1998 03 08	14 04.22	−21 39.5	9.640	10.310	130.3	4.2	19.4
1998 03 18	14 02.31	−21 42.4	9.491	10.278	140.4	3.5	19.3
1998 03 28	13 59.91	−21 41.7	9.366	10.246	150.4	2.8	19.2
1998 04 07	13 57.14	−21 37.5	9.268	10.214	160.1	1.9	19.1
1998 04 17	13 54.14	−21 30.4	9.198	10.183	168.3	1.1	19.0
1998 04 27	13 51.06	−21 20.9	9.158	10.151	170.2	1.0	19.0
1998 05 07	13 48.06	−21 09.7	9.148	10.119	163.5	1.6	19.0
1998 05 17	13 45.28	−20 57.7	9.166	10.087	154.3	2.5	19.1
1998 05 27	13 42.86	−20 45.6	9.212	10.056	144.7	3.3	19.2
1998 06 06	13 40.91	−20 34.4	9.282	10.024	134.9	4.1	19.2
1998 06 16	13 39.52	−20 24.9	9.372	9.992	125.2	4.8	19.3
1998 06 26	13 38.74	−20 17.7	9.478	9.961	115.7	5.3	19.3
1998 07 06	13 38.60	−20 13.4	9.597	9.929	106.2	5.6	19.3
1998 07 16	13 39.12	−20 12.3	9.724	9.898	96.9	5.9	19.4
1998 07 26	13 40.29	−20 14.6	9.854	9.866	87.8	5.9	19.4
1998 08 05	13 42.08	−20 20.5	9.982	9.835	78.7	5.8	19.4
1998 08 15	13 44.44	−20 29.8	10.106	9.803	69.9	5.6	19.4
1998 08 25	13 47.35	−20 42.6	10.221	9.772	61.1	5.2	19.4
1998 09 04	13 50.75	−20 58.6	10.323	9.741	52.4	4.7	19.4
1998 09 14	13 54.58	−21 17.6	10.410	9.710	43.9	4.1	19.4
1998 09 24	13 58.77	−21 39.3	10.479	9.678	35.4	3.4	19.4

1994 JQ$_1$ a, e, i = 43.96, 0.05, 4 Elements *MPC* 30092

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1997 12 08	14 09.50	−13 38.2	43.739	43.002	41.1	0.9	23.5
1997 12 18	14 10.24	−13 42.3	43.612	43.001	51.1	1.0	23.5
1997 12 28	14 10.87	−13 45.8	43.466	43.000	61.1	1.1	23.5
1998 01 07	14 11.36	−13 48.6	43.306	42.999	71.2	1.2	23.5
1998 01 17	14 11.71	−13 50.7	43.135	42.997	81.3	1.3	23.5
1998 01 27	14 11.90	−13 51.9	42.961	42.996	91.4	1.3	23.5
1998 02 06	14 11.93	−13 52.4	42.787	42.995	101.5	1.3	23.5
1998 02 16	14 11.82	−13 52.1	42.619	42.994	111.7	1.2	23.5
1998 02 26	14 11.55	−13 51.0	42.462	42.993	121.8	1.1	23.5
1998 03 08	14 11.15	−13 49.2	42.321	42.992	132.0	1.0	23.5
1998 03 18	14 10.62	−13 46.7	42.201	42.990	142.1	0.8	23.4
1998 03 28	14 10.00	−13 43.7	42.104	42.989	152.2	0.6	23.4
1998 04 07	14 09.31	−13 40.3	42.034	42.988	162.2	0.4	23.4
1998 04 17	14 08.56	−13 36.6	41.992	42.987	172.2	0.2	23.3

1998 04 27	14 07.80	−13 32.8	41.980	42.986	177.8	0.1	23.3
1998 05 07	14 07.04	−13 29.0	41.997	42.985	167.9	0.3	23.4
1998 05 17	14 06.31	−13 25.3	42.044	42.983	158.1	0.5	23.4
1998 05 27	14 05.65	−13 21.8	42.117	42.982	148.3	0.7	23.4
1998 06 06	14 05.07	−13 18.8	42.215	42.981	138.6	0.9	23.4
1998 06 16	14 04.59	−13 16.3	42.335	42.980	128.9	1.1	23.5
1998 06 26	14 04.23	−13 14.5	42.473	42.979	119.3	1.2	23.5
1998 07 06	14 04.00	−13 13.3	42.625	42.978	109.7	1.3	23.5
1998 07 16	14 03.91	−13 12.8	42.786	42.976	100.1	1.3	23.5
1998 07 26	14 03.97	−13 13.1	42.953	42.975	90.6	1.4	23.5
1998 08 05	14 04.18	−13 14.2	43.120	42.974	81.1	1.3	23.5
1998 08 15	14 04.53	−13 16.1	43.282	42.973	71.6	1.3	23.5
1998 08 25	14 05.01	−13 18.6	43.436	42.972	62.1	1.2	23.5
1998 09 04	14 05.62	−13 21.9	43.576	42.971	52.6	1.1	23.5
1998 09 14	14 06.35	−13 25.7	43.699	42.970	43.0	0.9	23.5
1998 09 24	14 07.17	−13 30.1	43.802	42.968	33.5	0.7	23.5

36P/Whipple Elements *MPC* 18259

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 01 07	12 07.84	−02 59.2	4.661	4.983	103.5	11.1	22.3	22.5
1998 01 17	12 08.35	−02 57.3	4.520	4.995	113.6	10.4	22.3	22.4
1998 01 27	12 07.58	−02 46.3	4.389	5.007	124.0	9.4	22.2	22.3
1998 02 06	12 05.53	−02 26.3	4.275	5.019	134.8	8.0	22.2	22.2
1998 02 16	12 02.32	−01 57.8	4.182	5.030	145.8	6.3		22.1
1998 02 26	11 58.15	−01 22.0	4.114	5.041	157.1	4.4		22.0
1998 03 08	11 53.28	−00 40.9	4.075	5.052	168.4	2.3		21.8
1998 03 18	11 48.06	+00 03.3	4.067	5.062	178.9	0.2		21.6
1998 03 28	11 42.88	+00 47.8	4.090	5.072	168.6	2.2		21.8
1998 04 07	11 38.09	+01 29.9	4.144	5.082	157.4	4.3		22.0
1998 04 17	11 34.03	+02 07.2	4.226	5.092	146.4	6.3		22.1
1998 04 27	11 30.92	+02 38.1	4.332	5.101	135.7	7.9		22.3
1998 05 07	11 28.94	+03 01.3	4.459	5.110	125.4	9.3	22.4	22.4
1998 05 17	11 28.14	+03 16.3	4.602	5.119	115.5	10.3	22.5	22.5

P/1997 B1 (Kobayashi) Elements *MPC* 30063

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 01 07	16 33.77	−32 16.0	4.362	3.615	36.2	9.2		21.6
1998 01 17	16 46.84	−32 53.2	4.338	3.684	43.3	10.5		21.7
1998 01 27	16 58.98	−33 27.4	4.299	3.753	50.6	11.7		21.8
1998 02 06	17 10.03	−33 59.1	4.248	3.821	58.2	12.7		21.8
1998 02 16	17 19.83	−34 29.0	4.184	3.890	66.1	13.4		21.8
1998 02 26	17 28.23	−34 57.7	4.111	3.958	74.2	13.9		21.9
1998 03 08	17 35.05	−35 25.7	4.032	4.026	82.6	14.1		21.9
1998 03 18	17 40.14	−35 53.3	3.949	4.095	91.3	14.1		21.8
1998 03 28	17 43.36	−36 20.5	3.866	4.162	100.3	13.6		21.8
1998 04 07	17 44.57	−36 46.7	3.788	4.230	109.6	12.9		21.8
1998 04 17	17 43.75	−37 11.1	3.718	4.297	119.2	11.8		21.7
1998 04 27	17 40.92	−37 32.4	3.661	4.365	129.0	10.3		21.7
1998 05 07	17 36.25	−37 48.6	3.621	4.432	138.9	8.6		21.6
1998 05 17	17 30.05	−37 58.1	3.603	4.498	148.7	6.7		21.6
1998 05 27	17 22.76	−37 59.4	3.611	4.564	157.7	4.8		21.5
1998 06 06	17 14.95	−37 51.9	3.646	4.630	164.2	3.4		21.5
1998 06 16	17 07.22	−37 35.8	3.710	4.696	164.4	3.3		21.5
1998 06 26	17 00.12	−37 12.4	3.803	4.762	158.2	4.5		21.7
1998 07 06	16 54.12	−36 43.9	3.923	4.827	149.5	6.1		21.9
1998 07 16	16 49.54	−36 12.5	4.068	4.891	140.1	7.7		22.0
1998 07 26	16 46.54	−35 40.5	4.235	4.956	130.6	9.0		22.2
1998 08 05	16 45.18	−35 09.7	4.420	5.020	121.1	10.0		22.4
1998 08 15	16 45.42	−34 41.3	4.619	5.084	111.9	10.7		22.5

28P/Neujmin 1 Elements CCO 9

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 01 17	11 46.24	+00 01.5	9.931	10.456	119.9	4.7		22.5
1998 01 27	11 44.62	+00 08.1	9.765	10.430	130.4	4.1		22.4
1998 02 06	11 42.45	+00 18.5	9.618	10.405	141.1	3.4		22.3
1998 02 16	11 39.80	+00 32.0	9.497	10.379	151.9	2.6		22.2
1998 02 26	11 36.78	+00 48.1	9.403	10.353	162.8	1.6		22.1
1998 03 08	11 33.51	+01 06.1	9.340	10.327	173.6	0.6		22.0
1998 03 18	11 30.15	+01 25.0	9.308	10.300	175.1	0.5		22.0
1998 03 28	11 26.84	+01 43.9	9.309	10.274	164.5	1.5		22.1
1998 04 07	11 23.72	+02 01.8	9.339	10.247	153.8	2.5		22.2
1998 04 17	11 20.93	+02 18.0	9.398	10.220	143.3	3.4		22.2
1998 04 27	11 18.57	+02 31.6	9.481	10.193	132.9	4.1		22.3
1998 05 07	11 16.74	+02 42.2	9.585	10.165	122.7	4.8		22.4
1998 05 17	11 15.48	+02 49.3	9.704	10.138	112.7	5.3		22.4
1998 05 27	11 14.83	+02 52.7	9.835	10.110	102.9	5.6		22.4
1998 06 06	11 14.79	+02 52.3	9.971	10.082	93.3	5.8		22.5

91P/Russell 3 Elements *MPC* 28807

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 01 27	18 15.23	−20 58.7	3.312	2.548	33.4	12.3	16.2	22.4
1998 02 06	18 34.26	−20 12.7	3.248	2.559	39.1	14.1	16.2	22.4
1998 02 16	18 52.49	−19 17.1	3.176	2.572	44.8	15.7	16.2	22.4
1998 02 26	19 09.83	−18 12.8	3.097	2.587	50.7	17.2	16.1	22.4
1998 03 08	19 26.12	−17 00.7	3.010	2.602	56.8	18.6	16.1	22.4
1998 03 18	19 41.27	−15 42.1	2.918	2.619	62.9	19.8	16.1	22.4
1998 03 28	19 55.14	−14 18.2	2.820	2.638	69.3	20.7	16.1	22.4
1998 04 07	20 07.58	−12 50.3	2.718	2.657	75.8	21.4	16.0	22.3
1998 04 17	20 18.47	−11 19.8	2.614	2.677	82.7	21.8	16.0	22.3
1998 04 27	20 27.66	−09 48.4	2.509	2.699	89.8	21.9	16.0	22.2
1998 05 07	20 34.96	−08 17.8	2.405	2.722	97.2	21.6	15.9	22.1
1998 05 17	20 40.23	−06 49.9	2.304	2.745	105.0	20.8	15.9	22.0
1998 05 27	20 43.30	−05 26.9	2.209	2.770	113.2	19.6	15.9	21.9
1998 06 06	20 44.07	−04 11.3	2.124	2.795	121.8	18.0	15.8	21.8
1998 06 16	20 42.54	−03 05.6	2.051	2.821	130.8	15.8	15.8	21.7
1998 06 26	20 38.82	−02 12.7	1.994	2.848	140.0	13.3	15.8	21.5
1998 07 06	20 33.23	−01 34.8	1.956	2.876	149.0	10.5	15.8	21.4
1998 07 16	20 26.33	−01 13.3	1.941	2.904	156.9	7.9	15.9	21.3
1998 07 26	20 18.80	−01 08.3	1.951	2.933	161.6	6.3	16.0	21.3
1998 08 05	20 11.48	−01 18.4	1.987	2.962	160.3	6.6	16.1	21.3
1998 08 15	20 05.12	−01 40.5	2.048	2.991	154.0	8.5	16.2	21.5
1998 08 25	20 00.31	−02 10.8	2.133	3.022	145.6	10.9	16.3	21.7
1998 09 04	19 57.47	−02 45.2	2.240	3.052	136.6	13.1	16.5	21.9
1998 09 14	19 56.76	−03 19.9	2.365	3.083	127.6	15.0	16.7	22.1
1998 09 24	19 58.16	−03 52.0	2.505	3.114	118.7	16.4	16.9	22.3
1998 10 04	20 01.56	−04 19.2	2.657	3.145	110.2	17.4	17.1	22.5

C/1997 T1 (Utsunomiya) Elements *MPC* 30957

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 01 27	18 49.88	−00 47.8	2.276	1.529	31.7	19.8	11.6	
1998 02 06	18 49.08	−02 21.8	2.240	1.599	39.0	22.8	11.8	
1998 02 16	18 46.79	−03 51.6	2.172	1.677	47.9	25.9	11.9	
1998 02 26	18 42.40	−05 21.7	2.075	1.762	57.9	28.4	12.0	
1998 03 08	18 35.03	−06 56.9	1.957	1.852	69.1	30.0	12.1	
1998 03 18	18 23.60	−08 42.2	1.826	1.946	81.5	30.4	12.2	
1998 03 28	18 06.72	−10 42.0	1.693	2.043	95.3	29.1	12.2	
1998 04 07	17 42.89	−12 57.8	1.571	2.143	110.9	25.9	12.3	
1998 04 17	17 11.08	−15 23.7	1.479	2.244	128.3	20.5	12.4	
1998 04 27	16 31.87	−17 42.3	1.436	2.347	147.3	13.4	12.5	
1998 05 07	15 48.67	−19 29.4	1.456	2.450	167.0	5.3	12.7	
1998 05 17	15 06.96	−20 30.7	1.547	2.554	173.4	2.6	13.0	
1998 05 27	14 31.40	−20 52.5	1.701	2.658	156.0	8.9	13.4	
1998 06 06	14 03.94	−20 52.8	1.905	2.762	140.3	13.6	13.8	
1998 06 16	13 44.16	−20 47.4	2.145	2.867	126.4	16.6	14.2	
1998 06 26	13 30.71	−20 45.5	2.408	2.971	114.0	18.2	14.6	
1998 07 06	13 22.16	−20 51.1	2.685	3.074	102.8	18.8	15.0	
1998 07 16	13 17.29	−21 05.3	2.967	3.178	92.5	18.6	15.4	
1998 07 26	13 15.18	−21 27.7	3.249	3.281	82.8	17.9	15.7	
1998 08 05	13 15.17	−21 57.6	3.524	3.383	73.7	16.7	16.0	
1998 08 15	13 16.72	−22 34.1	3.790	3.485	65.0	15.3	16.3	
1998 08 25	13 19.46	−23 16.3	4.041	3.587	56.7	13.6	16.6	
1998 09 04	13 23.10	−24 03.5	4.276	3.688	48.6	11.8	16.8	
1998 09 14	13 27.38	−24 55.1	4.492	3.788	40.8	10.0	17.0	
1998 09 24	13 32.13	−25 50.5	4.686	3.888	33.4	8.2	17.3	

OPPOSITION DATA

Planet	Opposition	α_{2000}	δ_{2000}	V	$\dot{\alpha}$	$\dot{\delta}$	$\phi_{\rm MIN}$	*MPC*
1993 QZ	1997 11 14.0	03 17.26	−17 44.1	16.0	−0.89	− 5.1	15.1/04.7	27446
1979 MK_3	1997 11 14.0	03 17.38	+08 33.1	17.0	−0.82	− 2.9	3.2/12.0	31003
1995 HH_3	1997 11 14.0	03 17.40	+14 26.1	20.8	−0.82	− 2.5	1.0/13.3	30875
1985 CS_2	1997 11 14.2	03 17.88	+24 17.9	17.2	−1.11	− 4.8	2.3/15.5	31004
1997 UT_3	1997 11 14.2	03 18.28	+17 56.0	17.0	−0.83	− 3.4	0.1/14.2	31014
1997 VU_6	1997 11 14.3	03 18.35	+14 39.4	18.2	−0.89	− 3.6	1.2/13.6	30996
1993 VS	1997 11 14.3	03 18.44	+15 25.0	17.5	−0.94	− 3.3	1.3/13.7	30981
(7994)	1997 11 14.4	03 18.86	+18 18.6	16.6	−0.85	− 3.2	0.0/14.4	30851
1997 UY_{10}	1997 11 14.5	03 19.12	+16 40.2	17.6	−0.86	− 3.7	0.6/14.2	30991
1981 EU_{13}	1997 11 14.5	03 19.14	+09 20.1	17.1	−0.95	− 9.1	4.1/12.2	30685
1983 WG	1997 11 14.6	03 19.53	+09 28.1	15.5	−1.01	+ 1.2	3.6/13.2	31004
1995 DD	1997 11 14.6	03 19.72	+36 33.0	16.2	−1.20	− 1.2	6.5/18.3	30983
1992 FD_1	1997 11 14.6	03 19.89	+21 38.0	17.6	−1.15	− 2.6	1.3/15.3	30872
1981 EO_{41}	1997 11 14.6	03 19.92	+30 46.0	17.3	−1.09	− 0.8	4.8/17.0	30973
(7217)	1997 11 14.6	03 19.93	+33 40.9	16.1	−0.95	− 3.1	4.6/18.1	28058
6199 P-L	1997 11 14.6	03 20.01	+16 10.7	17.3	−0.98	− 6.1	1.1/14.2	30888
1997 UX_4	1997 11 14.7	03 20.29	+22 29.2	16.9	−1.11	− 2.5	1.9/15.5	30990
2120 T-2	1997 11 14.8	03 20.74	+25 02.2	18.2	−1.21	− 2.0	3.0/16.1	31023
1980 UN_1	1997 11 14.9	03 20.96	+21 36.6	15.9	−0.99	− 4.9	1.4/15.6	31003
1982 SM_6	1997 11 14.9	03 21.08	+28 21.5	16.3	−1.16	− 1.0	4.5/16.7	30893
1992 LN	1997 11 14.9	03 21.11	+10 47.0	16.8	−1.06	− 1.5	2.9/13.6	30896
1997 UY_3	1997 11 15.0	03 21.16	+18 43.7	15.7	−0.94	− 5.2	0.1/15.1	31014
(6932)	1997 11 15.0	03 21.25	+12 46.3	16.8	−1.10	− 3.1	2.2/14.0	26897
1993 QU_9	1997 11 15.1	03 21.77	+05 55.8	19.2	−1.01	− 3.6	4.9/12.7	27447
1981 DY	1997 11 15.1	03 21.80	+25 50.7	18.4	−0.94	− 4.3	2.2/16.8	30973
1993 KC	1997 11 15.1	03 21.90	+15 35.1	19.6	−1.12	−11.6	1.0/14.4	22700
4040 P-L	1997 11 15.1	03 21.91	+15 15.3	18.5	−0.92	− 5.8	1.1/14.4	31022
1981 EF_{20}	1997 11 15.1	03 22.00	+07 26.6	19.1	−0.87	− 4.4	3.6/12.8	26918
(7968)	1997 11 15.2	03 22.23	+16 34.3	18.6	−0.82	− 3.2	0.6/14.8	30751
(8123)	1997 11 15.3	03 22.81	+12 30.8	17.1	−1.01	− 5.4	2.8/14.1	30972
1976 UY	1997 11 15.4	03 22.88	+20 23.7	15.0	−0.85	−11.0	0.8/15.9	31003
(7041)	1997 11 15.4	03 23.06	+10 49.7	16.2	−0.98	− 7.8	3.6/13.6	27301
1992 YC_1	1997 11 15.4	03 23.13	+16 41.5	17.6	−0.83	− 2.6	0.5/15.1	31007
1989 GE	1997 11 15.6	03 23.89	+18 41.8	16.2	−1.16	− 1.4	0.0/15.7	31005
1986 QN_1	1997 11 15.8	03 24.82	+39 12.1	16.9	−1.10	− 1.3	7.2/20.1	25079
1991 VB_9	1997 11 15.9	03 25.22	+15 38.9	17.8	−0.83	− 2.3	1.0/15.4	30978
1990 TG_5	1997 11 15.9	03 25.34	+25 50.4	16.0	−1.05	− 5.6	3.6/17.6	31005
1984 SU_3	1997 11 16.1	03 25.92	+20 54.0	15.3	−1.07	+ 0.4	1.0/16.5	31004
1995 CY_1	1997 11 16.1	03 26.03	+45 57.8	19.1	−1.38	− 8.2	10.1/23.0	25432
1997 UV_{14}	1997 11 16.1	03 26.08	+12 05.9	17.4	−0.84	− 5.4	2.2/14.7	31016
1997 VS	1997 11 16.1	03 26.12	+15 21.4	16.5	−1.03	− 0.9	1.7/15.6	30993
1981 EK_{16}	1997 11 16.2	03 26.10	+29 37.3	19.8	−1.17	− 3.1	4.2/18.3	26918
1979 MK_7	1997 11 16.2	03 26.17	+18 12.7	17.1	−0.84	− 3.9	0.2/16.1	31003
1997 UK_{21}	1997 11 16.3	03 26.53	+22 37.0	16.4	−1.04	− 1.5	1.7/17.0	30992
(8109)	1997 11 16.4	03 27.17	−21 21.3	17.4	−1.14	+ 2.3	16.2/08.1	30968
1993 WQ	1997 11 16.5	03 27.54	+20 04.0	15.6	−1.01	+ 0.6	0.6/16.7	31007
1992 UE_3	1997 11 16.5	03 27.73	+15 59.8	16.4	−0.92	− 2.3	1.0/16.0	31007
2503 P-L	1997 11 16.6	03 27.96	+39 33.2	16.5	−1.33	+ 2.1	8.7/19.7	27724
1988 DD_5	1997 11 16.6	03 27.97	+29 50.1	18.1	−1.10	− 5.5	3.6/19.0	27566
1993 TT_{26}	1997 11 16.6	03 28.04	+15 12.4	18.5	−1.05	− 4.0	1.4/16.0	31007
1979 SJ	1997 11 16.7	03 28.18	+27 36.0	17.3	−1.21	− 2.4	4.0/19.0	31003
1990 YM	1997 11 16.7	03 28.28	−16 32.6	15.9	−1.19	+ 2.9	14.2/10.2	27567
1979 HW_6	1997 11 16.7	03 28.36	+19 13.3	17.0	−1.11	− 4.1	0.1/16.8	31003
4133 P-L	1997 11 16.7	03 28.39	+29 14.4	19.0	−1.18	− 2.6	4.2/19.0	30914
1974 ST_1	1997 11 16.8	03 28.59	+23 07.2	17.7	−1.12	− 3.3	1.7/17.6	27323
1996 NU_1	1997 11 16.8	03 28.61	+34 49.3	15.7	−1.07	− 4.3	5.6/20.3	28890
1980 UM_1	1997 11 16.8	03 28.70	+24 20.3	16.0	−1.07	− 6.5	2.5/18.0	31003
1981 EL_{15}	1997 11 16.8	03 28.85	+21 19.0	19.8	−0.91	− 4.2	0.7/17.4	26918
2827 P-L	1997 11 16.8	03 28.89	+22 41.3	18.3	−1.12	− 2.2	1.4/17.5	25442
4721 P-L	1997 11 16.8	03 29.01	+21 36.7	18.1	−0.96	− 2.8	0.9/17.4	27732
1993 TU_{36}	1997 11 16.8	03 29.03	+06 04.7	15.7	−1.09	+ 1.2	5.5/15.2	31007
1996 JD_1	1997 11 16.9	03 29.01	+12 52.9	18.0	−1.07	− 4.3	2.4/15.7	31009
1997 RC	1997 11 16.9	03 29.15	+18 11.7	17.1	−0.92	− 2.3	0.3/16.8	31010
1985 CR_2	1997 11 16.9	03 29.18	+19 42.3	16.2	−1.09	− 4.1	0.3/17.1	31004
1981 EW_{16}	1997 11 16.9	03 29.30	+18 37.4	20.5	−0.89	− 3.8	0.1/16.9	26918
1996 HR_{18}	1997 11 17.0	03 29.70	+18 09.1	17.5	−1.06	− 4.8	0.3/16.9	30902
(8063)	1997 11 17.0	03 29.78	+14 57.8	17.5	−0.86	− 3.1	1.3/16.3	30958
1996 HD_{24}	1997 11 17.0	03 29.81	+14 07.0	17.3	−1.01	− 5.6	1.8/16.1	31009
1983 RP_2	1997 11 17.1	03 29.93	+10 22.0	15.8	−1.00	− 3.5	4.2/15.5	31004
1983 RY_4	1997 11 17.2	03 30.22	+26 04.4	15.1	−0.93	− 8.0	2.9/19.0	31004
1989 GC_8	1997 11 17.2	03 30.52	+13 50.1	19.4	−1.11	− 2.5	2.1/16.4	27555
(7150)	1997 11 17.3	03 30.66	+19 52.9	17.4	−1.10	− 2.0	0.4/17.5	27893
(7120)	1997 11 17.3	03 30.67	+20 52.7	16.9	−0.92	− 3.3	0.7/17.7	27700

1994 AY_2	1997 11 17.3	03 30.88	+27 46.0	16.3	−1.00	− 4.5	3.3/19.0	29618
1981 EG_{10}	1997 11 17.5	03 31.64	+23 48.0	18.3	−0.95	− 4.4	1.7/18.5	26916
1995 BG_2	1997 11 17.5	03 31.79	+12 36.2	17.1	−1.06	− 3.2	2.7/16.4	31008
1990 SA_2	1997 11 17.5	03 31.85	+21 27.0	15.9	−1.10	− 3.3	1.1/18.0	31005
1996 NG	1997 11 17.6	03 31.91	+11 01.9	16.9	−0.85	− 1.5	2.7/16.2	31009
(8070)	1997 11 17.7	03 32.37	+14 12.1	16.3	−0.91	− 2.7	2.2/16.8	30960
1993 UC_1	1997 11 17.8	03 32.89	+28 39.7	15.2	−1.06	− 9.9	3.9/20.3	31007
1997 WJ_7	1997 11 17.8	03 32.94	+20 53.3	17.0	−0.96	− 4.3	0.7/18.2	30998
2660 P-L	1997 11 17.8	03 32.94	+15 46.7	18.7	−0.86	− 3.4	1.1/17.2	31000
1992 GB_2	1997 11 17.8	03 33.00	+16 18.7	17.6	−1.06	− 5.5	1.2/17.3	30978
1995 KN	1997 11 17.8	03 33.00	+15 54.4	17.0	−1.13	− 1.6	1.4/17.3	26175
1997 WR_3	1997 11 17.9	03 33.30	+20 20.1	16.6	−1.14	− 1.0	0.5/18.1	30998
1996 HN_{23}	1997 11 18.0	03 33.60	+15 33.4	18.4	−1.12	− 2.4	1.4/17.4	30984
1997 SV	1997 11 18.0	03 33.78	+24 42.1	16.2	−1.18	+ 0.3	2.5/19.0	31011
1990 BH_1	1997 11 18.0	03 33.87	+16 42.0	16.4	−1.01	− 1.5	0.9/17.6	31005
1993 UE	1997 11 18.1	03 34.46	−03 11.3	16.8	−1.04	+ 1.9	9.9/15.4	30981
1995 AA_1	1997 11 18.2	03 34.78	+08 59.2	16.7	−1.05	− 1.5	4.8/16.6	30901
1990 TO	1997 11 18.3	03 34.79	+16 25.2	15.7	−1.15	+ 0.5	1.4/17.9	27567
1979 OQ_5	1997 11 18.3	03 34.92	+25 42.3	17.2	−0.87	− 3.3	1.9/19.6	21965
1986 PM	1997 11 18.5	03 35.77	+26 56.9	16.9	−1.16	− 4.8	2.8/20.0	30893
1997 WL_7	1997 11 18.6	03 36.04	+20 47.1	16.4	−0.96	− 4.8	0.6/18.9	30998
1977 XZ_2	1997 11 18.6	03 36.22	+21 10.0	17.1	−0.90	− 2.9	0.6/19.0	28314
1981 ET_{15}	1997 11 18.6	03 36.36	+43 46.4	17.2	−1.26	− 0.4	9.0/23.1	31003
(7114)	1997 11 18.7	03 36.57	+27 23.9	16.9	−0.90	− 3.4	2.8/20.3	27699
(7367)	1997 11 18.9	03 37.66	+20 02.4	18.4	−0.83	− 2.6	6.6/30.0	28579
1997 WP_{14}	1997 11 19.2	03 38.61	+15 33.4	18.3	−0.85	− 2.6	1.3/18.5	30999
1997 VX	1997 11 19.2	03 38.91	+27 08.1	15.0	−1.24	+ 1.3	3.6/20.3	30993
1997 SA_{34}	1997 11 19.3	03 39.01	+25 35.2	15.8	−1.05	+ 1.8	2.5/20.1	31012
1995 EH	1997 11 19.3	03 39.19	+27 36.1	16.6	−1.13	− 1.6	2.9/20.7	31008
1995 BT_2	1997 11 19.3	03 39.24	+17 06.4	15.1	−1.10	− 0.7	1.2/19.0	31008
1992 ST_1	1997 11 19.4	03 39.42	+30 36.7	16.9	−1.01	− 3.6	3.4/21.6	28086
1976 UP_{18}	1997 11 19.4	03 39.43	+08 39.3	17.6	−0.91	− 6.1	5.5/17.1	22598
1981 EK_{21}	1997 11 19.5	03 39.93	+30 29.4	18.7	−1.03	− 2.4	3.5/21.5	26919
1994 CM	1997 11 19.5	03 39.94	+25 33.8	16.4	−1.03	0.0	2.2/20.4	31008
1994 CP_{10}	1997 11 19.5	03 39.98	+26 22.3	17.4	−0.91	− 2.3	2.1/20.8	30900
1997 RP_7	1997 11 19.6	03 40.41	+23 15.8	16.5	−1.06	− 5.8	1.5/20.4	31011
1990 RO_2	1997 11 19.6	03 40.53	+25 47.5	17.9	−1.19	− 4.4	2.5/20.8	28885
1984 SH	1997 11 19.7	03 40.75	+15 19.6	16.7	−1.17	− 3.0	1.8/19.0	31004
1991 VA_1	1997 11 19.7	03 41.02	+21 30.8	17.0	−0.82	− 5.2	0.6/20.2	31006
1991 SC_1	1997 11 19.8	03 41.17	+23 56.7	16.1	−0.98	− 0.1	1.4/20.5	31006
1997 UZ_8	1997 11 19.8	03 41.19	+17 23.4	16.3	−1.03	− 5.1	0.9/19.4	31015
1991 PT_{11}	1997 11 19.8	03 41.42	+14 26.2	16.1	−0.83	− 3.6	2.0/18.9	30977
1992 OG_2	1997 11 19.9	03 41.87	+10 33.8	16.2	−0.93	− 2.1	3.8/18.4	29660
1995 OX	1997 11 20.0	03 42.11	+38 58.4	20.3	−0.93	− 4.2	4.4/24.2	28076
1996 FE	1997 11 20.1	03 42.30	−05 56.7	17.1	−1.01	−21.0	12.5/11.2	30876
1990 QT_9	1997 11 20.3	03 43.19	+17 22.4	17.7	−1.15	− 3.3	1.0/19.9	28885
1994 BL_4	1997 11 20.3	03 43.62	+41 57.8	17.2	−1.18	− 1.9	9.8/24.4	23686
(7182)	1997 11 20.4	03 43.66	+14 10.8	15.6	−0.80	− 8.1	2.0/19.1	27900
(8059)	1997 11 20.5	03 43.98	+21 16.1	15.9	−1.08	+ 0.6	0.5/20.7	30957
1966 BL	1997 11 20.5	03 44.09	+29 53.3	16.5	−1.02	− 4.1	3.7/22.5	31002
1978 VD_7	1997 11 20.5	03 44.14	+18 19.1	17.8	−0.94	− 1.8	0.5/20.3	29652
1986 TB	1997 11 20.5	03 44.51	+44 30.7	16.5	−1.52	+ 0.7	11.4/24.9	30974
(7111)	1997 11 20.7	03 45.02	+13 26.1	16.1	−0.99	− 6.2	2.5/19.4	27698
3520 P-L	1997 11 20.7	03 45.20	+21 06.9	16.9	−0.86	− 6.5	0.5/21.1	31022
1997 VO_6	1997 11 20.8	03 45.34	+21 46.5	15.6	−0.84	− 6.7	0.6/21.3	30996
1993 TH_{32}	1997 11 20.8	03 45.37	+15 33.6	17.7	−1.04	− 3.2	1.5/20.1	31007
1991 EA	1997 11 20.9	03 45.76	+30 01.6	16.6	−1.15	− 2.1	4.0/22.6	31006
1997 UA_9	1997 11 20.9	03 45.93	+19 45.6	15.1	−1.10	+ 1.0	0.0/20.9	31015
1980 RE_1	1997 11 21.0	03 46.16	+08 10.4	18.0	−0.95	− 4.6	4.3/18.8	30892
1996 HD_{13}	1997 11 21.1	03 46.47	+16 05.3	17.2	−1.09	− 4.1	1.6/20.4	31009
3175 T-2	1997 11 21.1	03 46.63	+24 36.9	18.4	−1.22	− 1.6	1.9/21.8	27322
(7102)	1997 11 21.1	03 46.92	+41 57.6	17.6	−1.04	− 4.5	5.8/26.1	27696
6580 P-L	1997 11 21.2	03 46.88	+18 41.6	16.3	−1.16	− 2.0	0.5/21.0	24120
1993 SG_3	1997 11 21.2	03 46.91	+13 29.9	17.6	−1.05	− 4.2	2.7/20.0	30980
1995 AW_2	1997 11 21.2	03 47.17	+21 23.6	16.4	−1.11	− 5.8	0.6/21.5	31008
1997 VY	1997 11 21.2	03 47.25	+21 22.1	16.2	−0.98	− 6.2	0.7/21.6	30993
1997 VA_5	1997 11 21.2	03 47.38	+20 31.2	16.8	−1.14	+ 2.4	0.3/21.4	30995
1991 PE_5	1997 11 21.3	03 47.43	+20 09.6	16.2	−0.91	− 3.3	0.1/21.4	31006
1981 EH_{12}	1997 11 21.3	03 47.77	+22 29.2	19.6	−1.07	− 4.6	0.9/21.9	26917
1993 TN_{29}	1997 11 21.5	03 48.16	+14 46.3	18.9	−1.07	− 2.5	2.1/20.7	31007
1990 VW_6	1997 11 21.5	03 48.29	+16 18.8	16.4	−1.15	− 1.5	1.6/21.0	31005
(8015)	1997 11 21.5	03 48.32	+20 55.3	15.7	−1.07	− 2.7	0.5/21.7	30856
(7042)	1997 11 21.5	03 48.40	+21 22.6	17.5	−1.11	− 4.1	0.5/21.8	27434
(8108)	1997 11 21.5	03 48.50	+31 18.1	17.0	−1.18	− 4.4	4.5/24.0	30968
1997 WQ_7	1997 11 21.5	03 48.51	+21 03.8	16.5	−1.15	− 4.6	0.5/21.8	30998
1991 RV_3	1997 11 21.6	03 48.69	+33 08.0	17.7	−0.97	− 2.2	3.9/24.0	30896
(7146)	1997 11 21.7	03 49.01	+19 27.9	16.6	−0.86	− 5.9	0.2/21.6	27707
1996 HC_{26}	1997 11 21.7	03 49.14	+18 02.3	18.9	−1.10	− 2.3	0.7/21.4	30785
1996 NB_4	1997 11 21.7	03 49.16	+23 57.5	17.2	−1.09	− 3.5	1.5/22.4	28618
(7020)	1997 11 21.7	03 49.32	+16 31.2	16.8	−1.05	− 3.7	1.4/21.2	27296
1992 UK_1	1997 11 21.7	03 49.41	+25 33.7	16.3	−0.96	− 5.4	1.9/22.9	31006
1995 HR	1997 11 21.8	03 49.43	+10 05.0	17.6	−0.78	− 4.1	2.7/19.9	28889
1997 VG_2	1997 11 21.8	03 49.84	+23 09.6	16.4	−0.97	− 4.6	1.6/22.5	31017
(7957)	1997 11 21.9	03 49.95	+32 20.0	17.0	−1.10	− 0.5	4.6/23.7	30749
1996 PJ_5	1997 11 21.9	03 50.07	+37 47.1	17.8	−1.01	− 2.4	5.7/25.3	31009
1981 EO_{32}	1997 11 21.9	03 50.15	+23 36.2	19.7	−0.96	− 4.0	1.2/22.6	22271
1995 CK	1997 11 21.9	03 50.32	+08 20.9	16.4	−1.05	− 0.4	5.3/20.3	30983
1990 OH_1	1997 11 22.1	03 50.90	+19 47.8	17.5	−0.85	− 7.3	0.1/22.1	31005
4194 T-2	1997 11 22.1	03 51.02	+14 26.5	18.8	−0.90	− 2.7	1.8/21.2	30467
3509 P-L	1997 11 22.1	03 51.12	+61 19.6	17.6	−2.59	+ 6.5	19.7/25.8	29668
1997 VM_7	1997 11 22.5	03 52.35	+21 33.2	17.5	−1.16	− 1.4	0.5/22.7	30996
1979 KD	1997 11 22.5	03 52.45	+08 14.7	17.2	−0.93	− 2.8	3.9/20.5	31003
1990 OH_2	1997 11 22.5	03 52.80	+26 35.5	17.7	−0.87	− 2.2	1.7/23.7	29657
(7284)	1997 11 22.7	03 53.19	+22 18.1	16.1	−0.77	− 0.8	0.6/23.0	28285
1997 SW_{33}	1997 11 22.7	03 53.59	+23 25.6	16.5	−0.93	− 0.9	1.1/23.3	31012
1994 AZ_2	1997 11 22.7	03 53.59	+34 12.0	16.3	−1.09	− 5.5	5.3/25.5	31008
1993 QN_4	1997 11 22.7	03 53.69	+07 05.6	16.3	−0.93	− 2.0	6.6/20.6	31007
1997 TO_{24}	1997 11 22.8	03 53.67	+24 59.7	16.6	−1.10	− 0.7	1.8/24.0	31013
1992 YG_3	1997 11 22.8	03 53.87	+17 50.5	16.0	−0.87	− 2.4	0.8/22.4	31007
1995 AG	1997 11 22.8	03 54.00	+24 15.6	16.1	−1.13	− 5.1	1.8/23.6	31008
6783 P-L	1997 11 22.9	03 54.07	+26 01.2	18.4	−1.04	− 0.8	2.3/24.0	21600
1988 CQ_7	1997 11 22.9	03 54.33	+20 53.7	17.7	−1.12	− 2.7	0.2/23.1	30974

1993 AN	1997 11 23.2	03 55.40	+17 28.9	16.6	−0.88	− 2.0	1.0/22.8	31007
(8075)	1997 11 23.2	03 55.72	+01 40.5	16.6	−0.80	− 2.1	6.7/20.2	30961
1989 TC	1997 11 23.3	03 55.90	+64 32.0	16.4	−2.81	+ 6.4	21.9/28.6	31005
1979 MH_2	1997 11 23.3	03 55.95	+16 47.0	18.3	−0.84	− 3.2	1.1/22.7	30753
1994 QL	1997 11 23.3	03 56.16	+37 51.5	17.3	−2.22	+13.8	9.0/24.0	25084
1989 GQ_4	1997 11 23.4	03 56.32	+13 41.7	17.9	−1.09	− 4.5	2.7/22.3	23972
1979 MG_4	1997 11 23.4	03 56.42	+18 05.7	18.4	−0.83	− 2.5	0.6/23.1	28610
1996 NE_5	1997 11 23.4	03 56.52	+21 13.1	17.9	−0.91	− 3.0	0.3/23.6	30984
1997 VD_3	1997 11 23.5	03 56.59	+19 21.7	16.5	−0.96	− 2.8	0.4/23.3	30994
1986 QS_1	1997 11 23.5	03 57.06	+10 06.8	16.2	−1.05	− 1.5	4.8/22.1	27932
1981 EL_3	1997 11 23.6	03 57.04	+28 52.0	19.6	−0.99	− 4.4	2.7/25.2	26915
1982 QX_1	1997 11 23.6	03 57.08	+08 16.9	17.8	−1.05	− 1.8	4.7/21.9	30685
1997 SC_{34}	1997 11 23.6	03 57.31	+27 41.5	17.0	−1.08	+ 3.0	2.7/24.4	31012
1993 OD_5	1997 11 23.6	03 57.46	+22 12.9	18.1	−1.17	− 3.2	0.7/24.0	27311
1991 PG_{16}	1997 11 23.7	03 57.75	+17 06.2	16.6	−0.90	− 1.7	1.3/23.3	30977
1981 EM_2	1997 11 23.9	03 58.34	+19 00.4	19.2	−1.08	− 6.8	0.6/23.6	26914
1996 PY_4	1997 11 23.9	03 58.41	−15 07.0	19.6	−0.98	− 2.2	11.0/17.3	28863
6676 P-L	1997 11 23.9	03 58.74	+22 15.6	17.1	−0.92	− 2.5	0.6/24.3	31023
1994 YS_1	1997 11 24.0	03 58.83	+17 23.5	16.0	−1.20	+ 2.3	1.6/23.7	31008
1981 EG_7	1997 11 24.1	03 59.45	+29 19.5	19.1	−1.16	− 4.4	3.4/25.7	26916
1981 EU_{33}	1997 11 24.3	04 00.07	+19 11.7	16.9	−1.06	− 6.1	0.6/24.1	31003
1979 ME_4	1997 11 24.3	04 00.21	−04 11.1	16.8	−0.95	+ 3.5	11.1/22.1	30778
5058 T-2	1997 11 24.4	04 00.43	+25 40.3	17.2	−0.96	− 4.3	1.6/25.3	31023
1992 FM_1	1997 11 24.4	04 00.92	+61 33.8	17.6	−2.08	+ 1.0	15.7/30.4	22700
1981 EK_{45}	1997 11 24.5	04 00.92	+32 08.7	18.3	−1.21	− 3.3	4.8/26.4	25527
1997 SB_{10}	1997 11 24.6	04 01.34	+19 24.1	16.0	−0.99	− 5.2	0.5/24.4	31011
(7076)	1997 11 24.6	04 01.37	+17 34.2	16.8	−0.89	− 1.9	1.0/24.2	27545
1991 PA	1997 11 24.7	04 01.76	+27 05.9	17.3	−1.00	− 3.4	2.2/25.8	30781
1981 EW_{38}	1997 11 24.7	04 01.80	+24 38.9	18.4	−0.97	− 3.6	1.3/25.4	31003
(8107)	1997 11 24.7	04 01.82	+07 16.0	15.9	−1.06	− 2.8	6.0/22.6	30968
1981 EF_4	1997 11 24.8	04 02.09	+21 18.7	18.5	−1.07	− 5.2	0.2/24.9	26915
6579 P-L	1997 11 24.9	04 02.58	+20 17.6	16.1	−1.10	− 1.1	0.2/24.9	31023
1989 CH	1997 11 24.9	04 02.71	−03 47.4	16.7	−0.90	− 1.3	8.3/20.8	28613
1991 RP_{15}	1997 11 24.9	04 02.77	+21 19.7	15.8	−0.90	− 1.9	0.2/25.1	30896
1992 RO_2	1997 11 24.9	04 02.94	+00 35.7	19.0	−0.89	− 3.7	7.0/21.5	25331
6570 P-L	1997 11 24.9	04 02.99	+16 10.9	16.4	−0.94	− 3.7	2.3/24.2	31023
(8113)	1997 11 25.0	04 03.10	+17 06.0	17.5	−1.17	− 0.6	1.4/24.6	30969
1982 JB_2	1997 11 25.0	04 03.22	+17 07.0	16.5	−1.10	− 1.8	1.7/24.6	30973
1981 ET_{42}	1997 11 25.1	04 03.37	+23 44.2	18.2	−1.14	− 3.2	1.1/25.6	24911
(7023)	1997 11 25.1	04 03.47	+12 04.4	16.5	−1.05	− 0.8	3.2/24.0	27296
3057 T-1	1997 11 25.1	04 03.53	+19 55.2	17.7	−1.01	− 3.7	0.3/25.0	29142
1988 RX_2	1997 11 25.2	04 03.81	+20 06.1	16.4	−0.99	− 2.7	0.3/25.1	31004
1996 FK_{12}	1997 11 25.3	04 04.63	+48 15.7	17.8	−2.07	+ 6.0	12.3/27.2	27328
1993 HQ_1	1997 11 25.4	04 04.65	+52 12.8	18.2	−2.00	+ 3.6	14.3/28.3	23539
1989 NY	1997 11 25.4	04 04.87	+02 11.3	16.3	−1.03	− 0.4	8.1/23.3	30469
1988 RJ_{13}	1997 11 25.4	04 04.88	+31 23.5	18.3	−1.21	+ 1.5	3.8/26.6	29134
1979 SP_{14}	1997 11 25.6	04 05.47	+17 49.0	16.5	−0.85	− 1.7	1.0/25.2	31003
1981 ET_{12}	1997 11 25.6	04 05.48	+16 00.8	20.6	−1.07	− 5.5	1.9/24.8	26917
2537 P-L	1997 11 25.6	04 05.64	+26 40.4	17.9	−1.21	− 0.9	2.6/26.4	31000
4110 P-L	1997 11 25.7	04 05.94	+16 55.6	17.6	−1.12	− 4.1	1.7/25.1	31022
(7052)	1997 11 25.7	04 06.20	+24 23.3	15.2	−1.28	+ 5.1	1.5/26.0	27436
1996 RU_{25}	1997 11 25.9	04 07.12	+20 10.8	19.0	−0.83	− 2.3	0.2/25.9	29319
1993 VT_2	1997 11 25.9	04 07.26	−05 18.9	15.7	−1.30	+19.4	14.1/29.0	23342
1997 VU_3	1997 11 26.0	04 07.24	+16 25.2	15.1	−0.98	− 4.0	2.3/25.3	30994
1995 BQ_{15}	1997 11 26.0	04 07.24	+24 06.5	16.7	−1.09	− 2.1	1.1/26.5	31008
1991 AH_1	1997 11 26.1	04 07.70	+21 43.8	16.7	−1.10	− 3.4	0.3/26.2	31005
(7113)	1997 11 26.1	04 07.83	+37 38.6	15.7	−1.04	− 4.4	5.6/29.2	27699
1995 BH_2	1997 11 26.2	04 08.25	+18 25.7	17.4	−1.13	− 2.5	1.0/25.9	25084
1995 AT_2	1997 11 26.2	04 08.51	+23 34.4	16.7	−1.20	− 1.6	1.2/26.6	31008
1981 ES_{18}	1997 11 26.3	04 08.86	+19 07.2	20.5	−1.09	− 3.4	0.7/26.1	26918
1982 UR_6	1997 11 26.4	04 09.04	+22 46.6	15.9	−1.13	− 1.0	0.8/26.7	31004
1995 GF	1997 11 26.5	04 09.69	+20 26.7	16.2	−1.08	+ 0.4	0.2/26.5	31008
1981 EL_{38}	1997 11 26.5	04 09.76	+04 43.5	18.7	−0.88	− 6.0	6.4/23.4	26922
1992 OO_1	1997 11 26.7	04 10.38	−02 22.4	16.7	−0.95	− 0.6	8.6/23.6	29660
4294 T-2	1997 11 26.8	04 10.68	+17 12.0	15.7	−1.09	− 1.2	1.9/26.3	31023
1981 EJ_{43}	1997 11 26.9	04 11.51	+24 55.5	18.2	−1.15	− 3.3	1.6/27.6	27909
1991 GH_8	1997 11 26.9	04 11.53	+34 07.6	18.7	−1.14	− 0.6	4.2/29.0	25081
1210 T-2	1997 11 27.0	04 11.44	+27 04.3	16.9	−1.21	− 2.6	2.4/27.8	28620
1995 DO_1	1997 11 27.0	04 11.72	+25 12.0	18.1	−1.13	− 1.4	1.4/27.6	30292
1996 OS_2	1997 11 27.1	04 11.98	+23 11.3	18.4	−1.01	− 1.8	0.8/27.4	28303
1967 JP	1997 11 27.1	04 12.20	+26 56.7	16.9	−0.89	− 2.3	1.6/28.0	31002
1995 DE	1997 11 27.1	04 12.28	−04 16.0	16.3	−0.93	− 1.1	9.3/23.9	29138
1991 RR_1	1997 11 27.2	04 12.68	+17 34.8	16.2	−0.86	− 4.8	1.1/26.7	31006
1981 ER_{15}	1997 11 27.2	04 12.74	+22 39.0	19.2	−1.10	− 4.3	0.6/27.5	22429
1997 UN_{24}	1997 11 27.3	04 12.71	+22 15.1	15.6	−0.80	− 8.6	0.6/27.5	30992
1990 UO_3	1997 11 27.3	04 13.07	+16 28.6	17.0	−1.14	− 0.9	2.0/26.8	31005
4523 P-L	1997 11 27.3	04 13.10	+20 27.5	18.0	−0.56	− 1.5	0.1/27.3	18130
2207 P-L	1997 11 27.6	04 14.51	+31 56.0	17.0	−1.19	− 2.6	4.4/29.2	29141
1970 OF	1997 11 27.8	04 15.26	+32 13.6	16.1	−1.14	− 4.2	4.7/29.7	23346
(7183)	1997 11 28.0	04 15.94	+04 56.1	16.7	−0.83	− 1.9	5.1/25.7	27900
1997 RS_9	1997 11 28.0	04 16.13	+26 33.6	17.5	−1.09	+ 1.6	2.3/28.6	31011
1988 FW_2	1997 11 28.1	04 16.19	+13 40.9	16.6	−1.04	− 5.1	3.2/26.9	30894
1981 EV_7	1997 11 28.1	04 16.53	+22 22.3	17.1	−0.97	− 3.8	0.4/28.3	31003
(7026)	1997 11 28.2	04 16.72	+18 06.1	17.4	−1.16	− 1.4	1.3/27.9	27297
1995 DL_2	1997 11 28.2	04 16.83	+09 02.5	16.6	−1.09	+ 2.2	4.6/27.3	31008
1992 GO_4	1997 11 28.2	04 16.97	+17 57.2	17.8	−1.12	− 3.7	1.4/27.8	27935
(7164)	1997 11 28.2	04 17.02	+15 32.2	17.2	−1.05	− 2.0	2.0/27.5	27896
1991 NZ_6	1997 11 28.3	04 17.00	+15 27.1	16.1	−0.92	− 0.9	2.3/27.6	30977
1992 WN_1	1997 11 28.3	04 17.37	+12 43.0	16.5	−0.90	− 1.1	3.4/27.3	21594
1981 EJ_{23}	1997 11 28.4	04 17.57	+27 56.2	16.8	−1.04	− 2.0	2.5/29.3	28314
1976 YA_6	1997 11 28.4	04 17.71	+18 20.3	15.9	−1.07	+ 1.6	1.0/28.2	31003
1997 VF_3	1997 11 28.5	04 18.05	+20 10.8	17.4	−1.20	+ 0.7	11.4/19.0	30994
1056 T-2	1997 11 28.5	04 18.20	+27 19.1	18.4	−1.02	− 1.9	2.2/29.4	23131
1990 WQ_3	1997 11 28.5	04 18.33	+14 07.8	17.5	−1.13	− 0.5	2.7/27.8	28885
1986 QH_2	1997 11 28.6	04 18.28	+09 09.6	15.5	−1.07	− 0.5	5.5/27.2	30893
1985 RJ_3	1997 11 28.6	04 18.52	+18 55.0	17.3	−0.84	− 2.2	0.7/28.3	31004
1985 PN	1997 11 28.6	04 18.55	−05 32.3	16.2	−0.80	− 1.0	9.2/24.9	31004
1988 CE_2	1997 11 28.6	04 18.70	+32 09.9	16.2	−1.21	− 5.1	5.0/30.5	25327
1981 EC_{16}	1997 11 28.6	04 18.76	+23 47.0	18.7	−1.10	− 3.6	0.8/29.0	27725
(7133)	1997 11 28.7	04 19.03	+03 04.8	16.6	−0.97	− 5.3	6.5/25.7	27704
1981 EG_{45}	1997 11 28.7	04 19.12	+25 23.9	19.5	−1.14	− 3.8	1.6/29.4	26923
1981 EG_{24}	1997 11 28.8	04 19.58	+23 48.4	19.8	−0.96	− 2.5	0.7/29.2	27930

1981 EA_{29}	1997 11 28.8	04 19.62	+09 23.4	17.1	−0.88	−	4.9	5.2/26.9	22697
1997 VX_5	1997 11 28.9	04 19.66	+04 18.0	16.6	−0.95	−	2.7	6.4/26.5	31018
2017 P-L	1997 11 29.0	04 19.98	+22 32.3	17.0	−1.21	−	4.0	0.5/29.2	31022
1994 GC_1	1997 11 29.0	04 20.46	+20 20.7	16.3	−0.89	−	1.5	0.3/28.9	31008
1996 NA_4	1997 11 29.1	04 20.82	+19 04.8	17.3	−0.92	−	2.4	0.8/28.8	31009
1978 PS_2	1997 11 29.1	04 20.85	+19 29.9	16.4	−1.08	−	3.3	0.8/28.9	31003
(8079)	1997 11 29.1	04 20.93	+24 45.7	15.8	−1.08	−	4.1	1.6/29.7	30962
1986 QG_2	1997 11 29.2	04 20.98	+13 34.4	18.4	−1.15	−	1.0	3.6/28.4	27119
1992 SH	1997 11 29.2	04 21.01	+05 53.6	17.1	−0.90	−	3.7	5.1/26.9	21268
(7331)	1997 11 29.2	04 21.34	+45 24.1	16.2	−1.24	+	2.2	7.3/01.7	28570
1997 VN_3	1997 11 29.4	04 21.74	+16 50.3	17.4	−0.98	−	7.0	1.5/28.6	30994
2185 T-2	1997 11 29.4	04 21.83	+23 01.4	17.6	−0.89	−	1.6	0.5/29.6	30888
1987 BU_1	1997 11 29.4	04 22.08	+20 50.9	15.9	−1.01	−	4.9	0.3/29.4	30974
1990 RS_2	1997 11 29.4	04 22.17	+24 28.2	15.6	−1.13	−	3.8	1.4/29.9	30975
1994 GT	1997 11 29.5	04 22.41	+21 10.5	17.1	−0.92	−	1.3	0.1/29.5	30873
1993 XR	1997 11 29.5	04 22.47	+17 28.5	17.4	−1.07	+	1.2	1.4/29.2	31007
(7124)	1997 11 29.6	04 22.93	+33 08.8	15.5	−0.96	−	6.3	3.5/01.8	27702
1990 MG	1997 11 29.6	04 23.00	+19 14.3	16.6	−1.22	−	1.1	1.0/29.4	31005
1981 EV_{42}	1997 11 29.8	04 23.60	+34 08.6	20.1	−1.25	−	1.6	4.6/01.4	26922
1996 NW	1997 11 29.8	04 23.73	+22 56.6	18.1	−0.99	−	3.4	0.5/30.1	31009
1990 VR_{14}	1997 11 29.8	04 23.92	+23 29.7	14.9	−1.13	+	0.1	0.9/30.1	30976
1997 VG_4	1997 11 29.9	04 24.30	+18 45.8	17.5	−0.88	−	1.8	0.9/29.6	30995
1981 EK_{13}	1997 11 30.0	04 24.57	+20 08.8	17.6	−1.07	−	6.0	0.7/29.8	26917
1990 QF_5	1997 11 30.0	04 24.60	+42 29.2	17.1	−1.06	−	1.0	5.8/02.8	28316
(7118)	1997 11 30.1	04 24.83	+05 58.7	16.0	−0.91	−	6.1	6.2/27.3	27700
1997 VN	1997 11 30.1	04 25.07	+14 40.3	18.1	−0.94	−	1.8	3.0/29.3	30993
1997 VZ_2	1997 11 30.2	04 25.50	+27 37.6	16.2	−1.21	+	0.5	2.7/30.8	30994
1993 SB_1	1997 11 30.3	04 25.70	+31 53.8	16.0	−1.22	−	1.8	4.1/01.6	31007
1981 EX_{12}	1997 11 30.3	04 25.98	+10 49.1	19.3	−0.89	−	4.3	3.4/28.7	26917
1981 EZ_{20}	1997 11 30.3	04 26.01	+20 41.3	18.1	−0.98	−	2.6	0.4/30.3	26919
1994 CX_2	1997 11 30.4	04 26.09	+18 05.1	17.1	−0.91	−	1.5	1.2/30.0	27937
1997 WH	1997 11 30.4	04 26.09	+21 02.8	17.6	−0.84	−	4.8	0.2/30.3	30997
1979 QV_1	1997 11 30.4	04 26.17	+31 39.1	17.6	−1.24	−	3.5	4.0/01.8	30892
1984 SN_6	1997 11 30.4	04 26.18	+22 16.7	16.8	−1.06	−	1.1	0.2/30.5	31004
1996 QN_1	1997 11 30.4	04 26.44	+36 09.0	18.5	−1.03	−	2.0	4.5/02.5	30902
2055 P-L	1997 11 30.4	04 26.46	+35 43.7	18.7	−1.25	−	2.0	5.1/02.2	28319
1991 RP_2	1997 11 30.4	04 26.46	+13 51.1	17.0	−0.85	−	3.9	2.4/29.3	30896
1996 PY_7	1997 11 30.5	04 26.53	+17 43.7	17.6	−0.94	−	1.5	1.4/30.0	29115
2061 P-L	1997 11 30.6	04 26.89	+29 07.6	18.2	−1.16	−	2.9	2.6/01.6	27938
1993 RB_7	1997 11 30.6	04 27.39	+13 40.4	17.6	−1.07	−	3.5	3.2/29.6	30471
1979 MT_2	1997 11 30.7	04 27.78	+29 56.5	19.5	−0.92	−	3.4	2.3/02.0	30778
1992 NP	1997 11 30.8	04 27.73	+36 53.4	15.7	−1.18	−	6.3	6.0/04.0	27935
1988 BX	1997 11 30.8	04 27.83	+49 51.9	15.1	−1.69	−	15.6	14.5/08.6	31004
1994 TV_{15}	1997 11 30.8	04 27.96	−14 16.2	15.4	−1.10	−	8.1	17.1/23.5	30783
1990 UF_2	1997 12 01.2	04 29.51	+13 38.1	16.9	−1.10	−	5.0	3.4/30.0	30895
1992 SE_1	1997 12 01.2	04 29.65	+30 07.2	17.2	−1.12	+	1.1	2.7/02.0	31006
1997 WO_{13}	1997 12 01.2	04 29.71	+17 49.6	17.1	−1.14	+	0.8	1.6/30.9	30999
1995 DZ_2	1997 12 01.3	04 30.16	+38 55.8	19.8	−1.34	−	8.3	6.1/04.0	25433
1978 VP_{10}	1997 12 01.3	04 30.19	+20 30.2	17.4	−1.10	−	0.6	0.5/01.2	31003
1990 TQ_1	1997 12 01.4	04 30.33	+12 10.8	17.0	−1.11	+	0.7	4.7/30.6	27325
1995 BO_1	1997 12 01.4	04 30.33	+22 38.3	15.9	−1.16	−	4.3	0.3/01.5	31008
1992 RK_7	1997 12 01.4	04 30.56	+16 46.5	17.6	−1.00	−	0.9	1.8/30.9	31006
1990 OH_4	1997 12 01.4	04 30.57	+12 37.2	17.9	−0.82	−	2.3	2.6/30.3	28316
1993 QH_{10}	1997 12 01.5	04 30.90	+37 31.4	16.4	−1.32	−	10.1	5.9/04.7	31007
4627 P-L	1997 12 01.5	04 30.91	+23 46.8	18.5	−1.14	−	1.3	0.9/01.7	24909
1997 VY_1	1997 12 01.5	04 31.18	+19 51.0	16.2	−0.88	−	2.8	0.7/01.3	30993
1979 MK_5	1997 12 01.6	04 31.51	+19 53.8	17.9	−1.01	−	3.0	0.7/01.4	31003
1991 JJ	1997 12 01.7	04 31.61	+24 37.2	16.4	−1.12	+	1.9	0.9/01.9	31006
3357 T-3	1997 12 01.7	04 31.97	+24 37.6	16.6	−0.97	−	1.6	1.0/02.1	31023
1992 PY_2	1997 12 01.8	04 32.54	+36 56.0	15.1	−1.14	−	7.8	6.1/04.7	31006
1993 NH	1997 12 01.8	04 32.58	+19 19.7	17.4	−1.26	−	14.1	1.1/01.4	31007
1992 OC	1997 12 01.9	04 32.55	+44 00.2	20.0	−1.35	−	1.0	7.0/04.7	30782
1981 EF_{42}	1997 12 02.0	04 33.05	+23 06.5	19.3	−0.97	−	1.6	0.4/02.2	21968
1992 UE_2	1997 12 02.1	04 33.83	+20 02.6	16.5	−0.96	−	2.1	0.8/02.0	29616
1992 HL_4	1997 12 02.2	04 34.04	+31 45.7	17.4	−1.27	−	0.2	3.7/03.2	30896
1992 XL	1997 12 02.2	04 34.15	+17 37.0	16.8	−0.97	+	1.9	1.5/01.9	31007
1997 WD_2	1997 12 02.4	04 34.88	+18 29.8	15.9	−1.21	+	1.7	1.6/02.2	30997
1988 SU_2	1997 12 02.4	04 35.03	+18 39.7	17.4	−1.01	−	1.4	1.2/02.1	31004
6120 P-L	1997 12 02.5	04 35.26	+13 54.3	18.2	−1.02	−	3.0	3.5/01.6	31001
2167 T-2	1997 12 02.5	04 35.34	+14 14.3	19.8	−1.12	−	3.2	3.0/01.6	27564
1995 FH	1997 12 02.5	04 35.60	+22 20.8	16.5	−1.01	−	6.8	0.1/02.7	30901
1981 EO_{15}	1997 12 02.6	04 35.54	+16 35.3	17.3	−0.94	−	4.4	2.1/01.8	31003
(7128)	1997 12 02.6	04 35.54	+21 07.4	16.8	−0.90	−	2.6	0.3/02.5	27703
(7055)	1997 12 02.6	04 35.55	+14 32.4	15.8	−1.36	+	7.8	3.1/02.6	27437
6073 P-L	1997 12 02.6	04 35.61	+28 00.2	17.9	−1.03	−	1.9	2.0/03.3	31022
1991 LW	1997 12 02.8	04 36.44	+15 14.5	17.4	−1.05	+	1.2	2.3/02.3	26420
1996 JH	1997 12 02.8	04 36.49	+18 48.1	17.3	−1.12	−	3.4	1.3/02.4	31009
(8076)	1997 12 02.8	04 36.80	+22 28.3	16.9	−0.90	−	1.7	0.1/02.9	30961
1988 CY_2	1997 12 03.0	04 37.41	+27 39.9	18.1	−1.19	−	2.7	2.2/03.7	30894
(7258)	1997 12 03.0	04 37.46	+37 21.7	17.5	−1.17	−	4.8	5.8/05.2	28068
1997 VK_5	1997 12 03.0	04 37.71	+25 06.5	16.2	−1.07	−	3.9	1.0/03.5	30995
1989 GK_1	1997 12 03.1	04 37.79	+34 36.0	18.2	−1.00	−	0.9	3.7/04.5	28315
1979 MW_1	1997 12 03.1	04 38.06	+21 17.0	16.6	−1.01	−	4.3	0.3/03.1	30778
1990 SU_8	1997 12 03.1	04 38.08	+11 25.7	17.6	−1.14	−	1.6	4.2/02.1	18298
(7231)	1997 12 03.2	04 38.21	+32 48.9	16.4	−0.99	−	0.2	3.3/04.3	28061
1992 SJ	1997 12 03.2	04 38.63	+34 55.5	17.0	−1.18	−	1.4	4.4/04.8	24897
(7047)	1997 12 03.3	04 38.66	−12 35.0	18.5	−0.98	−	1.2	11.4/29.6	27435
1993 RL_5	1997 12 03.4	04 39.05	+25 59.2	17.0	−1.14	−	3.0	1.7/04.0	31007
1995 CW	1997 12 03.4	04 39.12	+11 32.4	17.2	−1.08	−	0.9	4.2/02.4	30874
2251 T-1	1997 12 03.4	04 39.44	+26 50.8	17.6	−1.02	−	1.1	1.7/04.0	31023
(7383)	1997 12 03.7	04 40.36	+19 24.6	16.4	−1.06	−	2.1	1.1/03.4	28821
(7074)	1997 12 03.7	04 40.38	+23 32.7	15.9	−1.24	+	0.3	11.7/24.0	27545
1992 RV	1997 12 03.8	04 40.77	+34 24.8	16.7	−1.15	+	0.1	4.9/05.0	30782
1997 VQ_5	1997 12 03.9	04 41.25	+23 45.0	16.7	−1.11	+	0.6	0.8/04.0	30996
1981 ET_{46}	1997 12 04.0	04 41.61	+25 35.0	17.3	−1.02	−	2.0	1.3/04.4	26923
1985 UQ_4	1997 12 04.0	04 41.81	+18 56.0	17.0	−0.86	−	1.1	1.1/03.7	31004
1979 MK_4	1997 12 04.0	04 41.99	+15 59.8	19.7	−1.12	−	1.3	2.4/03.5	30778
1997 VM_5	1997 12 04.1	04 42.51	+21 44.2	17.4	−0.89	−	1.5	0.2/04.1	30996
1981 EK_{23}	1997 12 04.2	04 42.52	+17 33.8	18.1	−1.11	−	2.4	1.8/03.7	31003
1995 CM	1997 12 04.2	04 42.72	+28 29.5	17.8	−1.23	−	0.7	2.4/04.8	24907
4090 T-2	1997 12 04.2	04 42.84	+19 17.7	18.3	−1.05	−	1.0	1.0/04.0	28088
1979 MZ_7	1997 12 04.4	04 43.35	+16 52.4	19.6	−1.14	−	1.8	2.3/03.9	30779

1995 DQ_1	1997 12 04.4	04 43.56	+15 41.0	16.5	−1.07	+ 0.7	2.9/04.0	30472
1997 VS_5	1997 12 04.5	04 43.82	+25 25.9	17.5	−0.95	− 1.4	1.1/04.8	30996
1991 CM_3	1997 12 04.5	04 43.91	+15 12.0	15.7	−1.03	− 0.1	3.3/03.9	28885
1997 WQ_2	1997 12 04.5	04 44.03	+19 25.5	17.0	−1.14	+ 1.9	1.3/04.4	30998
1979 OH_{10}	1997 12 04.6	04 44.19	+04 29.6	19.0	−0.82	− 0.7	5.6/02.9	29296
1979 SC	1997 12 04.6	04 44.51	+27 06.6	16.8	−1.21	− 0.7	1.8/05.1	31003
1981 EV_{25}	1997 12 04.6	04 44.65	+08 18.2	17.3	−0.92	− 2.0	5.5/03.3	26919
1996 JY	1997 12 04.6	04 44.70	+08 09.3	19.0	−1.02	− 2.7	4.9/03.2	27457
1992 GM_4	1997 12 04.7	04 45.14	+16 04.2	16.8	−1.07	− 3.9	2.6/04.1	31006
(7121)	1997 12 04.8	04 45.27	+18 29.0	17.1	−0.93	− 1.5	1.3/04.5	27701
1987 YC_1	1997 12 04.9	04 45.96	+21 47.6	17.3	−0.93	− 1.6	0.2/04.9	31004
1997 WD_8	1997 12 04.9	04 46.00	+18 11.2	16.2	−1.07	− 2.0	2.0/04.6	30998
1987 MA_1	1997 12 05.2	04 47.22	+04 58.8	17.7	−0.91	− 0.8	5.2/03.8	28085
1981 EA_{22}	1997 12 05.3	04 47.26	+02 58.4	18.0	−0.89	− 1.9	6.7/03.2	22598
1982 UF_7	1997 12 05.3	04 47.42	+14 57.6	16.1	−0.91	− 4.0	2.7/04.4	30468
1995 DR_1	1997 12 05.4	04 47.99	+08 53.9	16.7	−1.06	+ 0.3	5.9/04.4	30874
1981 EE_{14}	1997 12 05.5	04 48.59	+15 33.2	18.7	−1.07	− 3.7	2.7/04.8	25338
(7125)	1997 12 05.5	04 48.60	+18 56.6	17.0	−1.08	− 2.4	1.4/05.2	27702
1979 KM	1997 12 05.6	04 48.56	+12 08.3	19.1	−1.10	− 1.5	3.7/04.7	27930
1994 AT_2	1997 12 05.6	04 48.62	+22 23.3	16.9	−0.99	− 3.5	0.0/05.6	23242
1986 VM_6	1997 12 05.7	04 49.26	+26 31.2	16.4	−1.20	+ 0.3	1.9/06.1	30974
1995 AM	1997 12 05.9	04 50.40	+15 32.0	17.1	−1.17	+ 4.7	4.1/05.9	31008
1978 SA_7	1997 12 06.0	04 50.30	+35 15.8	15.9	−1.11	− 1.8	5.4/07.4	31003
1981 EU_{30}	1997 12 06.0	04 50.46	+33 51.7	18.9	−1.26	− 2.4	4.8/07.2	26920
1994 GR_9	1997 12 06.0	04 50.79	+23 03.9	17.0	−0.85	− 1.4	0.2/06.2	28318
(7134)	1997 12 06.2	04 51.19	+14 36.0	16.7	−1.03	− 4.9	2.7/05.2	27704
1986 PK_6	1997 12 06.2	04 51.68	+22 59.2	16.7	−1.17	− 3.4	0.2/06.3	31004
1994 CF_1	1997 12 06.3	04 51.83	+36 58.0	15.7	−1.11	− 6.6	6.2/08.6	24119
1996 QC	1997 12 06.3	04 51.84	+20 25.5	17.3	−0.96	− 1.3	0.7/06.2	31009
1986 PB	1997 12 06.3	04 52.00	−27 05.4	17.8	−1.19	+ 4.0	23.0/05.3	24385
1981 SN	1997 12 06.3	04 52.00	+16 51.1	16.6	−1.03	− 3.8	2.4/05.7	30893
1992 EB_8	1997 12 06.4	04 52.35	+20 03.1	16.5	−1.13	− 1.8	1.2/06.2	31006
1981 EA_{47}	1997 12 06.5	04 53.02	+34 02.5	18.7	−1.24	− 1.7	5.4/07.7	26923
1992 OK	1997 12 06.6	04 53.22	+21 10.2	17.0	−1.07	− 5.5	0.6/06.5	21267
1981 EG_{25}	1997 12 06.6	04 53.31	+35 55.1	20.4	−1.05	− 1.4	3.5/07.9	28581
(7075)	1997 12 06.7	04 53.39	+03 02.6	16.5	−0.93	− 1.8	7.2/05.0	29893
1981 EP_{46}	1997 12 06.7	04 53.54	+36 03.3	16.8	−1.03	− 1.0	6.8/08.1	26923
1991 RK_5	1997 12 06.7	04 53.79	+36 49.3	16.5	−1.07	− 0.2	4.5/08.0	28614
1990 QJ_1	1997 12 06.8	04 54.07	+31 02.8	15.9	−1.24	− 3.5	4.1/07.8	27933
4348 T-1	1997 12 06.8	04 54.15	+28 20.2	17.8	−0.96	+ 0.2	1.8/07.3	31001
1977 DX_3	1997 12 06.9	04 54.24	+21 44.5	17.5	−0.85	− 0.9	0.2/06.8	31003
1985 RD_2	1997 12 06.9	04 54.38	+40 15.6	16.8	−1.35	− 2.4	6.9/09.0	24734
1986 QM_1	1997 12 07.0	04 54.68	+22 19.0	18.4	−1.19	− 1.0	0.1/07.0	29655
1981 ER_{27}	1997 12 07.0	04 55.21	+35 42.1	17.4	−1.27	− 0.6	6.0/08.2	29653
1992 GX_4	1997 12 07.1	04 55.26	+26 47.1	16.9	−1.22	− 0.3	1.7/07.4	31006
2272 T-2	1997 12 07.3	04 56.41	+34 18.3	16.2	−1.32	− 0.2	5.1/08.2	29669
1981 EE_{21}	1997 12 07.3	04 56.45	+02 31.7	17.5	−0.89	− 2.5	8.4/05.5	26919
1981 EP_{32}	1997 12 07.4	04 56.77	+37 35.7	20.1	−1.28	− 1.8	5.0/09.0	26921
1994 CV_{16}	1997 12 07.4	04 56.83	+20 06.5	18.0	−0.93	− 0.6	0.8/07.3	28087
1981 EQ_{35}	1997 12 07.4	04 56.90	+20 54.0	21.6	−0.98	− 1.4	0.6/07.3	26921
1991 RB_{11}	1997 12 07.5	04 57.04	+20 15.2	16.5	−0.90	− 1.3	0.9/07.3	31006
1991 GC_1	1997 12 07.7	04 57.89	+40 52.8	17.9	−1.28	+ 0.4	5.8/08.9	28886
(7148)	1997 12 07.7	04 58.09	+18 03.2	15.5	−1.11	− 4.1	2.0/07.3	27707
1988 DZ_4	1997 12 07.7	04 58.12	−11 10.7	17.9	−1.19	− 2.4	14.9/04.6	31004
1980 VA	1997 12 07.8	04 58.45	+15 09.7	15.9	−0.95	− 1.0	4.3/07.3	31003
1996 NX_4	1997 12 07.8	04 58.64	+14 33.7	16.9	−0.98	− 0.4	3.1/07.3	28319
1985 JN_1	1997 12 07.9	04 58.67	+21 38.3	17.3	−1.16	+ 0.6	0.4/07.9	30893
1981 EK_2	1997 12 07.9	04 58.76	+23 44.6	18.6	−0.98	− 3.6	0.3/08.0	26914
1996 NF_4	1997 12 08.0	04 59.31	+32 22.0	16.8	−1.02	− 3.2	3.4/09.1	27938
1978 XU	1997 12 08.0	04 59.40	+14 48.5	16.2	−1.05	− 4.2	3.4/07.2	27930
1981 ED_{43}	1997 12 08.2	04 59.90	+32 58.3	18.0	−1.08	− 0.8	3.2/09.0	28314
1988 VQ_3	1997 12 08.3	05 00.60	+14 23.0	16.3	−0.96	− 6.0	3.2/07.3	30975
1995 DR	1997 12 08.4	05 00.84	+12 05.1	17.8	−1.02	− 1.1	3.8/07.6	30983
1991 PG_5	1997 12 08.4	05 00.98	+21 59.8	17.7	−0.95	− 1.6	0.3/08.4	28086
1992 SW_{16}	1997 12 08.4	05 01.04	+21 52.2	19.5	−1.01	− 1.7	0.3/08.4	30451
1993 TZ_{31}	1997 12 08.4	05 01.27	+29 46.5	18.4	−1.25	+ 1.4	2.7/08.8	27557
1989 YP_5	1997 12 08.8	05 02.55	+15 30.7	16.7	−1.03	+ 0.3	2.9/08.4	21973
1993 QO_8	1997 12 08.8	05 02.58	+26 49.6	16.8	−1.07	+ 0.7	2.1/09.0	30980
1997 WF_{21}	1997 12 08.9	05 03.31	+16 40.7	15.8	−1.00	− 2.3	3.0/08.4	30999
3211 T-2	1997 12 08.9	05 03.44	+23 03.5	18.5	−0.88	− 0.6	6.7/19.0	15728
1992 WR_2	1997 12 08.9	05 03.47	+23 35.7	16.8	−0.97	− 0.4	0.3/09.0	31007
1992 DK_8	1997 12 08.9	05 03.50	+16 48.7	16.9	−1.16	− 3.6	2.7/09.0	27308
1981 EX_{10}	1997 12 09.0	05 03.63	+14 41.9	19.7	−0.92	− 2.3	2.4/08.3	22492
6629 P-L	1997 12 09.0	05 03.88	+17 36.6	17.3	−0.57	− 0.7	1.0/08.7	28088
1993 OW_6	1997 12 09.1	05 04.08	+16 50.2	16.8	−1.11	+ 0.6	3.0/08.8	30980
1988 SF_3	1997 12 09.2	05 04.85	+32 23.7	16.4	−1.27	+ 6.2	4.0/09.3	25439
1981 EA_9	1997 12 09.5	05 06.09	+35 05.0	17.5	−1.31	− 3.3	5.5/10.9	22823
1993 DJ	1997 12 09.5	05 06.11	−17 40.1	16.8	−1.23	+ 5.0	18.7/09.2	31007
1996 NF_3	1997 12 09.6	05 06.09	+07 40.6	15.9	−0.94	+ 0.7	5.9/08.8	28319
1981 EE_{29}	1997 12 09.6	05 06.09	+28 43.3	18.8	−1.18	− 3.5	2.7/10.2	22271
(7668)	1997 12 09.6	05 06.17	+19 11.0	17.9	−1.09	− 1.4	1.3/09.4	29904
4062 T-1	1997 12 09.6	05 06.19	+07 16.2	17.6	−0.81	− 1.3	4.8/08.4	31023
1996 PR_1	1997 12 09.6	05 06.36	+22 05.4	18.3	−0.91	− 1.1	0.2/09.6	31009
1995 DJ_1	1997 12 09.6	05 06.56	+25 18.2	17.2	−1.10	− 1.7	0.8/09.9	31008
1981 EG_4	1997 12 09.7	05 06.63	+26 22.2	18.5	−1.17	− 3.9	1.4/10.1	26915
1993 TU_{20}	1997 12 09.7	05 06.83	+35 23.5	17.3	−1.35	+ 2.1	5.4/10.2	25340
(7244)	1997 12 09.7	05 06.94	+19 08.5	16.9	−0.94	− 0.9	1.3/09.5	28064
1997 WM_{21}	1997 12 09.8	05 07.40	+18 16.0	15.4	−1.12	− 5.2	2.2/09.4	30999
1981 EW_{18}	1997 12 09.9	05 07.68	+34 12.7	18.0	−1.28	− 1.7	4.6/10.9	26918
3086 P-L	1997 12 09.9	05 07.84	+20 10.0	17.3	−0.90	− 3.5	0.8/09.7	31022
1981 JS_2	1997 12 10.0	05 07.98	+26 11.8	18.1	−1.15	− 1.3	1.2/10.3	29132
6132 P-L	1997 12 10.1	05 08.36	+23 23.8	18.8	−1.18	− 2.1	0.2/10.2	30914
5008 P-L	1997 12 10.2	05 08.79	+35 30.0	18.9	−1.26	− 0.6	5.3/11.0	25076
1996 TZ_{36}	1997 12 10.2	05 09.08	+21 33.0	18.6	−0.58	− 0.9	0.3/10.2	28309
1992 EL_{35}	1997 12 10.2	05 09.10	+14 04.9	18.4	−1.11	− 1.5	3.4/09.7	27935
1981 EN_{23}	1997 12 10.3	05 09.29	+25 45.6	20.5	−1.17	− 1.4	1.0/10.5	24894
1996 QD_1	1997 12 10.3	05 09.31	+21 08.3	17.7	−1.14	− 2.8	0.7/10.2	30986
1997 WJ_2	1997 12 10.4	05 10.02	+23 33.6	16.9	−1.19	+ 0.6	0.3/10.5	30997
6133 P-L	1997 12 10.5	05 10.13	+21 48.4	17.4	−1.12	− 3.1	0.5/10.4	31001
1981 EC_3	1997 12 10.5	05 10.26	+18 01.1	19.9	−1.08	− 3.2	1.7/10.1	30779
1997 WN_2	1997 12 10.6	05 10.69	+26 08.8	16.8	−1.10	− 1.7	1.6/10.9	30997
1990 VL_4	1997 12 10.6	05 10.77	+15 10.0	17.1	−1.15	+ 1.9	3.4/10.4	24739

1976 SC	1997 12 10.7	05 10.93	+36 00.1	15.7	−1.20	−	2.0	5.7/11.8	27930
1979 HN_5	1997 12 10.7	05 11.16	+18 49.2	16.7	−0.89	+	0.4	1.2/10.5	25326
1986 TC	1997 12 10.7	05 11.35	+32 55.6	17.2	−1.27	−	1.6	4.3/11.5	29655
1997 WV_2	1997 12 10.8	05 11.46	+24 33.0	14.8	−1.11	−	4.3	0.7/11.0	30998
1997 WO_{21}	1997 12 10.9	05 12.15	+17 31.0	15.7	−0.91	−	8.1	2.1/10.2	30999
1992 ST_{26}	1997 12 11.0	05 12.48	+25 53.3	15.1	−1.02	−	3.3	1.1/11.3	31006
1992 YL_2	1997 12 11.0	05 12.59	+18 33.9	16.8	−0.96	+	2.6	1.5/11.0	31007
1981 EN_{41}	1997 12 11.1	05 12.83	+20 05.6	19.7	−0.99	−	0.8	1.0/11.0	26922
1995 AJ	1997 12 11.1	05 12.91	+28 03.0	16.3	−1.27	−	4.3	2.1/11.6	31008
7620 P-L	1997 12 11.1	05 12.92	+29 16.7	19.8	−1.23	−	0.4	2.2/11.5	27321
1981 EV_{41}	1997 12 11.2	05 13.11	+26 53.5	17.9	−1.04	−	1.5	1.5/11.5	31003
1991 SC_2	1997 12 11.2	05 13.34	+20 07.6	17.4	−0.93	−	0.4	1.0/11.1	25081
4276 P-L	1997 12 11.2	05 13.51	+31 48.5	19.0	−1.29	−	1.1	3.3/11.8	30914
1997 XL	1997 12 11.5	05 14.48	+29 28.1	15.6	−1.23	+	2.1	3.0/11.7	31000
4042 P-L	1997 12 11.6	05 15.07	+15 07.7	17.0	−0.92	−	2.2	3.5/11.1	31000
1995 CM_1	1997 12 11.6	05 15.11	+39 25.6	16.9	−1.33	−	1.4	6.4/12.8	31008
(7108)	1997 12 11.6	05 15.23	+18 40.8	16.2	−0.92	−	1.5	1.7/11.4	27698
(7364)	1997 12 11.8	05 15.84	+19 14.4	18.7	−1.16	−	1.4	1.5/11.6	29587
1978 NY	1997 12 11.8	05 16.20	+30 29.0	16.6	−1.20	−	4.0	3.3/12.6	25526
1986 VR_5	1997 12 11.9	05 16.17	+24 27.3	16.6	−1.12	−	4.8	0.6/12.0	31004
1992 HG_4	1997 12 11.9	05 16.19	+21 49.7	17.6	−1.11	−	1.4	0.4/11.8	31006
1988 CV_4	1997 12 11.9	05 16.33	−02 05.5	18.0	−0.80	−	1.3	7.3/10.4	28315
1996 GN_{19}	1997 12 11.9	05 16.53	+16 24.6	17.1	−1.17	−	1.9	2.6/11.6	28862
1990 UB_3	1997 12 12.1	05 17.13	+28 02.5	16.5	−1.13	−	0.9	2.6/12.4	31005
1996 QD	1997 12 12.2	05 17.75	+09 55.8	18.8	−0.95	−	2.8	4.3/11.3	30877
1981 DJ_1	1997 12 12.2	05 17.77	+25 30.1	18.8	−1.17	−	3.8	1.0/12.5	26914
1982 BE_1	1997 12 12.3	05 18.08	+13 26.8	15.7	−0.97	+	2.0	4.6/12.1	31003
1981 EX_{28}	1997 12 12.5	05 18.94	+29 20.0	17.8	−1.20	−	3.1	2.4/13.0	27726
4125 T-2	1997 12 12.5	05 19.04	+05 00.0	19.2	−0.80	−	0.8	5.5/11.5	29314
1978 RM_7	1997 12 12.5	05 19.10	+22 16.0	18.6	−1.12	−	1.5	0.3/12.5	30892
(7161)	1997 12 12.6	05 19.59	+20 53.5	16.7	−1.12	−	1.8	1.0/12.5	27895
1993 UH_1	1997 12 12.6	05 19.62	−08 55.4	18.6	−1.03	−	3.0	11.2/10.5	31007
1985 SG_3	1997 12 12.7	05 19.90	+13 39.9	17.4	−0.85	−	2.9	2.7/12.0	28084
(7316)	1997 12 12.8	05 20.54	+17 16.2	16.7	−0.96	+	0.7	2.3/12.7	28292
1993 TN	1997 12 12.8	05 20.62	+22 17.0	16.1	−1.16	+	0.6	0.4/12.9	31007
1981 ES_{17}	1997 12 12.9	05 20.58	+22 57.8	18.0	−1.01	−	1.7	0.1/12.9	26918
(7246)	1997 12 12.9	05 20.67	+36 16.8	16.0	−1.09	+	2.9	5.0/13.1	28065
1995 FQ	1997 12 13.0	05 21.04	+25 20.3	17.4	−1.03	−	4.9	0.7/13.2	31008
4213 P-L	1997 12 13.0	05 21.26	+35 00.7	19.1	−1.03	−	1.0	3.7/13.7	27938
1981 EE_{45}	1997 12 13.0	05 21.30	+38 18.5	17.6	−1.17	+	0.3	5.2/13.7	26923
1982 UE_6	1997 12 13.1	05 21.54	+26 49.4	16.2	−1.10	−	0.1	1.8/13.3	31004
(7058)	1997 12 13.1	05 21.59	+18 12.6	15.5	−1.10	−	3.6	2.4/12.8	27438
4556 P-L	1997 12 13.2	05 21.97	+26 07.8	17.2	−0.98	−	0.1	1.0/13.4	31022
1981 EK_{38}	1997 12 13.3	05 22.53	+26 41.3	19.6	−1.18	−	2.4	1.5/13.6	26922
1995 BF_1	1997 12 13.3	05 22.55	+27 12.3	17.1	−1.25	−	2.7	1.7/13.6	31008
1981 JE_2	1997 12 13.3	05 22.75	+24 42.6	17.9	−1.16	−	0.1	0.6/13.4	31003
(7625)	1997 12 13.5	05 23.57	+07 42.2	18.0	−0.93	−	1.6	5.1/12.8	29606
1987 OT	1997 12 13.5	05 23.63	+10 46.0	18.2	−0.92	−	0.7	3.7/13.0	30894
1986 VY	1997 12 13.5	05 23.68	+31 18.5	15.5	−1.12	−	2.1	4.2/14.1	30894
(7014)	1997 12 13.6	05 23.79	+18 11.0	17.1	−1.16	−	1.3	2.0/13.4	27294
1986 RQ	1997 12 13.6	05 23.97	+11 08.1	16.7	−1.10	−	3.1	4.8/12.9	27932
1982 HJ	1997 12 13.8	05 24.88	+28 05.7	17.0	−1.24	+	1.4	1.8/14.0	31004
1993 TS_{33}	1997 12 13.9	05 25.10	+18 32.4	17.2	−1.08	+	1.5	2.2/13.8	31007
1994 AY_1	1997 12 14.0	05 25.54	+20 29.8	16.1	−1.01	−	0.6	1.2/13.9	31008
1989 TK_{16}	1997 12 14.2	05 26.31	+19 53.3	18.4	−1.10	−	0.9	1.2/14.1	25329
1990 QR_5	1997 12 14.2	05 26.65	+20 44.0	18.0	−0.85	−	0.3	0.7/14.2	30653
1991 TQ	1997 12 14.3	05 26.88	+25 34.5	17.9	−0.95	+	0.9	0.7/14.4	25538
1995 FT	1997 12 14.3	05 26.97	+18 13.8	16.9	−1.08	−	0.3	1.9/14.1	28087
(7260)	1997 12 14.4	05 27.27	+25 08.0	16.9	−0.98	+	0.1	0.7/14.5	28068
1981 EK_{40}	1997 12 14.4	05 27.71	+15 52.3	17.8	−0.97	−	1.1	2.8/14.2	26922
1992 JD_3	1997 12 14.5	05 28.05	+29 40.0	16.9	−1.27	+	1.7	2.6/14.7	30896
1993 QY_9	1997 12 14.7	05 28.71	+16 11.5	18.7	−1.15	+	0.4	2.8/14.5	29944
1317 T-2	1997 12 14.7	05 29.01	+32 39.1	19.8	−1.19		0.0	3.3/15.1	27939
1996 OQ	1997 12 14.8	05 29.20	+24 44.7	19.1	−1.12	−	1.3	0.5/14.9	27722
1990 OF_1	1997 12 15.0	05 30.04	+03 54.2	17.3	−0.80	+	0.2	5.3/14.5	27933
1996 PN_5	1997 12 15.1	05 30.36	+23 26.2	18.4	−1.02	+	0.2	0.1/15.1	30986
1992 YS_2	1997 12 15.2	05 30.84	+23 43.3	16.1	−0.96	+	0.4	0.2/15.2	31007
1979 MU_2	1997 12 15.2	05 30.86	+15 20.5	20.3	−0.85	−	0.3	2.3/14.9	28293
1979 MF	1997 12 15.2	05 31.05	+13 44.2	18.0	−1.14	−	0.5	3.6/14.9	27930
(7412)	1997 12 15.2	05 31.14	+22 17.9	17.8	−0.85	−	0.1	0.3/15.2	28829
1991 RQ_7	1997 12 15.2	05 31.21	+32 31.6	17.3	−1.02	−	2.3	2.7/15.9	28615
1981 WO	1997 12 15.4	05 31.77	+38 10.4	16.4	−1.11	+	1.4	5.3/15.7	29654
1989 SM_8	1997 12 15.4	05 32.09	+25 46.9	17.2	−1.18	−	0.3	1.0/15.6	20505
1990 UK_1	1997 12 15.5	05 32.18	+22 03.7	16.4	−1.18	−	3.5	0.6/15.4	27454
1981 ES_{37}	1997 12 15.6	05 32.55	+19 39.7	20.1	−1.15	−	2.5	1.5/15.4	26922
1985 VB_1	1997 12 15.6	05 32.63	−06 28.1	19.2	−0.85	+	3.2	8.3/16.3	27305
1996 JR_1	1997 12 15.6	05 32.86	+34 39.0	17.8	−1.51	+	7.4	4.4/15.2	27457
1988 ER_1	1997 12 15.6	05 32.89	+32 59.3	16.9	−1.25	+	0.8	3.7/15.9	29941
3163 T-2	1997 12 15.6	05 33.00	+24 06.0	18.8	−0.91	+	0.3	0.2/15.7	28083
5065 T-2	1997 12 15.8	05 33.81	+17 22.5	18.3	−1.06	−	5.4	2.5/15.4	22701
1989 TP_{11}	1997 12 15.8	05 33.83	+17 34.8	16.7	−1.09	−	1.0	2.3/15.7	22811
6085 P-L	1997 12 15.8	05 33.88	+20 41.1	18.2	−1.14	−	0.9	1.0/15.8	28319
1994 AW	1997 12 15.9	05 33.90	+21 06.6	17.0	−1.02	−	0.6	0.9/15.8	30981
(7197)	1997 12 16.0	05 34.44	+14 50.6	15.5	−0.97	+	3.3	4.0/16.1	27904
1993 TS_{20}	1997 12 16.0	05 34.78	+20 03.6	18.7	−1.14	−	0.3	1.3/16.0	27715
1993 SX_6	1997 12 16.1	05 35.13	+32 01.2	17.0	−1.25	+	0.1	3.9/16.4	30899
9535 P-L	1997 12 16.1	05 35.22	+13 19.9	18.2	−0.95	−	0.2	3.6/15.9	29668
1996 RJ_4	1997 12 16.4	05 36.52	+20 08.8	19.2	−1.01	−	0.2	1.1/16.4	29115
1993 QD_4	1997 12 16.5	05 36.64	+28 05.0	17.5	−1.22	−	1.0	2.1/16.7	23791
1991 VW_8	1997 12 16.5	05 36.69	+20 30.2	18.3	−0.90	−	0.2	0.9/16.5	30470
1992 FG	1997 12 16.5	05 36.75	+32 35.6	17.0	−1.28	+	0.1	3.5/16.8	25340
4172 T-2	1997 12 16.5	05 36.88	+20 41.2	16.9	−1.11	+	1.0	1.1/16.5	31023
1981 ED_8	1997 12 16.5	05 36.90	+28 31.1	17.9	−1.20	−	2.4	2.3/16.8	26916
1994 AO_2	1997 12 16.6	05 37.37	+37 09.4	16.2	−1.18	−	5.7	6.1/18.0	29944
3266 T-1	1997 12 16.8	05 37.90	+24 32.7	18.3	−0.91	−	0.4	0.4/16.9	22432
3177 T-2	1997 12 16.8	05 37.93	+23 35.7	17.8	−1.20	+	0.1	0.1/16.8	27732
1996 PO_8	1997 12 16.8	05 38.03	+09 07.1	18.7	−1.02	+	1.0	5.2/16.7	30279
1996 NS_3	1997 12 16.8	05 38.09	+20 12.5	18.0	−1.05		0.0	1.1/16.8	31009
1993 BD_{13}	1997 12 16.8	05 38.14	+27 32.9	17.3	−0.93	−	1.6	1.3/17.0	26564
1996 HJ_{23}	1997 12 16.9	05 38.33	+18 35.6	16.8	−1.18	+	0.7	2.1/16.9	28088
1989 EJ_1	1997 12 16.9	05 38.34	+16 21.9	17.5	−1.18	−	0.4	2.9/16.7	28613
1980 LY	1997 12 17.1	05 39.38	+21 16.2	17.5	−1.22	+	1.1	0.8/17.1	25647

1996 PE	1997 12 17.1	05 39.51	+20 47.2	18.2	−1.00	+	0.9	0.9/17.1	30902
1993 TM_6	1997 12 17.2	05 40.01	+28 57.8	18.5	−1.23	−	0.7	2.3/17.4	25216
7075 P-L	1997 12 17.2	05 40.09	+11 10.5	18.0	−0.88	−	1.5	3.9/16.9	20516
(7059)	1997 12 17.3	05 40.34	+25 15.6	17.7	−1.26	+	0.9	0.8/17.4	27438
1996 PM_3	1997 12 17.3	05 40.46	+02 59.8	17.6	−0.95	+	2.2	8.5/17.3	27924
1996 OE	1997 12 17.4	05 40.70	+25 25.4	19.5	−1.14	+	0.4	0.8/17.5	27938
1996 VS	1997 12 17.4	05 40.80	+10 44.8	18.0	−0.80	−	1.0	3.6/17.0	29116
1978 VK_8	1997 12 17.8	05 42.29	+23 22.3	16.8	−1.00	+	0.6	0.0/17.8	29652
1981 EM_{45}	1997 12 17.8	05 42.73	+38 14.0	19.5	−1.17	−	2.0	5.1/18.6	23245
(7351)	1997 12 17.8	05 42.74	+24 01.0	16.9	−1.09	+	2.0	0.2/17.9	28576
1996 OB_1	1997 12 17.9	05 43.00	+19 42.6	21.2	−1.10		0.0	1.3/17.9	27723
1981 EL_{10}	1997 12 18.0	05 43.40	+27 34.5	19.0	−1.03	−	1.6	1.4/18.2	28611
1995 EO	1997 12 18.1	05 44.03	+20 22.9	17.1	−1.13	−	2.3	1.4/18.1	31008
1995 BU_4	1997 12 18.2	05 44.20	+39 11.5	17.4	−1.38	+	1.0	8.0/19.0	31008
6097 P-L	1997 12 18.3	05 44.55	+23 44.0	18.7	−1.16	−	0.9	0.1/18.3	27732
(7206)	1997 12 18.3	05 44.74	+14 20.5	16.9	−0.90	+	2.2	2.9/18.4	27906
4204 P-L	1997 12 18.4	05 45.38	+10 38.0	18.8	−0.87	−	1.7	4.2/18.1	28607
4086 T-3	1997 12 18.5	05 45.50	+20 41.3	19.3	−1.22	+	1.1	1.1/18.5	27458
1981 ET_{41}	1997 12 18.6	05 45.84	+09 02.4	17.8	−1.07	+	0.4	6.2/18.5	30868
1991 PN_{10}	1997 12 18.6	05 46.25	−16 23.1	17.5	−1.17	+	1.8	17.5/19.0	27935
4023 T-1	1997 12 18.7	05 46.30	+09 13.6	16.6	−0.98	+	0.1	7.5/18.5	21952
1995 CY	1997 12 18.8	05 47.06	+24 05.7	16.1	−1.20	+	2.8	11.0/08.0	29664
1993 TJ_{15}	1997 12 18.9	05 47.47	+32 54.6	19.0	−1.29	+	0.5	3.5/19.1	25642
1985 FE_3	1997 12 19.0	05 48.06	+22 20.2	16.6	−1.21	+	2.6	0.4/19.1	25225
1951 SY	1997 12 19.1	05 48.43	−12 01.5	18.7	−0.98	+	3.5	14.9/22.1	28610
1989 TN	1997 12 19.2	05 48.57	+22 17.2	17.9	−1.13	+	1.0	0.4/19.2	24582
1996 TO_3	1997 12 19.3	05 49.14	+30 47.2	18.3	−1.01	−	2.4	2.4/19.6	30785
1996 MU	1997 12 19.4	05 49.37	+19 04.1	20.1	−1.38	+	9.7	1.7/19.8	30785
1981 EF_9	1997 12 19.4	05 49.77	+25 23.4	17.6	−1.19	−	2.2	0.8/19.5	26916
1985 CX_1	1997 12 19.4	05 49.84	+20 04.3	17.5	−1.17	−	1.3	1.5/19.4	31004
1993 QJ_4	1997 12 19.5	05 50.17	+16 55.8	16.7	−1.13	+	0.2	3.0/19.5	27916
1995 EZ_8	1997 12 19.6	05 50.66	+19 28.2	18.0	−1.10	−	0.1	1.5/19.6	29138
(7238)	1997 12 19.7	05 50.70	+20 35.1	16.7	−1.14	−	1.7	1.1/19.6	28063
(7156)	1997 12 19.7	05 50.79	+38 39.8	16.1	−1.20	−	3.5	6.4/20.4	27894
1987 QM	1997 12 19.8	05 51.28	+47 39.4	17.1	−1.39	−	3.3	8.4/21.5	21971
1989 SH_3	1997 12 19.9	05 51.98	+22 50.8	17.6	−1.14	+	0.9	0.3/20.0	24582
1994 GD_1	1997 12 20.0	05 52.52	+28 57.9	17.3	−1.03	+	2.5	1.7/20.0	23791
1992 EA	1997 12 20.2	05 52.89	+25 08.2	17.3	−1.23	−	0.4	0.7/20.2	28615
1985 RM_6	1997 12 20.2	05 53.07	+23 14.1	16.9	−0.92	−	0.2	0.1/20.2	22683
1981 ER_{30}	1997 12 20.2	05 53.11	+20 41.3	18.5	−1.00	−	0.7	1.1/20.2	26920
1991 PN_7	1997 12 20.3	05 53.36	+25 54.5	16.6	−1.01	+	0.7	0.9/20.3	28614
1991 PT_{16}	1997 12 20.3	05 53.79	+20 14.8	17.1	−0.93	+	0.2	1.0/20.4	30655
(7233)	1997 12 20.4	05 53.79	+40 39.5	16.1	−1.22	+	1.2	5.7/20.3	28062
1977 EL_5	1997 12 20.4	05 54.15	−05 36.4	18.4	−0.78		0.0	7.8/20.4	21964
1931 TC_2	1997 12 20.4	05 54.29	+36 06.5	16.6	−1.21	−	1.0	4.5/20.8	22696
1989 SE_8	1997 12 20.6	05 54.72	+33 22.1	16.3	−1.22	−	1.4	4.2/20.8	28085
3052 P-L	1997 12 20.6	05 55.02	+35 23.8	17.9	−1.05	−	1.7	3.8/21.0	28607
1990 RW_4	1997 12 20.7	05 55.23	+26 40.4	16.5	−0.89	−	0.8	0.9/20.8	28072
1982 KK_1	1997 12 20.7	05 55.53	+22 18.8	16.9	−1.18	+	2.0	0.4/20.8	30893
1985 SW_4	1997 12 20.9	05 56.17	+32 26.2	17.8	−0.96	+	0.5	2.5/20.9	22698
1993 EM	1997 12 20.9	05 56.30	+20 30.3	16.7	−1.45		−13.2	1.4/20.6	30782
3222 T-1	1997 12 20.9	05 56.37	+21 45.7	17.8	−1.27	−	0.6	0.7/21.0	28892
1993 VU_5	1997 12 21.0	05 56.60	+32 48.4	16.7	−1.26	+	0.4	3.7/21.0	27730
4008 T-3	1997 12 21.0	05 56.76	+22 02.0	15.7	−1.23	+	2.7	0.6/21.1	29949
4030 P-L	1997 12 21.0	05 56.85	+25 09.4	17.0	−1.03	−	1.0	0.6/21.1	29141
1981 EH_{10}	1997 12 21.0	05 56.97	+31 33.6	18.2	−1.26	−	2.3	3.5/21.3	26916
1990 WT_6	1997 12 21.2	05 57.40	+14 07.6	17.4	−1.06	+	0.6	4.6/21.3	27934
1995 ED_8	1997 12 21.2	05 57.47	+59 20.6	17.4	−1.98	−	0.2	13.2/20.6	30901
1991 RX_4	1997 12 21.2	05 57.64	+12 04.8	18.1	−0.88	−	1.0	3.7/21.1	20508
(7322)	1997 12 21.2	05 57.67	+46 09.6	17.1	−1.15		0.0	6.7/21.5	28567
1996 SR_7	1997 12 21.2	05 57.68	+24 17.8	17.7	−1.01	−	0.7	0.3/21.3	28619
1996 OB	1997 12 21.3	05 58.08	+20 54.0	18.7	−1.15	−	1.3	1.1/21.3	30785
6809 P-L	1997 12 21.3	05 58.22	+23 44.3	19.9	−1.21	+	0.4	0.1/21.4	28319
1981 ET_{30}	1997 12 21.4	05 58.56	+12 36.2	18.9	−1.09	+	0.2	4.6/21.4	26920
1996 TR_{14}	1997 12 21.5	05 58.90	+31 51.6	18.4	−0.93	+	0.5	2.2/21.5	29631
(7178)	1997 12 21.5	05 59.01	+26 29.9	16.2	−1.26	−	0.5	1.3/21.6	27899
1979 MG_6	1997 12 21.6	05 59.24	+20 58.5	18.6	−1.17	−	2.2	1.0/21.6	30753
1990 BB_2	1997 12 21.6	05 59.32	+34 30.2	16.0	−1.20	−	4.3	4.5/22.1	25649
1978 SP_5	1997 12 21.8	05 59.99	+17 11.6	16.5	−0.97	−	0.1	2.3/21.8	29939
1992 SW_{17}	1997 12 21.8	06 00.07	+27 53.7	15.3	−1.12	−	5.7	1.7/22.1	28086
1981 DA_1	1997 12 21.8	06 00.19	+13 29.0	18.7	−0.96	−	2.7	3.3/21.5	30271
1993 SL_3	1997 12 21.8	06 00.27	+58 54.6	17.2	−1.98	+	1.4	12.3/21.8	30899
1992 UX_4	1997 12 21.8	06 00.42	+07 27.5	14.7	−0.94	−	9.3	7.6/20.4	27729
6109 P-L	1997 12 22.0	06 00.91	+28 15.0	18.7	−1.11	−	0.4	1.7/22.0	27926
1987 SU	1997 12 22.0	06 01.11	+30 29.3	16.2	−1.31	−	0.6	3.3/22.1	29941
1978 VU_5	1997 12 22.0	06 01.24	+20 01.0	18.4	−1.09	−	0.2	1.4/22.1	27708
1996 TX_{16}	1997 12 22.0	06 01.37	+13 24.7	18.4	−0.89	−	1.4	3.2/22.0	28598
1992 UN_4	1997 12 22.1	06 01.34	+27 08.1	15.0	−1.07	+	4.7	1.5/21.9	25441
3151 T-2	1997 12 22.1	06 01.34	+29 29.1	16.8	−1.23	+	1.4	2.9/22.0	24909
4234 T-2	1997 12 22.1	06 01.54	+29 44.7	18.1	−0.91	+	0.5	1.7/22.1	30696
1995 DX_8	1997 12 22.2	06 02.00	+20 34.8	17.7	−1.13	+	1.1	1.3/22.3	25341
1990 SN_3	1997 12 22.4	06 02.71	+30 34.4	17.1	−1.32	+	1.0	2.8/22.3	27325
1990 QG_3	1997 12 22.4	06 03.04	+26 07.7	18.4	−1.32	+	0.4	1.3/22.5	31005
1995 GT	1997 12 22.4	06 03.22	+59 48.7	18.1	−2.00	+	2.6	12.8/20.3	28318
1989 VQ_1	1997 12 22.5	06 03.23	+13 12.0	17.5	−1.05	+	2.0	4.2/22.7	21572
1993 QS_1	1997 12 22.5	06 03.59	+25 44.4	18.8	−1.25	−	0.3	0.9/22.6	28616
1990 RF	1997 12 22.6	06 03.74	+00 00.2	16.3	−0.79	+	0.6	7.1/23.0	25649
1988 RW_{12}	1997 12 22.6	06 03.76	+24 16.5	18.8	−1.08	−	0.8	0.3/22.6	27727
1992 RU_1	1997 12 22.6	06 03.90	+16 43.3	18.0	−1.05	−	0.1	2.5/22.7	28299
1981 EH_{38}	1997 12 22.6	06 04.01	+17 44.8	19.6	−1.10	−	0.6	2.1/22.7	26922
1979 MB_5	1997 12 22.7	06 04.00	+18 28.5	18.8	−1.03	−	0.2	1.7/22.7	30778
1955 RV	1997 12 22.7	06 04.25	+18 50.6	16.1	−1.07	+	0.4	2.2/22.8	28881
1981 EU_{37}	1997 12 22.8	06 04.62	+22 16.6	19.4	−1.02	−	1.9	0.5/22.8	22430
1988 VS_3	1997 12 22.9	06 05.22	+16 24.2	16.4	−1.04	−	3.3	2.7/22.8	27727
1996 PD_3	1997 12 22.9	06 05.32	+24 14.6	17.2	−1.06	+	1.7	0.3/23.0	31009
1974 QF_1	1997 12 23.0	06 05.45	+36 43.3	16.4	−1.34	−	2.2	5.2/23.4	30647
1994 AT_1	1997 12 23.0	06 05.67	+37 18.6	15.4	−1.26	+	5.3	5.8/22.3	30760
2212 T-2	1997 12 23.0	06 05.70	+26 08.9	18.6	−1.02	+	0.5	1.0/23.0	28608
1994 GQ	1997 12 23.1	06 06.04	+39 36.6	16.3	−1.16	+	3.3	5.7/22.4	25532
1991 LA_1	1997 12 23.1	06 06.27	+08 36.7	17.6	−0.99	+	3.3	5.1/23.8	27728
1993 XP	1997 12 23.2	06 06.31	+22 02.6	15.6	−1.11	−	6.6	0.6/23.1	22963
1978 OP	1997 12 23.2	06 06.64	+16 35.5	18.2	−0.99	+	4.0	2.2/23.6	23245

1993 UD_3	1997 12 23.3	06 06.68	+21 03.1	15.8	−1.14	− 2.2	1.0/23.3	30981
1994 AQ	1997 12 23.4	06 07.41	+09 44.3	15.5	−1.03	+ 6.3	5.7/24.6	29137
1977 EX	1997 12 23.6	06 08.19	+34 12.4	16.0	−1.19	− 3.7	4.1/23.9	28083
1993 OA_3	1997 12 23.7	06 08.58	+31 38.4	15.4	−1.48	−10.4	3.4/24.5	23135
1981 EL_{27}	1997 12 23.7	06 08.90	+18 24.1	18.6	−0.99	+ 0.1	2.0/23.8	26920
1979 MR_6	1997 12 23.7	06 08.94	+16 58.0	19.1	−1.15	+ 0.7	2.6/23.9	27725
1981 ED_{36}	1997 12 23.8	06 09.30	+32 14.0	19.3	−1.25	− 1.2	3.4/24.0	26921
1993 SH_1	1997 12 23.9	06 09.44	+12 07.6	17.1	−1.10	+ 1.0	4.6/24.2	30275
1995 DF	1997 12 23.9	06 09.44	+19 53.8	17.3	−1.18	+ 2.7	1.6/24.0	25071
1980 KK	1997 12 23.9	06 09.55	+22 16.9	18.0	−1.23	+ 0.6	0.4/24.0	17816
2225 T-2	1997 12 23.9	06 09.65	+26 47.4	18.3	−1.14	+ 0.5	1.3/23.9	28620
1981 EP_8	1997 12 23.9	06 09.70	+37 30.9	20.9	−1.18	− 1.0	4.5/23.9	26916
1981 EO_{20}	1997 12 24.0	06 09.79	+19 19.0	18.8	−1.10	+ 0.5	1.4/24.1	28882
1993 RX_5	1997 12 24.0	06 10.26	+19 57.9	19.0	−1.17	+ 0.2	1.3/24.1	30980
1993 XN_1	1997 12 24.0	06 10.28	+22 13.4	15.9	−1.07	+ 4.8	0.4/24.2	25340
1995 ES	1997 12 24.0	06 10.31	+37 03.4	17.7	−1.31	+ 0.2	6.5/23.9	30901
1993 SN_2	1997 12 24.1	06 10.25	+22 55.2	17.7	−1.13	− 1.1	0.2/24.1	27936
1983 XC	1997 12 24.1	06 10.32	+25 27.0	16.3	−1.20	+ 5.6	1.0/24.0	29654
1995 DZ	1997 12 24.1	06 10.50	+28 53.9	16.7	−1.22	+ 1.8	2.5/24.0	29623
1991 GR	1997 12 24.2	06 10.98	+48 01.2	14.5	−1.43	+ 1.7	9.7/23.7	28085
1986 XR_5	1997 12 24.3	06 11.49	+29 06.6	16.1	−1.04	+ 0.8	2.1/24.3	27119
1991 VX_2	1997 12 24.4	06 11.88	+26 43.5	16.7	−0.94	− 0.9	1.1/24.5	21944
1986 RG_3	1997 12 24.5	06 12.02	+11 26.4	18.1	−1.12	+ 1.6	4.4/24.9	30894
1985 SR	1997 12 24.5	06 12.18	+26 59.2	17.8	−1.15	+ 0.8	1.2/24.5	29133
2112 T-2	1997 12 24.6	06 12.44	+23 30.4	18.4	−0.89	+ 0.3	0.0/24.6	27927
2289 T-1	1997 12 24.6	06 12.84	+37 47.8	17.4	−1.15	+ 1.6	5.5/24.2	22087
1991 DC	1997 12 24.6	06 12.89	+30 17.3	16.0	−1.15	+ 0.9	3.4/24.5	17972
1996 OE_2	1997 12 24.7	06 13.12	+31 07.9	17.7	−1.13	− 3.1	2.5/24.9	28303
4050 P-L	1997 12 24.9	06 14.06	+09 32.8	18.0	−0.88	− 0.8	4.8/25.1	21978
1993 VN	1997 12 24.9	06 14.26	+20 00.4	17.2	−1.14	+ 0.6	1.3/25.1	27730
4017 T-3	1997 12 25.0	06 14.43	+30 11.9	17.2	−1.29	+ 2.3	2.9/24.8	29669
2714 P-L	1997 12 25.0	06 14.46	+28 02.1	16.5	−1.00	+ 0.8	2.6/24.9	27938
6644 P-L	1997 12 25.0	06 14.54	+16 28.8	19.7	−1.01	+ 1.1	2.3/25.3	27732
1992 ME	1997 12 25.1	06 14.81	+05 55.5	18.1	−1.12	+ 6.1	5.9/26.5	25215
1981 DB_2	1997 12 25.1	06 14.87	+26 29.7	16.8	−1.06	− 3.5	1.4/25.2	26914
1989 SY_3	1997 12 25.2	06 15.38	+22 11.1	19.4	−1.12	+ 1.5	0.4/25.3	27710
1996 TU_{13}	1997 12 25.3	06 15.66	+42 42.6	17.1	−1.28	+ 1.5	6.6/24.6	31009
1981 EE_6	1997 12 25.3	06 15.75	+21 17.4	19.9	−1.01	− 1.6	0.7/25.3	26915
(7229)	1997 12 25.5	06 16.54	+19 44.9	19.5	−1.11	− 2.1	1.2/25.5	28061
1987 SQ_{10}	1997 12 25.5	06 16.59	+19 00.5	17.0	−0.98	+ 2.1	1.6/25.7	29655
1992 OW	1997 12 25.5	06 16.92	+39 30.8	18.5	−1.32	+ 3.4	6.2/24.9	30782
6180 P-L	1997 12 25.6	06 16.91	+20 09.9	19.5	−0.99	+ 0.2	1.1/25.7	31023
1996 NU_4	1997 12 25.7	06 17.42	+31 05.1	17.0	−1.15	− 2.0	2.9/25.8	29947
1991 PB_2	1997 12 25.7	06 17.81	+20 19.4	18.4	−1.03	+ 2.2	1.0/25.9	23124
3288 T-2	1997 12 25.8	06 18.25	+24 37.7	18.6	−0.89	+ 0.8	0.4/25.9	15729
1992 GN_3	1997 12 25.9	06 18.19	+26 46.2	19.2	−1.16	+ 0.5	1.2/25.8	27913
(7243)	1997 12 25.9	06 18.28	+26 30.9	16.6	−1.23	+ 0.2	1.3/25.8	28064
1981 EW_{19}	1997 12 25.9	06 18.34	+35 21.7	19.4	−1.30	− 0.6	4.6/25.7	26918
1986 TU_6	1997 12 25.9	06 18.61	+26 08.4	16.3	−0.96	− 1.7	0.8/26.0	24407
1990 RX_8	1997 12 26.0	06 19.11	+19 12.0	16.8	−1.23	− 1.8	1.9/26.1	25649
1981 QY_2	1997 12 26.1	06 19.10	+20 35.8	16.9	−0.95	+ 1.1	0.9/26.2	19496
1989 GC_4	1997 12 26.1	06 19.39	+23 21.2	17.6	−0.94	+ 0.1	0.0/26.2	29941
1990 UL_1	1997 12 26.2	06 19.56	+21 31.9	16.3	−1.16	+ 3.8	0.9/26.3	29658
1988 XH_1	1997 12 26.2	06 19.73	+29 11.0	16.0	−1.11	+ 4.3	2.0/25.9	25439
1990 WQ_4	1997 12 26.4	06 20.65	+19 51.2	17.3	−1.17	+ 1.7	1.3/26.6	30289
1978 VO_4	1997 12 26.5	06 20.94	+23 52.5	17.9	−1.12	+ 1.7	0.2/26.5	24893
1990 SN_7	1997 12 26.6	06 21.84	+28 29.9	18.4	−1.31	+ 1.8	2.1/26.5	27325
1981 EL_{26}	1997 12 26.7	06 21.96	+36 42.5	19.7	−1.31	+ 0.2	4.9/26.4	28611
1996 TG_{28}	1997 12 26.7	06 21.97	+08 56.5	19.0	−0.95	+ 1.1	5.0/27.2	28309
6196 P-L	1997 12 26.7	06 22.04	+09 47.7	18.4	−0.87	+ 0.1	4.3/27.1	28312
1976 UB_1	1997 12 26.8	06 22.52	+05 45.5	16.0	−0.98	+ 3.0	6.7/27.8	28083
(7083)	1997 12 26.8	06 22.64	+17 04.8	15.5	−1.00	− 1.9	2.5/26.9	27547
1981 EJ_{16}	1997 12 26.9	06 22.81	+33 10.5	19.9	−1.26	− 0.3	3.8/26.7	27709
4168 P-L	1997 12 27.0	06 23.52	+23 00.8	18.4	−1.01	− 0.2	0.1/27.1	27926
1108 T-1	1997 12 27.1	06 23.67	+33 34.6	17.5	−1.25	− 0.5	5.0/26.9	27938
1981 ES_{21}	1997 12 27.1	06 23.71	+45 48.0	17.0	−1.30	− 0.9	9.6/26.7	31003
1977 TD	1997 12 27.1	06 23.79	+13 19.4	16.2	−1.80	+29.6	5.2/29.0	30892
1994 AC_{17}	1997 12 27.2	06 23.97	+22 05.7	15.9	−1.08	+ 2.6	0.5/27.3	28616
(7652)	1997 12 27.2	06 24.17	+38 52.3	16.3	−1.10	+ 1.3	5.8/26.7	29900
1994 GA	1997 12 27.2	06 24.24	−11 26.0	16.9	−1.02	− 8.4	14.0/24.8	24112
1993 OD_8	1997 12 27.2	06 24.26	+23 57.5	18.0	−1.26	− 0.7	0.3/27.2	31007
1995 JC	1997 12 27.3	06 24.52	+28 14.2	19.3	−1.08	+ 1.3	1.5/27.1	28318
1981 EL_{40}	1997 12 27.3	06 24.81	+30 03.0	20.0	−1.10	0.0	2.5/27.2	26922
1987 BS_2	1997 12 27.4	06 25.11	+19 27.9	15.8	−1.04	+ 1.9	1.9/27.6	27727
1991 PP_{11}	1997 12 27.5	06 25.72	+10 05.8	19.1	−0.87	+ 0.7	3.6/28.1	28086
1981 DR_2	1997 12 27.6	06 26.15	+35 38.8	17.3	−1.18	− 4.2	5.3/27.9	27708
1996 RB	1997 12 27.8	06 27.11	+31 47.0	18.2	−1.07	− 0.7	2.5/27.7	28088
1179 T-2	1997 12 28.0	06 27.75	+20 51.9	18.1	−1.08	+ 0.4	0.9/28.1	28892
1981 EZ_{44}	1997 12 28.0	06 27.94	+13 28.3	19.8	−1.10	0.0	3.8/28.4	26923
3290 T-2	1997 12 28.1	06 28.13	+31 32.4	17.4	−0.96	+ 1.3	2.6/27.7	28088
1986 QO_1	1997 12 28.1	06 28.39	+21 29.2	17.6	−0.94	+ 1.6	0.5/28.3	19674
1996 RJ_3	1997 12 28.1	06 28.50	+31 43.9	18.3	−1.20	+ 0.7	3.0/27.9	31009
(7079)	1997 12 28.2	06 28.76	+17 18.1	18.1	−1.17	+ 0.7	2.3/29.0	27546
2281 T-1	1997 12 28.2	06 28.91	+16 25.8	17.5	−0.95	+ 1.4	2.5/28.6	29650
1989 RD_2	1997 12 28.3	06 28.93	+18 58.1	17.8	−1.14	+ 1.3	1.7/29.0	27728
1981 EC_{27}	1997 12 28.3	06 29.08	+22 02.1	17.8	−1.01	+ 1.2	0.5/28.4	29653
5564 P-L	1997 12 28.5	06 29.86	+27 46.2	18.1	−1.18	+ 2.2	2.1/28.3	30914
1995 CX	1997 12 28.5	06 30.11	+13 20.2	15.9	−1.11	+ 5.4	3.8/29.5	29106
1986 RK	1997 12 28.7	06 30.68	+15 04.0	17.3	−1.15	− 1.1	3.1/29.0	27454
1992 SF_2	1997 12 28.7	06 30.73	+01 18.7	17.7	−0.96	+ 1.8	8.2/29.9	28586
1979 MF_2	1997 12 28.8	06 31.08	+21 34.0	19.3	−1.17	+ 1.0	0.6/29.0	25338
1993 SJ_1	1997 12 28.8	06 31.11	+14 29.1	18.4	−1.13	+ 1.6	3.3/29.3	27567
4522 P-L	1997 12 28.9	06 31.79	+31 11.4	18.3	−1.08	+ 0.7	2.8/28.6	28082
1988 KB	1997 12 29.0	06 32.22	+29 19.2	16.6	−1.33	+ 9.4	2.2/28.3	25439
1995 EY_8	1997 12 29.0	06 32.45	+32 55.3	18.0	−1.29	+ 0.5	3.9/28.7	25433
(7213)	1997 12 29.1	06 32.48	+27 35.9	18.1	−1.08	+ 0.7	1.4/28.9	28057
1996 TL_{15}	1997 12 29.3	06 33.40	−05 19.9	17.0	−0.80	− 1.2	8.4/30.1	30460
1995 FZ	1997 12 29.4	06 33.84	+25 24.9	16.9	−1.17	+ 1.7	0.9/29.3	27937
1995 KC	1997 12 29.4	06 33.96	+06 51.8	18.6	−1.04	+ 0.1	6.2/30.0	28087
2216 T-2	1997 12 29.5	06 34.39	+24 15.3	18.2	−0.86	+ 0.8	0.3/29.5	29142
1991 JT_1	1997 12 29.6	06 34.65	+00 05.6	17.4	−0.94	+ 1.2	7.6/30.9	28086
1996 QZ_1	1997 12 29.6	06 34.87	+23 12.8	15.9	−0.91	+ 1.6	0.0/29.6	28305

1979 ML_2	1997 12 29.6	06 35.10	+13 42.1	18.7	−0.83	+ 2.7	2.5/30.4	30973
1979 MQ_6	1997 12 29.8	06 35.53	+22 28.0	17.6	−1.21	− 1.1	0.3/29.8	30779
1993 SK_1	1997 12 29.8	06 35.77	+25 57.3	16.2	−1.21	+ 1.9	1.2/29.7	30899
1988 RB_6	1997 12 29.8	06 35.80	+06 13.5	18.2	−0.98	+ 2.7	5.6/31.2	30288
1992 HN	1997 12 29.8	06 35.83	+28 04.1	16.8	−1.26	+ 3.9	2.2/29.5	30978
1991 RY_{16}	1997 12 29.8	06 35.89	+29 27.4	16.6	−1.02	+ 2.6	2.1/29.4	28886
(7044)	1997 12 29.8	06 35.90	+15 53.9	17.4	−1.11	− 0.1	2.8/30.2	27434
1993 RF_2	1997 12 29.8	06 36.04	+30 49.3	17.8	−1.28	+ 0.4	3.0/29.6	30897
7622 P-L	1997 12 29.9	06 36.30	+33 24.7	16.5	−1.34	+ 2.8	4.6/29.3	23686
1992 RC_6	1997 12 30.1	06 37.11	+22 06.4	19.0	−1.05	+ 1.5	0.3/30.2	28615
1978 QE_2	1997 12 30.1	06 37.19	+27 05.0	17.6	−1.21	+ 1.0	1.5/30.0	27725
1980 WE_5	1997 12 30.2	06 37.68	+06 45.9	16.6	−0.87	− 2.2	5.5/30.7	28314
1996 PT_9	1997 12 30.3	06 37.96	+17 18.7	18.2	−0.96	+ 0.6	2.1/30.6	28304
4269 P-L	1997 12 30.4	06 38.44	+10 48.5	18.4	−0.88	+ 0.1	4.3/31.0	31022
1986 GY	1997 12 30.5	06 38.68	+28 33.5	16.7	−1.29	+ 1.2	2.3/30.2	28612
1996 NY_3	1997 12 30.6	06 39.30	+11 20.2	17.9	−1.01	+ 3.8	4.5/31.7	28319
1985 PG_2	1997 12 30.8	06 39.92	+27 18.6	16.3	−1.15	+ 2.8	1.9/30.5	30893
1997 WV_{21}	1997 12 30.8	06 39.95	+25 57.5	17.2	−0.98	+ 1.0	1.0/30.6	30999
1979 MQ_4	1997 12 30.8	06 40.18	+18 42.0	17.0	−0.92	− 1.7	1.5/31.0	30778
(7122)	1997 12 30.9	06 40.59	+25 28.6	17.5	−1.24	+ 0.9	0.9/30.8	27701
1981 EK_{19}	1997 12 30.9	06 40.89	+29 41.5	19.0	−1.22	+ 0.2	2.4/30.7	27930
1995 CA_1	1997 12 31.0	06 41.08	+31 54.1	17.7	−1.28	+ 1.0	3.5/30.6	28087
4314 T-3	1997 12 31.1	06 41.60	+21 28.1	17.0	−0.96	+ 1.9	0.5/31.3	29669
1994 CJ_{11}	1997 12 31.2	06 41.70	−04 10.9	17.6	−0.92	+ 7.2	10.4/04.0	27730
1989 RT	1997 12 31.2	06 42.24	+30 38.5	17.4	−1.23	− 0.7	2.8/31.0	28085
(7199)	1997 12 31.3	06 42.30	+24 02.0	17.3	−0.97	+ 0.7	0.3/31.3	27904
3074 P-L	1997 12 31.3	06 42.63	+11 38.4	16.7	−0.89	− 0.9	3.8/31.8	29668
1991 FS_1	1997 12 31.4	06 42.60	+23 34.5	17.7	−1.13	+ 1.3	0.2/31.4	28885
1981 EL_{21}	1997 12 31.4	06 42.77	+20 03.4	17.2	−0.99	+ 0.8	1.0/31.6	29653
1985 VL	1997 12 31.4	06 42.79	+03 19.1	16.7	−0.81	− 0.5	6.0/01.4	29133
2281 T-2	1997 12 31.5	06 43.02	+26 01.3	17.5	−1.02	+ 0.8	1.0/31.3	21953
1981 ED_{28}	1997 12 31.5	06 43.42	+19 39.5	18.0	−0.97	+ 1.5	1.1/31.8	27931
4101 T-2	1997 12 31.5	06 43.51	+23 36.9	17.9	−0.87	+ 1.3	0.2/31.6	29949
1982 SO_4	1997 12 31.5	06 43.55	+39 59.6	14.8	−1.12	+ 0.3	9.4/30.8	30893
1990 QW_3	1997 12 31.7	06 43.94	+24 53.8	18.4	−1.27	+ 0.7	0.7/31.6	29657
1996 RR_5	1997 12 31.8	06 44.45	+09 00.7	18.5	−0.94	− 2.8	4.0/01.2	28864
1993 BS_4	1997 12 31.8	06 44.56	+24 12.1	18.1	−0.86	+ 1.0	0.3/31.8	28317
4171 T-2	1997 12 31.8	06 44.57	+17 34.1	18.5	−1.05	+ 2.7	2.0/01.3	25224
1996 PD	1997 12 31.8	06 44.58	+18 46.0	17.9	−1.00	+ 3.9	1.4/01.2	31009
1996 MN	1997 12 31.9	06 44.97	+20 13.7	19.6	−1.18	− 0.9	1.1/01.0	30785
1978 NU_3	1997 12 31.9	06 45.07	+17 15.7	18.0	−1.10	+ 3.0	2.1/01.4	24910
(7097)	1998 01 01.0	06 45.30	+23 47.7	15.6	−1.11	+ 2.4	0.4/32.0	27551
1981 EO_{24}	1998 01 01.1	06 45.78	+18 09.2	17.4	−1.12	+ 2.0	2.0/01.5	28611
1990 FD_1	1998 01 01.1	06 45.80	+21 15.5	15.2	−1.05	+ 6.9	0.7/01.3	25538
4537 P-L	1998 01 01.1	06 45.97	+35 35.3	18.5	−1.31	− 0.1	6.2/31.6	22086
1994 DD	1998 01 01.2	06 46.21	+20 04.4	16.1	−0.99	+ 2.4	1.3/01.4	28074
1993 OP	1998 01 01.2	06 46.39	+27 51.0	15.1	−1.56	−13.5	2.2/01.6	25082
1995 CO_1	1998 01 01.3	06 46.70	+27 27.7	16.0	−1.21	+ 2.8	2.1/32.0	31008
1981 EH_{20}	1998 01 01.3	06 46.95	+19 23.8	19.6	−0.98	+ 1.2	1.2/01.6	21967
1985 GP_1	1998 01 01.4	06 47.37	+24 37.7	16.9	−1.25	+ 9.7	0.6/01.2	27709
1980 VA_3	1998 01 01.5	06 47.59	+28 38.3	16.3	−1.25	+ 0.4	2.6/01.2	22492
1993 TL_5	1998 01 01.6	06 47.88	+26 43.4	17.9	−1.24	+ 0.2	1.6/01.4	24898
4283 T-2	1998 01 01.6	06 47.92	+22 17.2	17.4	−0.90	+ 2.0	0.3/01.7	28320
1996 PW_2	1998 01 01.6	06 47.98	+23 51.4	20.2	−1.11	+ 1.9	0.3/01.6	30785
1996 TJ_{15}	1998 01 01.6	06 48.26	+22 01.6	17.2	−0.86	+ 1.5	0.3/01.7	28619
1992 DA_9	1998 01 01.7	06 48.38	+35 33.4	17.5	−1.35	+ 1.1	4.8/32.0	30896
(7270)	1998 01 01.7	06 48.41	+23 17.0	17.5	−0.86	+ 1.5	0.1/01.7	28282
1991 DM	1998 01 01.7	06 48.69	+21 38.6	16.1	−1.12	+ 2.0	0.6/01.9	27934
1996 PJ_2	1998 01 01.7	06 48.71	+35 10.5	20.9	−1.22	− 2.0	4.3/01.4	30785
1984 HR	1998 01 01.7	06 48.73	+26 55.2	17.3	−1.17	+ 1.5	1.5/01.5	30973
4066 P-L	1998 01 01.9	06 49.36	+31 28.5	17.8	−1.26	+ 0.2	4.2/01.5	25229
1996 RP_{15}	1998 01 01.9	06 49.41	+11 14.0	19.6	−1.06	+ 1.8	4.3/02.8	27925
1986 QQ	1998 01 01.9	06 49.68	+31 29.2	15.3	−1.20	+ 0.4	4.3/01.5	29655
1981 DP	1998 01 02.0	06 50.16	+13 07.4	18.6	−1.12	− 1.1	4.0/02.5	26914
3507 T-3	1998 01 02.1	06 50.15	+14 08.7	18.5	−1.14	+ 1.1	3.0/02.7	27939
1992 UO_5	1998 01 02.2	06 50.72	+29 29.6	16.1	−1.06	+ 4.9	2.5/01.5	30979
(7130)	1998 01 02.3	06 51.17	+18 29.2	17.7	−1.13	+ 3.1	1.7/02.7	27703
1991 RT_{40}	1998 01 02.3	06 51.48	+26 12.1	17.5	−0.98	+ 1.4	1.1/02.2	31006
1982 QK_3	1998 01 02.4	06 51.55	+25 52.7	16.9	−1.21	+ 0.6	1.2/02.3	27931
3282 T-2	1998 01 02.5	06 52.12	+31 05.1	19.0	−1.17	+ 2.1	3.0/01.9	15085
1991 RO_1	1998 01 02.5	06 52.29	+29 30.3	16.7	−1.02	− 0.1	2.2/02.2	30290
1996 QZ	1998 01 02.6	06 52.65	+15 11.5	19.2	−0.95	+ 3.1	2.7/03.4	28319
1996 TS	1998 01 02.8	06 53.59	+20 37.2	17.9	−0.95	+ 1.1	0.8/03.0	28619
1985 RJ_4	1998 01 02.9	06 53.74	+25 51.2	18.1	−0.93	+ 1.3	0.9/02.7	23536
1987 HK	1998 01 02.9	06 53.83	+23 42.2	17.0	−1.06	+ 1.1	0.3/02.9	30288
(7276)	1998 01 02.9	06 54.04	+24 02.1	16.6	−1.24	− 0.6	0.5/02.9	28283
2268 T-2	1998 01 03.0	06 54.36	+15 54.6	20.4	−0.83	+ 1.2	2.0/03.6	28608
1996 UP_1	1998 01 03.1	06 54.93	+01 42.5	18.1	−0.93	− 0.3	6.6/04.5	28891
1985 RP_3	1998 01 03.2	06 54.98	+26 03.4	18.8	−1.14	+ 1.4	1.1/03.0	28295
1979 MP_3	1998 01 03.3	06 55.70	+17 52.7	17.5	−1.13	+ 0.7	2.3/03.7	28610
1984 SR_5	1998 01 03.4	06 55.99	+30 38.0	17.6	−0.93	+ 1.2	2.3/02.8	28084
1981 EM_{11}	1998 01 03.4	06 56.01	+26 58.1	18.7	−1.22	− 1.9	1.9/03.3	26917
1977 FN	1998 01 03.4	06 56.01	+17 34.7	17.1	−1.02	− 1.9	1.7/03.7	28610
4642 P-L	1998 01 03.4	06 56.34	+24 19.0	19.2	−1.14	+ 1.7	0.5/03.4	24909
4601 P-L	1998 01 03.5	06 56.57	+25 17.7	16.1	−0.94	+ 2.6	1.0/03.3	23540
1995 FB_{14}	1998 01 03.6	06 56.87	+21 45.0	19.0	−1.08	+ 1.4	0.4/03.7	25334
1981 EO_{28}	1998 01 03.6	06 56.90	+31 42.1	18.7	−1.10	+ 0.7	3.2/03.0	26920
1991 NM_6	1998 01 03.9	06 58.10	+16 25.6	16.8	−0.95	+ 2.8	2.2/04.5	28614
1993 TE_3	1998 01 03.9	06 58.17	+36 42.5	16.6	−1.33	+ 1.1	5.7/02.9	30452
4072 P-L	1998 01 03.9	06 58.40	+19 46.1	18.6	−1.12	+ 1.0	1.1/04.2	29668
2165 T-3	1998 01 04.0	06 58.54	+30 06.1	18.7	−1.04	+ 0.7	2.6/03.5	27928
1968 OL	1998 01 04.0	06 58.58	+13 09.2	18.1	−1.17	+ 9.0	3.5/05.4	25646
1984 QS	1998 01 04.0	06 58.69	+24 27.6	18.2	−0.85	+ 1.4	0.4/03.9	28315
1995 MC	1998 01 04.0	06 58.72	+32 43.5	17.8	−1.03	− 2.0	2.6/03.6	28318
1996 PG_1	1998 01 04.0	06 58.94	+27 55.3	18.4	−1.21	+ 1.3	1.9/03.7	30785
1986 RN_5	1998 01 04.2	06 59.35	+33 19.0	17.7	−1.33	+ 0.6	4.2/03.5	29655
1983 TC	1998 01 04.2	06 59.57	+07 31.2	17.0	−0.98	− 0.5	5.3/05.3	28612
1990 QY	1998 01 04.2	06 59.61	+11 40.4	17.8	−0.82	+ 1.1	2.9/05.2	29942
1991 NA_2	1998 01 04.3	06 59.89	+17 02.7	17.5	−0.98	+ 3.8	1.9/04.9	29659
1986 TX_3	1998 01 04.3	07 00.10	+24 42.6	16.6	−1.16	+ 3.4	0.9/04.2	30288
1981 ES_7	1998 01 04.4	07 00.45	+16 10.7	19.7	−1.13	+ 0.6	2.5/04.9	26916
(7314)	1998 01 04.4	07 00.51	+20 24.0	15.7	−0.90	+ 1.6	0.8/04.7	28292

1991 RD_{12}	1998 01 04.4	07 00.70	+20 35.3	16.8	−0.96	+ 2.7	0.8/04.7	23349
1993 BE_2	1998 01 04.5	07 00.77	+24 39.3	16.0	−0.95	+ 4.8	0.6/04.3	30658
(7328)	1998 01 04.5	07 00.96	+43 29.5	17.7	−1.34	− 0.1	7.3/03.3	28569
(7463)	1998 01 04.5	07 01.10	+32 03.5	16.6	−1.22	+ 0.6	3.5/03.9	29079
1994 DA	1998 01 04.6	07 01.39	+10 33.7	18.3	−0.95	+ 3.0	4.3/05.9	28617
1988 RT_{11}	1998 01 04.7	07 01.78	+25 06.2	18.5	−1.07	+ 1.5	1.0/04.5	18114
1995 OE	1998 01 04.7	07 02.01	+16 05.1	17.0	−0.91	− 1.2	2.2/05.2	29138
(7248)	1998 01 04.8	07 02.29	+19 56.6	18.1	−1.17	+ 3.7	1.0/05.1	28065
(7603)	1998 01 04.9	07 02.59	+09 33.1	17.6	−0.87	+ 0.3	4.1/05.9	29601
1992 RM_2	1998 01 04.9	07 02.72	+40 27.2	18.1	−1.30	− 1.1	6.1/04.0	31006
6058 P-L	1998 01 05.0	07 02.88	+31 26.9	19.1	−1.14	+ 0.6	2.9/04.4	27938
1994 LA_1	1998 01 05.1	07 03.31	+01 35.8	19.6	−0.80	+ 4.4	5.3/07.7	30900
1981 EM_{29}	1998 01 05.2	07 03.72	+24 10.3	19.5	−1.20	− 0.6	0.6/05.1	26920
1990 UF_1	1998 01 05.2	07 03.82	+28 09.9	16.3	−1.26	+ 3.1	2.3/04.7	29612
(8117)	1998 01 05.2	07 04.18	+37 19.6	17.6	−1.03	+ 1.5	4.3/03.9	30970
1989 MH	1998 01 05.3	07 04.58	+27 45.5	16.8	−0.95	+ 3.7	1.5/04.8	28613
(7253)	1998 01 05.4	07 04.72	+25 09.2	15.7	−0.90	+ 2.6	0.8/05.2	28067
4320 T-1	1998 01 05.4	07 04.86	+28 17.4	17.2	−1.20	+ 2.9	2.6/04.9	25341
1993 VZ_4	1998 01 05.4	07 05.06	+25 33.3	16.3	−1.16	+ 1.9	1.3/05.2	22962
1992 FS_1	1998 01 05.5	07 05.17	+22 38.6	16.2	−1.16	+ 4.3	0.0/05.5	25227
1996 TM_{15}	1998 01 05.6	07 05.76	+21 17.6	18.3	−0.87	+ 1.7	0.4/05.8	28619
2235 T-2	1998 01 05.6	07 05.83	+19 47.3	19.5	−0.87	+ 1.6	0.8/05.9	30466
2144 T-1	1998 01 05.7	07 05.97	+13 24.3	18.4	−1.09	+ 3.4	3.8/06.7	28319
1220 T-2	1998 01 05.7	07 06.11	+22 19.8	18.2	−0.90	+ 1.3	0.1/05.8	30285
1994 CB_1	1998 01 05.8	07 06.53	+18 21.0	15.2	−0.90	− 0.9	2.3/06.1	28888
(7264)	1998 01 05.9	07 06.91	+21 02.9	17.6	−1.14	+ 2.2	0.6/06.1	28069
1986 TB_7	1998 01 05.9	07 07.21	+13 24.5	17.3	−0.91	− 0.6	2.9/06.7	21970
1991 NE_3	1998 01 06.1	07 07.66	+12 46.7	16.2	−0.93	+ 3.2	3.5/07.2	20023
1981 EZ_{13}	1998 01 06.1	07 07.87	+38 21.4	18.6	−1.26	− 1.7	6.5/05.1	28314
(7259)	1998 01 06.2	07 08.24	+02 24.9	16.2	−0.91	+ 4.4	8.1/08.8	28068
1994 GD_2	1998 01 06.3	07 08.62	+16 15.5	20.7	−0.84	+ 2.2	1.7/07.0	23678
1992 RV_1	1998 01 06.3	07 08.79	+26 34.4	16.2	−1.03	− 1.0	2.0/06.1	24583
1978 RY_6	1998 01 06.4	07 09.11	+32 51.6	16.7	−0.99	− 0.6	3.4/05.6	29132
1991 PV_{16}	1998 01 06.4	07 09.34	+23 14.5	16.2	−0.95	+ 2.6	0.3/06.4	30655
1981 RQ_1	1998 01 06.5	07 09.59	+19 38.8	17.2	−0.93	+ 2.1	0.9/06.8	24116
3277 T-1	1998 01 06.6	07 10.01	+21 47.9	18.4	−0.85	+ 1.5	0.2/06.7	28620
3201 T-2	1998 01 06.6	07 10.21	+19 53.2	17.5	−0.96	+ 2.7	0.8/06.9	25443
1976 SQ_7	1998 01 06.6	07 10.22	+13 31.0	16.7	−1.14	+ 2.2	3.5/08.0	28610
1992 RA_4	1998 01 06.7	07 10.39	+24 23.4	18.4	−1.14	+ 1.5	0.7/06.5	28615
1996 NA	1998 01 06.8	07 10.73	+24 25.7	17.3	−1.48	+18.1	0.9/06.4	30876
1996 OX	1998 01 07.0	07 11.77	+16 30.1	18.2	−1.14	+ 3.0	2.3/07.6	30902
1990 TH_7	1998 01 07.0	07 12.00	+23 44.8	18.8	−0.83	+ 1.4	0.3/06.9	29134
1166 T-2	1998 01 07.1	07 12.19	+32 37.4	19.6	−1.18	+ 1.1	3.4/06.2	28088
(7138)	1998 01 07.1	07 12.22	+28 23.0	16.0	−1.14	− 1.5	2.5/06.8	27705
1985 UF	1998 01 07.2	07 12.49	+36 21.2	17.7	−1.25	+ 2.1	5.1/05.8	31004
1995 KF	1998 01 07.2	07 12.50	+10 01.5	19.0	−1.07	+ 7.6	4.2/09.0	25533
3003 T-2	1998 01 07.2	07 12.81	+10 00.5	18.8	−0.91	+ 2.7	4.0/08.7	28313
1994 CL_2	1998 01 07.2	07 12.85	+20 49.8	16.2	−0.98	+ 4.3	0.7/07.5	23539
1988 RM_4	1998 01 07.3	07 13.24	+18 37.2	18.5	−1.03	+ 2.1	1.2/07.7	25339
1996 WZ_1	1998 01 07.4	07 13.44	+24 26.2	15.4	−0.89	+ 4.9	0.7/07.1	28605
(8118)	1998 01 07.4	07 13.52	+02 49.8	17.4	−0.93	+ 0.8	6.3/09.2	30970
1977 RC_9	1998 01 07.5	07 14.20	+23 39.9	17.4	−1.14	+ 1.5	0.5/07.4	31003
3353 T-2	1998 01 07.6	07 14.26	+29 23.5	19.2	−0.90	+ 1.6	1.9/06.9	30286
(7167)	1998 01 07.7	07 14.68	−10 53.1	16.7	−0.86	− 1.0	10.9/11.3	27897
1990 QV_5	1998 01 07.7	07 14.96	+19 06.1	17.0	−1.20	+ 2.6	1.4/08.1	22082
1981 EG_{13}	1998 01 07.8	07 15.30	+27 09.3	18.0	−1.23	− 1.1	2.1/07.5	26917
1991 TT_{13}	1998 01 07.9	07 15.88	+19 51.1	15.7	−0.96	− 2.2	0.8/08.0	28886
1990 QX_7	1998 01 08.0	07 16.19	+23 59.8	18.4	−0.90	+ 1.2	0.5/07.9	30653
(7458)	1998 01 08.0	07 16.41	+23 50.5	17.1	−0.77	+ 1.1	0.4/07.9	29078
1995 DH_6	1998 01 08.1	07 16.47	+30 04.7	19.3	−1.23	+ 1.3	3.0/07.4	27918
1981 ET_{24}	1998 01 08.1	07 16.63	+11 14.5	17.5	−1.07	+ 2.9	4.6/09.4	22492
1977 RD	1998 01 08.1	07 16.96	+62 16.3	19.5	−1.85	− 1.8	10.2/04.9	20139
1996 OM_2	1998 01 08.2	07 17.09	+16 09.1	17.7	−1.04	− 0.9	2.4/08.7	30785
1987 RT_5	1998 01 08.2	07 17.25	+21 13.9	17.9	−1.22	+ 3.5	0.4/08.4	27324
(7262)	1998 01 08.4	07 18.03	+18 34.3	16.7	−1.10	+ 4.9	1.2/08.9	28069
1992 EP_4	1998 01 08.4	07 18.22	+22 45.1	16.7	−1.21	+ 3.7	0.2/08.4	30782
1981 EO_{39}	1998 01 08.5	07 18.24	+19 30.7	18.4	−0.99	+ 2.4	1.0/08.8	28611
1981 EU_{19}	1998 01 08.5	07 18.24	+29 39.8	18.0	−1.22	+ 1.1	2.8/07.8	28882
4843 T-1	1998 01 08.7	07 19.16	+30 20.8	18.9	−0.95	+ 2.2	2.5/07.8	21124
1993 UZ_5	1998 01 08.7	07 19.24	+19 29.0	18.5	−1.11	+ 5.0	1.2/09.1	27716
2177 P-L	1998 01 08.7	07 19.42	+20 41.4	18.0	−0.91	+ 1.2	0.6/08.9	23680
4207 T-3	1998 01 08.8	07 19.74	+18 26.8	16.3	−0.92	+ 4.0	1.5/09.3	28313
1985 RP_4	1998 01 08.9	07 20.03	+19 17.5	18.4	−1.10	+ 3.4	1.1/09.3	25973
1981 EZ_{11}	1998 01 08.9	07 20.33	+26 27.1	18.1	−1.20	+ 0.8	1.8/08.6	27930
(7002)	1998 01 08.9	07 20.36	+14 55.4	18.4	−1.13	+ 2.6	2.6/09.8	27291
(7476)	1998 01 09.0	07 20.50	+51 09.7	15.6	−1.31	+ 6.3	8.8/03.4	29083
1991 LY	1998 01 09.0	07 20.56	+18 31.3	17.2	−0.98	+ 5.8	1.1/09.6	29659
1981 EX_{11}	1998 01 09.0	07 20.71	+46 47.4	21.2	−1.26	− 0.1	7.5/06.2	26917
1188 T-2	1998 01 09.0	07 20.83	+19 18.3	17.1	−1.08	+ 1.4	1.1/09.4	28320
1988 VC_1	1998 01 09.0	07 20.88	+14 36.0	16.8	−1.06	− 3.6	3.2/09.5	31004
1992 UH_4	1998 01 09.0	07 20.89	+33 51.5	17.1	−1.12	+ 5.0	3.9/07.5	31007
1993 RB	1998 01 09.1	07 20.85	+34 04.0	17.9	−1.34	− 1.1	5.5/08.2	27936
(7078)	1998 01 09.1	07 21.19	+19 05.4	16.9	−1.08	+ 3.0	1.1/09.5	27546
1996 TF_7	1998 01 09.2	07 21.55	+07 16.0	16.3	−0.85	+ 2.3	4.8/11.1	28619
1978 PH_3	1998 01 09.2	07 21.62	+21 53.7	18.2	−0.83	+ 1.6	0.1/09.3	28610
1981 QU_3	1998 01 09.7	07 23.46	+11 25.4	17.9	−1.02	+ 4.5	3.7/11.2	30287
1993 SF	1998 01 09.7	07 23.80	+26 12.8	17.3	−1.20	− 0.7	2.0/09.4	27936
(7373)	1998 01 09.7	07 23.81	+19 56.6	17.7	−0.85	+ 1.7	0.6/10.0	28819
(7211)	1998 01 09.9	07 24.74	+35 03.7	17.6	−1.10	+ 1.0	4.2/08.6	27907
1972 RF_2	1998 01 09.9	07 24.80	+15 55.8	18.4	−1.13	+ 2.8	2.3/10.7	28610
1996 YH_3	1998 01 10.1	07 25.27	+38 35.3	16.6	−0.99	+ 4.1	4.6/07.7	31010
1995 SO_3	1998 01 10.2	07 26.09	+24 39.5	18.1	−0.98	− 0.6	0.8/10.1	25966
1982 FP_3	1998 01 10.3	07 26.27	+24 13.1	16.9	−0.89	+ 2.3	0.7/10.1	28314
1989 VQ	1998 01 10.4	07 26.65	+25 03.3	16.6	−1.15	+ 3.0	1.2/10.1	29134
1995 HJ	1998 01 10.5	07 26.96	+20 56.8	17.5	−1.11	+ 2.9	0.4/10.6	28318
1992 PJ_2	1998 01 10.6	07 27.39	+13 52.3	19.0	−1.01	+ 1.9	2.5/11.5	31006
1996 QG_1	1998 01 10.6	07 27.41	+20 56.6	18.8	−1.06	+ 2.5	0.3/10.7	28078
1996 NL_1	1998 01 10.9	07 28.76	+22 06.9	16.5	−1.18	+ 0.8	0.1/10.9	29666
(7073)	1998 01 10.9	07 28.95	+14 23.1	18.1	−1.10	+ 2.3	2.8/11.8	29587
(7266)	1998 01 10.9	07 29.14	+25 57.2	18.2	−1.13	+ 3.0	1.6/10.5	28069
1990 SB_{11}	1998 01 10.9	07 29.16	+21 03.6	17.6	−1.25	+ 0.2	0.4/11.1	24103
1988 RE_{10}	1998 01 11.1	07 29.84	+18 19.2	19.3	−1.03	+ 2.9	1.2/11.6	29656

4186 P-L	1998 01 11.3	07 30.78	+18 46.6	19.3	−1.03	+ 2.2	1.0/11.7	28892
2213 T-1	1998 01 11.4	07 30.99	+33 29.3	17.5	−0.95	+ 1.3	3.3/10.0	28088
2209 T-1	1998 01 11.5	07 31.21	+24 16.0	17.3	−0.90	+ 2.5	0.8/11.2	27938
1979 MG_3	1998 01 11.6	07 31.95	+17 26.0	18.1	−0.89	+ 0.1	1.3/12.1	30778
1188 T-3	1998 01 11.7	07 32.20	+24 54.7	18.9	−1.13	+ 0.3	1.2/11.4	31001
(7154)	1998 01 11.7	07 32.37	+14 51.0	17.3	−1.08	+ 3.8	3.2/12.7	27893
(7093)	1998 01 11.8	07 33.04	+07 16.5	17.6	−0.99	+ 5.0	4.9/14.2	27550
1992 ED_{17}	1998 01 11.9	07 33.15	+22 34.5	17.5	−1.20	+ 2.8	0.3/11.8	28615
9085 P-L	1998 01 12.3	07 35.20	+27 58.5	19.8	−1.25	+ 2.1	2.4/11.7	24114
1990 SF_9	1998 01 12.4	07 35.60	+29 22.1	18.1	−0.90	+ 2.1	2.1/11.5	29316
1995 FX_{14}	1998 01 12.7	07 36.65	+25 26.8	18.7	−1.08	+ 3.4	1.3/12.2	31008
1981 EE_{12}	1998 01 12.8	07 36.84	+19 42.8	17.1	−1.16	− 0.6	0.9/13.0	22696
1990 QP_3	1998 01 12.9	07 37.70	+22 27.7	17.7	−0.86	+ 2.5	6.7/02.0	31005
(7278)	1998 01 12.9	07 37.74	+22 55.5	16.9	−0.86	+ 3.4	0.4/12.8	28284
3365 T-2	1998 01 13.0	07 38.04	+24 41.7	17.7	−0.91	+ 2.4	1.1/12.6	31023
(7442)	1998 01 13.1	07 38.38	+22 32.0	18.3	−0.85	+ 2.0	0.3/13.0	28836
9086 P-L	1998 01 13.1	07 38.54	+12 35.2	18.8	−1.22	+ 3.1	4.0/14.4	27328
1978 SJ_5	1998 01 13.3	07 39.08	+31 04.7	17.7	−1.22	+ 2.6	3.8/12.1	29132
(7109)	1998 01 13.3	07 39.14	+06 07.9	17.3	−0.93	+ 2.5	5.2/15.5	27698
1189 T-3	1998 01 13.3	07 39.48	+21 22.0	19.3	−1.08	+ 1.4	0.0/13.4	28320
1990 QJ_2	1998 01 13.4	07 39.66	+24 24.3	17.4	−1.21	+ 2.9	1.4/13.1	31005
(7080)	1998 01 13.4	07 39.69	+13 53.7	18.4	−1.10	+ 4.3	2.9/14.6	27546
4667 P-L	1998 01 13.5	07 40.16	+31 44.8	18.0	−1.06	+ 2.3	3.2/12.2	28620
1991 GA_7	1998 01 13.6	07 40.52	+14 16.2	17.2	−1.01	+ 2.7	3.3/14.6	27934
1988 CT_4	1998 01 13.6	07 40.75	+07 42.4	17.1	−0.83	+ 2.2	4.2/15.6	28071
1981 EB_{37}	1998 01 13.7	07 40.87	+33 13.1	18.4	−1.11	+ 1.1	4.1/12.3	22430
(7255)	1998 01 13.7	07 41.05	+30 47.5	17.0	−1.24	+ 3.2	3.6/12.4	28566
1980 RV_2	1998 01 13.8	07 41.42	+24 46.4	17.3	−1.24	+ 1.9	1.4/13.4	30892
1996 QM_1	1998 01 13.8	07 41.66	+08 53.0	18.5	−1.03	+ 3.3	5.6/15.7	27924
(7081)	1998 01 13.9	07 41.82	+12 08.4	16.8	−0.97	+ 1.7	3.1/15.2	27546
(7151)	1998 01 13.9	07 41.94	+00 03.7	15.3	−0.90	+ 3.2	8.7/17.3	27893
1994 GY_9	1998 01 14.0	07 42.25	+05 12.6	17.0	−0.88	+ 5.6	6.9/17.1	25070
1991 RZ_8	1998 01 14.1	07 42.60	+23 07.1	16.9	−0.96	+ 2.1	0.6/13.9	28585
1988 RB_{12}	1998 01 14.1	07 42.83	+28 20.2	18.5	−1.12	+ 1.6	2.3/13.3	29656
3212 T-2	1998 01 14.2	07 43.22	+12 17.3	18.5	−1.01	+ 4.6	3.6/15.7	25341
1992 EK_1	1998 01 14.2	07 43.35	+28 22.5	16.3	−1.30	+ 0.9	2.9/13.5	30896
1986 RY_4	1998 01 14.3	07 43.49	+27 54.1	17.7	−1.24	+ 2.0	2.5/13.5	24911
2370 T-3	1998 01 14.4	07 43.88	+09 46.8	18.6	−0.89	+ 1.7	3.5/16.0	23686
1990 QQ_8	1998 01 14.6	07 44.76	+23 59.4	18.6	−0.88	+ 2.4	0.8/14.2	30686
1981 EF_{18}	1998 01 14.6	07 44.81	+12 19.3	17.2	−1.07	+ 3.9	3.8/16.0	27726
1107 T-2	1998 01 14.6	07 44.83	+20 17.1	18.9	−0.95	+ 1.9	0.3/14.8	21978
1055 T-2	1998 01 14.7	07 45.51	+24 18.6	19.0	−0.99	+ 2.0	1.0/14.4	28320
1996 UL_1	1998 01 15.0	07 46.38	+04 05.3	18.2	−0.82	+ 2.0	5.2/17.6	29140
1981 DQ_3	1998 01 15.0	07 46.52	+28 54.8	16.2	−1.13	− 0.4	2.7/14.2	27302
1985 RD	1998 01 15.0	07 46.55	+22 58.0	17.9	−0.88	+ 2.1	0.5/14.8	29655
(7280)	1998 01 15.0	07 46.60	+18 45.8	18.5	−1.02	+ 2.9	0.8/15.4	28284
1990 RQ_8	1998 01 15.0	07 46.70	+22 55.9	18.4	−0.86	+ 2.1	0.5/14.8	23515
1981 EZ_{18}	1998 01 15.1	07 46.79	+20 41.8	17.0	−0.99	+ 2.0	0.2/15.2	29653
1986 QT	1998 01 15.1	07 46.86	+20 33.5	17.6	−1.15	+ 4.0	0.2/15.2	28315
1984 LK	1998 01 15.1	07 46.93	+13 48.3	18.8	−0.79	+ 1.6	1.7/16.2	28883
1989 YF_1	1998 01 15.1	07 47.07	+18 20.9	16.6	−1.10	− 1.9	1.2/15.4	31005
1975 TO_2	1998 01 15.2	07 47.46	+12 17.3	17.3	−1.09	+ 3.9	3.7/16.6	29315
1993 TP_{24}	1998 01 15.2	07 47.51	+15 01.0	17.3	−1.13	+ 4.2	2.5/16.2	27936
1982 FX_3	1998 01 15.4	07 48.47	+28 39.1	16.7	−0.91	+ 2.0	2.2/14.4	30090
(7323)	1998 01 15.6	07 48.98	+24 52.4	16.7	−0.93	+ 2.5	1.3/15.1	28568
(7282)	1998 01 15.6	07 49.05	+26 35.1	15.4	−1.00	+ 7.4	2.0/14.5	29587
3269 T-2	1998 01 15.6	07 49.10	+10 37.3	18.7	−0.93	+ 4.8	3.7/17.5	16439
1989 YA_2	1998 01 15.6	07 49.25	+18 18.5	16.0	−1.04	− 1.0	1.3/16.0	31005
1991 FL	1998 01 15.6	07 49.31	+19 42.2	16.3	−1.10	+ 2.2	0.6/15.9	27934
1991 GV_8	1998 01 15.7	07 49.75	+21 14.0	17.4	−1.09	+ 1.8	0.1/15.8	25081
1996 VD_1	1998 01 15.8	07 49.76	+44 28.7	18.7	−1.07	+ 2.9	6.3/11.8	28599
(7226)	1998 01 15.8	07 49.87	+20 24.4	16.9	−0.86	+ 2.9	0.2/15.9	28060
1991 VD_2	1998 01 15.8	07 50.07	+21 59.2	16.7	−0.90	+ 3.3	0.3/15.7	21976
1992 UQ	1998 01 15.9	07 50.60	+15 01.5	17.0	−0.98	+ 3.3	2.0/16.9	30688
1981 ER_7	1998 01 15.9	07 50.64	+15 00.2	19.7	−1.10	+ 2.1	2.3/16.8	26916
1979 MJ_4	1998 01 15.9	07 50.68	+18 10.5	18.6	−0.97	+ 6.0	0.9/16.5	30778
1981 ES_2	1998 01 15.9	07 50.71	+16 36.2	18.4	−1.16	− 0.9	1.9/16.5	26915
1992 EJ_4	1998 01 16.0	07 50.64	+21 46.9	17.0	−1.20	+ 4.3	0.3/15.9	30290
1996 PA_1	1998 01 16.1	07 51.05	+17 16.9	18.2	−1.05	+ 5.7	1.4/16.7	30985
1996 RC	1998 01 16.2	07 51.65	+16 52.1	18.5	−1.08	+ 4.0	1.8/16.9	28596
1996 TJ_{12}	1998 01 16.2	07 51.79	+35 01.9	17.3	−0.98	+ 2.7	4.1/14.0	28619
1996 OP_2	1998 01 16.4	07 52.38	+03 13.7	18.6	−0.98	+ 4.8	5.9/19.6	27938
1992 JF	1998 01 16.4	07 52.72	+27 14.2	17.8	−1.16	+ 3.7	2.2/15.5	28886
(7305)	1998 01 16.5	07 52.99	+28 07.1	16.4	−1.05	− 0.2	2.1/15.7	28290
1990 BZ	1998 01 16.6	07 53.52	+27 20.1	16.5	−1.24	− 3.6	2.6/16.1	27933
1981 DF_2	1998 01 16.6	07 53.72	+12 12.0	16.7	−1.15	+ 0.6	3.7/18.0	24758
(7275)	1998 01 16.7	07 53.78	+28 15.9	15.8	−1.02	− 0.2	2.5/15.8	28283
1991 QG	1998 01 16.8	07 54.08	+09 54.4	18.4	−0.93	+ 3.2	3.4/18.6	30896
1989 WJ_1	1998 01 16.9	07 54.62	+10 38.2	16.4	−1.03	+ 2.5	4.2/18.5	28316
1984 SY_5	1998 01 17.1	07 55.53	+20 45.0	16.5	−0.84	+ 2.9	0.0/17.1	28084
1996 QQ_1	1998 01 17.1	07 55.75	+21 13.4	18.0	−0.89	+ 3.1	0.1/17.1	29666
1981 EW_{33}	1998 01 17.1	07 55.78	+17 48.8	18.7	−0.98	+ 2.1	1.0/17.6	28581
1979 TV_2	1998 01 17.1	07 55.82	+16 50.3	17.0	−1.10	+ 3.5	1.7/18.0	27930
1981 EY_{38}	1998 01 17.2	07 55.76	+09 54.9	18.6	−1.07	+ 1.1	3.6/18.6	28611
1996 RQ_2	1998 01 17.2	07 56.17	+21 35.6	16.9	−1.11	+ 2.3	0.4/17.2	31009
1996 TR_{10}	1998 01 17.3	07 56.33	+09 54.8	16.8	−0.98	+ 4.8	3.5/19.2	30293
(7228)	1998 01 17.3	07 56.53	+22 51.9	16.5	−1.15	+ 5.4	0.9/17.0	28061
6840 P-L	1998 01 17.4	07 56.79	+21 43.8	19.1	−1.04	+ 3.8	0.4/17.3	23986
1981 EH_7	1998 01 17.4	07 57.08	−03 00.8	19.0	−0.89	+ 2.8	9.0/21.7	26916
1991 VV_5	1998 01 17.6	07 57.60	+27 57.7	16.4	−0.92	+ 5.0	2.2/16.3	31006
1990 SZ_4	1998 01 17.7	07 57.95	+23 27.1	18.9	−0.86	+ 2.6	0.8/17.3	25529
1986 QA_3	1998 01 17.7	07 58.24	+21 34.0	17.5	−1.15	+ 3.8	0.3/17.6	27932
1996 VP	1998 01 17.8	07 58.69	+25 03.3	17.9	−1.11	+ 3.6	1.6/17.2	31010
1993 TZ_{36}	1998 01 17.9	07 58.97	+13 35.3	18.6	−1.08	+ 4.9	2.8/19.2	25332
5023 P-L	1998 01 17.9	07 59.26	+10 12.6	19.1	−1.04	+ 2.4	3.8/19.6	28319
6099 P-L	1998 01 18.1	07 59.87	+28 11.2	19.1	−1.13	+ 1.7	2.8/17.1	29649
1996 VA_5	1998 01 18.1	07 59.93	+02 12.6	17.1	−0.94	+ 2.4	6.2/21.0	31010
1996 RF_5	1998 01 18.2	08 00.02	+20 43.1	17.4	−1.09	+ 5.8	0.1/18.2	27925
3189 T-2	1998 01 18.2	08 00.15	+31 47.1	19.4	−1.17	+ 2.6	4.7/16.5	22701
1996 TZ_9	1998 01 18.2	08 00.27	+07 56.8	18.8	−0.85	+ 2.8	4.0/20.4	28307
1996 UU_1	1998 01 18.3	08 00.72	+28 06.7	17.2	−0.94	+ 1.9	2.7/17.2	30986
1988 CW_4	1998 01 18.3	08 00.82	+12 20.5	16.4	−0.89	+ 1.0	2.8/19.6	22599

1996 PB_1	1998 01 18.3	08 00.83	+22 52.1	19.7	−1.10	+ 2.7	0.8/18.0 29114
(7559)	1998 01 18.5	08 01.64	+28 02.4	17.1	−1.10	+ 4.7	2.4/17.2 29591
(7123)	1998 01 18.6	08 01.82	+11 28.3	16.3	−1.03	+ 2.4	3.9/20.0 27701
1993 SW_3	1998 01 18.6	08 01.93	+29 35.2	17.4	−1.23	+ 4.2	3.4/17.2 30899
1992 GG_3	1998 01 18.7	08 02.31	+19 32.3	16.8	−1.16	+ 2.9	0.4/18.9 27729
2257 T-2	1998 01 18.9	08 03.32	+26 52.0	16.8	−1.08	+ 2.8	2.9/17.9 28892
4550 P-L	1998 01 18.9	08 03.45	+28 27.9	18.4	−1.21	+ 2.1	3.9/17.8 17462
1993 TJ_1	1998 01 19.0	08 03.80	+30 20.5	16.9	−1.24	+ 2.9	3.7/17.5 28616
1977 DR_2	1998 01 19.2	08 04.41	+28 51.5	17.5	−1.23	+ 1.3	3.4/18.0 30777
1306 T-2	1998 01 19.2	08 04.72	+20 26.8	17.4	−0.87	+ 2.7	0.0/19.3 31023
1981 EM_{40}	1998 01 19.2	08 04.73	+19 32.4	19.0	−0.97	+ 4.0	0.3/19.4 28611
(7272)	1998 01 19.3	08 04.73	+35 07.5	16.8	−1.08	+ 2.9	4.8/16.7 28282
1991 PT_{12}	1998 01 19.3	08 05.02	+21 31.3	16.8	−0.95	+ 2.9	0.4/19.2 22232
1990 TM_1	1998 01 19.3	08 05.08	+25 23.3	16.3	−0.84	+ 3.7	1.4/18.4 29658
1996 UQ	1998 01 19.3	08 05.13	+37 31.1	18.5	−1.16	+ 1.1	5.4/16.8 28619
1975 SA_1	1998 01 19.7	08 06.56	+35 46.1	17.0	−1.02	+ 2.4	4.7/17.0 29939
1976 UT_1	1998 01 19.7	08 06.67	+12 49.2	16.9	−1.08	+ 2.9	3.3/20.9 27565
1988 QB	1998 01 19.7	08 06.82	+11 40.6	16.0	−0.98	+ 6.9	3.4/21.6 29133
1981 ED_{10}	1998 01 19.8	08 07.10	+21 42.8	18.4	−1.16	+ 2.1	0.7/19.6 26916
1269 T-1	1998 01 19.9	08 07.47	+32 29.6	18.1	−1.11	+ 0.1	4.9/18.2 28607
4599 P-L	1998 01 20.0	08 07.73	+28 56.8	17.5	−1.05	+ 2.2	3.2/18.6 28319
1995 SU_{32}	1998 01 20.1	08 08.35	+06 12.1	18.8	−0.76	+ 4.7	4.0/23.0 25967
1995 FV	1998 01 20.1	08 08.43	+15 27.7	16.7	−1.06	+ 5.2	1.9/21.0 28889
1979 UH	1998 01 20.2	08 08.55	+16 05.1	15.8	−0.85	+10.6	1.9/21.2 31003
1996 TO_{13}	1998 01 20.2	08 08.73	+04 12.9	18.9	−0.83	+ 2.9	5.0/23.2 31009
1988 SC	1998 01 20.2	08 09.05	+40 53.6	16.2	−1.30	− 1.1	8.8/17.6 23348
1991 VP_7	1998 01 20.3	08 09.00	−01 04.0	18.1	−0.83	+ 2.2	6.5/24.1 30470
1981 EU_{15}	1998 01 20.3	08 09.03	+11 34.6	17.5	−1.05	+ 2.0	4.1/21.6 21967
1981 ER_{33}	1998 01 20.3	08 09.13	+10 59.5	19.1	−1.06	+ 3.3	3.9/21.8 26921
1996 QE	1998 01 20.3	08 09.20	+02 15.8	18.6	−0.91	+ 5.4	5.9/24.0 28619
1979 MU_7	1998 01 20.4	08 09.53	+14 14.8	20.7	−1.10	+ 2.7	2.0/21.4 30779
3042 T-2	1998 01 20.4	08 09.60	+16 42.6	17.6	−1.08	+ 5.8	1.5/21.1 30294
2315 T-2	1998 01 20.6	08 10.25	+17 48.4	19.2	−0.96	+ 3.7	0.9/21.0 16883
1975 TQ_3	1998 01 20.6	08 10.47	+39 58.6	17.3	−1.19	+ 2.9	6.4/17.2 29652
1986 EJ_1	1998 01 20.6	08 10.66	+43 33.7	17.2	−1.30	+ 1.6	7.9/16.5 31004
4109 T-1	1998 01 20.9	08 11.66	+21 55.7	17.9	−0.82	+ 2.8	0.5/20.6 28607
2716 P-L	1998 01 21.0	08 12.10	+17 21.5	20.1	−1.06	+ 4.1	0.9/21.5 27732
1991 VP_4	1998 01 21.1	08 12.67	+21 44.5	17.2	−0.87	+ 5.1	0.6/20.8 20339
1996 UC	1998 01 21.1	08 12.68	+21 58.6	18.0	−0.88	+ 3.3	0.6/20.8 31009
1993 SR_1	1998 01 21.1	08 12.69	+26 36.7	17.4	−1.21	+ 3.6	2.7/20.1 30899
1972 HL	1998 01 21.2	08 13.18	−03 17.1	18.0	−0.77	+ 1.9	5.9/25.4 23787
(7090)	1998 01 21.4	08 13.61	+17 46.5	15.6	−1.16	+ 1.1	1.0/21.7 27549
1992 SU_{14}	1998 01 21.6	08 14.54	+40 32.3	15.3	−1.27	− 1.6	8.2/18.9 29660
9560 P-L	1998 01 21.6	08 14.71	+22 04.4	17.1	−1.15	+ 5.4	0.9/21.2 25076
1996 QP	1998 01 21.6	08 14.77	+12 19.3	19.3	−1.06	+ 5.6	2.8/23.1 27924
1993 UB_1	1998 01 21.7	08 15.00	+57 03.7	16.1	−1.90	− 2.2	14.3/16.9 30291
(7198)	1998 01 21.8	08 15.62	+15 59.7	16.1	−0.97	+ 8.1	1.3/23.0 29076
1996 XY_{25}	1998 01 21.8	08 15.67	+11 40.3	19.0	−0.92	+ 7.0	2.7/23.6 29633
1981 EK_{32}	1998 01 21.9	08 15.92	+11 16.9	19.9	−1.08	+ 2.1	3.4/23.3 26921
1994 LR	1998 01 22.2	08 17.27	+28 03.6	16.4	−0.89	+ 5.9	2.5/20.4 30783
1981 EY_{11}	1998 01 22.2	08 17.30	+25 23.2	17.4	−1.20	− 0.5	2.7/21.5 26917
1990 QO_3	1998 01 22.3	08 17.42	+32 48.6	16.4	−1.00	+ 0.8	4.1/20.2 28614
1994 HD	1998 01 22.3	08 17.87	−25 35.5	16.7	−0.80	+ 3.6	18.8/03.8 25643
1981 ER_{38}	1998 01 22.4	08 18.22	+00 54.5	17.9	−0.86	+ 5.3	7.7/26.6 26922
1980 GG	1998 01 22.5	08 18.45	+24 05.6	16.7	−1.07	+ 7.2	2.0/21.6 25438
1994 GP	1998 01 22.6	08 18.69	+33 18.2	16.2	−1.06	+ 4.0	4.8/19.8 28590
1981 EO_{31}	1998 01 22.6	08 18.78	+15 14.7	19.3	−0.96	+ 3.9	1.6/23.4 26921
1985 RR_3	1998 01 22.6	08 19.01	+07 59.1	17.2	−0.80	+ 4.4	3.4/25.1 29940
1991 SY	1998 01 22.7	08 19.34	+40 59.0	17.1	−1.19	+ 2.9	7.2/18.5 29659
1996 SK_7	1998 01 22.7	08 19.45	+43 23.5	19.4	−1.22	+ 2.0	6.8/18.5 28864
1979 PA	1998 01 22.8	08 19.77	+02 07.9	19.7	−0.92	+ 2.2	5.2/25.9 25338
1989 SG	1998 01 22.9	08 19.95	+30 10.3	15.3	−1.19	+ 0.6	4.9/21.3 28884
1992 QB	1998 01 23.1	08 20.89	+52 12.8	18.5	−1.50	+ 5.0	10.2/15.5 22432
1996 TK_{15}	1998 01 23.1	08 20.91	+00 30.2	18.0	−0.89	+ 4.0	5.8/27.0 29666
1981 EN_{31}	1998 01 23.1	08 21.08	+15 15.2	19.2	−1.06	+ 5.0	1.6/24.0 26921
(7237)	1998 01 23.1	08 21.18	+02 32.4	17.3	−0.96	+ 1.5	5.6/26.1 28063
1975 SF_1	1998 01 23.1	08 21.28	+32 37.9	17.6	−1.10	+ 3.2	4.3/20.7 28083
1991 LQ	1998 01 23.2	08 21.25	+30 18.6	17.2	−1.04	+ 6.9	3.4/20.8 28072
(7249)	1998 01 23.2	08 21.48	+20 14.7	16.7	−1.05	+ 1.3	0.3/23.1 31002
1990 ST_6	1998 01 23.2	08 21.62	+21 26.6	19.4	−0.83	+ 3.7	0.5/22.9 31005
(7319)	1998 01 23.4	08 22.06	+23 51.3	17.3	−1.17	+ 3.8	1.7/22.6 28818
1991 RS_7	1998 01 23.4	08 22.42	+22 38.1	18.2	−0.93	+ 5.3	1.0/22.8 30977
(7644)	1998 01 23.4	08 22.44	−02 24.1	17.8	−0.93	+ 2.6	7.4/27.7 29898
1981 EY_{14}	1998 01 23.5	08 22.47	+16 14.7	16.8	−1.10	+ 1.2	1.5/24.0 30893
1989 TH_3	1998 01 23.5	08 22.89	+18 56.7	20.7	−1.06	+ 4.6	0.2/23.7 25328
3155 T-2	1998 01 23.6	08 22.88	+16 39.9	17.2	−0.82	+ 5.0	0.9/24.2 28620
1991 UK_3	1998 01 23.6	08 23.25	−04 11.3	15.1	−0.80	+ 0.9	9.6/28.1 29660
1985 RS_1	1998 01 23.6	08 23.36	+23 37.3	17.7	−1.10	+ 3.4	1.5/22.9 22076
(7241)	1998 01 23.7	08 23.35	+21 34.9	16.5	−1.15	+ 5.6	0.9/23.3 28064
1993 UR_2	1998 01 23.7	08 23.59	+09 45.5	16.3	−1.01	+ 6.5	4.3/25.8 28616
1981 EM_{39}	1998 01 23.7	08 23.73	+27 11.5	18.8	−1.21	+ 2.4	3.2/22.4 26922
1981 ED_{37}	1998 01 23.8	08 23.78	+25 48.9	18.3	−1.14	+ 3.5	2.2/22.6 28084
6673 P-L	1998 01 23.8	08 23.92	−03 01.7	16.9	−0.74	+ 6.0	6.3/29.2 23680
(7170)	1998 01 23.9	08 24.24	+28 44.1	17.3	−1.13	0.0	3.1/22.5 27897
1981 DP_1	1998 01 23.9	08 24.36	+10 03.7	19.0	−1.07	+ 2.2	3.4/25.5 26914
3327 T-2	1998 01 24.0	08 24.87	+22 35.7	17.5	−0.87	+ 3.6	1.1/23.4 23686
(7141)	1998 01 24.0	08 24.99	+34 28.1	16.8	−1.05	+ 4.1	5.3/20.9 27706
1996 UC_3	1998 01 24.1	08 25.21	+19 06.7	17.9	−0.75	+ 1.7	0.0/24.2 28619
1990 MC	1998 01 24.1	08 25.28	+01 53.2	18.6	−0.79	+ 3.4	4.3/27.7 29942
(7291)	1998 01 24.2	08 25.38	+26 59.4	16.5	−0.91	+ 4.6	2.4/22.6 28287
1988 VS_6	1998 01 24.2	08 25.80	+12 08.7	16.8	−0.72	+ 2.7	2.0/25.7 29941
1990 JN_1	1998 01 24.3	08 26.06	+17 28.8	17.3	−0.92	+ 3.0	0.6/24.7 30781
2202 T-1	1998 01 24.4	08 26.26	+15 53.4	18.2	−0.89	+ 4.0	1.0/25.1 26192
1996 TJ_9	1998 01 24.4	08 26.35	+14 35.1	18.1	−0.98	+ 3.5	1.6/25.3 28864
(7175)	1998 01 24.4	08 26.63	−03 46.5	17.5	−0.91	+ 4.8	7.5/29.6 27898
1981 ES_{20}	1998 01 24.5	08 26.77	+21 11.5	18.7	−0.99	+ 2.8	0.7/24.2 28314
1981 DW_2	1998 01 24.5	08 27.05	+11 50.9	19.4	−1.08	+ 2.2	2.7/25.8 26914
1996 SR	1998 01 24.6	08 27.35	+14 13.2	20.3	−0.97	+ 4.7	1.7/25.7 29947
1992 HY_6	1998 01 24.7	08 27.69	+23 59.5	18.3	−1.17	+ 6.0	2.0/23.7 30450
1993 TU	1998 01 24.7	08 27.69	+22 58.4	17.0	−1.21	+ 2.5	1.5/24.1 28616
(7223)	1998 01 24.9	08 28.33	+18 28.8	17.3	−1.10	+ 3.3	0.2/25.0 28060
(7427)	1998 01 25.0	08 29.10	+23 02.8	17.0	−0.99	+ 4.2	1.4/24.3 28833